



Infor Omni-Channel Campaign Management Topic Implementation Guide

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Contents

| | |
|--|-----------|
| Chapter 1: Introduction..... | 21 |
| About this Guide..... | 21 |
| Infor Campaign Management..... | 21 |
| Infor Campaign Management Architecture..... | 21 |
| Major Themes..... | 22 |
| Other Features..... | 23 |
| Infor Campaign Management Product Documentation..... | 23 |
| Installation Guide..... | 23 |
| Quick Implementation Guide..... | 24 |
| Datamart Implementation Guide..... | 24 |
| Viewing Release Notes and Manuals Online..... | 24 |
| Installing Documentation on a Unix Host..... | 25 |
| Viewing Release Notes and Manuals Online..... | 25 |
| Printing This Document..... | 26 |
| Contacting Customer Support..... | 26 |
| Chapter 2: Overview..... | 27 |
| System Architecture..... | 28 |
| Infor Campaign Management Metadata..... | 31 |
| Infor Campaign Management Utilities..... | 31 |
| Admin Manager..... | 31 |
| EpiChannel..... | 32 |
| Infor Campaign Management Server..... | 32 |
| Scheduler..... | 32 |
| International Language Support..... | 32 |
| Chapter 3: Application Components..... | 35 |
| Data Elements..... | 35 |
| Presentation Objects..... | 35 |
| Web Pages..... | 36 |
| Topics..... | 36 |
| Security and Storage Objects..... | 37 |
| Chapter 4: Introduction to Admin Manager..... | 39 |
| The Admin Manager Window..... | 39 |
| The Grid Editor..... | 40 |
| Sub-Folders..... | 41 |

| | |
|--|-----------|
| Built-in Objects..... | 41 |
| Top-Level Folders..... | 41 |
| The Configuration Folder..... | 42 |
| The Schema Folder..... | 42 |
| The Extraction Folder..... | 43 |
| The Measures Folder..... | 43 |
| The Presentation Folder..... | 44 |
| The Security/Storage Folder..... | 44 |
| Preferences..... | 45 |
| The General Tab..... | 46 |
| The Colors Tab..... | 47 |
| The Startup Tab..... | 47 |
| The View Tab..... | 47 |
| Menus..... | 47 |
| The Main Toolbar..... | 48 |
| Dialog-Box Features..... | 48 |
| Object Names..... | 48 |
| The Usage Tab..... | 49 |
| Buttons..... | 50 |
| The Object Gallery..... | 51 |
| Data Flow Diagrams..... | 51 |
| Link Diagrams..... | 52 |
| Propagating Elements Between EpiCenters..... | 53 |
| Online Help..... | 53 |
| Online Help Left-Hand Tabs..... | 53 |
| Navigating Help Topics..... | 54 |
| Multi-Lingual EpiCenters..... | 54 |
| The Current Metadata Locale Setting..... | 54 |
| Installed, Logging and Front-End Locales..... | 55 |
| Admin Manager, EpiMeta, and EpiMart Locales..... | 55 |
| Creating a Multi-Lingual EpiCenter..... | 56 |
| Adding New Objects to a Multi-Lingual EpiCenter..... | 58 |
| Chapter 5: Configuring Data Elements..... | 59 |
| Measures..... | 59 |
| Fact Terms..... | 60 |
| Measure Operations..... | 61 |
| Defining Measures..... | 63 |
| Reviewing Measure Usage..... | 65 |
| Deleting a Measure..... | 65 |
| Configuring Measures for Scoring..... | 66 |
| Enabling User-Defined Measures..... | 66 |

| | |
|---|------------|
| Transaction Types..... | 67 |
| Transaction Type Sets..... | 67 |
| Attributes..... | 68 |
| Creating or Editing Attributes..... | 68 |
| Integer Attributes..... | 71 |
| Filter Types..... | 71 |
| Filter Elements and Filter Groups..... | 74 |
| Dynamic and Static Filters..... | 75 |
| Creating Multiple Attributes with the Attribute Creator Wizard..... | 76 |
| Deleting an Attribute..... | 78 |
| Automatic Localization of Date Attributes..... | 78 |
| Date Fields..... | 79 |
| Configuring Filters for External Lookup Tables..... | 79 |
| Multiple-Fact Measures with Disjoint Attributes..... | 80 |
| Chapter 6: Configuring Presentation Objects..... | 85 |
| Measure Layouts..... | 85 |
| Creating a Measure Layout..... | 86 |
| Mapping Combinations of Items to a Measure..... | 87 |
| The Preview Tab..... | 88 |
| Measure Sets..... | 89 |
| Measure Set Type Roles..... | 90 |
| Defining Measure Sets..... | 91 |
| Attribute Layouts..... | 93 |
| Creating or Editing an Attribute Layout..... | 95 |
| Attributes and Filters as Presentation Objects..... | 95 |
| Transaction Filters..... | 95 |
| Configuring Transaction Filters..... | 96 |
| The Survey Attribute Creator: Transaction Filter Filters for Surveys..... | 100 |
| Adding Glossary Entries..... | 102 |
| Adding or Editing a Glossary Entry..... | 102 |
| Associating a Glossary Entry with an Attribute or Measure Set..... | 104 |
| Associating a Glossary Entry with a Measure Layout Item..... | 104 |
| The Strings Repository..... | 104 |
| Adding Strings to the String Repository..... | 105 |
| Default User Preferences..... | 106 |
| Chapter 7: Configuring Security and Storage..... | 113 |
| Access Rights for Users..... | 113 |
| Synchronized Groups..... | 114 |
| The Security/Storage Folder..... | 114 |
| Configuring Groups..... | 116 |

Contents

| | |
|--|------------|
| Defining a Group..... | 116 |
| Assigning Delegates to a group..... | 124 |
| Administrator Groups..... | 125 |
| Configuring Users..... | 125 |
| Adding New User Accounts..... | 126 |
| Editing User-Account Information..... | 126 |
| Allowing Users to Administer Group and User Accounts..... | 129 |
| Output Processors..... | 129 |
| Defining an Output Processor..... | 129 |
| LDAP Servers..... | 131 |
| Adding or Editing LDAP Server Information..... | 132 |
| Foreign System..... | 133 |
| The Report Gallery..... | 133 |
| The Folder Menu..... | 135 |
| The Report Menu..... | 137 |
| Report Gallery Permissions for Users and Groups..... | 139 |
| Default Report Gallery Permissions..... | 139 |
| Managing Reports..... | 139 |
| Creating Default Reports..... | 140 |
| Managing Report Properties and Schedules..... | 140 |
| Transferring Reports When Deleting a Topic..... | 142 |
| Replacing References to Deleted Objects in Saved Reports..... | 143 |
| The Campaign Archive..... | 144 |
| Chapter 8: Web Pages..... | 147 |
| Configuring Web Pages..... | 150 |
| Configuring Web Pages..... | 150 |
| Adding Attributes to a Web Page..... | 152 |
| Using an Existing Web Page as a Template..... | 152 |
| Changing Font Size for Asian Languages..... | 153 |
| Changing the Default Font Size..... | 153 |
| Considerations for Specific Web Page Types..... | 153 |
| Advanced and Basic Rows and Columns..... | 154 |
| Alert..... | 154 |
| Bayesian Classifier, Community Clusters, Influences, and Modeling..... | 155 |
| Calendar..... | 158 |
| Campaigns..... | 158 |
| Adding Transaction Filters..... | 160 |
| Cumulative Projections..... | 166 |
| Dashboard..... | 166 |
| Dashboard Publishing..... | 168 |
| High/Low Clusters..... | 170 |

| | |
|--|------------|
| The Home Page..... | 170 |
| Inferred Response Campaigns..... | 172 |
| Lifecycles..... | 172 |
| The Log-in Page..... | 173 |
| Menu..... | 173 |
| Profiling..... | 173 |
| Report Gallery..... | 174 |
| Scoring..... | 174 |
| Import External List..... | 175 |
| Select a Navigation Path and Select a Navigation Path (popup)..... | 176 |
| Top N Scores..... | 176 |
| Trends..... | 177 |
| Chapter 9: Topics..... | 179 |
| Initializing A Topic..... | 180 |
| Initializing or Editing a Topic..... | 181 |
| Refreshing a Topic..... | 181 |
| Modifying Topics with Configuration Commands..... | 183 |
| CM-Configure dialog..... | 184 |
| Additional Topic Configuration Commands..... | 185 |
| Configuring Individual Navigation Nodes..... | 185 |
| Modifying Existing Navigation Nodes..... | 186 |
| Working in the Navigation Nodes Tab..... | 186 |
| Selecting, Moving, and Editing Nodes..... | 195 |
| Assigning Web Pages to Navigation Nodes..... | 196 |
| Assigning Links to Navigation Nodes..... | 202 |
| Configuring Intermediate Nodes..... | 209 |
| Configuring Navigation Nodes for Scoring Web Pages..... | 212 |
| Configuring Report Gallery Nodes..... | 213 |
| Configuring Report Gallery Path Selector Nodes..... | 214 |
| Hiding or Deleting Navigation Nodes..... | 215 |
| Chapter 10: Infor Campaign Management Server..... | 217 |
| Overview..... | 217 |
| Caching of Query Results..... | 219 |
| Tracking of Queries for Aggregate Optimization..... | 219 |
| Security..... | 220 |
| User Authentication..... | 220 |
| Authentication Considerations for Windows and IIS..... | 221 |
| Exception Reporting..... | 223 |
| Starting the Infor Campaign Management Server..... | 224 |
| Starting the Infor Campaign Management Server on UNIX..... | 224 |

| | |
|---|------------|
| Starting and Stopping Infor Campaign Management Server on Windows..... | 225 |
| Configuring the Infor Campaign Management Server..... | 227 |
| Enabling Time-Based Scheduling..... | 227 |
| Checking the Status of Infor Campaign Management Server..... | 227 |
| Refreshing the Infor Campaign Management Server..... | 228 |
| Using the Infor Campaign Management Server Monitor..... | 230 |
| Clearing the Query and Counts Caches..... | 232 |
| Controlling Access to EpiMart Databases..... | 232 |
| Logging..... | 233 |
| Application Server Logs..... | 235 |
| Scheduler Logs..... | 235 |
| Database Logs..... | 236 |
| Scheduler Log Files..... | 237 |
| Web Server Proxy..... | 237 |
| Separate Web and Application Server..... | 238 |
| Reducing Network Delays..... | 239 |
| Managing the Infor Campaign Management Server Service on Windows..... | 239 |
| Managing the Scheduler Service on Windows..... | 241 |
| SNMP Status Reporting..... | 242 |
| Activating SNMP Reporting..... | 243 |
| Enabling Marketing Resource Management Integration in Infor Campaign Management Topics..... | 244 |
| Chapter 11: Configuring the Reflection Application..... | 245 |
| Preparing to Implement Reflections..... | 245 |
| Implementing the Reflections Applications..... | 246 |
| Customizing Reflection Applications..... | 248 |
| Performing Multiple EpiMart Analysis on Different EpiMart EpiOps..... | 249 |
| Campaign Management..... | 249 |
| Configuring Your Dashboard..... | 249 |
| Chapter 12: Integrating Infor Campaign Management with Infor Interaction | |
| Advisor..... | 251 |
| Performing the Integration..... | 252 |
| Enabling Deployment of Profile, List, and Campaign Communication Data..... | 253 |
| Configuring Profile Deployment..... | 254 |
| Configuring Campaign Deployment..... | 255 |
| Configuring Infor Interaction Advisor Campaign Reporting..... | 255 |
| Importing Metadata..... | 256 |
| Infor Interaction Advisor Configuration Settings..... | 256 |
| Integration Checklist..... | 257 |

| | |
|--|----------------|
| Chapter 13: Configuring an MRM Tool in Admin Manager..... | 259 |
| Performing the Integration..... | 260 |
| Enabling Marketing Resource Management in Infor Campaign Management..... | 260 |
| Sharing Campaign Attributes..... | 261 |
| Setting Communication Parameters..... | 261 |
| Configuring the Foreign System Connection..... | 263 |
| Configuring Users in Both Systems..... | 264 |
| Configuring Infor Campaign Management Topics for Marketing Resource Management Integration..... | 264 |
| Working with Shared Campaigns..... | 265 |
| Deleting Shared Campaigns..... | 265 |
| Chapter 14: Using the Open APIs with MRM..... | 267 |
| Shared Data Structures..... | 267 |
| Campaigns..... | 268 |
| Communications..... | 269 |
| Using the Public APIs..... | 269 |
| Pushing a Campaign from the Foreign System..... | 269 |
| Pushing a Campaign from Infor Campaign Management..... | 270 |
| Pulling a Campaign Update from Infor Campaign Management..... | 271 |
| Deleting a Shared Campaign using the Foreign System..... | 272 |
| Deleting a Shared Campaign using Infor Campaign Management..... | 272 |
| The Public APIs Defined..... | 273 |
| Infor Campaign Management APIs..... | 274 |
| Foreign System APIs..... | 277 |
| Campaign Definition XML..... | 279 |
| Transmitting Campaign Attributes Names..... | 280 |
| XML Samples..... | 281 |
| The WSDL File..... | 283 |
| The Complete WSDL File..... | 284 |
| The Simplified WSDL File..... | 289 |
| Chapter 15: Event-Based Scheduling Configuration..... | 297 |
| Enabling Event Based Scheduling..... | 297 |
| Client Invocation For Web Services..... | 300 |
| URLs For Viewing Webservices..... | 300 |
| Jar Files Required To Generate Stubs And Skeletons..... | 302 |
| Generating Stubs and Skeletons For Eclipse..... | 306 |
| Generating Stubs and Skeletons from Command Prompt..... | 309 |
| Invoking The Webservice For Eclipse Users..... | 311 |
| Method 1..... | 315 |

| | |
|---|------------|
| Method 2..... | 316 |
| Method 3..... | 317 |
| Method 4..... | 318 |
| Method 5..... | 320 |
| Invoking Webservice Methods from Command Prompt..... | 320 |
| To Run Login Method..... | 321 |
| To Run retrieveAllEventId..... | 321 |
| To Run retrieveEvents..... | 322 |
| To Run fireEvent..... | 323 |
| To Run receiveEventResult..... | 324 |
| Error Codes..... | 325 |
| Chapter 16: Enabling External Data Access..... | 329 |
| Appendix A: Infor Campaign Management Server Error Messages..... | 335 |
| Error Messages..... | 335 |
| User Cannot Log In..... | 336 |
| Internal Windows 7 Error..... | 337 |
| EpiQuery Engine Database Connection Open Failure Exception..... | 337 |
| Charts Do Not Display..... | 337 |
| GIF Images Fail to Display on Web Pages..... | 337 |
| Result Page Error: Extraction Date Unknown..... | 338 |
| Web Server Message: Object Not Found..... | 339 |
| Refresh Operation Fails..... | 339 |
| Infor Campaign Management Error Conditions..... | 340 |
| Generic Storage Exception Followed by File Table Overflow on HP-UX..... | 340 |
| Appendix B: Files Created By Infor Campaign Management..... | 341 |
| Admin Manager Files..... | 342 |
| EpiChannel Files..... | 349 |
| Infor Campaign Management Server and Scheduler Files..... | 350 |
| UpgradeMeasuresAndReports.bat Files..... | 353 |
| Appendix C: Sampled Leaf Tables..... | 355 |
| Creating Leaf Dimension Sampling Tables..... | 355 |
| Creating a Sampled Leaf Dimension Table..... | 355 |
| Enabling the Query Engine to Use Sampled Leaf Dimensions..... | 356 |
| Appendix D: Glossary..... | 357 |
| _A Table..... | 357 |
| Aborting..... | 357 |
| Accelerator..... | 357 |

| | |
|---|-----|
| Access Rights..... | 357 |
| Active..... | 357 |
| AdminClient..... | 358 |
| Administrator..... | 358 |
| AggBuilder..... | 358 |
| Aggregate..... | 358 |
| Aggregate Group..... | 358 |
| Aggregate Instruction..... | 358 |
| Alert..... | 359 |
| Alert Web Page..... | 359 |
| Alter Object Properties..... | 359 |
| Alternation..... | 359 |
| Anonymous Hits Sampling..... | 359 |
| Attribute..... | 359 |
| Attribute Category..... | 360 |
| Attribute Creator..... | 360 |
| Attribute Layout..... | 360 |
| _B Table..... | 360 |
| Back End..... | 360 |
| Backfeed Fact..... | 360 |
| Backfeed Fact Rolloff Semantic..... | 361 |
| Backfeed Table..... | 361 |
| Backfeed Table Mirroring..... | 361 |
| Backlog..... | 361 |
| Backlog Type..... | 361 |
| Base Table..... | 361 |
| Bayesian Classifier Web Page..... | 362 |
| Calendar Web Page..... | 362 |
| Campaign..... | 362 |
| Campaign Archive..... | 362 |
| Campaign Dimension..... | 362 |
| Campaign-List Pull..... | 362 |
| Campaign Communication Strategy..... | 362 |
| Campaign Communication Strategy Web Page..... | 363 |
| Cancel..... | 363 |
| Cancel Backfeed..... | 363 |
| Cardinality..... | 363 |
| Category..... | 363 |
| Cell..... | 363 |
| Cell Dimension..... | 364 |
| Check Box..... | 364 |
| Circular Dependency..... | 364 |

Contents

| | |
|--------------------------------------|-----|
| Classification Tree..... | 364 |
| Clustering Model..... | 364 |
| Code Page..... | 364 |
| Commit..... | 365 |
| Commit Backfeed..... | 365 |
| Communication Fact Table..... | 365 |
| Community Clusters Web Page..... | 365 |
| Completed..... | 365 |
| Composite Topic..... | 365 |
| Cookie..... | 366 |
| Count Role Measure..... | 366 |
| Count Unjoined..... | 366 |
| Counts Cache..... | 366 |
| Create Current Views..... | 366 |
| CRM..... | 366 |
| Cumulative Projections Web Page..... | 367 |
| Current..... | 367 |
| Dashboard Web Page..... | 367 |
| Data Cleansing..... | 367 |
| Data Mart Profile..... | 367 |
| Data Mining..... | 367 |
| Data Store..... | 368 |
| Data Store Role..... | 368 |
| Data Type..... | 368 |
| Data Warehouse..... | 368 |
| Data mart..... | 368 |
| Date Dimension..... | 368 |
| Date Relative Filter..... | 369 |
| DEEPPARSINGSET Element..... | 369 |
| Default Report..... | 369 |
| Degenerate Dimension..... | 369 |
| Degree Create..... | 369 |
| Degree Query..... | 369 |
| Delegate..... | 370 |
| Demographic Dimension..... | 370 |
| Demographic Filter..... | 370 |
| Deployment..... | 370 |
| Destructive Import..... | 370 |
| Difference Report..... | 370 |
| Difference Table..... | 371 |
| Dimension Aggregate..... | 371 |
| Dimension Role..... | 371 |

| | |
|---------------------------------------|-----|
| Dimension Table..... | 371 |
| Disjoint Attribute..... | 371 |
| Dormant..... | 371 |
| Drill Down..... | 372 |
| Dual-Metadata Scenario..... | 372 |
| Dynamic Check Boxes..... | 372 |
| Dynamic Listbox..... | 372 |
| Entire Dimension..... | 372 |
| EpiappService.exe..... | 372 |
| EpiCenter..... | 373 |
| EpiCenter Report..... | 373 |
| EpiChannel..... | 373 |
| EpiMart Database..... | 373 |
| EpiMeta Database..... | 373 |
| EpiOp Database..... | 373 |
| ERP..... | 374 |
| Expired Task Instance..... | 374 |
| Explicit Relation..... | 374 |
| Extent Size in K..... | 374 |
| External Lookup Filter..... | 374 |
| External Table..... | 374 |
| External Table Difference Report..... | 375 |
| Extraction Command..... | 375 |
| Extraction Filter..... | 375 |
| Extraction Group..... | 375 |
| Extraction Job..... | 375 |
| Extraction Step..... | 375 |
| Fact Aggregate..... | 376 |
| Fact Table..... | 376 |
| Fact Term..... | 376 |
| Factory-Mart Configuration..... | 376 |
| Factory Server..... | 376 |
| Failure..... | 376 |
| Failure_Will_Retry..... | 377 |
| File Group..... | 377 |
| Filter..... | 377 |
| Filter Element..... | 377 |
| Filter Group..... | 377 |
| Filter Type..... | 377 |
| First Dimension Value..... | 378 |
| First/Last Fact..... | 378 |
| Fission..... | 378 |

| | |
|---|-----|
| Foreign Key..... | 378 |
| Fresh..... | 378 |
| Front End..... | 378 |
| Fulfillment Script..... | 379 |
| Fusion..... | 379 |
| Fusion Staging Table..... | 379 |
| Global Extraction Group..... | 379 |
| Glossary Entry..... | 379 |
| Granularity..... | 379 |
| Group..... | 380 |
| GROUPING Element..... | 380 |
| High/Low Clusters Web Page..... | 380 |
| Hit..... | 380 |
| Home Page..... | 380 |
| IGNOREFIELDS Element..... | 380 |
| Implicit Column..... | 381 |
| Implicit Relation..... | 381 |
| Index..... | 381 |
| Inference Campaign..... | 381 |
| Inferred Response Fact Table..... | 381 |
| Influences Web Page..... | 381 |
| Infor Campaign Management..... | 382 |
| Infor Campaign Management Analytics..... | 382 |
| Infor Campaign Management Manager..... | 382 |
| Infor Campaign Management Server..... | 382 |
| Infor Campaign Management Monitor..... | 382 |
| Infor Campaign Management Web Page..... | 382 |
| Initial Load Dimension..... | 383 |
| Initial Load Dimension, Truncate Current..... | 383 |
| Initial Load Fact..... | 383 |
| Initial Load Fact, Truncate Current..... | 383 |
| Initial Load Statelike..... | 383 |
| Initial Load Transactional/Statelike..... | 384 |
| Initial Load Transactional/Statelike/Force Close..... | 384 |
| Inner Join..... | 384 |
| InsertWriter..... | 384 |
| Integer Mapping..... | 384 |
| Infor Interaction Advisor Campaign..... | 385 |
| Infor Interaction Advisor (Real-Time)..... | 385 |
| Intermediate Node..... | 385 |
| Intertopic Link..... | 385 |
| JDBC..... | 385 |

| | |
|---|-----|
| Job..... | 385 |
| JOB Element..... | 386 |
| Join..... | 386 |
| key_REAL..... | 386 |
| Killed..... | 386 |
| Label..... | 386 |
| last_extract_date..... | 386 |
| Latest Dimension Value..... | 387 |
| Latest Dimension Value, Ignore Unknowns..... | 387 |
| Latest Dimension Value With Fusion/Fission..... | 387 |
| Latest Dimension Value, Preserve Fusion..... | 387 |
| Latest Dimension Value, Rewrite All..... | 387 |
| LDAP Server..... | 388 |
| Lifecycles Web Page..... | 388 |
| Line Anchor..... | 388 |
| Link..... | 388 |
| Link Behavior..... | 388 |
| Link Category..... | 388 |
| List Filter..... | 389 |
| List Management..... | 389 |
| List Membership..... | 389 |
| Listbox..... | 389 |
| Literal..... | 389 |
| LoadWriter..... | 389 |
| Local Extraction Group..... | 390 |
| Locale..... | 390 |
| Long Query..... | 390 |
| Macro..... | 390 |
| Mart-Management Commands..... | 390 |
| Materialized List..... | 390 |
| Measure..... | 391 |
| Measure Item..... | 391 |
| Measure Layout..... | 391 |
| Measure Operation..... | 391 |
| Measure Set..... | 391 |
| Measure Unit..... | 391 |
| Menu..... | 392 |
| Metacharacters..... | 392 |
| Metadata..... | 392 |
| Mirroring..... | 392 |
| Modeling Web Page..... | 392 |
| MomentumBuilder (MomBuilder)..... | 393 |

Contents

| | |
|---|-----|
| Monitor..... | 393 |
| Navigation Node..... | 393 |
| Navigation Node Type..... | 393 |
| Navigation Type..... | 393 |
| Next..... | 393 |
| Nullable..... | 394 |
| Object Gallery..... | 394 |
| Object Property..... | 394 |
| Object Type..... | 394 |
| ODBC (Open Database Connectivity)..... | 394 |
| Offline..... | 394 |
| OLAP..... | 395 |
| OLTP (Online Transactional Processing)..... | 395 |
| Op Runtime Metadata..... | 395 |
| Output File..... | 395 |
| Output Processor..... | 395 |
| Outer Join..... | 395 |
| Overdue Task Instance..... | 396 |
| Overwrite Dimension..... | 396 |
| _P Table..... | 396 |
| Partition..... | 396 |
| Percent Free..... | 396 |
| Percent Used..... | 396 |
| Pipelined..... | 397 |
| Pipelined/Forceclose..... | 397 |
| Presentation Object..... | 397 |
| Previous..... | 397 |
| Primary Dimension..... | 397 |
| Primary Dimension Column..... | 397 |
| Primary Group..... | 398 |
| Process_key..... | 398 |
| Profiling Web Page..... | 398 |
| Proxy..... | 398 |
| Pull/Push Extraction Command..... | 398 |
| Purge..... | 398 |
| _Q Table..... | 399 |
| Query..... | 399 |
| Query Cache..... | 399 |
| Query Statistics..... | 399 |
| Queryable..... | 399 |
| Queue..... | 399 |
| Queue Dependency..... | 400 |

| | |
|------------------------------------|-----|
| Queue Role..... | 400 |
| Radio Button..... | 400 |
| Range Filter..... | 400 |
| RDBMS..... | 400 |
| Reflection..... | 400 |
| Refresh..... | 401 |
| Regression Tree..... | 401 |
| Regular Expression..... | 401 |
| Relation..... | 401 |
| Relation Fact Table..... | 401 |
| Reload Date Fact..... | 401 |
| Repetition..... | 402 |
| Report..... | 402 |
| Report Gallery..... | 402 |
| Report Type..... | 402 |
| ReportMeta..... | 402 |
| Reporting Configuration..... | 402 |
| Reporting Server..... | 403 |
| Reverse-Polish Notation (RPN)..... | 403 |
| Revision Percentage..... | 403 |
| Roll Up..... | 403 |
| Roll Off..... | 403 |
| Rows and Columns Web Page..... | 403 |
| RT Administrator..... | 404 |
| RTDB..... | 404 |
| Running..... | 404 |
| Runtime Metadata..... | 404 |
| Sampling..... | 404 |
| Scheduled Query..... | 404 |
| Scheduled_to_Run..... | 405 |
| Scheduler..... | 405 |
| Schema..... | 405 |
| Schema Observatory..... | 405 |
| Scoring Web Page..... | 405 |
| Scrutiny..... | 405 |
| Secondary Dimension Column..... | 406 |
| Seed..... | 406 |
| Segment..... | 406 |
| Semantic Instance..... | 406 |
| Semantic Template..... | 406 |
| Semantic Transformation..... | 406 |
| Semantic Type..... | 407 |

Contents

| | |
|--|-----|
| Server Abort..... | 407 |
| Session..... | 407 |
| Short Query..... | 407 |
| Single-Metadata Scenario..... | 407 |
| Sink..... | 407 |
| Slowly Changing Dimensions..... | 408 |
| Slowly Changing Dimensions, Ignore Unknown..... | 408 |
| Slowly Changing/First Dim Value, Ignore Unknown..... | 408 |
| Slowly Changing Primary, Latest Secondary..... | 408 |
| SNMP (Simple Network Management Protocol)..... | 408 |
| Source System..... | 409 |
| sskey..... | 409 |
| Staging Table..... | 409 |
| Stale..... | 409 |
| Star Schema..... | 409 |
| Statelike..... | 409 |
| Statelike/Error on Stage Duplicates..... | 410 |
| State-Like Fact..... | 410 |
| Statelike/Single Delta..... | 410 |
| Streaming Dimension..... | 410 |
| Streaming Extraction..... | 410 |
| Streaming Fact..... | 410 |
| String Repository..... | 411 |
| SumSquared Role Measure..... | 411 |
| Synchronized Group..... | 411 |
| System Call..... | 411 |
| TargetSum Role Measure..... | 411 |
| Task Instance..... | 411 |
| Text Box..... | 412 |
| Top N Per Group..... | 412 |
| Topic..... | 412 |
| Touchpoint..... | 412 |
| Transaction..... | 412 |
| Transaction Filter..... | 412 |
| Transaction Filter Filter..... | 413 |
| Transaction Type..... | 413 |
| Transaction Type Set..... | 413 |
| Transactional..... | 413 |
| Transactional/Dedup Stage..... | 413 |
| Transactional Fact..... | 414 |
| Transactional/Statelike..... | 414 |
| Transactional/Statelike/Force Close..... | 414 |

| | |
|------------------------------|-----|
| Transtype..... | 414 |
| Transtype Dimension..... | 414 |
| Communication..... | 414 |
| Communication Strategy..... | 415 |
| Trends Web Page..... | 415 |
| Truncate..... | 415 |
| Uniform Sampling..... | 415 |
| UNIT Element..... | 415 |
| UNKNOWN Dimension Value..... | 415 |
| User..... | 416 |
| User_Abort..... | 416 |
| View..... | 416 |
| Web Log..... | 416 |
| Web-Log Reader..... | 416 |
| Web Page..... | 416 |
| Web Page Type..... | 417 |
| xp_epiaappserver..... | 417 |

About this Guide

Formerly titled *Configuring Applications*, this *Infor Campaign Management Topic Implementation Guide* is intended for the implementers and Professional Services personnel who are creating applications that will run on an Infor Campaign Management EpiCenter. This guide summarizes the Infor Campaign Management functionality, architecture, and administration. As well, this guide provides in-depth technical information for configuring the Infor Campaign Management topics required for Infor Campaign Management and analysis.

Infor Campaign Management

Infor Campaign Management, a component of Customer Relationship Management (CRM), serves as an integrated database marketing solution for planning, executing, and monitoring permission-based marketing campaigns across multiple touch points.

Infor Campaign Management provides the best-of-breed campaign management, sophisticated database management, integrated OLAP and predictive analytics, the ability to execute campaigns across multiple touch points, and built-in closed-loop reporting. The solution's automated global business rules and system-wide opt-in and opt-out functionality helps marketers enforce company marketing policies and regulatory compliance. Its tightly integrated permission-based campaign management capabilities, robust analytics, and intuitive interface help them rapidly develop highly optimized campaigns. Closed-loop analysis and predictive behavior patterns make it easy to understand campaign responses, improve targeting, and drive intelligence into subsequent campaigns.

Infor Campaign Management Architecture

Infor Campaign Management is based on a modern architecture that provides scalability to billions of records to handle large enterprise requirements. It delivers the high performance necessary to scale up to thousands of users while delivering fast, interactive response times.

The Infor Campaign Management multi-tier architecture employs an ultra-thin web browser client, a middle-tier application server implemented in Java, and an underlying industry-standard relational database server. This enables it to integrate customer data from a wide variety of sources and provide a comprehensive view of customers and their behavior.

These sources include

- Touchpoint systems
- ERP/operational applications
- E-commerce web logs
- Legacy systems
- Data warehouses
- Data marts
- Third-party data sources

Major Themes

The keystones of Infor Campaign Management architecture include the following major themes:

- Integrated and comprehensive technology stack. Infor Campaign Management applications are built on an integrated platform that provides an end-to-end technology stack. This stack provides the following capabilities:
 - Data integration
 - Data management
 - Advanced analysis (including OLAP, data mining and list analytics)
 - Campaign planning and design
 - Campaign execution

The entire platform is seamlessly integrated through rich, common metadata, which enables unparalleled productivity and simplicity in implementation as well as use.

- Easy to use, web-based architecture.

The Infor Campaign Management thin web browser client is easy for business users to learn, easy for implementers to deploy, and scalable to large numbers of users.

- Designed for rapid and incremental deployment.

Infor Campaign Management is explicitly designed to enable rapid initial implementation and to quickly respond to changing business needs. Adaptive growth is a direct consequence of the investment in rich, common metadata that spans the system from data integration, to data mart construction and management, and to the design of end-user interfaces.

- Architected for high performance and enterprise scalability.

Infor Campaign Management achieves high performance and massive scalability without the use of any proprietary or esoteric technologies. (These technologies are typically hard to manage and often result in increased cost of ownership). Instead, it runs entirely on industry standard technologies:

- Relational database management systems (RDBMS) from IBM, Microsoft and Oracle
- Java
- Microsoft and Netscape browsers
- ODBC and JDBC data access technologies

Other Features

Infor Campaign Management includes a scalable data mart, an integrated metadata repository and an extensible data extraction infrastructure. It includes powerful data transformation technologies, a scalable application server, high-performance analytic components that deliver ROLAP, data mining and list analysis capabilities, and a complete campaign management system. It also includes an execution engine for Infor Email Marketing, and an engine for Infor Interaction Advisor (Real-Time).

The only external software components required are: a relational database engine, a web server, and a web browser.

Localized versions of Infor Campaign Management software support data mart applications in which the entire web-based interface appears in a supported local language. A localized data mart can contain data values in any one of the currently supported languages, locales, and code sets.

Infor Campaign Management Product Documentation

The Infor Campaign Management product documentation includes four manuals and two online help systems. Each of these manuals is updated whenever needed. Most are updated for each maintenance release, but occasionally one or two will not need updating, and thus bear an earlier version number. If you are not sure whether or not you have all the correct documentation for the release your company purchased, contact Customer Support.

Installation Guide

The *Infor Campaign Management Installation Guide* is intended for database administrators who install, configure, and maintain Infor Campaign Management. It is designed to be used in conjunction with our product release notes, plus the appropriate installation and configuration manuals for your existing hardware and software. Depending on the database server platform you select, these manuals can be any of the following.

DB2 on AIX

Quick Beginnings: DB2 for UNIX and DB2 Administration Guide, Volumes 1 through 3. Or, the Installation Guide and the *Performance Management Guide* for AIX.

| | |
|---------------|---|
| Oracle | The appropriate installation guide for Oracle on your operating system. Or, the installation guide for your operating system if that operating system is not pre installed. The instructions for configuring kernel resources such as Net Configuration Assistant, or Oracle12c Reference. |
| SQL Server | <i>SQL Server Administration Guide</i> , or the appropriate administration guide for your Windows version. |
| All platforms | The installation and configuration instructions for your RAID disk-management equipment and software. |

Note: Please follow the configuration recommendations that are suggested in this guide. If specific instructions do not appear for a particular configuration step or option, default values are acceptable.

Quick Implementation Guide

The *Infor Campaign Management Quick Implementation Guide* is designed to help beginning implementers get started with Infor Campaign Management by using and implementing the sample data mart shipped with the product. It includes the following:

- An overview of the product architecture
- Information on data mart design and creation
- An explanation of how extraction works
- Step-by-step procedures for creating Rows and Columns web pages, reporting and analysis, lists, and campaigns

Datamart Implementation Guide

The *Infor Campaign Management Datamart Implementation Guide* provides in-depth technical information on how to configure and populate the data mart used by all Infor Campaign Management applications, including Infor Interaction Advisor applications.

Viewing Release Notes and Manuals Online

You can view our product documentation and Release Notes on any machine that has Acrobat Reader running.

When you install documentation on Windows, the installation wizard adds shortcuts to the Windows **Start** menu for easy viewing access. Documentation is installed in a directory that matches the current version number. The directory default location is the following:

< Infor Campaign Management installation directory >\ConfigFiles\Docs\< locale >

Some additional EM documentation and templates are located in the following default location:

< Infor Campaign Management installation directory >\email Marketing\docs

For example, to view the installed documentation for Infor Campaign Management 10.1.0:

1 Navigate to:

Start > Programs > Infor > 10.0.0.0 > Documentation > Infor Campaign Management > <locale>

2 Choose **Documentation**.

Installing Documentation on a Unix Host

1 Copy Supplemental_Files_<locale>_7200_unix.tar to a local directory.

2 Navigate to that directory and enter the following commands to unpack the PDF files (substituting the appropriate two-letter abbreviation for < locale >):

```
tar -xvf Supplemental_Files_<locale>_7200_unix.tar
gunzip Supplemental_<locale>tar.gz
tar -xvf Supplemental_<locale>.tar
```

Viewing Release Notes and Manuals Online

You can view the product documentation and Release Notes on any machine that has Acrobat Reader running.

When installing documentation on Windows, the installation wizard adds shortcuts to the Windows **Start** menu for easy viewing access. Documentation is installed in a directory that matches the current version number. The directory default location is: C:\Program Files\Infor\Infor_Campaign_Management\ConfigFiles\Docs\<locale>.

Some additional Infor Email Marketing documentation and templates are located in: C:\Program Files\Infor\Infor_Campaign_Management\EM\docs.

For example, to view the installed documentation for Campaign Management, you can usually navigate to **Start > Programs > Infor > 10 > Documentation > Infor Campaign Management > <locale>** (depending upon where Campaign Management was installed).

Choose either **Documentation** or **Release Notes** .

Printing This Document

Best print quality is achieved by printing this document with a PostScript driver. Other drivers may not reproduce screen shots accurately.

Contacting Customer Support

You may contact the Infor Customer Support center by submitting your incident via the web 24x7 at <http://www.inforxtreme.com>, or by placing a call during our scheduled business hours. For a complete listing of our support centers with web addresses and phone numbers, access our support site at <http://www.inforxtreme.com>.

Note: Do not copy and paste scripts, commands or code from this document. Line breaks and some other characters picked up when you copy from the PDF can cause errors in the pasted text.

This guide describes the procedures that you follow to configure and populate the data mart that is used by Infor Campaign Management applications. This chapter gives an overview of Infor Campaign Management functionality, architecture, and administration. Infor Campaign Management provides you with a highly customizable, reliable, and robust framework for delivering a variety of enterprise-wide, customer-focused applications to users throughout your organization.

You can use Infor Campaign Management applications to review, analyze, and act on information that resides in a state-of-the-art data mart through a Web-based interface. This thin-client interface runs on standard Web browsers, requires no applets or plug-ins, and operates in a variety of supported languages and locales. Infor Campaign Management applications such as Infor Enterprise Insight and the Campaign Management give users the following capabilities:

- Online analytical processing (OLAP)
- Data mining
- List management
- Campaign management

These powerful applications are deployed through the Infor Campaign Management Server, an application server that allows them to work together in tightly integrated fashion. Depending on the source systems from which data is extracted, you can apply Infor Campaign Management applications to such diverse areas as:

- Sales reporting and analysis
- E-commerce management
- Supply-chain management
- Demographic analysis

The Infor Campaign Management Server treats individual application components as building blocks for creating sophisticated solutions to complex business problems. Navigation paths and called topics, link applications together in coordinated sequences and allow them to share data. Infor Campaign Management provides a growing number of prepackaged templates for topics that you can customize to meet the exact needs of your business.

The backbone of the system is a state-of-the-art data mart that includes extensions for list management and campaign analysis. You can use the data mart to collect data from a wide variety of data sources,

including any data source with which you can establish an ODBC (Open Database Connectivity) connection. Typical source systems from which you can extract data include:

- Online transaction processing (OLTP) systems
- Online demographic databases
- Web logs
- Web-site traffic-analysis tools

Infor Campaign Management data marts reside on recognized, industry-standard relational database servers. Refer to the *Infor Campaign Management Installation Guide* for a list of supported database servers.

System Architecture

As "Figure 1: Infor Campaign Management Architecture" on page 30 illustrates, Infor Campaign Management includes the following major components:

- EpiCenter Data Mart

This data mart includes the following databases, which may reside on different database servers:

- The EpiMart database, which contains all of the data that has been extracted from your source systems. Users choose from among the data and presentation elements that a Web page displays to construct queries that read and report on data that resides in this database, which includes the following:
 - Standard data mart fact and dimension tables
 - Accelerators that improve response times for user queries, including indexes, aggregate tables, and integer maps for character columns
- The EpiMeta database, which contains the metadata that defines:
 - The schema for your data mart
 - The extraction jobs that periodically update the fact and dimension tables of your data mart
 - The semantic rules by which updated data is merged into data mart tables
 - The scheduling information for extraction jobs and other periodic tasks
 - The set of accelerator tables and indexes to maintain
 - The specifications for each of the measures, attributes, filters, and Web pages that you configure
 - The topics by which Web pages are linked
 - The user and security information for your EpiCenter
 - The reports that users have saved
- The EpiOp database, which contains the following:
 - Campaign history tables, which act as a secondary source system for campaign analysis
 - Lists, which include the results of previously executed queries

- Extraction, scheduler, and user query logs

Note: For Oracle installations, the term “database” in this manual refers to a schema.

- Source Systems

Although not strictly part of the Infor Campaign Management system, source systems contain the raw data from which information is extracted and incorporated into your data mart. Source data can be extracted from any number of data sources.

- Admin Manager

This graphical utility provides a complete, comprehensive, and easy-to-use interface for defining, configuring, and maintaining the Infor Campaign Management system, including the data mart, application components, and topics.

- Infor Campaign Management Server

The Infor Campaign Management Server connects Infor Campaign Management applications to the data mart. This application server performs the following tasks:

- Accepts the requests that each end user enters through the Web page for an application
- Constructs an optimized query for each request that takes advantage of available accelerators, cached results from previous queries, and so on
- Forwards each query to the database server
- Caches the results of each query and performs analytical calculations
- Formats the results of each query for Web-based display
- Forwards those formatted results to the Web browser

- J2EE Application Server

The J2EE Application Server routes URL requests that your Web server receives to Infor Campaign Management Server for processing.

- EpiChannel Extraction, Transformation, and Loading (ETL) Utility

The EpiChannel utility initiates the extraction jobs that perform the following tasks:

- Pull data from individual source systems, possibly cleanse it, and insert it into staging tables
- Apply semantic transformations to ensure that data is updated in a manner that is consistent with your business rules
- Incorporate the data into your data mart
- Build accelerators such as aggregate tables and indexes, which are used to improve the response time for reports, as well as integer maps and fact samples, which are used to construct lists and campaigns

EpiChannel also allows you to call third-party programs, such as data-cleansing tools and other utilities, as part of your extraction process.

- EpiChannel Service or Daemon

The EpiChannel service or daemon allows the EpiChannel utility to be invoked as needed by the scheduler service.

- Scheduler Service

The Scheduler initiates asynchronous or recurring actions such as extraction jobs, long-running reports, and campaigns.

The combination of data mart, source systems, Infor Campaign Management, EpiChannel, and related utilities is often referred to as the back end of Infor Campaign Management. The combination of the Infor Campaign Management Server, Web server and J2EE application server, Web browser, and Web-based applications is often referred to as the front end .

Within the back end, periodic extraction jobs collect data from source databases through native or ODBC connections. The system typically accesses source data in a read-only fashion, so no changes to the content of existing source systems are necessary. However, you can include housekeeping tasks that run on a source system within an extraction job if you choose to do so.

At the front end, each user opens a Web page on any computer that supports a browser and then follows a sequence of preconfigured links to reach a desired application. The user completes a form that specifies the contents of a report and then clicks a button to initiate a query. The type of query that is issued, and the analytical calculations that the Infor Campaign Management Server performs on the results, depend on the application (Web page) from which the query originates.

The Web browser passes the user’s request to the Web server, which in turn calls the J2EE application server to route the request to the Infor Campaign Management Server application server. The Infor Campaign Management Server optimizes the query by selecting appropriate aggregate and sample tables and indexes, then passes the optimized query to the data mart over a JDBC connection. When the data mart returns the result over that same connection, the Infor Campaign Management Server instantiates the appropriate application-specific Java classes to perform analytical calculations, and then formats the finished results for presentation in HTML format. The Infor Campaign Management Server then forwards these formatted results to the requesting user’s Web browser for display.

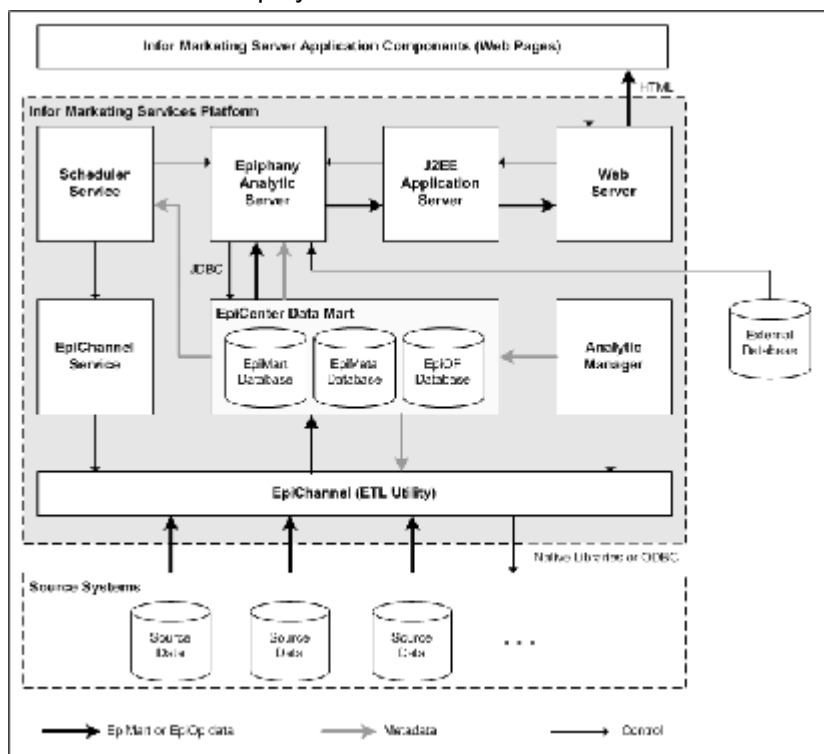


Figure 1: Infor Campaign Management Architecture

Infor Campaign Management Metadata

All of the control information for an EpiCenter data mart is stored in a single metadata repository, the EpiMeta database. This database uses a relational model that includes numerous tables and referential integrity constraints. The use of a single metadata repository (EpiMeta) ensures that all components of the system receive notice of a change simultaneously.

Because the EpiMeta database defines the structure of an EpiCenter datamart and the Infor Campaign Management applications that operate on that data, Admin Manager includes export/import commands that allow you to back up metadata, or to transfer subsets of metadata between datamarts.

In traditional client/server application environments, changes to the schema of a database table can adversely affect programs that operate on that table. The goal of the Infor Campaign Management adaptive architecture is to allow on-the-fly changes to the datamart schema while preserving the proper operation of Infor Campaign Management applications.

For example, the semantic instances that apply business rules to extracted data are SQL programs that must be changed in response to schema changes. References to tables and columns are parameterized within these instances so that EpiChannel can update them at execution with current schema information. Infor Campaign Management applications and other system components also refer to current metadata for information about the schema of the datamart, the configuration of applications, and the structure of topics. See “The Scrutiny Debugging Tool” on page 363 for more information.

Infor Campaign Management Utilities

The Infor Campaign Management system provides the following utilities for configuring the data mart, extracting source-system data, and deploying applications.

- Admin Manager
- EpiChannel
- The Infor Campaign Management Server (application server) service or daemon
- The Scheduler service or daemon

The sections that follow describe each of these utilities.

Admin Manager

Admin Manager is a graphical interface that maintains all of the metadata for your Infor Campaign Management system and applications. A scripting version of this utility allows you to perform the same administrative tasks within command scripts.

EpiChannel

EpiChannel reads schema, extraction, and semantic metadata and writes logging data about each extraction job. EpiChannel provides the following:

- A macro language that you can use to create parameterized SQL extraction programs
- An extensive error checking and reporting functionality
- An extensive logging of extraction jobs
- The ability to automatically restart extraction jobs that encounter transitory problems
- The ability to create aggregate tables that greatly reduce response times for the queries that use them
- The ability to create accelerators, including integer maps and samples, which are essential for generating lists and campaigns

Infor Campaign Management Server

The Infor Campaign Management Server is an application server that supports Infor Campaign Management applications and connects those applications to the data mart. Infor Campaign Management Server handles user requests by doing the following:

- Forwarding optimized queries to the database server
- Caching query results
- Instantiating appropriate Java classes to perform application-specific calculations on those results
- Forwarding the final results for Web-based display

The Infor Campaign Management Server also provides a Web-based interface for monitoring its operations and refreshing its state as necessitated by changes to metadata.

Scheduler

The Infor Campaign Management scheduler allows administrators to schedule individual and recurring extraction jobs. It also allows users to schedule long-running reports and campaigns for execution during off-peak hours. Users can also schedule recurring reports and campaigns.

International Language Support

Localized versions of Infor Campaign Management allow you to configure applications in which users view and generate reports entirely in their local language. The browser through which a user views an application must be set to use a code page that is capable of rendering characters in that language.

In addition, the `language_locale_key` user preference must be set to a language that is supported within the data mart. See "Default User Preferences" on page 106 for information about user preferences.

Infor Campaign Management provides support for localized applications through the following components:

- The EpiMart database

Data values within data mart tables can be specified in any supported language and locale. However, table and column names within the data mart are restricted to the ASCII character set.

A single EpiCenter data mart can contain data in multiple languages and locales. Multilingual access to a single data mart is also supported. Browsers that support the appropriate code page for that language and locale can display EpiMart data.

- The EpiMeta database

This database must use the same code page for localized characters as the EpiMart database. User-visible labels and prompts that reside in metadata are stored in multiple languages. Descriptive commentaries for specific objects, which are viewed only by implementors, are also stored in metadata in multiple languages. Consequently you can define an object in one language, have implementors modify that object in a second language, and allow end-users to view that object in a third language.

- The EpiOp database

User-generated data in this database appears in the same language, locale, and code page as that of data mart values.

- EpiChannel extraction commands

The following elements of an SQL extraction command can be specified in any supported language and locale:

- References to source-system tables and columns
- References to data values
- Literal (single-quoted) strings

- Admin Manager

The graphical interface for Admin Manager is fully internationalized.

If the default code page of the Admin Manager host differs from that of the database server in which the data mart resides, Admin Manager automatically converts localized data that is entered or displayed to the appropriate code page. That is, when Admin Manager displays localized data from the EpiMeta database, that data is converted to the appropriate code page for the Admin Manager host. When data is entered into a localized field in Admin Manager, that data is automatically converted to the appropriate code page for the EpiMeta database before it is stored there.

Note: The code page that is used on the Admin Manager host must be capable of rendering characters in the EpiMart. Otherwise, those characters cannot be rendered correctly.

- Infor Campaign Management Server

Infor Campaign Management Server displays localized versions of log messages, prompts, error messages, and other text elements. However, exceptions are always displayed in English with the ASCII character set.

Infor Campaign Management applications are configured in layers. Components within each layer can be reused by components in subsequent layers. The reusability of components creates a flexible environment for the rapid deployment of sophisticated applications.

The following layers isolate applications from the underlying structure of the data mart, ensuring your applications continue to operate smoothly after you make changes to the data mart. For example, adding new fact table columns or new dimensions.

Data Elements

Elements in this layer provide access to the data that resides in the data mart. These elements include measures and attributes.

- Fact Terms are arithmetic formulas used to define measures. A fact term includes fact and dimension columns within a single row.
- Measures are formulas that are defined over fact-table columns. For example, these formulas can calculate totals and subtotals in reports.
- Attributes are columns within dimension roles (and ultimately dimension tables) that contain the descriptive values by which subtotals can be broken out within reports.

Attributes serve several purposes. As data objects, they provide access to data. As presentation objects, they allow users to select the columns by which to organize their reports. Attributes also can serve as filters, which are presentation objects that allow users to restrict the scope of reports.

Presentation Objects

Objects in this layer support the display of both individual data elements and groups of data elements. Presentation objects allow users to choose from groups of data elements for reporting purposes. Presentation objects include measure layouts, measure sets, attribute layouts, attributes, filters, transaction filters, transaction filter filters, link categories, glossary entries, and strings that are defined in the strings repository.

- Measure layouts standardize the appearance of measures and allow multiple Web pages to use them.
- Measure sets allow users to select the measures and classification trees that are required for the statistical models on which certain data-mining applications are based.
- Attribute layouts allow you to package groups of attributes for reuse among Web pages.
- As noted previously, attributes can be used as presentation objects directly. They can also be used as filters. Each attribute has a filter type that you can configure, which governs the manner in which attribute values are displayed when you configure an attribute for use as a filter within a Web page. Users select from among those values to choose which attribute values to include and exclude from reports.
- Transaction filters allow users to identify list members who demonstrate a certain degree of transaction activity for inclusion in a list. Transaction filter filters allow users to incorporate additional filters into the selection criteria for a list based on nondemographic attribute values or additional transaction information.

Note: These objects apply only to Web pages that generate lists. They are described further in "Web Pages" on page 147

- Transaction Type Sets group related transaction types for processing.
- Link categories allow you to group links to appear together on a Web page. Some link categories are built in, and you can create additional link categories.
- Glossary entries allow you to specify definitions for terms that are important for users of your Infor Campaign Management application to understand.
- The strings repository contains a table of predefined strings that can be reused in the labels and descriptive text entries that appear on Web pages. The strings repository allows you to define override text for individual strings, and to create alternative versions of strings for use in different contexts.

Note: Although the strings repository is listed here as a presentation object, you access it through the **Configuration** menu or the Strings icon within the Configuration folder.

Web Pages

Web pages provide access to specific report generation capabilities, such as browsing and drill-down reports, data mining, list generation, and campaign management. The presentation objects that you add to a Web page specify the data that a user can include in a report. The type of Web page to which you add those objects determines the type of report that is generated.

Topics

Topics provide the framework by which users navigate to specific Web pages that generate the reports that they need. Each topic is composed of a set of navigation nodes and links that structure user interactions into a logical flow.

Navigation nodes provide named locations to which you can assign Web pages of appropriate types. Each node stores a list of links to other navigation nodes. Each link has an associated behavior that indicates whether the report data that a user generates is passed along as input to the destination node for that link. The behavior of a link also indicates whether to automatically initiate the creation of a report when a user follows that link to display the Web page that has been assigned to that node.

Security and Storage Objects

Although not strictly a layer in that most security and storage objects do not appear in Web pages or topics, these objects provide authentication and access rights to Web pages as well as control over the creation of output files for campaigns.

Note: Authentication ensures that only authorized users can log in to your Infor Campaign Management application. Access rights determine which users have access to specific navigation nodes, saved reports, saved lists, and saved campaigns. (See, "Initializing A Topic" on page 180 for details.)

Security objects include user and group IDs (which for brevity are often referred to as users and groups, respectively), output processors, the Report Gallery, the Campaign Archive, and the strings repository.

- Users and groups contain information about the access rights of individual users and group memberships.
- Output processors, which are used by Campaigns Web pages, determine the directories in which various types of campaign output files are stored.
- The Report Gallery is a repository for saved reports, lists and campaigns.
- The Campaign Archive is a repository of definitions for campaigns that have been executed by users.

"Figure 2: Infor Campaign Management Application Components" on page 38 illustrates the relationships between the layers and components of an Infor Campaign Management application. The chapters that follow describe the process of configuring each of the components within these layers.

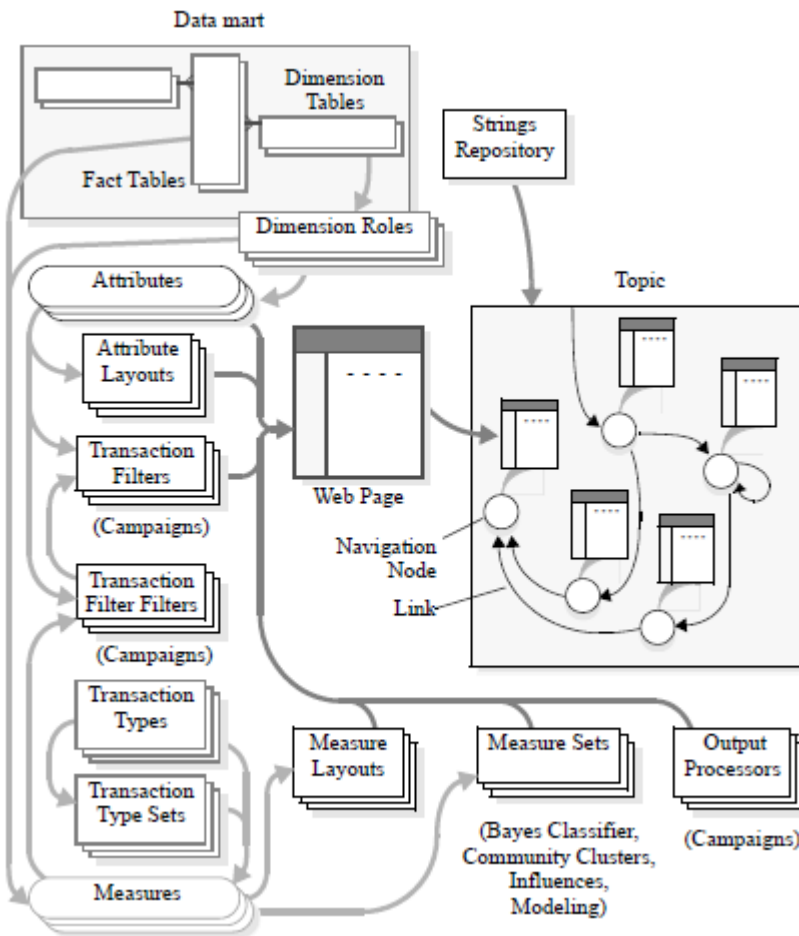


Figure 2: Infor Campaign Management Application Components

This chapter introduces Admin Manager, the graphical utility that you use to configure your EpiCenter and Infor Campaign Management applications. By default, Admin Manager is installed on the host that runs the Infor Campaign Management Server. You can also install copies on other Windows hosts using the **Custom** setting of the Infor Campaign Management installation program.

To open Admin Manager from the **Start** menu, choose **Start**, then: **Programs > Infor > 10.0 > Admin Manager > Admin Manager**

The sections in this chapter describes various features that appear throughout the Admin Manager user interface. Detailed information about specific dialog boxes is provided in an online help system and in later chapters. This chapter describes various features that appear throughout the Admin Manager user interface. Detailed information about specific dialog boxes is provided in an online help system and in later chapters. Refer to Chapter 14, 'Infor Campaign Management Utilities' of the for information about the command-line interface and other utilities related to Admin Manager.

Note: When connecting to the EpiMeta database over a high-latency wide-area network (WAN), Admin Manager is optimized for use with a Terminal Server (Remote Desktop) connection to a host that is running Admin Manager and is on the same local area network (LAN) as the database server.

The Admin Manager Window

The main Admin Manager window ("Figure 3: Admin Manager Window" on page 40) displays a hierarchy of folders and object types in the left display pane. Each object type represents a dialog box that you use to edit an element of your EpiCenter metadata. Each folder contains multiple object types and represents a stage in the process of configuring an EpiCenter and application.

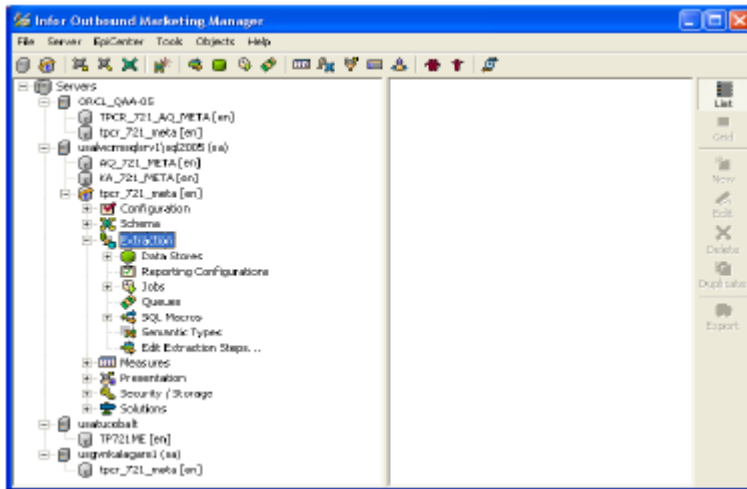


Figure 3: Admin Manager Window

When you double-click the icon for a folder, Admin Manager alternately displays or hides the object types within that folder. When you double-click an object type, Admin Manager displays the dialog box for a new instance of that object. When you select an object type in the left pane, saved instances of that object are listed in the right pane.

You can right-click any object in the main window to display a pop-up menu of actions that are associated with that object.

In addition to the display pane, the Admin Manager window also includes a menu bar, and two toolbars. The menu bar provides access to commands that you use to initialize and maintain applications, such as registering database servers and EpiCenters (data marts), generating the schema for a data mart, performing consistency checks, importing and exporting metadata, and so on.

The top tool bar displays buttons that allow you to configure new data mart and application elements and invoke specific actions that relate to your entire EpiCenter. This toolbar is shown in "Figure 12: The Admin Manager Toolbar" on page 49. The side toolbar allows you to invoke specific actions that relate to a selected object type.

The Grid Editor

You can edit individual objects either by opening the dialog box for that object, or by using the grid editor. The grid editor is available by right-clicking an object type and selecting **Edit <object> with grid** , or by clicking the **Grid** button in the side toolbar of the main window.

To edit an object with the grid editor, click in any field of that entry and then enter your updates. Some fields behave like text boxes and accept edits in place. Others display drop-down menus from which you choose from among preset values.

No edits made within the main form grid editor are committed to the database until you disable the grid by selecting another object type, or by clicking the **List** button in the side toolbar.

Note: If you click Grid in the main form and then edit one of the objects in the grid by opening the object's dialog box, the grid is disabled when you return to the main form.

Sub-Folders

You can organize the elements of the same type by using sub-folders. Only items that have been placed within a folder are displayed in the right pane when the folder is selected.

To create a subfolder, right-click any object type and select **New Folder**. The folder is displayed under the selected object type in the EpiCenter tree hierarchy. (See "Figure 4: Nested Sub-Folders" on page 41.) Items can be drag-and-dropped from the right pane into folders of the same object type. Other folders can also be drag-and-dropped into a folder to create an arbitrarily nested hierarchy.

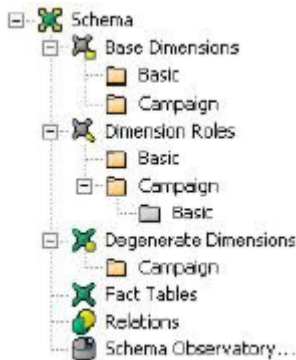


Figure 4: Nested Sub-Folders

Built-in Objects

All initialized EpiCenters contain built-in objects that are provided by Infor. These objects include the Date and Campaign dimensions, default extraction jobs, attributes, topics, and web pages. Built-in objects cannot be deleted and are kept in separate sub-folders from other objects that you configure. You can modify a built-in object by copying it and then making changes to the copy.

Top-Level Folders

Top-level folders that appear in the Admin Manager window include:

- Configuration
- Schema
- Extraction

- Measures
- Presentation
- Security/Storage

Depending on how you have configured your Admin Manager preferences, the folders within an **EpiCenter** hierarchy can be displayed in a single tree or in a two-pane view like the display of Windows Explorer.

The sections that follow describe the folders that are discussed in this guide and in the *Infor Campaign Management Datamart Implementation Guide*.

The Configuration Folder

"Figure 5: The Configuration Folder" on page 42 illustrates the icons that appear within the **Configuration** folder. The icons in this dialog box open tabs within the Configuration dialog box. These tabs allow you to specify global resources such as the local language, measure units for transactions, and so on.

For more information about this dialog box and the tabs that it contains, refer to "The Configuration Dialog Box" in the *Infor Campaign Management Datamart Implementation Guide*.

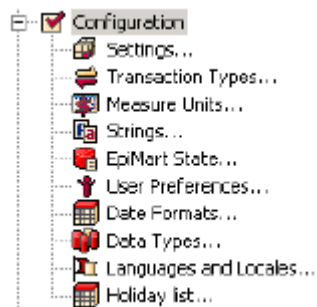


Figure 5: The Configuration Folder

The Schema Folder

"Figure 6: The Schema Folder" on page 43 illustrates the icons that appear within the **Schema** folder. These icons open various dialog boxes that allow you to configure the dimensions, facts, and other essential aspects of your data mart schema. See the "Defining the EpiCenter Schema" chapter of the *Infor Campaign Management Datamart Implementation Guide* for information about how to implement your data mart schema.



Figure 6: The Schema Folder

The Extraction Folder

"Figure 7: The Extraction Folder" on page 43 illustrates the icons that appear within the **Extraction** folder. These icons open dialog boxes that allow you to configure:

- The extraction steps, including SQL statements and semantic instances, that are used in extraction jobs.
- The extraction jobs and job steps that EpiChannel runs to perform each extraction job.
- The macros that are expanded within extraction jobs to resolve table names and other values.
- The scheduling queues for extraction jobs and other batch operations.

See the "Database Extraction Overview" chapter in the *Infor Campaign Management Datamart Implementation Guide* for information about extraction jobs.

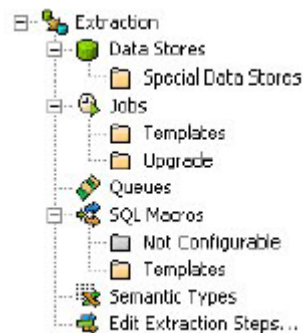


Figure 7: The Extraction Folder

The Measures Folder

"Figure 8: The Measures Folder" on page 44 illustrates the icons that appear in the **Measures** folder, which allow you to define measures and to configure presentation objects that allow your measures to appear within web pages.

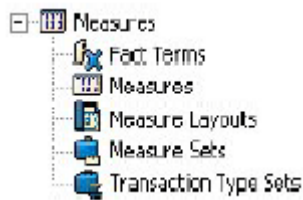


Figure 8: The Measures Folder

See "Configuring Data Elements" on page 59 for information about configuring measures.

The Presentation Folder

"Figure 9: The Presentation Folder" on page 44 illustrates the icons that appear in the **Presentation** folder. These icons open dialog boxes that allow you to:

- Define attributes.
- Configure the attribute layouts by which attributes are displayed in web pages.
- Create transaction filters for use when generating lists (See "Transaction Filters" on page 95).
- Create web pages.
- Create topics.
- Create link categories.
- Add entries to the glossary (See "Adding Glossary Entries" on page 102).

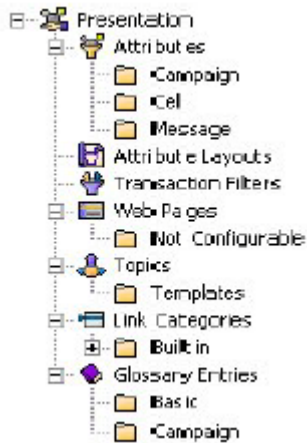


Figure 9: The Presentation Folder

The Security/Storage Folder

"Figure 10: The Security/Storage Folder" on page 45 illustrates the icons that appear in the **Security/Storage** folder, which allow you to:

- Add and remove groups and users.
- Define output processors for campaigns. See "Output Processors" on page 129.
- Configure touchpoints used for campaign output formats.
- Add LDAP servers for use with lightweight-directory-access-protocol user authentication.
- Configure Foreign Systems for Marketing Resource Management integration.
- Configure the Report Gallery. See "The Report Gallery" on page 133.
- View archived campaigns. See "The Campaign Archive" on page 144.



Figure 10: The Security/Storage Folder

Preferences

You can set display preferences for Admin Manager in the Preferences dialog box (See "Figure 11: The Preferences Dialog Box" on page 45). To open the Preferences dialog box, select **Preferences** from the **File** menu. The Preferences dialog box has four tabs: **General**, **Colors**, **Startup**, and **View**.

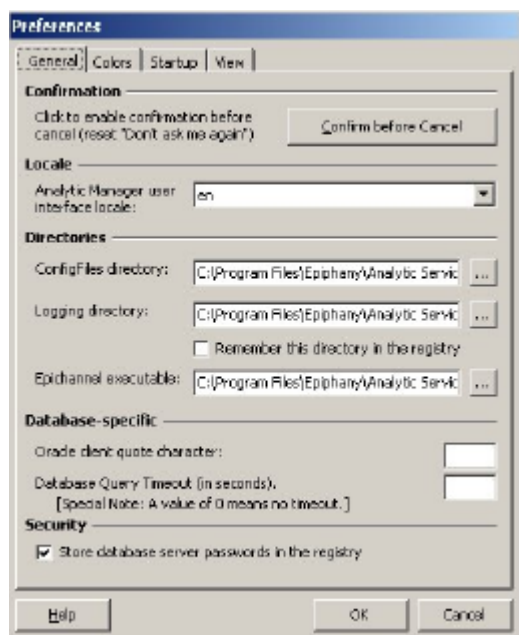


Figure 11: The Preferences Dialog Box

The General Tab

You can make the following changes in the **General** tab:

- **Confirmation**

Use the **Confirm before cancel** button to reset the confirmation option in dialog boxes. By default, you are reminded to save changes in every dialog box. You can turn this option off for individual dialog boxes by checking **Don't ask me this again** in the confirmation dialog box. To reset reminders for all dialog boxes, click **Confirm before Cancel** in the Preferences dialog box.
- **Locale**

Use the Admin Manager user interface locale list to specify the language of the Admin Manager user interface if you have installed multiple languages. See the *Infor Campaign Management Installation Guide* for details about installing more than one language.
- **Directories**

The **ConfigFiles directory** text box allows you to specify the base directory for your Admin Manager configuration files, including all scripts. See “The Admin Manager Scripting Interface” chapter in the *Infor Campaign Management Datamart Implementation Guide* for more information about scripts.

The **Logging Directory** text box allows you to specify the base directory for all Infor Campaign Management logfiles. Select **Remember this log dir in the registry** if you wish to update the registry with this setting.

The **EpiChannel Executable text box** allows you to specify the directory in which the EpiChannel executable is stored.
- **Database-specific**

See the “Running Jobs with EpiChannel” chapter of the *Infor Campaign Management Datamart Implementation Guide* for information about EpiChannel.

The Oracle Client Quote Character parameter appears only if you use Oracle.

Oracle 9x and later clients execute SQL properly if a double quote is used and fail if a single quote is used.

Since Infor Campaign Management 7.2 does not support Oracle 8x clients, the default quote character should normally be left blank (to use the default) or set to a double quote. If quote characters are interpreted differently in your installation, you can change the quote character with this parameter. The change takes effect only for the current Admin Manager session.

Use the **Database Query Timeout** field to set the length of time that Admin Manager waits for a response from the database before timing out. If not set, Admin Manager uses the default timeout as defined by the ODBC client, which is typically 30 seconds. Use this option with care, as setting the timeout too large may cause Admin Manager to hang while waiting for a database operation to return. However, in some cases—for example, with a remote database or a complicated import on a small machine—a larger timeout is required due to the limitations of distance or database speed.
- **Security**

Unselect the **Store database server passwords in the registry** option if you do not want Admin Manager to save the EpiMeta password in the registry. If it is not saved in the registry, Admin Manager prompts for it when users open a metadata database. If the password does not exist, or if Windows Authentication is in use, Admin Manager does not prompt for the password.

The Colors Tab

The **Colors** tab enables you to set colors for SQL-syntax highlighting within Admin Manager. This applies to SQL-related dialog boxes, such as the SQL Statement and SQL Macro dialog boxes.

Clicking an item in the list shows the current color in the **Sample** text box. To change it, click **Change**, and select a new color from the color menu, which updates the sample.

Click **Restore Defaults** to restore all colors to the default Infor Campaign Management settings.

The Startup Tab

The **Startup** tab allows you to specify which EpiCenters should be automatically opened when you start the Admin Manager.

The View Tab

You can make the following specifications in the **View** tab:

- The **Toolbar Buttons** area allows you to choose whether toolbar buttons in dialog boxes show as images only, or as images and text.

Note: The Images and Text option for toolbar buttons is only supported at monitor resolutions of 1024x768 and above.

- The **Navigator** area allows you to switch between single pane and dual pane views.
- The **Folders** area allows you to specify whether you wish to enable the use of subfolders within your EpiCenter. Subfolders allow you to organize elements of the same type into separate areas.

For example, you can store predefined attributes in a folder named Built-in, and attributes that you have created in another subfolder named **Custom**. Both folders appear under Attributes in the EpiCenter tree hierarchy.

Menus

Admin Manager provides the following menus that allow you to register and unregister database servers and EpiCenter data marts, set user preferences, invoke commands that update the schema of your data mart, and perform other maintenance tasks:

- File

This menu contains the Preferences, Instance Management and Exit commands.

- Preferences: This command displays the Preferences dialog box (See Also, "Preferences" on page 45).

- **Instance Management:** This command displays the Instance Management dialog box which you can use to add, update and delete Admin instances.
- **Exit:** This command exits the Admin Manager program.
- **Server**

This menu contains the Register and Unregister commands, which you can use to register or unregister a selected database server.
- **EpiCenter**

This menu contains commands that apply to a specific data mart. These commands are also available by right-clicking the folder of a data mart.
- **Tools**

This menu contains utility commands that allow you to modify or upgrade your data mart.
- **Object**

This menu contains submenus related to metadata objects that appear in the main Admin Manager window.
- **Help**

This menu allows you to browse the online help for Admin Manager either by topic or by index. It also allows you to display the About this Application dialog box for version-number and terms of use information.

The Main Toolbar

Many data mart operations can be performed using the toolbar located at the top of the Admin Manager window. "Figure 12: The Admin Manager Toolbar" on page 49 shows this toolbar. The accompanying legend defines each icon.

Dialog-Box Features

Admin Manager dialog boxes include powerful features that simplify the process of configuring your data mart and applications. The sections that follow describe these features.

Object Names

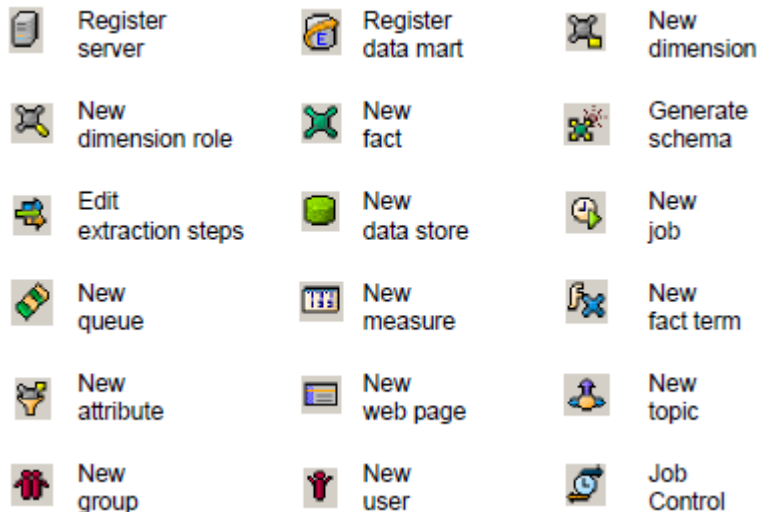
Objects in Admin Manager are assigned three names: the name, the label, and the developer label.

- The **Name** text box specifies the object name that is used within the EpiMeta database.

- Object names can be written in any supported language unless the object is located within the **Schema** folder. Schema folder object names can only use ASCII characters.



Figure 12: The Admin Manager Toolbar



- The **Label** text box specifies the name that appears in the Infor Campaign Management end-user interface. The value that appears in this text box changes depending on the **EpiMeta language** configuration setting. Labels can be written in any supported language.
- Almost all labels can include embedded strings from the Strings repository of the Configuration dialog box. An embedded string takes the form of a decimal integer surrounded by square brackets, for example: [5]. Only attribute layout category labels cannot include embedded strings.
- See "The Strings Repository" on page 104 for additional information.
- The **Developer Label** text box specifies the object name that is displayed to developers in Admin Manager. Developer Labels can be written in any supported language. The value that appears in this text box changes depending on the **EpiMeta language** configuration setting.

Using these parameters, an installation could have an EpiMeta database that uses English object names, an Admin Manager developer who modifies the metadata in French, and end-users who view the application in Japanese. See "Multi-Lingual EpiCenters" on page 54 for details about internationalization.

The Usage Tab

Dialog boxes that configure global objects, such as a measure or attribute, have a **Usage** tab that lists all of the objects that use that global object. Changes that you make to a global object affect all of the objects that appear in this tab. Infor suggests that you review the **Usage** tab before you confirm any changes that you might make to any global object.

Buttons

Admin Manager dialog boxes rely on a number of standard buttons to perform a variety of actions. Some of these buttons use icons to indicate the actions that they perform. Other buttons use labels.

Note: To see the name of a button that is labeled with an icon, click anywhere in the dialog box to ensure that the window is active, then let the mouse cursor hover over the button until a tool tip appears. You can also use the Admin Manager Preferences dialog box to include a text caption on every dialog-box tool button.

The following buttons and commands appear in a variety of dialog boxes within Admin Manager:

| | |
|---|---|
|  | Edit the selected item or rename it. |
|  | Delete or remove the selected item. When the label for this button says, "Delete," the item is deleted from the metadata entirely. When the label says, "Remove," the item is removed from the parent object of which it is a component. However, the removed item remains available in metadata, typically through the Object Gallery. |
|  | Create a new item or category. |
|  | Duplicate the selected item. |
|  | Undo the previous action. |
|  | Move the selected item up or down within a list. |
|  | Sort a list in either ascending or descending order. |
|  | Indent the selected item left or right within a list. |
|  | Refresh the display of the object gallery. |
|  | Print the contents of a graphical display pane. |
| Apply | Apply the changes that you have specified in the dialog box without closing the dialog box. |
| Cancel | Undo changes in a dialog box made since the last save. |
| Help | Open context-sensitive online help for the current dialog box. |
| Close | Close the dialog box. This button does not roll back changes to children of the object being edited. Usually, these children are shown in lists or trees under the parent object. Changes to those child objects cannot be rolled back in dialog boxes that have a Close button. |
| OK | Apply the changes that you have specified in the dialog box and close the dialog box. |

The Object Gallery

Dialog boxes that use previously defined elements as building blocks display the elements that are available in the Object Gallery, which appears as a pane on the right-hand side of an appropriate tab within a dialog box. Admin Manager allows you to drag objects from the Object Gallery to the display pane of the tab in order to add those objects to an element that you are configuring.

The Object Gallery displays only objects that are appropriate for inclusion in a given dialog box or tab. For example, when you configure an extraction job, the Object Gallery displays only Extraction Groups and Extraction Steps.

Objects that you drag from the Object Gallery pane into the display pane are added to the element that you are currently configuring. Objects that you delete from the display pane are removed from the current element, although they remain available in the Object Gallery for later inclusion in the current element or in other elements.

You can add, remove, and edit an object if you select it in the Object Gallery pane. However, any changes that you make to an object in the Object Gallery are global in scope. Those changes apply to all other elements in which that object is used. Be aware that any changes you make affect all occurrences of this object, not just the current dialog box. Check the **Usage** tab of the dialog box before you delete or alter an object.

Note: The Cancel button does not roll back changes that you make to objects in the Object Gallery.

"Figure 13: The Object Gallery" on page 51 shows a measure layout that has been added to a web page from the Object Gallery.

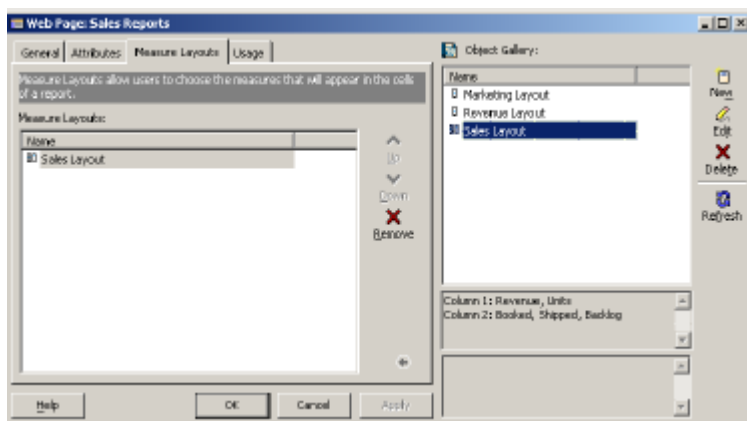


Figure 13: The Object Gallery

Data Flow Diagrams

You can use the graphical extraction-command builder to configure source-system data extraction. The graphical extraction-command builder displays the flow of data from the source system to EpiMart tables by means of a data flow diagram, as shown in "Figure 14: Data Flow Diagram" on page 52. See the section n "Using the Graphical Extraction-Command Builder" in the *Infor Campaign Management Datamart Implementation Guide* for more information.

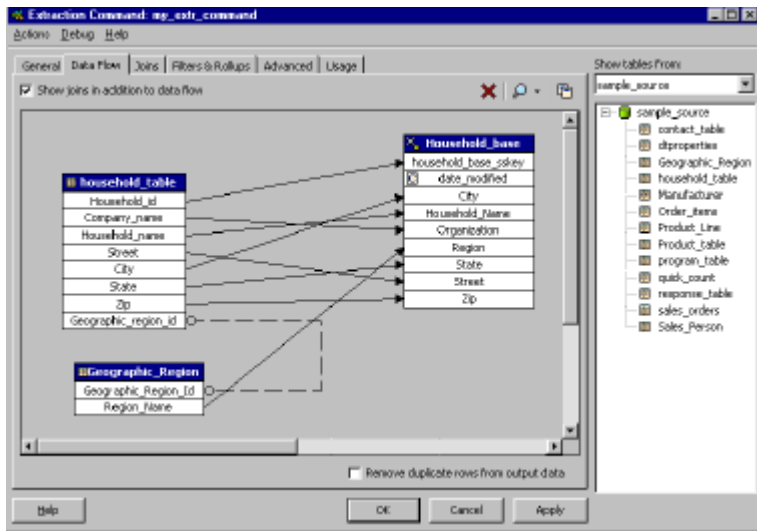


Figure 14: Data Flow Diagram

Link Diagrams

The topics in which Infor Campaign Management applications are organized form networks of links that can sometimes appear complicated. To help keep track of the navigational paths within topics, the **Navigation Nodes** tab of the Topic dialog box displays a diagram of the nodes and links that have been configured within a topic. "Figure 15: Link Diagram" on page 52 shows an example of a link diagram, which includes links that point to and from a particular navigation node within a topic.

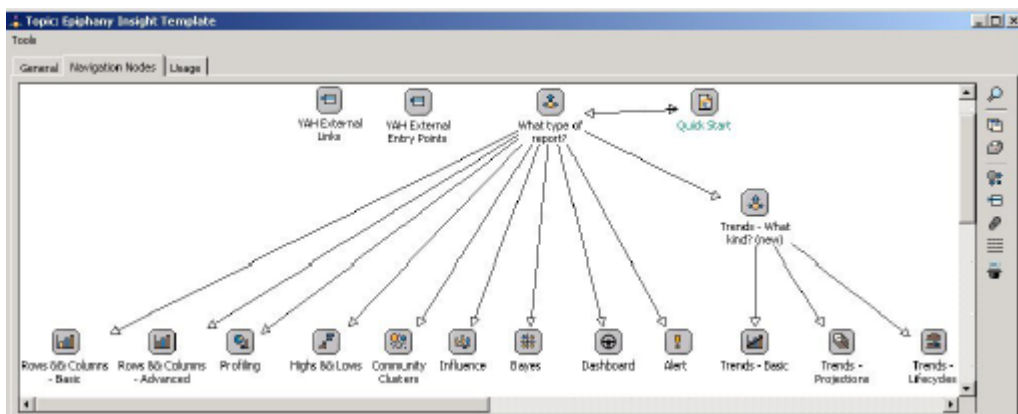


Figure 15: Link Diagram

Propagating Elements Between EpiCenters

In Admin Manager you can use drag-and-drop to propagate elements between EpiCenters. Within the EpiCenter hierarchy in a single Admin Manager window, you can drag and drop items or folders (if the folder contains individual items, such as Measure Sets or Attributes) from one EpiCenter data mart to another.

Dragging objects between data marts is equivalent to exporting and importing those objects. (See the “Exporting and Importing Metadata” chapter in the *Infor Campaign Management Data Mart Implementation Guide*).

Online Help

The Admin Manager includes a comprehensive, context-sensitive online help system. You can access online help:

- by clicking the **Help** button in any dialog box.
- by typing **F1** on your keyboard.
- in the **Help** menu, by selecting either **Contents** or **Index**.

Online Help Left-Hand Tabs

The Admin Manager online help includes the following left-hand tabs to help you locate information:

- Contents

The **Contents** tab displays books and pages that represent the categories of information in the online help system. When you click a closed book, it opens to display its content (sub-books and pages). When you click an open book, it closes. When you click pages, you select topics to view in the right-hand pane of the Help viewer.

- Index

The **Index** tab displays a multi-level list of keywords and keyword phrases. These terms are associated with topics in the help system. Keywords are cross-referenced with synonyms to provide multiple ways for you to locate information.

To open a topic in the right-hand pane associated with a keyword, select the keyword and then click **Display**. If the keyword is used with more than one topic, a Topics Found dialog opens so that you can select a specific topic to view.

- Search

The **Search** tab enables you to locate all topics in the help system that contain words that you specify. You can choose to narrow a search by searching previous results only, finding similar words, or searching topic titles only. When the search is complete, a list of topics is displayed in order of relevance. Topics that include the most occurrences of the words that you specified are placed at the top of the list.

- Favorites

The **Favorites** tab allows you to bookmark frequently-viewed Help topics. To add a topic to the **Favorites** tab, open the topic, select the **Favorites** tab, and click **Add**. To remove a topic from the **Favorites** tab, select the topic and click **Remove**.

Navigating Help Topics

You can navigate between topics in the Admin Manager online help by following links embedded in the help text, or by clicking the **See Also** button located at the bottom of most topics. When you click a **See Also** button, a popup menu opens that displays a list of topics that are relevant to what is currently displayed in the right-hand pane. Select a topic from the popup to open it in the right-hand pane.

If you wish to return to a topic that you previously viewed during the session, click the **Back** button in the top-left corner of your help viewer.

For more information about Admin Manager online help, open the help viewer from Admin Manager and read the topics under **Using Admin manager Help** in the **Contents** tab.

Multi-Lingual EpiCenters

Infor Campaign Management supports multi-lingual EpiCenters. You can create a multi-lingual EpiCenter by initializing an EpiCenter in one locale and then importing the labels for other locales from separate, translated .mdb files. Translated .mdb files are generated by the TUMs (Translate User Metadata) utility that is provided with Infor Campaign Management. (Information on TUMs can be found in the TUMs Utility white paper from Support).

When you implement a multi-lingual EpiCenter, there is always one master “from” language that is used to provide the baseline strings for translation to additional languages. Once the additional languages have been installed, however, all languages, including the original language, are equivalent. You can define objects in any language.

The Current Metadata Locale Setting

The language that is used to define EpiMeta objects is determined by the **Current Metadata Locale** setting. This setting can be changed in the **Languages and Locales** tab of the Configuration dialog box, or from the **EpiCenter** menu by selecting the **Choose: Current Metadata Locale** command. This selection applies only to the current EpiCenter and is displayed in brackets next to the EpiCenter’s name in the main navigation form.

Admin Manager automatically changes the metadata locale to the displayed value when the EpiCenter that is being edited is changed. If you edit more than one multi-lingual EpiCenter at a time, be careful not to confuse Current Metadata Locales .

The Current Metadata Locale setting is specific to an Admin Manager session. Different sessions of Admin Manager can edit the same EpiCenter while using different Current Metadata Locales .

A locale must be installed on disk for it to be available as a Current Metadata Locale. For example, you cannot change the current metadata locale to Spanish unless the supplemental files for Spanish have also been installed on the workstation, even if Spanish has already been imported into the EpiMeta.

Note: You can control the language that is displayed to end-users in the web-based Infor Campaign Management interface with the `language_locale_key` user preference, available in **Configuration > User Preferences**.

Installed, Logging and Front-End Locales

The **Languages and Locales** tab of the Configuration dialog box displays the locales that have been imported into an EpiCenter. Locales can be marked as **Installed** , **Frontend** , or **Logging** .

- An Installed locale can associate a locale-specific label with any metadata object. Admin Manager also allows Installed locales to be selected as the Current Metadata Locale when editing EpiMeta.
- A Frontend locale can be selected by end-users in the web interface of Infor Campaign Management. Label entries for the locale must exist for all objects that Infor Campaign Management Server might use (almost all metadata objects are used by Infor Campaign Management Server). If labels for that locale do not exist, Scrutiny violations occur and Infor Campaign Management Server does not start. Multiple locales can be marked as Frontend at any time.
- The Logging locale is used to create Infor Campaign Management Server and EpiChannel logfiles. Labels for this locale must exist for all metadata objects. If labels for the locale do not exist, Scrutiny violations occur and logging might produce meaningless messages. Only one locale can be set as the Logging locale at any time.

Full translations are not available for all locales. For example, there is currently no translation for French as a logging locale.

The initialization scripts and the Load Builtin Labels internationalization tool automatically set the Installed, Frontend, and Logging flags of the locales they load. The most recently loaded locale that is logging-capable is the default "Logging" locale, but this setting can be changed in Admin Manager. When an EpiCenter is initialized with a locale that does not support logging, English ('en') logging strings are automatically loaded. If you do not wish to use English logging, another locale that supports logging, such as 'ja', can be loaded and declared to be the logging locale.

Admin Manager, EpiMeta, and EpiMart Locales

The languages that are used in the EpiMeta database are independent of the languages that are used in the EpiMart. For example, EpiMeta might use French and Japanese to define objects while the EpiMart contains German and Spanish data. Though possible, this type of configuration is not recommended because it can confuse web users.

Likewise, the languages that are used in an EpiMeta or EpiMart are independent of the locales used in the Admin Manager user interface. Admin Manager could, for example, display forms and menus in Japanese with an EpiMeta that does not have Japanese installed. Japanese forms can be used to enter metadata in other locales such as English or Korean. The locale used by the Admin Manager user interface can be specified in the Preferences dialog box with the **Admin manager user interface locale** setting.

Note: Admin Manager translations are not available for all locales.

Creating a Multi-Lingual EpiCenter

To add additional languages to an initialized EpiCenter use the following procedure. Your database must be able to hold the code pages of each locale that will be loaded. For example, to store Japanese characters it is common to use the UCS2 option on SQLServer and to use the UTF8 code page in Oracle and DB2.

Before starting work on your EpiCenter, ensure that your Windows host is correctly configured for the codepage:

- In the Regional Settings control panel, make sure that the default (system) locale matches the codepage that you are using for your EpiCenter.
- If you are using either DB2 or Oracle data stores, you must configure the locale environment variable on the server host. For DB2, the locale variable is DB2CODEPAGE, and the value should be the codepage. For Oracle, the variable is NLS_LANG, and the value specifies both the locale and codepage - for example, AMERICAN_AMERICA.WE8MSWIN1252.

Adding Additional Languages to an Initialized EpiCenter

- 1 Install the supplemental files for English (en) and for all other languages that you wish to use in your EpiMeta. For example, for a French EpiCenter that also includes German and Japanese labels, install the 'en,' 'fr,' 'de,' and 'ja' language packs. These files are available for download with the main Infor Campaign Management application.

Note: Installing supplemental files causes the files for a locale to be present on disk, but does not cause the locale to be present in any particular EpiMeta. Admin Manager internationalization tools or import must be used to import the locale into an EpiMeta.

The locales installed on disk can be found in the Add/Remove programs control panel tool, or by looking at the subdirectories of <install root>/ConfigFiles/Metadata.

- 2 Create a directory structure for your custom translation (TUM) files that is not located in your root Infor Campaign Management directory. By creating a directory outside of the root directory, you ensure that your custom translation files will not be overwritten when you perform Infor Campaign Management upgrades.
 - a Create a root translation directory, such as `D:/MyTranslations`.
 - b Create a sub-directory for each language pack that you wish to install. Name these directories with the standard Java two-letter language abbreviation code (for example, 'en' for English, 'ko' for Korean, 'fr' for French, and so on).

-
- c Within each sub-directory, create another sub-directory named `TUM`.
The directory structure that you create should mirror the structure found in your original Infor Campaign Management root directory under `ConfigFiles/Metadata`.
- 3** Copy `Custom_AS_MTum.mdb` from `<root >/ConfigFiles/Metadata/en/TUM` to the new root directory made in Step 2 on page 56. Place the file in `<newRoot >/<fromLocale >/TUM`, where `fromLocale` is the language from which all other languages are translated. This language is often English ('en'), and should match the language specified as the **Current Metadata Locale** for your EpiCenter. You can access this setting from the **EpiCenter** menu.
- a The TUM files are created automatically by the code in the MTUM file. You can rename the MTUM file as appropriate for your installation as long as you keep the `_MTUM` suffix. For example, `MyStrings_MTUM.mdb`.
- 4** From the **Tools** menu, select **Internationalization > Load Built-in Labels** for all languages other than the one that was originally used for EpiCenter initialization. The TUMs process will translate each string in the original ("from") language to each of these languages.
- Note:** Your master ("from") language must match the language specified as the Current Metadata Locale for your EpiCenter. You can access this setting from the **EpiCenter** menu.
- 5** From the **Tools** menu, select **Internationalization > Translate User Labels**:
- a Supply the name of the directory that you made in Step 2a on page 56. For example, `D:/MyTranslations`.
- b Supply the name that you gave to your MTUM (TRANSET) file in Step 3 on page 57. For example, if you renamed the file to be `MyStrings_MTUM.mdb` then enter `MyStrings` in this field. If you left the file as `Custom_AS_MTum.mdb`, enter `Custom_AS` in this field.
- If the file structure that you created in Step 2 is complete, the translation process proceeds. `.mdb` files are generated in the directory for each locale.
- 6** Import the generated `.mdb` file for each non-master locale into your EpiCenter. Using the examples above, these files would be located in `D:/MyTranslations/<locale>` and named `MyStrings_<locale>.mdb`. In the Import dialog box be sure to specify **Just Labels** in the **Advanced Options** area.
- Note:** If you do not specify Just Labels in the Advanced Options area of the Import dialog box, the foreign-language metadata will replace all objects in your existing EpiCenter. The only language that is stored in the EpiCenter will be the language that was just imported, and associated objects might be deleted. For example, a replaced topic causes the deletion of all reports that were made from the original topic.

Translating Custom Strings

After initial translation, the number of translated strings depends on the amount of commonality between the built-in strings that are provided with a newly initialized EpiCenter and the strings that are contained in your EpiCenter. All strings that are not translated in the TUMs process are stored in the TUMs file that is located under your `ConfigFiles` directory.

You can view and edit the untranslated strings with the TUMs utility (see the TUMs Utility white paper on the Support portal for details). Edits that you make in the utility are permanently stored and used when you run Translate User Labels in the future. If you edit non-master-language strings directly in Admin Manager, running Translate User Labels erases your work.

Translate User Labels updates both the TUM file with the latest strings in the master language of your EpiMeta, and updates the EpiCenter with the latest translations of non-master languages.

Note: Loading Korean or Japanese (double-byte character) labels using a machine with a Latin-based regional setting corrupts the double-byte characters and renders them unreadable.

Conversely, loading Latin-based characters on a Korean regional setting machine corrupts the Latin characters. In this case, all accents are stripped and labels are shown as readable words with only English characters.

Adding New Objects to a Multi-Lingual EpiCenter

If you add any new object to a multi-lingual EpiCenter (such as a user, measure, web page, and so on), the object is created with labels for the **Current Metadata Locale** language only.

There are two methods of defining labels for other languages:

- For every language that requires translation, change the **Current Metadata Locale** setting to the appropriate language and edit the object's labels in that locale. You can change the **Current Metadata Locale** setting from the **EpiCenter** menu of Admin Manager.
- From the **Tools** menu, choose **Internationalization > Translate User Labels** to create import files from which the labels can be loaded. Follow the procedure in Steps 5 on page 57-6 on page 57.

Note: Because object edits leave metadata temporarily inconsistent, Infor recommends that you do not use Admin Manager to create objects in a production EpiMeta other than by importing metadata for which all labels have been already created.

The production Infor Campaign Management Server does not require labels until it is refreshed or restarted, but unexpected power outages or machine reboots can disable your system.

Data elements provide access to specific columns in fact and dimension tables. They allow you to use applications such as Web Builder to develop meaningful reports without having to understand the details of the data mart schema and without having to write SQL statements.

This chapter describes the steps that you take to configure data elements for use in Infor Campaign Management applications.

Measures

A measure is the formula for a business calculation. Measures can include fact columns and dimension columns. Measures calculate the totals and subtotals for attribute values that you indicate when you create reports. Measures are used in measure sets and transaction filters. You can also use measures to specify COUNT and COUNT DISTINCT operations on dimension columns. The COUNT operator enables counting of all dimension rows. The COUNT DISTINCT operator enables counting of distinct values in a specific column of a dimension table.

In the Web-based user interface, you can define measures and save them in the Report Gallery. In Admin Manager, you can use the Measures dialog box to define or edit a measure. To display this dialog box, open the **Measures** folder in the **EpiCenter** folder for your data mart. The **Measures** folder contains the following subfolders:

- **Fact Terms**
This folder contains entries for each fact term you define. See "Fact Terms" on page 60. for details.
- **Measures**
This folder contains entries for each of the measures that you define.
- **Measure Layouts**
This folder contains the measure layouts you define. Measure layouts are presentation objects that you can include in a variety of Web pages that you configure for user access. See "Measure Layouts" on page 85 for details.
- **Measure Sets**
This folder contains entries for measure sets, which are presentation objects that provide access to measures for data-mining applications. See "Measure Sets" on page 89 for details.

- Transaction Type Sets

This folder contains entries for transaction type sets, which are combinations of transaction types that allow you to create measures that include more than one transaction type. Transaction types are defined in the Configuration dialog box. For more information about transaction types see the Datamart Implementation Guide.

Fact Terms

A fact term describes an arithmetic formula used in the definition of a measure. Specifically, a fact term is an arithmetic expression that includes fact and dimension columns within a single row. Fact terms are building blocks for measures. You can define measures by applying an aggregation operator, transtype limitation, and backlog type to a fact term. A fact term definition can include table column names, other fact term names, parentheses, and the four arithmetic operators + - * /. For example:

- $3.0 * \text{MyTable.Col1} * \text{MyFactTerm2} / (\text{MyTable.Col2} + 2.0)$

A fact term definition can also include a scored list definition. A fact term definition can include only scored lists based on dimensions that are included in the fact on which the fact term is based. Scored lists are treated as numeric dimension values, where a list member's score is the value used in the fact term.

A fact term can reference columns from only one fact table, including all of the columns from dimensions that are referenced by the fact table.

Note: Do not create a fact term with more than 10 columns in the expression.

Creating a New Fact Term

- 1 Right-click the top-level **Measures** folder and select **New Fact Term** from the pop-up menu. This action opens the Fact Term dialog box.
- 2 Enter the **Name** of the fact term as it is defined in EpiMeta, its **Label** (the name that appears to users), and its **Developer label** (the name that appears in Admin Manager).
- 3 Select the **Folder** icon to the right of the **Folder/file** text field, then select the **Report Gallery** location where the fact term is to be saved. The default folder for the fact term can be used in most cases. Click the folder icon to browse the **Report Gallery** file system.
- 4 In the **Fact Table** list box, select the fact table the fact term references. A fact term can reference columns from only one fact table, including all the columns from dimensions that are referenced by the fact table.
- 5 In the **Fact Term definition** text box, enter the arithmetic expression that defines the fact term.
To include fact or dimension columns, scored lists, or other fact terms in your fact term definition, use the **Object Gallery** (The tree on the right of the Fact Term dialog box). When you double-click an object in the gallery, a reference to the object is copied into the **Fact term definition** area.
Fact term names can contain blanks. If a fact term name contains a blank, the name is automatically enclosed in brackets when it is selected from the **Object Gallery**.

Note: Scored lists are treated as numeric dimension values, where a list member's score is the value that is used in the fact term. You can only select scored lists on contexts that match dimensions that actually join to the fact table. Admin Manager prevents you from selecting invalid scored lists.

Measure Operations

A measure can consist of a single measure operation or of multiple operations that are added (+), subtracted (-), divided (/), or multiplied (*) together. An AVGB measure must have a period type designation.

Operations use the following parameters:

- **FactTerm:** The name of a fact term. A fact term evaluates to a numeric value based on fact and dimension columns.
- **TransType:** The name of a transaction type or a transaction type set. A transaction type specifies a subset of rows that record a similar type of transaction within a fact table.
- **Backlog, Period, Count:** The type of backlog that you wish to use for the measure. Backlog allows you to report on values that accumulate over time, such as inventory. The period and count of a backlog limit the backlog to the last N periods.

Note: When you select AVGB, you must specify a period type that identifies the type of average. This column is independent of other optional backlog information. For example: you can create a measure that is Average Daily Balance over the last two months.

- **Filter:** A restriction on the fact rows that are used in the operation. You can include a filter with the following syntax:

```
SimpleFilter attribute_name = (value1, value2, ..., valueN)
```

For example, the following code includes only those rows in which the customer is located in California or Hawaii:

```
SimpleFilter customer_location = ("California", "Hawaii")
```

You can do pattern matching in a filter by adding the <MatchPatterns> option to the SimpleFilter parameter. This will allow you to use patterns in the same format as that used by the SQL LIKE operator. In particular, you can use the % character as a wild card character in your filter definition. You can include a pattern matching filter with the following syntax:

```
SimpleFilter<MatchPatterns> attribute_name = (pattern1, pattern2, ..., patternN)
```

For example, the following code includes only those rows where the customer is in locations that match the specified patterns, such as Mississippi, Missouri, North Dakota, and South Dakota:

```
SimpleFilter<MatchPatterns> customer_location = ("Miss%i", "%
Dakota")
```

Note: For a variety of example measures, see the “Sample Measures” topic in the Admin Manager Online Help. For more information about measure filter syntax, see “Measure Filters.”

Table 1: Measure Operations

| Syntax | Description |
|--|--|
| SUM(FactTerm: TransType[: Backlog[, Period, Count][: Filter]]) | The sum total of each fact term value for every table row that satisfies the specified transaction type, backlog type, and filter. Backlog and filter specifications are optional. |
| MIN(FactTerm: TransType[: Filter]) | Returns the minimum fact term value for every table row that satisfies the transaction type and filter. A filter specification is optional. |
| MAX(FactTerm: TransType[: Filter]) | Returns the maximum fact term value for every table row that satisfies the transaction type and filter. A filter specification is optional. |
| COUNT(FactTerm: TransType[: Filter]) | Returns the number of rows in the fact table specified by FactTermName that satisfy the transaction type and filter. A filter specification is optional. |
| COUNT DISTINCT (FactTerm: TransType[: Filter]) | Returns the number of unique results for FactTermName for every table row that satisfies the transaction type and filter. Count Distinct measures operate on non-state like transactions in the fact table. A filter specification is optional. |
| STATELIKE COUNT DISTINCT (FactTerm: TransType: Backlog [, Period, Count] [: Filter]) | Returns the number of unique results for FactTermName which is a state like fact, for every table row that satisfies the transaction type, backlog and filter. Do not use Statelike Count Distinct measures with transactional facts. Use of the Statelike Count Distinct operator can have a significant impact on system performance. |

| Syntax | Description |
|---|--|
| | Note that a filter specification is optional. |
| AV GB(FactTerm: TransType: PeriodType: Backlog [, Period, Count] [:Filter]) | Returns the average value of each fact term value for every table row that satisfies the specified transaction type, period type, backlog type, and filter. A filter specification is optional. |

Note: When counting distinct dimension elements, the effect of slowly changing dimensions can result in duplicate counts. In a slowly changing dimension, a COUNT DISTINCT operator applied to dimension rows would count a single element each time that it appears in the dimension table.

To avoid this, use a measure that performs a COUNT DISTINCT on the fact table with reference to a unique ID column in the dimension. You must include this ID column when defining your schema and populate it during extraction. Ordinarily, the ID column should be populated with the same value as the skey column.

Defining Measures

You can define a measure by specifying a single measure operation, or by adding, subtracting, multiplying, or dividing multiple measure operators together.

A measure operation consists of a formula that combines:

- An operator (such as SUM or COUNT DISTINCT)
- A single fact term
- A transaction type (such as SHIPPED)
- A backlog type (such as “END” or “BEGIN, days, 90”)
- Filters (such as `favorite_color = {"Green", "Blue", "Purple"}`)

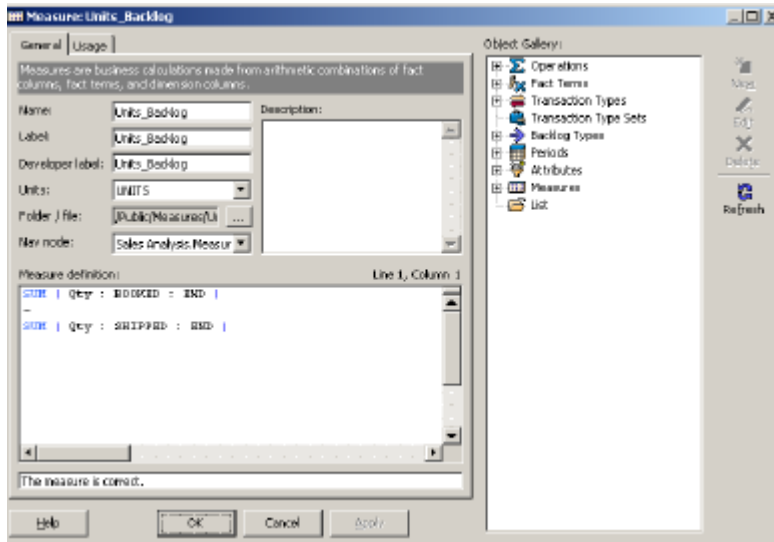


Figure 16: Measure Dialog Box: General Tab

Creating or Editing a Measure

1 To create a new measure, right-click the **Measures** folder and select **New Measure** from the pop-up menu or click the **New Measure** short-cut button. To edit an existing measure, double-click icon for that measure. The **Measure** dialog box appears, as "Figure 16: Measure Dialog Box: General Tab" on page 64 shows.

2 If no measure name appears in the **Name** text box, enter a name for the new measure.

3 Enter or edit the **Developer label** (the name that is displayed in Admin Manager) and **Label** (the name that is displayed to users).

The text boxes for labels accept entries in the localized language, locale, and code page of the data mart. However, you can enter data into these text boxes even if your copy of Admin Manager runs on a Windows host that uses a different code page. See "International Language Support" on page 32 for details.

4 From the **Units** drop-down list box select the unit of measurement for the calculations. A default EpiCenter configuration has these measure units:

- Currency_CM (for currency in Campaign Manager)
- Currency_Local (for local monetary units, such the Franc or Yen).
- Currency_US (for currency expressed in U.S. dollars)
- Percent (for percentages)
- Units (for the count of an item)

You can define other unit options in the **Measure Units** tab of the Configuration dialog box. (See the Datamart Implementation Guide.)

5 In the **Folder/file** text box, specify the location of the measure in the Report Gallery. The default folder for the measure can be used in most cases. To alter its location, click the folder icon to the right of the text box.

- 6 Enter a description of the measure in the **Description** text box.
The **Description** text box accepts entries in the language, locale, and code page of the data mart.
- 7 In the Measure definition pane specify a single measure operation, or multiple operations that are added (+), subtracted (-), divided (/), or multiplied (*) together. Select a fact term, transaction types, and filter attributes for your measure operation from the **Object Gallery**.
- 8 Click **OK** to save your measure.

Reviewing Measure Usage

To view the objects that use the measure, click the **Usage** tab of the Measure dialog box ("Figure 17: Measure Dialog Box: Usage Tab" on page 65). This dialog box lists all the objects that use this Measure object. Editing or removing a global object affects all of the objects that make use of it, so Infor recommends that you review the **Usage** tab before making changes.

The **Show Saved Reports** button displays saved reports that refer to the measure. This operation can take a long time and cannot be canceled once it is initiated.

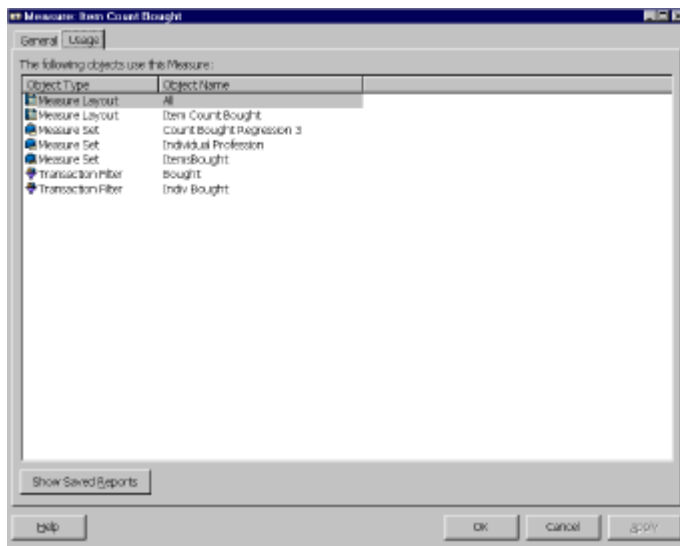


Figure 17: Measure Dialog Box: Usage Tab

Deleting a Measure

To delete a measure, right-click the icon for that measure and then select **Delete** from the pop-up menu. You can also use this pop-up menu to duplicate or export the measure. If you delete a measure that is used in saved reports, you must either resolve the references to the deleted measure or delete the saved reports that contain them. See "Replacing References to Deleted Objects in Saved Reports" on page 143 for details.

Configuring Measures for Scoring

You can use measures directly to score a list using the Scoring Web page. Some commonly used measures for analysis are:

- The number of times a customer purchased the item.
- The total amount of money a customer has spent.

Enabling User-Defined Measures

Marketers can define custom measures in the Infor Campaign Management application if a Define Measures topic has been configured. To configure such a topic, create a new topic based on the Define Measures Template topic, assign Web pages to the topic nodes, and add access permissions for those users who should be allowed to define custom measures.

Restricting Users From Creating Custom Measures

All users who have access to the Measures navigation node in a topic that is created from the Define Measures Template topic template will be able to create custom user-defined measures, unless you restrict access. Infor recommends that access to this navigation node should only be granted to users who should be allowed to create measures.

In order to restrict access:

- 1 Edit the Define Measures Topic (under Presentation/Topics/<user defined folders>/...). This is the topic that you created based on the Define Measures Template topic.
- 2 Click on **Navigation Nodes**
- 3 Right click on Measures and select "Add access permissions" or "Remove access permissions"

Note: The user-defined folders depend on where the user created the topic from a template.

Note: Measures are stored as reports and reports need an associated navigation node. A topic supplies these nodes, so it must be shared between callers when the user-defined measures are to be shared.

Creating Links to the Define Measures Topic

A Define Measures topic is normally configured as a toplet, which means that it does not have a Beginning node and is accessed only via links from other topics. As described in "Assigning Links to Navigation Nodes" on page 202, these links are normally configured as links from the YAH External Links node of a Infor Enterprise Marketing Insight or Campaign Management topic to the YAH External Entry Points node of a Define Measures topic. To configure such a link, do the following:

- 1 Open the Navigation node dialog box for the **YAH External Links** node of the Infor Enterprise Insight or Campaign Management topic from which you would like to create a link to the **Define Measures** topic.
- 2 Go to the **Links** tab and click **New** to open the Navigation Link dialog box for a new link.

- 3 Set the Destination Node of the link to the **YAH External Entry Points** node of the **Define Measures** topic.
- 4 Set the **Behavior** to **Include as Menu** and the **Link Category** to **Menu**, or set the **Behavior** to **Include as You Are Here Menu** and the **Link Category** to **You Are Here Menu**.
- 5 Set the Navigation Type to **SameWindow** and the **Dim Context Type** to **Carry Dimension**.
- 6 Select the **Visible** and **Enabled** options.
- 7 Set the **Name** and **Label** values as desired and click **OK** to save the new link.

Transaction Types

Transaction types specify the types of events or transactions that can be recorded in a fact table. For example, transaction types allow you to include both sales and returns in the same fact table. In effect, transaction types specify subsets of rows that record similar types of transactions within fact tables.

Infor Campaign Management includes a default set of transaction types. You can define additional transaction types in the **Transaction Types** tab of the Configuration dialog box.

The **Transaction Types** tab of the Configuration dialog box allows you to view the transaction types used by your EpiCenter, as well as to add transaction types for your site.

Transaction type key values are limited to a maximum length of ten digits:

- Keys 1-99 are reserved for booking transaction types.
- Keys 101-199 are reserved for shipping transaction types.
- Keys 10,000-20,000 are reserved for use by Infor.

To add a new transaction type, enter **Name**, **Key**, and **Description** values in the top row of the dialog box grid. The transaction type is automatically created when you press the Enter key or change focus from the grid row.

To edit an existing transaction type, select the transaction type and change the **Name**, **Key**, and **Description** fields to the desired values. In general, it is not recommended that you rename an existing transaction type, since this may affect the import of metadata. Instead of renaming a transaction type, you can create a new transaction type that is identical except for the name, and then delete the old transaction type.

Click **Propagate** to synchronize the **transtype_0** table in the EpiMeta and EpiMart data bases.

Transaction Type Sets

Transaction type sets simplify the process of including multiple transaction types in the same measure. They allow you to treat a collection of transaction types as if they were a single transaction type.

You can use individual transaction types in measure operators and transaction filters, or you can combine transaction types into transaction type sets, which you can use in place of transaction types within measure operators and transaction filters. Applying a transaction type set allows you to use a

single measure operator calculation (usually `SUM`) to perform aggregation operations on all of the rows that have been assigned to any of the transaction types that you include in the set.

You can also use a transaction type set to create a measure that performs a `COUNT DISTINCT` operation over different types of events, such as for both bookings and shipments taken together. Such a measure could count all of the distinct customers who have had either a booking or shipping transaction within an arbitrary time interval. Such a measure would be difficult to create without the ability to include multiple transaction types into a single set. You cannot add the results of a `COUNT DISTINCT` query for bookings and another `COUNT DISTINCT` query for shipments without double counting. However, a transaction type set that includes both transaction types produces the correct result.

Defining or Editing a Transaction Type Set:

- 1 In the **Measures** folder, right-click the **Transaction Type Sets** folder icon and select **New Transaction Type Set** or double-click the icon for an existing transaction type set.
- 2 Enter the **Name** of the transaction type set (as defined in EpiMeta), its **Developer label** (the name that is displayed in Admin Manager), and an optional **Description** in the **Transaction Type Set** dialog box ("Figure 20: Schema for Multiple-Fact Measures" on page 81).
- 3 Click **Add** to add transaction types to the set.
- 4 Choose a transaction type from the **Choose: Transaction Type** dialog box and then click **OK** to add that transaction type to the set.
- 5 Repeat steps 3 and 4 to add subsequent transaction types to the set, then click **OK**.
To remove a transaction type from the set, select the transaction type then click **Remove**.

Attributes

An attribute is a dimension-role column with an associated label. Infor Omni-Channel Campaign Management application components use the values stored in an attribute to break out subtotals in reports. Each attribute serves a dual function as both a data element and a presentation object. You can include attributes in Web pages directly, or as part of an attribute layout. (See "Attribute Layouts" on page 93 for details.)

Attributes also appear on Web pages in the context of filters, which allow users to restrict the scope of reports. Although attributes and filters are used in different ways, they rely on the same dimension-role columns.

Creating or Editing Attributes

You can use the **Create Attributes** dialog box to define attributes on one or several dimension columns, or you can create or edit attributes individually.

Adding or Editing an Attribute:

- 1 In the **Presentation** folder, right-click the **Attributes** folder and select **New Attribute** to add an attribute, or double-click an existing attribute.
- 2 In the **General** tab of the **Attribute** dialog box ("Figure 18: Attribute Dialog Box: General Tab" on page 69), enter or edit the **Name** of the attribute (as defined in EpiMeta), its **Developer label** (the name used within Admin Manager), and **Label** (the name visible to users on Web pages).

Note: The text boxes for labels accept entries in the localized language, locale, and code page of the data mart. However, you can enter data into these text boxes even if your copy of Admin Manager runs on a Windows host that uses a different code page. See Also, "International Language Support" on page 32 for details.

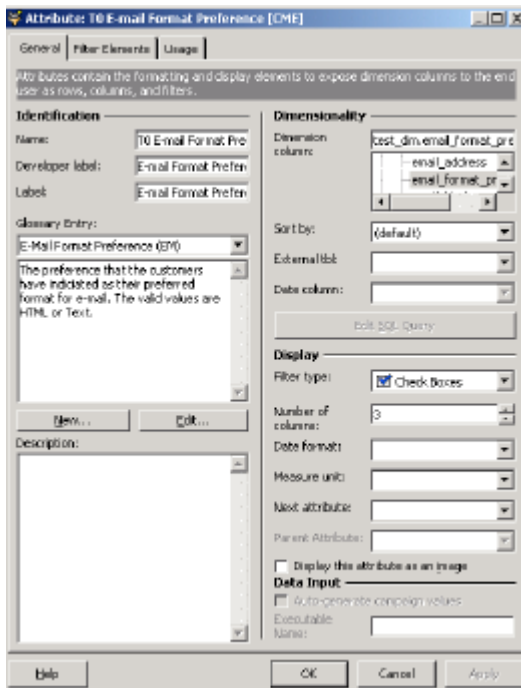


Figure 18: Attribute Dialog Box: General Tab

- 3 Select an existing glossary entry or add a new entry. When a glossary entry has been defined for an attribute, the label for that attribute appears as a hypertext link in the Web-based user interface. When a user clicks the link for a glossary term, the Infor Campaign Management Server displays a pop-up that shows the definition for that term.
 - To select an existing entry, choose a name from the **Glossary Entry** drop-down list.
 - To add an entry, click **New**, then fill in the **Name**, **Developer Label**, **Label**, and **Help Text** boxes in the **Glossary Entry** dialog box ("Figure 28: Glossary Dialog Box" on page 103). The **Help Text** description you enter can include HTML coding for links. These text boxes accept entries in the localized language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.
 - To edit an entry you previously added, select the existing entry, click **Edit** and then make your changes. The **Help Text** description you enter can include HTML tags for hypertext links.
- 4 Enter a description that indicates the purpose and function of the attribute. The **Description** text box accepts entries in the language, locale, and code page of the data mart.

- 5** Select the dimension column for this attribute from the Dimension column pane in the Attribute dialog box. Click any plus sign to expand the tree.
- 6** If you have an alternate column within the dimension role that provides an appropriate sorting order, you can specify that column in the **Sort By** drop-down list. For example, assume that your attribute is a date column that stores dates as text strings of the form: `Month dy, year`

In this case, it might make sense to display the attributes in calendar order rather than by month. Choose **(default)** for the native sorting order of the attribute itself.
- 7** To use an external lookup filter, specify an external table in the **External tbl** list box. Attributes that use this type of filter are keys to the external table, which must contain the columns `external_key` and `value`.
- 8** If the attribute you are defining is based on a column with the **DATE** data type, you can specify a **Date column** from the date dimension and use the original attribute as if it was based on the date dimension column.

For example, if you have an attribute named `Customer_Birthday` and you choose `month_name` in the **Date Column** field, you can create reports based on an individual's birthday month (answering questions such as "How many customers have birthdays in the next two months?").

When you create an attribute based on a date column, Infor Campaign Management Server uses localized values for names of months for attribute value labels. These localized names override any labels that you might create.
- 9** Select the filter type for an attribute from the **Filter Type** drop-down list. Then use the **Select Attribute Values** drop-down list to choose its display format. Filter types are explained in "Filter Types" on page 71.
- 10** In the **Date format** drop-down list, specify the format in which you want to display the date attribute: FULL or SHORT (the default).

You can configure the patterns of date attributes in the **Date Formats** tab of the Configuration dialog box.
- 11** In the **Measure unit** drop-down list, specify a measure unit to be displayed with the attribute value in a row and columns report. (See "Integer Attributes" on page 71 for special issues surrounding integer attributes and measure units.)
- 12** In the **Next attribute** drop-down list, specify a next attribute for each attribute.

As a result of next attributes specified here, when the user runs a report by the first attribute, the results page is affected as follows:
 - The drop-down list for further drill-down selects the next attribute.
 - The result values in the report become hyperlinks, unless the first attribute has the hyperlink property set.
 - Mousing over these result values displays the text "Drill-down by X" where X is the next attribute.
 - Selecting the attribute executes a drill-down report.
- 13** In the **Predecessor attribute** drop-down list, specify a predecessor attribute. The predecessor is an attribute that is above the current attribute in a filter hierarchy. For example, you might designate a Country attribute to be a parent of a City attribute. When marketers then choose to filter based on country, the cities available for filtering will be restricted to to cities located in that country. Predecessor attributes can be specified for check box, dynamic check box, list box, dynamic list box, radio button, and range filters.

Note: The **Predecessor attribute** drop-down list is only enabled if you have selected a supported filter type and have selected a dimension column for the attribute.

Note: Only attributes based on dimension columns that are related to the selected dimension column are available for selection in **Predecessor attribute** drop-down list. A dimension column is related to the selected dimension column if it is in the same dimension, if it is in a dimension that is related via a Relation defined in your EpiCenter schema, or if it is related to the selected column via a date dimension snowflaking relationship (as specified in the attributes' **Date column** fields).

- 14 Select **Display this attribute as an image** if you want the attribute to appear as an image in a rows and columns report.
- 15 If you have selected a column from the Campaign or Cell dimension, you can choose to **Auto-generate campaign values**. See "Adding Transaction Filters" on page 160 for more details.

Integer Attributes

If you select an integer attribute (one with a data type of integer) and that attribute does not have a measure unit applied to it, then (by default), Infor Campaign Management internally applies a thousands separator to that value. This happens even if the value shown in the Infor Campaign Management Web page does not include the thousands separator.

For example, if the Web page displays the year 2005 in a list box—and this is an integer attribute and it does not have a measure unit applied to it—then Infor Campaign Management internally represents the integer value as 2,005. As this does not match the front-end value, the front-end value will not be shown as selected, even though the value is defined correctly.

To correct this, create a measure unit that does not use the thousands separator, and set the attribute to use this measure unit. This causes the selection to be shown as expected.

Filter Types

Filters appear to users in the Filter pop-up that is associated with most Web pages. Therefore, it is wise to give filters explanatory names users are sure to understand. For example, "Days ago" is a more explanatory name for a relative point-in-time filter than "Date Relative Date." You can select from among a variety of methods for presenting the attribute values from which users make their selections. These display methods are called filter types. Your choice of a filter type for each filter depends on the cardinality and data type of the values that an attribute contains. If an attribute contains a few self-descriptive text values, you might choose the **Radio Buttons** filter type. If an attribute contains a continuous range of numerical values, you might choose the **Range Filter** filter type. To simplify the configuration process, when you configure an attribute, you also configure the filter type for that attribute.

Note: When you enter a value for a date filter element in the **Filter Elements** tab of the Attribute dialog box, you must use the format MM/DD/YYYY. For a decimal filter element, use XXXX.XX.

The following filter types can be selected from the **Filter type** field of the Display pane in the lower-right corner of the Attribute dialog box (**Presentation > Attributes**). (See "Creating or Editing Attributes" on page 68.)

Note: To ensure data integrity, all integer, decimal, and date data types are shown as text box filters in the user interface, even if you associate them with other filter types. In order to have a non-text box filter type, you must use a VARCHAR column or equivalent.

- Check Boxes

Check boxes are rectangles next to an item that a user points and clicks to select or unselect. Users may select more than one item in a column.

For the display format, select the number of columns for the attribute values from **Number of columns**.

- Date Relative Filter

This filter type allows users to filter by a time period that is relative to the current date (for example, in the last 30 days). You can assign this filter type to an attribute that refers to any date column (that is, to a column that has a DATE data type) and on the following columns in the **Date_0** dimension role:

- week_number
- month_number
- cy_name
- fy_name
- cq_and_cy_name
- fq_and_fy_name
- month_number_in_cy
- week_number_in_cy
- day_number_in_cy
- day_number_in_fy
- day_name

- Relative Point-in-Time Filter

This filter type allows users to choose points in time in the future as well as in the past relative to the current date (for example, 30 days ago). The user can enter multiple dates. This filter can be entered only on a column of the Date dimension for which the date_relative flag is set in metadata.

- Dynamic Check Boxes

Dynamic check boxes are refreshed each time Infor Campaign Management Server starts up. Static check boxes never change. For the display format, select the number of columns.

Note: To generate dynamic check boxes and dynamic list boxes, you need to enter the proper SQL. Clicking the **Edit SQL Query** button in the **General** tab of the Attribute dialog box displays an SQL template that you can modify for this purpose.

- Dynamic Listbox

A dynamic list box contains a list of items for filter selection that are refreshed each time the Infor Campaign Management Server starts up. The user can scroll through the list to select an item.

- For the display format, set the height of the list box in the **List box height** field.
- None
This filter type defines an attribute that is not based on either a dimension role or a dimension column. Users can use this attribute in Rows and Columns reports to create a report that has only rows or only columns.
- Radio Buttons
Radio buttons allow the user to make one choice only. For the display format, select the number of columns.
- Range Filter
This filter type allows users to specify one or several ranges of values. Users can specify settings for **DATE** columns using the calendar in the localized language of their implementation. Range filters are allowed on all columns from all dimensions.
The following table lists date dimension columns for which using range filters requires special consideration.

Table 2: Considerations For Using Range Filters in Certain Date Columns

| Date Column | Considerations |
|-------------------------|--|
| day_number_til_end_cq | attribute value decreases; may be confusing |
| day_number_til_end_fq | attribute value decreases; may be confusing |
| fy_name | special month/day/year listbox is provided |
| month_number | attribute value is relative to the start of the date dimension |
| month_number_til_end_cy | attribute value decreases; may be confusing |
| month_number_til_end_fy | attribute value decreases; may be confusing |
| week_number | attribute value is relative to the start of date dimension; may be confusing |
| week_number_til_end_cq | attribute value decreases; may be confusing |
| week_number_til_end_cy | attribute value decreases; may be confusing |
| week_number_til_end_fq | attribute value decreases; may be confusing |
| week_number_til_end_fy | attribute value decreases; may be confusing |

- Listbox
A list box contains a list of items for selection. The user clicks the down arrow to the right of the box to display a drop-down list of the items in the list.
For the display format, select the appropriate height for this drop-down list.
- SSKey Indicator
This filter type is used to access the source system key of a dimension.

- Text Box

A text box is a blank area in which the user may enter text. Text boxes are allowed on all data types. Users can enter multiple values in a text box. Each value is delimited either by a new-line character or a semicolon. To enter a semicolon as part of a text value, users can prepend a backslash character to the semicolon (\ ;) to escape the special meaning. Numerical and date values should be entered one localized value per line.

For the display format, select the height of the text box from the counter labeled Text box height.

Note: Choosing this type of filter for an attribute that relies on an external table for integer mapping results in a Scrutiny error. You cannot apply a text box filter to an attribute with an external integer-mapping table.

- Top N

This filter type is used only in Infor Campaign Management Web pages that are used to generate lists. It allows users to select the maximum number N of the list members with a specific parent dimension or attribute value to be included in a generated list.

If you only wish to specify a parent dimension, select only the dimension (do not specify a column within the dimension). If you wish to specify an attribute in the dimension, select a column within the dimension.

For example, in a scored list you can choose the top three employees from each department (if the department is the parent of the employees), or you can choose the top three employees from each state.

This filter can be applied with both one-to-many and many-to-many relationships.

Filter Elements and Filter Groups

Filters allow Web page users to restrict a query to specific attribute values (values in dimension columns). For example, the data can be filtered so only the values for direct sales during the years 1990 through 1995 are returned.

- Filter elements are specific dimension column values that users can choose. A filter element appears on the Filter pop-up as a single check box or entry within a list box.

Note: Extremely large numbers of filter elements can seriously affect system performance. Infor does not recommend, nor support, the inclusion of more than 5,000 values entered in all filters for a campaign.

- A filter group is a logical grouping of filter elements. For example, a filter by year might have a filter group of Q197 (first quarter of 1997) that includes the months of January '97, February '97, and March '97.

When you enter a value for a date or decimal filter element, use MM/DD/YY as the date format. The decimal format uses a decimal point with no commas, for example: 12345.30.

Dynamic and Static Filters

Filter elements can be assigned to groups dynamically or statically.

- For dimension columns that contain changing values, it is often better to choose a dynamic filter type, though your Infor Campaign Management Server must rebuild this type of filter every time the Infor Campaign Management Server is restarted.
- For columns that seldom change, a static filter type (one for which the label in the **General** tab does not include the word dynamic) is often preferred, because it needs to be built only once.

Dynamic Filter Groups

Because dynamic filter SQL runs quickly against integer mapping tables, it is feasible to build dynamic attributes on integer mapped columns.

Defining a Dynamic Filter Group

- 1 When you choose a dynamic filter type, the **Edit SQL Query** button on the **General** tab is activated. Click this button to display the **Fill from Query** dialog box. You can use this dialog box to prepare an SQL query that populates a set of filter groups. Infor Campaign Management Server invokes this query whenever it starts up.
- 2 Click **Template** in the **Fill from Query** dialog box to display a query template. If you do not want to classify the filter elements into groups, you can use the template query as it is. If you do want to classify filter elements into groups, you can replace the `ALL` token with an expression or create a union of `SELECT` statements with different `WHERE` clauses. Click **OK** .
- 3 To preview the filter groups produced by your query, select the **Filter Elements** tab and click **Show Query Results** .

Note: Running the queries that generate labels for dynamic filter groups can significantly increase the time it takes for Infor Campaign Management Server to start. If you use a static filter type and generate filter groups by checking the **Groups** check box in the **Filter Elements** tab, the query that populates the filter groups runs only once. Queries for static filter groups do not affect start-up performance.

Static Filter Groups

When you choose a static filter type, you can use the **Filter Elements** tab to define filter groups and assign elements to them. Perform the following steps to create filter groups for static filter types.

Creating Filter Groups for Static Filter Types

- 1 Use the grid control in the Filter Groups pane to add a filter group. In addition to the label and description, you can also add a glossary entry for the new filter group. (See "Adding Glossary Entries" on page 102.) The text boxes for labels and glossary accept input in the localized language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.
- 2 Continue adding new filter groups. When you are done, you can specify a sort order for the filters groups as they are to appear on the Filter pop-up Web page. To do so, use the toolbar buttons in the Filter Groups pane to sort the entries.

- 3 Choose a filter group from the list of filter groups that you just created and add elements for that group in the Filter Elements pane. Each filter element has a label and a value. The label is displayed to the user, and the value is the actual dimension column value that corresponds to the label.

Using SQL

You can also add filter groups and elements by creating a list of elements with an SQL query.

Creating a List of Elements with a SQL Query

- 1 Click the **Groups** and **Elements** check boxes, then click **Fill from Query**.
- 2 In the **Fill From Query** dialog box, click **Template** to display an SQL template that you can use to populate the filter group.
- 3 Edit the SQL template to restrict the column values to only those values you want to include in the current filter group.
- 4 Click **Test** to verify the query, then click **OK** to assign column values to filter elements in the current filter group. Be sure to append the token `_0_v` to any dimension or fact table names that you add or replace; for example, `Product_0_v`.
- 5 You can use the grid control to change the groups and elements that have been generated by the query. To do so, select an entry in the **Filter Groups** or Filter Elements pane and make any necessary changes.



Figure 19: Attribute Dialog Box: Filter Elements Tab

Creating Multiple Attributes with the Attribute Creator Wizard

The attribute wizard allows you to create multiple attributes of the same filter type from a single dimension role in one operation.

Creating New Attributes with the Attribute Creator Wizard

- 1 Open the Attribute Creator wizard by right-clicking the **Attributes** folder and then choosing Attribute Creator from the pop-up menu.
- 2 Select a dimension role from which to create attributes. You can use the Attribute Creator wizard to create attributes only from one dimension at a time.
- 3 Select columns by choosing a filter type for each dimension column from which to create an attribute. You can display all of the existing attributes for column by double-clicking the column name. If you have already created another attribute with the desired filter type for a column, you might choose not to create a duplicate.

After you have selected columns, you can click the **Show Cardinality** button to calculate the number of distinct values in each column. This information can help you in deciding which filter type to choose for the attributes that you create.

Note: This calculation can be time-consuming as it involves queries against the data mart. If you attempt to show cardinality for a dimension in a data mart for which the schema has not yet been generated, an error results.

For best results, include only those columns that have similar cardinality. For instance, if you have some columns with a high cardinality, a dynamic-list-box filter might be appropriate, whereas for other columns of low cardinality, a check-box filter type might be preferable.

The wizard applies that filter type to all of the attributes that it creates for the columns you have selected. See the next section for detailed information about the various filter types that are available.

If you choose a static filter type, you can select Create filter elements for each attribute to create labels for each attribute value.

If you choose a dynamic filter type, or if select Create filter elements for each attribute, you can click Edit SQL to modify the SQL statement that generates labels for attribute values. If you do not edit the SQL query, the result is typically a one-to-one mapping of labels to attribute values.

Integer mapped and noninteger mapped columns require different SQL-query templates. When you click Edit SQL, the wizard prompts for your choice of integer mapped or regular columns. If you know that all of the attributes you plan to create are of one type or the other, you can edit the SQL template for that type only. Otherwise, you can edit the queries for both types by clicking Edit SQL a second time and choosing the alternative type. The wizard retains the edits that you make to both queries.

- 4 Specify a template for attribute names and labels. You can specify a prefix and suffix to add to the attribute name, and you can choose whether or not to include the dimension role in the names or labels of the attribute. The attribute names and labels take the form:

```
PrefixDimroleColumnSuffix
```

- Prefix is the prefix that you specify. Dimrole is the name of the dimension role, which is included only when you indicate that it is to be included. Column is the name of the dimension column. Suffix is the suffix that you specify.
- The text boxes for label prefixes and suffixes accept entries in the localized language, locale, and code page of the data mart. (See "International Language Support" on page 32 for details.)

However, the names of dimension roles and columns that the wizard embeds in the names of the attributes it creates are limited to the ASCII character set. If your application supports a language other than English, you can edit the generated labels to replace the ASCII characters after the attributes have been created.

- 5 If you want to collect the attributes you defined above into a group (called an attribute layout), select **Create an attribute layout for the attributes above** in section three.
- 6 If you have chosen to create an attribute layout, select the Web pages to which you want to add the layout in section four.
- 7 Select **Show report** to display a report describing the attributes created.
- 8 Click **Create Objects** to generate an attribute for each of the columns that you have specified.

Deleting an Attribute

To delete an attribute, right-click the icon and for that attribute and then select **Delete** from the pop-up menu. You can also use this pop-up menu to duplicate or export the attribute. If you delete an attribute that is used in saved reports, you must either resolve the references to the deleted attribute or delete the saved reports that contain them. See "Replacing References to Deleted Objects in Saved Reports" on page 143 for details.

Automatic Localization of Date Attributes

Values in the following attributes, which are derived from the date dimension, are localized when displayed as date filters or date-attribute values. The locale is specified by the `language_locale_key`, `formatting_locale_key`, and `code_page_key` default user preferences, or through the User Preferences pop-up window in the Web-based user interface:

- `month_name`
- `month_and_cy_name`
- `month_and_fy_name`
- `week_friday`
- `week_monday`
- `week_saturday`
- `week_sunday`
- `day_name_char`
- `day_name_char_weekday`
- `weekday`

The following considerations apply:

- Attempts to customize the values in these columns are ignored in all but the language in which the customizations are made. Do not define value-to-label mappings for these columns. Do not alter

the default values of these columns. If you want to provide alternate values, add new columns to the date dimension that have the values you desire.

- Values for these columns are exported in the original language, regardless of the user preferences of the user requesting the export. If you want to provide customized exported dates, you can:
 - Define an external mapping table that maps the original column values to a localized value in an external table.
 - Create a new column or columns containing localized date values, populate these columns by modifying the configuration of the datepopulate.dll module of Admin Manager. For details about configuring this module, see “Modifying the Date Dimension,” in the *Datamart Implementation Guide*.

Date Fields

Admin Manager uses the following standard input format for dates:

- mm/dd/yyyy

Replace mm with the two-digit month. Replace dd with the two-digit day. Replace yyyy with the four-digit year.

Note: The above format for dates applies to all languages and locales.

Configuring Filters for External Lookup Tables

External lookup tables improve performance by reducing the width of dimension tables. Instead of storing the complete text of a wide string column, a dimension table can store numeric keys that are associated with string values in an external lookup table. The use of an external lookup table has implications for the configuration of attributes, because the dimension column that contains the keys is meaningless when viewed by the user, whereas the string values that the user understands reside in a table that is separate from the other dimension columns that she or he might use in reports.

An external lookup table has exactly two columns named `external_key` and `value`. The `external_key` column must have the same data type as the corresponding foreign-key column in the base- dimension table. This type can be one of `EPIINT`, `SMALLINT`, or `TINYINT`, as appropriate.

EpiChannel automatically creates integer-mapping external tables. External tables are most useful for specifying a sort order that could not be defined in any other way.

When you create an attribute for a column that has been mapped to an external lookup table, you must consider the intended use for that attribute. If you intend to use the attribute as a filter, you must ensure that the attribute values users see are the actual string values that reside in the external lookup table. However, the values that are used to generate report results must be the associated keys that reside in the base dimension. To define an external lookup-table attribute for use as a filter, select the foreign key column of the base dimension and choose one of the following filter types:

- Checkbox
- Dynamic checkbox
- Listbox
- Dynamic listbox
- Radio buttons

Take care to specify the filter elements in a way that corresponds with your external lookup table. Infor recommends that you use a dynamic filter (**listbox** or **checkbox**), because these filter types allow you to specify a SQL query that determines the filter elements whenever Infor Campaign Management Server is started or refreshed. Thus, if your external lookup table has new or updated rows, your SQL query selects the appropriate values.

Here is a typical query for a dynamic listbox:

```
SELECT DISTINCT
value label, -- value column of external table is label of this
-- filter element
external_key value -- external_key column of external table
-- is value of this filter element
FROM MyExternalTable
WHERE external_key IS NOT NULL
ORDER BY label
```

In the above query, the `FROM` clause generates a list of attribute-value labels that are taken from the actual text values in the external lookup table. Each label is associated with a key value that matches a key in the base dimension.

If you intend to use the attribute in the **Preview** attribute role of a Campaigns Web page, choose the **External Lookup Filter** filter type.

Note: Attributes defined as External Lookup Filters are only useful for previewing, downloading, or exporting data values; they should not be used as filters on a Web page.

Multiple-Fact Measures with Disjoint Attributes

Infor Campaign Management enables you to define measures along multiple fact tables. A complication can arise when the attributes that are associated with one fact table are not associated with another fact table that is included in a measure. An attribute is considered to be associated with a fact table if that fact table contains a foreign key that refers to the dimension table column from which that attribute derives. An attribute that is not associated with a particular fact table is considered to be disjoint from that fact table.

Nothing prevents you from creating measures that perform calculations based on facts that have disjoint attributes, nor from including those measures and disjoint attributes in a Web page. However, when you do, the results of reports in which users select those disjoint attributes are not necessarily clear.

The usual method for calculating measure values by successively grouping within each attribute does not apply when users select disjoint attributes. The database server cannot group by those disjoint attributes. For this reason, an application typically reports an error whenever a user chooses disjoint attributes associated with a multiple-fact measure. Although those attributes are all available for you to include in a Web page, if you include them, you cannot prevent users from encountering these errors.

However, you can enable an alternative behavior to occur when users choose disjoint attributes by setting **AllowDisjointFacts** to a value of 1 for your Infor Campaign Management instance. This setting appears in the right pane of Admin Manager when you select **Configuration > Settings > Behavior > Query**.

Enabling reporting for multiple-fact measures modifies the standard method for calculating the portion of a measure value that is accounted for by the attributes a user chooses. Rather than performing successive `GROUP BY` operations across attribute values and then calculating aggregated values, the Infor Campaign Management application:

- Calculates subtotals for the combinations of attribute values that it joins along one dimension
- Calculates subtotals for combinations in the other dimension
- Uses the subtotals along each pair of dimensions to calculate the subtotals across both sets of attribute values

However, if the measure includes only one fact table that has noncommon dimensions associated with it, Rows and Columns reports break out measure values according to the distinct combinations of values in the noncommon attributes that the user selects.

For example, the following schema ("Figure 20: Schema for Multiple-Fact Measures" on page 81) contains two fact tables. Each fact table is associated with some disjoint dimensions and some dimensions in common.

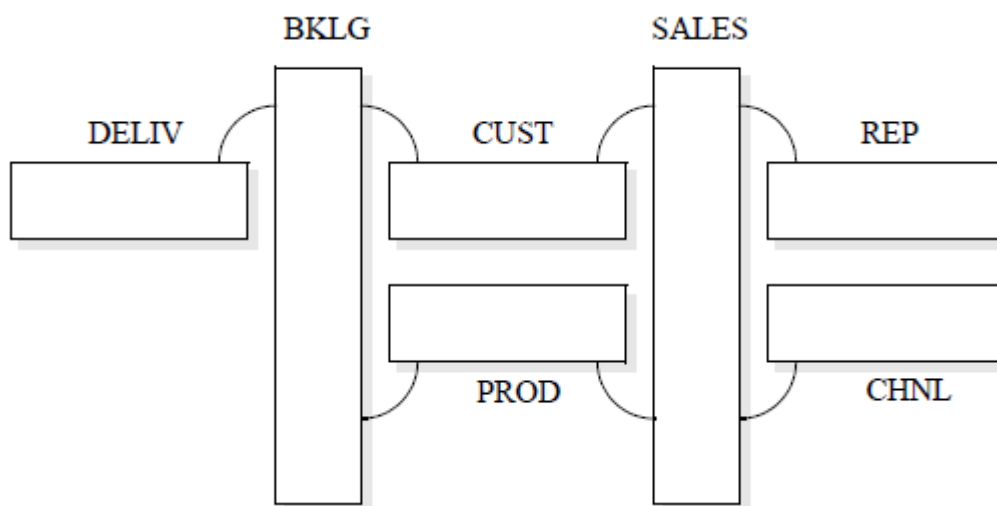


Figure 20: Schema for Multiple-Fact Measures

- BKLG is a fact table for backlogged orders.
- SALES is a fact table for completed sales.
- DELIV is a dimension table with details about the backlogged merchandise to be delivered.

- CUST is a dimension table with details about customers.
- REP is a dimension table with details about sales representatives.
- CHNL is a dimension table with details about sales channels.
- PROD is a dimension table with details about products.

Any attributes that derive from the disjoint dimensions (**CHNL**, **REP**, and **DELIV**) are necessarily disjoint. Attributes that derive from the common dimensions (**CUST** and **PROD**) might or might not be disjoint, depending on how each fact table is constructed. For discussion purposes, you can assume that all of the columns in the common dimensions have foreign keys in both fact tables.

You can define a measure called **RATIO**, which calculates the ratio of backlog to completed sales and is defined as follows on both fact tables:

$$\text{SUM (BKLGN)} / \text{SUM (SALESm)}$$

In the standard configuration, users can combine only those attributes that derive from the **CUST** and **PROD** dimension tables with the **RATIO** measure in reports. Attributes that derive from any of the other dimensions produce errors when combined with **RATIO**.

When you enable multiple-fact measures, users can choose attributes from any of the dimension tables. The calculations involved depend on which attributes can be joined and which attributes cannot, as the following cases show:

Case 1

In the first case, a Rows and Columns user selects one attribute each from dimension tables **CUST** and **PROD**. Because both dimensions can join to both fact tables, the result is the same as it would be if reporting on multiple-fact measures is disabled:

| | PROD1 | PROD2 | ... |
|-------|--|---|-----|
| CUST1 | SUM(BKLG CUST1,BKL- GPROD1) / SUM(SALES- CUST1,SALESPRO D1) | SUM(BKLG CUST1,BKL- GPRO D2) / SUM(SALES- CUST1,SALESPRO D2) | ... |
| CUST2 | SUM(BKLG CUST2,BKL- GPROD1) / SUM(SALES- CUST2,SALESPRO D1) | ... | ... |

Case 2

In this case, a Rows and Columns user selects one attribute each from dimension tables **CUST** and **REP**. Because no joins can be performed through fact table **BKLG**, all values from that table that correspond to values of attribute **CUST** are included in the calculation. The resulting report is calculated as follows.

| | REP1 | REP2 | ... |
|--|------|------|-----|
| | | | |

| | | | |
|-------|--|--|-----|
| CUST1 | SUM(BKLG CUST1,BKLG PROD1) / SUM(SALES CUST1,SALES PROD1) | SUM(BKLG CUST1,BKLG PROD2) / SUM(SALES CUST1,SALES PROD2) | ... |
| CUST2 | SUM(BKLG CUST2) / SUM(SALES CUST2,SALES REP1) | ... | |

Case 3

In this case, a Rows and Columns user selects one attribute each from dimension tables **CHNL** and **REP**. Neither dimension joins to the **BKLG** fact table, so all values in that table are used. The resulting report is calculated as follows.

| | | | |
|-------|--|--|-----|
| | REP1 | REP2 | ... |
| CHNL1 | SUM(BKLG) / SUM(SALES CHNL1,SALES REP1) | SUM(BKLG) / SUM(SALES CHNL1,SALES REP2) | ... |
| CHNL2 | SUM(BKLG) / SUM(SALES CHNL2,SALES REP1) | ... | |

Case 4

In this case, a Rows and Columns user selects one attribute each from dimension tables **REP** and **DELIV**. **REP** joins to **SALES** and **DELIV** joins to **BKLG**, so these joins are performed for every cell. Neither dimension joins to both fact tables. The calculation is performed as follows.

| | | | |
|------|---------------------------------------|---------------------------------------|-----|
| | DELIV1 | DELIV2 | ... |
| REP1 | SUM(BKLG DELIV1) / SUM(SALES REP1) | SUM(BKLG DELIV2) / SUM(SALES REP1) | ... |
| REP2 | SUM(BKLG DELIV1) / SUM(SALES REP2) | ... | |

Note: Results like those in Case 4 can appear to be counterintuitive to users. Infor recommends that you exercise great care when implementing multiple-fact measures. Wherever possible, Infor suggests that you avoid configuring Web pages that allow users to choose disjoint attributes in conjunction with a multiple-fact measure, whether you enable reporting or not.

Case 5

In this case, a Rows and Columns user selects a combination of attributes from dimension tables **REP** and **DELIV** for rows, and an attribute from table **CHNL** for columns. As in Case 4, none of the selected dimension tables join to both fact tables. The calculation is performed as follows.

| | | | |
|--|-------|-------|-----|
| | CHNL1 | CHNL2 | ... |
|--|-------|-------|-----|

Configuring Data Elements

| | | |
|-------------|---|---|
| REP1,DELIV1 | SUM(BKLG DELIV1) / SUM(SALES REP1 ,SALES CHNL1) | SUM(BKLG DELIV1) / ... SUM(SALES REP1 ,SALES CHNL2) |
| REP1,DELIV2 | SUM(BKLG DELIV2) / ... SUM(SALES REP1 ,SALES CHNL1) | |

Note: If a multiple-fact measure contains only one fact table with associated disjoint dimension columns, the above behavior is modified. Rather than using the cross-product of attribute values, reports break out measure values across unique combinations of joined attribute values.

Presentation objects allow you to specify how data elements are to appear and function within Web pages. This chapter describes how you configure presentation objects.

Measure Layouts

Measure layouts allow you to display one or more measures in a Web page in columnar format. The columnar format allows users to choose among measures by selecting items from each column to indicate the measures to include in a report. Measure layouts apply to all Insight Web page types except Influences, Modeling, Bayes Classifier, and Community Clusters, which use measure sets instead. For information about measure sets, See "Measure Sets" on page 89.

You create a measure layout by adding a set of labels, called items, in columnar format and then mapping measures to combinations of those items. A combination of items must include one item from every column.

If you use a single column, each item should describe a single measure. For instance, an item called **booked revenue** could be used as a label for a revenue measure. It is not possible to place a description at the top of a measure layout.

If you add a second or subsequent column, then the label for each item should contain a partial description that can be applied to more than one measure. For example, items in the first column could be **booked** and **billed**, and items in the second column could be **revenue**, and **returns**. Combinations of these items would be:

- booked revenue
- billed revenue
- booked returns
- billed returns

Each of these label combinations indicates a single measure, and you can map an individual measure to each combination of items.

A measure layout can contain from one to five columns. Although each column must have at least one item, the columns do not all have to contain the same number of items.

Multi column measure layouts allow you to provide users with convenient access to a large number of measures. "Figure 21: Measure Layout Dialog Box" on page 86 shows a measure layout that includes three columns and eight labels. This layout displays 10 combinations to which measures can be mapped. If measure layouts were restricted to a single column, or if you tried to represent all of these combinations in a drop-down menu, it would require 10 separate entries.

Note that it is not possible to place a description at the top of a measure layout.

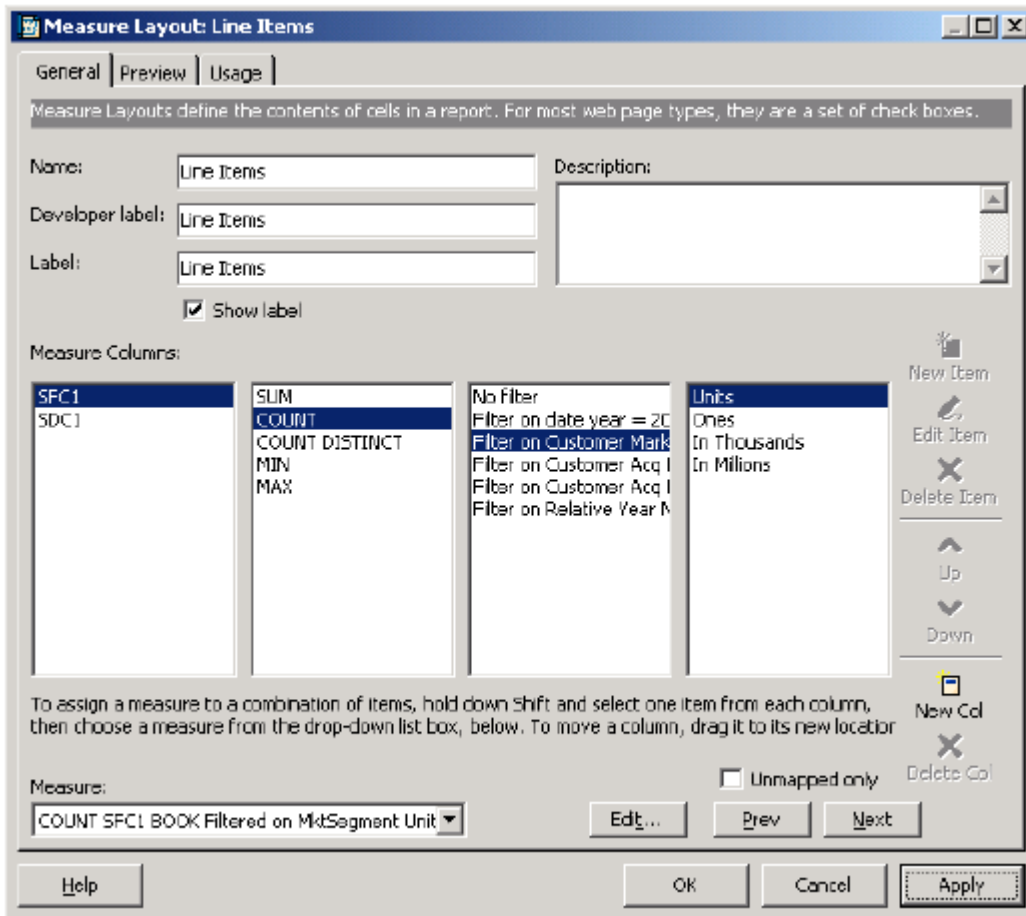


Figure 21: Measure Layout Dialog Box

Creating a Measure Layout

To create a measure layout:

- 1 In the **Measures** folder, right-click the **Measure Layouts** sub-folder and select **New Measure Layout**.
- 2 Enter the **Name** of the measure layout as defined in EpiMeta, the **Developer label** for the name displayed within Admin Manager, and the **Label** for the name displayed to end users.

- 3 Select the Show label checkbox to display the measure layout Label in the Infor Campaign Management web pages.
- 4 Click the **New Item** icon on the right to add an element to the Measure Column pane. This action opens the **Measure Layout Column Item** dialog box.
- 5 In the **Measure Layout Column Item** dialog box, enter the **Label** for the name to be displayed in the **Web-page** column, and a **Description** for the item.
- 6 In the **Measure Layout Column Item** dialog box you can also define a glossary entry for the label:
 - a Click **New**.
 - b Enter the item name and description in the **Glossary Entry** dialog box.
 - c Click **OK**
- 7 Click **OK** to add the item to the column.
- 8 (Optional) Repeat steps 3-6 to add more items to the column.
- 9 (Optional) Click the **New Column** icon in the lower right to add an additional column to your layout. This action opens the **Measure Layout Column Item** dialog box, which you can use to define your first column item. All columns must contain at least one item.
- 10 Assign measures to every combination of items across columns, using the **Measure** drop-down list box at the bottom of the **General** tab. You can use the **Prev** and **Next** buttons to move through all combinations of the items in the measure columns. Make sure every combination has a measure defined for it. You can use the **Edit** button to edit the currently selected measure.
- 11 Click **OK** to finish defining your measure layout.

Note the following:

 - a To adjust the order in which items appear within a column:

Select an item and then click the **Up** and **Down** icons to move that item to a new location within the column.
 - b To remove an item from a column:

Select that item and then click the **Delete Item** icon.
 - c To alter the position of an entire column:

Select a column and then drag it onto the new column location. The column contents are switched.
 - d To remove a column:

Select it and click the **Remove Column** icon.

Mapping Combinations of Items to a Measure

Measures must be mapped to every combination of items within a measure layout. A combination of items includes one and only one item from every column. You do not map measures to individual items. You map a measure to a combination.

For example, if you configure three columns in your measure layout, each measure maps to a combination of three items, each from one of the columns. If each column contains three items, there are 27 ($3 * 3 * 3$) total combinations that require measures.

To prevent users from receiving error messages for undefined items, you must map a measure to every combination of items that you include in a measure layout. This requirement might lead you to adjust the number of columns or items in your measure layout, or it might prompt you to create additional measures that you have not already implemented.

To facilitate the creation of new measures, the Measure Layout dialog box displays the **New** and **Edit** buttons next to the **Measure** list box. As you map measures to combinations of elements, you can use these buttons to display the Measure dialog box for a new or selected measure. (See "Measures" on page 59.)

Mapping Item Combinations to a Measure

- 1 While holding down the **Shift** key, select an item from each column. Each selection is highlighted.
- 2 With a selected item in each column highlighted, choose a measure from the **Measures** list box.

Verifying that All Combinations Are Mapped

Take the following steps to verify that a measure has been mapped to each combination of items:

- 1 Click the **Prev** and **Next** buttons to cycle through the combinations of items. The mapped items in each column are highlighted, and the measure that those items map to is shown in the **Measure** text box.
- 2 Check **Unmapped Only** to display only those combinations of items that have not yet been mapped to measures.
- 3 Click the **Prev** and **Next** buttons to cycle through the unmapped combinations. Choose an existing measure or create a new measure for each unmapped combination.

The Preview Tab

You can use the **Preview** tab to see how the element layout appears on a Web page. Make one or more selections per column to display the measure or measures that are mapped to those combinations. In the **Measures** folder, right-click the **Measure Layouts** sub-folder and select, **New Measure Layout**.

"Figure 22: Measure Layout Dialog Box: Preview Tab" on page 89 displays the **Preview** tab, which shows the measure to which a combination of items is mapped.

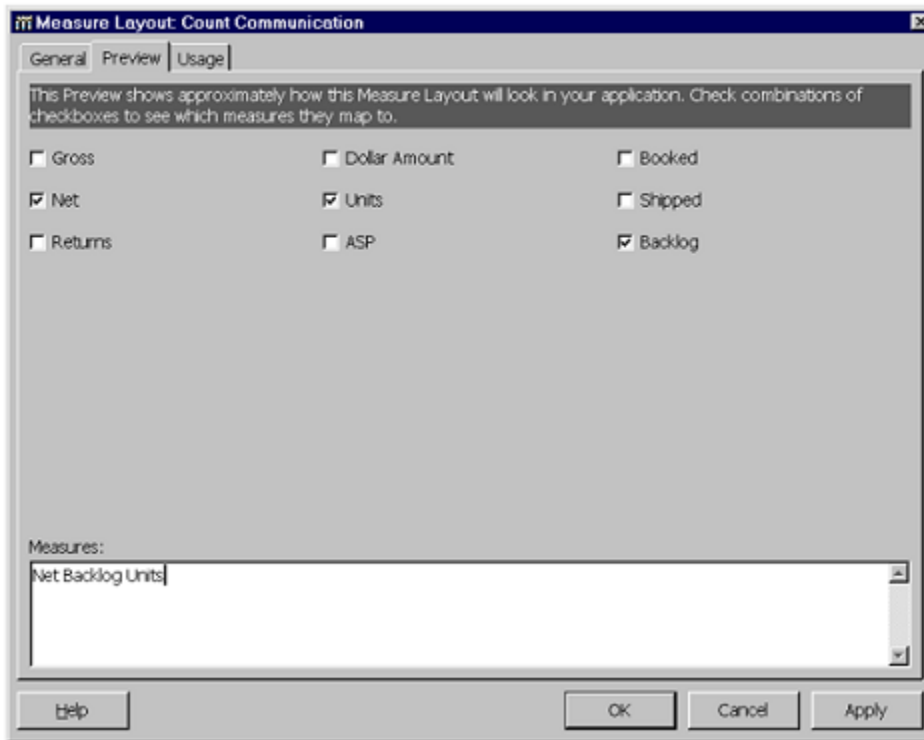


Figure 22: Measure Layout Dialog Box: Preview Tab

Measure Sets

A measure set relates two or more measures to each other for purposes of regression, classification, and clustering. The Bayes Classifier, Community Clusters, Influences, and Modeling Web pages use measure sets to give users access to the measures that these application components use for statistical and predictive models.

There are three types of measure sets: Classification, Regression, and Clustering. The type of measure set that a Web page uses depends on the nature of the target data to be analyzed and the type of analysis to be performed. Bayes Classifier, Influences, and Modeling Web pages use statistical models to rank target values along a discrete or continuous scale, depending on whether the target data is drawn from an attribute or a measure, respectively.

Table 3: Measure Set Types

| Measure Set | Web Page | Description |
|----------------|------------------------------|---|
| Classification | Bayes Classifier, Influences | Finds rules (using a classification tree) that can predict the value of a discretely valued attribute based on the values of a set of other attributes. |

| Measure Set | Web Page | Description |
|-------------|-------------------|--|
| Regression | Influences | <p>This type of measure set is always associated with other attributes. If that attribute is a List Membership attribute, then lists are used with the measure set. Attributes with dimension roles and dimension columns (regular attributes) specify the target attribute.</p> <p>Finds rules (using a regression tree) that can predict the value of a continuously-valued numeric measure, such as customer profitability, based on the values of a set of attributes, such as customer attributes.</p> <p>This type of measure set is never associated with other attributes.</p> |
| Clustering | Community Cluster | <p>Identifies groups as places of high concentration among data values within a set of attributes. These concentrations can often be associated with internal consistencies that might not be obvious at first glance, such as households with similar demographics, or individuals with similar buying patterns.</p> <p>This type of measure set is never associated with other attributes.</p> |

If you delete a measure set that is used in saved reports, you must either resolve the references to the deleted measure set or delete the saved reports that contain them. See "Replacing References to Deleted Objects in Saved Reports" on page 143 for details.

Measure Set Type Roles

Measure set types have associated roles, which may be either Count , TargetSum , or SumSquared . All measure sets contain a Count role measure. (Classification and Clustering measure sets contain only the Count measure role.) Measure sets of the Regression type must contain the Count and TargetSum role measure, and optionally, the SumSquared role measure.

Count

The Count role is a measure that counts the number of rows in the primary dimension associated with the measure set, such as the count of the rows in the individual dimension.

TargetSum

The TargetSum role is a measure that calculates the sum of the quantity you are trying to predict. For example, to predict the total amount that customers purchased, the TargetSum role is a measure of the sum of the purchases made by customers. Thus, if the value you want to predict is X, then the TargetSum role is a measure whose value is $SUM(X)$.

SumSquared

The SumSquared role is a measure that calculates the sum of the squares of the value you are trying to predict. (The sum of the squares is used in computing statistical variance.) For example, if the target value you are trying to predict is X, then the SumSquared role is a measure whose value is $SUM(X * X)$.

Usually, SumSquared can be computed from the TargetSum role, since the sum value corresponding to each row in the primary dimension can be squared. If the rows of the primary dimension table with which the measure set is used represent actual individual or households, you do not need to specify the SumSquared role. The TargetSum role computes the total amount of the target measure for each individual or household. That is, it computes the value x for each individual or customer, and this value can be squared for each individual or household. The application can square this value and then sum it to obtain the right result.

However, if the rows in your primary dimension table represent some aggregate of individuals or households (for example, customer types or household types), then specify the SumSquared role. The TargetSum measure contains the sum of the target value for each customer type. The TargetSum role gives you the target value for each customer type (a sum over the individual customers), not the target value for each customer. Squaring the TargetSum role for the customer type does not square the values of the individuals aggregated to produce the customer type. Instead, it squares the value for the customer-type aggregate, which is incorrect.

In such cases, at extraction time, you need to set up a fact table that contains the squares of the target value for each individual customer, and then sum these squared values to produce the sum-squared values for the aggregate customer types. You can then use this fact table to define a measure for the SumSquared role that, for each customer type, gives the sum of the squares of the target values for individual customer.

Defining Measure Sets

Perform the following steps to define a measure set for classification.

Define a Measure Set for Classification

- 1 In the **Measures** folder, right-click the **Measure Sets** subfolder and select **New Measure Set**.
- 2 In the Measure Set dialog box ("Figure 23: Measure Set Dialog Box" on page 92), enter the following:
 - Name of the measure set (as defined in EpiMeta).
 - Developer label (the name that is displayed within Admin Manager).
 - Label (the name that is displayed to end users). The **Label** text box accepts entries in the localized language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.

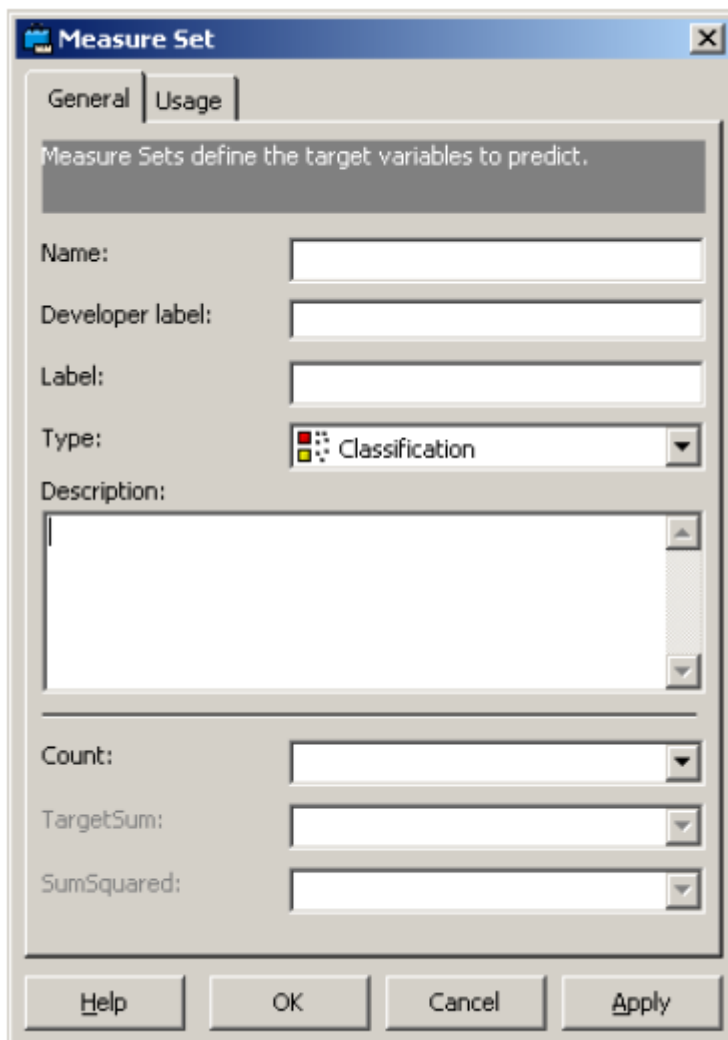


Figure 23: Measure Set Dialog Box

- 3 Select a measure set type:
 - Classification

In the Count drop-down list, select a measure that gives a count of the number of rows in the primary dimension. In some cases, you may wish to weight the rows in the primary dimension (for example, based on the amount of revenue from a customer). In such cases, the Count role should be assigned a measure such as a simple count of the units shipped, or a measure that sums the price of all products shipped, which produces a count that is weighted by price.

Note: When defining a measure set for a list-membership target (that is, a measure set with no attribute and only the Count role defined), you can enter a short description in the Measure Description text box that appears in the target-selection box of an Influences, Modeling, or Bayes Classifier Web page. This notation is useful for cases in which the list membership target is weighted by a measure that is not the count.

For example, if you associate revenue with the Count role, then you may want to enter “weighted by revenue” in the description box of the measure set. Then, the target shows up in the Web page as Member of List, weighted by revenue. The Measure Description text box accepts entries in the language, locale, and code page of the data mart.

- Clustering

Specify a Count measure role, which can be the count of the number of rows in the primary dimension, or possibly a weighted count (as described above for Classification measure sets).

- Regression

Select a measure for the Count measure role that counts the number of members of the primary dimension.

Select a measure for the TargetSum measure role that is the sum of the fact column that corresponds to the fact value that you are trying to predict.

In some cases, you might need to select a measure for the SumSquared measure role.

4 Enter an description for your reference if you like.

5 Click **OK** to define the measure set.

Attribute Layouts

Attribute layouts provide you with a convenient option for packaging attributes that are used together. Unlike measure layouts, which are the only means by which you can display measures in a Web page, the use of attribute layouts is not required. However, you can use an attribute layout in any portion of a Web page that calls for an attribute. You can also export attribute layouts from configured Web pages, as described in "Web Pages" on page 150.

The Attribute Layouts dialog box (See "Figure 24: The Attribute Layout Dialog Box" on page 94) allows you to add, remove, and organize attributes that appear within an attribute layout.

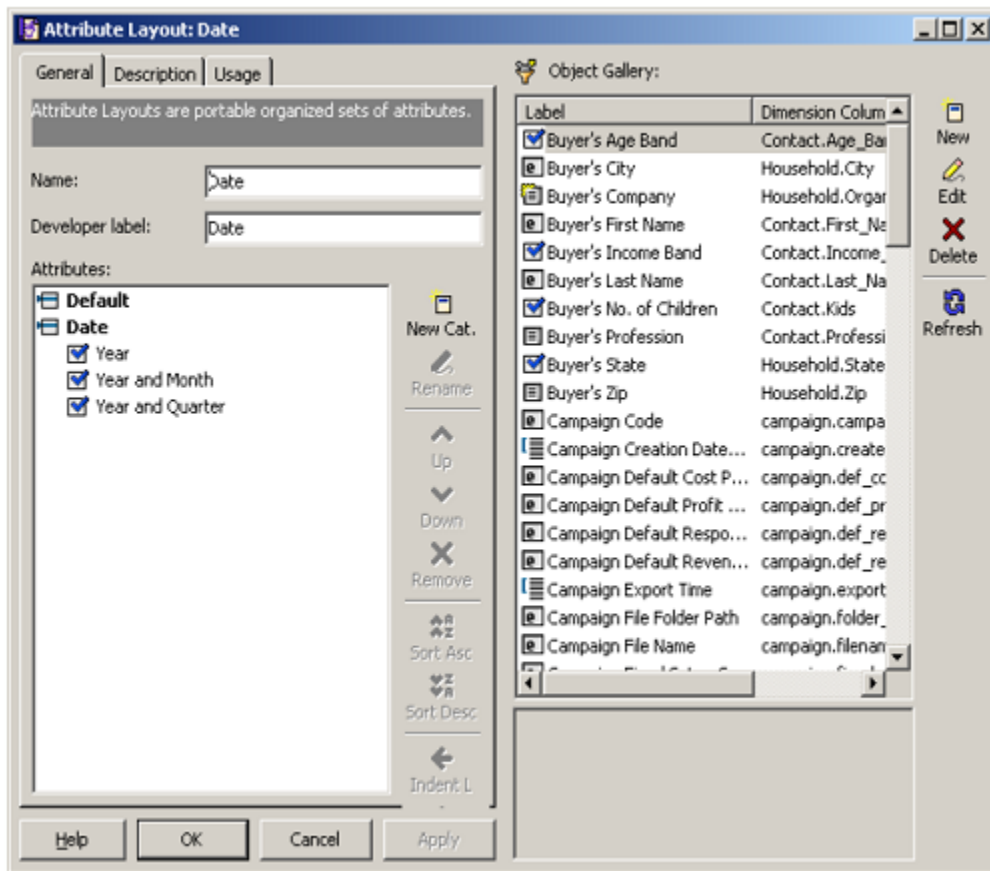


Figure 24: The Attribute Layout Dialog Box

To use the Attribute Layout dialog box you must first give the layout a name in the **Name** text box. Use the **Developer label** text box to specify the name of the attribute layout as displayed in Admin Manager.

The **Attributes** list box that appears below the **Name** text box displays all of the attributes that are currently included in the attribute layout. You can use labels, called categories, to organize this list into smaller groups. A new attribute layout contains only the **Default** category. The Object Gallery pane to the right displays all of the attributes that are currently configured and available for inclusion in the attribute layout. You can use the drag-and-drop interface to add an attribute to a category within the attribute layout.

Note: If you use the Object Gallery pane to edit or remove attributes, keep in mind that the updates that you make in the Object Gallery take effect throughout the entire Infor Campaign Management. For example, if you delete an attribute from the Object Gallery, it is removed from the system, and Web pages and saved reports that depend on that attribute are rendered invalid.

Creating or Editing an Attribute Layout

- 1 In the **Presentation** folder right-click the **Attribute Layouts** subfolder and choose **New Attribute Layout** from the pop-up menu. To edit an existing attribute layout, double-click its icon. The Attribute Layout dialog box appears.
- 2 Enter the name of the attribute layout in the **Name** text box unless a name already appears there. The **Developer label** is the name of the attribute layout as displayed in Admin Manager.
- 3 Add a new attribute category by clicking the **New Category** button to the right of the **Attributes** list box. Categories allow you to split up your list of attributes into sublists.
 - You can use the **Rename** button to change the name of a category, and you can sort the attributes that appear within a category by clicking either **Sort** button.
- 4 To add an attribute to the attribute layout, drag it from the Object Gallery pane and drop it on the category in which it is to appear. You can use the **Move Up** and **Move Down** buttons to move an attribute up or down within a category, or move an entire category up or down with respect to other categories.
- 5 To remove an attribute or category from the attribute layout, select it and then click the **Remove** button. Admin Manager displays a confirmation alert before removing the attribute or category.
- 6 When you answer **Yes** to the confirmation alert, the Admin Manager updates the attribute layout immediately.

Note: If you remove or a category by mistake, you must reenter all of the attributes that category contained in order to restore it.

Attributes and Filters as Presentation Objects

As discussed in Chapter 3, "Application Components," attributes have dual roles as data elements and presentation objects. Attributes can also be used as filters when configured as such in Web pages. For information about configuring attributes, please refer to "Multiple-Fact Measures with Disjoint Attributes" on page 80. For information about using attributes as filters in Web pages, refer to "Configuring Web Pages" on page 150.

Transaction Filters

Transaction filters allow users to select list members based on their participation of in transactions of a specific type that occur within a specific fact table. Transaction filters appear only on Campaigns Web pages.

When you create transaction filters, you can include additional selection criteria, called transaction filter filters , that allow users to further restrict list membership based on:

- The values of attributes that are related to the fact table. Such attributes must be part of a dimension that is linked to the fact table through any dimension role.
- Any measure that can be applied to the fact table.

Users cannot create transaction filters. However, users can add measures to transaction filters so that such transaction filters function as transaction filter filters.

Note: When you delete a fact table, the transaction filters that are defined on that fact table are not deleted. Instead, they point to NULL. Such transaction filters will not work until you point them to another fact table.

For list generation purposes, a transaction is an event that is recorded within a fact table. For example, if there is a record of a purchase made by a particular individual, a transaction filter that selects individuals who have made purchases would include the record for that individual in a list. A transaction can include any event for which a transaction type has been defined.

When used as a transaction filter filter, an attribute operates like a regular filter. For instance, if a user wants to generate a list of individuals who have purchased purple telephones, you could configure a transaction filter filter on the column that specifies the color within a product dimension.

Transaction filter filters that are based on measures allow users to specify a range of values, such as a dollar volume of purchases between \$100 and \$500.

Campaigns Web pages honor column access restrictions on list producing dimension roles. However, when the selection criteria for a list includes transaction filters that include attributes of other dimensions, the column restrictions of those non-list producing dimensions are ignored for purposes of list generation. Users do not see the values of non-list producing columns that are used to filter list members. They see only the list member records that result from the application of the transaction filter.

Configuring Transaction Filters

Perform the following steps to configure a transaction filter.

- 1** Right-click the **Transaction Filters** folder in the Admin Manager and choose **New Transaction Filter** from the pop-up menu, or double-click the icon for a transaction filter within that folder.
Alternatively, you can open the Web page dialog box by double-clicking the icon for a Campaigns Web page and choose the **Transaction Filters** tab, and then click **New** or double-click the entry for a transaction filter in the Object Gallery.
- 2** In the **General** tab of the Transaction Filter dialog box ("Figure 25: Transaction Filter Dialog Box" on page 98), enter or edit the following information about the transaction filter:
 - The name of the transaction filter.
 - The developer label, label, and negative label. The negative label is the name of a filter that excludes values that qualify for the transaction filter.
 - The text boxes for labels accept entries in the localized language, locale, and code page of the data mart. See Also, "International Language Support" on page 32 for details.
 - The dimension role. Any list producing dimension is allowed.
 - The fact table. Select the fact table that should be used for the filter.

- The transaction type or transaction type set to apply to the transaction filter. Note: fact table entries for which the transaction type value is not specified, are not included in the generated list when the transaction filter is applied.
- A description for the transaction filter for your reference. The **Description** text box accepts entries in the language, locale, and code page of the data mart.
- Select the **Requires backlog** option if this is a “Has Balance” transaction filter. “Has Balance” transactions include descriptions of state, such as having an account balance that is above a certain level. Measures that are used with “Has Balance” transactions must have at least one backlog term. Note: if the Run on EpiOp option is selected, then this option will be disabled.
- Select the Run on EpiOp check box, if you want your transaction filter to filter only the tables in the EpiOp database.

Note: Infor recommends that you use this option to filter the EpiOp databases. This option is useful when you need instant data from EpiOp.

Note: When the Run on EpiOp option is selected on the General tab of the Transaction Filters dialog, Infor Campaign Management automatically reduces the number of attributes displayed in the Object gallery of the Transaction Filter Filters tab. The Object gallery will only display Campaign, Cell, Message, and Date attributes. As well, Measures are also removed from the tab.

However, if attributes other than Campaign, Cell, Message and Date, are already selected when you try to select Run on EpiOp, then Infor Campaign Management displays an error message saying that unavailable attributes are currently selected, and blocks you from selecting the Run on EpiOp checkbox. As well, if any measures are selected, then Infor Campaign Management displays a similar error message, and creates the same block on the Run on EpiOp checkbox. To stop the messages and allow you to select the Run on EpiOp option, unselect the offending attributes and measures.

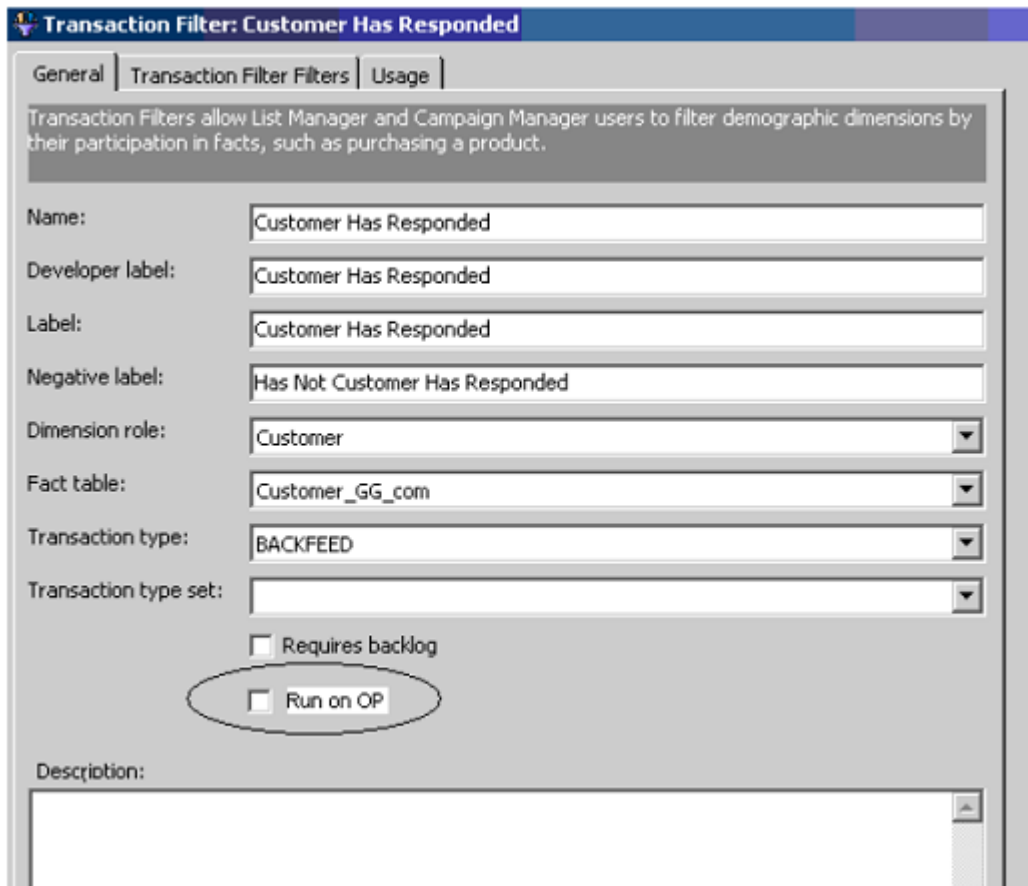


Figure 25: Transaction Filter Dialog Box

3 In the **Transaction Filter Filters** tab ("Figure 26: Transaction Filter Filters Tab" on page 99), select the attributes and measures that you want to use as transaction filter filters in this transaction filter. The available attributes and measures are located in two Object Galleries on the right side of the tab. Drag and drop your selected attributes and measures into the Transaction Filter Filters pane on the left.

- To add, edit, or remove attributes from the Object Gallery, choose an attribute, click the **New**, **Edit**, **Remove**, or **Factory** button to the right of the **Attributes** text box, and then enter the appropriate information in the **Transaction Filter: Attribute** or **Transaction Filter : Survey Attribute Creator** dialog box. Note: see the note in the previous step for the special conditions on the use of the Run on EpiOp option.
- To add, edit, or remove candidate measures from the Object Gallery, choose a measure, click the **New**, **Edit**, or **Remove** button to the right of the **Measures** text box, and then enter the appropriate information in the **Transaction Filter: Measure** dialog box.

Note: See the note in the previous step for the special conditions on the use of the Run on EpiOp option.

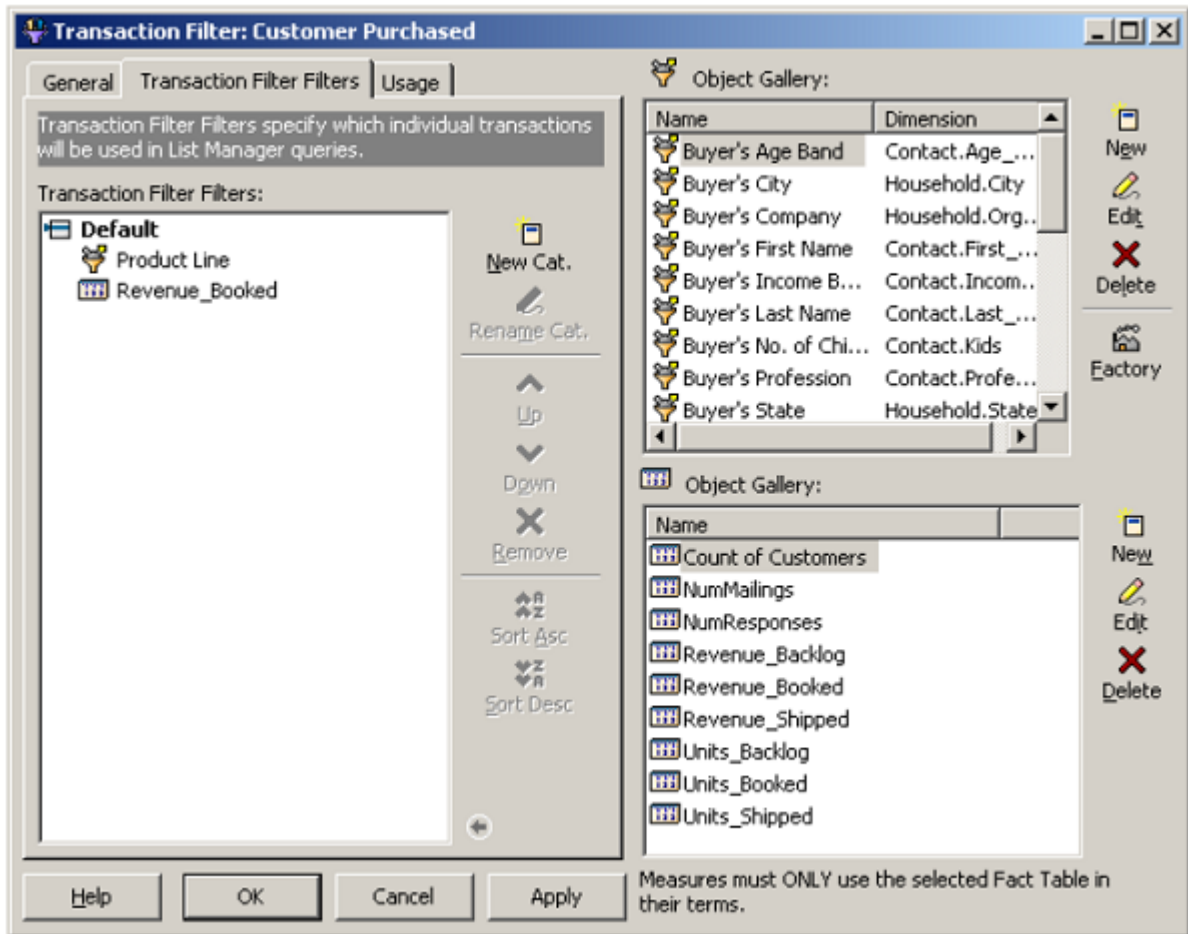


Figure 26: Transaction Filter Filters Tab

- 4 Create categories to split your transaction filter filters into subgroups by clicking the **New Category** button and specifying a name for the category. You can also remove and rename categories by selecting them in the Transaction Filter Filters pane and choosing the appropriate button.
- 5 Sort the display of transaction filter filters in any category by selecting the category that you wish to sort and using the **Up**, **Down**, **Sort Ascending** or **Sort Descending** buttons.
- 6 Remove a transaction filter filter by selecting it in the Transaction Filter Filters pane and clicking **Remove**

For more information about the Attributes and Measures dialog boxes, refer to "Measures" on page 59.

If you delete a transaction filter that is used in saved reports, you must either resolve the references to the deleted transaction filter or delete the saved reports that contain them. See "Replacing References to Deleted Objects in Saved Reports" on page 143 for details.

The Survey Attribute Creator: Transaction Filter Filters for Surveys

For the purposes of analyzing survey results, you might want to have multiple attributes that one filter on the same attribute in different ways. When creating the schema for survey data, you can use the **Survey Attribute Creator** dialog box (accessible from the **Transaction Filter Filters** tab of the Transaction Filter dialog box) to create transaction these attributes.

For example, assume you have an individual base dimension with an **indiv** dimension role that points to a fact table named **Answered**. The **Answered** fact table, in turn, points to the **Answer** dimension table that contains three columns: **Question**, **Answer**, and **Question and Answer Concatenated**. The **Question** column lists each possible question. The **Answer** column lists each answer to each question. The **Question and Answer Concatenated** column shows the distinct combination of each question-answer pair.

Table 4: Answer Dimension Table

| Question | Answer | Q and A Concatenated |
|-----------------------|-------------|----------------------|
| Favorite Color | Red | FavCol:Red |
| Favorite Color | Blue | FavCol:Blu |
| Favorite Color | Blue | FavCol:Blu |
| Favorite Color | Green | FavCol:Gre |
| Favorite Color | Red | FavCol:Red |
| Political Affiliation | Republican | PolAff:Rep |
| Political Affiliation | Democrat | PolAff:Dem |
| Political Affiliation | Republican | PolAff:Rep |
| Political Affiliation | Democrat | PolAff:Dem |
| Political Affiliation | Independent | PolAff:Ind |

Assume that a Campaigns Web page has demographic filters for **City** and **Income**. The end user wants to further drill down to find out which individuals responded in a certain way to one or more questions, such as those individuals from Omaha with an income in the \$50,000 range who are not affiliated with one of the two major political parties and whose favorite color is red (by applying two transaction filter filters).

To enable this type of two-occurrence filtering, design the Web page with a transaction filter named, for example, **Answered**, that consists of the unique question-answer pairs as transaction filter filters. (**Answered** represents a standard transactional filter.)

In this example, the check or list boxes available from the **Answered** transaction filter drop-down list derive from the **Question and Answer Concatenated** column of the **Answer** base dimension table. The query machinery needs to be able to uniquely identify a row; one way to do this is to concatenate question and answer values.

Perform the following steps to create multiple attributes that filter on the same dimension column for a survey.

Creating Attributes for Use in a Survey

- 1 In the **Dimension Column** area, select the dimension column that you wish to filter in different ways. For surveys, this is likely to be the dimension column with a survey question and answer concatenated together. (Question and Answer Concatenated in the example).
- 2 In the **Filter Type** list box, select one of the following filter types: **List Box** , **Check Boxes**, or **Radio Buttons** . Specify the list box height, or the number of columns, depending on which filter type you choose.
- 3 Open a **Transaction Filter** dialog box and click the **Transaction Filter Filters** tab. Click the **Factory** button to open the Survey Attribute Creator dialog box ("Figure 27: The Survey Attribute Creator Dialog Box" on page 101).

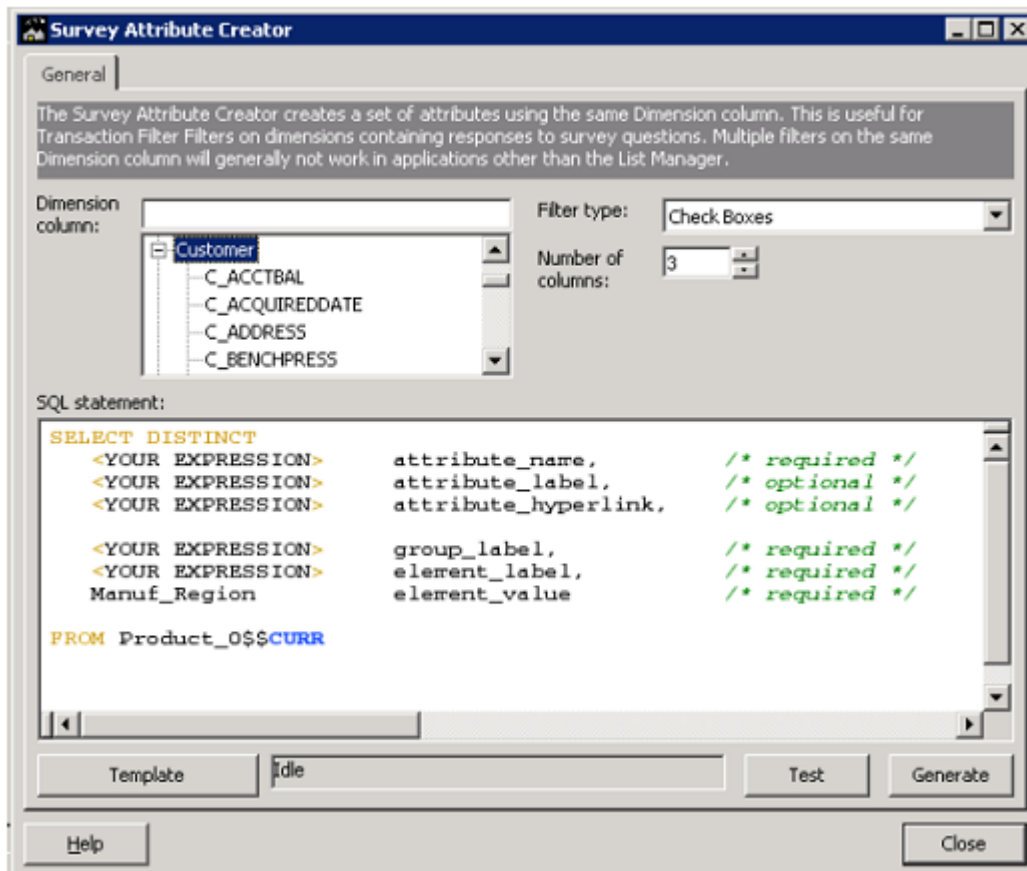


Figure 27: The Survey Attribute Creator Dialog Box

- 4 Click **Template** and fill out the query template. The `attribute_name` must be a unique name that is tied to a question. For `<YOUR EXPRESSION>`, enter `['Question' $$CAT question]` where `question` is the name of the `Question` column in the **Answer** base dimension table. (The concatenation ensures that the names do not clash with other attributes.) There should be one `attribute_name` per question. If appropriate, assign values to `attribute_label` and `attribute_hyperlink`.

The filter `group_label` is a further grouping mechanism. It is only for subcategories, for example, if one wanted to group Political Affiliation by categories such as frequent or infrequent voters. It can also be a literal, such as `All`. (A filter group label applies only to the check box filter type.)

For the filter `element_label`, enter the name of the `Answer` column in the **Answer** dimension table. These are the labels of the individual columns in the **Answer** drop-down list on the Web page.

For the `element_value`, enter the name of the unique question/answer pair column.

Adding Glossary Entries

Glossary entries allow you to provide definitions or explanations for the labels of data elements and other important terms that appear on Web pages. Labels for which a glossary entry has been defined appear as links on Web pages. When a user clicks the link for a label that has an associated glossary entry, the application displays a pop-up browser window that displays the definition.

Adding or Editing a Glossary Entry

- 1 Right-click the **Glossary Entries** folder, open the Basic or Campaign subfolder, and then choose New Entry, or double-click the icon for an existing entry in the right pane.
- 2 In the Glossary dialog box ("Figure 28: Glossary Dialog Box" on page 103), fill in the **Name**, **Developer label**, and **Label** text boxes.

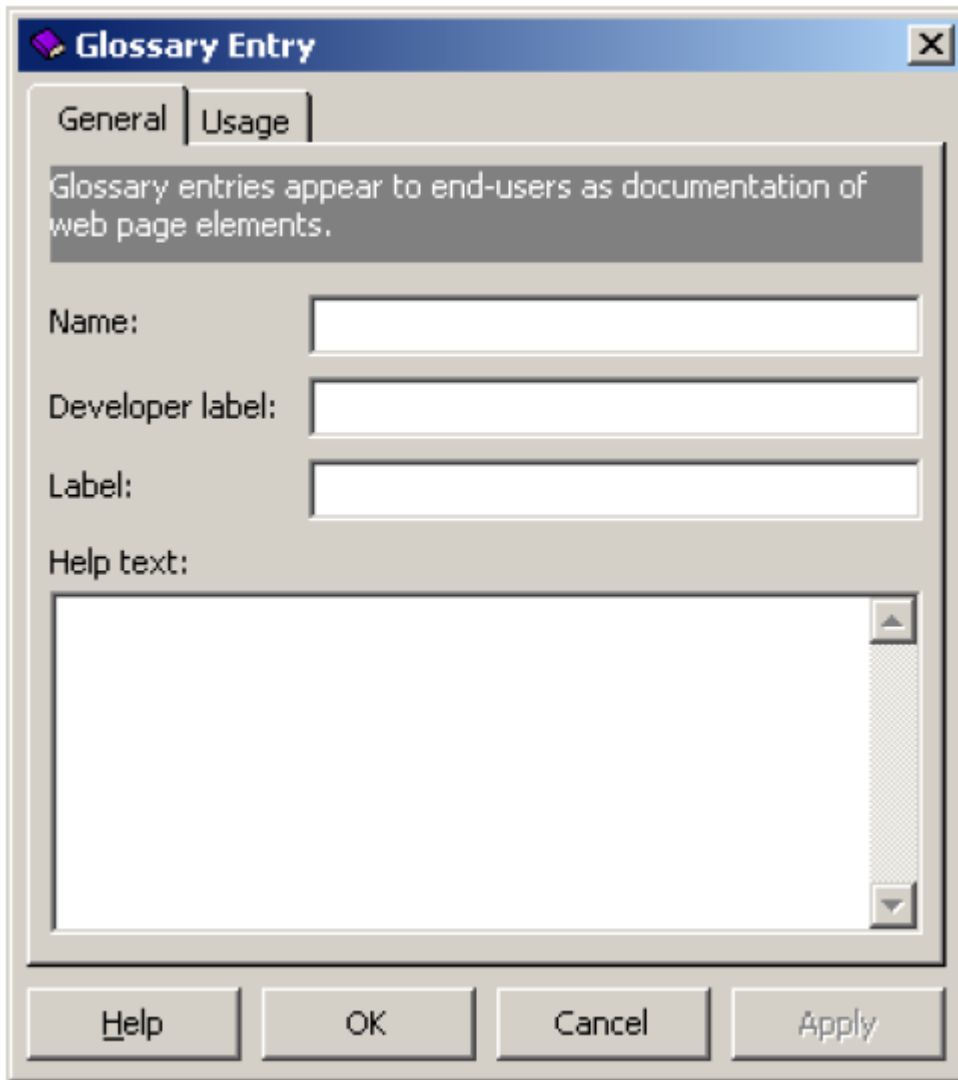


Figure 28: Glossary Dialog Box

The **Name** and **Help Text** boxes accept entries in the localized language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.

- 3 In the **Help Text** box, enter the definition that you want users to see. This description can include HTML coding for links. For example:

```
This is the dollar amount of revenue recognized. For more details,
see our policy at: <a href="www.company.com/policies/revrec.html">
revenue recognition</a>
```

- 4 When you click **OK**, the entry is added to the appropriate **Glossary Entries** folder. You can associate glossary entries with the labels for any of the following objects:

- Attributes
- Measure layout items
- Measure sets

Associating a Glossary Entry with an Attribute or Measure Set

- 1 Edit that object by double-clicking the appropriate icon.
- 2 In the dialog box for the selected object, choose a glossary entry from the **Glossary Entry** drop-down list and click **OK**

Associating a Glossary Entry with a Measure Layout Item

- 1 Edit the measure layout by double-clicking the icon.
- 2 Select the item and then click Edit Item.
- 3 Choose a glossary entry from the **Glossary Entry** drop-down list and click **OK** .

The Strings Repository

Infor Campaign Management maintains a repository of predefined strings in metadata that the Infor Campaign Management Server uses to render certain labels and descriptive-text fields that appear in Web pages. You can define alternative versions of existing strings, and use those versions to override the predefined versions, either within certain contexts or throughout all of your Infor Campaign Management applications. You can also incorporate strings from the repository into the prompts and descriptions that you define for navigation nodes and links. By using the strings repository, you can ensure that the Web pages and topics that you create use terminology that is consistent with the needs of your users.

The strings repository takes the form of a table in metadata with the following fields:

- ID
This field contains an integer that identifies all version of a string.
Note: String IDs from -10 to 999,999 are reserved.
- Description
This field contains a description of the function or usage of a string. The description field does not appear in any Web page. It is used only as a mnemonic aid for the implementor. The **Description** text box accepts entries in the language, locale, and code page of the data mart.
- Context

This field contains a label that associates a version of a string with navigation nodes. A string with a specific context value appears only in nodes that have the same node context.

- **Override**

This field contains an integer that the Infor Campaign Management Server uses to determine which version of a string to use within a given context. The version with the highest override within a particular context appears on the Web page.

Note: Override values from 0 to 9999 are reserved.

- **Value**

This field contains the sequence of characters that the Infor Campaign Management Server renders on a Web page. The value can include HTML character-formatting tags. The value of a string can include text in the localized language, locale, and code page of the data mart. See, "International Language Support" on page 32 for details.

Adding Strings to the String Repository

You can add new strings to the string repository by entering information in the new-entry row of the **Strings** tab in the Configuration dialog box. This row is highlighted with an asterisk and appears at the top of the strings list. Admin Manager sets the ID for a new string to 1,000,000 by default.

String Substitution Markers

You can embed string substitution markers in the strings that you add to the repository. You can add string substitution markers to any Label (but not Developer Labels), and they will appear in the front-end user interface. A substitution marker takes the form of a decimal integer surrounded by square brackets, for example: [5] . Wherever a substitution marker appears, the Infor Campaign Management Server replaces it with the value of the string that has the indicated ID. If multiple versions of that string appear in the repository, the Infor Campaign Management Server chooses the version that has the highest override value within the context of the node. If there is no version with the same context as the node, the Infor Campaign Management Server chooses the highest override value of those versions that have a null context.

You can embed substitution markers in any of the following descriptive fields:

- Navigation node titles
- Navigation node prompts
- Navigation link labels
- Navigation link prompts

See "Configuring Individual Navigation Nodes" on page 185 for information about these fields.

You can also include HTML paragraph and character formatting tags in these fields.

To enter a left-hand square-bracket character ([) within a string or descriptive-text field, enter a pair of square-bracket characters ([[). To enter a left-hand angle-bracket character (<), use the `<` escape sequence for HTML.

Note: Infor Campaign Management Server recognizes all other HTML escape sequences within strings and descriptive text fields. Depending on the values you enter, you might need to replace certain other characters with equivalent HTML escape sequences.

Default User Preferences

The **User Preferences** tab of the Configuration dialog box allows you to set default user preferences for your Infor Campaign Management applications. This tab also allows you to specify which users can view and modify a particular user preference through the Web-based user interface and which users cannot do so.

You can override the default user preferences that have been set in this tab by specifying user preferences for individual users and primary group members, as described on "Configuring Security and Storage" on page 113

The order of precedence is as follows:

- If a user preference is set to a specific value in the User dialog box for a given user, that value takes precedence over any other possible values. See "Configuring Security and Storage" on page 113 for information about configuring users.
- If the **Default** box is checked for a particular user preference in the User dialog box, the value of that user preference is taken either from the primary group of which that user is a member, or from the default value specified in the **User Preferences** tab of the Configuration dialog box. The primary group value, if set, takes precedence over the default value. See Also, "Configuring Security and Storage" on page 113 for information about configuring groups.
- If the **Default** box is checked for both an individual user and that user's primary group, the default value specified in the **Preferences** tab takes effect for that user.

You can click **Clear Overrides** to clear all of the overridden values for a particular preference. When you clear all overrides, all users are assigned the default value for the preference.

The **User Preferences** tab ("Figure 29: Configuration Dialog Box—User Preferences" on page 107) uses a grid control to give you editing access to the values of default user preferences.

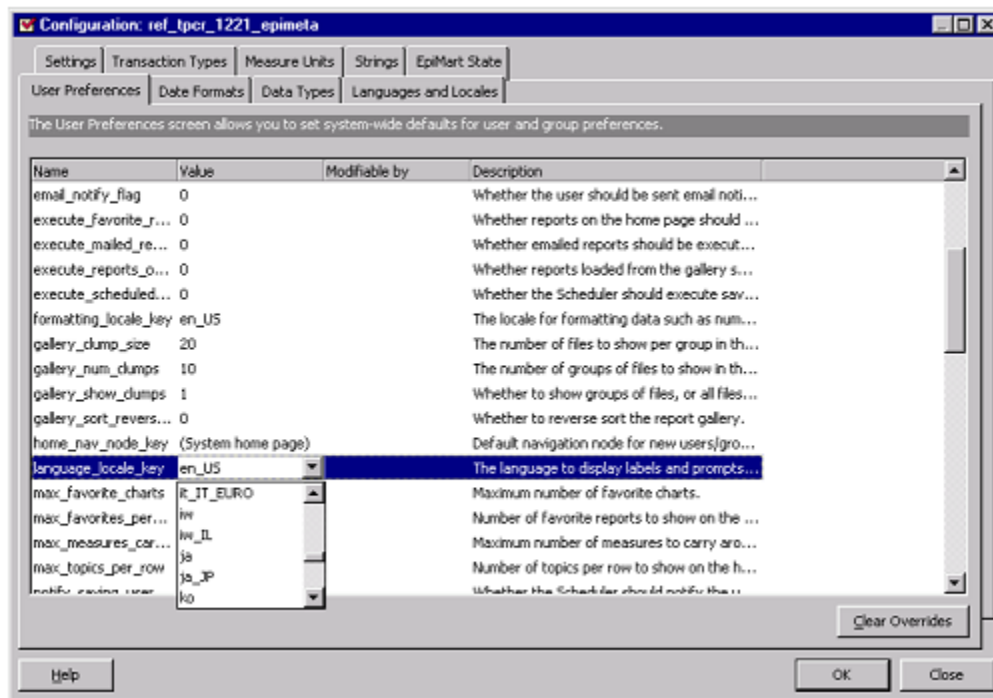


Figure 29: Configuration Dialog Box—User Preferences

To change the value of a user preference, click the **Value** field for that preference and then either edit the text field or select a value from the drop-down list, as applicable.

Changing a user preference value in the **User Preferences** tab clears preferences that were previously set for that value at the user and group level.

To specify users and groups who can modify a preference through the Web-based user interface:

- 1 Double-click the **Modifiable by** field for that entry to display the Choose: Users and Groups dialog box ("Figure 30: Choose Users and Groups Dialog Box" on page 108). All groups use the settings you specify here unless you manually override them in the **General** tab of the Group dialog box (by clearing the **Use Default** check box in the User Preferences pane.)
- 2 Select each group or user to whom you wish to grant modification privileges. You can click the **Select All** button instead to check the boxes for all groups and users, and then uncheck those for which modification is to be denied.

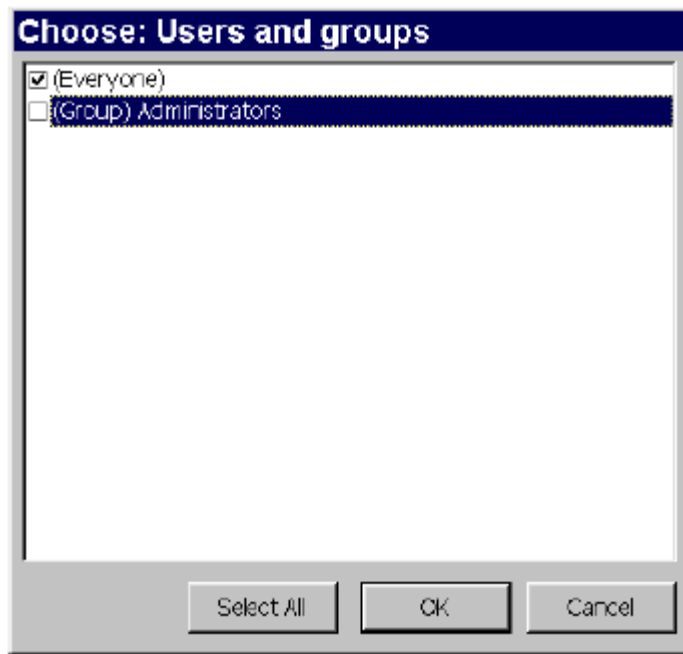


Figure 30: Choose Users and Groups Dialog Box

The User Preferences table below lists the user preferences that are available. A value of 0 disables an optional preference. A value of 1 enables an optional preference.

Table 5: User Preferences

| Name | Description |
|-------------------------|--|
| allow_list_download | Determines whether the user may perform download of list and campaign reports. |
| allow_report_download | Determines whether the user may perform download of non-list reports (for example, Rows and Columns and Trends reports). |
| calendar_type | Calendar to use for date formatting. |
| code_page_key | Code page to use to encode the Web page. |
| dashboard_editor | May this user edit dashboards? |
| dashboard_may_publish | May this user publish dashboards? |
| dashboard_may_refresh | May this user refresh dashboards only with the Refresh button? |
| dashboard_only | May this user only view dashboards? |
| default_count_to_approx | Determines whether the default choice for Get Counts is Approximate or Exact. |

| Name | Description |
|--|---|
| display_full_list_paths | Determines whether to display full list paths in Web pages. |
| email_address | Specifies the email address. |
| email_notify_flag | Determines whether the user should be sent email notifications. |
| execute_favorite_reports | Determines whether reports on the home page should be executed when clicked. |
| execute_mailed_reports | Determines whether emailed reports should be executed when clicked. |
| execute_reports_on_load | Determines whether automatic execution of reports saved in the Report Gallery should automatically execute clicked. |
| execute_scheduled_files_as_saving_user | Determines whether the Scheduler should execute saved files as the user who saved the file (as opposed to the user who scheduled the file). |
| formatting_locale_key | Specifies the locale for formatting data such as numbers and dates in the Web interface. |
| gallery_clump_size | Specifies the number of files to show per group in the Report Gallery. |
| gallery_num_clumps | Specifies the number of groups of files to show in the Report Gallery. |
| gallery_show_clumps | Determines whether to show groups of files, or all files, in the Report Gallery. |
| gallery_sort_reverse_flag | Determines whether to reverse sort the Report Gallery. |
| GroupSecurityFiltersUnionAllOrPrimary | Whether group security filters are taken from all groups to which a user belongs or only from a user's primary group |
| home_nav_node_key | Specifies an alternative default navigation node for users or groups. |
| language_locale_key | Specifies the language in which labels and prompts are to appear in the Web interface. (See "Output Processors" on page 129.) |
| max_favorite_charts | Specifies maximum number of favorite charts to display on a user's home page. |
| max_favorites_per_topic | Specifies the maximum number of favorite reports to display beneath each topic in a user's home page. |

| Name | Description |
|---|--|
| max_measures_carried | Determines the maximum number of measures carried with a user in a given session. For example, you can load multiple measures in Rows and Columns—a certain number will be carried along when you navigate to Scoring or Profiling. |
| max_topics_per_row | Determines the number of topics per row to appear on the home page. |
| notify_saving_user_of_schedule_completion | Specifies whether the Scheduler should notify the user who saved the file of the completed execution of that file (in addition to notifying the user who scheduled the file). |
| oracle_sort_order | The sort ordering used on Oracle marts. |
| query_timeout | User specific query timeout value. Indicates longest a query can run before the Infor Campaign Management Server moves the query from the foreground to the background or terminates the report. If the configuration key CancelReportOnTimeout is set to 1, the Infor Campaign Management Server terminates the report when a foreground report reaches the query_timeout limit. Otherwise, the Infor Campaign Management Server moves the query to the background. A background report cannot be terminated by any timeout configuration keys. |
| report_gallery_col_description_show | Determines whether to show the Description column in the Report Gallery. |
| report_gallery_col_description_x | Specifies relative x coordinate of the Description column in the Report Gallery. |
| report_gallery_col_lastmodifiedby_show | Specifies whether to show the Last Modified By column in the Report Gallery. |
| report_gallery_col_lastmodifiedby_x | Specifies relative x coordinate of the Last Modified By column in the Report Gallery. |
| report_gallery_col_lastmodifieddate_show | Specifies whether to show the Last Modified Date column in the Report Gallery. |
| report_gallery_col_lastmodifieddate_x | Specifies relative x coordinate of the Last Modified Date column in the Report Gallery. |
| report_gallery_col_type_show | Specifies whether to show the Type column in the Report Gallery. |
| report_gallery_col_type_x | Specifies relative x coordinate of the Type column in the Report Gallery. |

| Name | Description |
|---|--|
| report_gallery_sort_on | Specifies the column within the Report Gallery that is used to sort the objects that appear. |
| report_gallery_type | <p>Specifies the manner in which saved reports are listed in the Report Gallery:</p> <ul style="list-style-type: none"> • FoldersAndFilesOnly indicates that only the hierarchical listing is available. • Files indicates that only the tabular listing is available, which includes all accessible reports of a given type regardless of their location within the hierarchy. • FoldersAndFiles indicates that both display modes are available to users. |
| show_bg_mode_selector | Enables or disables the background-mode selector for long-running queries. |
| Show_security_filters_when_changing_context | Whether to show security filters from the previous context when changing to a new context. |
| sqlserver_sort_language | Specifies the language used for sort ordering on SQLServer. |
| sqlserver_sort_order_accent_sensitive | Specifies whether linguistic sorting on SQLServer is accent sensitive. |
| sqlserver_sort_order_bin_override | Specifies whether linguistic sorting on SQLServer is binary. |
| sqlserver_sort_order_case_sensitive | Specifies whether linguistic sorting on SQLServer is case sensitive. |
| sqlserver_sort_order_kanatype_sensitive | Specifies whether linguistic sorting on SQLServer is kanatype sensitive. |
| sqlserver_sort_order_width_sensitive | Specifies whether linguistic sorting on SQLServer is width sensitive. |
| starting_folder_path | Enter a valid folder path to be used by the Report Gallery as the default starting folder path. If you do not enter a path, the Report Gallery will use each user's personal folder as the default starting folder path. |
| suppress_images | Enables or disables the suppression of images in Web pages. Setting this preference to 1 can improve performance over a wide-area network (WAN) by removing images from display. |
| tasks_not_executed | How to handle tasks that could not be executed at the scheduled time. Only applicable if time-based scheduling is enabled. |

Configuring Presentation Objects

| Name | Description |
|------------------------|--|
| timezone_id | Specifies the default time zone for new users/groups. |
| tm_mode_completed | Enables or disables task manager mode for completed tasks. |
| tm_mode_running | Enables or disables task manager mode for running tasks. |
| tm_mode_scheduled | Enables or disables task manager mode for scheduled tasks. |
| tm_refresh_rate_min | Specifies the interval, in minutes, between content updates to task manager Web pages. |
| tm_show_completed | Determines whether the task manager shows completed reports. |
| tm_show_running | Determines whether the task manager shows running reports. |
| tm_show_scheduled | Determines whether the task manager shows scheduled reports. |
| use_list_attributes | Determines whether to use list attributes. |
| wireless_email_address | Specifies the address for wireless email messages. |

The **Security/Storage** folder contains subfolder and icons that allow you to:

- Control user access to data and saved reports
- Specify initial user preferences on a group or individual basis

Access Rights for Users

User access is controlled through authentication and access rights. Authentication is the process that determines if a user is allowed log in to the system. The Infor Campaign Management Server relies on the operating system of the computer on which it runs to perform authentication. Access rights specify the permissions that a user requires in order to open specific objects (such as Web pages or saved reports) or perform specific actions (such as activating permission rules in campaigns).

Access rights govern a user's ability to perform the following actions in an Infor Campaign Management application:

- Open a Web page associated with a navigation node and see and follow links to that node.
Access rights can be inherited from a group of which a user is a member.

- Save reports.

Saved reports or queries, stored as specifications that correspond to the options that a user has selected on a Web page (in order to generate a report). Access rights to saved reports can be inherited from a group.

- See or query specific attribute values and associated measure subtotals.

You can specify column restrictions on dimension columns (attributes) for users or groups. Column restrictions allow you to limit access to specified attribute values without unduly complicating the schema of the data mart. Only one restriction per dimension column can apply to any one user. The order of precedence is as follows:

- If a column restriction is specified for a user, that restriction takes precedence over any other restrictions on the column that might be inherited from any group.
- Otherwise, if a user inherits different restrictions on a given column from different groups, the column restriction from the primary group takes precedence, even when the primary group grants

full access to the column. See "Configuring Groups" on page 116 for more information about primary groups.

- If the user inherits only one column restriction from her or his group memberships, that column restriction applies.
- Act as a delegate for another user
Delegates can schedule or modify scheduled tasks and campaigns on behalf of another user. Delegates can also specify permission rules for campaigns that are created by another user.

Synchronized Groups

To simplify the management of access rights, Infor Campaign Management group memberships can be synchronized with groups that are listed in the OS, domain or lightweight directory access protocol (LDAP) repository of the Infor Campaign Management Server. The authentication data that is used for group synchronization depends on the security module you set in the **SecurityModel** setting. (In Admin Manager, choose **Configuration > Settings > Behavior > Security > SecurityModel** to view or edit this setting). See "Security" on page 220 for information about these security modules.

Indicating that a group is to be synchronized ensures that the group memberships in metadata match the group memberships in your operating system or domain. Each time a user logs in, Infor Campaign Management Server queries the security module for a list of group names to which that user belongs. If the user is a member of a group but is not yet listed as such in a synchronized Infor Campaign Management group of that same name, Infor Campaign Management Server updates the metadata for that group to add the user as a member.

Conversely, if the user is no longer a member of an OS or domain group, but there is such a membership record in the metadata of a synchronized group, the Infor Campaign Management Server updates the metadata to remove that user.

If you are using a Tivoli directory server, Single Sign-On (SSO) groups must be synchronized. With other directory servers, this is optional.

The Security/Storage Folder

The **Security/Storage** folder displays the following subfolder and icons, which allow you to manage the indicated access rights, display characteristics, and storage objects.

- Groups
This folder allows you to:
 - Assign users to groups within your Infor Campaign Management application.
 - Specify default access rights to data mart columns and navigation nodes for primary group members.
See "Topics" on page 179 for more information about navigation nodes.

- Specify user preferences for primary group members.
User preferences for primary group members override default preferences that are set in the **Configuration\User Preferences** folder.
- Specify delegates who can modify scheduled or running tasks on behalf of primary group members.
- Specify whether authentication information for primary group members is to be synchronized with domain or OS groups.
- Users
This folder allows you to:
 - Manage multiple group affiliations and select primary groups for individual users.
 - Manage access rights for individual users.
 - Specify initial user preferences for individual users.
User preferences for an individual override default preferences that are set for primary group members.
 - Specify delegates who can modify scheduled or running tasks on behalf of individual users.
- Touchpoints
A touchpoint is a way of communicating with your customers, such as direct mail, email, telephone, or Web page. Opening this folder enables you to automate end user selection of a touchpoint output format by selecting a predefined output format and associating it with the touchpoint you are working with.
- Output Processors
This folder displays options for processing and storing output files for campaigns.
- LDAP Servers
This folder allows you to add and update LDAP servers to which authentication requests can be sent when LDAP is used as an authentication mechanism.
- Foreign System
This folder allows you to configure a connection to a system that hosts a supported external application, such as Marketing Resource Management.
- Report Gallery
This item allows you to organize and manage access rights to saved reports, lists, and campaigns within the Report Gallery.
- Campaign Archive
This item contains version histories of completed campaigns

Configuring Groups

Members of a group share similar access rights, or permissions, within your Infor Campaign Management applications. For ease of administration, Infor suggests that you use groups to specify access rights whenever possible. Access rights set for a user, however, take precedence over the access rights set for groups to which the user belongs.

Users can belong to any number of groups, but each user can be assigned only to one primary group. A user's primary group is used:

- For synchronizing account information with the network or OS domain when synchronization for that group is enabled.
See "Synchronized Groups" on page 114 for information about synchronization.
- As a factor in determining initial user preferences.
If you do not specify initial values of user preferences for an individual, initial values for that individual derive from the values you set for that individual's primary group.
-
- As a factor in determining which preferences a user can modify.
When the modifiability of a user preference is restricted to a group, primary group members can see and alter the settings for that preference through the User Preferences Web page.
- As a factor in determining the precedence of column restrictions.
See "Access Rights for Users" on page 113 for details.

Defining a Group

Once a group has been defined, it appears as a subfolder in the **Groups** folder in the **Security and Storage** folder. You can right-click a group folder and use the pop-up menu to set up a new group, or to edit, delete, or duplicate the group. A duplicate group is identical except for its group name.

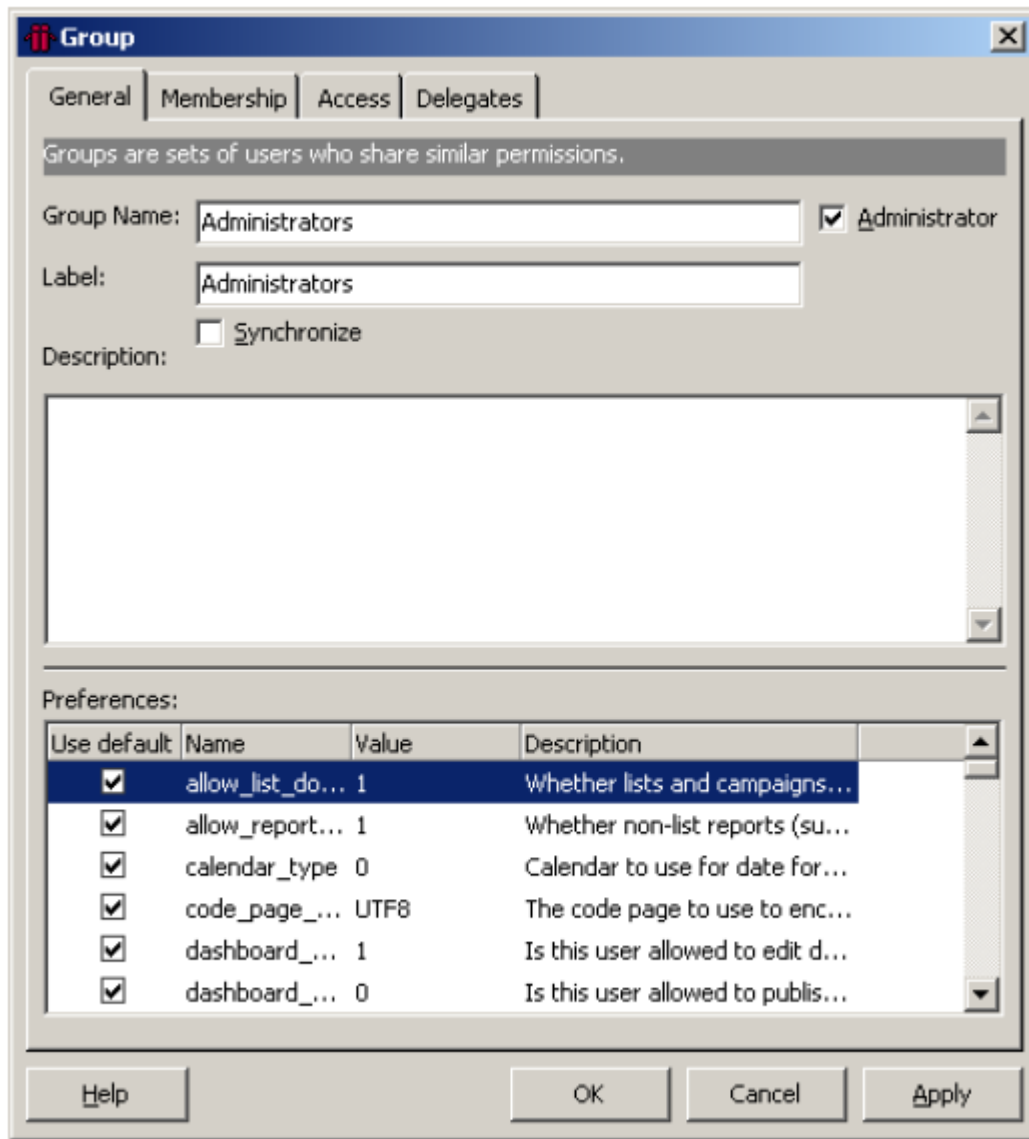


Figure 31: Group Dialog Box: General Tab

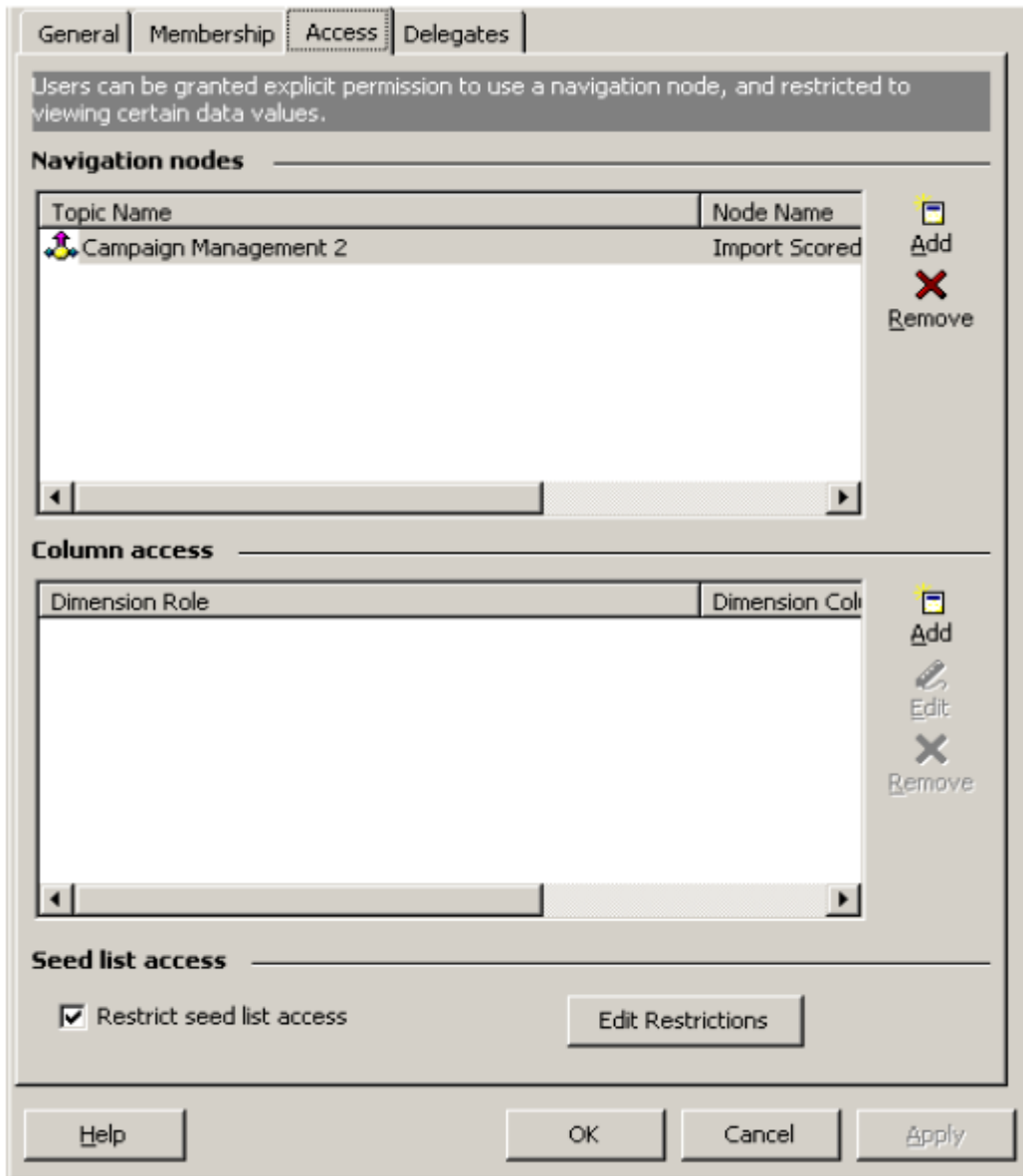
Restricting the Seed List Access for a Group (or user)

Seeds are dummy records that are included in campaigns that target members of the dimension. They can be used to verify that campaigns have been executed, or that fulfillment houses have not sold campaign information to other vendors. For a discussion of seeds, refer to “The Seed Fact Table” and “Extracting Seed Data” sections in the Datamart Implementation Guide.

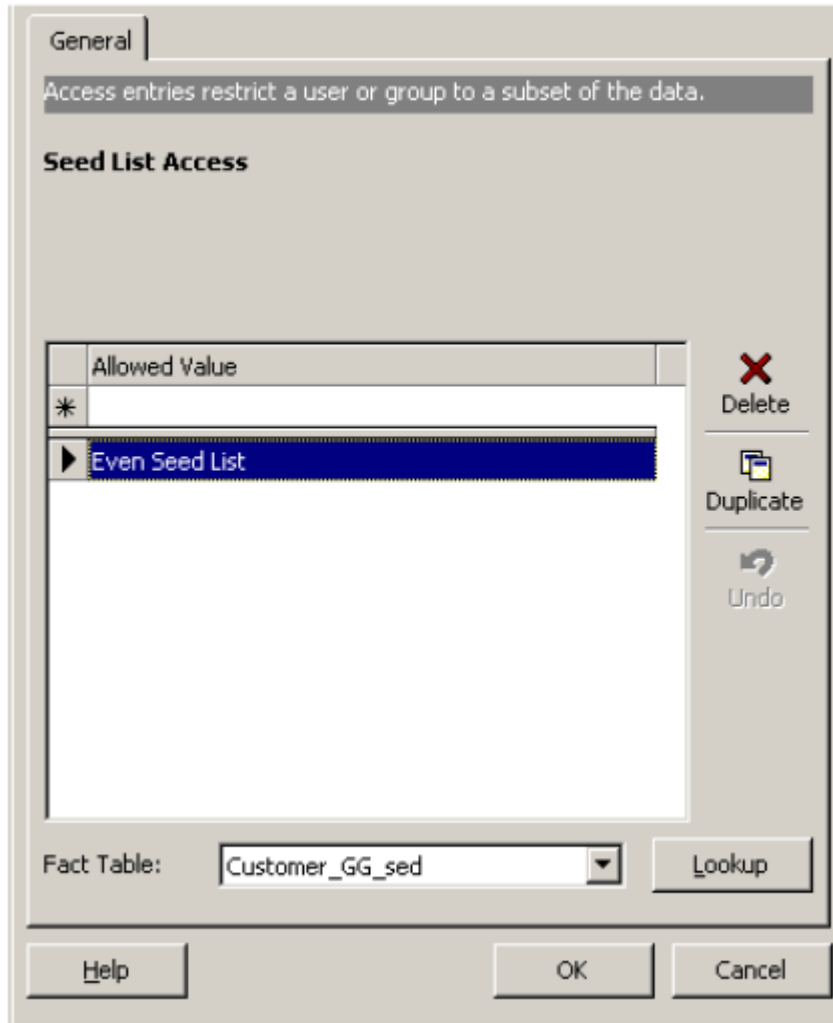
You can restrict the seed lists that a group (or user) can access in the same way that you can currently limit access to certain dimension columns. Normally, if a group (or user) wants to include seeds in a campaign, they can use the seeds from any of the seed lists. With this feature, you can restrict a group’s

(or user's) access to the seed lists. If you add a seed list access restriction for a group (or user), that group (or user) can only use the seed lists to which they have been explicitly granted access.

Near the bottom of the Access tab of group (and user) dialog boxes, you can select the Restrict seed list access check box to restrict the seed list access:



When you check Restrict seed list access or click Edit Restrictions (if the seed list access has already been restricted), you will see a dialog box similar to the one used to restrict dimension column access:



In this Seed List Access dialog box, you can enter the allowed seed list names manually or look up existing values in a fact table that includes the SeedListName degenerate dimension. (Normally, you would look up these values in the seed rider fact for a dimension that uses seeds.) The user (or group) can access only those seed lists whose names are specified here. Note that these restrictions apply to uses of seeds in all dimensions (not just in the dimension whose rider fact you used for the lookup).

Without seed list access restrictions, when an end user chooses to add seeds to a campaign, that user is allowed to choose from all available seed lists. With seed list access restrictions, the user is only allowed to choose from the seed lists to which that user has been granted access

Defining a Group

- 1 In the **Security and Storage** folder, right-click the **Groups** subfolder and select **New Group** from the pop-up menu. ("Figure 31: Group Dialog Box: General Tab" on page 117.)
- 2 In the **General** tab, enter the name of the group in the **Group Name** text box.

3 Select the **Synchronize** option to add new users to the group based on your organization's existing user and group information.

- For **Windows 7**-based authentication, precede Windows synchronized group names with their Windows domain name prefix (and matching name).
- For LDAP-based authentication, specify the directory path to the specified group using the following syntax: **cn=GROUP, ou=ORG_UNIT, o=ORG** . For example, Infor might use the following text to specify its Engineering group: **cn=Engineering, ou=Groups, o=Infor.com** .

The Synchronize option ensures that the group listing in metadata matches the group listing in your Windows or LDAP domain. Each time a user logs in, the Infor Campaign Management Server queries the Windows or LDAP security API for a list of group names to which that user belongs. If the user is a member of a Windows or LDAP group but is not yet listed as such in a group of that same name in your EpiMeta database, the Infor Campaign Management Server updates the metadata for that group to add that user.

Conversely, if the user is no longer a member of a Windows or LDAP group, but there is such a membership record in metadata, and the group is marked synchronized, the Infor Campaign Management Server updates the metadata to remove that user.

4 Select **Administrator** if members of this group have administrative rights. An Administrator can see all Web pages and reports in the system, but cannot modify special folders, such as the **Public** folder. (See "Output Processors" on page 129 for a discussion of special folders.)

5 Use the Preferences pane to alter preferences for the group.

6 You can use the **Membership** tab to add already created users to the group. Users may be members of multiple groups:

- To add an already created user, click **Add User** , then select the user's name from the **Choose User** dialog box and click **OK**
- To import Windows or LDAP users into the group, click **Import Users** and enter the Windows domain or LDAP server name in the dialog box. Click **New** to specify a new LDAP server in the **LDAP Server** dialog box.

When you import users you have the option of retaining existing group memberships from your Windows or LDAP Server if corresponding groups already exist in your EpiCenter. For example, if you import a user who was a member of the Engineering group and you have an EpiCenter group named Engineering, the imported user is automatically added to the EpiCenter Engineering group.

Note that this operation adds users to existing groups, but it does not add new EpiCenter data mart groups.

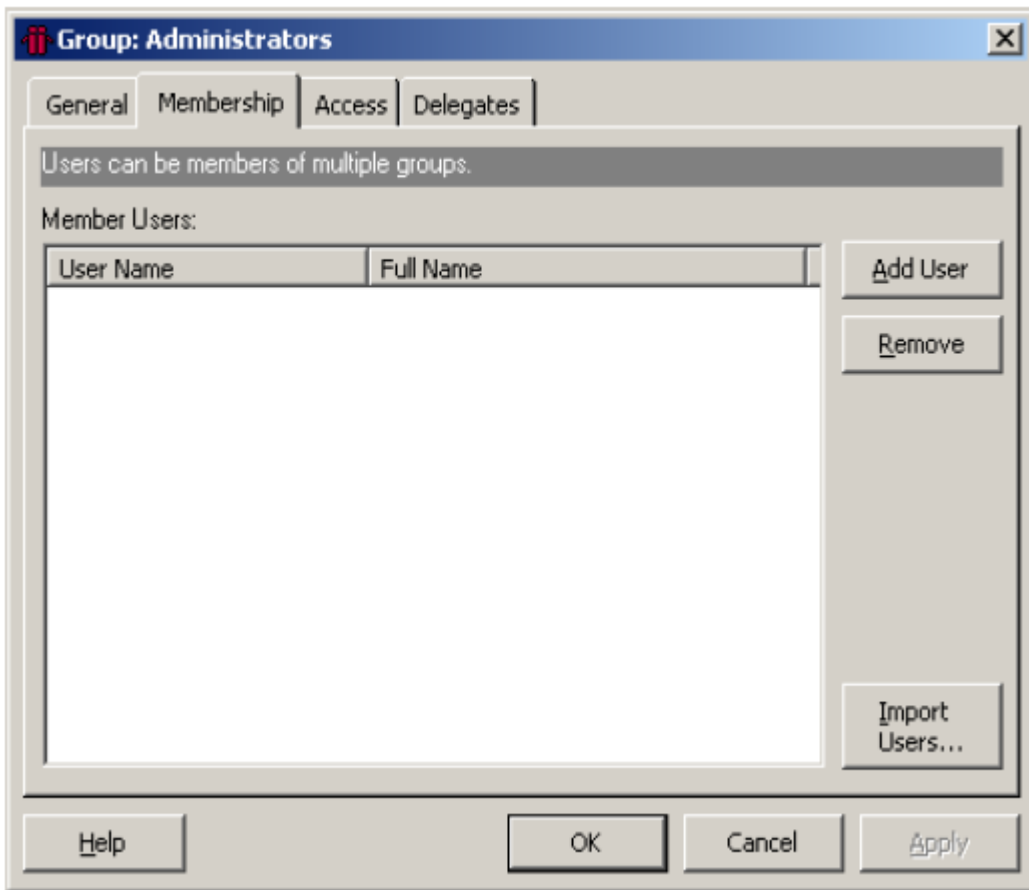


Figure 32: Group Dialog Box: Membership Tab

- 7 You can use the **Navigation Access** tab to assign all members of the group access to topics and navigation nodes. Users have the ability to access all nodes for which group access has been granted. Click **Add Nodes** and select the topic/node from the list.
- 8 Before you can create new topics, you must set permissions for all nodes. Otherwise, these nodes do not appear when you start Infor Campaign Management Server. You can select all nodes when adding them to a user or group. Alternatively, you can open the topic, select the **Navigation Nodes** tab and select all of the nodes in the list. Click **Add Group**, and choose the group to assign all members of the group permission to see all of the nodes in the topic.
- 9 You can use the **Column Access** tab, which is the same for users and groups, to restrict access rights for the Web page to attributes that derive from particular dimension columns.
 - a Click the **Add Column** button, which displays the Dimension Column Access dialog box.
 - b Select the dimension role for the selected dimension column from the drop-down list.
 - c To display all of the values in the dimension column, click **Lookup**, which accesses the dimension data directly. Select a value or values from the listing and click **OK** to add it to the value list.

The values you enter in the list should correspond to actual database values in the base dimension table to which that dimension column corresponds. For example, selecting `Date.fy_name` as the column with the values 1997 and 1998 causes all reports to be filtered by these values.

If you know the exact value of the dimension column whose values are accessible to the group, use the grid control to enter that value. Repeat this step to add additional values.

Fact data that is associated with other years is omitted from reports that are generated by the user or group members to whom the column access restriction applies.

If you know the exact value of the dimension column whose values are accessible to the group, use the grid control to enter that value. Repeat this step to add additional values.

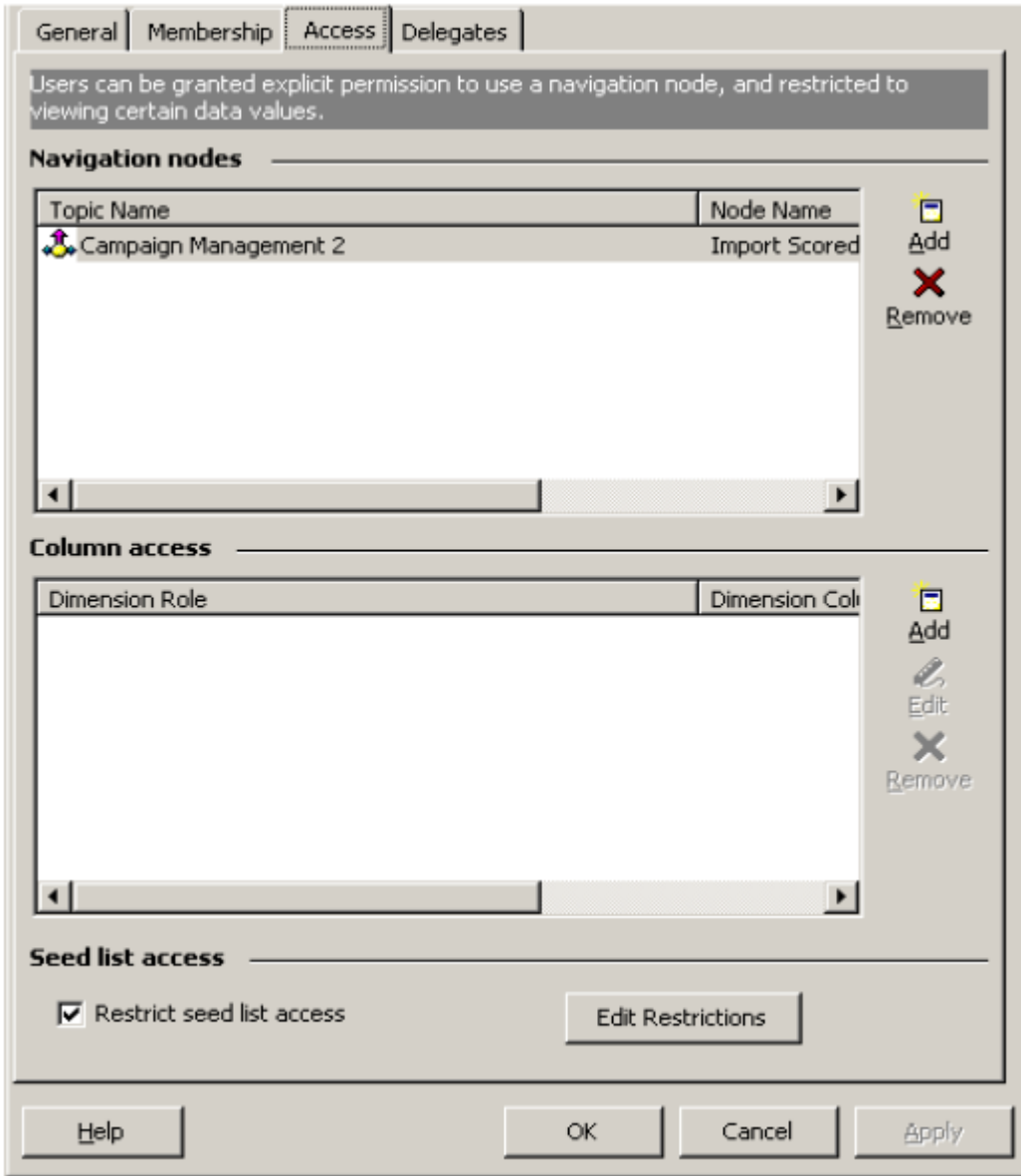
- d Click **OK**.

Restricting the Seed List Access for a Group (or user)

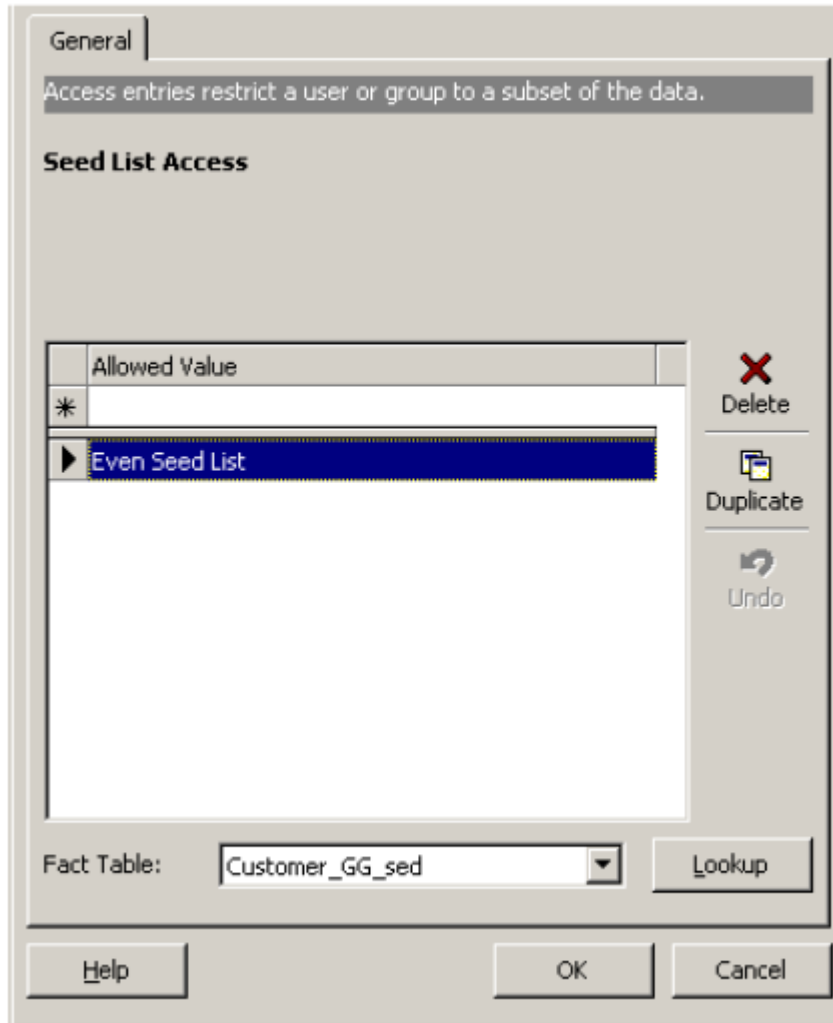
Seeds are dummy records that are included in campaigns that target members of the dimension. They can be used to verify that campaigns have been executed, or that fulfillment houses have not sold campaign information to other vendors. For a discussion of seeds, refer to “The Seed Fact Table” and “Extracting Seed Data” sections in the Datamart Implementation Guide.

You can restrict the seed lists that a group (or user) can access in the same way that you can currently limit access to certain dimension columns. Normally, if a group (or user) wants to include seeds in a campaign, they can use the seeds from any of the seed lists. With this feature, you can restrict a group’s (or user’s) access to the seed lists. If you add a seed list access restriction for a group (or user), that group (or user) can only use the seed lists to which they have been explicitly granted access.

Near the bottom of the Access tab of group (and user) dialog boxes, you can select the Restrict seed list access check box to restrict the seed list access:



When you check Restrict seed list access or click Edit Restrictions (if the seed list access has already been restricted), you will see a dialog box similar to the one used to restrict dimension column access:



In this Seed List Access dialog box, you can enter the allowed seed list names manually or look up existing values in a fact table that includes the SeedListName degenerate dimension. (Normally, you would look up these values in the seed rider fact for a dimension that uses seeds.) The user (or group) can access only those seed lists whose names are specified here. Note that these restrictions apply to uses of seeds in all dimensions (not just in the dimension whose rider fact you used for the lookup).

Without seed list access restrictions, when an end user chooses to add seeds to a campaign, that user is allowed to choose from all available seed lists. With seed list access restrictions, the user is only allowed to choose from the seed lists to which that user has been granted access

Assigning Delegates to a group

You can use the **Delegates** tab to assign delegates who can monitor or modify the status of scheduled reports, favorite charts, and campaigns on behalf of members of a group. Delegates can also use the Infor Campaign Management Server monitor to create rule sets for permission-based campaigns.

Assigning Delegates to a Group

- 1 Open the **Delegates** tab of the Group dialog box.
- 2 Click the **Add** icon.
- 3 Choose the name of a user or group and click **OK**.
- 4 Click in the **Permissions** field of the entry in the delegates list that you have just added. Choose **Read Only** to allow the delegate to monitor the status of group members' scheduled reports. Choose **Read/Write** to allow the delegate to modify the status of group members' scheduled reports.

Note: The Administrator group is always treated as a delegate for every user.

Administrator Groups

You can make any group an administrator group, and there can be multiple administrator groups in the system. If a user belongs to such a group, that user has special permission when it comes to report/folder and Web-page access.

Administrator users can save, overwrite, create, and change properties and permissions on any folder that is not reserved and any report, list, or campaign that is not hidden.

Note: Special folders are top-level folders, such as Public and All Users, or user/group folders, or default folders. Hidden folders are the MailTo folder. Hidden reports are clipboard reports.

Administrator users have access to all navigation nodes in the system and can view all user information in the task manager Administrator users also have access to the Infor Campaign Management Server Monitor Web page.

Configuring Users

The **Users** folder contains icons that represent authorized user accounts. Each user has access rights that derive either from the group memberships or from individual settings that you configure. Other than the access rights that users inherit from group memberships, by default new users have no access rights and no column restrictions. Access rights that you must grant to users before they can interact with your Infor Campaign Management application include:

- Access to topics and navigation nodes.
- Permission to save reports.
- Appropriate column restrictions to prevent unwanted access to specific ranges of attribute values and associated measure subtotals.

Note: For ease of administration, Infor suggests that you use groups to confer access privileges whenever possible, and that you grant access rights to individuals on an exception basis.

Adding New User Accounts

Perform the following steps to import user accounts from your OS, domain, or LDAP repository.

Importing User Accounts

- 1 Right-click the **Users** folder.
- 2 Select **Import Users** from the pop-up menu.

Note: You must register an LDAP server before you can import user information from an LDAP repository. See "LDAP Servers" on page 131 for details.

Adding an Individual User Account

To add an individual user account to your Infor Omni-Channel Campaign Management application:

- 1 Right-click the **Users** folder.
- 2 Select **New User** from the pop-up menu.
- 3 In the User dialog box ("Figure 33: User Dialog Box: General Tab" on page 127), enter information about the user, as described in the next section.

After a user account has been added, it appears as an item in the **Users** folder.

You can duplicate a user account by right-clicking the icon for user that has the characteristics you desire and then choosing **Duplicate** from the pop-up menu. A duplicate user is identical except for its group name.

Editing User-Account Information

To edit user-account information, expand the **Users** folder, double-click the name of a user account to edit, and then perform the following steps:

Editing User Accounts

- 1 In the **General** tab ("Figure 33: User Dialog Box: General Tab" on page 127), enter the user name if it is not already present and include the domain prefix. For example:

```
MyCompany\BenW
```

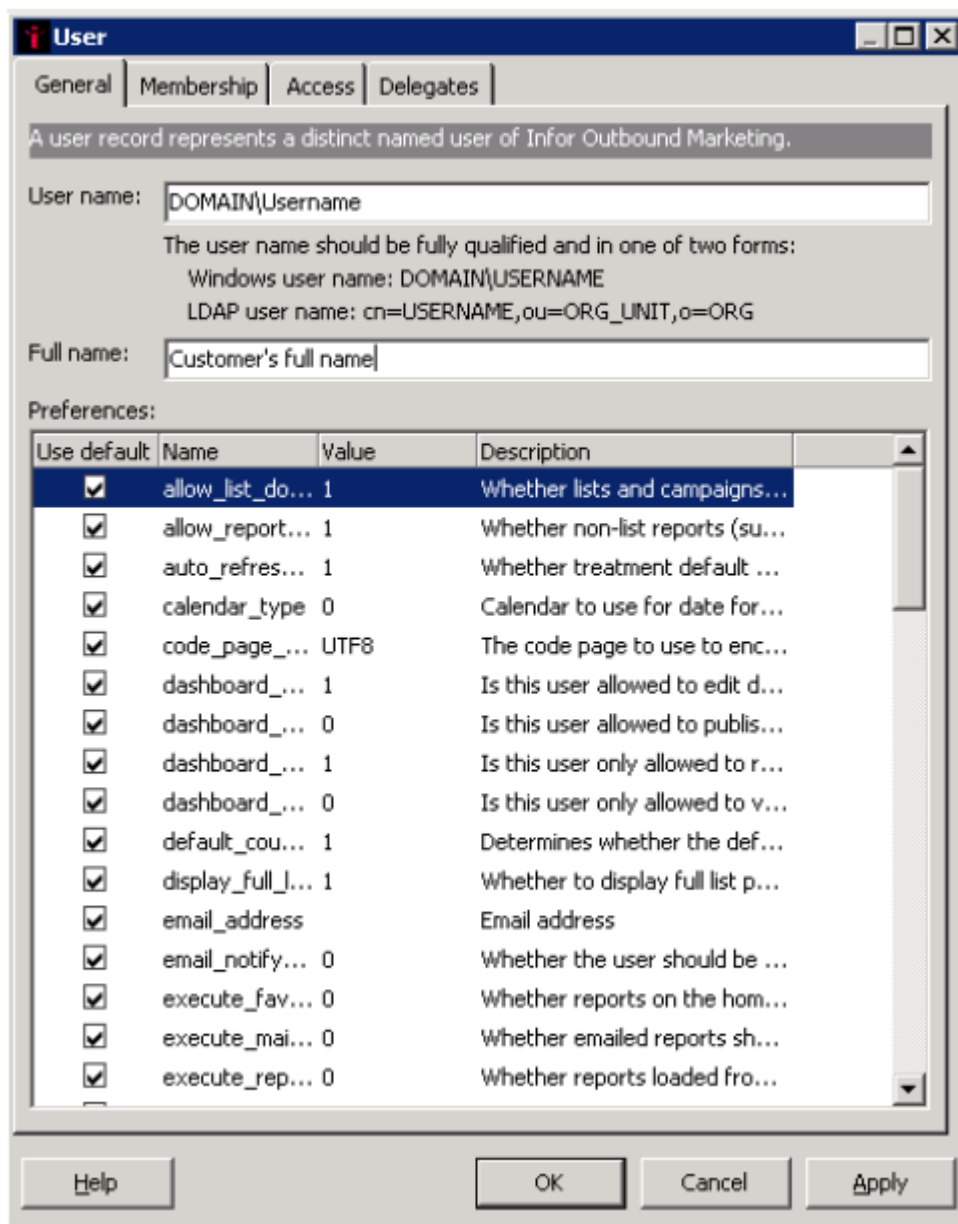


Figure 33: User Dialog Box: General Tab

- 2 Enter the full name of the user in the **Full name** text box. The name must be unique within the domain. The **Full Name** text box accepts entries in the localized language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.
- 3 Use the **Preferences** grid control to modify user preference values that apply to an individual user. See "Default User Preferences" on page 106 for information about the user preferences that appear. To edit a user preference, you must uncheck the **Use Default** box for that preference. User preference values that you specify for an individual user take precedence over:
 - Those specified for any group
 - Default user preferences specified in the **User Preferences** tab of the Configuration dialog box

After groups have been created as described in "Configuring Groups" on page 116, you can use the **Membership** tab to assign group memberships to the user. Click **Add Group** and select one or more groups from the Choose Groups dialog box. (Hold down the Shift key to select more than one.)

A user can be a member of multiple groups, but for security reasons a user must be a member of a single group (called the primary group) when running queries. The restrictions set for the primary group apply to all queries initiated by users in that group. After assigning the user group memberships, check the **Primary** box for the appropriate group. Users also inherit default user preferences from their primary groups. If you change the primary group for a user, that user might see different user preferences in the Web-based user interface as a result.

Note: Adding users to multiple groups makes it easier for users to share saved reports. A user can save reports into any group folder of which he or she is a member.

If there is no group that contains all of the privileges that you want to grant to a user, or if a user has privileges that uniquely apply to that user and no other, you can assign those privileges directly to that user. Individual privileges that you set always override group privileges, even those that a user would otherwise inherit from a primary group.

Before users can open any Web page, they must be granted access to the topic and node to which that Web page has been assigned. Users have the ability to see and use all nodes to which they have access, and to all nodes granted access to their groups. In the **Navigational Access** tab, click **Add Nodes** and select the Nodes in the list that the user may access. Hold down the **Shift** key to make multiple selections.

You can use the **Column Access** tab to restrict access rights for the Web page to certain attributes (dimension columns).

Restricting Access Rights to a Web Page by Attributes

- 1 Click **Add Column** . The Dimension Column Access dialog box opens.
- 2 Select the Dimension Role for this dimension column from the drop-down list.
- 3 To display all of the values in the dimension column, click **Lookup** , which accesses the dimension data directly. Select a value or values from the listing and click **OK** to add it to the value list.

The values entered in this list should correspond to actual database values in the base dimension table to which that dimension column corresponds. For example, selecting `Date.fy_name` as the field with the values 1997 and 1998 causes all reports to be filtered with these values.

- 4 If you know the exact value of the dimension column whose values are accessible to the group, type it in the **Allowed values** text box, and click **Add** to place it in the **Value** listing below. Repeat this step to add additional values.

The **Delegates** tab allows you to designate users or groups who can monitor or modify the status of scheduled reports, favorite charts, and campaigns on behalf of a user who creates them. A user or delegate can modify the status of a scheduled report, chart, or campaign by changing the time or priority at which it is to run, or by canceling it. Delegates can also use the Infor Campaign Management Server monitor to create rule sets for permission-based campaigns.

Note: You can restrict the seed lists that a user (or group) can use, in the same way that you can currently limit access to certain dimension columns. See "Defining a Group" on page 116 for details.

Assigning Delegates for a User

- 1 Open the **Delegates** tab of the User dialog box.
- 2 Click the **Edit** icon.
- 3 Choose the name of a user or group and click **OK** .
- 4 Click in the **Permissions** field of the entry in the delegates list that you have just added. Choose **Read Only** to allow the delegate to view the status of a user's scheduled reports. Choose **Read/Write** to allow the delegate to modify the status of this user's scheduled reports.

Note: The Administrator group is always treated as a delegate for every user.

Allowing Users to Administer Group and User Accounts

If your data mart resides on SQL Server and your EpiCenter has been initialized with the **Create db_epouseradmin role** option (which would have been set in the **Advanced Options** tab of the Initialize EpiCenter dialog box), users to whom you grant this role can invoke Admin Manager to administer group and user accounts for your Infor Campaign Management application as described in the preceding sections. This database role allows the users to whom it is granted access to group- and user-account information only.

Note: Users must exercise caution when administering account information to ensure that authorized users continue to have access to your Infor Campaign Management application.

Output Processors

An output processor specifies an output-generation command or script for campaigns.

Defining an Output Processor

- 1 Right-click the **Output Processors** icon and choose **New Output Processor** .
- 2 In the Output Processor dialog box ("Figure 34: The Output Processor Dialog Box" on page 130), enter a name, a developer label, and a label for the output processor. The **Name** text box accepts entries in the language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.

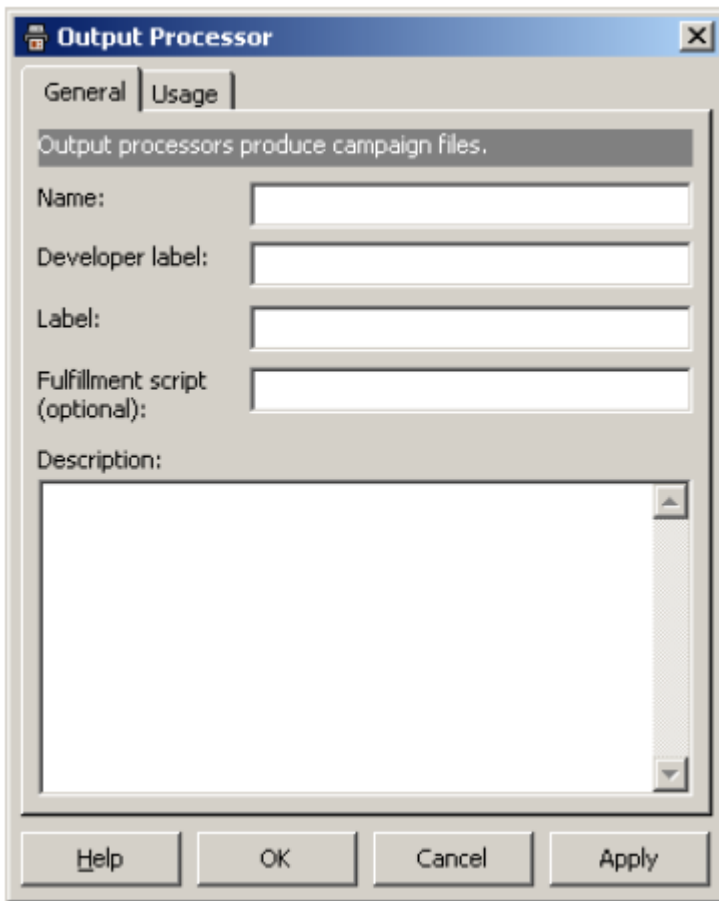


Figure 34: The Output Processor Dialog Box

3 Enter a command line for a **Fulfillment Script**, if desired.

A fulfillment script is an executable file or batch file that is run after campaign export has completed. The command line can include characters in the local language of the data mart. In addition, you can embed the following parameters as command-line arguments:

- **\$\$hf**
This parameter is replaced with the pathname of the header file that Infor Campaign Management Server produces for a particular campaign.
- **\$\$op**
This parameter is replaced by the name of the output processor as it appears in the **Processor Name** check box. The value of this parameter is quoted in the command line to ensure that the name of the output processor is treated as a single word in the command line even if that name contains white-space characters.
- For example:
`C:\test.bat -list -special_id $$rn{runtime_id} -dest c:\exportedlists`
When the fulfillment script takes the form of a batch file, you can refer to the command-line arguments from within that batch file using the standard **%n** notation.

- For example, with the fulfillment script:

```
C:\campaign\fs $$hf $$op
```

you can use %1 to refer the header file, and %2 to refer to the output processor.

Fulfillment scripts only run when a campaign succeeds. The success or failure of a fulfillment script does not affect the return status of the campaign itself. If the script named in the **Fulfillment Script** field does not match an existing file when called by the scheduler at run time, the scheduler logs an exception and proceeds to other scheduled tasks. Fulfillment-script standard-output and standard-error messages are logged in the FULFILLMENT log. The task manager lists the completion status (success or failure) of fulfillment scripts immediately following the campaigns for which those scripts are initiated.

- 4 Click **OK** to define the output processor.

If you delete an output processor that is used in saved campaigns, you must either resolve the references to the deleted output processor or delete the saved campaigns that contain them. See "Replacing References to Deleted Objects in Saved Reports" on page 143 for details.

Note: The default Infor Campaign Management Output Processor runtime directory is:

- Windows: AS_INSTALL\Web\<INSTANCE>\AP\Classes\
- UNIX/Linux: AS_INSTALL/web/<INSTANCE>/AP/classes

The runtime directory can be useful for picking up data prior to running an Output Processing script.

LDAP Servers

Note: If you are running the Infor Campaign Management Server on a Unix platform—or if you wish to use a non-Windows-based user-authentication system—you must use directories to store information about your organization's users and groups. Infor Campaign Management Server can access these directories using LDAP.

The lightweight directory access protocol (LDAP) can be used as an authentication mechanism for validating user accounts and group memberships. For information about this protocol and the administration of LDAP servers, refer to the following Web site:

- <http://www.redbooks.ibm.com/abstracts/sg244986.html>

The LDAP Servers dialog box allows you to specify the information that is required for Infor Campaign Management Server to access an LDAP server and query it for authentication and group synchronization data. For additional security, the LDAP Servers dialog box includes two login information fields (see step 9 of the following procedure), which Infor Campaign Management Server uses to perform the query that maps the userid to a distinguished name.

Adding or Editing LDAP Server Information

- 1 To add information about a new LDAP server, open the **Security/Storage** folder for your EpiCenter, right-click the **LDAP Servers** folder and then select New LDAP Server. To edit existing information about an LDAP server, double-click the icon for that server.
- 2 In the LDAP Server dialog box, enter the name of the computer that is running your LDAP directory in the **Server name** text box.
- 3 In the **Server port** text box, enter the port number to use when connecting to this LDAP server. The default port number is 389.
- 4 In the **Organization** text box, enter the root location of your organization's subtree in the LDAP directory. Include
 - o= at the beginning of your specification. For example:

```
o=your_company.com
```

- 5 In the **Group** text box, enter the root location of your organization's group subtree in the LDAP directory. For example:
In the **Group** text box, enter the root location of your organization's group subtree in the LDAP directory. For example:

```
ou=Groups, o=your_company.com
```

- 6 In the **User** text box, enter the root location of your organization's user subtree in the LDAP directory. For example:

```
ou=People, o=your_company.com
```

- 7 In the **Group Membership** text box, enter the group attribute that can be used to identify the members of a group. The default attribute for Group Membership is unique member.
- 8 In the **User ID** text box, specify the user attribute that can be used as a unique login by your users. If you leave this value unspecified, users must enter a full directory path when logging in to the Infor Campaign Management Platform. The default attribute for User ID is uid.
- 9 In the **User** text box, enter the username of a user Infor Campaign Management Server can use to perform the query that maps the userid to a distinguished name.
- 10 In the **Password** text box, enter the password for the username you provided in step 9.
- 11 Click **OK**.

Note: See "Security" on page 220 for details in setting user authentication with LDAP servers.

Foreign System

The Foreign System Configuration dialog box allows you to configure a connection to an external server, to integrate with another system such as Marketing Resource Management.

Currently, Marketing Resource Management is the only valid foreign system type. For more information about Marketing Resource Management integration, refer to "Performing the Integration" on page 260.

The Report Gallery

The Report Gallery serves as a repository for the reports, lists, and campaigns that users save. The Report Gallery emulates a hierarchical file system in which users store reports, retrieve reports, and navigate among folders to locate reports, lists, and campaigns. When a user saves a report, it is saved in whatever folder the user is currently in. This can be any folder to which the user has write access. Each saved report has associated access rights. Only users or members of groups who have appropriate access rights to a save report, list, or campaign can open that item, delete it, grant access to other users or groups, or revoke access.

Note: The Report Gallery icon in Admin Manager is for administrative use only. Many of the features of this Report Gallery can also be accomplished by end users using with the Report Gallery Web page.

The Report Gallery dialog box displays a top-level folder that contains the **Public**, **Personal**, **All Users**, and **All Groups** folders. Everyone has access to **Public** folder by default. Any user can save reports there. Each user has exclusive access to their own **Personal** folder. There is a folder for each user under the **All Users** folder. There is also a folder for each group under the **All Groups** folder. Every user folder, group folder, and public folder has three sub-folders: **Defaults**, **Favorite Reports**, and **Favorite Charts**.

A default report is the set of Web page settings that a user sees when he or she first opens that Web page. In general, the most specific default report is used. Thus if a user-level default report exists, that report is opened in the user's Web browser. If no user default report exists but a group default report exists for the Web page, the group default report is displayed. The default report in the **Public** folder should always be available if there is no specific user or group default report. Whenever you create a new navigation node, Infor recommends that you save one report in the Default subfolder of **Public** folder. See Also, "Configuring Individual Navigation Nodes" on page 185 for information about configuring navigation nodes.

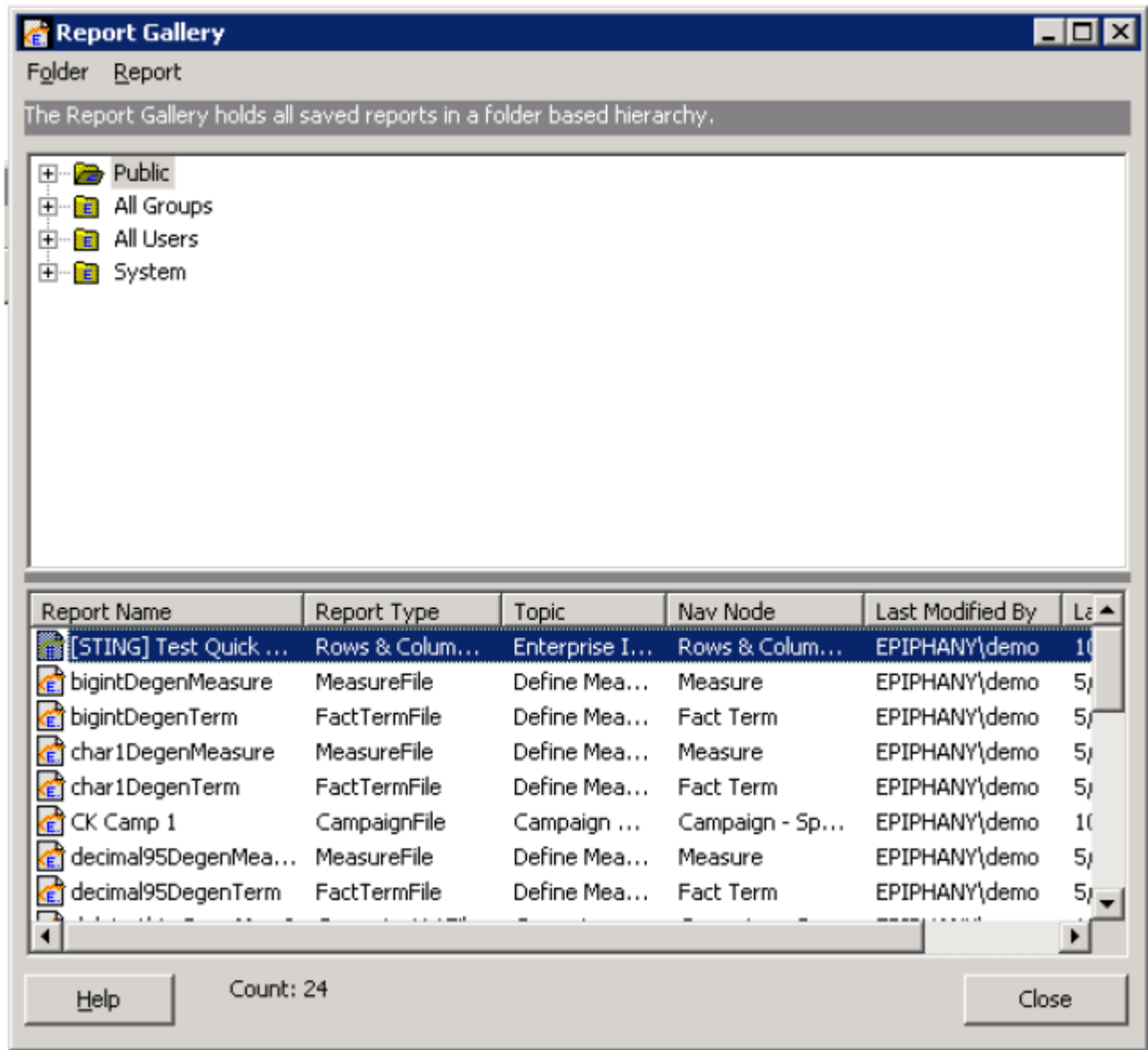


Figure 35: Report Gallery in Admin Manager

When a report is saved in a **Favorite Reports** folder, the report shows up on the home page under the topic for that report.

If you enlarge a chart on the results page, you can save the chart in the **Favorite Charts** folder, which shows the chart on the home page. (The chart is also scheduled for updating in the Charts queue.)

Using Admin Manager, the administrator can control the access to the Report Gallery's folders. For example, modifying the access to the public **Defaults** folder determines who can save public defaults (by default everybody can save public defaults). Turning off all permissions for the **Public** folder disables Public folder completely. Turning off permissions for the **All Groups** folder disables the **All Groups** folder completely. Do not remove the folders. Modify permissions on them if you want to control the access to them.

When you change the names of attributes, transaction filters, output processors, topics, navigation nodes, options, measures, measure sets, and Web pages, Admin Manager requests that you confirm the name change. These are unique name fields in metadata objects that saved reports reference internally. If these names are changed, then parts of the saved report may become invalid.

For example, if an attribute has been renamed, and you open a saved report that uses that attribute and attempt to execute it, you receive an error message because the attribute is invalid. If, however, you open the saved report without executing it, the Web page has the default attribute. You can simply re-save the report with the new attribute.

To display the Report Gallery, right-click the **Security/Storage** folder and select **Report Gallery** from the pop-up menu. The Report Gallery is displayed. The top pane shows the folders organized in a tree hierarchy, and the lower pane lists the reports for a selected folder by report name, report type, topic name, navigation node name, Web page name, date last modified, and the person who modified it.

The Report Gallery's main menu has menus for **Folder** and **Report**, which are described in the sections that follow.

The Folder Menu

Right-clicking on a folder in the top pane of the Report Gallery displays a pop-up menu with the Folder commands.

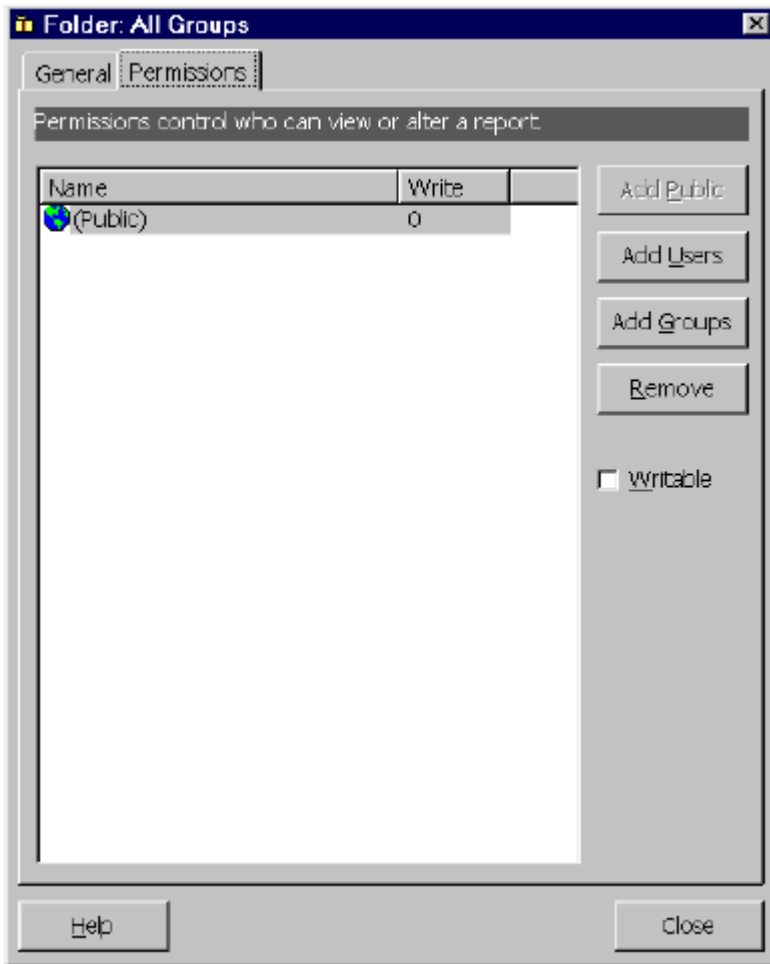


Figure 36: Folder Dialog Box: Permissions Tab

You can use the **Folder** menu to:

- Create a folder for saved reports. Choose **New** from the **Folder** menu, select the folder or sub-folder, and enter the new folder name in the dialog box.
- Delete a selected folder.
- Display the folder's properties. (You can also double-click the leaf folders to open the Folder dialog box.)
- The Folder dialog box has two tabs: General and Permissions. The **General** tab shows the folder's name, path, date last modified, and any description. Folder names can be specified in the language, locale, and code page of the data mart. See Also, "International Language Support" on page 32 for details.
- The **Permissions** tab allows you to set controls for who can view and alter the folder. See Also, "Report Gallery Permissions for Users and Groups" on page 139 for more information. This is the only way to modify public defaults.
- Find a report in one of the folders.

- Enter the file name in the Find Report dialog box. You can refine your selection to report types and date modification ranges. Pressing the **F3** key locates the first report that meets these criteria. Press **F3** again to find subsequent matches.
- Move folders by dragging them.

Note: Do not move reports unless you are sure other reports are not dependent upon them. Moving reports upon which other reports depend can disable the dependent reports.

The Report Menu

Selecting a report file in the lower pane displays a pop-up menu with the Report commands. You can use the **Report** menu to copy and move reports and folders. (This functionality is not available through the Web interface Report Gallery.)

Double-clicking a report opens the Report dialog box.

- The **General** tab shows the report's name, folder path, report type, date last modified, and any description.
- The **Permissions** tab allows you to set controls for who can view and alter the report. See "Report Gallery Permissions for Users and Groups" on page 139.
- When a user saves a report without explicitly setting permission, default permissions are assigned. See "Default Report Gallery Permissions" on page 139.

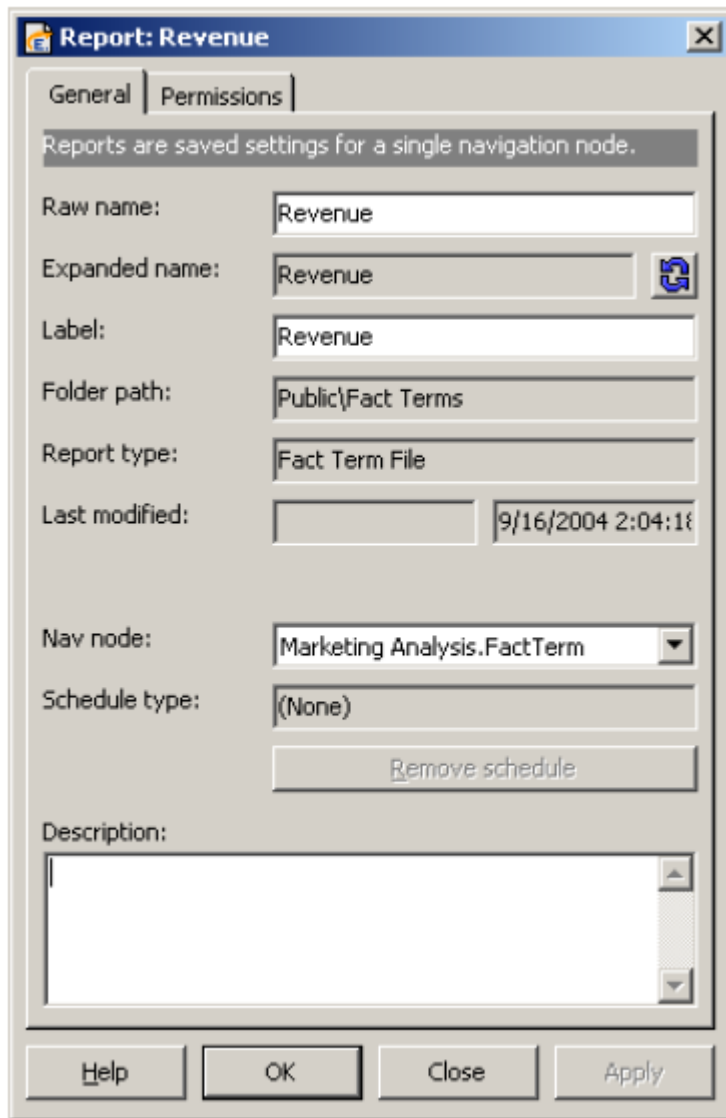


Figure 37: Report Dialog Box

Copying a Report

- 1 Select the report, and choose **Copy** from the **Report** menu.
- 2 Select the folder in which you would like to place the copy of the report, and select **Paste** .
You can also cut and paste a report by dragging the report from the current location and dropping the report on the new location, or by using **Copy** and **Paste**, or by explicitly deleting the report.

Report Gallery Permissions for Users and Groups

You can use the **Permissions** tab of the Folder and Report dialog boxes (See "Figure 36: Folder Dialog Box: Permissions Tab" on page 136) to assign users and groups permission to view a folder or report.

If you select **Writable** in the **Report Permissions** tab before clicking the **Add** button, then new users or groups may alter the report. Selecting **Writable** in the Folder's **Permissions** tab gives write access to any report in the folder for the user or group. However, users cannot create a new report in a folder unless they have write access to that folder.

- To allow all users the ability to view this folder or report, click **Add Public** .
- To give users access to folders and reports, click **Add Users** and select users from the Choose dialog box.
- To give groups access to folders and reports, click **Add Groups** and select groups from the dialog box.

Default Report Gallery Permissions

When a user saves a report without explicitly setting permission, default permissions are assigned. Default permissions are calculated as follows:

- If the user creates a report in a regular folder, the folder's permissions are used.
- If the user creates a report in their Personal folder, default permissions on the report are Read/Write for the user only.
- If the user creates a report in a user folder, default permissions on the report are Read/Write for the user only.
- If the user creates a report in a group folder, default permissions on the report are Read/Write for the group only.

By default, others have read permission on a user's folder. A user cannot set up his or her user folder (private folder) in such a way that other users can create, delete, or update properties on folders or reports in that folder. It is possible, however, for users to overwrite reports that they have access to in the user folder.

To create, delete, or update a report or folder, a user must have write permission on the folder in which the operation is about to be performed (the parent folder). Overwriting a report requires read permission on the parent folder only.

Managing Reports

Management of reports includes the following activities:

- Creating default reports
- Managing schedules and properties of reports

- Transferring reports when deleting a topic

Creating Default Reports

Infor recommends that you create a default report for the Web page you configure at every navigation node.

To create a default report:

- 1 Start Infor Campaign Management Server. Do this after you have completed configuring your application and have run Scrutiny to validate your configuration.
- 2 Navigate to the node. Your Web browser displays the Web page at that node.
- 3 Choose the filters, options, attributes, and measures that act as default settings.
- 4 Click the **Save** button to display the Report Gallery.
- 5 Navigate to the **Public/Defaults** folder and save the report there. The name that you choose does not matter, although a mnemonic name makes it easier to distinguish the default report for one node from that of another node of the same node type.

Note: When you create a default report for a node that displays a High/Low Clusters Web page, be sure to open the Compare to other filters/measurement pop-up and fill in a default for the comparison measure.

Infor suggests that you use the same measurement as the default measurement that appears on the main Web page. Set this comparison measurement even if the default report uses the disproportionately or absolutely comparison method, as a user might select compare to other filters/measurements but forget to fill in a comparison measure.

Managing Report Properties and Schedules

The **Reports** tab of the Navigation Node dialog box allows you to manage the properties and schedules of reports that users have saved from a particular node. To open this tab, double-click the icon for a node in the Topic dialog box or select a node entry in the **Nav Node** grid control box and then click the **Edit** button. When the Navigation Node dialog box appears, click the **Reports** tab.

Editing a Schedule Report

- 1 Double-click the entry for that report in the **Reports** list box, or select an entry and click **Edit**.
- 2 In the Report dialog box, click the **New Schedule/View Logs** button to display the Schedule dialog box.
- 3 The **General** tab of the Schedule dialog box ("Editing a Schedule Report" on page 140) allows you to modify the schedule of a background or recurring report:
 - The **Enabled** check box allows you to enable or disable future runs of the report.
 - The **Priority** slider allows you to set the priority of the report.

- The **Occurs** radio buttons allow you to choose the intervals at which the report recurs.
- The Recurrence pane allows you to further specify the interval during which the report is to recur and the number of times per day the report is to be run within that interval.
- The **Reset History** button allows you to reset the count of report runs to zero.

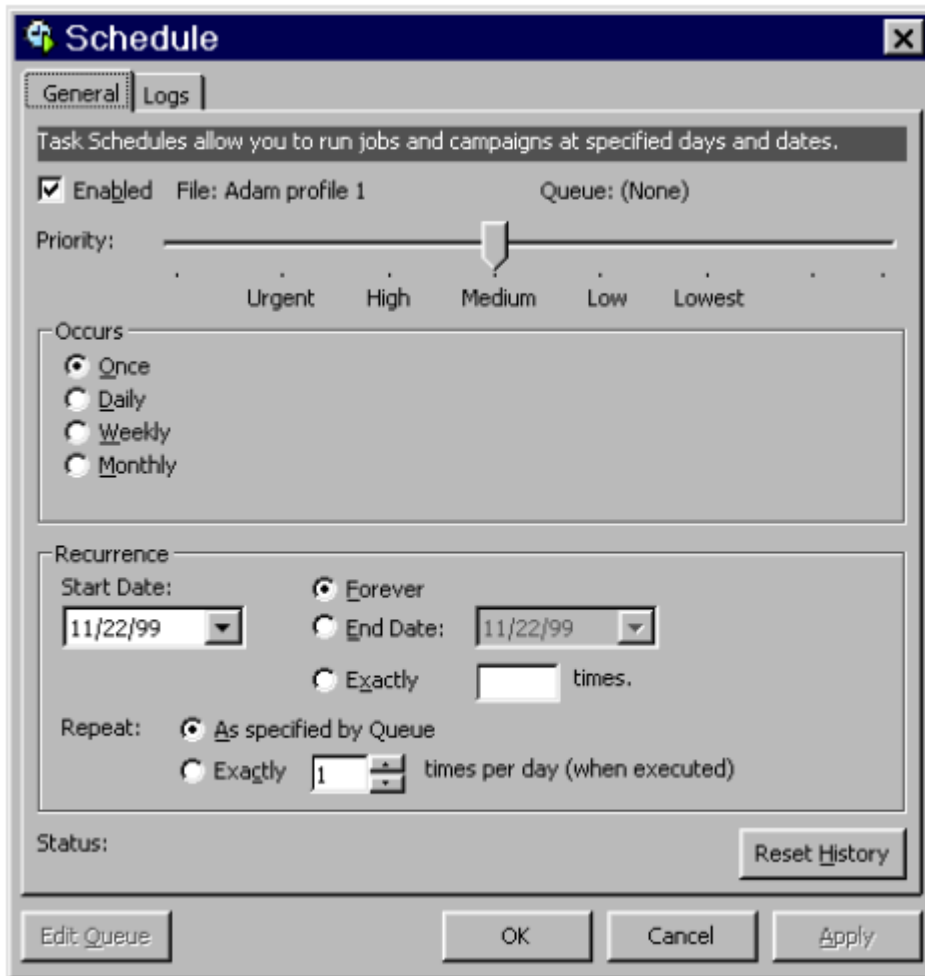


Figure 38: The Schedule Dialog Box

Editing a Properties Report

- 1 From the **Reports** tab of the Navigation Node dialog box, select a report, click **Edit**, and then click the **Permissions** tab. "Figure 39: The Permissions Tab of the Report Dialog Box" on page 142 illustrates this tab, which lists the groups and users who currently have permission to view or modify the report.

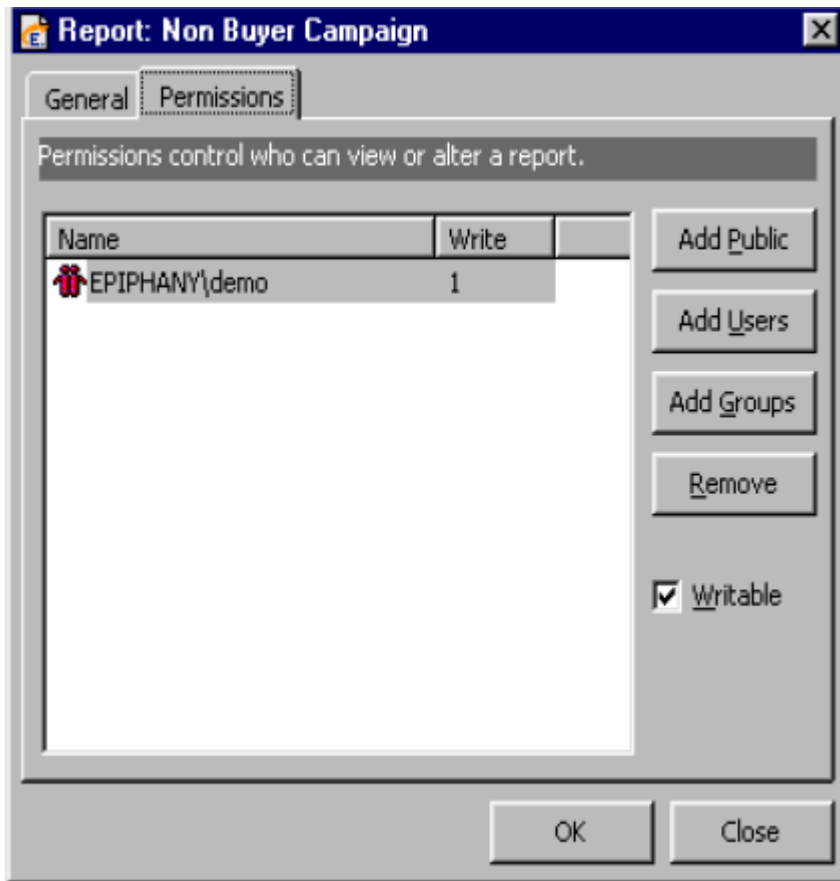


Figure 39: The Permissions Tab of the Report Dialog Box

- 2 Use the **Add Public**, **Add Group**, and **Add User** buttons to grant access to users and groups.
- 3 Use the **Remove** button to remove access for a selected user or group.
- 4 Use the **Writable** check box to enable or disable write permission for a selected user or group.

Transferring Reports When Deleting a Topic

When you delete a topic, all saved reports associated with nodes in that topic are also deleted. In many cases, however, deletion of a topic may not be necessary. For example, if you simply want to update the topic with the current definition of the topic master that created the topic, you can click the **Update** button on the Topic dialog box to refresh the topic.

In some cases, you may want to delete a topic and then recreate it; for example, to remove all of its external links. You do not want to delete the topic's saved reports.

Transferring Reports When Deleting a Topic

- 1 Export the saved reports for that topic only.
Open the **Topics** folder in Admin Manager. Right-click the topic's icon. From the pop-up menu, select **Export Saved Reports** and assign a file name.
- 2 Delete the topic by right-clicking it and selecting **Delete**.
- 3 Re-create the topic from its master. The name of the old and new topic must be identical. (See "Initializing A Topic" on page 180 for instructions).
- 4 Re-import the saved reports. Right-click the topic and select **Import Metadata**. Enter the file name in the **Importing Metadata dialog** box.
- 5 If desired, rename the topic.

Replacing References to Deleted Objects in Saved Reports

When you delete a data element or presentation object such as an attribute, measure, transaction filter, or Web page, saved reports that refer to that element or object no longer display meaningful data. Such reports are said to include "dangling references." Users who attempt to open reports with dangling references receive an error message.

Admin Manager allows you repair those reports by replacing dangling references with references to other objects of the following types:

- Attributes
- Base Dimensions
- Fact Terms
- Measures
- Measure Layouts
- Measure Sets
- Output Processors
- Reports
- Touchpoints
- Transaction Filters
- Transaction Types
- Transaction Type Sets
- Web Pages

Replacing Dangling References in Saved Reports

- 1 In Admin Manager, open the **EpiCenter** folder for your datamart.
- 2 In the **EpiCenter** menu, choose Tools, and then **Resolve Dangling References in Saved Reports**.

- 3 In the Resolve Dangling References dialog box, choose a type of object for which references need to be resolved, then pick the reports for which a specific object of that type is to be resolved.
- 4 Choose a replacement object from the **Make selected report(s) refer to** drop-down list and then click **Set**. You must take care to ensure that the replacement object provides access to the same data or functionality as the deleted object. For example, if a deleted attribute contained the names of cities, and you replace it with a date attribute, the “repaired” report can run once again. However, the results of that report might not make much sense.
- 5 Repeat the previous two steps for any dangling references that remain.

The Campaign Archive

The campaign archive is a repository of the versions of campaigns that users have schedule to run. When a campaign runs recurrently, Infor Campaign Management Server saves a record of each invocation. If the campaign run succeeds, Infor Campaign Management Server saves the campaign definition for that run. If the campaign fails, Infor Campaign Management Server saves a record of the error that caused the failure.

"Figure 40: The Campaign Archive Dialog Box" on page 145 shows the Campaign Archive dialog box, which allows you to review the version history of campaigns and to remove campaigns or individual versions from the archive. This dialog box contains two panes. The upper pane displays a list of archived campaigns and the location within the Report Gallery in which each campaign is stored. The lower pane displays information about campaign versions.

You can use the **Delete** choice in either the **Version** or the **Campaign** menu to delete a specific version or an entire campaign. You can also right-click on an item in either pane and choose **Delete** from the pop-up menu to delete that item.

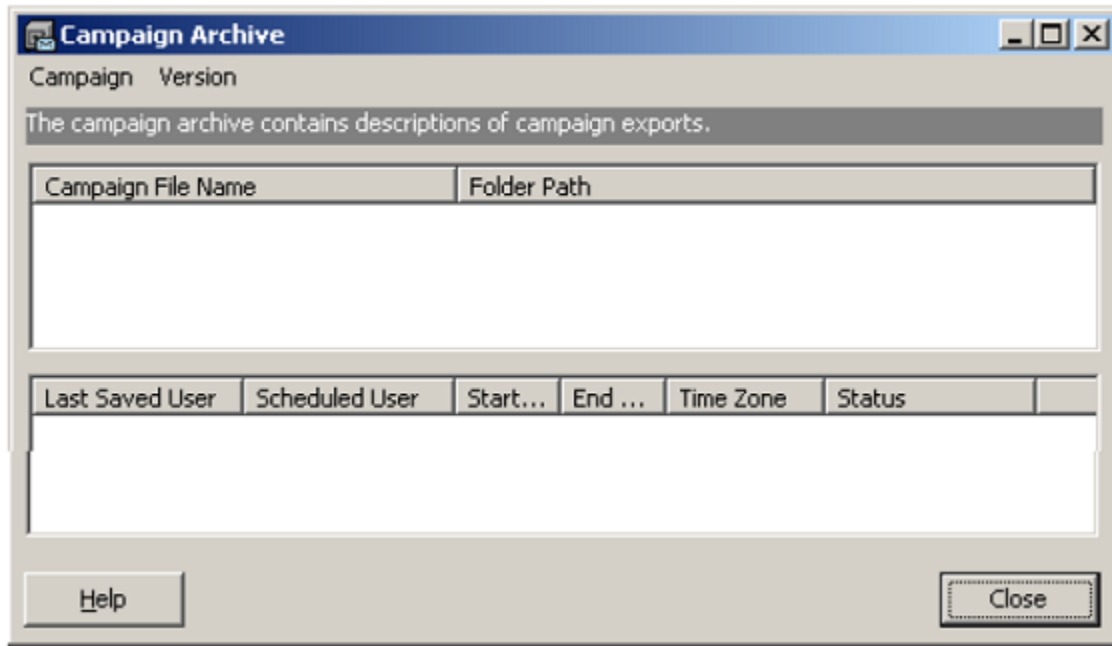


Figure 40: The Campaign Archive Dialog Box

Users interact with Infor Campaign Management applications through Web pages that Infor Campaign Management Server displays in a browser. These Web pages enable users to generate specific reports or perform actions such as reviewing saved reports, creating lists, or scheduling campaigns.

Each Web page has a specific type, which determines the reports that users can create or the actions that users can take with that page. The table below lists the Web page types that you can choose from when you configure a Web page.

The combination of filters, attributes, options, and measures (FOAM) that you add to a particular Web page determines the scope of the data your users can access through that page. To create similar reports that give access to different data, you can create different Web pages of the same type.

When you create more than one Web page of a given type, Infor suggests that you name those Web pages to indicate the scope of the data each page can access.

Table 6: Web Page Types

| Web Page Type | Description |
|---|---|
| Advanced/Basic Rows and Columns (See "Advanced and Basic Rows and Columns" on page 154.) | These Web page types define Rows and Columns Web pages, which display measures with respect to a pair of attributes. Advanced Rows and Columns Web pages allow users to select multiple rows or columns for drill-down reports. |
| Alert (See "Alert" on page 154.) | Defines Alert Web pages, which enable users to create alert messages and the conditional expressions that trigger their delivery. Alert Web pages can be configured to enable users to define alerts on attributes (for example, State) or on specific values of the attribute (for example, California). Alert messages can be displayed on Dashboard Web pages or delivered as email messages. Alert conditions can be used to control the display of any Dashboard component. |

| Web Page Type | Description |
|--|---|
| Bayesian Classifier (See "Bayesian Classifier, Community Clusters, Influences, and Modeling" on page 155) | Defines a Web page that uses Bayesian statistical models to classify sets of data and identify relationships among attributes. |
| Calendar (See "Calendar" on page 158.) | Defines a Web page that displays a calendar of scheduled campaigns. |
| Campaign Analysis | Defines a Web page that enables users to analyze the outcome of a campaign by comparing the performance of the campaign against specified control groups. |
| Campaigns (See "Campaigns" on page 158.) | Defines Campaign Manager and List Manager Web pages, which take different forms and perform different functions depending on the types of navigation nodes to which they are assigned. These Web pages are primarily used to define and manage lists and campaigns. |
| Community Clusters (See "Bayesian Classifier, Community Clusters, Influences, and Modeling" on page 155.) | Defines Web pages that identify groups of values along a set of attributes. |
| Context Selector Dimension Picker | Allows users to select a dimension context for a navigation node. |
| Cumulative Projections (See "Cumulative Projections" on page 166.) | Defines Web pages that projects cumulative results for the remainder of a current time period based on: <ul style="list-style-type: none"> • the timing of results within previous time periods. • results within the current time period so far. |
| Dashboard (See "Dashboard" on page 166.) | Defines Dashboard Web pages, which allow users to create and lay out components that display: <ul style="list-style-type: none"> • summary charts and tables that derive from saved reports • messages in HTML format • hypertext links • alert messages that include calculations based on current data mart data Users who have Web-enabled mobile telephones or personal digital assistants (PDAs) can view the Dashboard components that those devices can display over wireless connections. |

| Web Page Type | Description |
|--|--|
| Dashboard Publishing (See "Dashboard Publishing" on page 168.) | Enables you to configure the system to publish multiple, differently filtered versions of the dashboard from a single template. |
| Fact Term | Allows you to create user-defined fact terms. |
| High/Low Clusters (See "Dashboard Publishing" on page 168.) | Defines Web pages that identify combinations of attributes that are associated with particularly high or low values. |
| Home Page (See "The Home Page" on page 170.) | Defines the home page for an Infor Campaign Management application. |
| IA Redirect Type | Allows authorized users to navigate to Infor Interaction Advisor Manager. |
| Inference Campaigns (See "Inferred Response Campaigns" on page 172.) | These Web pages allow users to define criteria by which campaign recipients are added to the campaign-response table even if they have not responded directly. Such criteria might include a purchase or visit to a Web site within a certain interval after a campaign has been sent. |
| Influences (See "Bayesian Classifier, Community Clusters, Influences, and Modeling" on page 155) | Defines Web pages that identify predictive relationships among a set of attributes. |
| Lifecycles (See "Lifecycles" on page 172.) | Defines Web pages that project the life cycle for a new product based on the performance of previous similar products. |
| Measure | Allows you to create user-defined measures. |
| Measure Operand | Allows you to create operands for user-defined measures. |
| Menu (See "Menu" on page 173.) | This Web page type allows you to specify menus of links that appear in the side bars of other Web pages. |
| Modeling, ModelingBayes (See, "Bayesian Classifier, Community Clusters, Influences, and Modeling" on page 155.) | These Web pages identify predictive relationships for use in creating scored lists. Modeling Web pages use Influences statistical models. Modeling-Bayes Web pages use Bayes Classifier statistical models. |
| Profiling (See "Profiling" on page 173.) | Defines Web pages that chart values along an attribute or compare values with different filters in effect. |
| Report Gallery (See "Report Gallery" on page 174.) | Defines a Web page that provides access to a hierarchy of folders in which users can save and retrieve reports, lists, and campaigns. |

| Web Page Type | Description |
|---|--|
| Rows and Columns | (See "Advanced/Basic Rows and Columns" on page 147.) |
| Scoring (See "Scoring" on page 174.) | Defines a Web page that ranks list members according to a statistical model or a measure. |
| Select a Navigation Path and Select a Navigation Path (popup) (See "Web Pages" on page 147.) | Defines Web pages that display links to other Web pages. |
| Top N Scores (See "Top N Scores" on page 176.) | Defines Web pages that report only a certain number of target values or list members, which can be: <ul style="list-style-type: none">• members with the highest or lowest scores.• members selected at random. |
| Trends (See "Trends" on page 177.) | Defines Web pages that identify trends along a set of attributes and predict future values based on those trends. |

Configuring Web Pages

The process you typically follow to configure a Web page includes the following steps. The sections that follow describe special considerations for configuring specific types of Web pages.

Configuring Web Pages

- 1 In the **Presentation** folder of the **EpiCenter** folder that represents your data mart, right-click the **Web Pages** icon, then choose **New Web Page**.
- 2 In the **General** tab of the **Web Page** dialog box:
 - a In the Name text box, enter the name of your Web page as it will be defined in EpiMeta.
 - b In the Developer Label text box, enter the name of the Web page as it will appear in Admin Manager.
 - c Choose a Web page type from the **Web Page Type** drop-down list.
 - d Enter a description of the Web page in the **Description** text box. This text box accepts entries in the language, locale, and code page of the data mart.

When you choose a Web page type, the contents of the dialog box adjust to allow you to enter information appropriate for that type.

- 3 If you plan to use different Web pages of the same type in different topics, you can enter an identifying name in the **Context** text box for each of the Web pages that belong together in a topic. When you create the topic, you can specify a context from which Web pages are to be assigned to navigation nodes by default. Context denotes the dimension your Web page is configured to analyze.
- 4 If you have only one Web page of each type within a given context, Admin Manager assigns that Web page to every node that has a compatible type in a topic with that same context.

Note: If you have zero or multiple Web pages of the same type in the same context, you must select the Web pages for each of those nodes yourself.

Contexts are also used to select values from the strings repository for string-substitution markers. See "The Strings Repository" on page 104, for details.

- 5 If the **Attributes** tab appears, choose the attributes or attribute layouts that you want to include in your Web page. Attributes can take on different roles within a Web page. For example, values in an attribute can be broken out as rows or as columns in a Rows and Columns Web page, and an attribute can also appear in the role of a filter. Thus, attribute roles in a Rows and Columns Web page include: **Attributes** and **Filters**.

See "Adding Attributes to a Web Page" on page 152 for details of adding attributes or attribute layouts to a Web page.

- 6 If either the **Measure Layout** or the **Transaction Filters** tab appears, follow the same process that you used in the previous step to add measures or transaction filters to your Web page.

Note: Admin Manager allows you to include measures in a Web page that do not necessarily join to attributes that appear on that page. To ensure that end users can obtain meaningful results from a Web page, be sure that the measures you select bear a useful relationship to the attributes that you have already selected.

- 7 If the **Measure Sets** tab appears, drag measure sets from the Object Gallery to the Measure Sets pane.
- 8 If you are configuring an Influences, Modeling, or Bayes Classifier Web page, open the **Attribute** tab and select **Measure Set Attributes** in the Attributes drop-down list.

The left pane lists valid measure set attributes. The right pane lists all allowable attributes for the type of Web page you selected.

- 9 Drag attributes you want to associate with a measure set from the Object Gallery to the left pane. Measure set attributes you select here appear in Infor Campaign Management Web pages as drop-down lists of measure sets associated with page attributes from the measure set attribute role. In most cases, the user chooses one item from each drop-down list.

When you have completed these steps, an icon for your new Web page appears in the Web pages folder in Admin Manager. At this point, you can configure new aggregates that can improve response times for

the new Web page that you have just created. See chapter 5 the *Datamart Implementation Guide* for information on creating new aggregates.

Adding Attributes to a Web Page

- 1 Open the **Attributes** tab and then click the button for an attribute role. Available attributes appear in the Object Gallery pane, and you can drag items from the Object Gallery to the Attributes pane to add them to the attribute role that you have selected.
- 2 If you have a large number of attributes for users to select from, you can use categories to group them for display on a Web page. To add a category, click the **New Category** button, enter a name for the category, and then drag attributes from the Object Gallery and drop them directly onto the category label. The **Attributes** section of the Web page displays the category name in the upper list box of a two-tier list of attributes (TTLA). The attributes within the category appear in the lower list box of the TTLA.

To remove a category, select the category and click the **Delete** button. If the category contains any attributes, Admin Manager allows you to choose another category in which to place those attributes.

Note: To see the name of a button that is labeled with an icon, click anywhere in the dialog box to ensure that the window is active, then let the mouse cursor hover over the button until a tool tip appears.

- 3 You can adjust the placement of attribute labels within a category by choosing an item in the **Attributes** list box and then clicking the **Sort Ascending**, **Sort Descending**, **Up**, or **Down** buttons.
- 4 You can adjust the indent level for an attribute label on the Web page by choosing an attribute and then clicking the left-arrow or right-arrow button.
- 5 When you have configured a set of attributes for a Web page, you can create an attribute layout with that configuration by clicking **Export Role to Attribute Layout**. See "Attribute Layouts" on page 93, for a discussion of attribute layouts.
- 6 You cannot embed attribute layouts inside categories, as attribute layouts can contain categories themselves. If an attribute is duplicated between the attributes and attribute layouts that you include, only the first occurrence appears. If categories in the attribute layouts and attribute roles contain different attributes in the same category, all of those attributes appear on the Web page in that category.
- 7 Certain Web pages require that attributes that have particular filter types be included or omitted. Admin Manager does not check to ensure that the attributes contained in attribute layouts are acceptable. If you add an attribute layout that includes attributes with filter types that are incompatible, a Scrutiny error can result when you attempt to refresh or restart Infor Campaign Management Server.

If you are creating several Web pages of the same type, you can use an existing Web page as a starting template.

Using an Existing Web Page as a Template

- 1 Right-click the icon for the first Web page of that type and then choose **Duplicate** from the pop-up menu.
- 2 Enter the name of the new Web page in the **Duplicate: Web Page** dialog box.
- 3 Right-click the icon for the new Web page and choose **Edit** from the pop-up menu.

- 4 Delete attributes, filters, measures, and other settings that do not apply to the new Web page, and enter the information for those that do.
- 5 Enter a new context for the Web page, if desired.

When a Web page contains multiple measures, attributes that join to one measure might not join to the other. Nevertheless, if you configure attributes that pertain to one measure but not another, users can select that attribute along with the unrelated measure.

Infor recommends that you take care to ensure that the attributes and measures you configure on a Web page are relevant to each other. For more information about configuring Web pages with disjoint attributes and measures, refer to "Multiple-Fact Measures with Disjoint Attributes" on page 80.

If you delete a Web page that is used in saved reports, you must either resolve the references to the deleted Web page or delete the saved reports that contain them. See "Replacing References to Deleted Objects in Saved Reports" on page 143 for details.

Changing Font Size for Asian Languages

You may want to change the default font size from 10px to 12px to improve readability of Web pages for Asian languages.

Changing the Default Font Size

- 1 Navigate to the cascading style sheet as follows:
 - <Infor Campaign Management Instance Path>\Web\WWWRoot\style.css
- 2 Open the style.css file in an editor.
- 3 In the line font-size: change the setting from 10px to 12px.

Considerations for Specific Web Page Types

This section describes the basic functionality and configuration considerations for specific types of Web pages. For detailed information about the functionality of Web pages, open an Infor Campaign Management Web page and refer to the appropriate topic in Infor Campaign Management Help. This online help system is available when you click the **Help** link in the top-right corner of any Web page.

Note: When the length of a chart label greatly exceeds the width of a chart, the Web-based interface sometimes truncates the rightmost characters of that label. This can create difficulties when users are trying to understand exactly what the chart purports to indicate.

Advanced and Basic Rows and Columns

The Rows and Columns Web page types allow users to browse through the information that your data mart contains. Measures are broken out across a pair of attributes that the user selects. Values for one attribute appear as row headings in the report. Values for the other attribute appear as column headings. The measure values that correspond to the intersection of a pair of row and column attribute values appears in each table cell.

The Advanced Rows and Columns Web page type allows users to select, in a single step, multiple attributes to create a multiple-level, indented, drill-down report. The Basic Rows and Columns Web page type can produce the same report by adding attributes in successive drill-down reports.

Both Basic and Advanced Rows and Columns Web pages allow users to download report results to files that can be viewed in spreadsheet form. These files reside on the application host. On Windows application hosts, files can be downloaded to directories on drives that reside on remote computers if those drives are mapped to the application host, or if they are accessible through a UNC mapping.

If you create a Rows and Columns report that includes only one data point per column, a result table is generated but the line chart reports “No results for your request.” Use a pie chart instead if you have only one data point per column.

Note: Users can download files to drives on remote computers only if the user account under which Infor Campaign Management Server runs is an account other than Local System.

Alert

Alert Web pages allow users to specify dynamic messages that can:

- appear in a Dashboard Web page.
- be delivered directly as email messages.

Each alert, which must be saved in the Report Gallery, includes a message, a condition, an optional list of email recipients, and an optional list of wireless email recipients.

An alert message can contain dynamic values that are derived from data in the data mart. An alert condition takes the form of a logical expression in which measure values are compared with constants or other measure values. The measure values that are used for comparison can be constrained by filters. However, filters based on attributes with the **Entire Dimension** or **External Lookup** filter types are not allowed. Comparisons can include equality expressions or inequalities such as greater than, less than, and so on.

You can configure Alert Web pages to enable users to define alerts on attributes. For example, a single alert can be created with the U.S. State attribute to notify users if the revenue for any state exceeds \$100 million. For each U.S. state satisfying this condition, an alert will be generated with dynamically inserted text to indicate the name of the state. This type of alert is useful for checking an identical condition across a wide range of items, such as products or geographic regions.

When you configure an attribute for the Alert Web page, the attribute appears on the Alert Web page as a choice in the Available Attributes list box of the Attributes section. If no attributes assigned to the

Alert Web page have been assigned to the Attribute role, the Attributes section does not appear on the Alert Web page.

Assigning an Attribute to the Attribute Role for the Alert Web Page

- 1 In Admin Manager, select **Presentation**, then **Web Pages**, and choose **Alert**.
- 2 In the **Attributes** tab, click the **Attribute** button to select Attribute as the attribute role.
- 3 Drag attributes on which you want users to be able to define alerts into the Attributes pane.

Attributes you selected appear in the **Attributes** list box in the Alert Web page.

After a user has saved an alert in the Report Gallery, other users with access to that report can include it as a component of a Dashboard Web page. Whenever the quantitative data in the data mart satisfies the condition:

- messages are sent to recipients who have subscribed to the alert.
- the alert message appears in each Dashboard Web page that includes that alert as a component.

Other Dashboard components, such as charts, tables, text, or links, can be associated with the condition that is specified in an alert. Dashboard components that are associated with an alert condition appear in Dashboard Web pages only when that condition is satisfied.

To configure Infor Campaign Management to send email alerts, you must configure the **email_address** user preference for each user.

Bayesian Classifier, Community Clusters, Influences, and Modeling

The Bayesian Classifier, Influences, and Modeling Web pages allow users to identify attributes that have important impacts on a measure or another attribute. For example, an Influences Web page allows users to identify attributes that have the highest predictive impact on recorded behaviors of interest among a list of customers.

The Community Clusters Web page allows users to identify clusters of records with similar characteristics. For example, a Community Clusters Web page allows users to find groups of customers who have similar demographic information.

All of these Web pages use sophisticated decision-tree methods to analyze data. Depending on the size (cardinality) and number of attributes that users choose, the creation of these statistical models can result in slow response times. Users who must run large reports can do so in the background or schedule those reports to run during off-peak hours.

The Bayesian Classifier, Influences, and Modeling Web page types require dimensions to define the scope of attributes to model.

Associating Dimensions with Bayesians

To associate dimensions with bayesian classifier, influences and modeling web pages:

- 1 In Admin Manager, select **Presentation**, then **Web Pages**, and choose the Web page you want to work with.
- 2 In the **Dimensionality** tab, drag dimensions from the Object Gallery into the dimension list.
Your choice of dimension also governs the selection of source attributes . Source attributes are displayed on the Web page and can be selected by users for inclusion in the models that they build. A source attribute must either:

- derive from a column that appears in the same base dimension as that of the dimension context
- or derive from a column that appears in a dimension that has a one-to-many relationship with the current dimension context

Note: When configuring a Bayes Classifier, Community Clusters, Influences, or Modeling Web page that includes source attributes which are not derived from the dimension context, you must ensure that the one-to-many relationship between source attributes and the dimension context holds. Admin Manager does not enforce the requirement of a one-to-many relationship, but if this type of relationship does not exist, then some or all queries attempted by users from these Web pages can fail.

For example, if you select an **Individual List Membership** attribute as the dimension context, you can include attributes that derive from the **group** dimension role as source attributes. However, if you select **EntireSalesForce** as a dimension context, it is unlikely that any attributes based on a **PartsVendor** dimension could serve as source attributes in the same Web page.

An additional restriction applies to any of these Web pages that are intended to generate models for a Scoring Web page. When used with Scoring, source attributes can come from any dimension that has an implicit or explicit relation with the dimension context.

Adding Resource Attributes

- 1 In the **Attributes** tab, select **Attributes** from the drop-down list.
- 2 Drag and drop attributes from the Object Gallery pane into the **Attributes** list.
Restrictions on the types of attributes that you can include appear at the bottom of the Object Gallery pane.
- 3 Finally, you must specify a Measure Set.
 - For a Community Clusters Web page, choose a Measure Set of type **Clustering** that contains a single **COUNT** measure that counts the number of distinct entities (for example, individuals) in the primary dimension table. For example, if the primary dimension is individuals, then the measure set must contain a single **COUNT** measure that counts the number of individuals.

Note: Only one measure set per dimension is recognized for Community Clusters Web pages. If you assign additional measure sets to a Community Clusters Web page they are ignored.

Note: COUNT DISTINCT measures over the entire population are the best to use. You can use filters to narrow the population.

You can use SUM measures in the COUNT role of a measure set to count the number of individuals in a given segment. A SUM measure weights the individuals according to the SUM value.

- For an Influences, or Modeling Web page, the measure set can be of type **Regression** or **Classification**. For a Bayes Classifier Web page, the measure set can be of type **Classification**. When you use a **Regression** measure set, you must specify a **Count** and a **TargetSum** role. You can also specify an optional **SumSquared** role.
- If you use a **Classification** measure, you must also specify a target attribute to use in conjunction with that measure. The target attribute is the attribute that the Bayes Classifier, Influences, or Modeling Web page attempts to predict. To select a target attribute, drag it from the Object Gallery pane and drop it on the **Classification** measure set that you added earlier.

If you would like to analyze relationships that are not currently contained in the primary dimension, such as clusters of individuals based on whether or not they have bought products X, Y, or Z, you can create supplemental attributes in the individual table that are populated at extraction time, and which indicate the individuals who bought these products. Note however, that these attributes are not automatically synchronized with respect to other dimension values. As dimension values are updated, these attributes can be rendered inconsistent unless you take steps to refresh them from time to time.

Bayes Classifier, Community Clusters, Influences, and Modeling Web pages perform complex statistical analyses that can take a long time to run. The actual running time depends on the number of attributes selected by the user on the Web page, the number of values that these attributes have, and the number of rows in the primary dimension.

As a result, when configuring Web pages of either type, Infor suggests that you omit unneeded attributes that have a high cardinality, since these attributes tend to make application run longer and contribute little to the final results of a report.

Using Lists as Attributes

When the primary dimension of a Bayes Classifier, Community Clusters, Influences, or Modeling Web page is the same as a list producing dimension, your Web page can use list membership as an attribute that indicates the group in which an individual is a member.

Slowly Changing Dimensions

When the primary dimension of a Bayes Classifier, Community Clusters, Influences, or Modeling Web page uses the Slowly Changing Dimensions semantic type, a single logical member of the dimension (such as a single individual) can appear in multiple rows of the dimension table. In this case, Influences and Modeling treat each row in the dimension table as a different member of the dimension when building a model. This may occasionally lead to minor differences in counts between these Web pages and the List Manager Web pages, but should not present any major difficulties.

If you are configuring a Web page that includes measures that perform COUNT DISTINCT operations on fact tables, slowly changing dimensions that link to those measures can include duplicate values. To avoid this problem, you can add a column to each of those dimensions that contains a duplicate of the **sskey** value and configure measures that perform COUNT DISTINCT operations on those columns.

Aggregates

For best performance, Infor suggests that you create aggregates that are based on the dimensions you select for Bayesian Classifier, Community Clusters, Influences, and Modeling Web pages.

These Web pages make use of a dimension, a fact table, and any attributes of other dimensions that are used for filtering. To optimize queries for these Web pages, build a fact aggregate that uses one dimension in its entirety and no other dimensions or dimension aggregates. You may also want to build aggregates on the fact table that include all of that dimension plus dimension aggregates for attributes likely to be used as filters.

If you build an aggregate on a dimension that includes all of the columns of the base dimension (or at least all columns that are used as attributes or filters on the Web page), queries started by that Web page almost always use that aggregate.

Performance Issues

Two kinds of queries cause Community Clusters, Bayesian Classifier, Influences, and Modeling Web pages to adopt complicated query plans: queries involving membership in lists as source attributes or targets, and regression queries in Influences and Modeling that are filtered on other dimensions. All other things being equal, these kinds of queries tend to take somewhat longer than ordinary queries. If the processing time for queries is a concern to your installation, you may want to avoid these two types of queries.

Calendar

The Calendar Web page displays scheduled campaigns. If your application generates campaigns, you need to configure only one Calendar Web page. You can use this page in every topic that supports campaign management. If your application does not generate campaigns, you do not need to create a Calendar Web page.

The Calendar Web page displays only those campaigns for which the user has the necessary access permission to view. Access is granted through the security permissions of the user or the group to which the user belongs. The creator of the campaign can set access permission when saving the campaign definition into the Report Gallery. See "Report Gallery Permissions for Users and Groups" on page 139 for information on setting user and group permissions for folders and reports in the Report Gallery.

Campaigns

Campaigns Web page types allow users to perform the following tasks:

- Generate, preview, and download lists that are based on sophisticated selection criteria
 - Demographic filters are column-based attributes of the dimension roles.

- Transaction filters allow for record selection based on participation in transactions of a particular type.

You can include additional components, called transaction filter filters, to further restrict the records to be included in a list. See "Transaction Filters" on page 95 for details.

- Create and manage campaigns

Campaigns assign selected individuals to segments and cells to which various communications can be assigned. Users can use previously scored or segmented lists for campaign assignments. See "Scoring" on page 174, and "Bayesian Classifier, Community Clusters, Influences, and Modeling" on page 155 for additional information.

The specific functions that a Campaigns Web page performs depend upon the type of navigation node to which that Web page is assigned. See "Assigning Web Pages to Navigation Nodes" on page 196 for details.

Prerequisites

If you want to provide list and campaign management capabilities to your users, you must be sure that your data mart has been configured with the built-in fact tables, dimension tables, and dimension roles that support these capabilities. You can build lists of any dimension that has been marked list producing.

Verifying that a Dimension Is List Producing

- 1 Open the Schema folder and then the Base Dimensions folder.
- 2 Select the base dimension you want to verify.
- 3 In the Options tab of the base dimension dialog box, review the Demographics options list and verify that **Lists can be made from this dimension** has been selected.

Similarly, you can build Campaigns using any dimension for that can be included in backfeeds.

Verifying Whether a Dimension Can be Used to Build a Campaign

- 1 Open the Schema folder and then the Base Dimensions folder.
- 2 Select the base dimension you want to verify.
- 3 In the Options tab of the base dimension dialog box, review the Demographics options list and verify that **Include this dimension in backfeeds** has been selected.

If these objects are not present, you must initialize a new data mart. In order to preserve your work so far, export your metadata. Refer to "Exporting Metadata" in the Data Mart Implementation Guide for information on how to import this metadata into a new data mart.

Make sure that you have assigned the appropriate demographic base dimensions to the dimension roles and that you have defined extraction jobs to populate those base-dimension tables.

Fact table clusters and counts can improve performance when generating lists and campaigns that involve transaction filters. Refer to the Data Mart Implementation Guide for details.

The List Manager query engine is capable of using aggregates when computing measure filters for lists. These aggregates must exist at a granularity which includes the base dimension from which lists are made. For example, an Order fact with many dimensions could be aggregated to just the Date and Customer dimensions, and then provide an accelerator for queries that restrict customers according to how much they have ordered.

Further Prerequisites for Campaigns

If you intend to configure an application that includes campaign management, you must ensure that the following prerequisites are met.

- The **Campaign** and **Cell** base dimensions must be available.
- The **campaign** and **cell** dimension roles must be available.

Adding Demographic Filters

A user of a Campaigns Web page applies filters to restrict list membership based on attributes of the dimension roles. Filters based on these attributes are called demographic filters. These filters are configured in the same manner as filters in other Web pages. See "Attributes" on page 68 for details.

Campaigns Web pages restrict the filters that users can apply to demographic filters. If you include nondemographic filters in the **Filters** attribute role, Infor Campaign Management Server suppresses those filters at run time. You can include filters for other types of dimensions when you configure transaction filters.

Adding Transaction Filters

Adding a Transaction Filter to a Campaigns Web Page

- 1 Open the **Transaction Filters** tab.
- 2 Drag a **transaction** filter from the Object Gallery and then drop it into the Transaction Filters pane.
If you want to create a new **transaction** filter, click the **New** button and then follow the directions in "Configuring Transaction Filters" on page 96.

List Generation

Users can generate lists based on demographic data and transaction histories. Unlike most data-warehousing applications, list-management applications can also use fact data (transactions) to classify information about customers, prospects, and so on. In most data-warehousing applications, dimension data is used to classify facts, such as by breaking out sales data by customer. List members

can be selected or excluded based on the number of occurrences, total dollar value, or other quantitative measures of their participation in the types of transactions that are of interest to users.

Demographic data includes data that resides in the dimension tables that you include in your data mart. Attributes based on dimension roles give users access to that demographic data. Transaction histories are derived from fact and dimension tables through the creation of transaction filters. Transaction filters apply both regular filters and measures to identify list members who have participated in transactions that are of interest to users.

Designating Attributes for Lists

You designate the demographic attributes that users can include in a list by adding them to the **Preview** attribute role. Only demographic attributes (those that are based on columns of the selected dimension roles) can be added to the **Preview** attribute role. Even though the **Campaign** attribute role appears in the Object Gallery, attributes from that role remain unused in lists.

Attributes that you add to the **PreviewFilter** attribute role allow users to select columns to include or exclude from exported lists and list previews. Only attributes that are based on columns within the selected dimension roles can appear in list previews, and those attributes must have the following filter types:

- Listbox
- Dynamic Listbox
- Text box

Perform the following steps to configure **Preview** and **Preview Filter** attributes.

Configuring Preview and Preview Filter Attributes

1 Opening the Web Page dialog box for your Web page.

2 Doing one of the following:

- Clicking the **Attribute** tab and selecting the appropriate attribute type from the drop-down list box at the top of the left pane.
- Dragging attributes from the Object Gallery pane and dropping them into the attribute role pane.

Note: If a Web page can also be used for campaigns, you must configure the Campaign attribute role, as described on "Adding Transaction Filters" on page 160.

The Campaigns Web page type can include attributes derived from all dimensions users have entered.

In order to ensure that users can carry the lists that they have generated into a list-management Web page, you must include at least one attribute with a **Select from list** filter type in each Campaigns Web page.

Enabling Quick Counts and Confidence Intervals

List-management capabilities include a quick-count feature that uses sampling to estimate the count of records that fit the selection criteria for a list. These estimates allow the queries that calculate counts to complete in the time it takes to evaluate the sample, as opposed to the entire dimension.

You can enable this feature by assigning a positive value to the **min_sample_invlog10** option in the **Settings** tab of the Configuration dialog box. The value that you set in this option corresponds to the inverse log (base 10) of the sampling probability. For example, a value of 2 would create a 1-percent sample (1/102).

You enable the display of confidence intervals for approximate counts by specifying a value in the **cm_confidence_bound** configuration key. The allowed values are 95 for a 95% confidence level, or 99 for a 99% level. The confidence level indicates the percentage of trials in which an estimated count is expected to fall within the range specified by the actual count and the displayed confidence interval. For example, if you specify a 99% confidence level, the actual count of list members who meet certain criteria is 80, and the displayed confidence interval is a range of ± 2 , the estimated count can be expected to fall between 78 and 82 in 99 of every 100 trials. Sampling tables for lists are generated only once per extraction. Therefore, users cannot generate new trials by rerunning a list-generation report. Instead, Infor Campaign Management Server refers to the same sample tables each time until those sample tables are regenerated as part of an extraction job.

Note: manager can use special sampling tables—called sampled leaf tables—when calculating approximate counts of lists. If you want to use them, you must create these tables manually in the data mart. See "Sampled Leaf Tables" on page 355 for details.

The validity of a confidence interval depends, in part, on the specificity of the filters used to generate a list. If a list does not contain a statistically valid sampling of the entire set of records (that is, too few records), the approximate count might not be an accurate predictor of the population as a whole. In that case, the actual count might exceed the displayed range. Also, the Top-N per Group and Top-N per Attribute filters use formulas for counts that are not compatible with the standard methods for estimating counts.

Campaign Management

You can use the same Web page for campaigns that you use for lists.

To configure a Web page for campaigns, you must enter attributes in the **Campaign** attribute role. **Campaign** includes the following attribute roles:

- Attributes
- Filters
- Preview Filters
- Required Campaign Attributes
- Optional Campaign Attributes
- Required Communication Attributes
- Optional Communication Attributes
- Required Cell Attributes
- Optional Cell Attributes

- Required Message Attributes
- Optional Message Attributes

Auto-generating Campaign Attributes

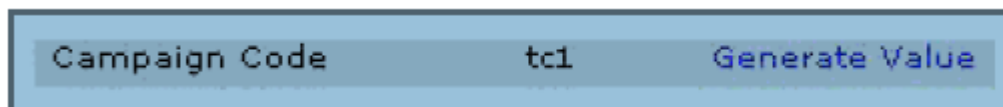
You can automatically generate any varchar attribute (campaign, communication, or cell) in a campaign. The most common use for auto-generation is to create unique codes such as the Campaign Code, but any character-type attribute can be auto-generated.

Configuring an Attribute to be Auto-Generated

- 1 In the Attribute dialog box for that attribute, select the **Auto-generate Campaign Values** check box.
- 2 In the **Executable Name** text box, enter the full path of the executable you want to use to generate the attribute. This should be the file's location on disk—for example, `C:\Program Files\autogenerate.exe`.

If you leave the **Executable Name** text box empty, the system will generate a unique code using its internal executable.

When an attribute is set up, as above, to be auto-generated, a **Generate Value** link appears next to the attribute on the appropriate Infor Campaign Management Web page:



Clicking the link generates a value for the attribute. Clicking the link again generates a different value.

If you have written your own executable to generate the code, when you click the **Generate Value** link, the system performs a campaign XML definition download, creates the file on the Infor Campaign Management Server machine, and passes the path of the XML file to your executable. Your executable can either ignore or process the XML file, so it can generate a value based on the current campaign/cell information. Your executable should write your desired value to the console, where it is read back by the Infor Campaign Management Server and inserted into the campaign at the appropriate place.

If your executable fails in any way, or is not present in the correct location, you are presented with an error message displaying the path of the executable and telling you that the generation of the value failed.

Designating Attributes for Campaigns

- 1 In the **Attributes** tab, select the **Required Campaign Attributes** or **Optional Campaign Attributes** from the attribute role drop-down list. Drag all of the attributes that derive from the required or optional **campaign** and **cell** dimension roles from the Object Gallery into the Attributes pane.

Note: Attributes based on the following column names should not be placed on a campaign web page because they are for internal use only:

```
Campaign.campaign_ver  
Campaign.campaign_shared_id  
Campaign.createdatetime  
Campaign.export_time_s  
Campaign.filename  
Campaign.folder_path  
Campaign.is_inference_campaign  
Campaign.list_time_s  
Campaign.num_exported_cells  
Campaign.num_exported_records  
Campaign.saving_user  
Campaign.scheduling_user  
Campaign.track_campaign_code  
Cell.campaign_id  
Cell.cell_position  
Cell.cell_ver  
Cell.est_cell_cost  
Cell.est_cell_profit  
Cell.est_cell_revenue  
Cell.output_channel_label  
Cell.output_format_label  
Cell.output_processor_label  
Cell.segment_level_n  
Cell.touchpoint  
Cell.treatment_shared_id
```

2 Every Web page that provides campaign management functionality must have the following attributes defined:

- In the Campaign Attributes role: campaign.campaign_label, campaign.campaign_id, and campaign.campaign_code
- In the Cell Attributes role: cell.cell_id, cell.cell_size, cell.cell_label, cell.is_control, and cell.treatment_code

Note: To ensure that campaign results can be tracked through an Inference Campaigns Web page, Infor recommends that you include an attribute that is based on the campaign_code column of the campaign dimension role in every Campaigns Web page, and that you mark that attribute as a required attribute for campaigns.

3 If you intend to use the same Web page for both lists and campaigns, follow the instructions under "Adding Demographic Filters" on page 160 regarding the Attributes & Preview Filters attribute roles. Attributes in these roles are used only during list management activities. If the Web page you are configuring can also be used for lists, follow the instructions on "Adding Transaction Filters" on page 160 for adding attributes to these roles.

4 Add attributes to the Filter attribute role. Click the Filter button to display this role. Include all of the attributes that derive from the appropriate dimension roles by clicking and dragging and dropping

them from the Object Gallery. Filters on these attributes are termed demographic filters. Filters on other dimension role columns are suppressed at run time.

- 5 Refer to the sections that follow for information about adding transaction filters to a Campaigns Web page that is also intended to be used for generating lists.

As discussed in the Datamart Implementation Guide, you can add additional columns to the built-in **Campaign** and **Cell** dimensions. To make such columns available to end users, define an attribute for each column and add that attribute to the **Campaign** attribute role of your Campaigns Web page (see step 1 on page 163 above). If the attribute refers to a column of the **Campaign** dimension, an end user can then enter values for that column when configuring a campaign definition. If the attribute refers to a column of the **Cell** dimension, an end user can then enter values for that column when configuring a cell definition.

Note: Only columns with VARCHAR, FLOAT, DATE or INT data types can be made available to end users in this way.

Including Seeds in Campaigns

Seeds are special records, such as a set of names known to the person who organizes the campaign, that can be used to verify that a fulfillment house has sent the proper mailing for each campaign. To use seed records in campaigns, you need to ensure that seed dimension tables have been properly configured. See “Extracting Seed Data” in chapter 5 of the Datamart Implementation Guide for details.

To control the export of seed transaction information to output files, set the registry value `ExportSeedTransactions` in `< INSTANCE_NAME > / BEHAVIOR / QUERY/`. This registry value can be set to:

- 1 if you want to export the seed transaction information to output files.
- 0 (default) if you do not want to export the seed transaction information to output files.

Running Parallel Campaigns

In Infor Campaign Management, campaigns can be scheduled from the front-end to execute in parallel. The number of campaigns that can be executed in parallel at a given time is limited by the Campaign Queue size (configured through the Admin Manager). The other factor that affects the campaign execution throughput is the Exclusions feature in campaigns.

Campaigns that use the exclusions feature enter a critical processing procedure for a brief period of time to compute the demographic entities that have to be excluded from receiving a communication. While a campaign is computing the exclusions, any other campaigns trying to compute exclusions must wait until the first one completes and releases the critical processing procedure for other work. If all the scheduled campaigns use exclusions, this affects the throughput of the campaign execution machinery. Campaigns that do not use exclusions do not enter critical procedure and thus do not affect the campaign execution throughput. The generation of members from a campaigns' segmentation tree is not done in the critical section and so campaigns that are executed simultaneously can materialize the members from their segmentation tree in parallel.

Validating Data Length in Campaign Attribute Entry Fields

In some circumstances, you may wish to limit the maximum number of characters that a user can enter in an campaign attribute entry field. For example, to match the campaign code format of an external system, you need to restrict the campaign code values that a user can enter to a maximum of ten characters.

Infor Campaign Management uses the column width of a campaign attribute to set the maximum data length. The default column width for campaign code is 50 characters (VARCHAR50). It is set in the **Base Dimension: Campaign** dialog box. To restrict the length of the data entry field, you can set the column width of campaign code to VARCHAR10. Doing so prevents a user from entering more than ten characters in the campaign code entry field.

See “The Data Types Tab” in chapter 5 of the *Datamart Implementation Guide* for details on creating new data types.

Cumulative Projections

Cumulative Projections Web pages allow users to project results for the current time period (typically a quarter), based on results that have been recorded so far within the period and the pattern of results from previous periods. In Cumulative Projections Web pages, you must assign a time-period attribute (such as Fiscal Quarter or Month) to the **Rows** attribute role, and an attribute that expresses time remaining in that time period (such as **Weeks until End of Fiscal Quarter** , or **Days until End of Month**) to the **Columns** attribute role.

Typically, creating a Cumulative Projections Web page involves constructing a new attribute that is not used elsewhere in the system, usually for weeks remaining in the quarter (**week_number_til_end_cq**). If no aggregates exist on this attribute, then all Cumulative Projection queries will access the base dimension table, which could significantly degrade query response time.

To improve the response times of Cumulative Projections reports, you can build an aggregate that includes the attributes that are used in the rows and columns of your Cumulative Projections Web pages, along with columns from dimensions that are used as filters in Cumulative Projections reports. Note that some of the predefined aggregate instructions in the date dimension already include attributes that this Web page type requires, but these aggregate instructions are not enabled by default.

Dashboard

Dashboard Web pages allow individual users each to create and view a customized Web page, called a Dashboard. A Dashboard Web page can include charts and tables that derive from reports, messages in HTML format, hypertext links, and conditional alerts. In addition to alerts, any component of a Dashboard Web page can be configured to appear only when an alert condition is true. See "Alert" on page 154 for information about configuring an Alert Web page.

The **home_nav_node_key** user preference specifies the starting node a user sees when she or he first logs in. For users who prefer to see a **Dashboard** Web page rather than the **Home** page, you can set this default user preference to an appropriate node in the **User Preferences** dialog box.

Wireless Dashboard Access

Infor Campaign Management supports wireless access through Web-enabled mobile phones or PDAs that have wireless Internet access. When a user logs in through a wireless service provider (WSP) on such a device, the application displays a rendition of that user's Dashboard Web page rather than the Infor Campaign Management home page. The wireless Dashboard rendition displays all of the sections and text elements that the user has configured. However, components such as tables or charts that a particular device might not support are omitted (although the titles of those components still appear).

Users who connect through a wireless device cannot navigate to other Web pages (that is, navigation nodes), issue requests for reports, or edit the contents of the Dashboard Web page.

Configuring Wireless Access

The following types of wireless devices can connect to the Infor Campaign Management instance to display wireless alerts (See "Alert" on page 154) and Dashboard Web pages:

- Supported PDAs that are equipped with wireless modems, browsers that support the WAP 1.1 protocol
- Web-enabled cellular phones
- PDAs running Pocket Explorer

The components that users can view depend on the capabilities of their wireless devices. Web-enabled phones can display conditional alerts and supported PDAs can display tables as well. (Wireless devices do not support charts.)

Recognized display methods include:

- Wireless Markup Language 1.1 (WML 1.1) for mobile phones
- Web Clipping (WCA) for PDAs
- Palm Query Applications (PQA) for PDAs

Note: A separate PQA must be compiled for each Infor Campaign Management instance that supports this display method. For information about installing a PQA, refer to the documentation for your wireless device.

To configure your Infor Campaign Management instance to support wireless display of Dashboard Web pages, you must set the following Windows Registry keys:

- Wireless\WCA (for WCA and Pocket Explorer devices)
- Wireless\WML

Note: You can set these registry keys in Admin Manager.

These registry keys each contain a set of subkeys that have names of the form: DeviceN

Each subkey holds a string value that the Infor Campaign Management Server proxy uses to match against user agent strings in the HTTP header of a URL request. If the string value in the registry key matches a substring within one of these headers, the proxy recognizes the wireless device, allows the user to log in, and forwards the Dashboard data for display on that device. Registry keys for your Infor Campaign Management instance reside in the following location:

AP Manager\Configuration\Settings\External Interfaces\Wireless\WCA and WML.

Security Issues

In order for users to log in from outside your local area network, either through a wireless device or a standard Internet connection, you must make the port through which the proxy communicates available for access outside the firewall. Outside ports have attendant security risks that you must take positive steps to mitigate, such as by establishing a virtual protocol network (VPN) through which users connect to the proxy.

Wireless communication uses a broadcast medium that has additional security risks. You must take steps to ensure that users who attempt to log in do so only through devices that support appropriate levels of encryption during broadcast.

Note: Clear-text broadcast of user identity or other confidential data to or from a wireless device can compromise the security of your data mart, and in extreme cases, your local area network.

Using a PQA

Some wireless devices require a Palm Query Application (PQA) in order to render Web Clipping images. Refer to the documentation for your PDA to determine if it requires a PQA.

Dashboard Publishing

Dashboard Publishing makes it possible to easily configure the Infor Campaign Management system to publish multiple, differently filtered versions of a dashboard from a single template. You can configure Dashboard Publishing to generate up to 2000 uniquely filtered copies of a master dashboard template, depending on the number and complexity of reports the template contains.

Dashboard Publishing comprises two sets of procedures:

- First, you complete a series of steps in Admin Manager to configure the elements that will appear in end-user Web pages. The steps appear in this section.
- Then, in your Infor Campaign Management Web pages, you publish the dashboard you have configured. The steps are detailed in the topic, “Publishing a Dashboard,” and in similar topics in Admin Manager Online Help.

Configuring a Dashboard for Publication

- 1** In the **Presentation** folder of the **EpiCenter** folder that represents your data mart, right-click the **Web Pages** icon, then choose **New Web Page**.
- 2** In the **General** tab of the Web Page dialog box:

- a In the **Name** Text box, enter the name of your Web page as it will be defined in EpiMeta. (See "Configuring Web Pages" on page 150 or similar topics in Admin Manager Online Help for more information.)
 - b In the **Developer label** text box, enter the name of the Web page as it will be displayed in Admin Manager.
 - c In the **Web Page Type** drop-down list box, choose **Dashboard Publish**.
 - d Enter a description of the Web page in the **Description** text box.
 - e In the **Attributes** tab, select the filters by which you want the published Dashboard content to vary, for example, Age, Region, and the like. (See "Configuring Web Pages" on page 150 for more information or view "Defining an Attribute" and similar topics in Admin Manager Online Help.
- 3 In the **Presentation** folder, do one of the following:
 - Navigate to **Topics**, open the **Templates** folder, and select a template from the three templates available.
 - Right-click the **Topics** icon, and select **New Topic**.
 - 4 In the **General** tab, enter a name, label (this will appear in the Infor Campaign Management end-user interface), and developer label for the new topic.
 - 5 In the **Navigation Nodes** tab, create a node and assign it the Web page type **Dashboard Publish**.
 - 6 Assign the Web page you created in steps 1 and 2 to the navigation node you created in step 5. (For more information, See "Assigning Web Pages to Navigation Nodes" on page 196 or Admin Manager Online Help.)
 - 7 In the **General** tab of the Topic dialog box, enter a name for the dashboard you want to publish in the **Title** text box.
 - 8 In the **Publishing folder** text box, enter the Report Gallery path to the folder where you want to store the master template for your dashboard in the form:
 - **Report Gallery\Public\FolderName**

Note: For more information, See "Configuring Report Gallery Nodes" on page 213 or the topics "The Report Gallery" and "The Report Gallery Dialog Box" in Admin Manager Online Help.
 - 9 In the **Security/Storage** folder, double-click the **Report Gallery** icon.
 - 10 In the **Report Gallery dialog** box, right-click **Public**, select **New Folder** in the **Folder** pop-up menu, and enter a name for the folder where you want to store the master template for your dashboard.
 - 11 Double-click the folder you created in 10 on page 169, open the **Permissions** tab, and set permissions for users and groups you want to have access to the published dashboard.

Note: This step (11 on page 169) assumes users' general permissions have already been set in the **Groups and Users** dialog boxes in the **Security/Storage** folder.

Publishing a Configured Dashboard

For details of publishing a configured dashboard, open your Infor Campaign Management Web pages and refer to "Publishing a Dashboard" and similar topics in Infor Campaign Management Help, which

you reach by clicking the **Help** link in the top-right corner of any Infor Campaign Management Web page.

You can also set up a database table to link users and groups to specific instances of a published dashboard.

Setting a Database Table Link to Users and Groups

- 1 Using the database query tool of your choice, open a connection to your data mart.
- 2 Create a table that contains columns for:
 - Users
 - Groups
 - Any attributes on which you plan to filter

- 3 Populate the table.

Note: If using multiple marts, ensure that this table exists in every mart.

High/Low Clusters

High/Low Clusters Web pages allow users to identify the highest and lowest values for a set of attributes with respect to a measure. These Web pages display only one list of attributes, rather than the pair of attribute lists that appear in the Rows and Columns Web pages. The **Attributes** tab for a High/Low Clusters Web page includes the **Attributes** display-area button and **Filters** display-area button.

High/Low Clusters has two methods for analyzing data. The first method looks at the selected attributes one at a time. In this case, High/Low Clusters can benefit from having single attribute aggregates (similar to the case of Profiling). The second method looks at the selected attributes all together. If the user selects a large number of attributes to consider all together, query response time can be very slow. It is useful to build aggregates that contain sets of attributes that are likely to be queried together.

The Home Page

The home page displays the list of recent files, favorite reports, campaign calendar, task manager and favorite charts for individual users. You need to configure only one Web page of this type for your application. If you choose, you can configure additional Web pages of this type for specific contexts. Entering a value in the **Context** text box indicates the context by which string replacement markers are expanded.

The home page is updated automatically whenever you add a topic. The appearance of the home page for a particular user depends on the topics, favorite reports, and charts to which that user has access, as well as the user preferences that she or he has set.

You can customize the home page by:

- Replacing the application logo that appears in the upper-right corner of the Infor Omni-Channel Campaign Management window, in the Navigation bar. The logo appears on all Web pages, not just the home page.
- Adding a news banner that appears at the top of the page.

User can customize their home page by specifying the number of favorite reports and charts to display, by saving favorite reports and charts, and by selecting user preferences. For more information about favorite reports and charts, refer to "The Report Gallery" on page 133.

Replacing the Logo

The application logo appears in the upper-right corner of every Web page, excluding pop-up-dialogs. By default, this logo is blank. The logo resides in the customer_logo_topnav.gif file in the following directory:

```
<AS_INSTALL>\Web\<instance>\AP\WWWRoot\images\shell
```

To replace the application logo:

- 1 Make a copy of the customer_logo_topnav.gif file.
- 2 Create or locate a GIF file that contains the logo that you want to use. The replacement image must be 106 pixels wide by 29 pixels high.
- 3 Replace the customer_logo_topnav.gif file with the GIF file that contains the logo you want to use. You can also replace the logo that is displayed on the Log-in Page. See "The Log-in Page" on page 173.

Customizing the News Banner

The home page includes a banner that you can customize to display timely information to users. This information can include a message of the day, notices about changes in the system, and the status of data loads. The news banner appears near the top of the page, above the list of topics and favorite reports. The banner is updated whenever you refresh Infor Campaign Management Server.

To customize the news banner, edit the tips.txt file in the following directory and follow the directions contained within that file:

- Windows

```
C : \Program Files\Infor\<Installation> \Web\<Instance name>\Infor Campaign Management\WWWRoot
```

- Unix

```
<Instance>/WWWRoot
```

Each entry in the tips file consists of a single line of text. If you include multiple entries, a single entry is displayed at random whenever the home page appears. To include international language characters in a tips-file entry, you must insert key/value entries of the following form to the tips file. These entries must appear above the entries in which the keys are used.

```
ASCII_key=i18n_value
```

Replace ASCII_key with a plain ASCII string value. Replace i18n_value with a value in one of the following recognized character sets:

- ISO Latin 1 (for European languages)
- Japanese Shift-JIS (for Japanese)

Inferred Response Campaigns

Campaigns Web pages allow users to define criteria by which campaign recipients are deemed to have responded to a campaign even though they have not responded to it directly.

An inferred response is a measurable action, such as making a purchase or visiting a Web site, that occurs within a time-frame that strongly suggests it has been taken in response to the receipt of an offer. For example, if a prospect receives an offer for an item that is on sale but does not require a coupon, and that customer purchases the item within a week after the offer has been sent, it is reasonable to infer that the customer has responded to the offer. Because offer terms can vary, the actions that they can take and the intervals during which a response can be inferred vary between campaigns.

You must include the following attributes and filters in an Inferred Response Campaigns Web page. These attributes and filters allow inference campaigns to make the calculations that are required to infer that a customer action can be attributed to a campaign.

- Attributes in the Campaign attribute role:
 - An attribute that is based on the **is_inference_campaign** column of the **campaign** dimension role
 - An attribute that is based on the **track_campaign_code** column of the **campaign** dimension role
- A transaction filter that refers to the **Communication** fact table and includes the following transaction filter filters:
 - A transaction filter filter that refers to the **campaign_code** column of the **campaign** dimension role
 - A date-relative transaction filter filter that refers to the **day_name** column of the **Date** dimension role
- In the Cell drop-down, include the Communication Code attribute.

Otherwise, the process of configuring an Inference Campaigns Web page is the same as that for configuring a Campaigns Web page. See "Designating Attributes for Campaigns" for details.

Lifecycles

Life Cycles Web pages allow users to project future values based on patterns established by previous long-term cycles. For instance, if you have sales records for previous products, your users can use the

performance figures for those products over time as a model for predicting the performance of a new product that they plan to introduce.

You must assign only absolute date attributes to the Columns attribute role. You can assign attributes of any type to the Rows attribute role.

The columns in Lifecycle Web pages should be absolute date columns, such as the fiscal year or the month of a particular year, such as January 1998. They should not be relative or cyclical columns such as month (such as, January, February, and so forth).

The Log-in Page

Unlike other Web pages, the log-in page has no explicit Web page type. The log-in page is configured automatically when you initialize your data mart. You can customize the log-in page by replacing the logo that appears in the upper-left-hand corner of the log-in page.

The log-in logo resides in the **customerlogo.gif** file in the following directory: `C:\Program Files\SSA\`

Replacing the Logo in the Log-In Page

- 1 Make a copy of the customerlogo.gif file.
- 2 Create or locate a GIF file that contains the logo that you want to use. The replacement image must be 448 pixels wide by 204 pixels high. -Note that although customers can use larger sized images, there is a possibility that exceeding these recommended dimensions might move the log-in details to the right side of the page.
- 3 Replace the customerlogo.gif file with the GIF file that contains the logo you want to use.
You can also replace the logo that is displayed on the Home Page. For more information, see "The Home Page" on page 170.

Menu

The Menu Web page type allows you to configure menus of links. Refer to "Assigning Links to Navigation Nodes" on page 202 for more information about link menus. If you choose, you can configure additional Web pages of this type for specific contexts.

Profiling

Profiling Web pages allow users to create charts and perform comparisons by applying combinations of attributes and filters. Profiling Web pages use only one attribute role. These Web pages are not

adversely affected by high cardinality attributes. Users can use a variety of filters to create comparison reports, so Infor suggests that you create a range of filters for users to choose from.

Profiling queries involve a single attribute at a time. Ideally, for each attribute used in the profiling Web page, you would have a dimension aggregate with only that attribute and an aggregate fact with only the dimension aggregate defined on that attribute. To reduce aggregate-building overhead, it is often preferable to have small aggregates that are close to this ideal, but that can also be used for other kinds of queries.

Often it can be valuable to include high-cardinality attributes such as Customer or Product on a profiling Web page. Although it is generally not useful to build an aggregate on a high-cardinality attribute, because such aggregates become large when such an attribute is joined to other attributes, Profiling queries each involve only one attribute. Thus, the response times for Profiling reports can be substantially improved if you create such an aggregate, even if that aggregate spans a high-cardinality attribute.

Report Gallery

The Report Gallery is configured automatically when you initialize your datamart. Every datamart includes a Report Gallery Web page and a Report Gallery topic, which contains a single node with the Report Gallery Web page.

The Report Gallery topic allows a user to go directly to the Report Gallery from the home page. When a user goes to the Report Gallery from a Web page in another topic, only the saved reports that apply to that Web page are displayed. If a user makes use of the Report Gallery topic to go to the Report Gallery directly from the home page, then all saved reports available to that user are displayed.

You must configure access permissions for this topic. Infor recommends that you give all users and groups access to the Report Gallery node of the Report Gallery topic.

Refer to "The Report Gallery" on page 133 for details about managing saved reports with the Report Gallery. You can restrict the types of reports that appear in the Report Gallery for a given topic. Refer to "Configuring Individual Navigation Nodes" on page 185 for details.

Scoring

The Scoring Web page allows users to rank members of a list using a predictive model that they have created with a Community Clusters, Influences, Bayesian Classifier, or Modeling Web page. Users also can score lists based on a measure. You only need to create one Scoring Web page for each context. Lists can be scored or segmented based on models produced by the Influences, Bayesian Classifier, or Clustering Web pages, and by measures. Users have an option to divide a scored list into quartile (25% of members) and decile (10% of members) segments. However, a Clustering model limits the users choice to a segmented list. Refer to "Configuring Intermediate Nodes" on page 209 for information on how the Scoring Web page is used in topics.

Enabling User-Defined Measures for Scoring

If you have configured user-defined measures for your EpiCenter, you can enable the creation of user-defined measures from a Scoring web page by creating appropriate links to the **YAH External Entry Points** node of the Define Measures topic. For a Scoring web page that belongs to a topic based on the Campaign Management Template topic, you can configure these links as follows:

- 1 Edit the **YAH External Links** node of your topic and configure a link to the **YAH External Entry Points** node of your Define Measures topic, as described in "Creating Links to the Define Measures Topic" on page 66.
- 2 Edit the Model Scoring node of your topic.
- 3 Go to the **Links** tab and click **New** to open the Navigation Link dialog box for a new link.
- 4 Set the Destination Node of the link to the **YAH External Links** node of the current topic.
- 5 Set the Behavior to Include as Menu and the Link Category to Menu.
- 6 Set the Navigation Type to SameWindow and the Dim Context Type to Carry Dimension.
- 7 Select the **Visible** and **Enabled** options.
- 8 Set the **Name** and **Label** values as desired and click **OK** to save the new link.

Once this link has been configured, the Scoring web page will display a button that allows user-defined measures to be created.

Import External List

The Import External List Web page allows you to import data external to Infor Campaign Management, such as purchased demographics or external scores, into Infor Campaign Management. The external lists can be imported from a file (generally small external lists) or from a database table (generally large external lists).

If you choose to import a file, you must select an external list file from the local file system (the storage subsystem accessible to your machine) and upload the file to the Infor Campaign Management Server through HTTP. This process can be a long one, depending upon the size of the imported file. Once uploaded, the contents of the file are kept on the Infor Campaign Management Server until the file is imported and saved to the Report Gallery. The uploaded external list contents are not saved to the Report Gallery. Only the external list statistics like number of rows imported, columns imported and the time of import are saved to the Report Gallery. When you open the imported external list in Report Gallery you are presented with these statistics.

You must specify the format of the external list file using the following options shown on this Web page:

- **Number of Header Rows to Skip:** Specifies the number of rows that must be skipped from the input source file or allows you to use the first row for column names.
- **Column Separator:** the character that separates the columns. You can use a comma, tab, or semicolon as the column separator.
- **Decimal Separator:** the character that separates numeric values. You can use a period or comma. You cannot use a comma for both the column and decimal separator.

Note: When importing an external list file, text fields that are greater than 100 characters are truncated.

If you want to import an external list from a database table, the table must be created in the EpiMart and populated with the external data:

- The table must contain a column for the SSKEY.
- The data type of the SSKEY column depends on the SSKEY data type of the dimension context from which you want to import the external list.
- The SSKEY column name should have the dimension name followed by the string "_SSKEY" (for example, if you are importing into the Customer dimension, the SSKEY column of the table must have the name Customer_SSKEY).

The current dimension context is used. You can select a different context using the Choose Context option.

Clicking the Import button creates the external list table using the current context and registers it in the metadata. The list must be saved to the Report Gallery using the File > Save menu option in order to use it in other parts of the application. External files must have .txt or .csv extensions. The contents are kept until the external file is imported. Saving into the Report Gallery does not require the uploaded file. The Current Dimension context is used for both options-import from file and database table.

If the SSKEY in the external data file or the mart database table does not match the EpiMart sskey, that entry will be ignored and will not be imported.

The Report Gallery displays imported external list files. Opening an Imported External List from Report Galley will take it to the Import External List Web page with the import summary displayed in the results section.

Since the external list is not native, there is no filter setting to display.

Select a Navigation Path and Select a Navigation Path (popup)

The Select a Navigation Path Web page types derive their distinguishing properties from the navigation nodes to which they are assigned. If you choose, you can configure additional Web pages of each type for specific contexts.

Top N Scores

The Top N Scores Web page type allows users to display a selected number of attribute values or list members that rank highest or lowest with respect to a measure or a statistical model created by a Bayes Classifier, Influences, or Modeling Web page. If you choose, you can configure additional Web pages of this type for specific contexts.

Trends

The Trends Web page allows users to calculate projections based on trends that are inherent in the data with respect to a set of attributes. The Trends Web page has two attribute roles, **Columns** and **Rows**. You must assign only absolute time attributes to **Columns**. You can assign any attribute to **Rows**.

Users navigate to the Web pages that produce specific reports, lists, or campaigns through topics. Each topic provides a framework of hypertext links that users follow to generate the reports that they need, review those reports, and then take appropriate action. All the topics are displayed in each page as top level menu items.

Each topic includes a set of navigation nodes and the links between those nodes. These navigation nodes will appear as menu items of each topic menu of top level menu. When a user clicks a link that points to a navigation node, Infor Campaign Management Server displays the Web page that is assigned to that node. Links from the home page and the Navigation bar point to the beginning node for each topic.

Each node must be configured to contain:

- Title and prompt labels that are specific to that node
- An assigned Web page

The type of Web page that can be assigned to a node depends on the node type.

Infor Campaign Management Server incorporates the links and labels that are specified for the node when it displays the Web page for that node. If a default report is present in the Report Gallery, Infor Campaign Management Server initializes the Web page to display that report. This node-specific information allows you to reuse Web pages on multiple nodes.

Note: The text of labels that appears in the title and prompt areas of a Web page depends on the navigation node and the context you assign for the expansion of embedded string-substitution markers. See "The Strings Repository" on page 104 for details.

Topics are typically derived from sample topics that Infor Omni-Channel Campaign Management provides as part of each licensed Infor Omni-Channel Campaign Management application. A sample topic is a template of nodes and links that is carefully constructed to provide a coordinated set of user operations for a particular type of application. Infor Omni-Channel Campaign Management applications include metadata that simplifies the process of configuring the topics that those applications support. Implementation Notes for each licensed application describe the Web pages you must configure before you initialize a topic to allow automatic assignment of Web pages to nodes.

The process of configuring a topic includes the following activities:

- 1 Initializing the topic from a sample topic or refreshing an existing topic from an updated topic.
- 2 Using configuration commands to tailor the topic.

- 3 Adding, deleting, hiding, or modifying navigation nodes to your liking. You can also accomplish these tasks by changing access permissions to nodes.

Initializing A Topic

You begin configuring a topic by choosing an existing topic that most closely matches the sequence of operations your users require. If you have already configured the Web pages that your topic requires and assigned them to a string-substitution context that matches the context you intend to use for your topic, you can take the following steps to initialize a topic. Otherwise, refer to the Implementation Notes for your application and to "Web Pages" on page 147 for instructions on configuring the Web pages your application requires.

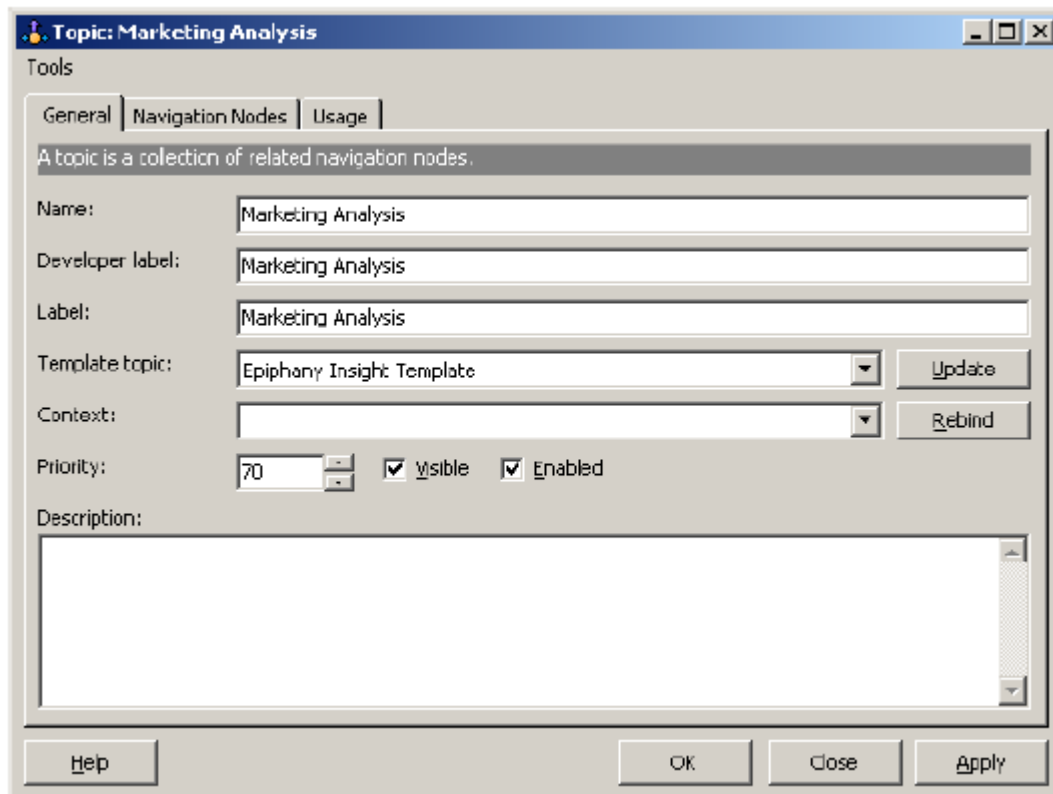


Figure 41: The Topic Dialog Box

Note: The Rebind button in the Topic dialog box enables you to refresh the set of Web pages that are assigned to nodes. If you initialize a topic before you have created all of the required Web pages, you can create those Web pages and then click Rebind to assign them all to the appropriate navigation nodes.

Initializing or Editing a Topic

- 1 Open the Topic dialog box by right-clicking the **Topics** folder and choosing **New Topic** from the pop-up menu, or by double-clicking the icon for a topic.
- 2 In the **General** tab, enter the following information:
 - a Add the name of your new topic in the **Name** text box, if no topic name appears. As you do, Admin Manager automatically enters the name in the **Label** and **Developer label** text boxes.
 - b Edit the developer label for the topic if you like. This name for your new topic appears in Admin Manager.
 - c Edit the label for the topic if you like. This label appears in the Topics menu of the Web-based user interface. The **Label** text box accepts entries in the language, locale, and code page of the data mart. See Also, "International Language Support" on page 32 for details.
 - d In the **Template topic** text box, enter the name of another topic in your EpiCenter that will be used as the template for the current topic.
 - e In the **Context** text box, if you plan to use different Web pages of the same type in different topics, you can enter an identifying name for each of the Web pages that belong together in the topic. If you have already defined a string-substitution context for a set of Web pages that you want to use in this topic, select it from the **Context** drop-down list box.
 - f In the **Priority** text box, enter a positive integer to determine the order in which this topic will appear in an end-user's home page. Topics appear in order from lowest priority number to highest.
 - g Check the **Visible** check box, unless you do not want this topic to be accessible from the home page.
 - h Check the **Enabled** check box, unless you do not want this topic to be active.
 - i Enter a description of the topic including the intended audience and usage. The **Description** text box accepts entries in the language, locale, and code page of the datamart.
 - j Click **Apply** to initialize the topic with the settings that you have selected.

Refreshing a Topic

The **Update** button allows you to refresh a topic with the changes you made to the source topic. When you click the **Update** button, the Topic Update Options dialog box is displayed.

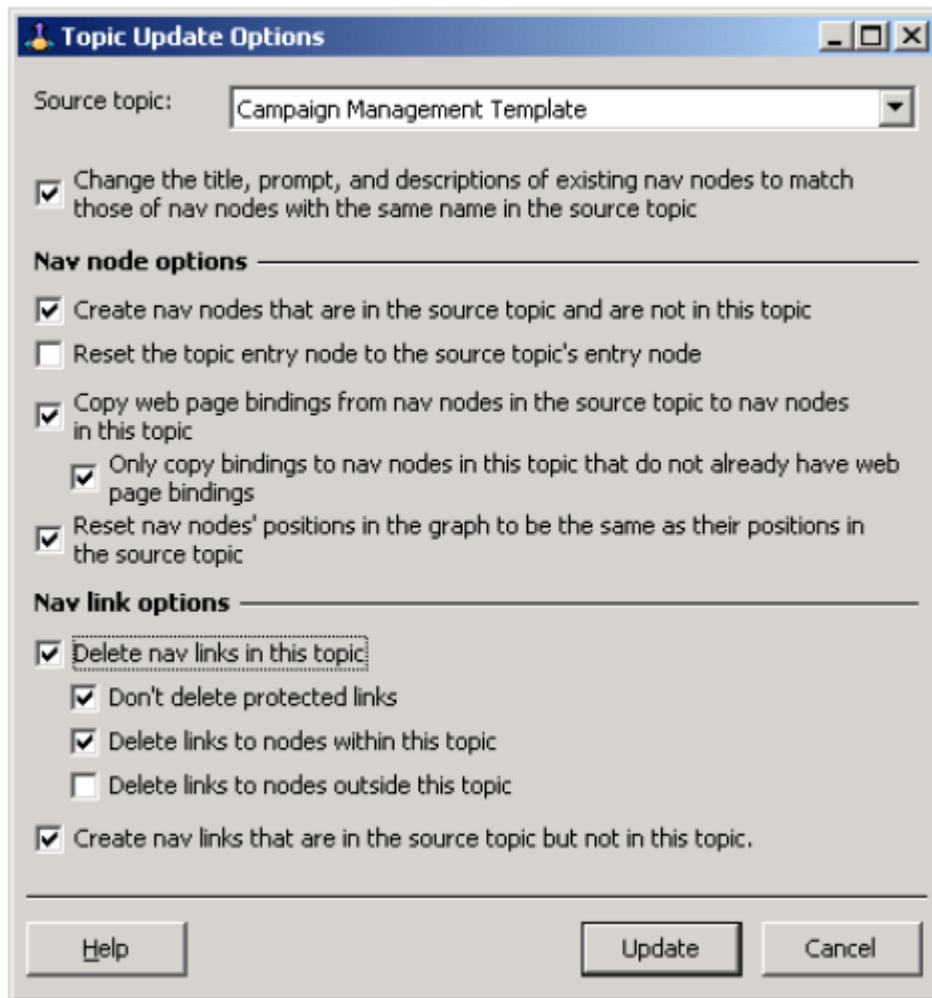


Figure 42: The Topic Update Options Dialog Box

When you update a topic, all of the navigation nodes remain present. However, links to some of the navigation nodes within the topic or in other topics can be lost if the **Delete nav links in this topic** option is selected. In the process of deleting links, nodes that you have added to a topic can be rendered inaccessible to users if the links that refer to them are all removed. In such a situation, users can still reach navigation nodes that have saved reports through the Report Gallery. Otherwise, you must create new links to those nodes. (See "Assigning Links to Navigation Nodes" on page 202 for details.)

Note: You can delete all links to other topics by choosing the **Delete All Intertopic Links** command from the **Tools** menu of the Topic dialog box or by using the **Delete links to nodes outside this topic** option in the Topic Update Options dialog box.

Review the selected options in the Topic Update Options dialog box carefully before clicking **Update** to perform the actual topic update.

Modifying Topics with Configuration Commands

After you have initialized your topic, you can use configuration commands to tailor that topic to match the specific requirements of your application more closely. These commands appear in the **Tools** menu of the Topic dialog box. The configuration commands you use depend on the capabilities you want your topic to support. For instance, if an Infor Campaign Management topic is to support campaigns directed at individuals but not group members, you can use a configuration command to globally remove links and nodes that support groups.

The following configuration commands are common to most Infor Campaign Management applications. However, some applications might not provide all of these commands and others might include additional commands.

For information about commands that are not listed here, refer to the Implementation Notes for your Infor Campaign Management application.

- **Change Link Categories**
This command allows you to globally change all links of a particular category to a new category.
- **Delete All Inter-Topic Links**
This command removes all links from the current topic to other topics in your EpiCenter.
- **Analyze Links**
This command analyzes the links within a topic and reports on possible problems such as:
 - **Multiple Web pages of the same type without context**
The Admin Manager cannot automatically assign a Web page to a node unless there is one and only one Web page of the appropriate type for a node that has the same context as the topic. Infor recommends that you assign one Web page of each type to the same context as your topic.
 - **Unused navigation nodes**
Unless a node is the destination of at least one link, users cannot navigate to it. The only way such a node can be reached is through a saved report in the Report Gallery, if such a report exists. Infor recommends that you consider deleting such nodes or creating links to them.
 - **Intertopic links**
Intertopic links that do not point to a You Are Here External or a You Are Here Entry Point node can proliferate and render navigation confusing or inconsistent. Infor recommends that you replace such links with links to those nodes.
 - **Link categories not used in any topic**
- **Compare Topics**
This command creates a report on differences between the current topic and another selected topic. For more information about using this command, see “Upgrade Topics from Release 5.0.x” in appendix A of the Infor Campaign Management Installation Guide.
- **Infor Campaign Management Conversion Report**
This command identifies nodes and links that might need to be replaced or modified after conversion from a Release 5.x.x application. For more information about using this command, see “Upgrade Topics from Release 5.0.x” in appendix A of the *Infor Campaign Management Installation Guide*.

- Quick Start – Enable or Disable

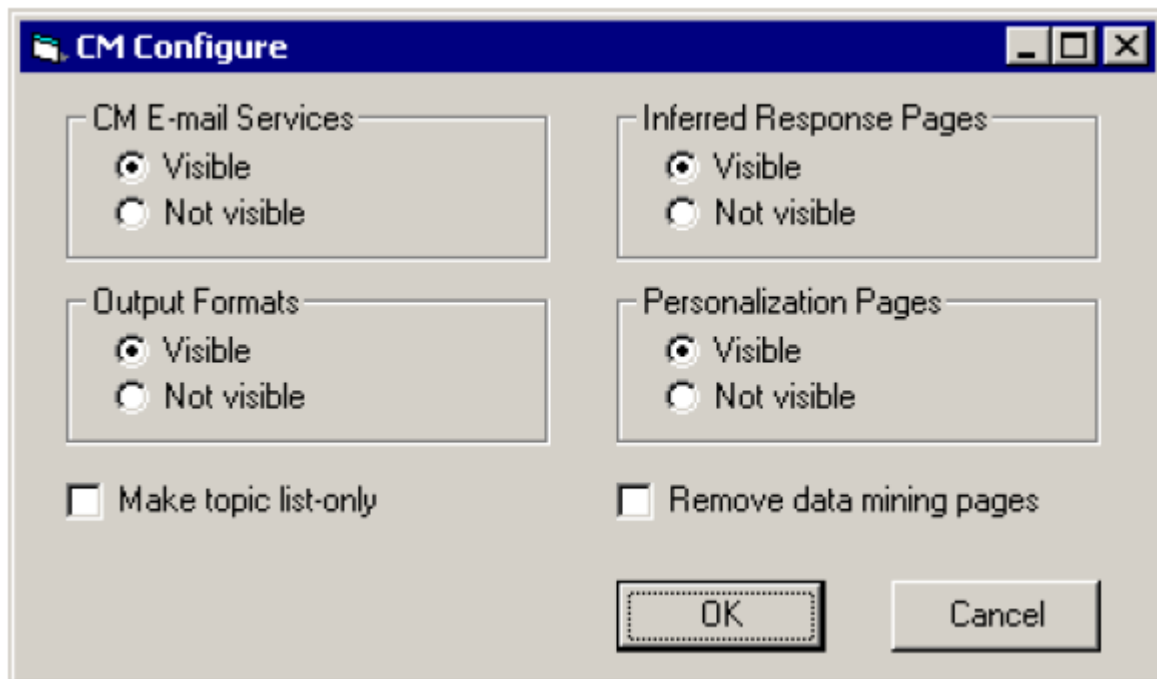
This command activates or disables links to **Quick Start** navigation nodes. These **Report Gallery Path Selector** nodes display the contents of selected Report Gallery folders as menus, giving users ready access to saved reports. This command also allows you to specify whether or not these nodes appear as starting nodes for the topics in which they are used.

Note: If you enable Quick Start nodes, you must configure each of those nodes by supplying the full pathname of a Report Gallery folder in the Prompt text box. The reports that reside in that folder are displayed as menu items in the Web page that appears at that node.

CM-Configure dialog

Use the CM-Configure dialog to configure Campaign Management topics. (

Note: This dialog only appears for campaign management topics.) From the Topic: Campaign Management window, click **Tools > CM-Configure** to bring up the following dialog:



- CM Email Services

Select the **Visible** button to activate links to nodes that support interaction with Infor Email Marketing by setting the Visible flag for each of those links. To disable those links, select the **Invisible** button.

- Output Formats

Select the **Visible** button to activate links to nodes that support creation of user-defined output formats. To disable those links, select the **Invisible** button.

- Inferred Response Pages

Select the **Visible** button to activate links to nodes that support inferred responses to completed campaigns. To disable those links, select the **Invisible** button.

- Personalization Pages

Select the **Visible** button to activate links to nodes that support interaction with Infor Interaction Advisor (Real-Time). To disable those links, select the **Invisible** button.

- Make topic list-only

Select this check box to remove campaign management capabilities from a topic. List management capabilities will not be affected, but campaign management functionality will be permanently removed from the topic.

Note: This action cannot be undone.

- Remove data mining pages

Select this checkbox to remove data mining capabilities from a campaign management topic.

Note: This action cannot be undone.

Additional Topic Configuration Commands

The following commands, which appear in the **EpiCenter\Tools\Topic** menu, are also useful when configuring topics:

- Infor Email Marketing- Install

This command allows you to install Infor Email Marketing.

- Delete Unused Link Categories

This command deletes link categories that are obsolete or that no longer contain any links.

- Spell Check File

This command creates a text file that contains all prompts and link labels. You can open this file in a text-editing program that provides a spelling checker to identify misspelled words.

Configuring Individual Navigation Nodes

You can make further modifications to topics by configuring individual navigation nodes. The process of configuring individual nodes involves:

- Modifying existing navigation nodes by

- Changing the text of labels
- Changing Web page assignments
- Adding or deleting links
- Changing the behavior of links or adding intertopic links.

- Deleting or hiding nodes.
- Creating new navigation nodes and adding links to those nodes.
- Adding intertopic links.

Modifying Existing Navigation Nodes

If you have one and only one Web page of a given type that is assigned to the same context as your topic, Admin Manager automatically attaches that Web page to each node in the topic that has a compatible node type. "Table 7: Navigation Node Types" on page 197 lists the available node types and the types of Web pages that can be assigned to each node.

Default links and link behaviors are inherited from the source topic. These default settings allow you to complete the process of configuring navigation nodes by making selective adjustments, rather than manually specifying every node and link.

Note: If you have zero or multiple Web pages of the same Web page type in the same context, no default Web-page assignment is made for that Web page type. In this case, you must specify the Web pages for every node that requires a Web page of that type.

Each navigation node inherits a context from:

- The Web page that is currently assigned to it, if that Web page has a nonnull context
- The context of the topic

String substitution is based on the context of a navigation node (See "The Strings Repository" on page 104, for a discussion of string contexts).

You can use the **Navigation Nodes** tab to review the structure of your topic. "Figure 43: The Navigation Nodes Tab" on page 187 illustrates this tab.

Working in the Navigation Nodes Tab

The **Navigation Node** tab consists of the following areas:

- a graphical display of the nodes and links for this topic
- a number of buttons that provide functionality for manipulating the topic nodes in the graphical display
- a control box grid that changes depending on whether you select the **Nav Nodes** sub-tab or the **Links** sub-tab
- a number of buttons that provide functionality for manipulating members of the grid control box

The following sections cover each area is covered in greater detail.

The Graphical Display Pane

The top pane displays a graphical map of the nodes and links within the topic. Scroll bars allow you to view selected portions of the map. You can click the **Full Screen** button in the window banner to view this dialog box most clearly.

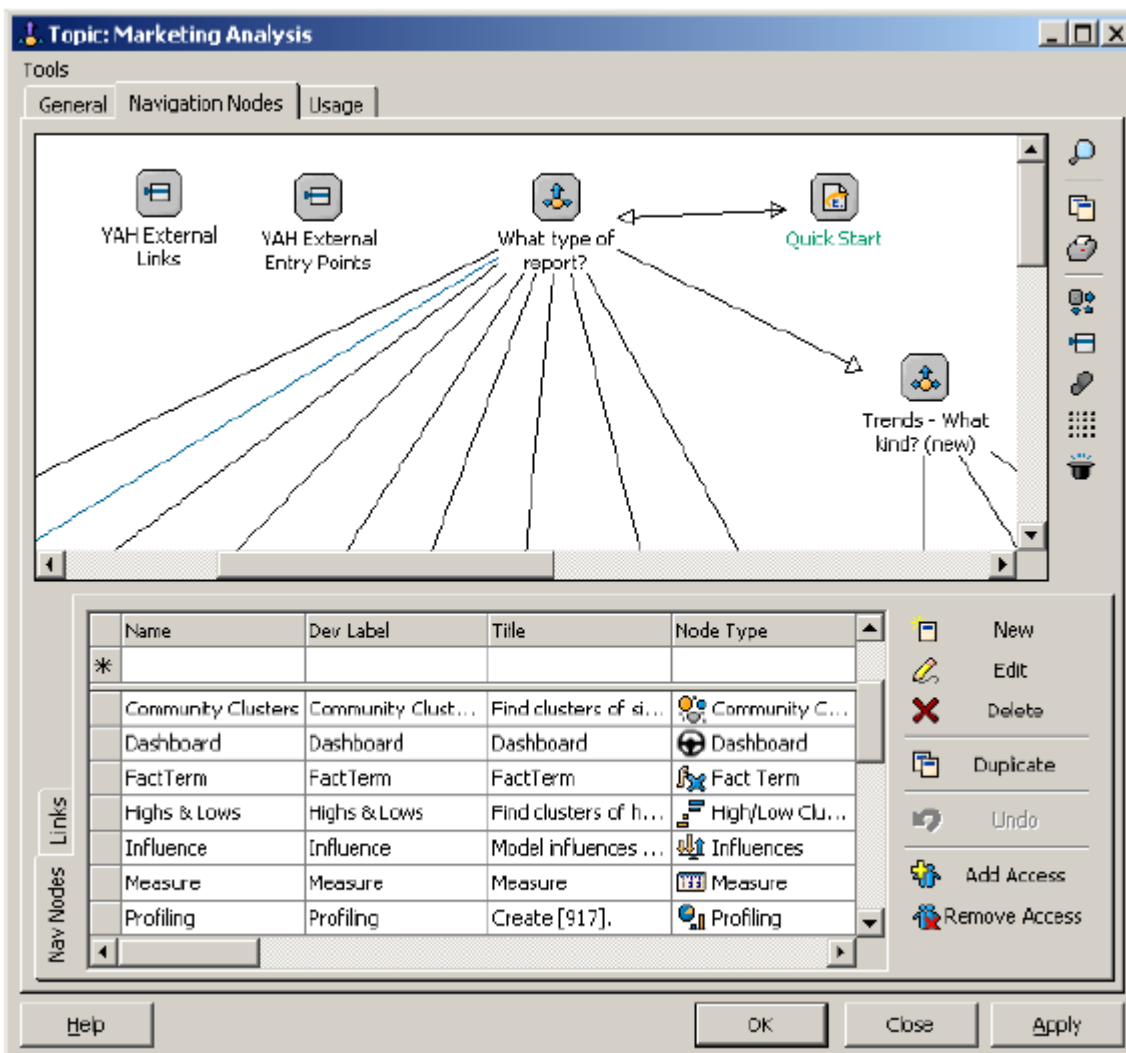




Figure 43: The Navigation Nodes Tab







The Graphical Display Buttons

The following buttons appear to the right of the graphical display box:

- 

The Zoom button toggles between Fit Width and 100% resolutions. The drop-down menu next to it allows you to select a resolution.
- 

The Copy button copies the current contents of the graphical display box to the clipboard.



| | |
|---|---|
|  | <p>The Print button prints out the current contents of the graphical display box.</p> |
|  | <p>The Auto-arrange Nodes button automatically arranges selected nodes in the display area. To arrange one or more nodes you added to a topic, select them and click Auto Arrange nodes. Admin Manager centers the selected nodes among the nodes to which they are linked.</p> <p>If you have not made changes to a topic, then clicking Auto-arrange nodes returns all nodes to their original display positions.</p> |
|  | <p>The Choose Link Categories opens a pop-up window in which you can select the type of links you wish to view:</p> <ul style="list-style-type: none">• To show links of a given category within the display, check the box for that category.• To hide links of a given category, uncheck the box for that category. |
|  | <p>The Walk Thru Mode button toggles between normal and walk-through modes. In normal mode, all links from checked categories and all nodes are shown. In walk-through mode, only links to or from a selected node and nodes linked to the selected node are shown. Walk-through mode allows you to easily walk through a topic step by step.</p> |
|  | <p>The Snap-to Grid button automatically straightens and aligns the node icons to a geometrical grid.</p> |
|  | <p>The Hide Nodes with No Access Records button hides nodes that have no access permission records; that is, no user has been assigned permission to access these nav nodes.</p> |






The Grid Control Box Buttons

You see different buttons to the right of the grid control box depending on whether the Nav Nodes pane or the Links pane is active.

Nav Nodes Pane




You see the following buttons if the Nav Nodes pane is active:

| | |
|---|--|
|  | <p>The New button opens the Navigation Node dialog box for a new node. (See "Figure 45: The Navigation Node Dialog Box" on page 192.)</p> |
|  | <p>The Edit button opens the Navigation Node dialog box for the selected node. You can also display this dialog box by double-clicking the icon for a node in the graphical display box.</p> |

| | |
|---|---|
|  | The Delete button deletes all links that use this navigation node, whether the node is the source or destination of the link. |
|  | The Duplicate button duplicates the selected node. You must change the name of a node after you duplicate it. |
|  | The Undo button reverses the previous change that you have entered through the Nav Nodes pane. |
|  | The Add Access button opens the Choose Access for Users or Groups pop-up window that displays the complete list of users or groups to which you can grant access to this navigation node. |
|  | The Remove Access button opens the Choose Access for Users or Groups pop-up window that displays the list of users or groups that currently have access to this navigation node. |

Links Pane

You see the following buttons if the Links pane is active:

| | |
|---|--|
|  | The Edit button opens the Navigation Link dialog box for the selected link. You can also display this dialog box by double-clicking a link in the graphical display box. |
|  | The Delete button deletes the selected link. |
|  | The Undo button reverses the previous change that you have entered through the Links pane. |

The Nav Nodes Pane

The Nav Nodes pane of the **Navigation Nodes** tab displays a grid control box that contains a listing of all of the navigation nodes within a topic.

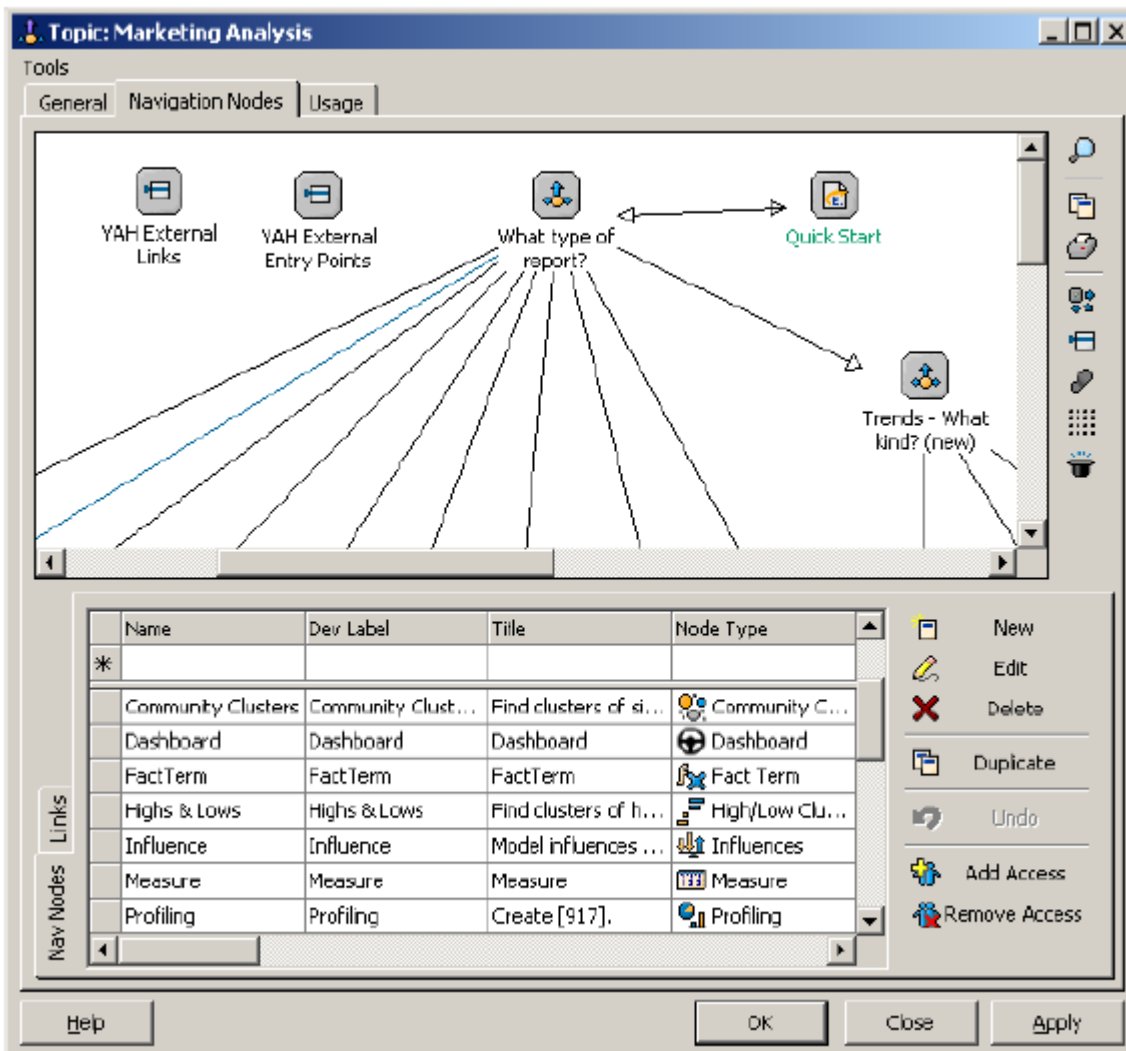


Figure 44: The Nav Nodes Pane

The grid control box contains the following fields:

- **Name**
The name of the navigation node as defined in EpiMeta.
- **Dev Label**
The developer label of the navigation node. This is the navigation node name that is displayed in Admin Manager.
- **Title**
The title that appears beneath the banner when the user opens the Web page that has been assigned to the node. The title of a navigation node can include embedded strings (See "The Strings Repository" on page 104), as well as characters in the same language, locale, and code page as the data mart. (See "International Language Support" on page 32 for details.)
- **Node Type**

The type of action that the node is to be used for, such as generating campaigns or lists, creating reports, or capturing information to pass along as input to the Web page at a subsequent node.

- **Web Page**

The name of the Web page that is assigned to the node.

- **Beginning**

If checked, indicates the specified node serves as a starting point when a user chooses the topic from the home page, or from the tabs that appear in the banner. To change the beginning node of a topic, check the **Beginning** check box for the new beginning node.

- **Prompt**

Helpful text that appears under the node title when the Web page is displayed. This text can be formatted using HTML tags.

- **Description**

A description of the node and the role that node plays within the topic for your reference.

The Navigation Node Dialog Box

If the Nav Nodes pane is active, clicking the **Edit** button opens the **Navigation Node** dialog box for the selected node. You can open this dialog box also by double-clicking the icon for a node in the graphical display box.

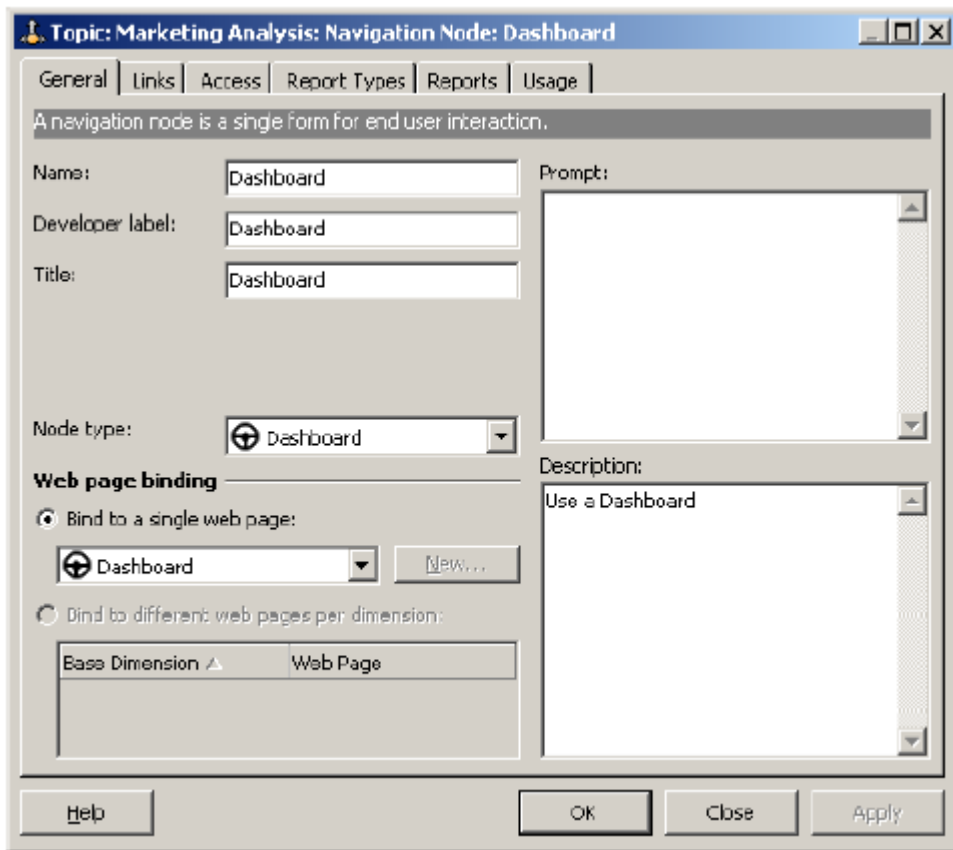


Figure 45: The Navigation Node Dialog Box

Navigation Node Dialog Box Tabs

The **Navigation Node** dialog box has the following tabs, which you can use to completely specify a navigation node:

- **General**
Use this tab to update the node name, node type, Web page, prompt, and description. It also allows you to select a Web page type if more than one is compatible with the node type. (See "Assigning Web Pages to Navigation Nodes" on page 196 for more information about node types and compatible Web page types.) The **New** button displays the Web page dialog in which you can create a new Web page. You can then assign the newly create Web page to the navigation node.
See "Working in the Navigation Nodes Tab" on page 186 for a description of the items in the **General** tab of this dialog box.
- **Links**
Use this tab to update the links that originate at the selected node. (See "Assigning Links to Navigation Nodes" on page 202 for details.)
- **Access**
Use this tab to add or remove access to the node for selected users and groups.
- **Report Types**

Use this tab to restrict the types of reports that a Report Gallery node displays. (It is ignored on other types of nodes.)

- Reports

Use this tab review, remove, update the properties, and update the schedule of any reports that have been saved from this node. (See "Managing Reports" on page 139 for details.)

- Usage

Use this tab to review the list of links for which this node is the destination in the **Usage** tab.

The Links Pane

The Links pane of the **Navigation Nodes** tab displays a grid control box that contains a listing of all the links within a topic. The grid control box in this pane displays the following fields for each link. Links are grouped by navigation node.

- Name

The name of the link as defined in EpiMeta.

- Dev Label

The name of the link as displayed in Admin Manager.

- Label

The text label that appears on a Web page when the link is displayed.

- Dest Node

The name of the destination node for the link. The destination node can be a node in another topic.

- Behavior

The state-carrying and report-activation action of the link.

Each behavior consists of two components. The first component indicates whether to carry the state information that a user has selected in the current Web page to the Web page at the destination node. The second component indicates whether to generate a report when opening the destination Web page.

- Nav Type

The type of window to open for the Web page at the destination node.

- Link Category

The set of links to which the link belongs.

Links in the same category appear together, typically in the side bar of the Web page. Certain link categories have specialized functions and appear in other locations on Web pages.

- Image

The name of an optional graphical image file that is displayed as a live link above or adjacent to the link label, which is also a live link.

- Visible

When this box is checked, the link label and image (if any) are displayed.

- **Enabled**
When this box is checked, the link is active.
- **Highlight**
When this box is checked and the link category places a link in the side bar, the link label appears highlighted.
- **Prompt**
Certain link categories can display prompt text that describes the action the link performs. The prompt can include embedded strings as well as characters in the same language, locale, and code page as the data mart. The prompt can include only tags that can appear inside an HTML <FORM> tag.
To include the left-square-bracket character ([) within a prompt, enter a pair of those characters ([[). Otherwise, this character delimits the start of an embedded string. To include the left-angle-bracket character (<) normally used to delimit the start of an HTML tag, enter a pair (< <).
- **Description**
A description of the link and the role that link plays within the topic for your reference.

The Links Navigation Dialog Box

If the Links pane is active, clicking the **Edit** button opens the **Links Navigation** dialog box for the selected link. You can also display this dialog box by double-clicking a link in the graphical display box.

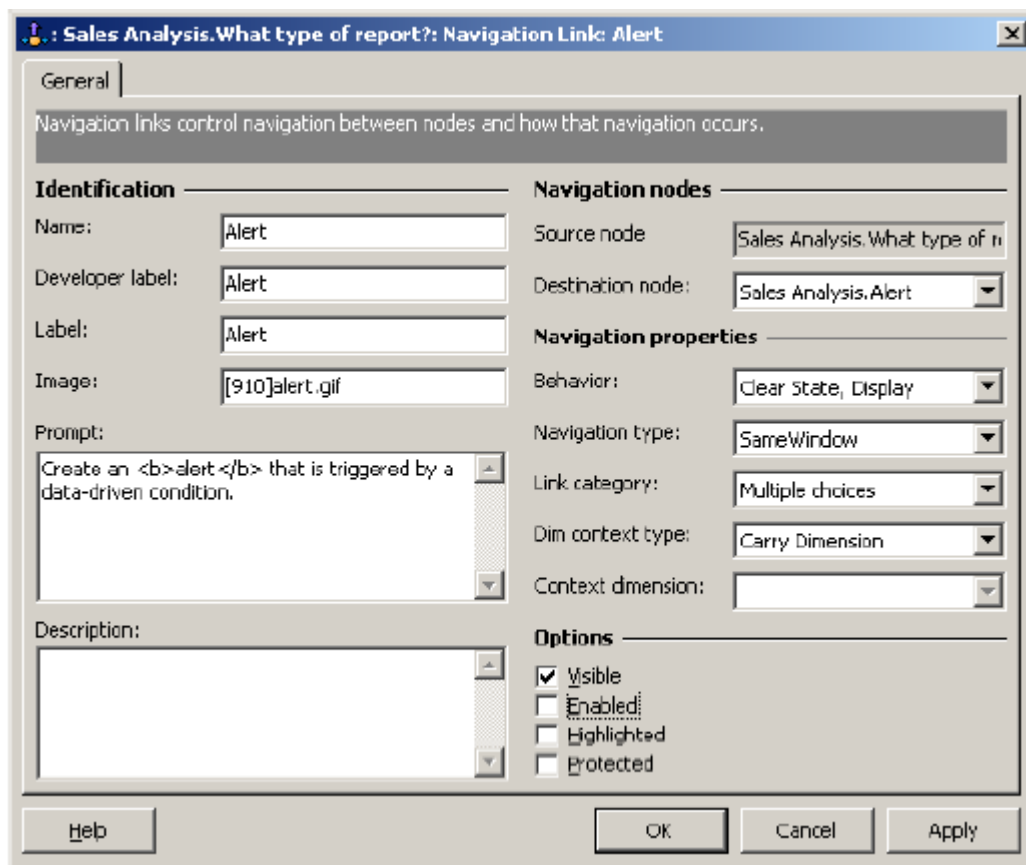


Figure 46: The Navigation Link Dialog Box

See "Working in the Navigation Nodes Tab" on page 186 for a description of the items in the **General** table of this dialog box.

Selecting, Moving, and Editing Nodes

You can select and move node icons within the display box to rearrange the map. When you select a node, Admin Manager displays nine handles: one at each of the cardinal compass points and another at the center. You can drag the handle at the center of the node to start a new link and drop the end of the link at another node to indicate the destination for that link. You can then double-click the link to edit it. You can also double-click the icon for a node to edit that node.

When you select a link, Admin Manager displays at least one handle along the length of the line segment for that link. You can drag that handle to change the shape of the link.

You can right-click any node or link to display a pop-up menu. The pop-up menu for a node allows you to:

- Add a new node or duplicate the selected node.
- Edit or delete the selected node.

- Grant or revoke access to the node for selected groups and users.

The pop-up menu for a link allows you to edit or delete that link.

Assigning Web Pages to Navigation Nodes

The **Web Page** column in the grid control area of the Nav Node pane displays the name of each Web page that is assigned to a navigation node. If this field is blank for any node you must take one of the following actions:

- Create a Web page of the appropriate type and then assign it to the node.
- Choose from among the several Web pages of that type that are currently available and assign it to the node.
- Delete the node if it is unneeded, or assign a different Web page type to that node.
- Eliminate access to the node for all users. When you do so, links that terminate at this node are disabled.

Assigning a Web Page to a Navigation Node

- 1 Click the Web Page field in the grid control box and then choose a Web page from the drop-down list of Web pages that have the appropriate type.
 - Alternatively, you can use the Navigation Node dialog box to select an alternative Web page type or another node type and compatible Web page type, and then select a Web page of that type. See the Navigation Node Types table below for a listing of node types and compatible Web page types.

Note: Changing Web page types assigned to navigation codes can render saved reports for that node unusable. It is essential to examine links coming in to a changed navigation node to ensure that they still make sense.

Note: Ensure that you assign web pages to all required nodes in a topic. If you have upgraded a topic from a topic template, ensure that any new nodes have web pages assigned as required. Missing web page assignments can cause loss of functionality or, in some cases, runtime errors.

- 2 If a Web page that produces the specific report you require does not already exist, click the **New** button in the Nav Node pane, then create the new Web page in the Navigation Node dialog box. See "Web Pages" on page 147
- 3 Enter a prompt that describes the actions that you want users to perform at this node in the **Prompt** field. The **Prompt** text box accepts entries in the language, locale, and code page of the data mart.
- 4 Enter a description of the node in the **Description** field. The **Description** text box accepts entries in the language, locale, and code page of the data mart.
- 5 In the **Access** tab, click the **Add** button to assign access rights to the node for users and groups. The table below lists the types of Web pages that you can assign as content to nodes with the indicated Web page types.

Table 7: Navigation Node Types

| Navigation Node Type | Web Page Types Allowed as Content |
|--|--|
| Add a Filter Setting | Advanced Rows & Columns, Basic Rows & Columns |
| Add FOAM to Bayes | Bayesian Classifier |
| Add FOAM to Community Clusters | Community Clusters |
| Add FOAM to High/Low Clusters | High/Low Clusters |
| Add FOAM to Influences | Influences |
| Add FOAM to Profiling | Profiling |
| Add FOAM to Rows & Columns | Basic Rows & Columns, Cumulative Projections, Lifecycles |
| Add FOAM to Trends | Trends |
| Add Parameters to Trends | Trends |
| Advanced Rows & Columns | Basic Rows & Columns |
| Alert | Alert |
| Basic Rows & Columns | Basic Rows & Columns |
| Bayesian Classifier | Bayesian Classifier |
| Bulk Upload | Campaigns |
| Calendar | Calendar |
| Campaign Segment to List Manager | Campaigns |
| Campaign to List Manager | Campaigns |
| Campaign Communication | Campaigns |
| Campaign Communication Strategies | Campaigns |
| Campaigns | Campaigns |
| Community Clusters | Community Clusters |
| Communication Strategy Segment to List Manager | Campaigns |
| Communication Strategy to List Manager | Campaigns |
| Creative Definition | Campaigns |
| Creative Placement Definition | Campaigns |
| Creative Selection Criteria | Campaigns |
| Cumulative Projections | Cumulative Projections |
| Dashboard | Dashboard or Dashboard Publish |

| Navigation Node Type | Web Page Types Allowed as Content |
|-----------------------------|--|
| Dashboard Publish | Dashboard or Dashboard Publish |
| Define an Uploaded File | Campaigns |
| Define Campaign Events | Campaigns |
| Define Data Store | Campaigns |
| Dynamic Output Format | Campaigns |
| EpiCenter Profiles | EpiCenter Profile |
| ETC Content Master | Campaigns |
| ETC Message Content | Campaigns |
| External Data Access | Campaigns |
| Fact Term | Basic Rows & Columns, Bayesian Classifier, Community Clusters, Cumulative Projections, Fact Term, High/Low Clusters, Influences, Lifecycles, Profiling, Trends |
| High/Low Clusters | High/Low Clusters |
| Home Page | Home Page |
| IA Redirect Type | IA Redirect Type |
| Import External List | Campaigns |
| Inference Campaigns | Inference Campaign |
| Inference List Manager | Inference Campaign |
| Influences | Influences, Modeling |
| Lifecycles | Lifecycles |
| Light Campaigns | Campaigns |
| Light Email Campaigns | Campaigns |
| Light Web Campaign | Campaigns |
| List Manager | Campaigns |
| Measure | Basic Rows & Columns, Bayesian Classifier, Community Clusters, Cumulative Projections, High/Low Clusters, Influences, Lifecycles, Measure, Profiling, Trends |
| Measure Operand | Basic Rows & Columns, Bayesian Classifier, Community Clusters, Cumulative Projections, High/Low Clusters, Influences, Lifecycles, Measure Operand, Profiling, Trends |
| Menu | Menu |

| Navigation Node Type | Web Page Types Allowed as Content |
|--|--|
| Modeling | Bayesian Classifier, Influences, Modeling |
| Modeling Bayes | Bayesian Classifier |
| Modeling Influence | Influences |
| OfferOptimization | Campaigns |
| Profiling | Profiling |
| Report Gallery | Report Gallery |
| Report Gallery Path Selector | Report Gallery |
| Rule Set | Campaigns |
| Schedule | Campaigns, Report Gallery |
| Scoring | Scoring |
| Segmented List | Campaigns |
| Segmented List Segment to List Manager | Campaigns |
| Segmented List to List Manager | Campaigns |
| Select a Context | Context Selector Dimension Picker |
| Select a Context (popup) | Context Selector Dimension Picker |
| Select a Navigation Path | Select a Navigation Path |
| Select a Navigation Path (popup) | Select a Navigation Path (popup) |
| Select a Navigation Path to List Mgr | Select a Navigation Path |
| Select a Navigation Path to List Mgr (popup) | Select a Navigation Path (popup) |
| SPNodeSelect | Campaigns, Context Selector Dimension Picker |
| Substitution-Field Collection | Campaigns |
| Top N Scores | Top N Scores |
| Trends | Trends |
| View List | Campaigns |
| View List From Segment | Campaigns |
| Web Light Campaigns | Campaigns |

The table below lists node types for list and campaign generation. Unless otherwise noted, the Web page assigned as content must be a Campaigns Web page.

Table 8: Campaign- and List-Management Node Types

| Node Type | Usage |
|---|---|
| Campaigns | A campaign related node that creates campaigns |
| Campaign Communication | A node that allows user to create and save reusable communications for campaigns. |
| Campaign Communication Strategies | <p>A node that allows users to create and save reusable communication strategies for campaigns. A communication strategy provides a method of specifying:</p> <ul style="list-style-type: none"> • selection criteria for campaign segments • default communication for each segment • an output file for each communication <p>Once defined, users can apply communication strategies at any level of a campaign segmentation tree to further qualify campaign members.</p> |
| Calendar | A campaign related node that displays calendar of scheduled campaigns. Requires a Calendar Web page. |
| Campaign Segment to List Manager | An intermediate node (See "Configuring Intermediate Nodes" on page 209) for capturing user input when moving between a campaign segment and the list on which that segment is based. Requires the same Web page as the List Manager node to which it is linked. |
| Campaign to List Manager | An intermediate node for capturing user input when moving between a campaign and the list on which a campaign is based. Requires the same Web page as the List Manager node to which it is linked. |
| Define an Uploaded File | A node that allows users to upload files for use in campaigns. |
| Define Campaign Events | A node that allows users to define events for use in event-based and event-triggered campaigns. |
| Define Data Store | A node that allows the specification of external data sources that can be used in campaigns. |
| External Data Access | A node that allows the use of data from external data sources in campaigns. |
| Import External List (See "Import External List" on page 175.) | A node that allows the importing of external lists, including scored lists, from files or tables. |

| Node Type | Usage |
|---|---|
| Inference Campaigns | A node that allows users to specify the criteria by which campaign recipients can be included in the response table even though they might not have responded directly. Requires an Inference Campaigns Web page. |
| Light Campaigns, Light Email Campaigns, Web Light Campaigns | These nodes support simplified campaign management for direct, email, and Web-based campaigns. |
| List Manager | A node that allows users to create lists of members. |
| Offer Optimization | A node that allows users to build a segmented list from a set of scored lists of members. |
| Rule Set | A node that allows users to define permission rules that restrict campaigns to recipients who meet permission criteria. |
| Schedule | A general purpose node that displays scheduled reports, lists, and campaigns. |
| Segmented List | A node that allows users to create segmented lists of members. This is similar to a Campaign node, but it includes only the segmentation step and a Save button for segmented lists. |
| Segmented List Segment to List Manager | An intermediate node (See "Configuring Intermediate Nodes" on page 209) for capturing user input when moving between a segmented list segment and the list on which that segment is based. Requires the same Web page as the List Manager node to which it is linked. |
| Segmented List to List Manager | An intermediate node (See "Configuring Intermediate Nodes" on page 209) for capturing user input when moving between a segmented list and the list on which that segment is based. Requires the same Web page as the List Manager node to which it is linked. |
| Communication Strategy Segment to List Manager | An intermediate node (See "Configuring Intermediate Nodes" on page 209) for capturing user input when moving between a communication strategy segment and the list on which that segment is based. Requires the same Web page as the List Manager node to which it is linked. |
| Communication Strategy to List Manager | An intermediate node for capturing user input when moving between a communication strategy and the list on which that campaign is based. |

| Node Type | Usage |
|------------------------|---|
| | Requires the same Web page as the List Manager node to which it is linked. |
| View List | A node that displays the contents of a list. Requires the same Web page as the List Manager node from which it is linked. |
| View List From Segment | A node that displays the contents of a list from within a campaign segment. Requires the same Web page as the Campaigns node from which it is linked. |

Assigning Links to Navigation Nodes

Links provide the means for users to jump from the Web page at one navigation node to the Web page at another node. The Links pane in the **Navigation Nodes** tab of the **Topic** dialog box allows you to review and modify the links that are assigned to each navigation node.

Links that originate at a navigation node perform the following functions:

- They indicate the nodes to which users can navigate from the current node.
- They can carry report information (state) from the Web page at one node to the Web page at another. This state information includes the filters, attributes, options, and measures (FOAM) that a user has selected.
- They can automatically invoke the report-generation action of the destination Web page.

The combination of state information and report-invocation options associated with a link is referred to as the behavior of that link.

Links are classified into categories. Different categories appear in different areas of the Web page in which they appear. Some link categories are built in. Some of those built-in link categories perform special functions. You can create additional link categories that appear in the side bar of the Web page that is assigned to a node.

Modifying Existing Links

Perform the following steps to modify a link.

- 1 Choose the row for a link in the grid control box. Alternatively, select a row and then click the **Edit** button to open the **Navigation Link** dialog box.
- 2 Enter a label for the link in the **Label** field or the **Link Label** text box. The **Link Label** text box accepts entries in the language, locale, and code page of the data mart.
- 3 Select the name of a destination node from the **Dest Topic/Node** drop-down list box in the Navigation Link dialog box. The destination node cannot be edited in the grid control.
- 4 Choose a behavior from the **Behavior** drop-down list.

The behavior of a link specifies the actions that are performed when the link is followed. "Table" on page 203 describes the behaviors that are available.

Certain behaviors carry state information that has been generated by the Web page at a source node to the destination node. This state information can include:

- Filters, options, attributes, measures (FOAM)
- Report results from the current Web page
- State information that has been inherited from another node through the operation of a previous link behavior
- The behaviors that are available for a particular link depend on the type of the destination node.

Table 9: Link Behaviors

| Behavior | Description |
|----------------------------|--|
| Campaign Export Immediate | This behavior initiates execution of the campaign that is currently specified in the Campaigns Web page that resides on the current node. The campaign is executed directly by Infor Campaign Management Server, rather than the scheduler. |
| Carry State for OfferOpt | This behavior carries the location of a saved scored list to an offer- optimization node. |
| Carry State for Scoring | This behavior carries the state information from the origin node to the destination node, which must be a Scoring node. |
| Carry State, Create Report | This behavior carries state information from the origin node to the destination node and initiates report generation by the Web page at the destination node before displaying that Web page. This report is based on the state information that has been carried from the originating node. |
| Carry State, Display | This behavior carries state information from the origin node to the destination node and initiates display of the Web page without first generating a report. |
| Clear State, Create Report | This behavior does not carry state information to the destination node. Instead it initiates generation of the default report for that node. |
| Clear State, Display | This behavior neither carries state information nor initiates report generation. |
| CM Light | This behavior automatically transforms a list into a light campaign. |
| CM Light Email | This behavior automatically transforms a list into a light email campaign. |

| Behavior | Description |
|------------------------------|--|
| CM Light Web | This behavior automatically transforms a list into a light Web campaign. |
| Edit List for Scoring | Reserved. |
| Include As Menu | This behavior adds a link to a Menu node. The Menu node displays a menu of links in the side bar of the Web page that appears at the current node. This menu lists the links that have been configured in the Menu node. A can navigate directly to the destination node for any link in the menu by clicking a link, even though that link is specified in the Menu node. |
| Include As You Are Here Menu | This behavior adds a link to a Menu node. With this behavior, if the menu contains a link to the current node, that link is highlighted and disabled. |
| MLM Export | This behavior places the definition of an exported list in the exports directory. The output format associated with the list must have a fulfillment script set. |
| Response Inference | Reserved. |

5 Choose a navigation type from the **Nav Type** or **Navigation Type** drop-down list box.

The Navigation type indicates the window in which the Web page at the destination node is to be displayed. "Table 10: Navigation Types" on page 204 describes the available navigation types.

Table 10: Navigation Types

| Navigation Type | Description |
|--------------------|---|
| New Browser Window | The destination node is displayed in a new browser window. In this case, the current node remains in the current browser window. |
| New Dialog Box | The destination node is displayed in a new pop-up window. The current node remains in the current browser window. |
| Opener Window | The destination node is displayed in the window from which the current node was opened. For example, if the current node is a popup window, this displays the destination node in the window from which the popup was opened. |
| Same Window | The destination node is displayed in the same window as the current node. |

6 Choose a link category from the **Link Category** drop-down list box.

Link categories allow you to group links that you want to appear together on the Web page. Links are typically displayed in the top level application menu as menu items/sub menu items with different category name will appear under different menu. You can create or edit a link category by:

- a** Clicking either the **New** or the **Edit** button.
- b** Entering or editing the name of a link category, the label for that category, and a description. The **Label** text box accepts entries in the language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.
- c** Selecting the Display on topic form? option if you want links in this link category to appear in the **Navigation Node** tab of the Topic dialog box by default.

Some link categories are treated as special cases by certain node types. These special-purpose categories are described in the table "Assigning Links to Navigation Nodes" on page 202 . Special treatment can involve:

- Displaying links in a given category in the body of a Web page, as opposed to the top level application menu.
- Suppressing display in certain Web pages (or in all but certain Web pages). In particular, only the **Wizard Steps** link category is displayed on Group Campaign Segment to List Manager or Individual Campaign Segment to List Manager navigation nodes.
- Displaying links in a nested fashion in the top level application menu. The links are displayed up to 2 levels. Topic ' First level Nav Links ' Nav Links of each node displayed as second level).

If a node does not recognize a link category as a special case, it displays the links in that category as sub menu items in the application menu of the Web page.

Table 11: Special-P urpose Link Categories

| Link Category | Web Pages | Placement and Usage |
|-------------------|---|---|
| Analyze Further | Basic Rows and Columns, Bayesian Classifier, Cluster, Influences, Lifecycles, Profiling, Quarter Projections, Scoring, and Trends View List | NA - These links are not displayed. These links are not displayed in this Web page. |
| App-specific Help | All | NA - These links are not displayed. |
| Create New Report | All | NA - These links are not displayed. |
| Multiple Choices | Select a Navigation Path | Links appear in the application menu of the Web page (First Level and second level menu items under each topic) and on Report Gallery Path Selector nodes. |
| | View List | Links are not displayed. |

| Link Category | Web Pages | Placement and Usage |
|-----------------|-----------|---|
| Wizard Steps | All | Links appear within the body of the Web page, at the bottom of the report section. |
| You Are Here | All | Links are not displayed. However the carry state, context related information will be read from these links when we navigate between the pages. |
| Actions | All | These links appear in the 'Action' menu. |
| Get Insight Via | All | These links appear in the 'Use Data' menu. |
| Use in Campaign | All | These links appear in the 'Use Data' menu |

7 Select the Dimension context type: d

Table 12: Dimension Context Type

| Context Type | Usage |
|------------------------------|---|
| Carry Dimension | Carries forward the dimension context from the source node. If the source node has no dimension context, a random dimension context is chosen. |
| Carry Dimension With Default | If the source node has no dimension context set, the default set here is passed to the destination node. The default is selected from the Context dimension drop-down list. If the source node has a dimension context set, it is passed to the destination node. |
| Specify Dimension | The specified dimension is passed to the destination node. The dimension is specified in the Context dimension drop-down list. |

- 8 If you have selected **Carry Dimension With Default** or **Specify Dimension**, select the **Context dimension** from the drop-down list.
- 9 Select **Visible** if you want to have the link visible to the user.
- 10 Select **Enabled** to enable the link. If **Visible** is checked and **Enabled** is unchecked, then the user will see the link label but will not be able to follow the link.
- 11 Select **Highlighted** to display the link with the background color of the topic.
- 12 Select **Protected** to prevent the link from being deleted by default during topic updates.

-
- 13 For links in the Multiple Choice and Wizard Steps categories, you can enter the name of an image in the **Link Image** text box.
 - 14 For links in the Wizard Steps category, you can enter a text prompt for the link by opening the **Prompt** tab and entering the text in the text box. The prompt appears only on Select a Navigation Path Web pages.
 - 15 Click **OK** to finish configuring the link.
If you choose, you can display alternative links in a separate list on the Web page by assigning them to a new link category. To create a new link category, click the **New Category** button that appears to the right of the graphical display box.

Adding New Links to a Node

Perform the following steps to add new links to a node.

- 1 Click the icon for the node from which you want the new link to originate.
- 2 Place the cursor on the center handle of that node and then drag from that handle to the destination node for the link. A line extends from the origin node as you drag.
- 3 Drop the end of the line on the node that is to be the destination of the link. When you do, the Navigation Link dialog box appears.
- 4 Choose a behavior, navigation type, and link category, then enter a label and the name of an image file, if any. Check the appropriate boxes to indicate whether the link is to be highlighted, enabled, or visible. The **Label** text box accepts entries in the language, locale, and code page of the data mart. See "International Language Support" on page 32 for details.
- 5 Click **OK**

Alternatively, you can open the **Navigation Node** dialog box for the source node and add the destination node in the **Links** tab. Clicking **New** in the **Links** tab of the **Navigation Node** dialog box displays the **Navigation Link** dialog box in which you can configure the new link. (See "Figure 45: The Navigation Node Dialog Box" on page 192.)

Removing Links from a Node

Perform the following steps to remove a link from a node.

- 1 Select a link in the grid control.
- 2 Click the **Delete** button.
- 3 Confirm the deletion if prompted.

Creating Menus of Links

You can create menus of links that appear in the side bars of Web pages. These menus can include links to any node within a topic. They can also include intertopic links.

You add links to a menu by configuring a navigation node that serves as a repository for menu information. You display a menu on a node by creating a link to a menu node. Instead of displaying a

single link to the menu node, Infor Campaign Management Server displays a menu that includes all of the links that have been assigned to that menu node. You can include links of different categories in a Menu navigation node. When you do, the links within each category are displayed as submenus.

You can create a menu of links, which you can add to a Web page at any node.

- 1 Choose a Web page that has the Menu Web page type as the content in a Menu navigation node, or create a new node, assign it the Menu type, and choose a Menu Web page as the content for that node.
- 2 In the **Links** tab of the Navigation Node dialog box, create links to each of the navigation nodes that you want to include in your menu. Be sure to specify the appropriate label, behavior, and navigation type for each of these links.
- 3 Add a link to the Menu navigation node in each of the navigation nodes at which the menu is to be displayed. Although you can choose any link category for a link to a Menu node, Infor recommends that you prefix the link category with the word “Menu.” You must assign one of the following behaviors to the link, which enables display of the links that you specified in the menu on the Web page for the current node. These are the only link behaviors that are available for the Menu node type, and they appear only for the Menu node type.
 - **Include as Menu**
This behavior displays the list of link labels from the **Menu** node in the side bar of the Web page. Each of the labels is a live link.
 - **Include as You are Here Menu**
This behavior displays the list of link labels. However, to prevent a node from linking to itself, any links within the list that point to the current node are highlighted and disabled. This behavior displays the list of link labels. However, to prevent a node from linking to itself, any links within the list that point to the current node are highlighted and disabled.

You can force a link within a menu to be highlighted and disabled in the Web page for any node on which that menu appears. To do so, add a link to the node that has the same label and category as a link in the Menu node. The link in the Menu node that has a matching category and label is highlighted and disabled in the Web page.

Creating Intertopic Links

An intertopic link allows direct access from a navigation node in one topic to a navigation node in a different topic. The process of adding intertopic links is the same as that for creating new links within a topic.

- 1 Open the topic that contains the navigation node that is to be the origin of the intertopic link.
- 2 Edit the navigation node that is to be the origin of the intertopic link.
- 3 Click the **Add Link** button to display the Navigation Link dialog box. Select the destination node from the **Destination Node** drop-down list. This list box includes all of the navigation nodes in all of the topics that have been configured so far.

Infor suggests that you create a specific link category for intertopic links.

Topics that derive from topic templates include the following nodes. These nodes provide a standard method for managing links that carry state information between topics:

- **YAH External Entry Points**
This menu node contains links to nodes that are convenient for accepting state information from another topic. Links in this node can be of any type that appears in the side bar.
- **YAH External Links**
This menu node contains links to nodes in other topics that are convenient for accepting state information.

To create a link that carries state from one topic to another, add a **You Are Here Menu** link to the **YAH External Links** node of the first topic and set the destination of that link to the **YAH External Entry Points** node of the second topic. To configure links in the opposite direction, create a link in the **YAH External Links** node of the second topic and set the destination for that link to the **YAH External Entry points** node of the first topic.

To remove all intertopic links from the current topic, choose **Delete all Intertopic Links** from the **Tools** menu of the Topic dialog box.

Changing Link Categories

You can assign all of the links within a given link category to a new category.

- 1 Create a new link category clicking the **New Category** button in the **Navigation Node** tab of the Topic dialog box.
- 2 Choose the **Change Link Categories** command in the **Tools** menu of the Topic dialog box.
- 3 Select the link category you wish to change.
- 4 Select the new link category to which the links are to be assigned.

The **Report Types** tab of the Navigation Node dialog box allows you to restrict the types of reports that the Report Gallery displays when called from a particular node. If you specify no report types for a node, the entire Report Gallery is available for browsing from that node. The **Only show reports from this topic** check box restricts reports to those that are generated within the topic in which the node appears. "Table 14: Report Types Produced by Web Pages" on page 213 lists the report types that Infor recommends you include for individual nodes.

Configuring Intermediate Nodes

The state information that a link carries from one navigation node to another does not always contain all of the information that the Web page at the destination node requires. This information can include filters, options, attributes, or measures (FOAM), or other parameters that affect the information that appears in a report.

When the link behavior includes the **Create Report** component, and in some cases even when the behavior includes the **Display** component, you must ensure that the Web page at the destination node has all of the information that it needs before it opens. You can do so by creating a default report for each navigation node (which Infor recommends in any case). However, the default report might not meet the needs of different users, especially when users can arrive at a node from nodes that display various different Web pages.

Creating intermediate nodes that allow users to supplement state information ensures that users can automatically generate the reports that they want.

You do not configure new Web page contents for intermediate nodes. Instead, you choose the same Web page as the one that has been assigned to the destination node. For instance, if you want to give users the option to add new filters when going from a Basic Rows and Columns or Advanced Rows and Columns Web page to an Influences Web page, you choose the same Influences Web page that is assigned to the destination node.

Perform the following steps to add an intermediate node that supplements the state information that is to be carried from one node to another.

Adding an Intermediate Node

- 1 Add an intermediate node with an appropriate node type as listed in the "Table 13: Intermediate Node Types" on page 211 below.
- 2 Alter the link in the origin node that points to the destination node so that it points to the intermediate node instead. Give this link the Carry State, Display behavior and the New Dialog Box navigation type.
- 3 Add a link from the intermediate node to the destination node that has the Carry State, Create Report behavior and the Opener Window navigation type.

When you use the navigation nodes and links that have been supplied as part of a topic template, these transitions are configured correctly. Whenever you add new nodes to a topic, be sure to provide the appropriate intermediate Web pages and links for the transition from each origin to the node that you add.

The Campaigns Web pages require that you provide intermediate nodes whenever you wish to carry state from any of the reporting and analysis pages (other than Scoring), even across links with the Display behavior component. Other pages require intermediate nodes only when a link specifies the Create Report behavior component.

Note: Whenever you configure a node that has the Group List Manager or the Individual List Manager node type, you must configure a link from that node to another node that has the View List node type. Whenever you configure a node that has the Group Campaigns or Individual Campaigns node type, you must configure a link to a View List from Segment node.

"Table 13: Intermediate Node Types" on page 211 lists the destination node types for which intermediate nodes are required, along with the intermediate node types that are needed to reach that destination node from various origin node types.

For instance, if you want to establish a path that carries state information to a Basic Rows and Columns node from a Community Clusters node, you must configure an intermediate node that has the Add FOAM to Rows and Columns node type. The link from the Community Clusters node to the Add FOAM... node must include the Carry State behavior, as must the link between the Add FOAM... node and the Basic Rows and Columns node.

Table 13: Intermediate Node Types

| Destination Node Type | Intermediate Node Type | Origin Node Types |
|---|--|---|
| Advanced Rows and Columns, Basic Rows and Columns | Add FOAM to Rows and Columns | Community Clusters, Group List Manager, High/Low Clusters, Individual List Manager, Profiling, Trends |
| Bayesian Classifier | Add FOAM to Bayes | Group List Manager, Individual List Manager, Scoring |
| Community Clusters | Add FOAM to Clusters | Group List Manager, Individual List Manager, Scoring |
| Cumulative Projections | Add FOAM to Rows and Columns | Community Clusters, Group List Manager, High/Low Clusters, Individual List Manager, Profiling, Trends Strongly recommended for: Advanced Rows and Columns, Basic Rows and Columns, Lifecycles, Trends. |
| Group Campaigns | Select Navigation Path to List Manager, Select Navigation Path to List Manager Popup | Advanced Rows and Columns, Basic Rows and Columns, Community Clusters, Cumulative Projections, High/Low Clusters, Lifecycles, Trends |
| | Top N Scores | Scoring |
| Group List Manager | Select Navigation Path to List Manager, Select Navigation Path to List Manager Popup | Advanced Rows and Columns, Basic Rows and Columns, Community Clusters, Cumulative Projections, High/Low Clusters, Lifecycles, Trends |
| High/Low Clusters | Add FOAM to High/Low Clusters | Group List Manager, Individual List Manager, Scoring |
| Individual Campaigns | Select Navigation Path to List Manager, Select Navigation Path to List Manager Popup | Advanced Rows and Columns, Basic Rows and Columns, Community Clusters, Cumulative Projections, High/Low Clusters, Lifecycles, Trends |
| | Top N Scores | Scoring |
| Individual List Manager | Select Navigation Path to List Manager, Select Navigation Path to List Manager Popup | Advanced Rows and Columns, Basic Rows and Columns, Community Clusters, Cumulative Projections, High/Low Clusters, Lifecycles, Trends |

| Destination Node Type | Intermediate Node Type | Origin Node Types |
|-----------------------|------------------------------|--|
| Influences | Add FOAM to Influences | Group List Manager, Individual List Manager, Scoring |
| Lifecycles | Add FOAM to Rows and Columns | Community Clusters, Group List Manager, High/Low Clusters, Individual List Manager, Profiling, Trends Strongly recommended for: Advanced Rows and Columns, Basic Rows and Columns, Cumulative Projections, Trends. |
| Modeling | Add FOAM to Influences | Group List Manager, Individual List Manager, Scoring |
| Profiling | Add FOAM to Profiles | Group List Manager, Individual List Manager, Scoring |
| Schedule | n/a | n/a |
| Scoring | n/a | n/a |
| Trends | Add FOAM to Trends | Community Clusters, Group List Manager, High/Low Clusters, Individual List Manager, Profiling, Trends Strongly recommended for: Advanced Rows and Columns, Basic Rows and Columns, Cumulative Projections, Lifecycles |

Configuring Navigation Nodes for Scoring Web Pages

Perform the following steps to configure navigation nodes that have the Scoring Web page type.

Configuring Navigation Nodes for Scoring Web Pages

- 1 Create a Web Page with the Scoring Web page type.
- 2 Select that Web page as the Web Page Contents for all navigation nodes with the Scoring node type.
- 3 Create at least two links in each Scoring navigation node:
 - One link in the New Model link category, to a node with a Modeling Web page, with the label “New Model.”

- The other in the New List link category, to a node with a List Manager node type, with the label “New List.”
- 4 Infor suggests adding additional links to nodes with other Web page types (such as Profiling) in the Analyze Further link category. These additional links allow users to perform further analyses of data that they use for ranking list members.

Configuring Report Gallery Nodes

The Navigation Node dialog box includes a Report Types tab. The settings in this tab are only recognized on Report Gallery nodes. If you want to restrict the reports that appear in a Report Gallery node to those from the current topic, click the **Edit** button, open the **Report Types** tab in the Navigation Node dialog box, and then check **Only show reports from this topic**.

You can restrict the types of reports that appear in this node by clicking the **Add Types** button and then selecting report types from the list box. If any report types are selected, only those report types appear. If no report types are selected, all report types appear in the Report Gallery Web page that is assigned to the current node. "Table" on page 213 lists the types of reports that can be generated by the indicated Web page types.

Table 14: Report Types Produced by Web Pages

| Web Pages | Report Types |
|--|--|
| Advanced Rows and Columns, Basic Rows and Columns, High/Low Clusters, Lifecycles Profiling, Trends | TicksheetFile |
| Alert | AlertFile |
| Dashboard | DashboardFile |
| Email Marketing Related Web Pages | EmailCommunicationContentFile, SubstitutionField-CollectionFile |
| Campaigns | CampaignFile, CampaignListFile, CMLiteEmailFile, CMLiteEmailList, CMLiteFile, CMLiteList, CMLiteWebFile, CMLiteWebList, GroupFilterFile, FormatDefinitionFile ListFile, OfferOptFilterFile, OfferOptListFile, RuleSetFile, SegmentedFilterFile, SegmentedListFile, CommunicationStrategyFile |
| Inference Campaigns | InferredResponseFile |
| Individual Inference Campaigns | IndivInferredResponseFile |
| Influences, Community Clusters, Bayes Classifier | ModelFile |
| Preview | ListPreviewFile |
| Report Gallery | HyperlinkFile |

| Web Pages | Report Types |
|---|----------------------------------|
| Scoring, Top N Scores | ScoredFilterFile, ScoredListFile |
| Any type of report that is set to run in the background | StaticHTML |
| n/a | ImportedScoredList, ScheduleFile |

Configuring Report Gallery Path Selector Nodes

Report Gallery Path Selector nodes display the contents of Report Gallery folders as menu items in regular Web pages. Users do not need to navigate through the Report Gallery to locate reports when those reports appear in a folder that is displayed by one of these nodes.

Configuring a Report Gallery Path Selector Node

- 1 Enter the pathname of the folder to be displayed in the **Title** text box. Pathnames are case sensitive, and must match the name of a folder in the Report Gallery exactly.
- 2 Enter a prompt that describes the contents of the folder in the **Prompt** text box.
- 3 Choose the Report Gallery Web page as the Web page content.

The following considerations apply:

- Scrutiny warns about references to nonexistent or empty folders cited in Report Gallery Path Selector nodes. These warnings do not prevent Infor Campaign Management Server from starting or refreshing.
- The prompt that you supply appears immediately beneath the folder path. The recommended practice is to in describe the subject area of the reports that are expected to be saved in the indicated folder.
- The Report Gallery Web page at a Report Gallery Path Selector node shows:
 - Multiple Choice links, in the order that they are entered within Admin Manager.
 - Saved Reports that appear within the indicated Report Gallery folder, in alphabetical order by report nameThe report descriptions appear as prompts for each of these links. Each of these links has the **Carry State, Create Report**, behavior. Report descriptions can contain embedded HTML tags.
- Other links are displayed in the same manner as they would appear on a Path Selector node.

Hiding or Deleting Navigation Nodes

When you have completed the process of assigning Web pages and links to the nodes that your application needs, you can either hide or delete any extra nodes that the topic template has supplied. You can hide unused nodes by removing access to them for users and groups. You can delete an unused node by selecting it in the **Navigation Nodes** tab of the Topic dialog box and clicking **Delete**. For ease of maintenance, Infor suggests hiding nodes rather than removing them.

Removing Access to Unused Nodes

- 1 Select the row for the node you want to hide in the **Navigation Nodes** tab of the Topic dialog box and click **Edit** .
- 2 Open the **Access** tab in the **Navigation Node** dialog box.
- 3 Choose all groups from the **Group Name** list box and click the **Remove** button for groups.
- 4 Choose all users from the **User Name** list box and click the **Remove** button for users.

If the route to a node that you need passes through a node that you removed or hid, that node is rendered inaccessible to users. Links going into a node that users cannot access are disabled and hidden. These are the links for which you may want reassignment if you delete the node. You must ensure that there is an alternate link to every node that is the destination of a link from the current node. This is, of course, much easier to do before you delete the node. If you hide the node instead, you can still view the destinations of its links in Admin Manager, even though those links have been rendered inactive for end users.

The Infor Campaign Management Server is an application server that allows users to interact with data mart through the Web-based user interface. The Infor Campaign Management Server accepts requests that users submit through Web pages, dispatches queries to the data mart, and returns the results of those queries to users in the form of Web pages that contain query results or responses. "Figure 47: Infor Campaign Management Server Operation" on page 218 illustrates the role that the Infor Campaign Management Server plays in the architecture of your Infor Campaign Management application.

Overview

Implemented as a collection of Java classes that run within a Java virtual machine, the Infor Campaign Management Server manages user connections and database queries in a multi-threaded fashion. The virtual machine that runs the Infor Campaign Management Server code can be invoked as:

- A service or console command on **Windows 7** and **Windows 8** platforms.
- A daemon process or **java** command on supported Unix platforms.

A Web-server proxy, which is configured as a Web-server module, provides access to Infor Campaign Management Server applications over the Web. Supported Web servers include:

- Internet Information Server on Windows platforms.
- Apache and Sun ONE (formerly iPlanet) on supported Unix platforms.

The Web server passes URL requests and parameters to the Web server plug-in (owned by WebLogic or WebSphere), which communicates with the J2EE Application Server. Then the J2EE Application Server routes the request to the Infor Campaign Management Server. The Infor Campaign Management Server Java classes then process each request by:

- 1 Issuing optimized queries to a database server on which mart data resides.
- 2 Formatting the results that the database server returns in HTML format with embedded HTML forms and JavaScript routines.
- 3 Forwarding the formatted results to the J2EE Application Server, which forwards them, in turn, to the Web server plug-in.

The Web server plug-in then passes the formatted results to the Web server for display on the Web browser from which each request originates.

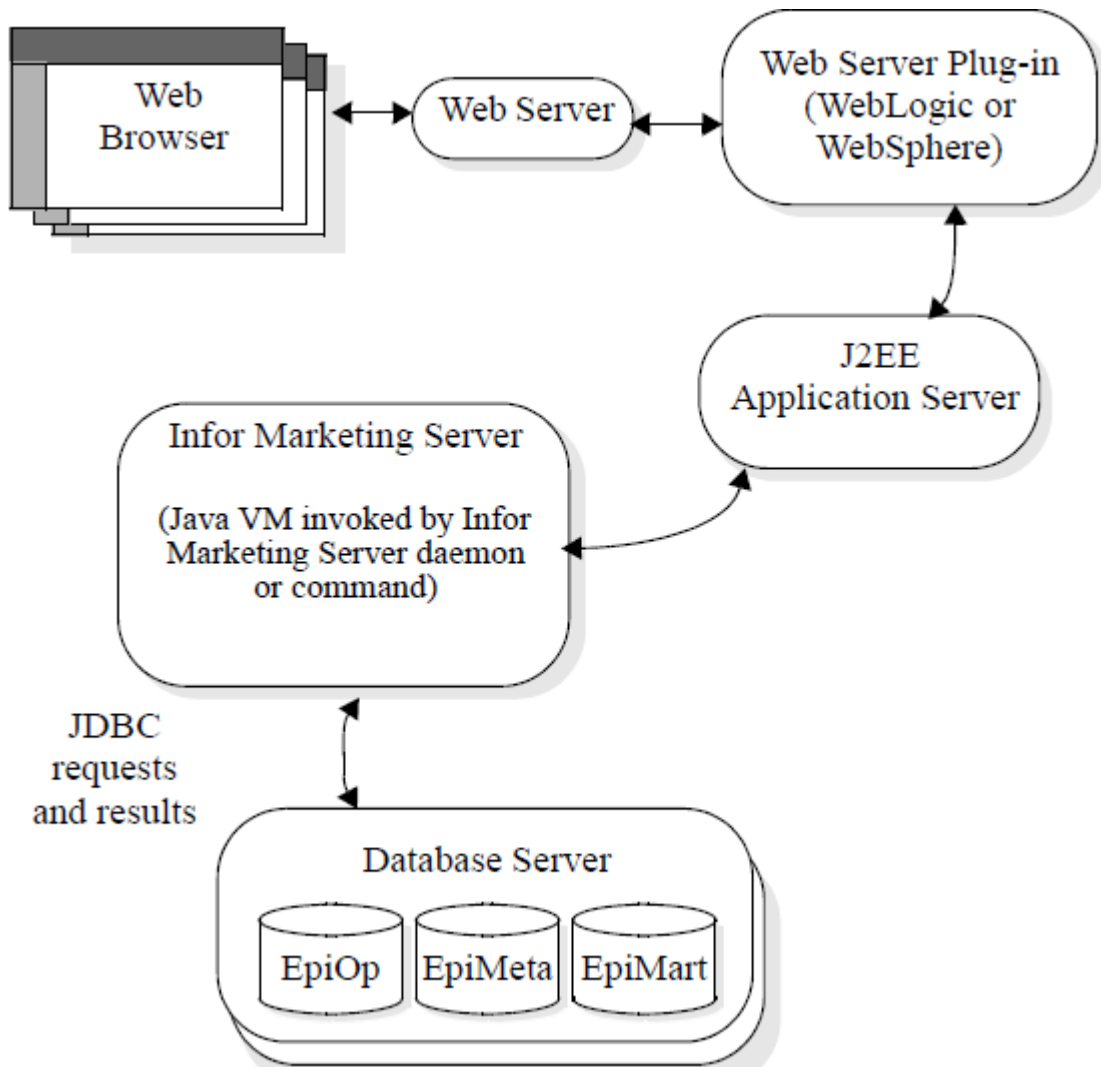


Figure 47: Infor Campaign Management Server Operation

A user session begins when the user submits a URL request for the Infor Campaign Management Server instance. The URL request is resolved by the Web server, routed to the Web server plug-in, and forwarded to the Infor Campaign Management Server. In response to this initial request, the Infor Campaign Management Server responds with a log-in page. When a user has successfully logged in, the Infor Campaign Management Server displays a home page for that user, who can then click links and enter data in Web-based forms to navigate within the Infor Campaign Management application and view or generate reports. A session ends when the user logs out or exits the Web browser.

Note: If Windows integrated security is in effect, authenticated Windows users do not see a log-in page. They go directly to a Home page instead.

Users who log in through a wireless device go directly to a Dashboard page. Wireless users cannot navigate beyond that page to other navigation nodes within the Infor Campaign Management application.

Note: The default values of these settings is one hour. If you leave your browser open for this time you will be asked to re-login. Two registry settings control the timeout of browser sessions:

- Optimization\Query\SessionTimeout
- Optimization\Query\StateTimeout

The Infor Campaign Management Server optimizes the query by selecting appropriate aggregate tables and indexes, then passes the optimized query to the data mart over a JDBC connection. When the data mart returns the result over that same connection, the Infor Campaign Management Server instantiates the appropriate application-specific Java classes to perform analytical calculations, and then formats the finished results for presentation in HTML format. The Infor Campaign Management Server then forwards these formatted results to the requesting user's Web browser for display.

Caching of Query Results

Infor Campaign Management Server caches the results of queries that users run against the data mart. If a later query uses the same dimensions, measures, and filters as an earlier one, Infor Campaign Management Server uses the result that it has cached rather than issuing another query against the data mart. An optional registry key, **QueryCacheSize**, determines the number of query results that Infor Campaign Management Server caches. If this key is not set to another value, the Infor Campaign Management Server caches the most recent 200 query results.

The Infor Campaign Management Server also caches the results of count queries that run during campaign generation, along with the tables used to generate those counts. The size of the cache for counts is 500.

You can use the Infor Campaign Management Server monitor to clear this cache. See "Using the Infor Campaign Management Server Monitor" on page 230 for details.

Tracking of Queries for Aggregate Optimization

The Infor Campaign Management Server maintains a log in metadata for the tables and columns that queries access. This log is used by the aggregate optimizer to generate statistics and make recommendations about which aggregates to build. This log grows continuously until you truncate it. To do so, choose **Tools** and then **Truncate Query Logs** from the **EpiCenter** menu for your Infor Campaign Management Server instance.

Note: When you run these scripts, the data that the aggregate optimizer uses to make recommendations for new aggregates is removed. The next time you refresh the aggregate optimizer from the logs, all historical data prior to the time at which the script has been run is lost. Infor recommends that you refrain from refreshing the aggregate optimizer for an appropriate number of days after running this script to reestablish a history of recent queries.

Security

The Infor Campaign Management Server does not perform authentication for user accounts. Instead, it relies on an outside mechanism to authenticate users who attempt to log in, which is determined by the security module that you select. The security modules that Infor Campaign Management Server supports include the following:

- `com.epiphany.security.SingleSignonLogon`
Use Single Sign On (SSO) only if you have configured your implementation for Single Sign On. See the *Infor Campaign Management Installation Guide* for more information about Single Sign On.
- `com.epiphany.util.platform.windows.EpiNTLogon`
The EpiNTLogon security module uses the **Windows 7** domain as the repository for user authentication information. Do not use this security model with Unix systems.
- `com.epiphany.util.platform.windows.EpiW2KLogon`
The EpiW2KLogon security module uses the **Windows 8** domain as the authentication repository. Do not use this security model with Unix systems.
- `com.epiphany.security.EpiLDAPLogon`
The EpiLDAPLogon security module uses one or more LDAP servers running the Sun ONE (Open Net Environment) directory server as the authentication repository. Use this security module for ADS (Active Directory Service) authentication, also.
- `com.epiphany.security.EpiPassThruLogon`
The EpiPassThruLogon security module allows users to log in without authentication. This security module is to be used only for development and debugging purposes.
Note: Do not use the EpiPassThruLogon security module for production applications except when instructed to do so by a representative of Infor technical support. Allowing unauthenticated user access can result in the exposure of sensitive data stored within your data mart.

You select a security module by specifying it as the value of the **SecurityModel** configuration key in the **Settings** tab of the **Configuration** dialog box: **Configuration > Settings > (All Settings) > Behavior > Security > SecurityModel**.

User Authentication

The means by which the authentication information (username and password) reaches Infor Campaign Management Server is as follows:

- 1 Users log into the Infor Campaign Management either through a log-in Web page or through a Web-server authentication mechanism.
- 2 When the Infor Campaign Management Server receives the user name and password, it loads an authentication module and initiates the log-in process. The user ID and password are validated by the authentication module, which compares the values that a user enters against data in the authentication repository.

- 3 Upon successful authentication, group membership information for the user is updated in metadata to match the current group-membership information that is stored in the authentication repository. This update process is called synchronization .

Synchronization allows user and group information in the EpiMeta database to remain current with information in the authentication repository. If the repository is updated to add a user to one or more groups, the group-membership information in the EpiMeta database is updated when that user next logs in. Likewise, if the authentication repository is updated to remove group memberships for a particular user, those memberships are deleted from the EpiMeta database when that user next attempts to log in.

- 4 If, after synchronization occurs, the authenticated user belongs to at least one Infor Campaign Management group, the user is given access the Infor Campaign Management Server application.

Note: Infor Campaign Management user and group IDs are case sensitive.

- 5 Users that do not belong to any Infor Campaign Management groups are not allowed to log in. An error message that says that user is authenticated but not authorized to use the application appears whenever an unauthorized-but-authenticated user attempts to log in.

Note: Only group memberships of a group for which synchronization is enabled are updated at log-in.

Note: If you use Admin Manager to update group or user information, you must refresh Infor Campaign Management Server. See "Refreshing the Infor Campaign Management Server" on page 228 for details.

Authentication Considerations for Windows and IIS

Depending on how IIS security is set up, one of the following situations occurs upon login:

- If **Allow Anonymous** authentication is enabled, the login page is displayed when the user attempts to use the system for the first time, or the user session times out.
 - The EpiNTLogon security module queries the Windows domain for lists of global and local groups. The names of these groups are matched to the names of the groups in the EpiMeta database. It is almost always sufficient to specify the username and password only. The domain name is located automatically.

The search order that authentication uses to find the user account is as follows. First, the authentication mechanism looks in the security access manager (SAM) of the local host, then it checks with the primary domain controller, and afterwards checks with trusted domains. If there are multiple users with the same name between domains, or a local machine that runs the Infor Campaign Management Server, specify the full user name: domainname\username , or local_machine_name\username if the user logs in from the local security access manager (SAM).
 - The EpiW2KLogon security module allows system administrators to specify organizational units under which user IDs reside. By default, this authentication module begins the search for an account with the CN=users folder. However, you can set the value of the **W2KUsersSubTree** configuration key to the location of an organizational unit if your security policy requires that searches for account information be restricted.

For example, to restrict searches for a user account to the Marketing organizational unit, set the configuration key to:

- The EpiW2KLogon security module allows system administrators to specify organizational units under which user IDs reside. By default, this authentication module begins the search for an account with the `CN=users` folder. However, you can set the value of the **W2KUsersSubTree** configuration key to the location of an organizational unit if your security policy requires that searches for account information be restricted.

For example, to restrict searches for a user account to the Marketing organizational unit, set the configuration key to:

Note: The authentication module applies the restricted search criteria to all log-in attempts, regardless of the domain controllers from which they originate. If your network uses different storage schemes for account information across different domain controllers, users who are authorized to log in from one domain controller might not be able to log in from another.

- If **Basic Authentication** is enabled, the browser displays a login dialog box when the user attempts to access the Infor Campaign Management application for the first time. However, when the user's session times out, no re-login is required. The user is automatically logged in again, and a new user session created.
- If **NTLM** authentication is enabled, Internet Explorer automatically performs authentication of the user without displaying the log-in page. If **Basic Authentication** or **NTLM** is on, the log-in page does not appear in the Web browser.

Note: Infor recommends against creating new domains for Infor Campaign Management access. Doing so introduces multiple domains, with the Infor Campaign Management host in one domain and the user accounts for the operating system in another domain.

If you set up a new domain for the machine that runs the Infor Campaign Management, set up a two-way trust and name the machine and the domain differently. In general, do not use the same string for domain names, machine names, and user names.

The following information applies to groups that are synchronized through the EpiNTLogon security module:

- On Windows, a group name is matched if its domain name and group name match. Therefore, group `xyz` does not match the `Infor\xyz` group. The match is case insensitive for both group name and domain name. If a user is a member of a Windows group `Infor\xyz` and EpiMeta has a group called `Infor\xyz`, a match occurs.
 - If a user is a member of a local group and the group has a global group as a member, the global group will not be picked for the synchronization process. Only the groups for which the user is an immediate member are considered for synchronization.
 - If a user logs in with an account that is local to the application host, then a membership to a special group called `None` is automatically used. Do not create synchronized groups called `None` in Admin Manager.
- Avoid having the same name for domain names, machine names, and user names. For example, if Infor Campaign Management runs on the machine `xyz`, and the user called `xyz` attempts to log in, access may be denied. If the Infor Campaign Management is running on a machine named `xyz`, and a user named `xyz` logs in from the primary domain, or from the local SAM of the machine `xyz`, authentication succeeds. If user `xyz` logs in from a trust domain, however, the authentication fails.

The only way to log in as xyz from another domain is to give the full name for the user account upon login: domainname\xyz .

Exception Reporting

The Infor Campaign Management reports any exception that it encounters to the operating system.

- On Unix hosts, the Infor Campaign Management uses the standard **syslog** daemon for reporting exceptions. The Infor Campaign Management logs messages with the following priorities:
 - user.info
 - user.err
 - user.warning

Infor recommends that you direct all messages to the same file with an entry in the /etc/syslog.conf file of the following form:

```
usr.info;user.err;user.warning/var/adm/messages
```

You can replace /var/adm/messages with an appropriate filename for your Unix host.

To verify that Infor Campaign Management events are logged, start your instance of the Infor Campaign Management and then enter the command:

```
grep "Infor Campaign Management Server" <logfile>
```

Replace *logfile* with the name of the file to which messages should be logged. The file should contain a line of the form:

```
The Infor Campaign Management Server <instance_name> was successfully started.
```

When you see a line of that form, exception reporting for your Infor Campaign Management instance is operating correctly on your Unix host.

- On Windows hosts, you can view these exceptions in the Event Viewer, in which every exception that Infor Campaign Management reports is given a unique event ID.

Starting the Infor Campaign Management Server

The standard Infor Campaign Management software installation (as described in the *Infor Campaign Management Installation Guide*) installs a service to start the Infor Campaign Management Server. You must manually configure your WebLogic or WebSphere server before it can work correctly. See the *Infor Campaign Management Installation Guide* for more information.

Configuring Infor Campaign Management Server as a daemon is optional, but strongly recommended on Unix.

To determine if Infor Campaign Management Server is running, enter the URL for your Infor Campaign Management instance as the destination to visit in a Web browser. If the browser displays the log-in page or home page, Infor Campaign Management Server is running. If the browser displays an error message, you can attempt to start Infor Campaign Management Server as described in the sections that follow.

Starting the Infor Campaign Management Server on UNIX

If you have installed your Infor Campaign Management Server instance on Unix, you can use the following commands to start or stop the application server or scheduler. You must be logged in as the user who starts Infor Campaign Management Server, or as root , to issue any of these commands successfully. These commands reside in the bin subdirectory of the installation image for your Infor Campaign Management Server instance.

To start the Infor Campaign Management Server for WebLogic, enter the following command:

```
cd <Infor Campaign Management Server Installation Directory>/Web/  
<Instance Name>/  
Infor Campaign Management/bin/startWebLogic.sh
```

To start the Infor Campaign Management Server for WebSphere, enter the following command:

```
cd <WebSphere Installation Directory>/bin/StartServerBasic.sh
```

If you have configured Infor Campaign Management Server, the scheduler, or EpiChannel as a daemon, you can use the following commands to start and stop those processes:

| | |
|----------------------------|---|
| appservice_ instance start | Start an Infor Campaign Management Server instance as a daemon process. Replace <i>instance</i> with the name of the instance to start. |
| appservice_ instance stop | Stop an Infor Campaign Management Server instance running as a daemon process. |

| | |
|---|---|
| <code>schedulerservice_ instance start</code> | Start the scheduler daemon associated with an Infor Campaign Management Server instance. |
| <code>schedulerservice_ instance stop</code> | Stop the scheduler daemon associated with an Infor Campaign Management Server instance. |
| <code>episervice_ instance start</code> | Start the EpiChannel daemon associated with an Infor Campaign Management Server instance. |
| <code>episervice_ instance stop</code> | Stop the EpiChannel daemon associated with an Infor Campaign Management Server instance. |

These commands reside in one of the following directories, depending on the Unix version of your application host:

- Solaris: `/etc/init.d`
- HP-UX: `/sbin/init.d`

Note: Infor recommends that you use the commands listed above to start and stop the Infor Campaign Management Server and scheduler processes and daemons. However, you must wait until these utilities have completed their start-up routines before you use any of the above commands to halt them. The Infor Campaign Management Server and the scheduler each store process IDs in files that are read by those commands. If you attempt to stop an Infor Campaign Management Server or scheduler process too soon, the command can fail with unpredictable results. It is safe to halt one of these processes when a message of the form:

- Infor Campaign Management Server awaiting connections
- appears in the server log file or on the console.

Starting and Stopping Infor Campaign Management Server on Windows

You can start and stop the Infor Campaign Management Server service on Windows using the **Control Panel\Services** menu.

Starting and Stopping the Infor Campaign Management Server Service

- 1 From the Start menu, choose **Settings\Control Panel\Services**.
- 2 Select the name of your Infor Campaign Management instance from the list of service names. The service name for Infor Campaign Management Server is the same as the name of your Infor Campaign Management instance.
- 3 Click **Stop** to stop this service, or **Start** to start it.
- 4 Click the **Startup** button, choose **Automatic**, and then click **OK** in the Service dialog box to configure automatic start-up for this service.

Note: The Infor Campaign Management Server checks for inconsistencies in the metadata for your application before it begins processing requests. Such inconsistencies can prevent the Infor Campaign

Management Server from starting successfully. The first step in diagnosing such a failure is to run the Scrutiny debugging tool, as described in the “Scrutiny Debugging Tool” in the *Infor Campaign Management Data Mart Implementation Guide*.

The EpiNTLogon and EpiW2KLogon security modules require that the user ID under which the Infor Campaign Management Server service runs must have the following access rights:

- Act as part of OS
- Increase quotas
- Replace a process level token

The Local System account already has these privileges, and Infor recommends that you configure your Infor Campaign Management Server to run as a service under the Local System account. However, if you must run the Infor Campaign Management Server under a different account, you must configure these privileges properly on a Windows 7.

Configuring Windows Account Privileges

- 1 Log in as a user who has local administration access.
- 2 Assign special Windows Server privileges to a user account. To do so, start User Manager and enter the local machine name in the Select Domain dialog box.
- 3 Choose **Policies\User Rights** from the menu.
- 4 Click **Show Advanced User Rights** and assign the account of the user who runs Infor Campaign Management Server to have the privileges specified above.
- 5 Reboot your machine for the privileges to take effect.

Configuring Account Privileges on a Windows 8 Server

- 1 Click **Start**, in the **Start Search** box, specify **Administrative Tools**, and then press **ENTER**.
- 2 Right-click **Computer Management** and select **Properties**.
- 3 From the Properties dialog box, copy the string in the **Target** field. Close the Properties dialog box.
- 4 In the command window, enter the following command line:

```
mmc /a
```

- 5 From the **Console** menu, select **Add/Remove Snap-In** and then click **Add**.
- 6 In **Snap-In**, select **Group Policy** and then click **Add**.
- 7 In the Group Policy dialog box, select **Local Computer > Finish > Close** and click **OK**.
- 8 In the Local Computer Policy dialog box, navigate to **Local Computer Policy > Computer Configuration > Windows Settings > Security Settings > Local Policies > User Rights**. The appropriate privileges then appear in the right pane of the dialog box.
- 9 For each of the desired privileges, right-click the privilege name and select **Security** to open the Security dialog box. In this dialog box, add the user to whom you wish to assign this privilege.
- 10 Reboot your machine for the privileges to take effect.

After you have configured privileges properly you can start the Infor Campaign Management Server service.

Note: These procedures affect permissions on the local machine only, not the domain.

Configuring the Infor Campaign Management Server

Enabling Time-Based Scheduling

In the Admin Manager, open the Configuration folder and double-click the **Settings** icon. In the Settings tab of the Configuration dialog box, open the 'Behavior' folder, select the **Scheduler** subfolder, and set the TimeBasedScheduling value to '1'. This will allow users to schedule reports and campaigns to run at specific time.

Checking the Status of Infor Campaign Management Server

You can check the status of Infor Campaign Management Server in the following ways:

- Using the Infor Campaign Management Server Monitor Web page.
See the next section for more information about the Infor Campaign Management Server monitor.
- Checking for the existence of the Infor Campaign Management Server log file.
This file resides in the directory specified by the following registry key:
HKEY_LOCAL_MACHINE\SOFTWARE\EPIPHANY\Instances\ instance \External Interfaces\Directory\SystemLogDir
 - Unix default directory
<Installation Directory>/wwwroot/logfiles
Replace Installation Directory with the full pathname of the directory in which Infor Campaign Management Server is installed.
 - Windows default directory
C : \Program Files\Infor\Infor Campaign Management <version>\Web\
<instance>\AP\logs
Replace version with the version number of your Infor Campaign Management Server instance, and instance with the name of your Infor Campaign Management Server instance.

The log file has a name in the following date-time format. The filename indicates the year, month, day, hour, minute and second at which Infor Campaign Management Server started running.

```
YYYY-MM-DD_hh-mm-ss-32SRV.txt
```

Infor Campaign Management Server periodically writes to this log file, so the last modified date of this file can be a good indication of activity.

- On Unix, by checking the list of active processes with a command of the form:

```
ps -ef | grep java
```

- On Windows, by:
 - Checking the Infor Campaign Management Server service in the **Services** control panel. If Infor Campaign Management Server is running, the word **Started** appears in the **Status** column for the service.

- Checking the Windows Event log.

Go to:

Start > Programs > Administrative Tools (common) > Event Viewer

and then open the **Log\Application** menu. If the service has been started and is running, an entry of the form `Source = EpiAppServer` appears. The message reads:

```
Infor Campaign Management Server  
instance  
message: The Service was started.
```

- Checking for the `java.exe` process that runs the J2EE application server class. Checking for the `java.exe` process indicates only whether the J2EE application server is running, not whether the Infor Campaign Management Server has been successfully deployed and initialized within that J2EE application server.

Refreshing the Infor Campaign Management Server

Upon start-up, the Infor Campaign Management Server reads the configuration keys listed in the Settings tab of the Configuration dialog box of Admin Manager. It then reads the Registry.properties file or the Windows Registry for additional configuration settings. Keys that appear in the registry override keys that appear in the Settings tab.

Infor Campaign Management Server caches the following information for use during normal query processing:

- Information about the navigation nodes, link behaviors, Web pages, and Web-page templates
- Data mart configuration information
- Aggregate navigation information
- Time navigation information
- Security information
- Storage information
- Scheduling information

When any of the following events occur, you must restart or refresh the Infor Campaign Management Server :

- After extraction, if the state of any data mart table has been toggled or there has been a change in a table that is used in a dynamic list box filter.
- Admin Manager has been used to reconfigure your application, add new users, or update group memberships.
- Configuration keys or registry entries in the following location have changed since the last time Infor Campaign Management Server was started:

```
HKEY_LOCAL_MACHINE/Software/Epiphany/<Instance Name>
```

If you have determined that you need to refresh Infor Campaign Management Server, there are several ways to proceed. You can stop and then restart the Infor Campaign Management Server service or daemon. However, this requires manual intervention, and is therefore unsuitable for programmatic refresh (after an extraction, for example). This method also interrupts anyone currently using the system.

Other ways to refresh the Infor Campaign Management Server that do not interrupt users include:

- Using the Web-based Infor Campaign Management Server monitor.
The Infor Campaign Management Server monitor allows you to refresh the application server. It also allows you to monitor the current state and recent activity of Infor Campaign Management Server. To refresh Infor Campaign Management Server, click the **Refresh the Application Server** link. If the operation successful, the Web page displays the following message:

```
AppServer was refreshed
```

If the operation does not complete successfully, the Web page displays an error message.

- Using the **--Refresh** option of the **epichannel** command
This option sends a message to the Infor Campaign Management Server instructing it to reread all of the necessary information mentioned above. For information about EpiChannel command syntax and arguments, see the Datamart Implementation Guide.

After EpiChannel has established a connection to Infor Campaign Management Server, it displays the following message and waits for a response:

```
Sent the REFRESH instruction to localhost
```

On Unix, the EpiChannel command is given as **epichannel**, and resides in the bin subdirectory of the installation directory for your Infor Campaign Management Server or EpiChannel instance. On Windows, the command is given as **EpiChannel.exe**.

Normally, the Infor Campaign Management Server takes up to a few minutes to refresh before returning an acknowledgment. (Times may vary based on the size of your EpiMeta database, the speed of your network, and other considerations.) Upon receiving this acknowledgment, the refresh program displays:

```
Refresh [Build 4.0.x.y]
-----
Connecting to localhost:8081
Sent the REFRESH instruction to localhost
The refresh SUCCEEDED.
REFRESH operation took 18827 ms.
```

Otherwise, refresh displays a failure indication. For example, here is the output of a negative interaction in which the user/password failed.

```
Refresh [Build 4.0.x.y]
-----
Connecting to localhost:8081
Sent the REFRESH instruction to localhost
The refresh FAILED because the username was invalid.
REFRESH operation took 3365 ms.
```

The refresh program always displays the amount of time that it has taken.

Note: Refreshing the Infor Campaign Management Server also refreshes the Scheduler for your Infor Campaign Management instance.

Note: If you change metadata objects using Admin Manager, and then refresh the Infor Campaign Management Server, any logged in users should log out of the system and then log back in. Failing to do so may result in errors when accessing changed or deleted metadata objects.

Using the Infor Campaign Management Server Monitor

Infor Campaign Management provides you with a Web-based interface that you can use to:

- Monitor Infor Campaign Management Server activity.
- Refresh Infor Campaign Management Server.
- Clear the query and counts caches.

- Control access to EpiMart databases.

Only users who are members of the Infor Campaign Management Administrator group can view this page, which can be reached by clicking the Monitor link that appears at the top of most Web pages displayed by Infor Campaign Management applications. The monitor appears in a pop-up window.

The Infor Campaign Management Server monitor Web page is divided into the following topics, which allow you to peruse various logs, control access to EpiMart databases, clear the query and counts caches, and perform refresh operations:

- General

This topic provides summary information about system resources that are currently being used by your application.

It also provides links that you can use to:

- monitor and control connections to EpiMart databases. (See "Controlling Access to EpiMart Databases" on page 232.)
- monitor and clear the query and counts caches. (See "Clearing the Query and Counts Caches" on page 232.)
- view the list of current tables for fact and dimension data. Click the **Data Mart State** link to view this list.

- Refresh

This section indicates the most recent time that the Infor Campaign Management Server has been refreshed and provides a link that you can use to refresh the application server with updated metadata. See "Refreshing the Infor Campaign Management Server" on page 228 for more information about refreshing the Infor Campaign Management Server. Refreshing the Infor Campaign Management Server also clears the query and counts caches.

- Current Activity

This section provides a link that you can use to see who is currently logged on, the IP address from which they logged in, and information about their current activities or idle time.

- Sessions

This section provides a link that you can use to view a list of sessions for users who are currently logged in. The session ID of each entry in the list is a link that you can click to display the session log for an individual user.

- Statistics

This section provides a link that you can use to display statistics about overall Infor Campaign Management Server activities and performance.

- Debugging

This section provides links that allow you to:

- Track threads by viewing the system log.
Viewing the thread log provides detailed information about low-level Infor Campaign Management Server actions.
- Paste parameters for debugging
You do not need to use this option unless directed to do so by Infor Customer Support.

Clearing the Query and Counts Caches

The query cache contains the results of the most recent queries that users have run. If a user repeats a query, or if another user attempts to run the same query for a report, the Infor Campaign Management Server reuses the cached results rather than resubmitting a request to a database server. By default, the query cache contains 200 queries. You can use the QueryCacheSize configuration key to adjust this number. To clear the query cache from the Infor Campaign Management Server monitor, choose the **Query Cache** link in the **General** topic of the Infor Campaign Management Server monitor, and then click **Clear query cache** . You can disable the query cache by setting QueryCacheSize to 0 .

The counts cache retains counts that users generate when creating lists. To clear this cache, choose the **Query Cache** link in the **General** topic, and then click **Clear counts cache** .

Controlling Access to EpiMart Databases

The **Database Connections** link in the **General** topic of the Infor Campaign Management Server monitor allows you to monitor connections to the various database servers that manage data objects within your data mart. When you click this link, the Web page displays the **Connection and data mart information** topic, which includes status information about the various databases and database-server connections.

You can use the links that appear in this topic to control access to each copy of the EpiMart database that your data mart might include. When you use multiple EpiMart databases, the Infor Campaign Management Server performs load balancing across those databases that are listed as on-line in this topic.

When you click the **Take offline** link for an EpiMart database, the Infor Campaign Management Server redirects queries from that database to other copies. This action allows you to isolate an EpiMart copy for extraction or database-server maintenance while the Infor Campaign Management Server routes queries to other copies. Response time for queries might increase as a result. However, query processing can continue while updates to the off-line copy take place.

When maintenance operations are complete, you can restore access to the EpiMart copy by clicking the **Bring Online** link.

However, if the copy that you took off-line has newer data than the copies that remain on line, you must ensure that data is consistently reported.

Ensuring Data Consistency

To ensure data consistency in the connection and data mart information web page:

- 1 Take any additional EpiMart copies off line..
- 2 Use the back-up-and-restore or bulk-loading capabilities of your database server to copy up-to-date data into those off-line copies.
- 3 Click the **Mark as Fresh** link for each of the off-line copies.
- 4 Click the **Swap marts** link.

When you do, the Infor Campaign Management Server switches queries from the old mart copies to the new ones and takes the remaining old copies off line. If you click the **Swap marts** link in error, you can restore the previous set of EpiMart copies by clicking the **Unswap marts** link.

- 5 Update the remaining old copies and then click the **Bring Online** link for each of those (newly updated) copies.
- 6 The **Up** or **Down** link in the list of EpiMart databases displays status information about that database. For more information about managing multiple copies of EpiMart, refer to the Datamart Implementation Guide.

Logging

The Infor Campaign Management Server maintains several logs that retain records of user sessions and activities, scheduled tasks, queries against the data mart, and so on. This section describes each of these logs, their directory location, and their diagnostic use. The Registry key that specifies the directory in which Infor Campaign Management Server log files are stored is named:

```
HKEY_LOCAL_MACHINE\Software\Epiphany\Instances\instance_name\External
Directory\SystemLogDir
```

If you change this registry key, you must also change Microsoft Internet Information Server (IIS) so that `\instance\logfile` points at the new logfile directory.

All Infor Campaign Management Server log file names begin with a prefix that indicates the date and time when the log file was first created. The format is as follows:

YYYY-MM-DD_HH-MM-SS-MS_ type.txt

YYYY stands for the year, MM for the month, DD for the day, HH-MM-SS-MS for the time (hour, minute, second, and millisecond), and type stands for log-file type, as listed in "Table 15: Infor Campaign Management Server Logs" on page 233.

Table 15: Infor Campaign Management Server Logs

| Log Type | Description |
|-------------------|--|
| AGENT | Files in this log record high level actions that the Scheduler performs for scheduled exports and reports, such as when queues wake up, when tasks are run, and their completion status. |
| CONN | Files in this log record all of the database-server connections that Infor Campaign Management Server initiates. |
| DeploymentManager | Files in this log record profile, list, and communication deployments to Infor Interaction Advisor (Real-Time). |

| Log Type | Description |
|------------------|--|
| FULFILLMENT | Files in this log record standard output and standard error messages produced by fulfillment scripts that are defined in the output processors used for campaigns. |
| MOM_MetaDataRead | Files in this log record start-up processing activities for list- and campaign management. |
| RulesManager | Files in this logs record rule-management actions. |
| SCHEDULE | <p>Files in this log record actions in the scheduling subsystem, including the times at which the scheduler is active, the queues that the Scheduler initiates, and the success or failure status of those queues.</p> <p>Both the Infor Campaign Management Server and the Scheduler services produce a SCHEDULE log, even though only the Scheduler service is actually executing tasks in queues, and the like.</p> |
| SECURITY | Files in this log record activity for the security subsystem, including function calls, results, and exceptions. |
| SESSION | The Infor Campaign Management Server maintains a separate session log file each user and session. The user name appears as a suffix in the name of the log file for each session. |
| SRV | Files in this log record user connections to Infor Campaign Management Server. Records in this file include the time at which a connection is accepted, the number of that connection, the time at which the connection is closed, the total time the connection remains open, and certain messages printed to the log during the session. |
| STORAGE | Files in this log record activity for the Report Gallery, including queries, results, and exceptions. |
| UserNotices | Files in this log record user requests for access to the task manager. |
| other | The Infor Campaign Management Server maintains a separate action log for each user request. Session ID information and the name of the requesting user are embedded in each log-file name. These logs records the Web-page parameters, SQL queries, and results, and processing times for each request. |

You can use the `TextFileCodePage` configuration key to specify the code page in which text files, including log files, are written.

Application Server Logs

Application Server log names contain a date and timestamp and end in `*_SRV.txt`. For example:

```
2004-10-07_09-49-09-827_SRV.txt
```

Among other things, these logs report a number of memory related parameters, including:

```
Memory Used: 75%
Total Physical Memory: 510 MB
Available Physical Memory: 124 MB
Total Virtual Memory: 2047 MB
Available Virtual Memory: 1603 MB
```

If desired, you can set a configurable threshold using registry keys that generates an entry in the SRV log if the number of bytes of used memory exceeds your threshold value.

To enable this logging feature, add the following registry keys and set the configuration parameters accordingly. Create the registry keys in the following folder:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Epiphany\Instances\\Behavior\Debug
```

| | |
|--------------------------------------|---|
| <code>HighMemoryThreshold</code> | The number of bytes considered to be high memory usage. |
| <code>HighMemoryTimeThreshold</code> | The maximum number of minutes allowed to be in a high memory usage situation. |

Scheduler Logs

The Scheduler creates several kinds of logs during its operation. Some logging is done in the database, and the remaining logs are written as files in the instance logging directory.

Database Logs

Queue and schedule logs are written in metadata, and they are viewable in Admin Manager. (For details, see the *Datamart Implementation Guide*).

Queue Logs

Queue logs, which are written in metadata, contain information about the times that a given queue started and exited (if it is not currently running), as well as an execution status code.

The queue log entry is written as soon as a queue is started or put into a waiting state, and the status code is updated when the queue exits. The execution status code can be any one of the following values:

- **COMPLETED:** The queue successfully completed executing. Note that a queue can execute successfully even if some tasks in the queue failed. Task execution status is shown in the task logs.
- **FAILURE:** The queue failed during execution and exited.
- **KILLED:** The queue was terminated. A queue is terminated when it exceeds its maximum run time or when it is killed by another queue.
- **SERVER_ABORT:** The Scheduler failed during queue execution. The Scheduler assigns this code when it restarts.
- **RUNNING:** The queue is currently running or waiting to run. If the Scheduler fails during queue execution, the executing queue has the **RUNNING** status code until the Scheduler restarts.

Task Logs

Task logs, which are written in metadata, contain information about the times that a given task started and exited (if it is not currently running), as well as an execution status code.

Whenever a queue is started or put into a waiting state, a task log entry is written for each task instance in the queue. The status code for an entry is updated when the corresponding task instance exits. The execution status code can be any one of the following:

- **COMPLETED:** The task successfully completed executing.
- **FAILURE:** The task failed during execution and exited.
- **FAILURE_WILL_RETRY:** The task failed during execution and exited. The scheduler attempts to execute the task again the next time the queue wakes up, subject to normal expiration rules.
- **KILLED:** The task was terminated. A task is terminated when it exceeds its maximum run time or when the queue in which it is running is terminated.
- **SERVER_ABORT:** The Scheduler failed during task execution. The Scheduler assigns this code when it restarts.
- **RUNNING:** The task is currently running. If the Scheduler fails during task execution, the executing task has the **RUNNING** status code until the Scheduler restarts.

- **SCHEDULED TO RUN:** The task is scheduled to be run as part of a queue that is currently running or waiting to run. If the Scheduler fails before the task begins running, then the task log entry is removed when the Scheduler restarts.
- **ABORTING:** An end user has canceled the task from the Task Manager, but the task has not yet been terminated.
- **USER_ABORT:** An end user has canceled the task from the Task Manager, and the task has been terminated.

Scheduler Log Files

Scheduler log files are found in the system log directory, which is specified by the External Interfaces\Directory\SystemLogDir configuration key. By default, this directory is:

- Windows
<Instance Root Directory>\Web\WWWRoot\logfiles
- Unix
<Instance Root Directory>/wwwroot/logfiles

See the table "Infor Campaign Management Server Logs" on page 233," for a listing of Infor Campaign Management Server and Scheduler log files.

Web Server Proxy

The Web server proxy mediates requests and responses between the Web server and the Infor Campaign Management Server. All user requests for Infor Campaign Management Web pages are directed to the Web server proxy at one of the following URLs:

- Windows
<http://host/scripts/instance/Epiphany.dll>
- Unix
<http://host/scripts/instance/Epiphany.html>

The proxy bundles each request into a package that conforms to a strict format and sends that package to the Infor Campaign Management Server through a TCP/IP socket. The proxy:

- Parses the instance name from the requesting URL
- Uses the **AppServerHost** and **AppServerPort** keys found in the registry.properties file or the Windows registry for that instance
- Uses this information to connect to the Infor Campaign Management Server.

The Infor Campaign Management Server then processes the request and sends a result back to the proxy. The proxy forwards the result to the Web server for display in the user's browser.

Note: The instance name in the URL must match the instance name defined in the registry.properties file or Windows registry (configured from the installation program). This requirement allows one Web server proxy to direct requests to several different Infor Campaign Management instances, such as when you have both a development and a production instance on the same host.

Separate Web and Application Server

The Infor Campaign Management Server Web proxy can run on a host that is separate from the host for the application server itself. To configure separate Web and application servers, refer to "Table 16: Configuring Separate Web and Application Servers" on page 238. See also the *Infor Campaign Management Installation Guide* for details on installing the application server.

Table 16: Configuring Separate Web and Application Servers

| For this Configuration | Do this: |
|------------------------|---|
| For Windows/WebSphere | <p>The installer automates installation of separate Web and application servers.</p> <p>Using Admin Manager on the Infor Campaign Management Server machine, navigate to EpiCenter > Configuration > Settings > External Interfaces > Proxy > RemoteProxy and set RemoteProxy to 1.</p> |
| For Unix/WebSphere | <p>Install both the Infor Campaign Management Server and EpiChannel.</p> <p>Using Admin Manager installed on a Windows machine, navigate to EpiCenter > Configuration > Settings > External Interfaces > Proxy > RemoteProxy and set RemoteProxy to 1.</p> |
| For Windows/ WebLogic | <p>Perform a regular installation on the application server machine. Installation creates a default Web site.</p> <p>To install additional WebLogic instances, use the Instance Manager in Admin Manager (on the Infor Campaign Management Server machine) to choose them.</p> <p>Using Admin Manager on the Infor Campaign Management Server machine, navigate to EpiCenter > Configuration > Settings > External Interfaces > Proxy > RemoteProxy and set RemoteProxy to 1.</p> |

| For this Configuration | Do this: |
|------------------------|---|
| For Unix/WebLogic | <p>Perform a regular installation on the application server machine.</p> <p>To install additional WebLogic instances, use the Instance Manager in Admin Manager (installed on a Windows machine) to choose them.</p> <p>Install the necessary Web server components on the Web server machine.</p> <p>Using Admin Manager installed on a Windows machine, edit the configuration settings for your meta as follows:</p> <p>Navigate to EpiCenter > Configuration > Settings > External Interfaces > Proxy > RemoteProxy and set RemoteProxy to 1.</p> |

Reducing Network Delays

If users log into your Infor Campaign Management application over a wide-area network (WAN), you can take the following steps to reduce the number of image files that your application displays. Image files increase latency as large amounts of bitmap data are transferred over the Internet.

Users who log in from off site can reduce the number of images that are sent by checking the **Yes** button for the **Image Light Front-End** user preference. Or, you can enable the equivalent user preference, **suppress_images**, in the Admin Manager for specific users and groups.

Certain Web servers request image files even after those files have been stored in the browser cache. To eliminate duplicate requests for these images, which can have a significant performance impact, enable content expiration in the Web server for your Infor Campaign Management instance and set the expiration time to a far-distant date.

Managing the Infor Campaign Management Server Service on Windows

If your instance runs under Windows, you can use the EpiAppService program (**epiappservice.exe**) to manage the Infor Campaign Management Server service for any Infor Campaign Management Server instance that runs on the local host. This command allows you to perform the following actions:

- Add an Infor Campaign Management Server service for a new instance
- Start or stop the Infor Campaign Management Server service for a particular instance
- Change the parameters of an Infor Campaign Management Server service

- Delete an Infor Campaign Management Server service

Table 17: The Epiappservice Command

`epiappservice -s -C -D -G -T -P -K [-DEP svc] [-E cmd] servicename action`

This command registers the Infor Campaign Management Server as a service under **Windows 7**.

| | |
|----|--|
| -s | Specifies the name of the Infor Campaign Management instance. |
| -C | <p>Creates a service. Registers a new service with the Windows system. You must use the -E option with this option to specify the executable to use as the Service; for example:</p> <pre>EpiAppService -S "instance" -C -E "program_name"</pre> <p>When you are configuring your Infor Campaign Management Server, the command line looks like this:</p> <pre>EpiAppService -S "instance" -C -E C:\Program Files\Infor\instance\win32\EpiAppService.exe -S instance "</pre> |
| -D | Deletes the service specified via the -S option from the Windows Service Registry. When this service is removed, only the entry in the Registry is deleted; no executables are deleted. Use this to remove unused Infor Campaign Management instances. |
| -G | The launch handler for the service. (Go.) |
| -T | starts a service. The installation program uses this option to start the Web server (which must be shut down during installation). It starts the service specified via the -S option, which is equivalent to clicking the Start button in the Control Panel\Services dialog box to start the desired service. You may use this option when you cannot access the Control Panels (for example, during RCMD or pcAnywhere remote access). |
| -P | Stops the service specified via the -S option. (See the -T option.) The installation program uses this option to stop the Web server during the installation. |
| -K | Checks if the service specified via the -S option is running. The program returns a zero return code if the service is running, and a nonzero return code if it is not. |

| | |
|----------|---|
| -DEP svc | The svc argument specifies a service on which Infor Campaign Management Server depends. The Service Manager will always load this dependency before loading the application server. The service name supplied as an argument to this option must exactly match the service name used by the service in question, such as Microsoft SQL Server or the Oracle listener. |
| -E cmd | The cmd argument specifies a command to associate with the service. |
| -? | Displays online help, a description of the command options. |

The following examples illustrate some common uses of the **epiappservice.exe** command:

- Creation of a service because the installation failed, or you wish to install another instance. If the database server is on a different machine than your Infor Campaign Management Server: `piAppService -S instance -C -E "C:\Program Files\Infor\instance\Win32\EpiAppService -S instance"`
If the database server is on the same machine as Infor Campaign Management Server: `EpiAppService -S instance -C -E "C:\Program Files\Infor\instance\Win32\EpiAppService -S instance" -DEP MSSQLServer`
- Deletion of an old service. `EpiAppService -S instance -D`

Managing the Scheduler Service on Windows

As with the Infor Campaign Management Server, the Infor Campaign Management installer configures the Scheduler to run as a Windows service. Although this service is separate from the Infor Campaign Management Server service, you can use the **epiappservice.exe** command to manage it. To direct the action of the **epiappservice** command to the Scheduler service, supply the name of the Scheduler service as the servicename argument. The name of the Scheduler service for an Infor Campaign Management instance takes the following form:

<Instance name>_Scheduler

Replace Instance name with the name of your Infor Campaign Management instance.

See "Table 17: The Epiappservice Command" on page 240 for information about the **epiappservice.exe** command.

SNMP Status Reporting

The Infor Campaign Management Server provides a management information base (MIB) and a Simple Network Management Protocol (SNMP) extension agent for status reporting across a network with the following platforms:

- Windows 7
- Windows 8
- Solaris 5.11

This extension agent works with the extensible agent provided by your application host. When an SNMP manager (such as `snmpdx` or `snmputil.exe`) issues a request for status, the SNMP extension agent opens a socket connection to Infor Campaign Management Server and forwards the Infor Campaign Management Server query to the Infor Campaign Management Server MIB.

If the Infor Campaign Management Server does not respond within a given timeout period, the SNMP agent returns a failure code (0). Otherwise, the MIB returns results in response to the indicated status queries as indicated in "Logging" on page 233.

| Status Query | Response |
|---------------|--|
| Alive | The MIB returns 1 if the Infor Campaign Management Server is running and 0 otherwise. |
| CanAccessMeta | The MIB returns 1 if the Infor Campaign Management Server can access the EpiMeta database and 0 otherwise. |
| CanAccessMart | The MIB returns 1 if the Infor Campaign Management Server can access the EpiMart database and 0 otherwise. |

Because each SNMP request opens a new socket, Infor recommends that requests be issued no more often than once per minute.

Because there is only one registry key for SNMP requests (HKEY_LOCAL_MACHINE\SOFTWARE\EPIPHANY\SNMP), only one Infor Campaign Management Server application server can be monitored on a given computer.

The `.mib`, `access`, `registration`, and `binary` files that support SNMP reporting for the Infor Campaign Management Server are installed in one of the following directories:

- On Solaris:

```
<instance_dir>/snmp
```

Replace `instance_dir` with the pathname of the installation directory for your Infor Campaign Management Server instance.

- On Windows 7 and Windows 8:

```
C:\Program Files\Infor\<instance>\Win32\
```

Replace `instance` with the name of your Infor Campaign Management Server instance.

Activating SNMP Reporting

- 1 Enable the SNMP agent for your application host:
 - For a Solaris platform, refer to the **README** file in the **snmp** subdirectory and follow the instructions contained in that file.
 - For a Windows 7 platform, open the Network Control Panel. In the Services tab, click **Add** , then choose **SNMP Service** and follow the directions to enable the service.
 - For a Windows 8 platform, open the Add/Remove Programs Control Panel, then click **Add/Remove Windows Components**. Choose **Management & Monitoring Tools** and then **Details**. In the Details dialog box, choose **Simple Network Management Protocol** , then click **OK** . In the Management and Monitoring Tools dialog box, click **Next** and then follow the instructions to enable the service.

- 2 If your application host runs Solaris, refer to the **README** file in the **snmp** subdirectory and follow the instructions contained in that file. If your instance of the Infor Campaign Management Server is running under Windows:
 - a Stop the SNMP agent.
 - b Rename the `%systemroot%\system32\mib.bin` file to `mib.old` .
 - c If the Infor Campaign Management Server is the only software package that you plan to monitor on your host computer, you can use the `mib.bin` file that Infor Campaign Management provides. If you plan to monitor other services with SNMP, you must take the following steps to compile an `mib.bin` file that includes the specifications for those other services along with those in the `epiphany.mib` file:
 - d Install the NT Resource Kit if your application host runs Windows 7.
Enter a command line of the following form from the Windows 7 Resource Kit directory to generate a new `mib.bin` file:


```
mibcc -oc:\mib.bin -n -t -w2 .\smi.mib .\lmmib2.mib
.\mib_II.mib
C:\Program Files\Infor\<instance>\Win32\epiphany.mib
<mib_files>
```

Replace C with the drive on which your Infor Campaign Management software is installed. Replace instance with the name of your Infor Campaign Management instance, and replace `mib_files` with any additional `.mib` files you want to include.
 - e Copy the following files to the **system32** directory:
 - **mib.bin**: either the version you just created or the version that resides in the **Win32** subdirectory of your Infor Campaign Management instance
 - **epipsnmp.dll**: from the **Win32** subdirectory
 - f Edit the `epipsnmp.reg` file to specify the same port as the one used by the Infor Campaign Management Server. This information appears in the following entry: `HKEY_LOCAL_MACHINE\SOFTWARE\Epiphany\SNMP\Port`
 - g Merge the **epipsnmp.reg** file into the registry by double-clicking the icon for that file.

- 3 Restart the SNMP service.

Enabling Marketing Resource Management Integration in Infor Campaign Management Topics

To enable marketing resource management integration in an existing Infor Campaign Management topic:

- 1 Update the Infor Campaign Management topic from the template by opening the topic and clicking **Update** . In the Topic Update Options window, select only Create nav nodes that are in the source topic but not in this topic .
- 2 Assign a Web page to the **SP Node Select** node. You can assign either a Campaign or a Context Selector Dimension Picker page.
- 3 Add the following shared ID attributes to the Campaign Web page that you modified in the previous step:
 - Campaign Shared ID
 - Add under Required Campaign Attributes.
 - Cell Shared ID
 - Add under Optional Cell Attributes.
 - Cell Communication Shared ID
 - Add under Optional Communication Attributes.

Note: Required and Optional communication attributes function the same as required and optional cell attributes, that is, values for communication attributes are entered on the communication page before scheduling the campaign. The communication popup screen displays these values, and the values propagate down to the cell level.

The Infor Campaign Management Reflection application provides optional topics that enable you to review the usage activity of a Release 5.0 or later data mart. You can use one of these topics to answer such questions as these:

- Which users have the most activity?
- What is the average response time to a query?
- How many rows have been exported by campaigns in the past week?

In addition to topics, the Reflection application includes metadata for the schema extensions, extraction jobs, and Web pages that the Reflections topics require.

Reflections requires you to create a new EpiCenter (EpiMart, EpiMeta, and EpiOp) to contain the Reflections data.

Database files used in the installation:

- ReflSourceMeta —the EpiMeta about which you want information
- ReflSourceMart —the EpiMart about which you want information
- ReflSourceEpiOp —the EpiOp about which you want information
- Reflections_EpiMeta —the EpiMeta for the reflection application
- Reflections_EpiMart —the EpiMart for the reflection application
- Reflections_EpiOp —the EpiOp for the reflection application

Preparing to Implement Reflections

Before proceeding with the Infor Campaign Management Reflection Applications setup you must have an Infor Campaign Management application running that you intend to analyze. Create three new databases using your database server. One for storing the provided Reflection Applications metadata (EpiMeta), one for storing logging information (EpiOp), and one for storing the Reflection data mart (EpiMart).

Infor suggests you name the Reflections databases as follows:

- Reflections_EpiMeta

- Reflections_EpiOp
- Reflections_EpiMart

You can, however, name them anything you choose. These names are used in the following descriptions. If you are using your own names for these databases, substitute your own names, as appropriate.

You can create these databases yourself or you can use the scripts provided to you in the following directory:

<Infor Campaign Management Installation Root>\ConfigFiles\Resources\<DB Vendor>\

Make sure you understand these scripts and modify them appropriately before you use them to create your databases.

Implementing the Reflections Applications

The following files and documents are installed with the Reflections application:

- Reflections.mdb
Reflections metadata—located in <Installation Root>\ConfigFiles\Metadata\<Locale>\.
- Reflection_epimeta_schema.htm
Description of the reflection schema.
- Reflection_epimeta_report.htm
Description of all metadata information for Reflections.

The two description files are located in <Installation Root>\ConfigFiles\Docs\en\.

Importing Reflection Metadata

- 1 Launch Admin Manager.
- 2 If needed, register your database server.
- 3 Initialize your Reflections EpiCenter.
 - a Go to **EpiCenter > Initialize EpiCenter**.
 - b Select a database you have created for your Reflections metadata from the EpiMeta list box.
 - c Set the **Initialization configuration** to **New EpiMeta**.
 - d Set Initialization Locale to the locale for which you are going to initialize your EpiCenter.
 - e On the **Advanced Options** tab, select appropriate databases for your EpiMart and EpiOp.
 - f Select the **Configure New EpiCenter** tab.
This allows you to view the build as it progresses.
 - g Click **Build**.
The build can take as much as 20 to 40 minutes to complete. At the completion, the **EpiCenter build finished** dialog box appears

- h Check the log of the build displayed on the **Configure New EpiCenter** tab to make sure no problems occurred.
 - i Click **Close**.
- 4** Import the Reflections applications metadata:
- a Right-click your Reflections_EpiMeta and go to **Import > Import Metadata** .
 - b The import file, Reflections.mdb , is located in <Infor Campaign Management Installation Root>\ConfigFiles\Metadata\<Locale>\.
 - c Select Reflections.mdb and click **Open**.
 - d On the **Import** tab select **Always Replace Existing Entries**.
 - e Click **Go** to start the import.
The importation takes a few minutes.
 - f Check the log of the import on the **Results** tab to make sure it was successful.
 - g Click **Close**.
- 5** Set up your Reflections data store:
- a Right-click the Reflections_EpiMeta\Extraction\Data Stores\ReflSourceMeta data store.
 - b Click **Edit**.
 - c In the **Properties** tab, enter the appropriate server and EpiMeta database name for the EpiCenter you want to analyze.
 - d Repeat this process for the ReflSourceEpiop and ReflSourceMart using the target EpiOp and EpiMart.
- 6** Right-click the Reflections_EpiMeta\Extraction\SQL Macros\REFL_SERVER_NAME macro.
- a Click **Edit**.
 - b In the **General** tab replace ReflectionServer with the appropriate server for the EpiCenter you want to analyze.
 - c Repeat this process for the REFL_MART_NAME and REFL_META_NAME replacing ReflMart Source and ReflMetaSource with the names of the EpiMart and EpiMeta databases in the EpiCenter you are going to analyze with Reflections. You must do this for only your database type. Make sure that the names you enter are enclosed in single quotes. The names that you enter for the EpiMart and the EpiMeta should match the database names that you entered for the ReflMartSource and ReflMetaSource data stores in step a.
- 7** Initialize your EpiOp.
- a Go to **EpiCenter > Initialize EpiOp** from the menu.
 - b Deselect **Trial Run**.
 - c Click **Go**
The initialization process takes about a minute.
 - d Check the log of the initialization on the **Results** tab to make sure it was successful.
 - e Click **Close**.
- 8** Generate your EpiMart.
- a Go to **EpiCenter > Generate Schema** from the menu.

- b Deselect **Trial Run**.
 - c Select **Generate EpiMart**.
 - d Select **Populate Date Dimensions**.
 - e Click **Go**.
This process takes a few minutes. Errors will immediately stop the process.
 - f Correct any errors displayed in the popup console window. Then repeat the previous step. Repeat these two steps until there are no errors.
 - g Click **Close**.
The base Reflection EpiMeta is now ready to customize.
- 9** You must do this prior to running an extraction job:
- a Right-Click Reflections_EpiMeta\Extraction\Jobs\ReflectionInitial60.
 - b Click **Edit**.
 - c Select the **Extraction Steps** tab.
 - d Under the Refl Storage folder on the left hand side, expand the Refl Storage Spaceused Physical folder.
 - e Select the Refl Storage folder that corresponds to the database type you are using for your ReflMartSource (SQL Server, Oracle, or DB2).
 - f Select **Enabled** in the lower-left corner of the **Extraction Steps** tab.
 - g If the EpiCenter you are analyzing is set up for campaign management, also enable Refl for Campaign Extraction.
 - h Click **OK** to close the job.
 - i Repeat for the ReflectionIncremental60 job.
- 10** Execute the ReflectionInitial60 job.
- 11** Configure security to allow your users and groups access to the Infor Campaign Management Server and have access to every navigation node.
- 12** Verify that you have properly installed and configured the Infor Campaign Management Server. (See the *Infor Campaign Management Installation Guide* for details.)
- 13** Start the Infor Campaign Management Server.
- 14** Schedule the ReflectionIncremental60 job to run nightly.

Customizing Reflection Applications

Perform the following steps to perform multiple EpiMart Analysis on different EpiMart EpiOps.

Performing Multiple EpiMart Analysis on Different EpiMart EpiOps

- 1 Create two new EpiCenter data stores for the additional mart (ReflSourceMeta2 , ReflSourceEpiop2 , ReflSourceMart2).
- 2 Duplicate the ReflectionInitial60 and ReflectionIncremental60 jobs, renaming them to ReflectionInitial2 and ReflectionIncremental2 , respectively.
- 3 Open ReflectionInitial2 and click the **Data Stores** tab, replace any ReflSourceEpiOp with ReflSourceEpiOp2 , replace ReflSourceMeta with ReflSourceMeta2 , and ReflSourceMart with ReflSourceMart2 . Repeat this process for ReflectionIncremental2 .
- 4 Create additional macros for the new job referencing the new ReflectionServer, ReflSourceMeta, and ReflSourceMart.
- 5 Initialize as described in "Implementing the Reflections Applications" on page 246.

Campaign Management

If you are using campaign management on your source system (that is, if you are performing campaign exports that populate the backfeed tables), perform the following steps on your reflection metadata:

- 1 Open the Reflection- Campaign topic and select the visible flag. .
- 2 Click **OK** and close the Reflection- Campaign topic.
- 3 Open the ReflectionInitial60 job. Enable the `Refl for Campaigns Extraction` folder by checking the box in the bottom left corner of the extraction steps window after selecting the folder.
- 4 Click **OK** and close the job. Repeat for the ReflectionIncremental60 job.

For more information, see the Reflection Readme found under `C:\Program Files\Infor\Infor_Campaign_Management\7.2\ConfigFiles\Docs\en .`

Configuring Your Dashboard

- 1 Place your most used graphs and charts on the dashboards of the respective areas of analysis and when you enter the Reflection topic you will see your graphs with a simple click of the **refresh** button.
- 2 Start your Infor Campaign Management Server.
- 3 Click the **Reflection** topic.
- 4 Create the reports using the Web pages provided and save them.
- 5 Return to the dashboard page to which you intend to add the chart or graph.
- 6 Click the **Edit Mode** button on the on the right hand side of the screen.
- 7 Click the plus (+) signs to add an object.
- 8 Select **Add Section** .
- 9 Follow the steps through the wizard.
- 10 When you are finished, choose **Display Dashboard** .
- 11 Save the dashboard.

Integrating Infor Campaign Management with Infor Interaction Advisor

12

This chapter describes the process of integrating an Infor Campaign Management application with Infor Interaction Advisor to form a comprehensive system that enables you to create real-time campaigns, analyze campaign results, and use the insights you gain to refine and generate new campaigns.

Note: Integration is supported only when the Real-Time database (RTDB) and the Infor Campaign Management data mart both reside on the same database server type (Oracle, SQL Server, or DB2). Integration with RTDBs on other database servers or on a mixture of Oracle, SQL Server, and DB2 database servers is not supported.

Adding Real-Time capabilities to an existing Infor Campaign Management application enables you to develop and deploy real-time campaigns. Adding Infor Campaign Management capabilities to Infor Interaction Advisor enables users to perform sophisticated analyses of real-time e-commerce data. Together, these applications provide a complete understanding of your customer base and real-time responsiveness.

"Figure 48: Infor Campaign Management Integration with Infor Interaction Advisor" on page 252 shows the architectural touchpoints that underlie the integration.

For detailed information on how to use Infor Interaction Advisor, see the following manuals:

- The *Infor Interaction Advisor Studio Online Help* describes how to use Infor Interaction Advisor Studio to specify an EpiCenter profile that you deploy from an Infor Campaign Management application and how to use Infor Interaction Advisor Manager to convert Infor Campaign Management campaigns and communications to real-time campaigns and offers.
- The *Infor Interaction Advisor Installation Guide* explains how to install Infor Interaction Advisor components.
- The *Infor Interaction Advisor Implementation Guide* explains how to set up the RTDB, and lists the RTDB elements that are useful for campaign reporting using Infor Campaign Management reporting capabilities.

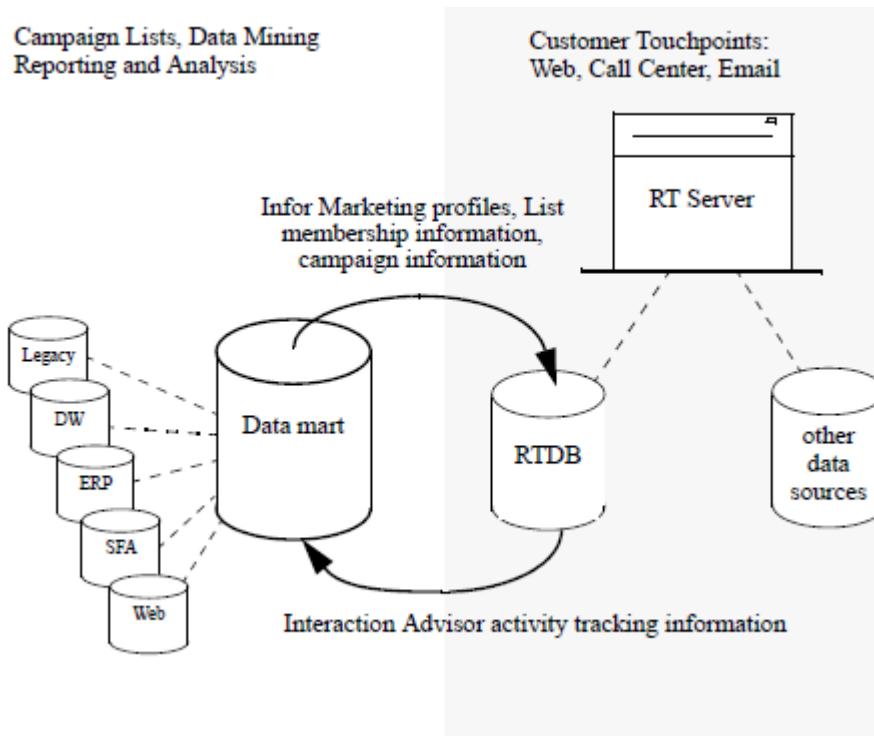


Figure 48: Infor Campaign Management Integration with Infor Interaction Advisor

Note: There is an optional registry entry to keep the Full User Name from being pushed with the Communication Name when pushing Campaigns from Infor Campaign Management to Infor Interaction Advisor. To enable this, change the following based upon your platform OS:

Windows:

In this registry entry, set the value to "1" to suppress user information in the campaign and communication names sent from AS to RT: `HKEY_LOCAL_MACHINE\SOFTWARE\Epiphany\Instances<instance>\Behav-ior\RT\NotAppendUserToUniqueName`

Unix/Linux:

Add the line below to the registry.properties file located in the `<Infor Campaign Management_Installation_Dir>/classes` folder: `Epiphany.Instances.<instance>.Behavior.RT.NotAppendUserToUniqueName 1`

Performing the Integration

Integrating Infor Campaign Management and the Infor Interaction Advisor involves:

- Enabling the deployment of profile, list, and campaign communication data for export from your Infor Campaign Management application to Infor Interaction Advisor.

- Configuring common log-in from your Infor Campaign Management application to Infor Interaction Advisor.
- Enabling the import of real-time campaign data from Infor Interaction Advisor to your Infor Campaign Management application.

Enabling Deployment of Profile, List, and Campaign Communication Data

Your Infor Campaign Management application can deploy a single profile, called the EpiCenter profile, to Infor Interaction Advisor. Infor Interaction Advisor uses this profile as a starting point for creating real-time campaigns. When this profile has been deployed, you can export lists and campaign communications already created in Infor Campaign Management to Infor Interaction Advisor. To allow this you must enable a single Infor Campaign Management dimension to be the Infor Interaction Advisor dimension.

Users who have administrative privileges can use an EpiCenter Profiles Web page to configure a profile that specifies the following information that can be deployed:

- Demographic attributes from an RT dimension
- Measures

Note:

Once you have exported your profile, you must take care to ensure that subsequent modifications do not invalidate real-time campaigns based on that profile.

In particular, Infor suggests that you avoid deleting attributes and measures included in the profile and restrict the list of users who have access to the EpiCenter Profiles Web page to those who already have administrator privileges.

To configure an EpiCenter Profiles Web page:

- Assign a Campaigns Web page to an EpiCenter Profiles navigation node
- Assign the same Campaigns Web page to an EpiCenter Schedule navigation node

Users who create lists in Infor Campaign Management can deploy those lists to Infor Interaction Advisor by clicking **Edit Deployments** on a list management Web page. Users can also schedule future deployments and recurring deployments to update this information in the RTDB.

The campaigns created in Infor Campaign Management can be deployed to Infor Interaction Advisor. After a campaign has been created, users can schedule campaign deployments by clicking the **Edit Deployments** button. Whenever a campaign is deployed, current communication assignments are added to packages in Infor Interaction Advisor. These communication assignments are translated into attributes for which rules can be defined.

When users schedule recurring deployments for the profile, for a list, or for a campaign, the appropriate data is exported directly to the RTDB on a periodic basis. These periodic updates allow Infor Interaction Advisor users to base real-time campaigns on the most current contents of your Infor Campaign Management data mart. The scheduler initiates the export of a recurring campaign, list, or profile in

the same manner that it schedules the creation of recurring campaigns. However, the destination of the output that is produced is a table in the RTDB, rather than a campaign output file.

Configuring Profile Deployment

Perform the following steps to enable campaign deployment in your Infor Campaign Management application.

1 Configure an RTDB data store.

If you intend to enable the import of Infor Interaction Advisor campaign data for reporting, the EIIA.mdb file delivered with EIIA contains metadata to configure a data store for the RTDB. Refer to the *EIIA Implementation Notes* and to "Importing Metadata" on page 256 for details.

Otherwise, you can configure an RTDB data store as follows:

- a Open the **Extraction** folder for your data mart, then right-click **Data Stores**, and then choose **New Data Store** from the pop-up menu.
- b Enter the name of the data store. (Infor recommends that you call it RTDB.) In the **Properties** tab, enter the name of the database server, the database name, and the same authentication information that you used to configure the database for Infor Interaction Advisor.
- c Select **Infor Interaction Advisor data store** in the **General** tab.

For detailed instructions on creating data stores, see the *Datamart Implementation Guide*.

2 Enable an Infor Campaign Management dimension to be the RT-enabled dimension.

Profile, lists, and campaigns of dimension roles whose base dimension is RT enabled can be deployed to RTDB.

- a In the left pane in Admin Manager, in the EpiMeta database, go to **Schema > Base Dimension**
- b Double-click the dimension you intend to use as your RT dimension.
- c Go to the **Options** tab.
- d Under the **Special Dimensions** heading, select **This dimension is the Infor Interaction Advisor dimension**.

3 Make sure the **RPDeployments** queue is enabled. Go to **Extraction > Queues**, double-click **RPDeployments**, then select **Enabled** and click **OK**.

4 Open your Campaign Management topic, then open the **Tools** menu and go to **Configure > Cm-Configure**.

5 In the **CM Configure** dialog box, choose the options that meet your needs, but make sure you select **Visible** for the **Personalization Pages** setting.

6 Ensure that the link to the **RP EpiCenter Schedule** node in your Campaign Management topic is visible and enabled.

- a Open your Campaign Management topic. In the **Topic** dialog box, go to the **Navigation Nodes** tab and click on the **Links** tab in the lower half of the dialog box.
- b Under **Links**, go to the **RP EpiCenter Profile** navigation node and select the **Schedule** link.
- c Click **Edit** to open the **Schedule** link in the **Navigation Link** dialog box.

- d In the **Navigation Link** dialog box, ensure that the **Enabled** and **Visible** check boxes are both checked. Click **OK**.
- 7 Ensure that the link from the **RP EpiCenter Schedule** node in your Campaign Management topic is visible and enabled.
 - a Open your Campaign Management topic. In the **Topic** dialog box, go to the **Navigation Nodes** tab and click on the **Links** tab in the lower half of the dialog box.
 - b Under **Links**, go to the **RP EpiCenter Schedule** navigation node and select the link with the name **This label is invisible**.
 - c Click **Edit** to open the link in the **Navigation Link** dialog box.
 - d In the **Navigation Link** dialog box, ensure that the **Enabled** and **Visible** check boxes are both checked. Click **OK**.

Configuring Campaign Deployment

Perform the following steps to ensure that Infor Interaction Advisor can accept profile, list, and campaign data from your Infor Campaign Management application.

- 1 Initialize the RTDB if you have not already done so.

Make sure the RTDB is initialized with the appropriate e-commerce template. If you are installing Infor Interaction Advisor for the first time, the appropriate e-commerce template should be loaded automatically.

If you are updating Infor Interaction Advisor from a previous installation, ensure that the RPL Product Descriptors and RPL Page Descriptors tables are present in your RTDB database. Refer to the *Infor Interaction Advisor Installation Guide* for details.

If you have not yet populated these tables with descriptive information about your products and Web page contents, do so now.

- 2 If your RTDB resides on an Oracle database server, you must assign a value to the `$$RPDB_IDX_TBSP` macro. This macro must contain the name of the tablespace in which indexes on the Infor Campaign Management profile tables reside.

Note: Only lists and campaigns defined on dimension roles whose base dimension is list producing and RT enabled are deployed to RTDB. A list or campaign can be deployed to RTDB only if an EpiProfile has already been deployed.

Make sure you deploy a profile before you deploy a campaign or list.

Configuring Infor Interaction Advisor Campaign Reporting

To configure Infor Interaction Advisor campaign reporting, install Infor Enterprise Insight for Interaction Advisor (EIIA).

Note: Refer to *Infor Interaction Advisor Studio Online Help* for information about configuring the RPL Product Descriptors and RPL Page Descriptors tables.

Importing Metadata

Infor provides the metadata for Infor Interaction Advisor-campaign reporting in the EIIA.mdb file, delivered with EIIA. Also delivered with EIIA are the following reports in HTML format, which list the metadata elements defined in the export file:

- EIIA.htm —This file lists all metadata elements.
- EIIA_Schema.htm —This file lists only data mart schema definitions.

If an element in the export file has the same name as a metadata element of the same type, the import operation overwrites the element in metadata. Before you attempt to import metadata, first ensure that the elements within the export file do not conflict with the metadata that you have already configured for your Infor Campaign Management application. In particular, ensure that the metadata for the schema of your data mart and for extraction jobs will not be overwritten by any metadata you import.

Note: The names of nodes within different topics can be the same. Nodes within different topics do not conflict even if they have the same names.

To ensure that no names conflict, you must compare the elements listed in the above reports with the metadata elements that appear in the *Datamart Implementation Guide*. If there are any conflicts, you must rename the elements in metadata before you import the EIIA.mdb file. After you have eliminated name conflicts, you can import the Infor Interaction Advisor metadata into the data mart.

Note: To ensure that you do not destroy elements of your data mart, you must review the reports that are provided and compare the names of elements with elements of the same type in Admin Manager. If there are name conflicts, you must rename the elements in Admin Manager before you attempt to import the .mdb file.

To integrate with Infor Interaction Advisor, refer to *Infor Interaction Advisor Studio Online Help* and the *EIIA Implementation Notes* for important implementation details.

Infor Interaction Advisor Configuration Settings

If you are integrating your Infor Campaign Management data mart with Infor Interaction Advisor, you must ensure that the configuration settings in the **Settings** tab of the **Configuration** dialog box are set correctly. If your Infor Interaction Advisor Campaign Server is running on a Unix platform, you must ensure that the values respect the case sensitivity of the Unix platform.

Integration Checklist

The "Table 18: Integration Checklist" on page 257 table is a checklist of the steps required to integrate Infor Campaign Management and Infor Interaction Advisor. The checklist assumes that Infor Interaction Advisor and the RTDB have been installed and initialized.

Table 18: Integration Checklist

| Action | Infor Campaign Management Step | Infor Interaction Advisor Step |
|--|---|--|
| Configuration Note: You can configure Infor Campaign Management either before or after you configure Infor Interaction Advisor. | Eliminate name conflicts between EIIA.mdb and Infor Campaign Management metadata. Install EIIA.mdb Configure profile deployment in your EpiMeta database. | Enable the select into/bulk copy option (for MS SQL Server only). Create the database link between the EpiCenter data mart and the RTDB. Create an RT data access service that points to the RTDB. Make sure the Offers data access service points to the RTDB. |
| Common Log-in | Set up common users in both Admin Manager and Infor Interaction Advisor Administrator with identical permission levels. | |
| Deployment Note: You must create the Infor Campaign Management profile and deploy it in Infor Campaign Management before you create the Infor Interaction Advisor Package. | Create an EpiCenter profile and schedule its deployment. | Admin: Create a Infor Interaction Advisor Package from the e-commerce template. Within this package, create an EpiCenter Profile object, and populate its attributes from the RTDB. Marketer: Create a list and schedule it for deployment to Infor Interaction Advisor. Marketer: Create campaign communication data, and schedule it for deployment. |
| Infor Interaction Advisor Campaign Reporting | Install and implement Infor Enterprise Insight for Interaction Advisor (EIIA). | |

Configuring an MRM Tool in Admin Manager

13

This chapter describes the process of integrating an Infor Campaign Management application with a Infor Campaign Management Resource Management (MRM) tool to create focused, customer-oriented campaigns that fit into your organization's overall marketing processes.

You use the Infor Campaign Management Resource Management tool and Infor Campaign Management to configure different aspects of a campaign. Using the two tools together, you can create and execute campaigns which comprehensively address both an organizational and a customer-based view of the campaign process.

- In Marketing Resource Management, you can define campaigns as part of a comprehensive marketing plan or program. MRM campaigns include extensive communication and campaign information. When Marketing Resource Management users save campaigns, the campaign can be migrated to Infor Campaign Management, enabling users to click through to a migrated version of the campaign in Infor Campaign Management.
- In Infor Campaign Management, you can define and segment the membership of the campaign based on the population of your Infor Campaign Management data mart. Using Enterprise Insight data mining tools, you can analyze your customer (or other) data to create highly refined campaign membership lists. When you configure Infor Campaign Management for Marketing Resource Management integration, users with the required permissions can click remigrate campaign button to remigrate campaign.

For detailed information on how to use the Infor Campaign Resource Management tool, refer to the MRM product documentation.

Note: If you export the EpiMeta from a Campaign Management enabled instance, then Campaign Management must also be enabled in any instance to which you import that metadata.

Also, do not merge two separate Campaign Management-enabled EpiMetas. This can result in shared campaign ID conflicts.

Performing the Integration

Integrating Infor Campaign Management and Marketing Resource Management involves the following tasks:

- "Enabling Marketing Resource Management in Infor Omni-Channel Campaign Management" on page 253
- "Setting Communication Parameters" on page 261
- "Configuring Users in Both Systems" on page 264
- "Configuring the Foreign System Connection" on page 263
- "Configuring Infor Omni-Channel Campaign Management Topics for Marketing Resource Management Integration" on page 264
- Configuring the Campaign Resource Management System
- You must configure the Infor Campaign Resource Management tool to connect to Infor Campaign Management. Refer to the MRM product documentation for details.

Once configured, users can create campaigns in Infor MRM and sync to Infor Campaign Management, and switch between the Infor Campaign Management and Campaign Management user interfaces.

Enabling Marketing Resource Management in Infor Campaign Management

Perform the following procedure to enable Infor Marketing Resource Management tool with Infor Campaign Management.

Enabling Marketing Resource Management Integration in Infor Campaign Management

- 1 In the Admin Manager **Tools** menu, select **Miscellaneous > Enable Marketing Resource Management**.

This will install Marketing Resource Management schema definitions into your metadata.

- 2 Generate your schema.

In addition to the columns required for Marketing Resource Management integration, the menu command also installs an updated Campaign topic template (containing the Marketing Resource Management navigation nodes) and creates a Marketing Resource Management Users group.

Note: The metadata columns and data required to enable Marketing Resource Management integration are stored in MarketManagement.mdb. It is not necessary to change or modify this file. Only advanced implementors should modify this file.

Sharing Campaign Attributes

You can share values for campaign and communication attributes between Marketing Resource Management and Infor Campaign Management by configuring equivalent attributes on each system. For integration purposes, the names of the attributes must be an exact match, with no leading or trailing spaces, and with all interior spaces preserved. The names are case-sensitive.

For all shared attributes, ensure the following:

- For built-in Infor Campaign Management attributes, the name of the attribute in the Marketing Resource Management system must exactly match the name of the dimension column in Infor Campaign Management.
- For custom campaign, and communication attributes, the name of the equivalent attribute in Marketing Resource Management must exactly match the **Name** field of the attribute in Infor Campaign Management.
- For attributes that have a filter type other than **Text Box**, the **Label** and **Value** fields for each filter element must match each other, and also match the values defined for that attribute in Marketing Resource Management.

The following columns and attributes are created on the campaign dimensions when you enable Marketing Resource Management integration:

| dimension | Column | Attribute | Description |
|-----------|---------------------|--------------------------|---|
| Cell | treatment_shared_id | Cell Treatment Shared ID | Shared ID attribute for a communication in a shared campaign. |
| Campaign | campaign_shared_id | Campaign Shared ID | Shared ID attribute for a campaign. |

Setting Communication Parameters

You must set the following communication parameters in Infor Campaign Management as part of the integration process:

- "UTF8PushToForeignSystem" on page 261
- "ForeignSystemUseInstOfProgram" on page 262
- "UseGenericXMLParser" on page 262

UTF8PushToForeignSystem

The `UTF8PushToForeignSystem` configuration setting is used for standard UTF8 encoding system for message transmission. You configure this setting in Admin Manager's Configuration folder at the following location: **Behavior > Debug > UTF8PushToForeignSystem**

You must also configure the system registry.

It takes the following values:

- 0 - Use standard UTF8 message encoding.

ForeignSystemUseInstOfProgram

Infor Campaign Management can use either `_InstOf_Program` or `_InstOf_Campaign` as the XML root tag when contacting a Marketing Resource Management system.

You configure this setting in the Admin Manager's Configuration folder at the following location: **Behavior > Debug > ForeignSystemUseInstOfProgram**

It takes the following values:

- 0 - Use `_InstOf_Campaign` to perform SOAP calls.
- 1 - Use `_InstOf_Program` to perform SOAP calls.

UseGenericXMLParser

Supported XML format in Infor Campaign Management:

- The Generic XML parser takes XML code and parses it according to standard XML specifications.

You configure this setting in the system Registry at the following location:

```
My Computer/HKEY_LOCAL_MACHINE/SOFTWARE/Epiphany/Instances/ <instancename>  
External Interfaces/AppServer/UseGenericXMLParser
```

- 1 - Use GenericXMLParser to parse XML code.

Note: See "Campaign Definition XML" on page 279 for further details of Marketing Resource Management-encoded XML.

UseSmartPathAPI

For Integration with Infor Campaign Resource Management, based on the 32 or 64 bit installation of Infor Campaign Management configure this setting in the system Registry at the following location:

```
MyComputer/HKEY_LOCAL_MACHINE/SOFTWARE/Wow6432Node/Epiphany/Instances/  
<instance name> External Interfaces/AppServer/  
UseSmartPathAPI
```

or

```
MyComputer/HKEY_LOCAL_MACHINE/SOFTWARE/Epiphany/Instances/<instance  
name> External Interfaces/AppServer/ UseSmartPathAPI
```

- 3 - Infor MRM (SSO Environment)
- 4 - Infor MRM(Non-SSO environment)

Configuring the Foreign System Connection

When you configure Infor Campaign Management for Marketing Resource Management integration, users with the required permissions can click remigrate button in an enabled Campaign Web page to remigrate a campaign to Marketing Resource Management. Conversely, when Marketing Resource Management users save Campaigns, the campaign can be migrated to Infor Campaign Management, enabling users to click through to a migrated version of the campaign in Infor Campaign Management.

Note: You must configure a foreign system through Admin Manager. However, if there is no intention to remigrate campaigns from Infor Campaign Management to the foreign system, you may configure a dummy foreign system.

Configuring the Foreign System Connection

- 1 In Admin Manager, open the Security and Storage folder.
- 2 Double-click the **Foreign Systems** icon.
- 3 In the **Foreign System Connections** dialog box, set the keys listed in the tables below to the indicated values.

Foreign System General Tab

Table 19: Foreign System General Tab

| Key | Value |
|-------------|---|
| Name | The name of the Marketing Resource Management system connection. This is the name of the connection within Infor Campaign Management, not the name of the server. |
| Label | The developer label for the foreign system. |
| Description | A description of the foreign system for your reference. |

Table 20: Foreign System Properties Tab

| Key | Value |
|----------|--|
| Server | The name of the Marketing Resource Management server, without port or protocol information. |
| Port | The port on which to connect to the Marketing Resource Management application. |
| SOAP URL | <p>http/https://{SERVER}:{PORT}/orbismarketing.services/externalservice.svc The {Server} and {Port} values are automatically substituted into the URL</p> <p>You can specify either http or https. If you are not using HTTPS to secure the transaction, the SOAP server should be protected by network security (not exposed to the internet). HTTPS requires server-side certificates installed on both servers.</p> |

| Key | Value |
|----------|---|
| Username | The username for the Marketing Resource Management server login. This user must have the necessary permissions in the Marketing Resource Management system. |
| Password | The password corresponding to the specified username. |

Note: In the SOAP URL field of the Foreign System dialog box, the server and port values are automatically substituted into the URL string, based on the values you entered earlier. Do not modify the {SERVER};{PORT} section of the SOAP URL.

Configuring Users in Both Systems

Users who need access to both systems must be configured in both Marketing Resource Management and Infor Campaign Management, but will log into each system separately unless a system uses LDAP authentication.

In Infor Campaign Management:

- Administrative users must belong to the Infor Campaign Management Administrator group
- Non-administrative users must belong to the built-in Marketing Resource Management Users group. (Enabling Marketing Resource Management creates this group automatically.)

These users must have access to the list management or campaign management navigation nodes for which Marketing Resource Management integration is configured. Refer to "Configuring Groups" on page 116 for details.

Configuring Infor Campaign Management Topics for Marketing Resource Management Integration

The Enable Marketing Resource Management menu command installs an updated Campaign topic template, which contains the navigation node (**SP Node Select**) required for Marketing Resource Management-enabled campaigns.

Enabling Marketing Resource Management Integration in Infor Campaign Management Topics

To enable marketing resource management integration in an existing Infor Campaign Management topic:

- 1 Update the Infor Campaign Management topic from the template by opening the topic and clicking **Update**. In the Topic Update Options window, select only Create nav nodes that are in the source topic but not in this topic.

- 2 Assign a Web page to the **SP Node Select** node. You can assign either a Campaign or a Context Selector Dimension Picker page.
- 3 Add the following shared ID attributes to the Campaign Web page that you modified in the previous step:
 - Campaign Shared ID
 - Add under Required Campaign Attributes.
 - Cell Communication Shared ID
 - Add under Optional Communication Attributes.

Note: Required and Optional communication attributes function the same as required and optional cell attributes, that is, values for communication attributes are entered on the communication page before scheduling the campaign. The communication popup screen displays these values, and the values propagate down to the cell level.

Working with Shared Campaigns

Users can create campaigns in Marketing Resource Management and remigrate them back and forth between the two systems if both systems are configured for this activity.

- If the campaign is created in Marketing Resource Management, then Marketing Resource Management can be configured to automatically migrate the campaign to Infor Campaign Management when the campaign is saved. Infor Campaign Management assigns the migrated campaign a shared campaign ID.

When a user migrates a shared campaign, the campaign shared ID for the campaign is assigned to a temporary version of the file within Infor Campaign Management, which the user must then save to the Infor Campaign Management Report Gallery.

For more information about working with migrated campaigns, refer to the Infor Campaign Management online help.

- If the campaign is remigrated from Infor Campaign Management, and the topic is enabled for Marketing Resource Management, then the Campaign definition page contains a Marketing Resource Management section that enables users to remigrate the campaign to Marketing Resource Management.

Note: A shared campaign that is modified in the Marketing Resource Management system and migrated to Infor Campaign Management will overwrite any changes that have been made to the campaign in Infor Campaign Management. This can result in lost work.

Deleting Shared Campaigns

Use the Web-based Report Gallery to delete shared campaigns in Infor Campaign Management, if you have correct permissions. You cannot delete shared campaigns in Admin Manager.

If a user deletes a shared campaign in Marketing Resource Management, again the two systems can be configured so as to automatically delete the campaign from the Infor Campaign Management Report Gallery.

Note: When Marketing Resource Management campaigns are initially migrated to Infor Campaign Management, they are stored in temporary form in the Infor Campaign Management system. If they are not saved, the temporary versions of migrated campaigns are deleted after a week, and subsequent attempts to click through from Marketing Resource Management result in an error on the Infor Campaign Management side.

To prevent the error, the user must remigrate the campaign to Infor Campaign Management. The user must then save the campaign in the Infor Campaign Management Report Gallery.

This chapter describes the open API functionality that can be used to integrate Infor Campaign Management with Infor Campaign Resource Management (MRM) tool or application. The API interface allows MRM applications to create, update, and delete campaigns in Infor Campaign Management.

Once a campaign is planned (and approved) in the MRM application, the campaign can be pushed to Infor Campaign Management. All campaign attributes and properties are synchronized between the two applications, as well as any communications.

Likewise, updated campaigns in Infor Campaign Management can be remigrated to the Marketing Resource Management application. The user can create campaign logic and segmentation queries using Infor Campaign Management, assign communications to each segment, and specify the output formats for each resulting list. Cell counts are aggregated at each communication level. Cell counts are pushed to the Infor MRM after remigration.

Each time that the campaign is modified, Infor Campaign Management sends XML corresponding to the entire campaign to the Marketing Resource Management application for an update. The MRM application is responsible for handling all XML inputs, and is also responsible for sending the XML update whenever the campaign is modified on the MRM application's side.

Updates from the Marketing Resource Management application to Infor Campaign Management need only specify changed values. Extant values in an already existing campaign in Infor Campaign Management are left alone.

Shared Data Structures

Note: Terms used throughout this chapter (campaign, communication, and list or cell, for example) may be used differently in other systems.

Infor Campaign Management and the Marketing Resource Management tool share three data structures during integration: campaigns, communications, and lists or cells.

- "Campaigns" on page 268 are first class objects which can exist independently from all other objects. They can be created in either system and then pushed back and forth between the two systems.
- "Communications" on page 269 are associated with campaigns. Communications can also be created in either system. Communications can have multiple lists associated with them.

- Lists are associated with campaigns, and also can be associated with one communication in the same campaign. They can only be created in Infor Campaign Management.

The following diagrams illustrates the data flow between a foreign system (Infor Campaign Resource Manager tool) and Infor Campaign Management.

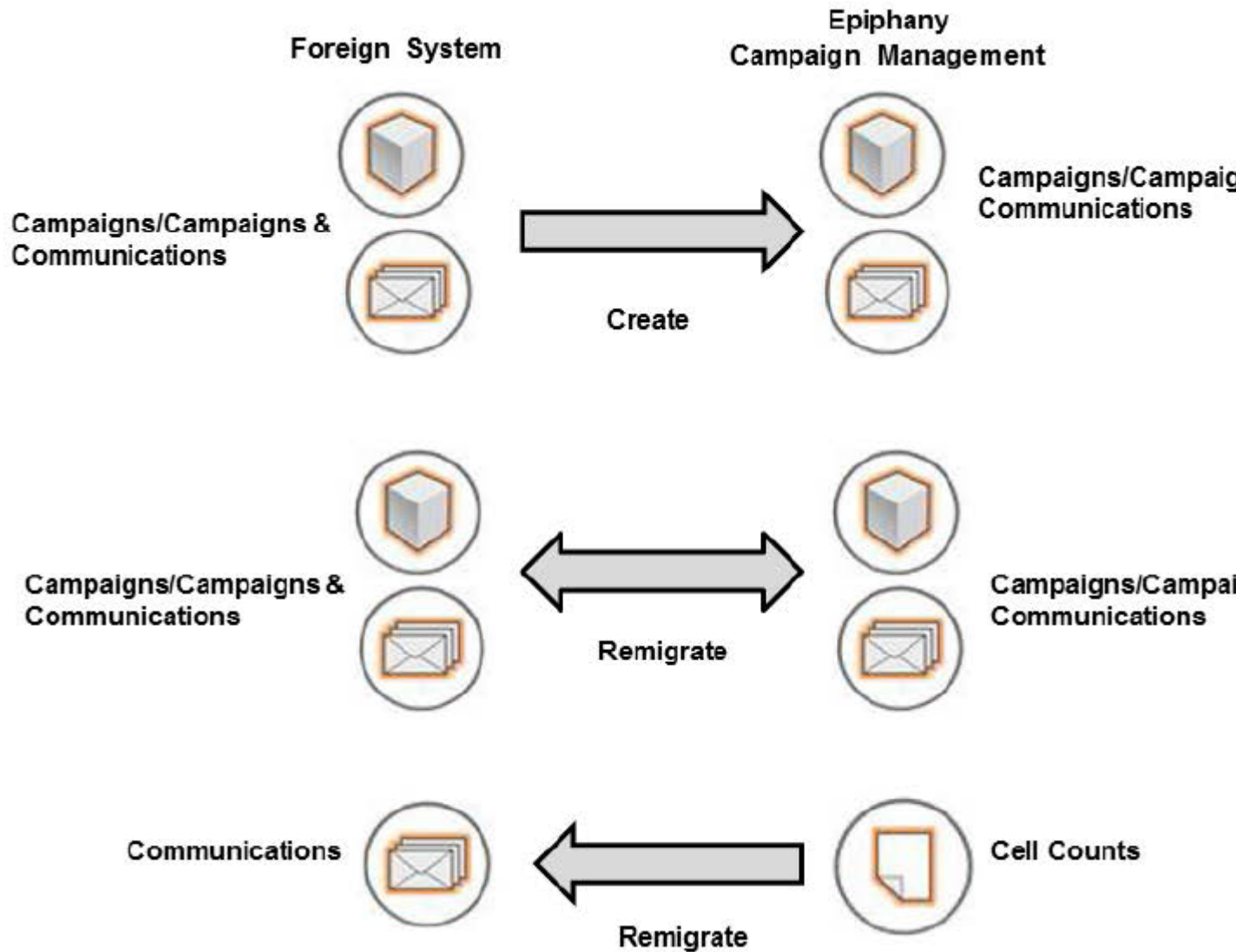


Figure 49: Data Flow Between the Systems

Campaigns

A campaign is the top level object. A unique shared ID, generated by Infor Campaign Management, identifies a campaign in both systems. Upon creation of a campaign in the MRM application, the foreign system sends XML corresponding to the campaign and receives back the shared ID string that identifies

the campaign in both systems. The campaign shared ID is stored explicitly in the Infor Campaign Management database schema, and can be accessed explicitly.

Communications

Communications are objects that are local to campaigns. Either system can generate, modify, or delete a communication. Whichever system creates the communication generates the communication shared ID. Infor Omni-Channel Campaign Management does not store this ID in the Infor Omni-Channel Campaign Management database schema. Instead, it stores the ID inside the Report Gallery object corresponding to the campaign.

It is important to generate the communication shared ID in such a way as to prevent namespace clashes for communications belonging to the same campaign, as both systems can generate communication shared IDs.

Using the Public APIs

Users can create campaigns in a foreign system and remigrate them back and forth between the two systems. You must configure Infor Campaign Management to recognize the foreign system server—and the foreign system to recognize the Infor Campaign Management Server—before you can migrate a campaign from MRM to Infor Campaign Management and remigrate from one to the other.

- See "Configuring an MRM Tool in Admin Manager" on page 263, for details on how to configure the foreign system connection through Admin Manager.
- See the appropriate documentation for the foreign system for setting up the reverse connection.

The following sections describe common campaign scenarios:

- "Pushing a Campaign from the Foreign System" on page 269
- "Pushing a Campaign from Infor Campaign Management" on page 270
- "Pulling a Campaign Update from Infor Campaign Management" on page 271
- "Deleting a Shared Campaign using the Foreign System" on page 272
- "Deleting a Shared Campaign using Infor Campaign Management" on page 272

Pushing a Campaign from the Foreign System

The following diagram illustrates the sequence of events necessary to push a native campaign from a foreign system to Infor Campaign Management.

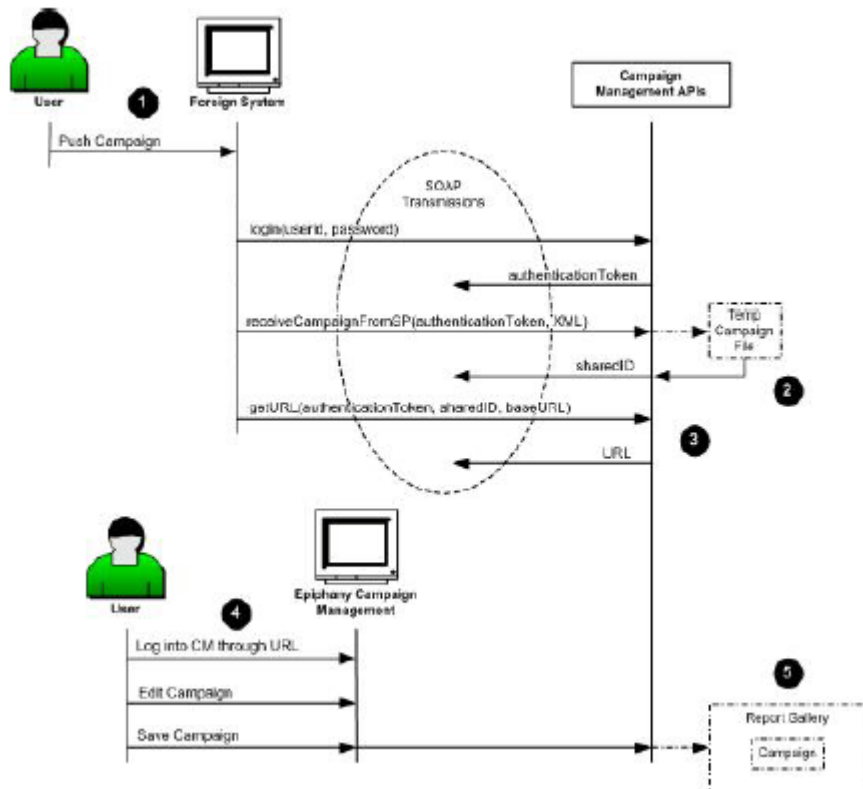


Figure 50: Foreign System to Infor Campaign Management Push

- 1 A user (or back-end APIs) initiates a push of a campaign from the foreign system to Infor Campaign Management. The foreign system must log into the Infor Campaign Management system and receive back an authentication token before it can transmit the campaign XML.
- 2 After transmission, Infor Campaign Management returns the shared ID for the campaign.
- 3 Upon request, Infor Campaign Management returns a URL which is a direct link to the campaign in Infor Campaign Management.
- 4 Using this link, a user can click through to the migrated version of the campaign in Infor Campaign Management. The user must first log into Infor Campaign Management, then assign a node to the campaign before actually viewing the campaign.
- 5 Infor Campaign Management does not save the migrated campaign permanently until the campaign is saved to the Report Gallery.

Pushing a Campaign from Infor Campaign Management

The following diagram illustrates the sequence of events necessary to remigrate a campaign from Infor Campaign Management to a foreign system.

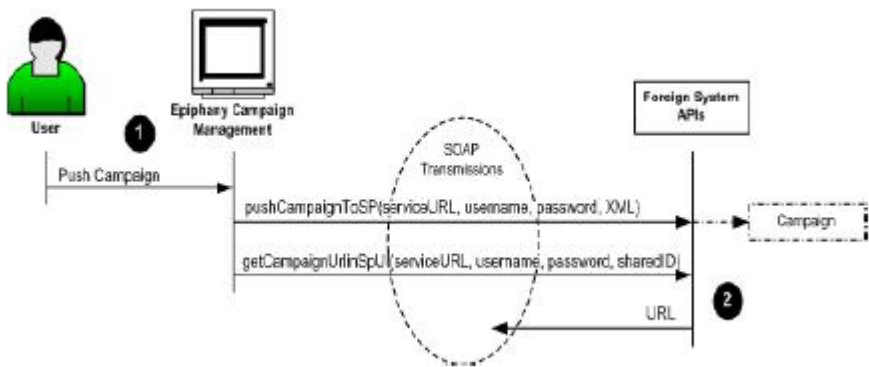


Figure 51: Infor Campaign Management to Foreign System Push

When you click **Remigrate Campaign** button the foreign system returns a URL which is a direct link to the campaign in the foreign system. The campaign page displays go to Infor **MRM** button next to the **Remigrate** button. Clicking the button opens the corresponding page in the foreign system.

Pulling a Campaign Update from Infor Campaign Management

The following diagram illustrates the sequence of events necessary to pull a campaign update from Infor Campaign Management into a foreign system.

Figure 14-4: Foreign System Campaign Pull

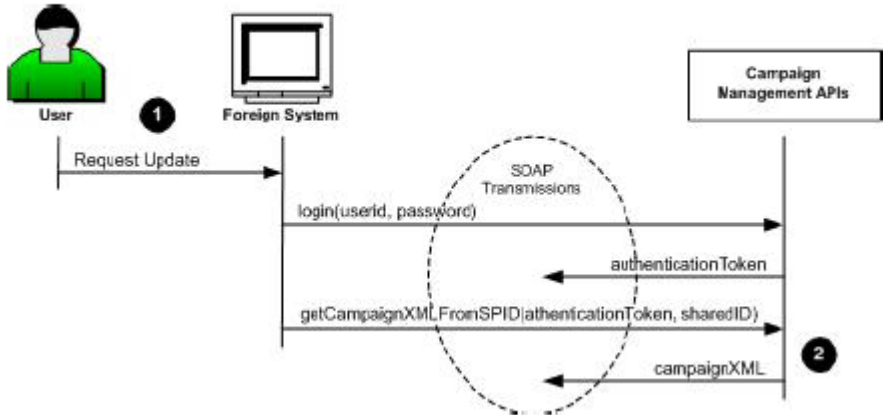


Figure 52: Foreign System Campaign Pull

- 1 A user (or back-end APIs) initiates a request for a campaign update from Infor Campaign Management. The foreign system must first log into the Infor Campaign Management system and receive back an authentication token before requesting the update.
- 2 Upon request, Infor Campaign Management returns the campaign XML.

Deleting a Shared Campaign using the Foreign System

The following diagram illustrates the sequence of events necessary to delete a campaign in the foreign system, and then propagate the campaign deletion to Infor Campaign Management.

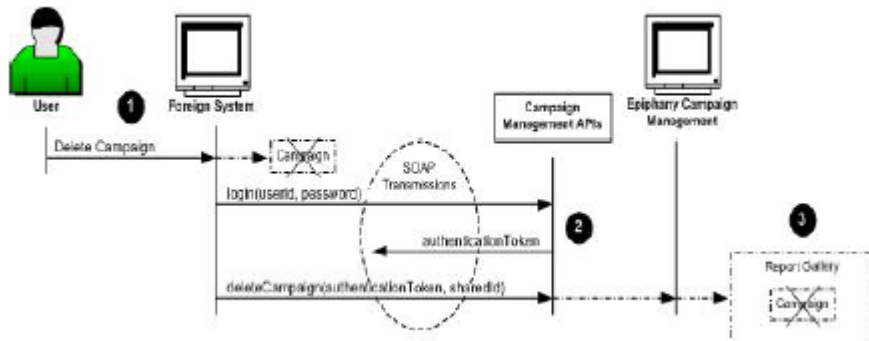


Figure 53: Delete Shared Campaign from Foreign System Side

- 1 The user (or back-end APIs) deletes the campaign in the foreign system.
- 2 The foreign system must log into Infor Campaign Management and receive back a valid session authentication token before sending the delete command.
- 3 Infor Campaign Management APIs delete the campaign from the Infor Campaign Management Report Gallery.

Deleting a Shared Campaign using Infor Campaign Management

The following diagram illustrates the sequence of events necessary to delete a campaign in Infor Campaign Management, and then propagate the campaign deletion back to the foreign system.

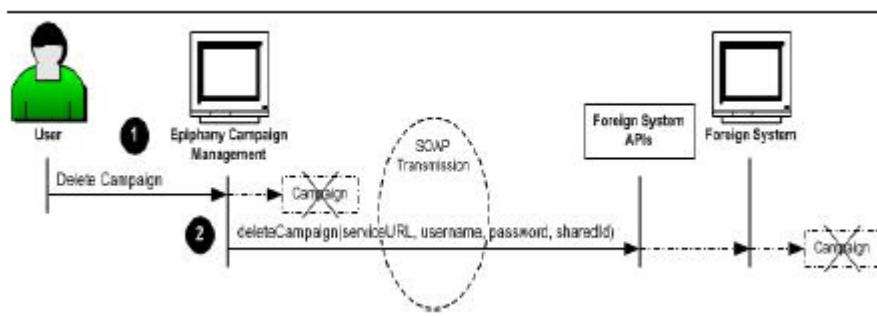


Figure 54: Delete Shared Campaign from Infor Campaign Management Side

- 1 The user deletes the campaign in Infor Campaign Management.
- 2 If Marketing Resource Management is enabled, this action automatically sends a campaign delete command to the foreign system.

The Public APIs Defined

Use the APIs listed in below to do the following:

- push a campaign from the foreign system to Infor Campaign Management
- update the campaign in the foreign system from Infor Campaign Management
- return the campaign URL to the foreign system
- delete the campaign in Infor Campaign Management from the foreign system side

These APIs are discussed in "Infor Omni-Channel Marketing APIs" on page 273.

Table 21: Summary of Necessary Infor Campaign Management APIs

| Function | Use To |
|--|--|
| "login()" on page 274 | Log into the Infor Campaign Management application. |
| "receiveCampaignFromSP()" on page 275 | Create or update a campaign object using campaign XML received from the foreign system. |
| "getCampaignXMLFromSPID()" on page 275 | Return campaign XML to the foreign system upon request. |
| "getURL()" on page 276 | Return a URL that connects directly to the campaign in Infor Campaign Management. |
| "deleteCampaign()" on page 277 | Delete a campaign in Infor Campaign Management. (This is an overloaded method which can delete a campaign from either Infor Campaign Management or the foreign system depending on which system initiates it and the list of method parameters.) |

Use the APIs listed in the table below to do the following:

- push a campaign from Infor Campaign Management to the foreign system
- return a foreign system campaign URL to Infor Campaign Management
- delete the campaign in the foreign system from the Infor Campaign Management side

These APIs are discussed in "Foreign System APIs" on page 277.

Table 22: Summary of Necessary Foreign System APIs

| | |
|--------------------------------------|---|
| "pushCampaignToSP()" on page 277 | Push the campaign XML to the service URL (parsed as an argument) |
| "getCampaignUrlInSpUI()" on page 278 | Requests campaign XML from the service URL (passed as an argument) |
| "deleteCampaign()" on page 279 | Delete a campaign from the foreign system. (This is an overloaded method which can delete a campaign from either Infor Campaign Management or |

the foreign system depending on which system initiates it and the list of method parameters.)

Infor Campaign Management APIs

Infor Campaign Management implements the following APIs:

- "login()" on page 274
- "receiveCampaignFromSP()" on page 275
- "getCampaignXMLFromSPID()" on page 275
- "getURL()" on page 276
- "deleteCampaign()" on page 277

login()

This function takes an `userid` and `password` and returns a valid token for accessing the Infor Campaign Management system.

Usage

```
public String login(String userid, String password) throws EpnAsAdapt-  
er  
Exception;
```

Description

This function expects a `String` `userid` and a `String` `password`. For a `userid`-`password` combination to be valid, it must fulfill the following conditions:

- It must be a valid `userid`-`password` combination for an Infor Campaign Management user. (A user account must exist in Infor Campaign Management with the specified credentials.)
- It must refer to a user who belongs to either the Infor Campaign Management Administrator group or to the built-in Marketing Resource Management Users group.

The function returns a `String` authentication token which is valid for the length of time set as the session timeout. (An administrator can specify the session timeout value in Admin Manager at **Configuration > Optimization > Query** SessionTimeout.) This is useful for seamless logons to the Infor Campaign Management system. All other functions expect this string authentication token.

| | |
|------------|--|
| parameters | <code>userid</code> - Username for the Infor Campaign Management user. |
| | <code>password</code> - Password for the Infor Campaign Management user. |

| | |
|---------|---|
| returns | authenticationToken - Token authenticating valid access to the Infor Campaign Management system; null, if unsuccessful. The token is valid for the length of the session. |
| throws | EpnAsAdapterException - If the userid-password combination is null, or invalid in Infor Campaign Management. |

Note: If the product encryption key is changed in the Admin Manager, the authentication token becomes invalid.

receiveCampaignFromSP()

This function receives a campaign definition as an XML `String` and creates or updates a campaign object in Infor Campaign Management. It has two forms, one which assumes UTF-8 encoding for the XML, and the other which can toggle between UTF-8 and UTF-16 encoding. Calling the former is exactly equivalent to calling the latter with the `isUTF8` argument set to `true`.

Usage

```
public String receiveCampaignFromSP(String authenticationToken, String xml,
boolean isUTF8) throws EpnAsAdapterException;
```

Description

This function expects a `String` authentication token, the `String` campaign XML, and a `boolean` value indicating whether the XML string is UTF-8 or UTF-16 encoded. If the authentication token is valid, this function does the following:

- parses the campaign XML
- creates or updates a campaign object according to the values passed from the campaign XML

If successful, the function returns the shared ID for that campaign. If this is a new campaign object, the function generates the campaign shared ID.

| | |
|------------|---|
| parameters | authenticationToken - Token returned by the "login()" on page 274 function. xml- Campaign XML. isUTF8 - <code>true</code> if xml is UTF-8; <code>false</code> if xml is UTF-16. |
| returns | sharedID - Campaign shared ID; null, if unsuccessful. |
| throws | EpnAsAdapterException - If the authentication token is invalid, or expired. |

getCampaignXMLFromSPID()

This function returns an XML campaign definition to the foreign system upon request.

Usage

```
public String getCampaignXMLFromSPID(String authenticationToken, String sharedID) throws EpyAsAdapterException;
```

Description

This function expects a `String` authentication token and a `String` campaign shared ID. If the authentication token is valid, this function returns to the foreign system the campaign XML (in UTF-8 encoding) for the specified campaign shared ID.

| | |
|------------|---|
| parameters | authenticationToken - Token returned by the "login()" on page 274 function. sharedId - Campaign shared ID. |
| returns | campaignXml - Campaign XML (UTF-8 encoding); null, if unsuccessful. |
| throws | EpyAsAdapterException - If the authentication token is invalid, or expired. |

getURL()

This function returns a URL that the foreign system can use to connect directly to a campaign within Infor Campaign Management.

Usage

```
public String getURL(String authenticationToken, String sharedID, String urlString) throws EpyAsAdapterException;
```

Description

This function expects a `String` authentication token, a `String` campaign shared ID, and a `String` URL for the Infor Campaign Management Server. If the authentication token is valid, this function returns a URL used to connect directly to the specified campaign. `URLString` is the URL used to connect to the Infor Campaign Management application in which the shared campaign exists.

| | |
|------------|--|
| parameters | authenticationToken - Token returned by the "login()" on page 274 function. sharedId - Campaign shared ID. URLString - URL for the Infor Campaign Management application server. |
| returns | completeURL - URL used to connect to the campaign; null, if unsuccessful. |
| throws | EpyAsAdapterException - If the authentication token is invalid, or expired. |

deleteCampaign()

This function deletes a campaign from Infor Campaign Management. This is an overloaded method which can delete a campaign from either Infor Campaign Management or the foreign system depending on which system initiates it and the list of method parameters.

Usage

```
public void deleteCampaign(String authenticationToken, String sharedID)
throws EpnysAsAdapterException;
```

Description

This function expects a `String` authentication token and a `String` campaign shared ID. If the authentication token is valid, this function deletes the campaign associated with the specified campaign shared ID. It returns nothing.

| | |
|------------|---|
| parameters | authenticationToken - Token returned by the "login()" on page 274 function. sharedId - Campaign shared ID. |
| returns | Nothing |
| throws | EpnysAsAdapterException - If the authentication token is invalid, or expired. |

Foreign System APIs

The foreign system implements the following APIs:

- "pushCampaignToSP()" on page 277
- "getCampaignUrlInSpUI()" on page 278
- "deleteCampaign()" on page 279

pushCampaignToSP()

This function updates a campaign object in the foreign system.

Usage

```
public Long pushCampaignToSP(String serviceUrl, String username, String
password, String campaignXml) throws SPSoapClientException
```

Description

This function expects a `String` SOAP URL for the foreign system, a `String` username and password, and the campaign XML. If the username and password are valid for the foreign system, the function should create or update a campaign in the foreign system. It returns the number of exceptions encountered during the XML push, or zero if there were no exceptions.

Infor Campaign Management calls `serviceURL` using the foreign system username and password set by an Admin Manager administrator in the **Security/Storage > Foreign System** dialog box. See "Configuring the Foreign System Connection" on page 263 for details.

| | |
|------------|---|
| parameters | <code>serviceUrl</code> - SOAP connection URL for the foreign system. <code>username</code> - Username of the foreign system user. <code>password</code> - Password of the foreign system user. <code>campaignXML</code> - Campaign XML. |
| returns | <code>numExceptions</code> - Number of exceptions generated during the create or update operation (0 indicates successful completion); null, if unable to create a SOAP connection. |
| throws | <code>SPSoapClientException</code> - If unable to create a SOAP connection. |

getCampaignUrlInSpUI()

This function returns a URL used to connect directly to a campaign within the foreign system.

Usage

```
public String getCampaignUrlInSpUI(String serviceUrl, String username, String password, String sharedId) throws SPSOapClientException
```

Description

This function expects a `String` SOAP URL for the foreign system, a `String` username and password, and a `String` shared ID for a campaign. If the username and password are valid for the foreign system, the function returns a URL used to link to the foreign system campaign by the Infor Campaign Management system.

Infor Campaign Management calls `serviceURL` using the foreign system username and password set by an Admin Manager administrator in the **Security/Storage > Foreign System** dialog box. See "Configuring the Foreign System Connection" on page 263 for details.

| | |
|------------|--|
| parameters | <code>serviceUrl</code> - SOAP connection URL for the foreign system. <code>username</code> - Username of the foreign system user. <code>password</code> - Password of the foreign system user. <code>sharedId</code> - Campaign shared ID. |
|------------|--|

| | |
|---------|---|
| returns | url - URL used to connect to the campaign in the foreign system; null, if unable to create a SOAP connection or if the campaign indicated by sharedID does not exist. |
| throws | SPSoapClientException - If unable to make a SOAP connection. |

deleteCampaign()

This function deletes a campaign from the foreign system. This is an overloaded method which can delete a campaign from either Infor Campaign Management or the foreign system depending on which system initiates it and the list of method parameters.

Usage

```
public boolean deleteCampaign(String serviceURL, String username, String password, String sharedId) throws SPSoapClientException
```

Description

This function expects a `String` SOAP URL for the foreign system, a `String` username and password, and a `String` shared ID for a campaign. If the username and password are valid for the foreign system, the function deletes the campaign associated with the passed-in shared ID. It returns `true` if the deletion was successful and `false` if it was not successful.

Infor Campaign Management calls `serviceURL` using the foreign system username and password set by an Admin Manager administrator in the **Security/Storage > Foreign System** dialog box. See "Configuring the Foreign System Connection" on page 263 for details.

| | |
|------------|---|
| parameters | <p>serviceUrl - SOAP connection URL for the foreign system.</p> <p>username - Username of the foreign system user.</p> <p>password - Password of the foreign system user.</p> <p>sharedId - Campaign shared ID.</p> |
| returns | <p>true - Campaign deletion was successful.</p> <p>false - Campaign deletion was not successful.</p> |
| throws | SPSoapClientException - If unable to make a SOAP connection. |

Campaign Definition XML

You must encode your campaign definition in specially coded campaign XML. The following sections details specific changes that you need to make when encoding campaign attributes.

Note: You must specify the XML parser in Infor Omni-Channel Campaign Management. See "UseGenericXMLParser" on page 262 for details on how to set the XML parser to use.

Transmitting Campaign Attributes Names

You define a campaign attribute in Admin Manager through the **General** tab of the **Attribute** dialog box. (See "Attributes" on page 68 for details on creating campaign attributes.) "Figure 55: Attribute General Tab" on page 280 shows the upper portion of the **Attribute** dialog box.

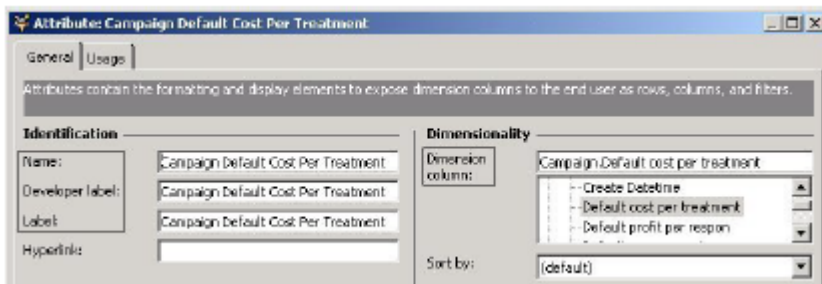


Figure 55: Attribute General Tab

Note that there are a number of fields that identify an attribute:

- **Name**
The name of the attribute as defined in EpiMeta.
- **Developer Label**
The name of the attribute as used within Admin Manager
- **Label**
The name of the attribute that is visible to users on Web pages.
- **Dimension Column**
The name of the dimension column in EpiMart. Note that the you use only the column name and not the table name. For example, in "Figure 55: Attribute General Tab" on page 280, the **Dimension column** field shows **Campaign.Default cost per communication**. In this case, **Campaign** is the table name and **Default cost per communication** is the column name.

When you transmit campaign XML, you must use the correct names for campaign and communication attributes. Which of the four names you choose depends on whether you are transmitting built-in or custom campaign attributes.

Built-In Campaign and Communication Attributes

Built-in campaign and communication attributes must be identified by dimension column name. This name must be an exact match with no leading or trailing spaces. The interior spaces in the name must be preserved, and the name is case-sensitive.

Custom Campaign and Communication Attributes

Custom attributes, campaign and communication attributes must be identified in the pushed XML by name, not label or developer label. Again, this name must be an exact match with no leading or trailing spaces. The interior spaces in the name must be preserved, and the name is case-sensitive.

Campaign Attribute Types

You must use one of the following enumerated types when passing campaign attributes in XML:

- currency
- date
- list
- number
- percent
- string

Generic XML Attribute Examples

The Generic XML Parser expects the “type” field to indicate the attribute type.

```
...  
<Attribute name="customerID" type="number">1023</Attribute>  
<Attribute name="Greeting" type="string">Hello</Attribute>  
...
```

XML Samples

Note: Do not copy and paste scripts, commands or code from this document. Line breaks and some other characters picked up when you copy from the PDF can cause errors in the pasted text.

The section contains the following XML code samples:

- "Pushing a Campaign from Infor Marketing Resource Management" on page 282
- "Updating a Campaign received from Infor Marketing Resource Management in Infor Campaign Management" on page 282

Pushing a Campaign from Infor Marketing Resource Management

The following XML sample defines a simple campaign object. The enclosing tags for campaigns and communications must have a name field associated with them. This name field must contain the shared ID of the corresponding object.

```
<?xml version=" 1.0" encoding="utf-16"?>
  <Integration xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <_InstOf_Campaign name="campaign1">
      <Attribute type="list" name="Campaign Has Inbound Cells">1</Attribute>
      <Attribute type="numeric" name="Test Decimal21,5">0.0000</Attribute>
      <Attribute type="string" name="CampaignDate Cq Name (LB)">name3</
Attribute>
      <Attribute type="string" name="Campaign Campaign Objective (TB)">obj3
</Att
      ribute>
      <Attribute type="string" name="carnpaign_laber">campaign1</Attribute>
      <Attribute type=" date" name="Campaign Launch Date">20131212</
Attribute>
      <Attribute type=" date" name="Campaign Date">20131219</Attribute>
      <_InstOf Treatment name="586">
        <Attribute type=" string" name="Campaign Has Inbound Cells " >0</
Attribute>
        <Attribute type=" string" name="treatment_code">586</Attribute>
        <Attribute type=" date" name=" Cell Date">20131213</Attribute>
      </_InstOf Treatment>
    </_InstOf Campaign>
  </Integration>
```

Updating a Campaign received from Infor Marketing Resource Management in Infor Campaign Management

When Infor Campaign Management updates and saves a campaign, it also calls the `pushCampaignToSP()` method if a foreign system has been enabled within the Infor Campaign Management system. This method takes the service URL, the username and password for the foreign system, and the campaign XML.

```
<?xml version="1.0" encoding="utf-16"?>
<Integration xmlns:xsi="http://www.w3.org/2001/XMLSchema"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <_InstOf_Campaign name="campaign1">
    <Attribute type="list" name="Campaign Has Inbound Cells">1</
Attribute>
    <Attribute type="numeric" name="Test Decimal21,5">0.0000</Attribute>
```

```

    <Attribute type="string" name="CampaignDate Cq Name (LB)">name3-
instance</Attribute>
    <Attribute type="string" name="Campaign Campaign Objective
OM</Attribute>
    <Attribute type="string" name="campaign_label">campaign1
</Attribute>
    <Attribute type="date" name="Campaign Launch Date">20131212</
Attribute>
    <Attribute type="date" name="Campaign Date">20131219</Attribute>
    <_InstOf_Treatment name="586"> (TB) ">obj3
-updated in
    <Attribute type="string" name="Campaign Has Inbound Cells">0</
Attribute>
    <Attribute type="string" name="treatment_code">586</Attribute>
    <Attribute type="date" name="Cell Date">20131213</Attribute>
    <Attribute type="number" name="CellCount">0</Attribute>
  </_InstOf_Treatment>
</_f_Campaign>
</Integration>

```

The WSDL File

The following WSDL (Web Services Definition Language) file defines the interface between the Infor Campaign Management SOAP server and the foreign system SOAP client. (Infor Campaign Management implements SOAP specification v1.1.)

WSDL is a draft standard supported by the World Wide Web Consortium. You can access the specification at the following URL: <http://www.w3.org/TR/wSDL>

The WSDL file contains two main sections:

- The **Web Service Interface Definition** section specifies the operations (methods) to implement and the message structure and parts. See the “WSDL File - Web Service Interface Definition Subsections” table below for a description of its subsections.
- The **Web Service Implementation** section defines the physical URLs used for the SOAP connections. See the “WSDL File - Web Service Implementation Subsections” table below for a description of its subsections.

Table 23: WSDL File - Web Service Interface Definition Subsections

| Section | Description |
|---------|---|
| types | Defines the schema for describing XML types used in messages. |
| message | Defines the structure and parts of the transferred content. A part maps an XML element name to a specific datatype. |

| Section | Description |
|----------|---|
| portType | Describes the operations (method calls) supported by the SOAP server and their associated messages. |
| binding | Describes the character encoding scheme used by the specified SOAP port, as well as the message data formats. |

Table 24: WSDL File - Web Service Implementation Subsections

| Section | Description |
|---------|--|
| service | Names the collection of supported SOAP ports. |
| port | <p>Defines the binding, port type, and Web URL that the client uses to transmit and receive SOAP requests for this service. Modify the following line in the WSDL file that follows to reflect the correct URL (location):</p> <pre><wsdlsoap:address location="<Infor Campaign Management URL>/services/ EpsyAsAdapter"/></pre> <p>For example, for an Infor Campaign Management 6.5.4 instance with Web-Logic as the application server:</p> <pre><wsdlsoap:address location="http://InforServer/weblogic654/AP654/services/EpsyAsAdapter"/></pre> |

The Complete WSDL File

Note: Do not copy and paste scripts, commands or code from this document. Line breaks and some other characters picked up when you copy from the PDF can cause errors in the pasted text.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions targetNamespace="urn:epnyasadapter"
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:apachesoap="http://xml.apache.org/xml-soap"
xmlns:impl="urn:epnyasadapter"
xmlns:intf="urn:epnyasadapter"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tns2="http://foreignsystem.api.epiphany.com"
xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
xmlns:wSDLsoap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<wsdl:types>
<schema targetNamespace="http://foreignsystem.api.epiphany.com"
xmlns="http://www.w3.org/2001/XMLSchema">
<import namespace="http://schemas.xmlsoap.org/soap/encoding/" />
<complexType name="EpsyAsAdapterException">
<sequence/>
</complexType>
</schema>
```

```

</wsdl:types>
<wsdl:message name="deleteCampaignRequest">
<wsdl:part name="in0" type="xsd:string"/>
<wsdl:part name="in1" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="EpnYAsAdapterException">
<wsdl:part name="fault" type="tns2:EpnYAsAdapterException"/>
</wsdl:message>
<wsdl:message name="loginRequest">
<wsdl:part name="in0" type="xsd:string"/>
<wsdl:part name="in1" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="receiveCampaignFromSPRequest">
<wsdl:part name="in0" type="xsd:string"/>
<wsdl:part name="in1" type="xsd:string"/>
<wsdl:part name="in2" type="xsd:boolean"/>
</wsdl:message>
<wsdl:message name="deleteCampaignResponse"></wsdl:message>
<wsdl:message name="getURLRequest">
<wsdl:part name="in0" type="xsd:string"/>
<wsdl:part name="in1" type="xsd:string"/>
<wsdl:part name="in2" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="loginResponse">
<wsdl:part name="loginReturn" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="receiveCampaignFromSPRequest1">
<wsdl:part name="in0" type="xsd:string"/>
<wsdl:part name="in1" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="getURLResponse">
<wsdl:part name="getURLReturn" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="receiveCampaignFromSPResponse">
<wsdl:part name="receiveCampaignFromSPReturn" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="getCampaignXMLFromSPIDResponse">
<wsdl:part name="getCampaignXMLFromSPIDReturn" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="getCampaignXMLFromSPIDRequest">
<wsdl:part name="in0" type="xsd:string"/>
<wsdl:part name="in1" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="receiveCampaignFromSPResponse1">
<wsdl:part name="receiveCampaignFromSPReturn" type="xsd:string"/>
</wsdl:message>
<wsdl:portType name="IEpnYAsAdapter">
<wsdl:operation name="getURL" parameterOrder="in0 in1 in2">
<wsdl:input message="impl:getURLRequest" name="getURLRequest"/>
<wsdl:output message="impl:getURLResponse" name="getURLResponse"/>
<wsdl:fault message="impl:EpnYAsAdapterException" name="EpnYAsAdapter-
Exception"/>

```

```
</wsdl:operation>
<wsdl:operation name="login" parameterOrder="in0 in1">
<wsdl:input message="impl:loginRequest" name="loginRequest"/>
<wsdl:output message="impl:loginResponse" name="loginResponse"/>
<wsdl:fault message="impl:EpnYAsAdapterException" name="EpnYAsAdapter-
    Exception"/>
</wsdl:operation>
<wsdl:operation name="receiveCampaignFromSP" parameterOrder="in0 in1
    in2">
<wsdl:input message="impl:receiveCampaignFromSPRequest"
name="receiveCampaignFromSPRequest"/>
<wsdl:output message="impl:receiveCampaignFromSPResponse"
name="receiveCampaignFromSPResponse"/>
<wsdl:fault message="impl:EpnYAsAdapterException" name="EpnYAsAdapter-
    Exception"/>
</wsdl:operation>
<wsdl:operation name="receiveCampaignFromSP" parameterOrder="in0 in1">
<wsdl:input message="impl:receiveCampaignFromSPRequest1"
name="receiveCampaignFromSPRequest1"/>
<wsdl:output message="impl:receiveCampaignFromSPResponse1"
name="receiveCampaignFromSPResponse1"/>
<wsdl:fault message="impl:EpnYAsAdapterException" name="EpnYAsAdapter-
    Exception"/>
</wsdl:operation>
<wsdl:operation name="getCampaignXMLFromSPID" parameterOrder="in0 in1">
<wsdl:input message="impl:getCampaignXMLFromSPIDRequest"
name="getCampaignXMLFromSPIDRequest"/>
<wsdl:output message="impl:getCampaignXMLFromSPIDResponse"
name="getCampaignXMLFromSPIDResponse"/>
<wsdl:fault message="impl:EpnYAsAdapterException" name="EpnYAsAdapter-
    Exception"/>
</wsdl:operation>
<wsdl:operation name="deleteCampaign" parameterOrder="in0 in1">
<wsdl:input message="impl:deleteCampaignRequest" name="deleteCampaign-
    Request"/>
<wsdl:output message="impl:deleteCampaignResponse"
name="deleteCampaignResponse"/>
<wsdl:fault message="impl:EpnYAsAdapterException" name="EpnYAsAdapter-
    Exception"/>
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="EpnYAsAdapterSoapBinding" type="impl:IEpnYAsA
    dapter">
<wsdlsoap:binding style="rpc" transport="http://schemas.xmlsoap.org/
    soap/http"/>
<wsdl:operation name="getURL">
<wsdlsoap:operation soapAction=""/>
```

```
<wsdl:input name="getURLRequest">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:input>
<wsdl:output name="getURLResponse">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:output>
<wsdl:fault name="EpnYAsAdapterException">
<wsdlsoap:fault encodingStyle="http://schemas.xmlsoap.org/soap/encod
ing/"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="login">
<wsdlsoap:operation soapAction=""/>
<wsdl:input name="loginRequest">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:input>
<wsdl:output name="loginResponse">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:output>
<wsdl:fault name="EpnYAsAdapterException">
<wsdlsoap:fault encodingStyle="http://schemas.xmlsoap.org/soap/encod
ing/"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="receiveCampaignFromSP">
<wsdlsoap:operation soapAction=""/>
<wsdl:input name="receiveCampaignFromSPRequest">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:input>
<wsdl:output name="receiveCampaignFromSPResponse">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:output>
<wsdl:fault name="EpnYAsAdapterException">
```

```
<wsdlsoap:fault encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="receiveCampaignFromSP">
<wsdlsoap:operation soapAction=""/>
<wsdl:input name="receiveCampaignFromSPRequest1">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  "
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:input>
<wsdl:output name="receiveCampaignFromSPResponse1">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  "
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:output>
<wsdl:fault name="EpnYAsAdapterException">
<wsdlsoap:fault encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="getCampaignXMLFromSPID">
<wsdlsoap:operation soapAction=""/>
<wsdl:input name="getCampaignXMLFromSPIDRequest">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  "
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:input>
<wsdl:output name="getCampaignXMLFromSPIDResponse">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  "
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:output>
<wsdl:fault name="EpnYAsAdapterException">
<wsdlsoap:fault encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="deleteCampaign">
<wsdlsoap:operation soapAction=""/>
<wsdl:input name="deleteCampaignRequest">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  "
  name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:input>
```



```

<wsdl:output name="deleteCampaignResponse">
<wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:output>
<wsdl:fault name="EpnYAsAdapterException">
<wsdlsoap:fault encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
ing/"
name-space="urn:epnyasadapter" use="encoded"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="IEpnYAsAdapterService">
<wsdl:port binding="impl:EpnYAsAdapterSoapBinding" name="EpnYAsA
dapter">
<wsdlsoap:address
location="<Infor Campaign Management URL>/services/EpnYAsAdapter"/>
</wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

The Simplified WSDL File

The following example shows the WSDL file detailed in "The Complete WSDL File" on page 284 with a sample XML style sheet attached to it. The style sheet (XSLT) strips out the XML tags and produces output similar to a program language which can be more easily read by humans.

The style sheet and how to apply it to the WSDL file can be found at the following location on the Web:

<http://www.capescience.com/articles/simplifiedWSDL/>

Note: The following simplified WSDL file is shown for clarification only. You must implement the full, complete WSDL file as shown in "The Complete WSDL File" on page 284.

```

definitions targetNamespace urn:epnyasadapter
{
types
{
<schema targetNamespace="http://foreignsystem.api.epiphany.com">
<import namespace="http://schemas.xmlsoap.org/soap/encoding/">
<complexType name="EpnYAsAdapterException">
<sequence/>
</complexType>
</schema>
} // end types

message deleteCampaignRequest
{
part in0 type xsd:string

```

```
part in1 type xsd:string
}

message EpanyAsAdapterException
{
part fault type tns2:EpanyAsAdapterException
}

message loginRequest
{
part in0 type xsd:string
part in1 type xsd:string
}

message receiveCampaignFromSPRequest
{
part in0 type xsd:string
part in1 type xsd:string
part in2 type xsd:boolean
}

message deleteCampaignResponse
{
}

message getURLRequest
{
part in0 type xsd:string
part in1 type xsd:string
part in2 type xsd:string
}

message loginResponse
{
part loginReturn type xsd:string
}

message receiveCampaignFromSPRequest1
{
part in0 type xsd:string
part in1 type xsd:string
}

message getURLResponse
{
part getURLReturn type xsd:string
}

message receiveCampaignFromSPResponse
{
part receiveCampaignFromSPReturn type xsd:string
}
```

```

message getCampaignXMLFromSPIDResponse
{
part getCampaignXMLFromSPIDReturn type xsd:string
}

message getCampaignXMLFromSPIDRequest
{
part in0 type xsd:string
part in1 type xsd:string
}

message receiveCampaignFromSPResponse1
{
part receiveCampaignFromSPReturn type xsd:string
}

portType IEpnyAsAdapter
{
impl:getURLResponse getURL ( impl:getURLRequest ) throws impl:Epn
yAsAdapterException
impl:loginResponse login ( impl:loginRequest ) throws impl:Epn
yAsAdapterException
impl:receiveCampaignFromSPResponse receiveCampaignFromSP (
impl:receiveCampaignFromSPRequest ) throws impl:Epn
yAsAdapterException
impl:receiveCampaignFromSPResponse1 receiveCampaignFromSP (
impl:receiveCampaignFromSPRequest1 ) throws impl:Epn
yAsAdapterException
impl:getCampaignXMLFromSPIDResponse getCampaignXMLFromSPID ( impl:ge
tCampaignXMLFromSPIDRequest ) throws impl:Epn
yAsAdapterException
impl:deleteCampaignResponse deleteCampaign ( impl:deleteCampaignRequest
) throws impl:Epn
yAsAdapterException
} // end portType IEpnyAsAdapter

soap-binding Epn
yAsAdapterSoapBinding for portType impl:IEpnyAsAdapter
{
style rpc
transport http://schemas.xmlsoap.org/soap/http

operation getURL
{
soapAction
input getURLRequest
{
soap-body
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded

```

```
}
}
output getURLResponse
{
soap-body
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
fault EpnyAsAdapterException
{
soap-fault
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
} //end operation getURL

operation login
{
soapAction
input loginRequest
{
soap-body
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
output loginResponse
{
soap-body
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
fault EpnyAsAdapterException
{
soap-fault
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
} //end operation login
```

```
}
operation receiveCampaignFromSP
{
  soapAction
  input receiveCampaignFromSPRequest
  {
    soap-body
    {
      encodingStyle http://schemas.xmlsoap.org/soap/encoding/
      namespace urn:epnyasadapter
      use encoded
    }
  }
  output receiveCampaignFromSPResponse
  {
    soap-body
    {
      encodingStyle http://schemas.xmlsoap.org/soap/encoding/
      namespace urn:epnyasadapter
      use encoded
    }
  }
  fault EpnyAsAdapterException
  {
    soap-fault
    {
      encodingStyle http://schemas.xmlsoap.org/soap/encoding/
      namespace urn:epnyasadapter
      use encoded
    }
  }
} // end operation receiveCampaignFromSP

operation receiveCampaignFromSP
{
  soapAction
  input receiveCampaignFromSPRequest1
  {
    soap-body
    {
      encodingStyle http://schemas.xmlsoap.org/soap/encoding/
      namespace urn:epnyasadapter
      use encoded
    }
  }
  output receiveCampaignFromSPResponse1
  {
    soap-body
    {
      encodingStyle http://schemas.xmlsoap.org/soap/encoding/
      namespace urn:epnyasadapter
      use encoded
    }
  }
}
```

```
}
fault EpnYAsAdapterException
{
soap-fault
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
} //end operation receiveCampaignFromSP

operation getCampaignXMLFromSPID
{
soapAction
input getCampaignXMLFromSPIDRequest
{
soap-body
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
output getCampaignXMLFromSPIDResponse
{
soap-body
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
fault EpnYAsAdapterException
{
soap-fault
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
}
} //end operation getCampaignXMLFromSPID
operation deleteCampaign
{
soapAction
input deleteCampaignRequest
{
soap-body
{
encodingStyle http://schemas.xmlsoap.org/soap/encoding/
namespace urn:epnyasadapter
use encoded
}
```


Creating a Trust Store to Import WebSphere Client Side Certificate

See Appendix E for more information about Creating a Trust Store to Import WebSphere Client Side Certificate.

This chapter provides information about the web services needed for configuring Infor Campaign Management's Event-Based Scheduling.

Enabling Event Based Scheduling

The following steps outline how you can enable the Event Based Scheduling feature in Infor Campaign Management.

- 1 Open your Campaign Management Topic. This is the topic that you have defined based on the Campaign Management Template topic. The exact name of the topic will vary depending upon your implementation.
- 2 In the topic dialog box, go to the **Navigation Nodes** tab and select the **Define Campaign Events** navigation node. Click on **Edit** to display the **Navigation Node** dialog box, as shown below.

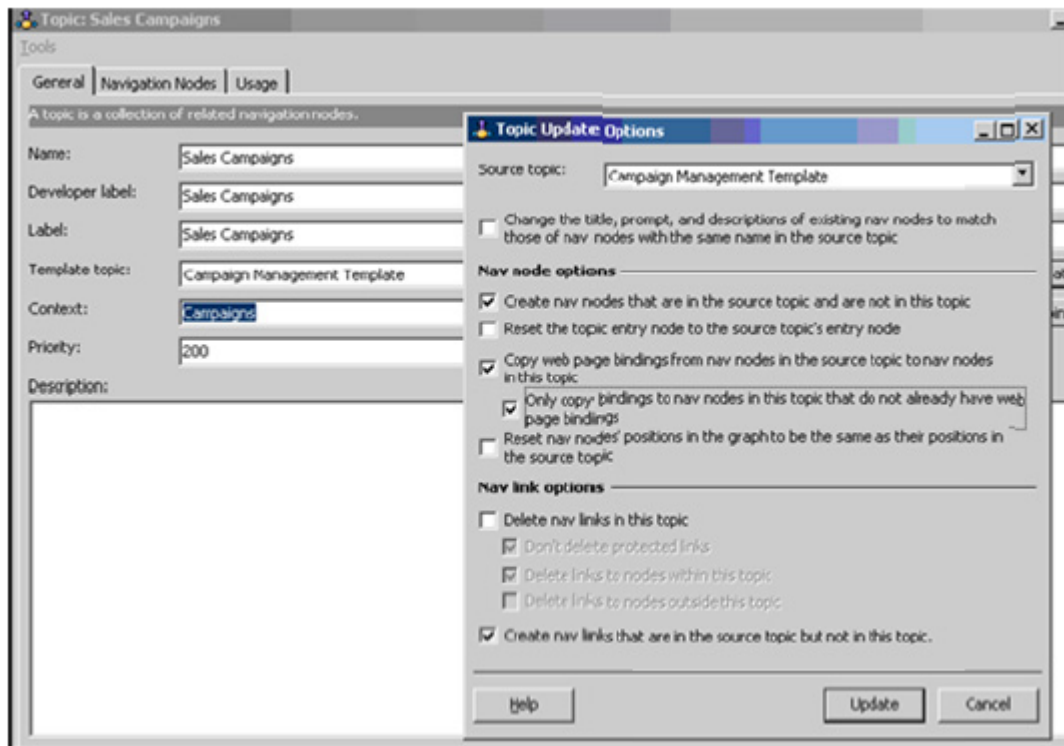
The screenshot shows a configuration window titled "Topic: Sales Campaigns: Navigation Node: Define Campaign Events". The window has several tabs: "General", "Links", "Access", "Report Types", "Reports", and "Usage". The "General" tab is active. Below the tabs, there is a text box stating "A navigation node is a single form for end user interaction." The form contains the following fields:

- Name: Define Campaign Events
- Developer label: Define Campaign Events
- Title: Define Campaign Events
- Node type: Define Campaign Events (dropdown menu)
- Web page binding:
 - Bind to a single web page:
 - SC Campaign (dropdown menu)
 - New... button
 - Bind to different web pages per dimension:

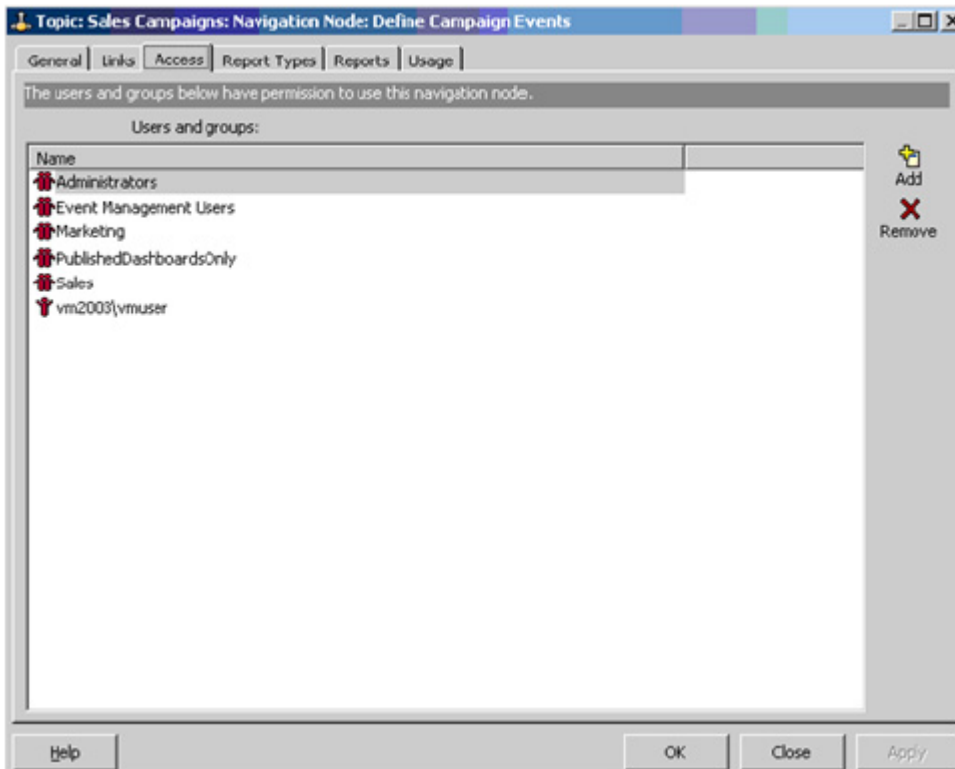
| Base Dimension ^ | Web Page |
|------------------|-------------|
| Contact | SC Campaign |
| Household | SC Campaign |
| Sales_Person | SC Campaign |

At the bottom of the window, there are buttons for "Help", "OK", "Close", and "Apply".

- 3 If your topic does not include the **Define Campaign Events** navigation node and you have upgraded from a previous version of Infor Campaign Management, you may need to update your topic based on the current version of the Campaign Management Template topic, as shown below. See "Refreshing a Topic" on page 181 for more information on updating topics.



- 4 Assign an appropriate Campaigns Web page to the **Define Campaign Events** navigation node for every dimension context for which you wish to enable Event Based Scheduling.
- 5 Check the Access tab, as shown in the following example screen capture. Ensure that users and groups who require access to Event Based Scheduling have been granted access to the **Define Campaign Events** navigation node.



Client Invocation For Web Services

Use the following steps to write client invocation code that can access web services.

Note: Technical information documents and sample .Java classes are available in the folder <Infor Marketing_INSTALL_ROOT>/ConfigFiles/EventBased.

URLs For Viewing Webservices

Use the following URLs from the application, to view the webservices present in the application when the appserver is running.

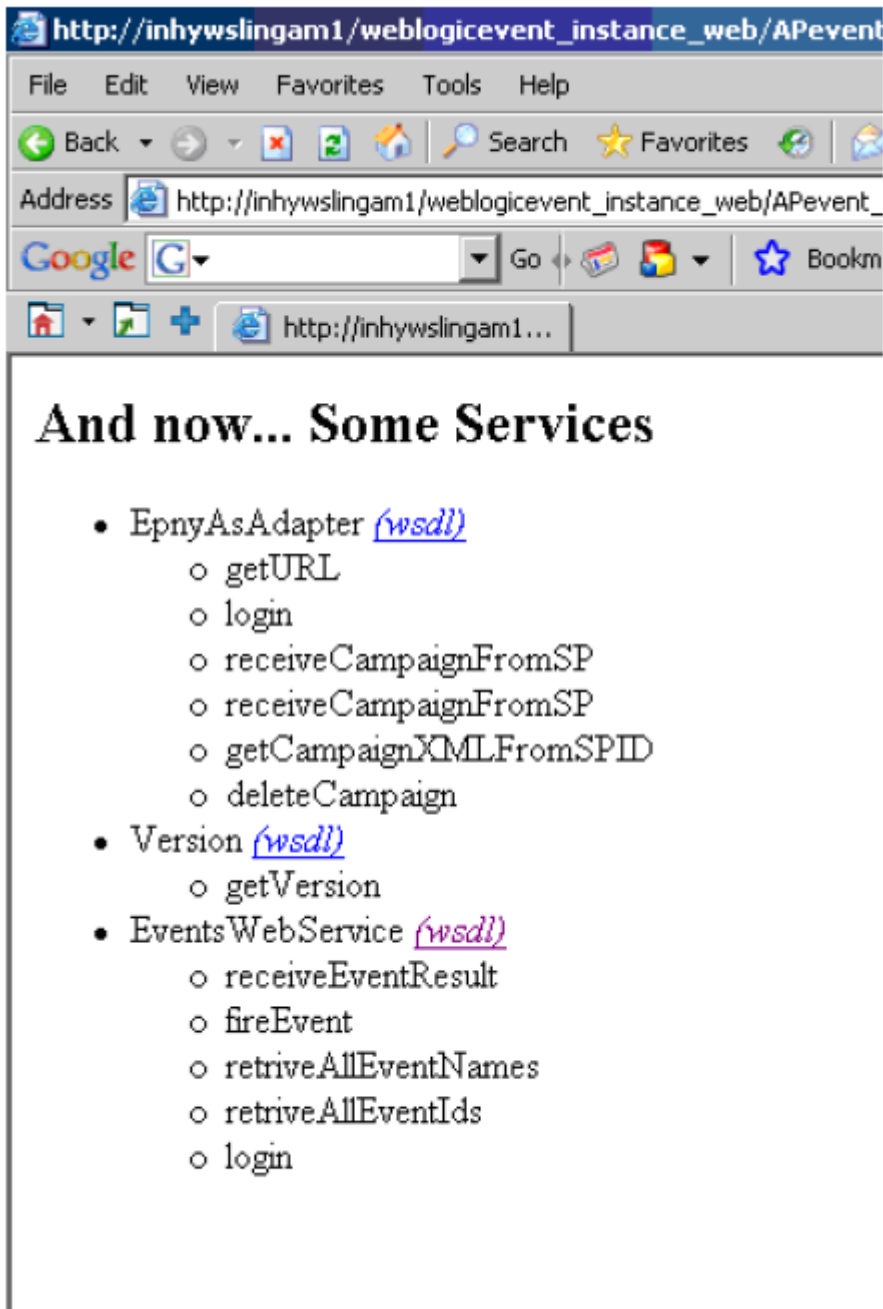
For WebLogic:

`http://<server name:port number>/weblogic<instance name>/AP<instance name>/services`

For WebSphere:

http://<server name:port number>/websphere/<instance name>/services

Example:



Adding a Webservice

- 1 Add a new webservice by registering the webservice in the server-config.wsdd file, in the following location:

```
<Installation Directory>\ConfigFiles\Instance_template\WEB-INF
```

- 2 After adding a new webservice, create a new instance to access the webservice. The webservice is a Java file in the appserver, with methods exposed to the client.
- 3 Register the file EventsWebService.java as a webservice, by doing the following:

```
<service name="EventsWebService" provider="java:RPC">  
<parameter name="allowedMethods" value="*" />  
<parameter name="className" value="com.epiphany.webservices.events.EventsWebService" />  
</service>
```

In the code above, specify an * (asterisk) in the value attribute, to expose all the methods to the client. To expose only few methods, specify the method names in the value attribute, separated by comas. For example, to expose 4 methods to the client, do the following:

```
<service name="EventsWebService" provider="java:RPC">  
<parameter name="allowedMethods" value="login, fireEvent, retriveAllEventIds, receiveEventResult" />  
<parameter name="className" value="com.epiphany.webservices.events.EventsWebService" />  
</service>
```

If you do not want to use this webservice in future, then remove this service tag from the server-config.wsdd file.

Jar Files Required To Generate Stubs And Skeletons

The following jar files are required to generate stubs and skeletons through which you can invoke the methods.

- activation.jar
- axis.jar
- axis-ant.jar
- commons-discovery.jar
- commons-logging.jar
- jaxrpc.jar
- log4j.jar
- mailapi.jar
- saaj.jar
- wsdl4j.jar

Get these jar files from the following location:

```
<Installation Directory>\Shared\lib
```

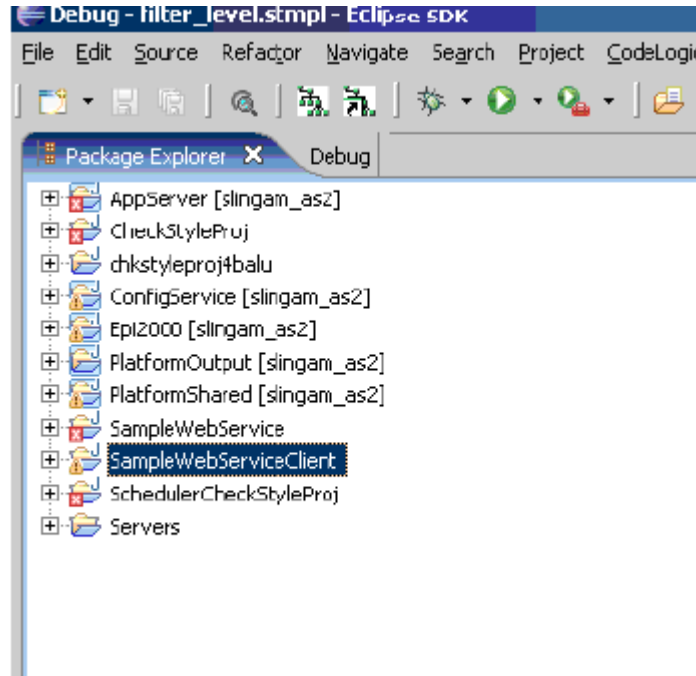
Place the jar files in an available folder. In the following example, the jar files are in C:\lib.

Example: To add jar files to the New Project

Use the procedure in this example, to import the jar files into the project.

1 Select **File > New Project**.

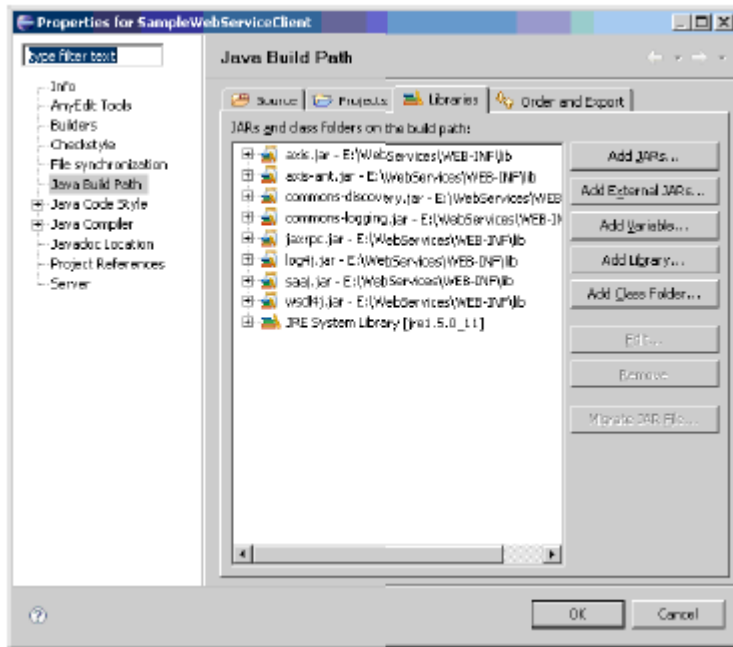
For this example, enter SampleWebServiceClient as your New Project.



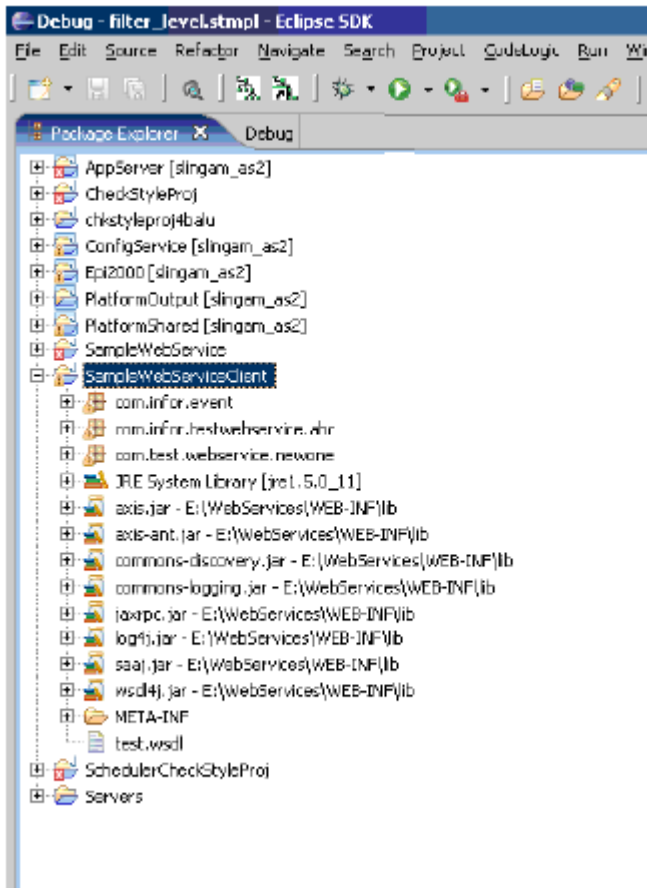
2 Right click on the project and select properties. The Properties for dialog window opens.

3 Select Java Build Path in the left hand pane, and **Libraries Tab** in the right hand pane.

4 Click **Add External JARs**. Then locate and select the jar files in the C:\lib folder. This selection should display all the jar files in the Libraries tab, as shown in the following screen capture.



- 5 Click **OK**. All the jar files are extracted to your project SampleWebServiceClient, as shown in the following screen capture.



WSDL2Java.class

From the given .wsdl xml file, the WSDL2Java.class is used to generate stubs and skeletons, on which you can invoke methods. The WSDL2Java.class is available from the axis.jar file in the following location:

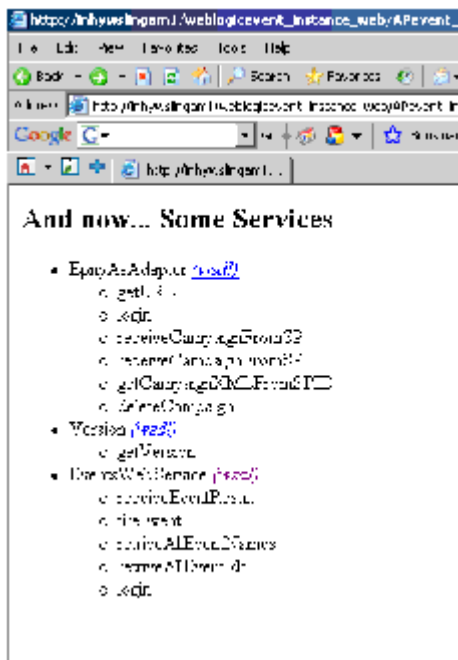
org.apache.axis.wsdl.

Store the given .wsdl file in any of your local folders and the path above. The .wsdl file path can be taken from the application url.

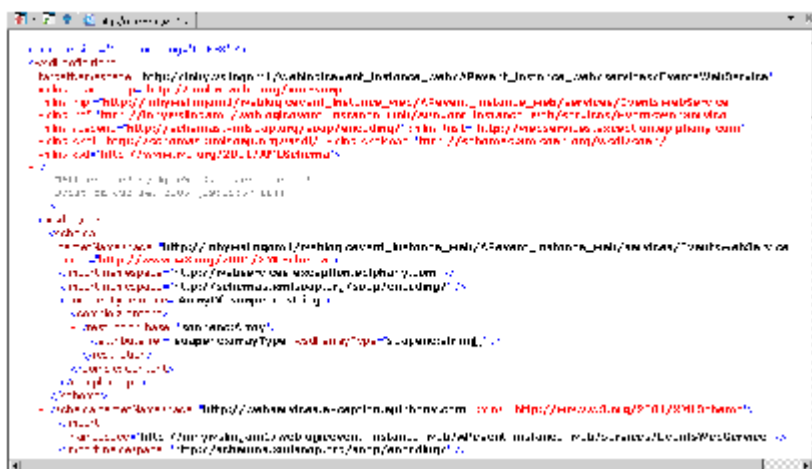
Example

In this example, assume that EventsWebService is your webservice.

- 1 Click on the wsdl link beside the service name as shown in the following screen capture.



- 2 Click on the link wsdl to open the following xml file, with the ?wsdl appended at the end of the url, as shown in the following screen capture.

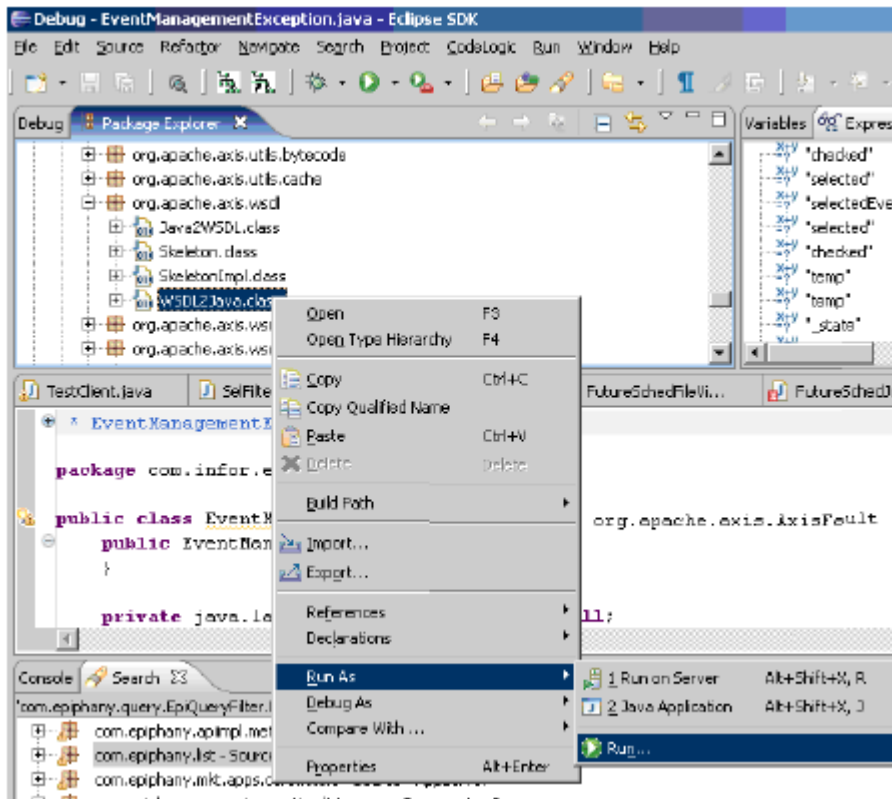


Use this URL as the wsdl file location for generating stubs and skeletons.

Generating Stubs and Skeletons For Eclipse

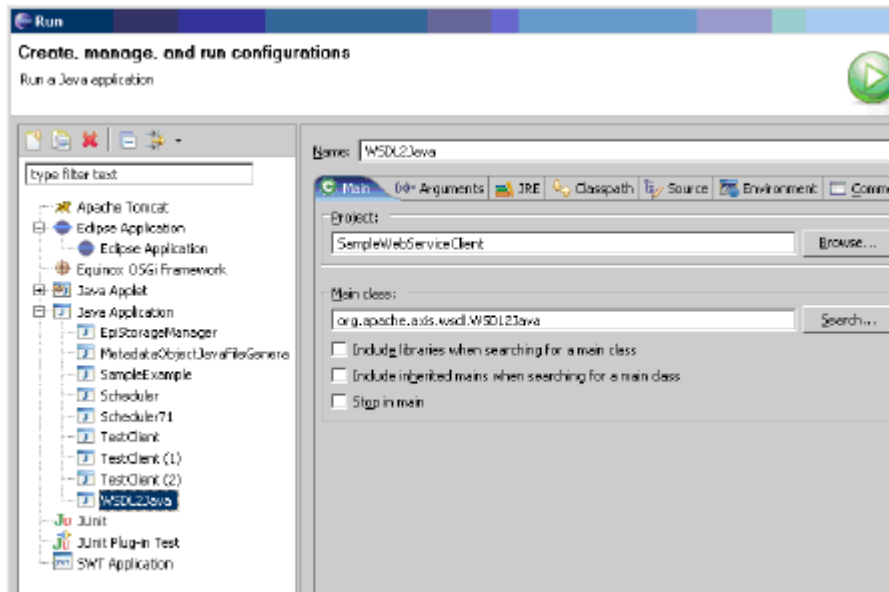
Use the following procedure to generate Eclipse stubs and skeletons.

- 1 Right click on the file WSDL2Java.class as shown in the following screen capture.

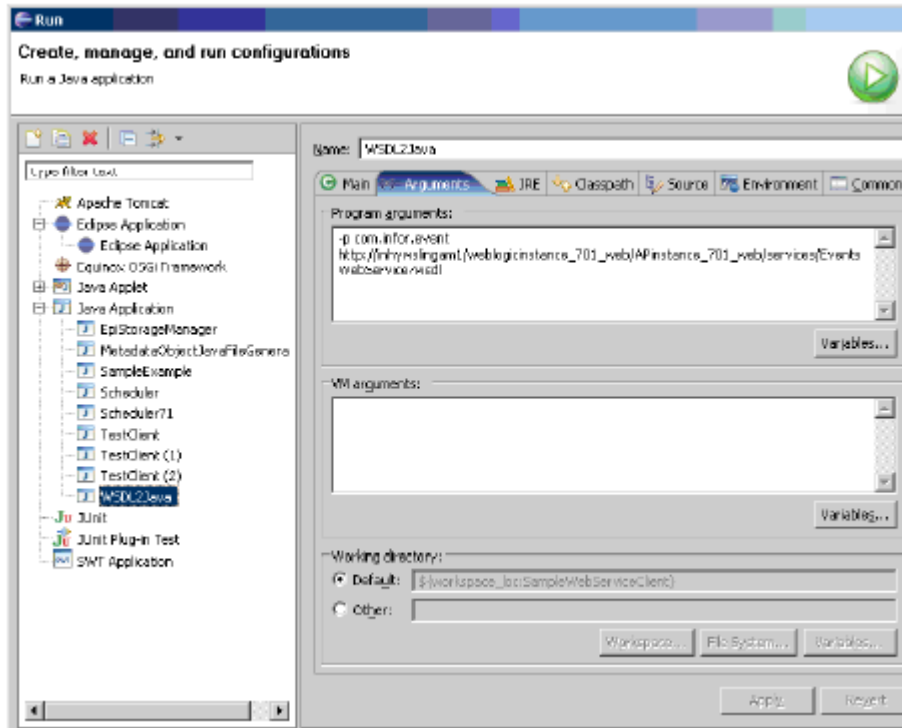


2 Create a new Java application.

- Create a new Java Application with the name `WSDL2Java`, as shown in the following screen capture.
- Select the `WSDL2Java` Java application as shown in the following screen capture:



- 3 Select the **Arguments** tab.
- 4 Specify the path of the folder where stubs and skeletons are to be generated, and the location of the wsdl file, as shown in the following screen capture.



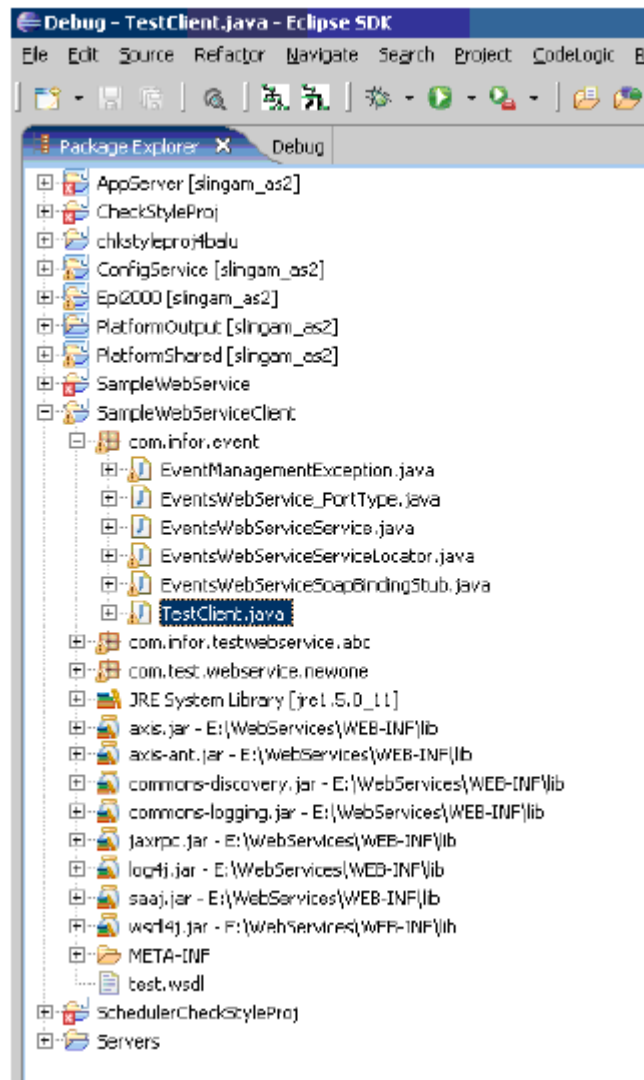
- 5 Click **Run**. If EventsWebService is your webservice, then the stubs and skeleton files will be generated. Refresh the project after running, to view the following stubs and skeletons:
 - EventManagementException.java
 - EventsWebService_PortType.java
 - EventsWebServiceService.java
 - EventsWebServiceServiceLocator.java
 - EventsWebServiceSoapBindingStub.java

Example: Invoking Methods Using Stubs

The following example for invoking methods, uses the stubs from the list above.

- 1 Create a new Java file for writing the client invocation code. Create this Java file in the package where stubs and skeletons are generated.

Example: if TestClient is the Java file that will write the invocation code, then create TestClient.java file in the package com.infor.events where stubs and skeletons are generated, as shown in the following screen capture:



- 2 Write the code to invoke the methods using the stubs. For your reference, see the sample code provided in the file `TestClient.java`, located in the folder `<Infor Campaign Management_INSTALL_ROOT>/ConfigFiles/EventBased`.

Information about how to run `TestClient.java`, is provided later in this chapter under the heading "Invoking The Webservice For Eclipse Users" on page 311.

Generating Stubs and Skeletons from Command Prompt

Use the procedure outlined in the following example, to generate the stubs and skeletons from command prompt.

Example: to generate the stubs and skeletons

In the following example, assume that:

- your jar files are in the location: `E:\WebServices\WEB-INF\lib`
- the Extract axis.jar is in the same folder as your jar files.
- WSDL2Java is located in the package `location.org.apache.axis.wsdl`.
- `events.wsdl` is the wsdl file in `E:\wsdlfile\events.wsdl`
- `com.infor.events` is the directory where the generated stubs and skeletons are located.

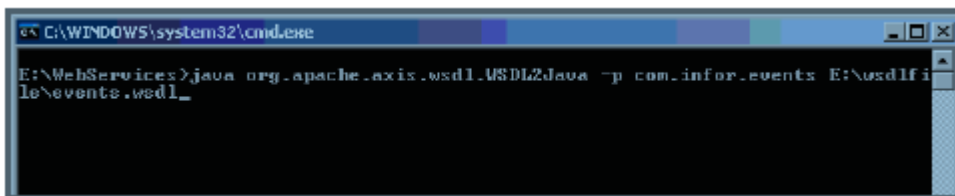
1 Use the following command to generate the required stubs:

```
java org.apache.axis.wsdl.WSDL2Java -p (Stubs-Skeletons-Location) (WSDL-file-URL)
```

2 Using the assumption stated above, enter the command as:

```
E:\WebServices java org.apache.axis.wsdl.WSDL2Java -p com.infor.events E:\wsdlfile\events.wsdl
```

as shown in the following screen capture.



The stubs and skeletons will be generated in the package `com.infor.events`. Use the procedure from the preceding example, for invoking the methods.

For your reference, see the sample code provided in the file `TestClient1.java`, located in the folder `<Infor Campaign Management_INSTALL_ROOT>/ConfigFiles/EventBased`.

For information about how to run `TestClient1.java` from the command prompt, See "Invoking Webservice Methods from Command Prompt" on page 320 .

Exceptions

- If you enter the username and password incorrectly, then the "Invalid user, Please login again" exception is thrown.
- If you are not part of "Event Management Users" group, then the "User does not belong to Event Management Group" exception is thrown.
- If you try to retrieve all event IDs and there are no events present in the event table, then the "No Events Present" exception is thrown.
- If you enter the wrong authentication token, then the "Invalid Authentication Token" exception is thrown.
- If you try to fire an event based campaign and do not pass the SSKey, then the "SSKey cannot be null in case of EventBasedCampaign" exception is thrown.
- If you try to receive the result of the executed campaign with wrong event name, then the "No Campaign Scheduled with this Event Name" is thrown.

- If you try to access any method 2 hours after logging in, then the “Login Expired, Please login again” exception is thrown.
- If you try to enter a customer sskey that is not present in the mart, then the “Invalid Customer Key” exception is thrown.

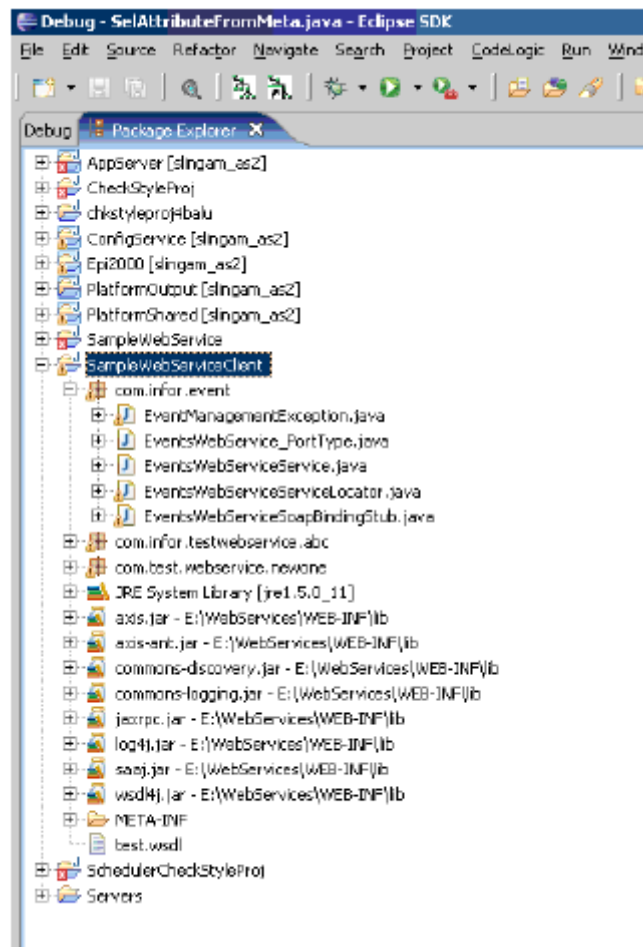
Invoking The Webservice For Eclipse Users

Use the following steps for invoking the webservice methods using TestClient.java for Eclipse Users.

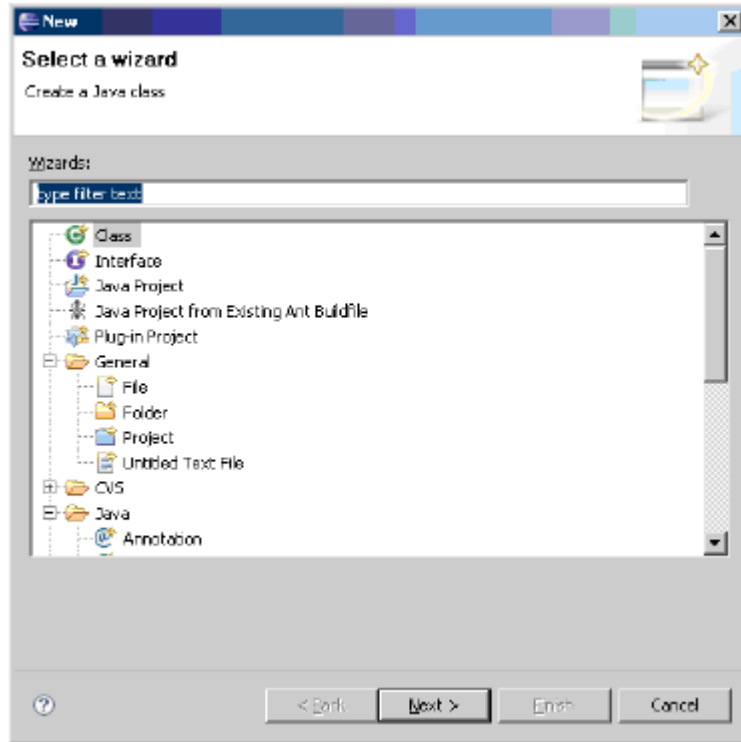
Note: The file TestClient.java is available in the folder <Infor Campaign Management_INSTALL_ROOT>/ConfigFiles/EventBased.

Once Stubs and Skeletons are generated, write a Java program to invoke the webservice methods. Create the Java program in the same package where stubs and skeletons are generated.

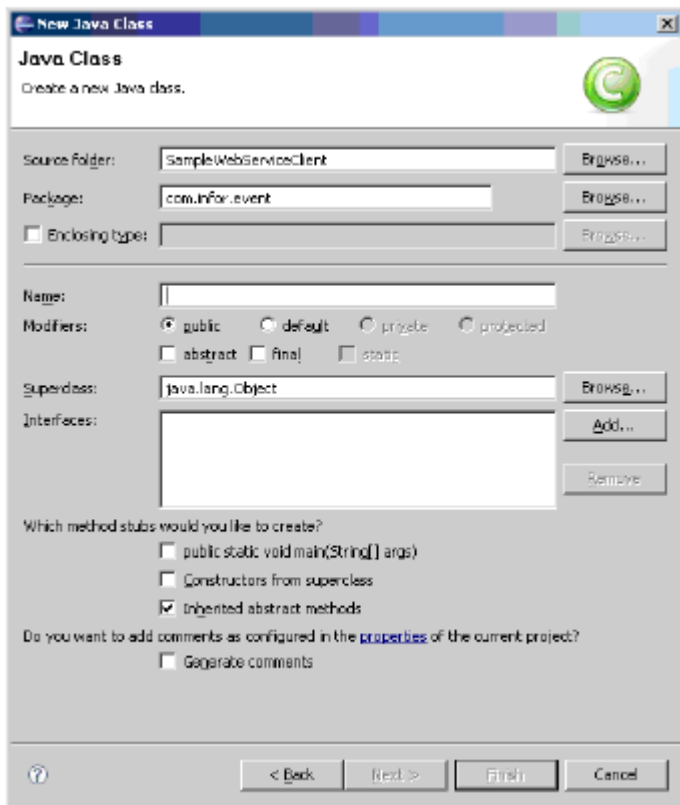
In the example file TestClient.java, stubs and skeletons are generated for you in the project SampleWebServiceClient as shown in the following screen capture.



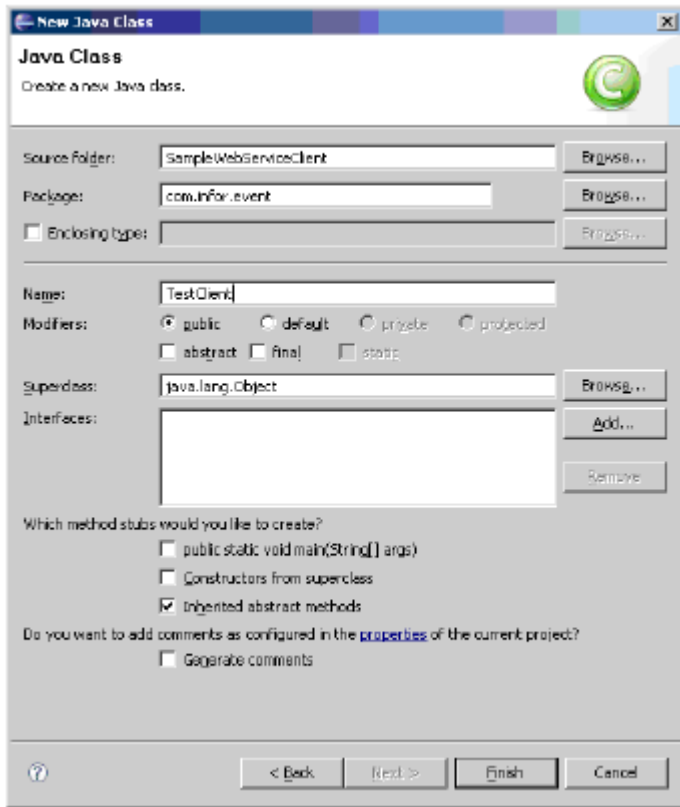
- 1 Create a new file (for example TestClient.java).
- 2 Right click on the package com.infor.event
- 3 Select **New > Other**. The New screen will be displayed as shown in the following screen capture.



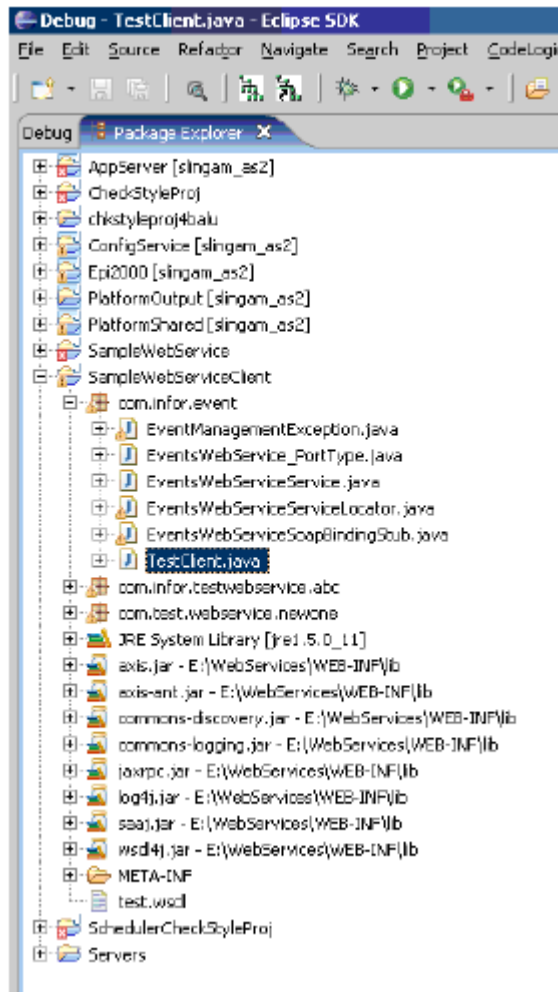
- 4 Select Class and click **Next**. The following screen is displayed.



- 5 Enter the name TestClient, then click **Finish**, as shown in the following screen capture.



A new file TestClient.java, will be created as shown in the following screen capture.



The file TestClient.java is available in the folder
 <InforCampaignManagement_INSTALL_ROOT>/ConfigFiles/EventBased.

The file TestClient.java shows you how to create stub object, and how to access the methods present in the webservice.

The file contains five methods that are present in the webservice.

Comment out all the methods except the method that you want to run. This action allows you to view the results of only that method in the console.

Method 1

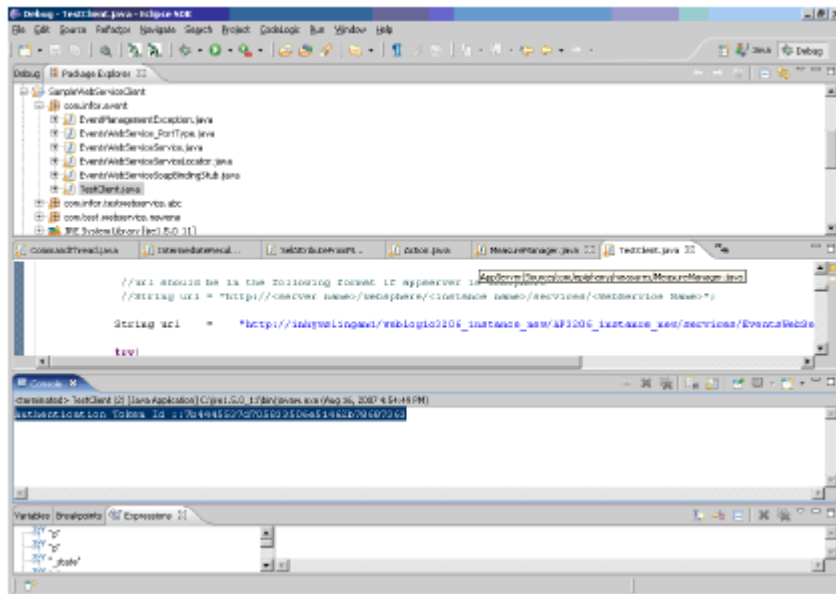
Login() Method: This method is used to authenticate the user.

The two parameters user name and pwd are passed to this method.

An authentication token will be returned when this method is successful. Otherwise, an Invalid User message will be displayed.

To run the TestClient.java:

- 1 Right click the file TestClient.java.
- 2 Select **Run As ‡ Java Application**. The result of the login method will be displayed in the console, as shown in the following screen capture.

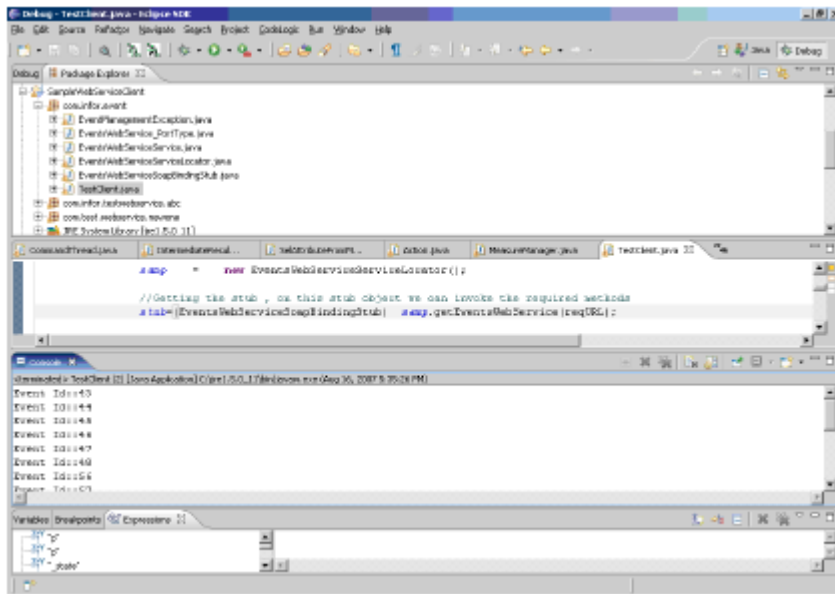


Method 2

RetrieveAllEventIds() method: This method returns all the event IDs present in the event table.

One parameter authentication token returned from the login method, is passed to this method.

All the event IDs present in the event table will be displayed. If there are no events, then a `No Events Present` message will be displayed in the console, as shown in the following screen capture.

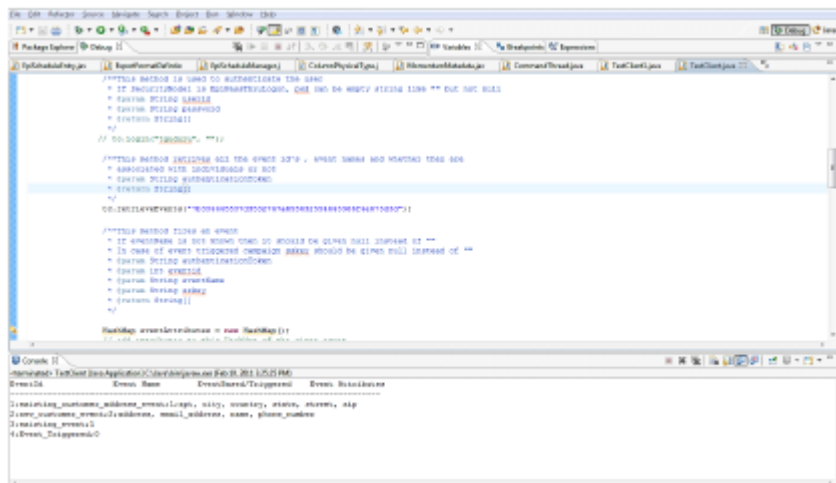


Method 3

The retrieveEvents() method: This method returns all event names and event attributes, if any, that are defined for the corresponding event in the EpiMeta database.

A single parameter with the authentication token that is returned from the login method should be passed to this method.

All event names and event attributes, if any, that are present in the EpiMeta database will be displayed. If no events are present, then a No Events Present message will be displayed in the console. The following screen capture shows the output of a call to retrieveEvents().



Method 4

FireEvent() Method: This method has two execution scenarios:

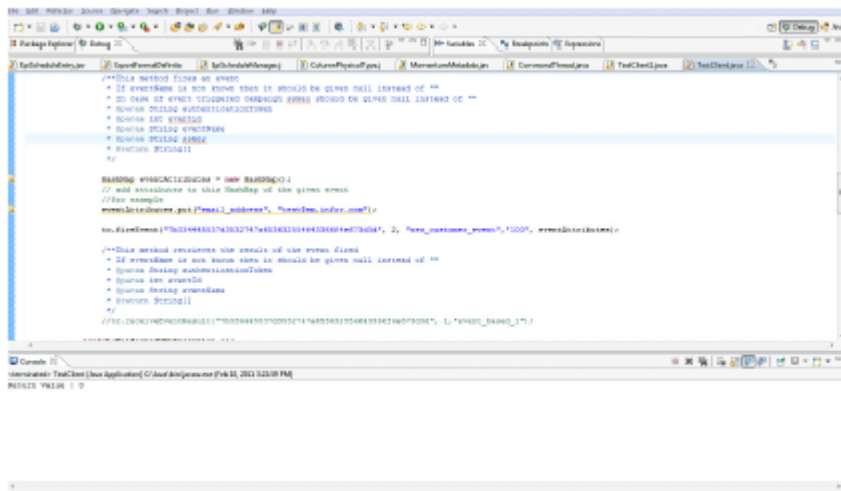
- Scenario 1: Firing an Event Based Campaign
- Scenario 2: Firing an Event Triggered Campaign

Scenario 1: Firing an Event Based Campaign

To fire an event based campaign, pass the following four parameters to the fireEvent() method: the authentication token, the event ID, the sskey, and the event attributes.

The event attributes should be passed as a Java HashMap object. Add attributes to this HashMap using the event attribute names as keys and the event attribute values as values, and then pass the HashMap to the fireEvent() method.

If all passed parameters are valid, then the staged event record will be inserted into the staged_event table and the attribute names and values will be inserted into the staged_event_attribute table. After all records have been inserted, the return code will be displayed, as shown in the following screen capture.



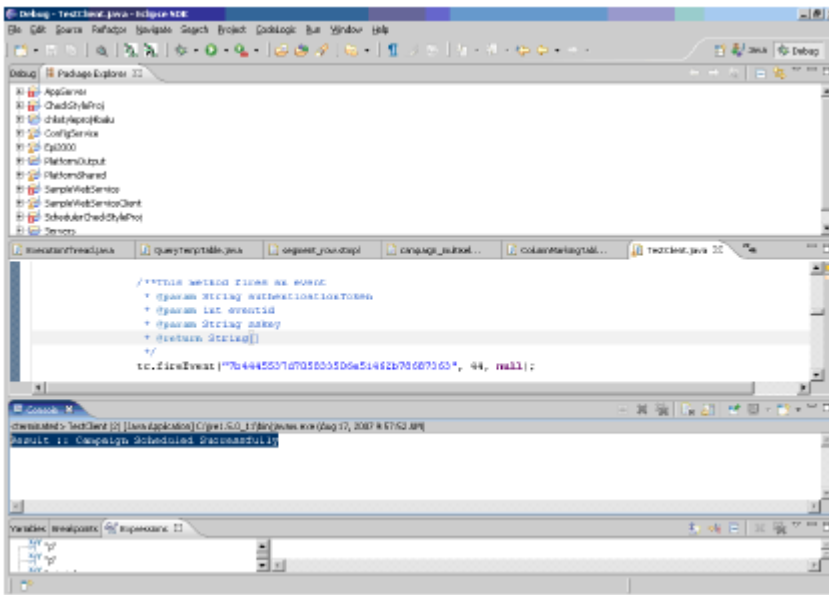
All exceptions are handled. If any of the parameters are not valid, then an appropriate error message will be displayed.

Scenario 2: Firing an Event Triggered Campaign

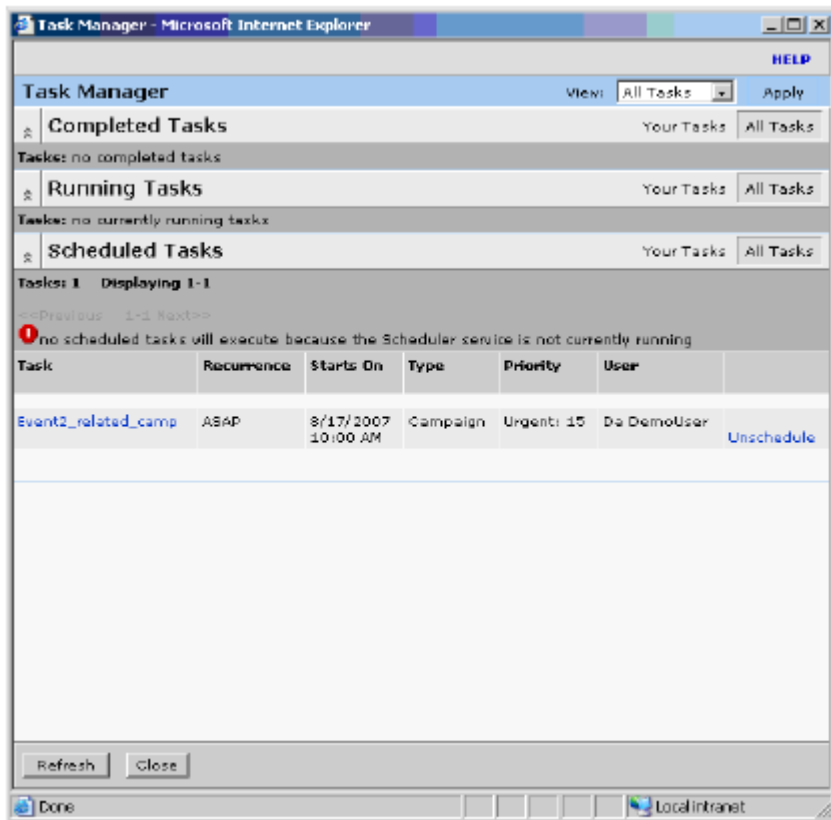
To fire an event triggered campaign, pass three parameters to this fireEvent() method. The 3 parameters are authentication token, eventid, and customer sskey.

In case of an event triggered campaign, the customer sskey can be passed as null.

If a valid authentication token and event ID are passed, then the campaign will be scheduled directly, and a message will be displayed, as shown in the following screen capture.



The scheduled campaign can be viewed in the task manager, as shown in the following screen capture.

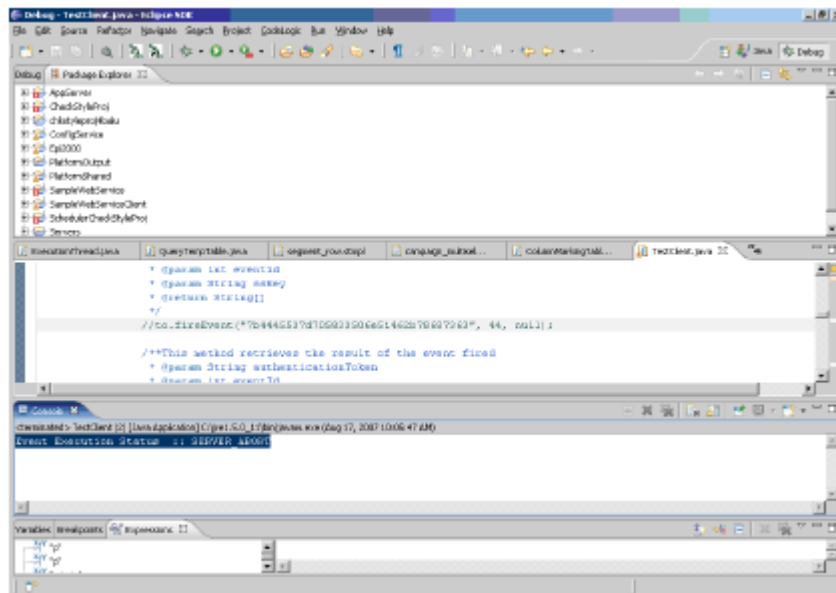


Method 5

ReceiveEventResult() Method: This method returns the status of the executed campaign.

Two parameters authentication token and event ID are passed to this method.

If valid parameters are passed, then the status of executed campaign will be displayed, as shown in the following screen capture.



Invoking Webservice Methods from Command Prompt

Use the following procedures to invoke the webservice methods using TestClient1.java, from the command prompt.

Note: The file TestClient1.java is available in the folder <Infor Campaign Management_INSTALL_ROOT>/ConfigFiles/EventBased.

The procedure for generating the stubs from the command prompt, is discussed earlier in this chapter under the topic "Generating Stubs and Skeletons For Eclipse" on page 306.

Once the stubs have been generated, write a client program to invoke the webservice methods. For example:

- Place TestClient1.java at the location E:\WebServices, or where you have generated stubs.
- Compile all the stubs and TestClient1.java, using the command:

```
E:\WebServices\ javac *.java
```

This command generates all the classes

Note: Technical information documents and sample .java classes are available in the folder <Infor Campaign Management_INSTALL_ROOT>/ConfigFiles/EventBased.

To Run Login Method

Use the following command to run the login method:

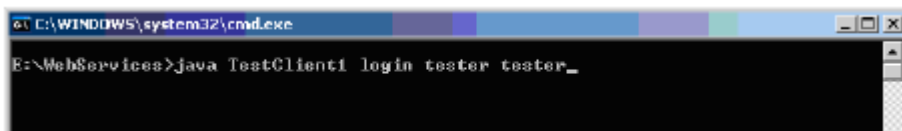
```
java <file name> <method name> <userId> <pwd>
```

where the first parameter is the method name, the second parameter is the userId, and the third parameter is the password.

For example, at the command prompt, type:

```
java TestClient1 login demo demo
```

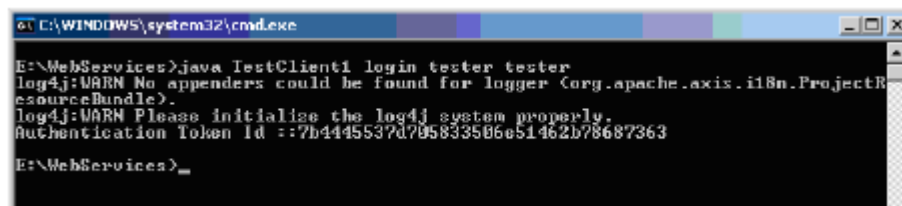
as shown in the following screen capture.



```
C:\WINDOWS\system32\cmd.exe
E:\WebServices>java TestClient1 login tester tester_
```

Press **Enter**.

The output is shown in the following screen capture.



```
C:\WINDOWS\system32\cmd.exe
E:\WebServices>java TestClient1 login tester tester
log4j:WARN No appenders could be found for logger (org.apache.axis.i18n.ProjectR
esourceBundle).
log4j:WARN Please initialize the log4j system properly.
Authentication Token Id : 7b4445537d705833506e51462b78687363
E:\WebServices>
```

To Run retrieveAllEventIds

Use the following command to run the retrieveAllEventIds method:

```
java <file name> <method name> <authentication token>
```

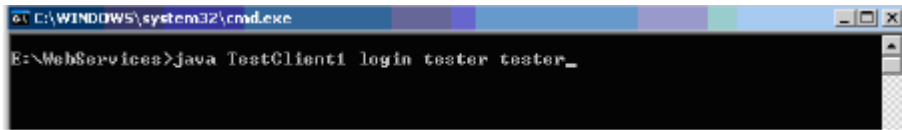
where the first parameter is the method name, and the second parameter is the authentication token.

For example, at the command prompt, type:

```
java TestClient1 retrieveAllEventIds
```

```
7b4445537d705833506e51462b78687363
```

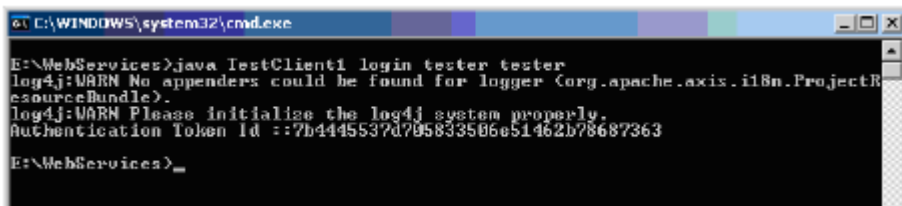
as shown in the following screen capture.



```
ct C:\WINDOWS\system32\cmd.exe
E:\WebServices>java TestClient1 login tester tester_
```

Press **Enter**

The output is shown in the following screen capture.



```
ct C:\WINDOWS\system32\cmd.exe
E:\WebServices>java TestClient1 login tester tester
log4j:WARN No appenders could be found for logger (org.apache.axis.i18n.ProjectResourceBundle).
log4j:WARN Please initialize the log4j system properly.
Authentication Token Id ::7b4445537d705833506e51462b78687363
E:\WebServices>
```

To Run retrieveEvents

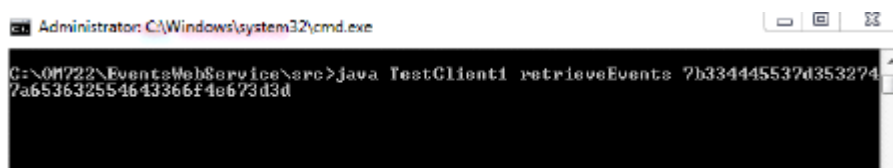
Use the following command to run the retrieveEvents method:

```
java <file name> retrieveEvents <authentication token>
```

where the final parameter is the authentication token.

For example, at the command prompt, type: `java TestClient1 retrieveEvents 7b4445537d705833506e51462b78687363`

as shown in the following screen capture.



```
ct Administrator: C:\Windows\system32\cmd.exe
C:\0M722\EventsWebService\src>java TestClient1 retrieveEvents 7b334445537d3532747a653632554643366f4e673d3d
```

Press **Enter**.

The output is shown in the following screen capture.



```
Administrator: C:\Windows\system32\cmd.exe
C:\EventUSClient>java TestClient1 retrieveEvents 7b334445537d3532747a653632554643366f4e673d3d
-----
EventId          Event Name          EventBased/Triggered  Event Attributes
-----
1;existing_customer_address_event;1;apt, city, country, state, street, zip
2;new_customer_event;2;address, email_address, name, phone_number
3;existing_event;1
4;Event_Triggered;0
C:\EventUSClient>
```

To Run fireEvent

When running the fireEvent method from a command prompt, you can specify the event by name or by ID. To specify the event by name, use the fireEventWithName command. To specify the name by ID, use the fireEventWithId command. These commands are invoked as follows:

```
Java <file name> <command name (fireEventWithEventName or fireEventWithEventId)> <authentication token> <event identifier (the event name or event ID)> <customer skey> <event attribute names and values>
```

Here the first parameter is the method name, the second parameter is the authentication token, the third parameter is the event name or event ID, the fourth parameter is the customer skey, and the fifth parameter is a list of event attribute names and values. The customer skey can be null for an Event Triggered campaign. The list of event attribute names and values consists of a semicolon-separated sequence of assignments of the following form:

```
<event attribute name>=<event attribute value>
```

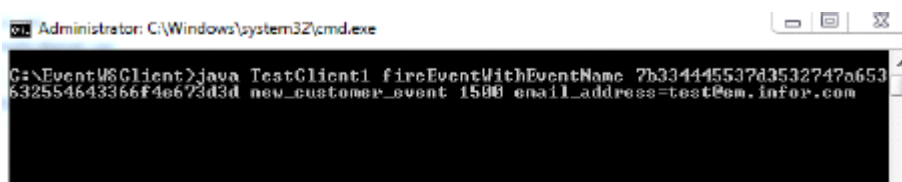
For example, a list of event attribute names and values might look like the following: name=cust1; phone=1234;email_address=test@test.com

Using fireEventWithName

Use fireEventWithName to fire an event using the event name. For example, at the command prompt, type:

```
java TestClient1 fireEventWithName
7b4445537d705833506e51462b78687363 new_cust_event 100
name=cust1;phone=1234;email_address=test@test.com
```

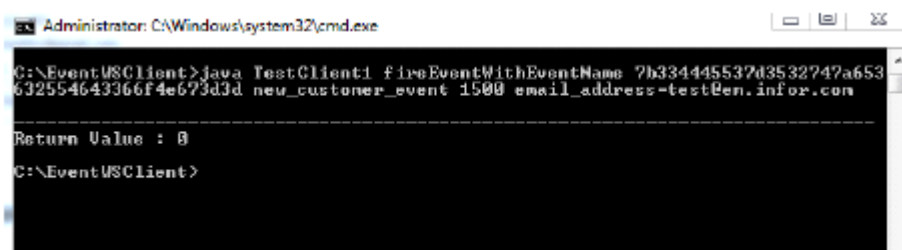
as shown in the following screen capture.



```
Administrator: C:\Windows\system32\cmd.exe
C:\EventUSClient>java TestClient1 fireEventWithName 7b334445537d3532747a653
632554643366f4e673d3d new_customer_event 1500 email_address=test@em.infor.com
```

Press **Enter**.

The output is shown in the following screen capture.



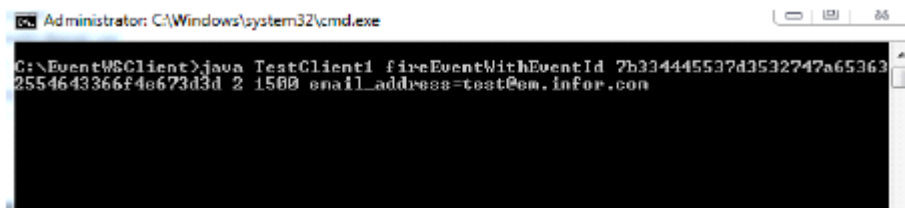
```
Administrator: C:\Windows\system32\cmd.exe
C:\EventUSClient>java TestClient1 fireEventWithName 7b334445537d3532747a653
632554643366f4e673d3d new_customer_event 1500 email_address=test@em.infor.com
-----
Return Value : 0
C:\EventUSClient>
```

Using fireEventWithEventId

Use `fireEventWithEventId` to fire an event using the event ID. For example, at the command prompt, type:

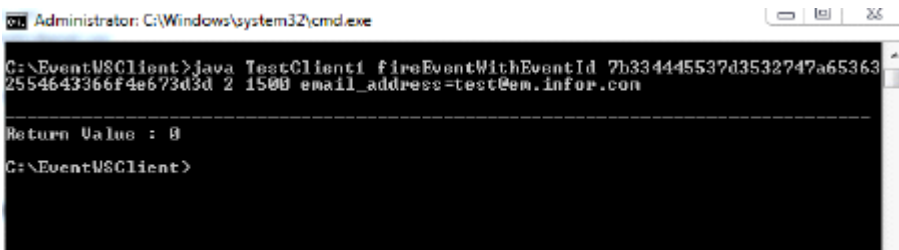
```
java TestClient1 fireEventWithEventId
7b4445537d705833506e51462b78687363 2 100
name=cust1;phone=1234;email_address=test@test.com
```

as shown in the following screen capture.



Press **Enter**.

The output is shown in the following screen capture.



To Run receiveEventResult

Use the following command to run the `receiveEventResult` method:

```
java <file name> <method name> <authentication token> <eventId>
```

where the first parameter is the method name , the second parameter is the authentication token, and the third parameter is the eventId.

For example, at the command prompt, type:

```
java TestClient1 receiveEventResult
7b4445537d705833506e51462b78687363 44 1943 43
```

as shown in the following screen capture.

```

C:\WINDOWS\system32\cmd.exe
E:\WebServices>java TestClient1 receiveEventResult 7b4445537d795833506e51462b78687363 1
1

```

Press **Enter**.

The output is shown in the following screen capture.

```

C:\WINDOWS\system32\cmd.exe
E:\WebServices>java TestClient1 receiveEventResult 7b4445537d795833506e51462b78687363 1
log4j:WARN No appenders could be found for logger (org.apache.axis.i18n.ProjectResourceBundle).
log4j:WARN Please initialize the log4j system properly.
Event Execution Status :: EXPIRED
E:\WebServices>

```

Error Codes

Table 25: Error codes for Event-Based Scheduling

| Method Name | Error Code | Error Description |
|------------------|------------|--|
| login() | 1001 | Invalid user credentials (User Name or Password) or user name or password cannot be null. |
| | 1002 | User does not belong to Event Management Group |
| retrieveEvents() | 1003 | Authentication token is expired or not valid |
| | 1004 | Events are not defined/present in Infor Omni-Channel Campaign Management application |
| fireEvent() | 0 | In case of event triggered campaign, campaign is scheduled successfully. In case of event based campaign, record is inserted successfully into staged_event tables |

Event-Based Scheduling Configuration

| Method Name | Error Code | Error Description |
|----------------------|------------|---|
| | 1001 | Invalid user credentials (User Name or Password) |
| | 1003 | Authentication Token is expired or not valid |
| | 1004 | Events are not defined/present in Infor Omni-Channel Campaign Management application |
| | 1005 | SSKey cannot be null in case of EventBasedCampaign |
| | 1006 | This event is already fired for this customer SSKey |
| | 1007 | Invalid customer SSKey |
| | 1008 | This event is not associated with any campaign |
| | 1015 | Event Triggered campaign is already scheduled. firing an event for the same campaign is not possible. |
| | 1016 | Attributes Invalid. The attributes included with the fired event are not present in the configuration of the specified event. |
| | 1017 | Firing of the event failed. |
| receiveEventResult() | | |
| | 1 | COMPLETED |
| | 2 | FAILURE |
| | 3 | KILLED |
| | 4 | EXPIRED |
| | 5 | SKIPPED |
| | 6 | SERVER_ABORT |
| | 7 | USER_ABORT |
| | 8 | ABORTING |
| | 9 | FAILURE_WILL_RETRY |
| | 1003 | Authentication token is expired or not valid |

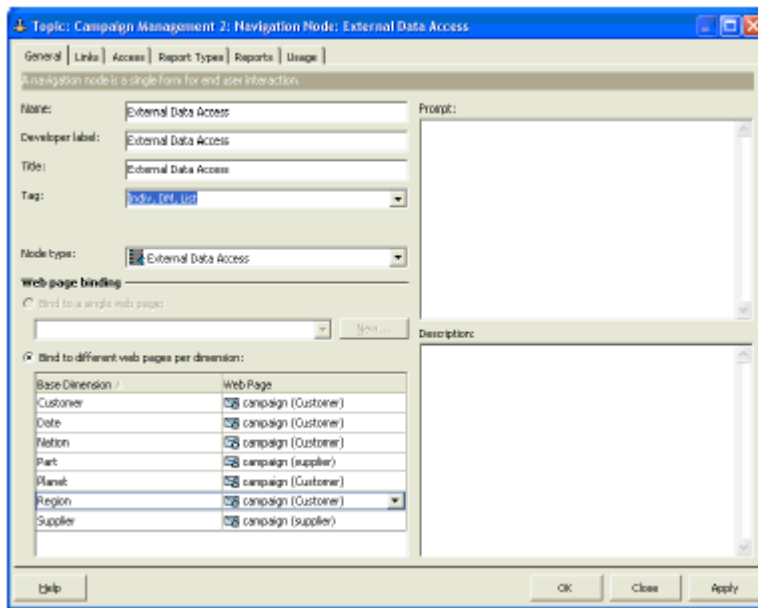
| Method Name | Error Code | Error Description |
|--------------------|-------------------|--|
| | 1009 | No campaign scheduled with this event ID/name |
| | 1010 | Campaign is not scheduled or campaign is scheduled, but not executed |
| | 1008 | This event is not associated with any campaign |
| | 1012 | Event ID not present |
| | 1013 | This event is already fired but not scheduled (Event Based Campaign) |
| | 1014 | Campaign associated with this event is scheduled, need to append the list (Event Based Campaign) |

Enabling External Data Access

16

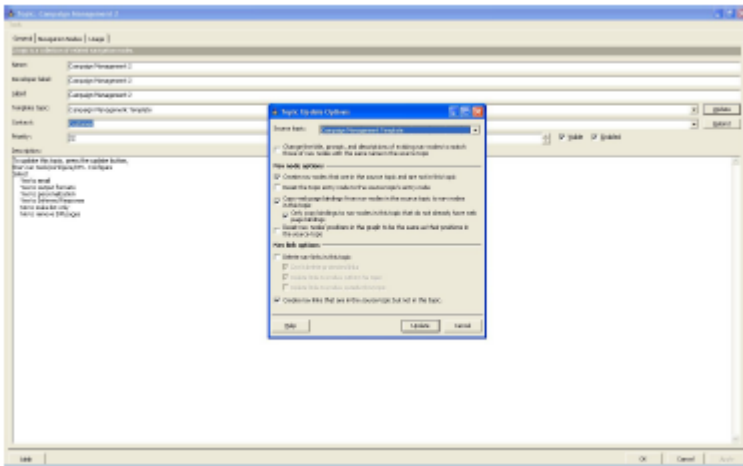
The steps outlined in this chapter show how you can enable the External Data Access feature in Infor Campaign Management. Please note that enabling External Data Access may require additional licensing. Please contact your Infor representative or Infor customer support at <http://www.inforxtreme.com> for more information.

- 1 Open your Campaign Management Topic. This is the topic that you have defined based on the Campaign Management Template topic. The exact name of the topic will vary depending upon your implementation.
- 2 In the topic dialog box, go to the **Navigation Nodes** tab and select the **External Data Access navigation node**. Click on **Edit** to display the **Navigation Node** dialog box, as shown below.

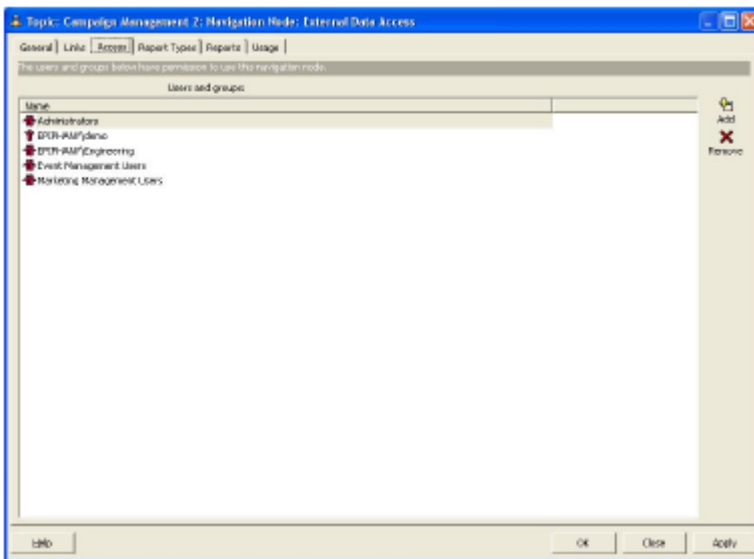


- 3 If your topic does not include the External Data Access navigation node and you have upgraded from a previous version of Infor Campaign Management, you may need to update your topic based on the current version of the Campaign Management Template topic, as shown below. See "Refreshing a Topic" on page 181, for more information on updating topics.

Enabling External Data Access



- 4 Assign an appropriate Campaigns Web page to the External Data Access navigation node for every dimension context for which you wish to enable External Data Access.
- 5 Check the **Access** tab, as shown in the following example screen capture. Ensure that users and groups who require access to using external data have been granted access to the External Data Access navigation node.



- 6 Check the **Links** tab, as shown in the example screen captures below. Ensure that the link's measure and fact term are linked to the appropriate web pages, as shown in these screens:

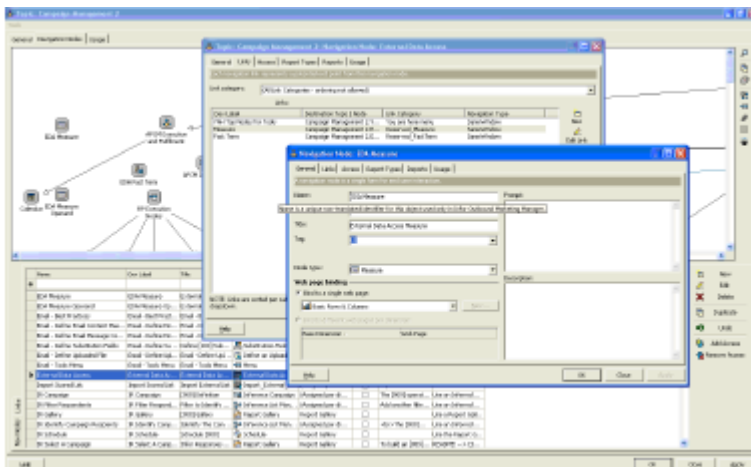


Figure 56: Measure Example:

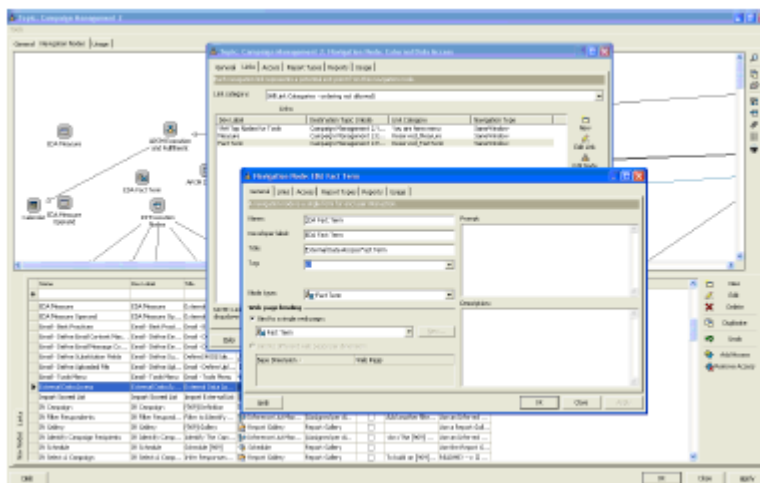
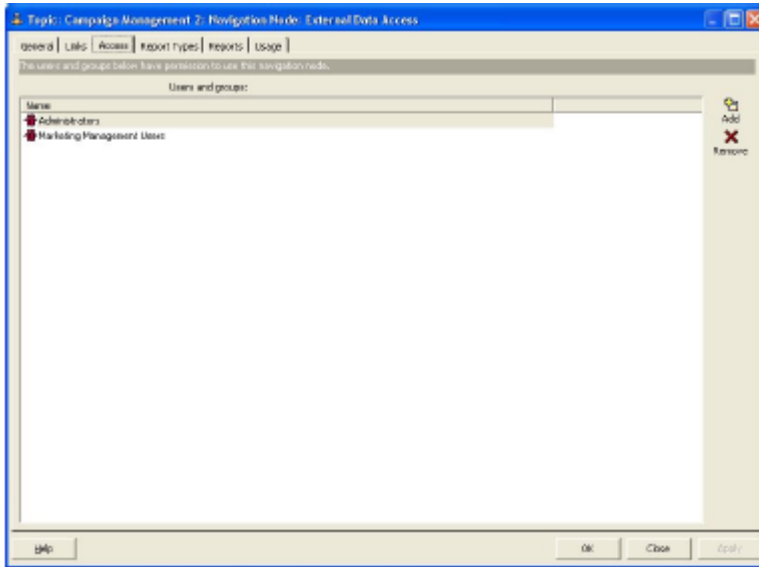


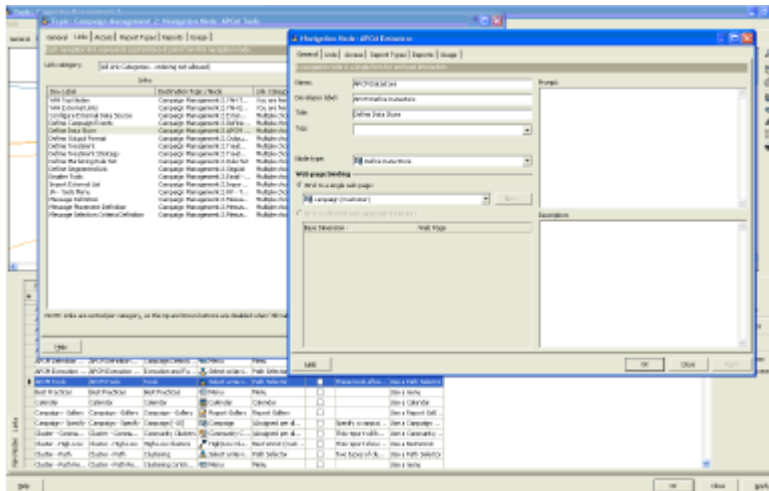
Figure 57: Fact Term Example:

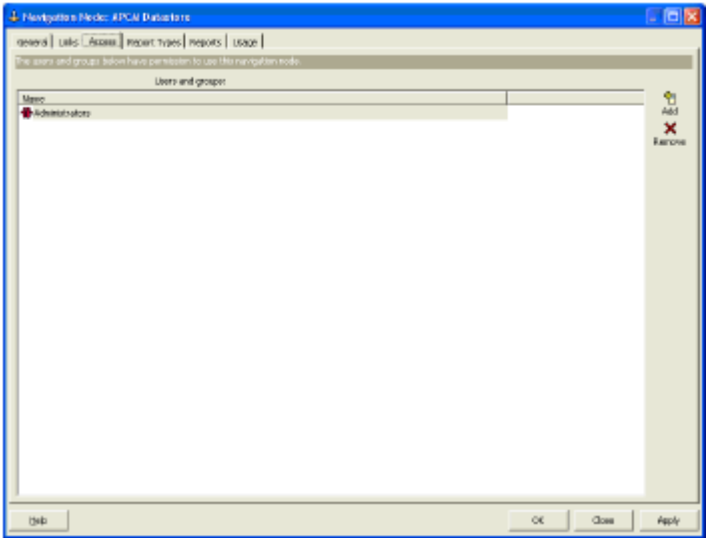
- 7 From the **Navigation** tab of the topic, select the APCM Tools and select the **Links** tab as shown in the screen capture. Select the Configure External Data Source link and click **Edit Node**. On the **General** tab, assign an appropriate Campaigns Web page to the Configure External Data source navigation node for every dimension context for which you wish to configure an External Data Source.
- 8 On the **Access** tab of Configure External Data Source Node, ensure that users and groups who require access to using external data have been granted access to the node.

Enabling External Data Access



- 9 Now Select the **Define Datastore Node** from the APCM Tools links as shown in the Screen capture. On the **General** tab of the Define Data Store Node, assign an appropriate web page. On The access tab of Define Data Store Node, ensure that the users and groups who require access to defining a data store have been granted access to the node.





Infor Campaign Management Server Error Messages



This appendix describes error conditions and the error messages returned by Infor Campaign Management Server. This appendix also provides suggestions actions that you can take to resolve problems that the included messages indicate.

Any number of problems can arise when either your Infor Campaign Management Server host or the database-server host machine runs out of disk space. Whenever you experience unfamiliar or intermittent errors, check to ensure that your host machines are configured with adequate resources. For information about hardware requirements, software requirements, capacity planning, and platform configuration, see the *Infor Campaign Management Installation Guide*.

If the corrective actions that are presented in an Infor Campaign Management Server error message or a problem discussion in this chapter do not correct the problem, please send email to Customer Support. Include a description of the problem and the steps you have taken to correct it.

Note: If Infor Campaign Management Server fails to start, you can run the Scrutiny debugging tool in Admin Manager to diagnose the problem, as described in the *Datamart Implementation Guide*.

Error Messages

This Appendix describes the following error messages:

- "User Cannot Log In" on page 336
- "Internal Windows 7 Error" on page 337
- "EpiQuery Engine Database Connection Open Failure Exception" on page 337
- "Charts Do Not Display" on page 337
- "GIF Images Fail to Display on Web Pages" on page 337
- "Result Page Error: Extraction Date Unknown" on page 338
- "Web Server Message: Object Not Found" on page 339
- "Browser Crashes When Retrieving Results" on page 339
- "Refresh Operation Fails" on page 339
- "Infor Campaign Management Error Conditions" on page 340

- "Generic Storage Exception Followed by File Table Overflow on HP-UX" on page 340

User Cannot Log In

The following types of failures are associated with an unsuccessful login to the Infor Campaign Management Server:

- 1 Infor Campaign Management Server generates a critical exception indicating an application error, or an error related to security.

In this case, an error message appears in the browser with a link to the log that contains the stack trace for the error. Read the error description. Generally, it relates to the way that security is configured or set up at this point. For example, the error might say that a Windows domain controller could not be reached.

- 2 An invalid login message displays even though there is a valid username and password.

This error can result when the search for the username/password occurs on the wrong machine. For example, suppose a user xyz existed on both the machine local to Infor Campaign Management Server and the primary Windows domain controller.

The order in which the user xyz is searched is as follows:

- the local SAM
- the primary domain
- the trusted domains

Thus, user xyz in the local SAM is found first, even though the username/password combination could have been for the user xyz that exists in the primary domain or in a trusted domain.

To solve this problem, further specify the username by including the domain name before the username, for example, `Infor\xyz`. In general, specify the full user's name if the user's browser displays an invalid login message.

- 3 Authentication was successful, but the user is not allowed to use Infor Campaign Management.

For a user to have access to an Infor Campaign Management application, he or she must be a member of at least one Infor Campaign Management group after ID-synchronization occurs.

Use Admin Manager to check group memberships after you receive this error message. If the old group memberships were removed, this error has occurred because the user is not a member of any Windows or LDAP groups that are synchronized with Infor Campaign Management Server groups.

Also, check that the username used to log in matches the username in Admin Manager. If the username in Admin Manager is prefixed with a domain name other than the one that the actual user is a member of, the login could fail and return an error message to this effect. Specifying the full username upon log in might fix this problem.

- 4 The Infor Campaign Management Server starts but fails to log in users.

In this case, users receive a message similar to "A required privilege is not held by the client." Make sure that you followed the procedures for setting up integrated security on the application host, as described in the *Infor Campaign Management Installation Guide*.

Internal Windows 7 Error

This error results when Infor Campaign Management Server cannot be started as a service. The exact error message that was returned from the Infor Campaign Management Server is logged in the Windows 7 Event Log.

To locate this error message in the Event Log:

- 1 Go to **Start > Programs > Administrative Tools (Common) > Event Viewer**.
- 2 Click the **Log** menu and select the application.
- 3 Double-click the appropriate event.

All Infor Campaign Management Server events have the source EpiAppServer.

To solve this problem, stop any running Infor Campaign Management Server services. Then log onto Windows 7 as an administrator and re-install Infor Campaign Management software. If this does not solve the problem, start Infor Campaign Management Server from the command line. The console output should describe what is wrong.

EpiQuery Engine Database Connection Open Failure Exception

An EpiQueryEngineDBConnOpenFailureException from the EpiQueryEngine means that Infor Campaign Management Server is having difficulty connecting to the data mart. Take these steps to correct this problem:

- Make sure that the username and password for the EpiMeta database are set correctly in the **registry.properties** file or Windows Registry.
- Make sure that the database name and server are also configured properly.
- Make sure that TCP/IP connectivity is properly configured.

Charts Do Not Display

If there is a broken link to an image, or no image appears, or an image with an error message appears instead of the chart, there is a charting problem. Please contact Customer Support.

GIF Images Fail to Display on Web Pages

If GIF images do not appear on your Web pages:

- 1 Make sure that your Web server has an alias for your Infor Campaign Management Server instance that points to a valid directory. If you performed a normal installation, then all Web files should be located in one of the following directories:

Unix

<Instance directory>/wwwroot

Windows

C : \Program Files\Infor\<instance>\Web\WWWROOT

GIF files should be located in the images subdirectory.

If your Web server is IIS 7.0, you can find the aliases by opening the IIS Internet Service Manager (normally this is located in your **Start\Microsoft Internet Information Server** menu) and selecting the Directory tab. Make sure that there is an entry for your Infor Campaign Management Server instance that has a valid directory.

For the IIS 8.0 Web server, open the **Windows 8 Option Pack > Microsoft Internet Server > Internet Service Manager** . Aliases are listed in the IIS Management Console.

- 2 Make sure the images directory has the GIFs in it. If you are missing a few GIFs, you need to reinstall Infor Omni-Channel Campaign Management software or copy the GIFs from a different instance.
- 3 Check the <BASE HREF> tag that is defined in the source of the page. In your browser, try to view the source for this HTML page. Look for the <BASE HREF> tag at the top of the page. Note what it is and make sure that it is a valid alias using the procedure above.
- 4 Make sure that your Web server is serving pages and that your browser is not displaying cached HTML. Clear the caches (Memory and Disk) on your browser, close your browser, and try to access the URL again. Also, try referencing another URL from your Web server to make sure that it is running.

Result Page Error: Extraction Date Unknown

The **last_extract_date** is a field that is kept in the EpiMeta database. The field is used to keep track of the date displayed on the top of all reports as the date of the last extraction. It is normally populated by the extraction SQL entered in the **E.6 End of Extraction** extraction group. It can also be populated using the Configuration dialog box in Admin Manager. This field must be entered in one of two very strict formats. The default format is `mm/dd/yyyy` ; for example: 01/14/1998.

Infor Campaign Management Server applies the following logic to parse the date:

- 1 If the field has more than 10 characters, parse the field using the pattern `YYYY-MM-DD hh:mm:ss` .
- 2 Otherwise, use the pattern `mm/dd/yyyy` .
- 3 If the parse fails, use `current date and time` .

In addition, the date that is displayed at the top of the report always has a time zone. The time is adjusted for the user's time zone, as defined in User Preferences. The date that is displayed is also taken into consideration. For example, the date 12/20/1997 displays as December 20, 1997 PST if Infor Campaign Management Server was running on a machine in California. However, the day 05/12/1998 will appear as May 12, 1998 PDT on the same machine since Daylight Savings time took affect in March.

Web Server Message: Object Not Found

If you installed the Infor Campaign Management software using the installer, and you receive an object not found error message when you attempt to log in, follow these steps:

- 1 Stop and start the Web server. If this does not solve the problem, go to the next step.
- 2 Verify the Web server is serving pages.
Try to access other URLs from the same machine name . Try to access other static HTML files that are installed as a part of the Application Server installation, such as: `http://machinename/instance/WWWRoot/help/WebPages.html`
Note: Clear your memory and disk cache before testing to ensure that your browser is not returning cached HTML pages.
- 3 If this does not work, try accessing any other file that the Web server should be serving. Consult the Internet Service Manager for the names of other aliases that the Web server should be serving, and then try to access these aliases with your browser.

Browser Crashes When Retrieving Results

In general, for machines with less than 32 megabytes of RAM, the browser will perform very poorly when parsing HTML files that are larger than 150 kilobytes. Therefore, users who do not have at least 32 megabytes of RAM installed on their machines should refrain from retrieving large queries.

For example, suppose you query Customer by Fiscal Year and apply the filter Business Unit: Learning. This query returns approximately 3800 customers, and the HTML that is generated is 1.8 megabytes. When loaded in Netscape 4.03, it occupies 37 megabytes, takes 3 minutes to parse, and consumes the entire processor. The parsing is the bottleneck in the downloading of the file.

Note: When started, Google Chrome Version 45.0.2454.85 or higher requires 8 megabytes immediately to load. Microsoft Internet Explorer (IE) requires 6.7 megabytes, and is substantially faster in parsing the text.

Refresh Operation Fails

If an Infor Campaign Management Server refresh operation fails, the application server continues to use the old metadata information. Users are still able to log in and view the old Web pages, because the refresh operation reads the new metadata into temporary structures. These structures are atomically exchanged with the old structures only if all of the refresh structures were read correctly.

To solve this problem, repeat the refresh operation.

Infor Campaign Management Error Conditions

Infor Campaign Management operations can fail to complete when the disk volume on which the EpiMart database resides becomes full. Infor Campaign Management Server, in addition to its log files, maintains a record of database queries in metadata. The table that contains these records is used by the aggregate optimizer to select candidate tables and columns for aggregates. If this table grows to the point at which it fills the disk volume, requests to alter the metadata that you make with Infor Campaign Management can fail with a variety of error messages from your database server.

For information on how to resolve this problem, See "Tracking of Queries for Aggregate Optimization" on page 219.

Generic Storage Exception Followed by File Table Overflow on HP-UX

In HP-UX, while running as a daemon, the Infor Campaign Management Server may crash after running a few reports with a generic storage exception. When it is restarted, it crashes again with a file table overflow error.

This occurs because there is a limit to the number of open files any user can have, which is set by a kernel parameter. To fix this problem, have your system administrator increase the limit on the number of open files.

Files Created By Infor Campaign Management



Logging is performed by the back-end components:

- Admin Manager
- EpiChannel
- Scrutiny

and by the front-end components:

- Infor Campaign Management Server
- Scheduler
- UpgradeMeasuresAndReports.bat

Back-end logs are created only when a specific configuration action is taken, such as initialization or schema generation or by job execution. Front-end logs are created and added to on an ongoing basis so long as a front end component is running.

The location of the log files differs by component. The way that the log directory is specified is specific to a component.

The Admin Manager must execute before any databases exist. It uses a log directory that is specific to the machine on which it is running and is not specific to any particular EpiCenter. Since a database might not be present, the log directory used by Admin Manager is specified in the Windows registry or on the command line by supplying the `-logdir` argument. (See `ConfigFiles\Docs\<Locale>\APMgr_args.txt` for a full description of the Admin Manager command line.) If no command line value is present, the log directory is the value of the registry string: `HKEY_LOCAL_MACHINE\SOFTWARE\Epiphany\EpicenterManager \7.x.y\LoggingDir`.

if it exists, or if not the value is `<Infor Campaign Management Install Root>\JobLog` .

During a session, the value of the logging directory may be seen and adjusted from the **File > Preferences** menu.

EpiChannel and Scrutiny operate only after an EpiMeta is initialized. The log directory is the value specified in the `External Interfaces\Directory\EpiChannelLoggingDir` configuration setting.

The Infor Campaign Management Server, Scheduler, and `UpgradeMeasuresAndReports.bat` operate only after an EpiMeta is initialized. The log directory is specified in the `External Interfaces\Directory\SystemLogDir` configuration setting.

The logs produced by each logging area will be described in a separate section.

Admin Manager Files

Every group of logged operations in Admin Manager creates a subdirectory in the log directory. The subdirectory name is:

<Time Stamp>_<Unique Suffix>_apmgr

where Time Stamp is YYYY-MM-DD_HH-MM-SS.

<Unique Suffix> is typically 0, but if using 0 for unique suffix results in the name of a directory already in use (as could happen if two operations are fired within the same second), then <Unique Suffix> is randomized to create a subdirectory name that is not already in use.

Thus a typical subdirectory might be 2003-01-24_08-58-37_527913_apmgr .

Logged operations are grouped by form or by EpiScript and each operation may create files within the logging subdirectory. Initializing an EpiMeta, for example, runs 2 SQL scripts, some imports and some other operations. Each of these operations results in a file in the same logging subdirectory. In general, each **Go** or **Execute** button that requires logging results in a single separate logging subdirectory each time the button is pressed.

Table 26: Files Created By Admin Manager

| File Name | Function |
|---|--|
| The following files are created by running scripts: | |
| <Script Name>.log | <p>This file is created from the running of:</p> <ul style="list-style-type: none"> • SQL Script • EpiScript <p>Note: Many Tools commands are EpiScript or SQLScripts.) Each script will produce a <Script Name>.log file. Many EpiScripts redirect the most verbose logging to Detailed.log.</p> |
| <Script Name>.sql | <p>This file is created from the running of:</p> <ul style="list-style-type: none"> • SQL Script • EpiScript <p>If the SQL contains an error and if the SQL contained macros, <Script Name>.sql is created and contains the SQL after macro expansion.</p> |
| command_line.log | <p>Commands issued from the command line are found in this log file.</p> |

| File Name | Function |
|---------------------------------------|--|
| init_EpiOp_summary.log | Initializing an EpiOp creates this file and .log files for the 3 SQL scripts it executes. |
| epiChannel_summary.log | Created by Generate Schema in the JobLog\Generate_Schema\epichnl_<Time Stamp> subfolder. |
| epiChannel_detailed.log | Created by Generate Schema in the JobLog\Generate_Schema\epichnl_<Time Stamp> subfolder. |
| Write_Instance_<Instance Key>_Log.txt | Created as a result of creating an instance. |
| New_Instance_<Instance>_Log.txt | Created as a result of creating an instance. |
| Move_Reports_Analysis.sql.log | Created by executing Move Saved Reports to Another Topic. |
| Move_Reports_Mover.sql.log | Created by executing Move Saved Reports to Another Topic. |
| Refresh_Meta_Statistics.log | Refresh EpiMeta Statistics creates this file. Refresh is often performed at the end of import. |
| Refresh_Op_Meta_Statistics.log | Refresh EpiOp Statistics creates this file. Refresh is often performed at the end of import. |
| alterobjprop.log | The results of altering object properties is saved in this file. |
| upgrade_E5_To_E6.log | Created by the upgrade wizard. |
| upgimp_<Time Stamp>.log | Created by the upgrade wizard. |

Many tool commands show their results in a pop-up window. For example, **Analyze Links** runs some SQL and shows the results in a pop-up. It can be useful to know that the pop-up is just the default editor run against a log file and that the log file remains and can be reexamined later. The full name of a typical log file is: C:\Program Files\Infor\Infor Campaign Management 7.2\JobLog\2002-12-07_19-20- 28_101176_apmgr\Analyze_Links.sql.log

If any errors are detected in the SQL, or if the log from a SQL file does not contain certain strings that make Admin Manager think that the database vendor's SQL interpreter is correctly started, the logging directory retains a .sql file of the SQL that was executed and displays it in a pop-up. Like the reports, if this pop-up is closed, the log file on disk remains.

There is no cleanup of the log files performed by Admin Manager, by EpiChannel or by any scheduled service. The log directories should be examined from time to time and purged of logs that are no longer relevant.

Most logging from Admin Manager is from EpiScripts, most of which are fired from other commands. Initialization is one of the more interesting, regularly used examples of logging and each initialization option (**New Meta**, **Reinit Meta**, **New Meta with Infor Email Marketing Enabled**) is actually an EpiScript

Files Created By Infor Campaign Management

in the `ConfigFiles\Configurations\init` directory. The file `new.epi` is the file that corresponds to **New Meta** and is a simple top-level EpiScript that contains the following:

```
redirect_verbose "$LOGDIR\Detailed.log"
DEFAULT
NAME <TRANS>New Epimeta</TRANS>
DESC <TRANS>Create a default EpiMeta with standard Infor Campaign
Management
    built-in objects suitable for use in new development.</TRANS>

-- <TRANS>Run the basic initialization</TRANS>
include Configurations\utilities\BasicInit.epi

-- <TRANS>Refresh database statistics for EpiMeta metadata objects</
TRANS>
refresh_epimeta_stats

print <TRANS>Initialization completed without errors</TRANS>
```

(The `<TRANS>` directives allow the EpiScript to issue prompts and headers in other locales.)

A typical log from this EpiScript is found in a file such as: `JobLog\2003-01-24_08-58-37_527913_apmgr\new.epi`

and has contents such as the following:

```
Details are logged to C:\Program Files\Infor\Infor Campaign Management
7.2\Job-
Log\2003-01-24_08-58-37_527913_apmgr\Detailed.log
Connected to : Datastore 'Epimeta' (DBType=SQLServer Host=raptor
DB=ADG605_epimeta User=sa)
8:58:38 AM: redirect_verbose C:\Program Files\Infor\Infor Campaign
Management
7.2\JobLog\2003-01-24_08-58-37_527913_apmgr\Detailed.log
```

```
8:58:38 AM: execute_script EpiMeta\SQLServer\TestInit.sql
8:58:38 AM: execute_script EpiMeta\SQLServer\Init_DDL.sql
9:04:51 AM: execute_script EpiMeta\SQLServer\Init_rows.sql
9:05:36 AM: install_locale en
9:05:36 AM: import_metadata Metadata\en\xBuiltin_Macros.mdb
NO_DUP_CHECKING
9:05:42 AM: import_metadata Metadata\en\xBuiltin_MiscLabels.mdb
NO_DUP_CHECKING
9:05:49 AM: import_metadata Metadata\en\xBuiltin_Roots.mdb
NO_DUP_CHECKING
9:05:51 AM: import_metadata Metadata\en\xBuiltin_AnalyticServer.mdb
NO_DUP_CHECKING
9:07:17 AM: import_metadata Metadata\en\xBuiltin_Configuration.mdb
NO_DUP_CHECKING
9:07:22 AM: import_metadata Metadata\en\xBuiltin_Star.mdb
```



```
NO_DUP_CHECKING
9:07:47 AM: import_metadata Metadata\en\xBuiltin_Presentation.mdb
NO_DUP_CHECKING
9:08:20 AM: import_metadata Metadata\en\xBuiltin_Semantics.mdb
NO_DUP_CHECKING
9:08:35 AM: import_metadata Metadata\en\xBuiltin_Extraction.mdb
NO_DUP_CHECKING
9:08:59 AM: import_metadata Metadata\en\xBuiltin_Storage.mdb
NO_DUP_CHECKING
9:09:01 AM: Completing initialization.
9:09:04 AM: set_translation_role Frontend en
Choose our locales for logging
9:09:04 AM: set_locale en
9:09:04 AM: install_locale en
9:09:04 AM: set_translation_role Logging en
9:09:04 AM: execute_sql_with_extensions UpdateScripts\Main-
Screen\Upgrade\Utility\xBuiltin_Scrutiny_unload.sql
9:09:05 AM: import_metadata Metadata\en\xBuiltin_Scrutiny.mdb
NO_DUP_CHECKING
9:10:14 AM: execute_sql_with_extensions UpdateScripts\Main-
Screen\Upgrade\Utility\xBuiltin_AnalyticServerStrings_unload.sql
DELETEDLOCALE=en

9:10:14 AM: import_metadata Meta-
data\en\xBuiltin_AnalyticServerStrings.mdb NO_DUP_CHECKING
9:12:05 AM: refresh_epimeta_stats
9:12:05 AM: Database statistics for EpiMeta metadata objects success-
fully refreshed. (1 seconds)
Initialization completed without errors
```

Note the first line:

```
Details are logged to ... 2003-01-24_08-58-37_527913_apmgr\Detailed.
log
```

This indicates that a longer log is available if needed. Most EpiScript commands have a terse and a verbose form of output and logging is able to capture both. The detailed log always has each line from the terse log, but may include additional information.

The directory to which the log is redirected also acts as a backup timestamp of the log. We can tell that the above example was written on January 24, 2003.

The second line is also often relevant:

```
Connected to : Datastore 'Epimeta' (DBType=SQLServer Host=raptor
DB=ADG605_epimeta User=sa)
```

Files Created By Infor Campaign Management

when something goes wrong it is often because the wrong database was being used, perhaps because the user lost track of which EpiCenter was the current focus of their Admin Manager session.

The bulk of the log shows core operations and a timestamp. Nothing odd happened in this log.

These details are generally interesting only when something goes wrong.

The detailed log corresponding to the above contained the following:

```
Admin manager 7.2 Build 7.2.0.1070 episcript executing as of
  3/06/2006 8:58:38 AM
Command Line:
Log file is : C:\Program Files\Infor\Infor Campaign Management 7.2\Job
Log\2006-
  03-0608-58-37_527913_apmgr\Detailed.log
ConfigDir is: C:\Program Files\Infor\Infor Campaign Management 7.2\
ConfigFiles\
Locale is : en
Terse log is: C:\Program Files\Infor\Infor Campaign Management 7.2\Job
Log\2006-
  03-06_08-58-37_527913_apmgr\new.epi
EpiScript is: C:\Program Files\Infor\Infor Campaign Management 7.2\
CONFIG~1\Con-
  figurations\init\\new.epi

Connected to : Datastore 'Epimeta' (DBType=SQLServer Host=raptor
  DB=ADG605_epimeta User=sa)
redirect_verbose "C:\Program Files\Infor\Infor Campaign Management 7.
2\Job-
  Log\2006-01-06_08-58-37_527913_apmgr\Detailed.log"
```

```
DEFAULT
NAME New Epimeta
DESC Create a default EpiMeta with standard built-in objects suitable
  for use in new development.

-- Run the basic initialization
include Configurations\utilities\BasicInit.epi
-- This script performs the basic initialization.
-- This is used by both new.epi and reinit.epi

-- Test that the db is not already initialized
execute_script EpiMeta\SQLServer\TestInit.sql
8:58:38 AM:          SQL script executed with no errors
-- Run the inits
execute_script EpiMeta\SQLServer\Init_DDL.sql
9:04:51 AM:          SQL script executed with no errors
execute_script EpiMeta\SQLServer\Init_rows.sql
9:05:36 AM:          SQL script executed with no errors

-- Load the initial mdba
include Configurations\utilities\Builtin_mdba.epi
```

```
-- Mark as installed the locale of the strings we plan to import
install_locale en

-- Import those mdbs used in a typical initialization
import_metadata Metadata\en\xBuiltin_Macros.mdb NO_DUP_CHECKING
9:05:42 AM: : Successfully imported 805 out of 805 row(s)
    from: Metadata\en\xBuiltin_Macros.mdb
import_metadata Metadata\en\xBuiltin_MiscLabels.mdb NO_DUP_CHECKING
9:05:49 AM: : Successfully imported 487 out of 487 row(s)
    from: Metadata\en\xBuiltin_MiscLabels.mdb
import_metadata Metadata\en\xBuiltin_Roots.mdb NO_DUP_CHECKING
9:05:51 AM: : Successfully imported 97 out of 97 row(s)
    from: Metadata\en\xBuiltin_Roots.mdb

import_metadata Metadata\en\xBuiltin_AnalyticServer.mdb NO_DUP_CHECKING
9:07:17 AM: : Successfully imported 5387 out of 5387
    row(s) from: Metadata\en\xBuiltin_AnalyticServer.mdb

Re-generating merge maps via executing generate_merges sql file C:\Pro-
gram Files\Infor\Infor Campaign Management 7.2\CON-
FIG~1\EpiMeta\SQLServer\generate_merges.sql

Merge maps generated successfully.

import_metadata Metadata\en\xBuiltin_Configuration.mdb NO_DUP_CHECKING
9:07:22 AM: : Successfully imported 443 out of 443 row
(s)
    from: Metadata\en\xBuiltin_Configuration.mdb

import_metadata Metadata\en\xBuiltin_Star.mdb NO_DUP_CHECKING
9:07:47 AM: : Successfully imported 1298 out of 1298
    row(s) from: Metadata\en\xBuiltin_Star.mdb
import_metadata Metadata\en\xBuiltin_Presentation.mdb NO_DUP_CHECKING
9:08:20 AM: : Successfully imported 2770 out of 2770
    row(s) from: Metadata\en\xBuiltin_Presentation.mdb

import_metadata Metadata\en\xBuiltin_Semantics.mdb NO_DUP_CHECKING
9:08:35 AM: : Successfully imported 2121 out of 2121
    row(s) from: Metadata\en\xBuiltin_Semantics.mdb
import_metadata Metadata\en\xBuiltin_Extraction.mdb NO_DUP_CHECKING
9:08:59 AM: : Successfully imported 1039 out of 1039
    row(s) from: Metadata\en\xBuiltin_Extraction.mdb
import_metadata Metadata\en\xBuiltin_Storage.mdb NO_DUP_CHECKING
9:09:01 AM: : Successfully imported 61 out of 61 row
(s)
    from: Metadata\en\xBuiltin_Storage.mdb

-- Set the product information such as install date and version
finish_initialization ALL
```

Files Created By Infor Campaign Management

```
9:09:01 AM: Completing initialization.
9:09:01 AM: Setting the DB types of the Epimeta, Epimart, and EpiOp
stores.
9:09:03 AM: Stamping the metadata with the build number.
9:09:03 AM: Recording physical properties of the meta
9:09:04 AM: Adjusting the locale settings of all users

-- Choose our locales for the front end and for logging
set_translation_role Frontend en

-- The next line may be slow and can be done after the rest
include Metadata\en\Locale_Logging.epi
Choose our locales for logging
set locale en

-- This locale does have translated logging
include Configurations\utilities\Logging_mdbs.epi LOGLOCALE=en
-- Install the metadata used for logging
STRINGARG LOGLOCALE Which logging locale shall be installed.

-- The locale is probably already installed, but doing it twice does
not
hurt.
install_locale en
9:09:04 AM: Warning: Locale en was already installed.
set_translation_role Logging en

execute_sql_with_extensions UpdateScripts\MainScreen\Upgrade\Util-
ity\xBuiltin_Scrutiny_unload.sql
9:09:05 AM: SQL script executed with no errors
import_metadata Metadata\en\xBuiltin_Scrutiny.mdb NO_DUP_CHECKING
9:10:14 AM: : Successfully imported 8371 out of 8371
row(s) from: Metadata\en\xBuiltin_Scrutiny.mdb

execute_sql_with_extensions UpdateScripts\MainScreen\Upgrade\Util-
ity\xBuiltin_AnalyticServerStrings_unload.sql DELETEDLOCALE=en

9:10:14 AM: SQL script executed with no errors
import_metadata Metadata\en\xBuiltin_AnalyticServerStrings.mdb
NO_DUP_CHECKING
9:12:05 AM: : Successfully imported 19110 out of 19110
row(s) from: Metadata\en\xBuiltin_AnalyticServerStrings.mdb

-- Refresh database statistics for EpiMeta metadata objects
refresh_epimeta_stats
9:12:05 AM: Database statistics for EpiMeta metadata objects success-
fully refreshed. (1 seconds)

Initialization completed without errors

Here is a sample from a log that contains an error:
```

```
Details are logged to C:\Program Files\Infor\Infor Campaign Management
7.2\Job-
Log\2003-02-03_18-43-22_389471_apmgr\Detailed.log
```

```
Connected to : Datastore 'Epimeta' (DBType=SQLServer Host=raptor
DB=e6init_test_epimeta User=sa)
6:43:22 PM: redirect_verbose C:\Program Files\Infor\Infor Campaign
Management
7.2\JobLog\2006-03-03_18-43-22_389471_apmgr\Detailed.log
```

This EpiScript is broken and is about to try to include a file that is missing .

This problem is there only to demonstrate errors in logs:

```
6:43:22 PM:
=====
=== EpiScript Error
=====
EpiScript File=C:\Program Files\Infor\Infor Campaign Management 7.2\
CONFIG~1\Con-
figurations\init\bad.epi
EpiScript Line #9
EpiScript Line=include Configurations\utilities\BsicInit.epi
Log =C:\Program Files\Infor\Infor Campaign Management 7.2\JobLog\2006-
03-06_18-
43-22_389471_apmgr\bad.epi

include: The named include was not found. Did you use quotes around
the
file name?
File= Configurations\utilities\BsicInit.epi
Current Dir= C:\Program Files\Infor\Infor Campaign Management 7.2\Config
Files

Error -- Abnormal end of script execution
Exit Code: 1
```

The error supplies the EpiScript file name, the line number, and the actual line being executed.

EpiChannel Files

In the following descriptions, Time Stamp is of the form YYYY-MM-DD__HH-MM-SS-mmm, where mmm is milliseconds. Thus the file <Time Stamp>_SRV.txt might look like 2003-01-28_10-12-40-203_SRV.txt.

Table 27: Files Created By EpiChannel

| File Name | Function |
|--|--|
| EpiChannel creates the following in the <Infor Campaign Management Instance>\Infor Campaign Management\logs\<Job Name> directory: | |
| epiChannel_summary.log | The summary log from the most recent execution of this job |
| \Latest | A link to the log directory of the most recent execution of this job |
| EpiChannel creates the following in the <Infor Campaign Management Instance>\Infor Campaign Management\logs\<Job Name>\epichnl_<Time Stamp> directory: | |
| epiChannel_summary.log | Summary log for this execution of the job |
| epiChannel_detailed.log | Detailed log for this execution of the job |
| EpiChannel creates the following in the <Infor Campaign Management Instance>\Infor Campaign Management\logs\<Job Name>\epichnl_<Time Stamp>\sql directory: | |
| <Database>@<Server>.log | Log file for SQL queries executed against the named database |
| <Job Name>\epichnl_<Time Stamp>\threads | Per-thread logging directory: contains the same set of information in the epiChannel_detailed.log, but split out based on the thread |

Infor Campaign Management Server and Scheduler Files

All Infor Campaign Management Server/Scheduler log files are written to the directory specified by the External Interfaces\Directory\SystemLogDir configuration setting.

Table 28: Files Created By Infor Campaign Management Server and Scheduler

| File Name | Function |
|------------------------|--|
| <Time Stamp>_SRV.txt | The top-level log file for the Infor Campaign Management Server. This log contains the highest-level view of what is going on in the Infor Campaign Management Server. |
| <Time Stamp>_AGENT.txt | The top-level log file for the Scheduler. This log contains the highest-level view of what is going on in the Scheduler. |

| File Name | Function |
|--|---|
| Both the Infor Campaign Management Server and Scheduler write the following logs, which are used to log basic server activity: | |
| <Time Stamp>_CONN.txt | Contains information regarding connections and connection pools. |
| <Time Stamp>_SCHEDULE.txt | Contains information regarding access of schedule-related metadata. |
| <Time Stamp>_STORAGE.txt | Contains information regarding access of report-gallery-related metadata. |
| <Time Stamp>_SECURITY.txt | Contains information regarding access of security-related metadata, information about authentication attempts and so forth. |
| <Time Stamp>_LOCK_MGR.txt | Contains information regarding the “lock manager” which handles some mutual exclusion, dependencies, inter-process communication, and so forth. |
| <Time Stamp>_RegistryReport.txt | Contains information regarding the configuration settings as seen by the service. |
| <Time Stamp>_SqlRepl.txt | Contains information regarding the translation of SQL macros to platform-specific SQL code. |
| <Time Stamp>_UserNotices.txt | Contains information regarding access of taskmanager-notification-related metadata. |
| <Time Stamp>_MeasureManager.txt | Contains information regarding access of measure-related metadata. |
| <Time Stamp>_DeploymentManager.txt | Contains information regarding access of deployments to an RT system and access to related metadata. |
| <Time Stamp>_RulesManager.txt | Contains information regarding access of marketing-rule-set-related metadata. |
| <Time Stamp>_Session<Session ID>.txt | Contains information regarding a particular end-user session—this is a high-level view of what an end-user is doing during their session. |
| The following logs are written by the Infor Campaign Management Server or Scheduler when certain end-users (or scheduled tasks) run certain queries. They are application-dependent and give you a view of what is happening during the query. | |
| <Time Stamp>_Dashboard_summary.txt | |
| <Time Stamp>_BestWorst_<Session ID>.txt | |
| <Time Stamp>_Clarity_<Session ID>.txt | |
| <Time Stamp>_Clusters_<Session ID>.txt | |
| <Time Stamp>_MCM_<Session ID>.txt | |

Files Created By Infor Campaign Management

| File Name | Function |
|---|---|
| <Time Stamp>_MLM_<Session ID>.txt | |
| <Time Stamp>_DetailPreview_<Session ID>.txt | |
| <Time Stamp>_Lifecycles_<Session ID>.txt | |
| <Time Stamp>_QtrProjs_<Session ID>.txt | |
| <Time Stamp>_Trends_<Session ID>.txt | |
| <Time Stamp>_Scoring_<Session ID>.txt | |
| <Time Stamp>_RPDeployList_<Session ID>.txt | |
| <Time Stamp>_RPDeployProfile_<Session ID>.txt | |
| <Time Stamp>_RPDeleteDeploymentAction_<Session ID>.txt | |
| <Time Stamp>_MCM_QUERY_<Session ID>.txt | |
| The following logs are written only by the Infor Campaign Management Server: | |
| <Time Stamp>_SERVER_FULFILLMENT_<Script Index>_out.txt | Logs the stdout of a fulfillment script. A fulfillment script is run by the Infor Campaign Management Server during Infor Email Marketing preview and perhaps during List export. |
| <Time Stamp>_SERVER_FULFILLMENT_<Script Index>_err.txt | Logs the stderr of a fulfillment script. A fulfillment script is run by the Infor Campaign Management Server during Infor Email Marketing preview and perhaps during List export. |
| startup.log | Contains basic information about how the server was started, including the PATH and CLASSPATH. |
| The following logs are created during Infor Campaign Management Server startup (by certain shared components) and are always empty: | |
| backend.log | |
| biolayer.log | |
| dp.log | |
| frontend.log | |
| shared.log | |
| si.log | |
| The following logs are written only by the Scheduler: | |
| <Time Stamp>_QUEUE_<Queue Name>.txt | Logs information regarding a particular queue execution. This is a high-level view of what a queue is doing. |

| File Name | Function |
|---|--|
| <Time Stamp>_FULFILLMENT_<Script Index>_out.txt | Logs the stdout of a fulfillment script. |
| <Time Stamp>_FULFILLMENT_<Script Index>_err.txt | Logs the stderr of a fulfillment script. |
| The following logs are written during Report Gallery upgrade: | |
| <Time Stamp>_REPORT_CONVERTOR.txt | |
| <Time Stamp>_UpgradeLog.txt | |

UpgradeMeasuresAndReports.bat Files

This utility starts the Infor Campaign Management Server in upgrade mode and performs the measure and report gallery upgrade. Any errors are reported to a log file. The log file directory path can be found in the following registry entry:

```
HKEY_LOCAL_MACHINE\SOFTWARE\EPIPHANY\Instances\<Instance Name> \External Interfaces\Directory\SystemLogDir
```

The file naming format is:

```
<Time Stamp>_SRV.txt
```

For example, the file name could be:

```
2001-11-27_17-05-03-555_SRV.txt
```

The outputs from the previous runs are automatically saved in the log directory.

Sampled Leaf Tables



Infor Campaign Management uses sampling tables when calculating approximate counts of lists. It can use a certain type of sampling table—called sampled leaf table—to speed up approximate counts on lists with Transaction Filter where the underlying tables are very large. Such lists generally join a fact table, a primary list producing dimension, and one or more additional dimensions containing transaction attributes. These additional dimensions are known as leaf dimensions.

Infor Campaign Management creates most of these sampling tables internally, but you need to create sampled leaf tables in the data mart manually.

Creating Leaf Dimension Sampling Tables

You need to create sampled leaf tables in the data mart manually. For correct behavior, you must refresh these tables when running any extraction job that affects the Fact or Leaf Dimension tables on which they are based.

Creating a Sampled Leaf Dimension Table

- 1 Identify which leaf dimensions need to be sampled.
- 2 Name the sampling table using the following format:

```
<L>_<DD>1_<A/B>
```

where:

- <L> is the name of the leaf dimension.
- <DD> is the two letter abbreviation of the primary list producing dimension.
- <A/B> is the A or B letter at the end of the sampled fact table name used to create this sampling table.

For example, for a list of Customers (with two letter abbreviation CU), having a policy with a PolicyInfo, the Leaf Sampling table would be named (assuming the current state of the fact table is A):

```
PolicyInfo_CU1_A
```

- 3 Create the sampling table in the data mart by issuing a query that includes all columns from the list dimension that join the sampled fact table with the leaf dimension. The sampled fact table name is derived from the following:

<F>_<DD><sample number>_<A/B>,

where:

- <F> is the name of the fact table.
- <DD> is the two letter abbreviation of the primary list producing dimension.
- <sample number> is the power of ten of the sampling rate of the primary list producing dimension. It is 1 if every 10th row is sampled, 2 if every 100th, and so on.
- <A/B> corresponds to the current state of the fact table. (You can find the current statement in EpiManager by navigating to **Configuration > Settings > EpiMart State.**)

For example, assuming the sampling rate is 1 out of 100, and the current state of the fact table F is A and referring to the syntax legend above, the query (in Oracle syntax) would be:

```
CREATE TABLE <L>_<DD>1_<A/B> AS
SELECT L.*
FROM <L>_0_<A/B> L, F_<DD>2_<A/B> F
WHERE L.<key > = F.<role1_key>
```

The values key and role1_key stand for the key columns joining the two tables.

Note: If the leaf dimension joins to the fact table through more than one dimension role, then the sampled leaf table must contain all of the rows that join to the sampled fact table through any of the dimension roles. For example, the WHERE clause in the above query would become:

```
WHERE <L.key> = <F.role1_key> or <L.key> = <F.role2_key>
```

If there is more than one fact that joins to both the sampled dimension D and the leaf dimension L, then the sampled leaf dimension table must include all of the roles that join to any of these sampled fact tables.

Enabling the Query Engine to Use Sampled Leaf Dimensions

- 1 Open Admin Manager and navigate to **Configuration > Settings > Behavior > Query**
- 2 Set the value of **UseSampledLeafTables** to 1.

Note: Infor recommends that you sample primary list producing dimensions at a rate of 1 per 100, or 1000, or 10000, but not 1 per 10 rows.

A Table

The A version of a fact or dimension table. See "Mirroring" on page 392.

Aborting

A task execution status code. An end-user has canceled the task from the Task Manager, but the task has not yet been terminated.

Accelerator

An object such as an aggregate table or index that is used to improve the response time for database queries. Accelerators also include integer maps.

Access Rights

The permissions that a user requires in order to open specific objects (such as Web pages or saved reports) or perform specific actions (such as activating permission rules in campaigns).

Active

A report server state. The server is ready to be queried by Infor Campaign Management Server.

AdminClient

A utility that allows you to submit mart-management commands interactively.

Administrator

A user who can save, overwrite, create, and change properties and permissions on any folder that is not reserved and any report, list, or campaign that is not hidden. Administrator users have access to all navigation nodes in the system and can view all user information in the Task Manager.

AggBuilder

The extraction step that builds aggregate tables from aggregate instructions specified in Admin Manager. AggBuilder is normally run as part of the **Builders** extraction group.

Aggregate

A table with precomputed summary data. Queries that can use aggregate data are significantly faster than regular queries. The names of aggregate tables end with `_n`, where `n` is a number greater than zero.

Aggregate Group

A logical entity that allows you to generate a collection of related aggregate instructions.

Aggregate Instruction

A specification that AggBuilder uses to build an aggregate.

Alert

A type of report that triggers messaging actions when a specified condition has been met. For example, you can configure an alert to inform you if weekly sales figures fall beneath a specific value.

Alert Web Page

A Web page application that allows users to define alert messages and conditional triggers that activate display of those messages on a Dashboard Web page.

Alter Object Properties

A utility that allows you to propagate some object property changes to objects that have already been built.

Alternation

In regular expressions, a set of optional matching patterns.

Anonymous Hits Sampling

A Web-Log Reader sampling strategy that only samples records from anonymous sessions. All records from registered users are logged.

Attribute

A column within a dimension table that contains descriptive values by which subtotals can be broken out within reports.

Attribute Category

A way of grouping attributes in a Web page display.

Attribute Creator

A utility that allows you to create multiple attributes of the same filter type from a single dimension role in one operation.

Attribute Layout

A presentation object that allows you to combine groups of attributes for reuse among Web pages.

_B Table

The B version of a fact or dimension table. See "Mirroring" on page 392.

Back End

The combination of your data mart, source systems, Admin Manager, EpiChannel and related utilities.

Backfeed Fact

A built-in semantic type that updates the main backfeed tables with data from recently run campaigns.

Backfeed Fact Rolloff Semantic

A built-in semantic type that deletes old campaign data that is no longer needed. When this semantic is applied to the Communication backfeed table, all campaign data that is older than the value that you have specified in the `$$MAX_BF_ROW_AGE_IN_DAYS` macro is permanently deleted.

Backfeed Table

A table that stores information about campaigns that have been run. Campaign information includes the list of campaign recipients, segments, applied communications, and responses. Data in backfeed tables must be extracted before you can use it in your data mart.

Backfeed Table Mirroring

A variation of the table mirroring system in which campaign backfeed tables use P and Q tables as well as A and B tables in order to keep data current.

Backlog

A measure that includes accumulated values from previous time periods, in addition to the current time period.

Backlog Type

A variable that specifies whether a backlog measure displays accumulated data at the beginning of the specified time period (BEGIN) or at the end of the time period (END).

Base Table

A fact or dimension table that includes all of the data originally loaded from the staging tables during extraction. Base tables have names that end with `_0` (underscore zero).

Bayesian Classifier Web Page

A Web page application that allows users to create statistical models for classifying data.

Calendar Web Page

A Web page type that displays a calendar of scheduled campaigns.

Campaign

A coordinated effort to furnish groups of customers with promotional material from your organization.

Campaign Archive

A repository of definitions for campaigns that have been executed by users.

Campaign Dimension

A built-in dimension table that contains several predefined campaign-related columns.

Campaign-List Pull

The generation of export files and backfeed tables for a campaign that is due for export.

Campaign Communication Strategy

A reusable communication that can be applied across multiple campaigns.

Campaign Communication Strategy Web Page

A Web page application that allows users to define campaign communication strategies.

Cancel

An extraction step that cancels any other extraction jobs that are currently in progress within an EpiCenter . This step is normally run at the beginning of an extraction job as part of the **Begin Extraction** group.

Cancel Backfeed

An extraction step that cancels any other backfeed jobs that are currently in progress within an EpiCenter . This step is normally run at the beginning of a campaign backfeed job as part of the **Begin Campaign Backfeed** group.

Cardinality

The number of possible values that can be used for a particular column. For example, a dimension column that stores the U.S. state in which an individual lives has only 50 possible values.

Category

See "Attribute Category" on page 360.

Cell

A group of customers or prospects who receive a particular campaign offer, such as an email, or a direct mailing.

Cell Dimension

A built-in dimension table that contains several predefined cell-related columns.

Check Box

A filter type option. Check boxes are rectangles next to an item that a user points and clicks to check or uncheck. Users can check more than one item in a column.

Circular Dependency

A condition where a set of queues has a chain of dependencies that leads from one queue back to itself. If queues are configured to have circular dependencies the Scheduler does not start.

Classification Tree

A way of finding rules that can predict the value of a discretely valued attribute based on the values of a set of other attributes. Classification measure sets are used with Bayes Classifier, Influences, and Modeling Web pages when you wish to model target data from attributes.

Clustering Model

A way of identifying groupings within a set of target data. Clustering measure sets are used with Community Clusters Web pages.

Code Page

An encoding scheme in which each character in a character set is mapped to a unique byte representation. The representation of a character can have one byte or multiple bytes. Code pages can also have fixed-length characters or variable-length characters.

Commit

An extraction step that toggles all `Next` tables to `Current`. This step is normally run at the end of an extraction job as part of the **End of Extraction** group.

Commit Backfeed

An extraction step that toggles all `Next` backfeed tables to `Current`. This step is normally run at the end of a campaign backfeed job as part of the **End of Campaign Backfeed** group.

Communication Fact Table

A built-in fact table that contains information about communications that have been applied to segments of a campaign. This fact table includes information about all campaigns that have run or that are currently running.

Community Clusters Web Page

A Web page application that allows end-users to identify clusters of records with similar characteristics. For example, you can use this Web page to find groups of customers who have similar demographic information.

Completed

A queue or task execution status code. The queue or task successfully completed executing. Note that a queue can execute successfully even if some tasks in the queue failed.

Composite Topic

A combination of topics that uses only one start node.

Cookie

A message given to a Web browser by a Web server. The browser stores the message and then sends it back to the server every time the browser requests a page from the server.

Count Role Measure

A measure that counts the number of rows in the primary dimension associated with the measure set. All measure sets contain a Count role measure. (Classification and Clustering measure sets must contain only the Count measure role.)

Count Unjoined

A built-in semantic type. This semantic informs you of the number of rows that have been transformed by an outer join to refer to UNKNOWN dimension rows. No actual updates are performed.

Counts Cache

A cache that retains counts that users generate when creating lists.

Create Current Views

An extraction step that updates views in an EpiCenter . This step is normally run at the end of a job as part of the **End of Extraction** group or the **End of Campaign Backfeed** group.

CRM

An acronym for Customer Relationship Management. CRM entails all aspects of interaction a company has with its customer, whether it be sales or service related.

Cumulative Projections Web Page

A Web page application that allows users to project cumulative results for a current time period based on previous time periods and current results so far.

Current

A data mart table state. Current dimension, fact, and backfeed tables are available for end-user queries.

Dashboard Web Page

A Web page application that allows users to display summary charts and tables, conditional alerts, hypertext links, and plain-text messages. Users with wireless personal data assistant (PDA) devices can view the dashboard components that those devices support.

Data Cleansing

A process of capturing data from multiple source systems and reconciling definition differences so that a data warehouse can present a consistent view of the data to all users.

Data Mart Profile

A set of Infor Campaign Management data that can be deployed to Real-Time for use in real-time campaigns. A data mart profile includes attributes from demographic dimension tables and measures.

Data Mining

Discovering previously unknown relationships in a group of data.

Data Store

A logical location of data that serves either as a source or as a destination within an EpiCenter . Data stores include source databases, EpiMeta, EpiMart, and EpiOp databases, and logging directories.

Data Store Role

The means by which data stores are associated with extraction jobs. Default data store roles include Input, Output, Logging, and WorkingDir.

Data Type

A specification that defines the size and type of data for fact, dimension, and external table columns.

Data Warehouse

A data storage system that transforms raw data from an organization's source-system databases into a star-schema format that is optimized for ad hoc end-user query and analysis. Data warehouses also provide tools that are needed to query, analyze and publish data.

Data mart

See "EpiMart Database" on page 373.

Date Dimension

A built-in dimension table where each row represents a single date. Each date is assigned values for such attributes as the week, month, quarter, and year to which the date belongs. This dimension is common to all fact tables.

Date Relative Filter

A filter type option. This filter type allows users to filter by a time period that is relative to the current date, such as the previous month, quarter, or year.

DEEPPARSINGSET Element

A Web-Log Reader configuration element that allows you to parse parameters that appear within a URL, query, or cookie.

Default Report

The default set of Web page settings that is used when an end-user first opens that Web page.

Degenerate Dimension

A single column in a fact table that stores textual information. A degenerate dimension is equivalent to a dimension with a single attribute.

Degree Create

An Oracle-based physical object property that specifies the number of processes that are spawned when you are creating new objects of the specified object type.

Degree Query

An Oracle-based physical object property that specifies the number of processes that are spawned when you are querying objects of the specified object type.

Delegate

A group member who can monitor or modify the status of scheduled reports, favorite charts, and campaigns on behalf of members of a group. The Administrator group is always treated as a delegate for every user.

Demographic Dimension

A dimension that corresponds to information about individuals, groups, or other organizations in your data mart.

Demographic Filter

A filter based on an attribute in a demographic dimension role.

Deployment

A data mart profile, list, or campaign that is sent to Infor Interaction Advisor for use in a real-time campaign.

Destructive Import

An import operation that deletes all objects in a particular category before importing objects of that same category from the export file.

Difference Report

See "External Table Difference Report" on page 375.

Difference Table

A table used for incremental extraction that includes only new and changed data from staging tables.

Dimension Aggregate

A base dimension table in which one or more of the columns have been removed and the rows have been collapsed onto one another to remove duplicates. AggBuilder does not build a dimension aggregate unless it is included in a fact aggregate.

Dimension Role

A reference between a fact table and a dimension table that logically defines the meaning of the dimension to the fact.

Dimension Table

A database table that contains information about elements such as product, customer or company, that are referenced in fact data. Each column of a dimension table corresponds to an attribute of such an element, such as customer age or customer income.

Disjoint Attribute

An attribute that is not accessible from a fact table because the fact table does not have a foreign key to the attribute's dimension table.

Dormant

A data mart table state. Dormant dimension, fact, and backfeed tables can be populated by a semantic instance.

Drill Down

Applying the same query criteria to a subset of a previous query's results to obtain more specificity, usually by filtering on selected attributes.

Dual-Metadata Scenario

A configuration in which your factory and reporting servers use separate EpiMeta databases.

Dynamic Check Boxes

A filter type option. Dynamic check boxes are similar to the regular check box filter, except the options are refreshed each time Infor Campaign Management Server is restarted.

Dynamic Listbox

A filter type option. Dynamic listboxes are similar to the regular listbox filter, except the options are refreshed each time Infor Campaign Management Server is restarted.

Entire Dimension

A filter type option. All attributes of the dimension are available to the Web page.

EpiappService.exe

A Windows-based, command-line Infor Campaign Management Server management utility.

EpiCenter

The combination of your EpiMart, EpiMeta, and EpiOp databases.

EpiCenter Report

A utility that allows you to create a report of all or part of your EpiCenter metadata configuration.

EpiChannel

The utility that extracts data from your source systems, loads it into your data mart, and creates accelerators to improve system response time.

EpiMart Database

The database that contains all of the actual data tables, including fact, dimension, external, and staging tables.

EpiMeta Database

The database that contains all of the Infor Campaign Management metadata tables. The metadata defines the structure of your EpiMart database.

EpiOp Database

The database that contains all of the saved lists, campaign export data, and operations logging tables.

ERP

An acronym for Enterprise Resource Planning. ERP is a business management system that integrates all facets of a business, including planning, manufacturing, sales, and marketing.

Expired Task Instance

A task instance that has not been executed during the specified retry period of the queue to which it belongs.

Explicit Relation

A relation that is defined with a relation fact table.

Extent Size in K

An Oracle-based physical object property that specifies the number of kilobytes that should be allocated when an extent is created for objects of the specified object type.

External Lookup Filter

A filter type option. This filter type can be used if an attribute value is translated into an integer-mapped code during extraction. This filter specifies the external table that contains the actual values that correspond to the integer codes.

External Table

A table in any data store that is made available to Infor Campaign Management.

External Table Difference Report

A report that allows you to compare external table definitions with the structure of physical source tables.

Extraction Command

A SQL command that is used to copy data from source databases into a staging table or an external table.

Extraction Filter

A filter that allows you to extract only those rows that satisfy a specified criterion, such as having a date or column value in a certain range. You apply extraction filters using the Infor Campaign Management extraction-set identification macros.

Extraction Group

An ordered collection of extraction steps.

Extraction Job

An ordered set of SQL commands, semantics, systems calls, or other actions that must be performed as a single unit.

Extraction Step

A SQL command, semantic, system call, or other action that occurs within an extraction job.

Fact Aggregate

A substar of your star schema that uses aggregated versions of some of the available dimensions.

Fact Table

A database table that contains numeric data, such as quantity or net price, degenerate dimensions, and dimension-role foreign keys.

Fact Term

An arithmetic expression that involves fact and dimension columns within a single row. Fact terms act as building blocks for measures.

Factory-Mart Configuration

A system configuration in which separate database servers are used for extraction and reporting.

Factory Server

In a factory-mart configuration, the database server that is used for extraction.

Failure

A queue or task execution status code. The queue or task failed during execution and exited.

Failure_Will_Retry

A task execution status code. The task failed during execution and exited. The Scheduler will attempt to execute the task again when it is next scheduled for execution.

File Group

A SQL-Server-based physical object property that specifies the name of the SQL Server file group to which a specified object is assigned.

Filter

An end-user specification that can be used to restrict a query to specific attribute values.

Filter Element

A specific dimension-column value that end-users can choose. A filter element appears on the Filter dialog box as a single check box or as an entry within a list box.

Filter Group

A logical collection of filter elements.

Filter Type

The method by which attribute values are displayed to end-users in the Filter dialog box. Filter types include radio buttons and list boxes.

First Dimension Value

A built-in semantic type. If new values are extracted for an existing dimension element, then those values are ignored. Facts continue to refer to the first values that were extracted for a dimension element.

First/Last Fact

A built-in semantic type. Only the first and last occurrence of a fact is recorded in the fact table.

Fission

The process of separating fused elements into individual records.

Foreign Key

A reference field that identifies records in another database table.

Fresh

A report server state. The server has been populated with new data from the factory, but Infor Campaign Management Server is still issuing queries against servers populated with older data.

Front End

The combination of your Infor Campaign Management Server, Web server and proxy, Web browser, and Web-based applications.

Fulfillment Script

An executable file or batch file that is run after campaign export has completed.

Fusion

The process of combining several records into a single dimension element.

Fusion Staging Table

A table that identifies records that are to be fused and, for each group of fused records, specifies the dimension element that represents that group.

Global Extraction Group

An extraction group that can be used by multiple extraction jobs.

Glossary Entry

A help text definition that you can associate with an object. End users can access this text by clicking the object label on any Web page in which that object is used. Hyperlinked text is only visible on Row and Column pages not Campaign Web pages.

Granularity

The level of detail about a certain type of information. For example, in the `SalesTerritory` table, a user can refer to a location by `State`, `County`, or `City`. The value of the `City` field is the finest level of granularity that is available.

Group

A collection of users who have the same permissions.

GROUPING Element

A Web-Log Reader configuration element that allows you to sort the records that Web-Log Reader processes.

High/Low Clusters Web Page

A Web page application that identifies particularly high or low values in a data mart.

Hit

An individual URL request.

Home Page

The start page for an Infor Campaign Management application.

IGNOREFIELDS Element

A Web-Log Reader configuration element that allows you to specify a subset of Hit record fields to include in a table.

Implicit Column

A column that is added to every base dimension table by the Infor Campaign Management Adaptive Schema Generator. Implicit columns include `*_sskey` and `date_modified`.

Implicit Relation

A relation that is not defined with a relation fact table, but that can be extrapolated from other explicit relations. For example, if there is an explicit relation between groups and individuals, and another explicit relationship between organizations and groups, there exists an implicit relation between organizations and individuals.

Index

A sorted list of keys that identify unique database table rows. You can index by one or more dimension roles or columns. Indices improve query performance.

Inference Campaign

A campaign that is designed to use available data to make inferences about the response to campaigns for which response data is not available.

Inferred Response Fact Table

A built-in fact table that contains information extracted from inference campaigns.

Influences Web Page

A Web page application that allows end-users to identify attributes that have important impacts on a measure or on another attribute.

Infor Campaign Management

A set of powerful and flexible data-management tools that allow you to perform sophisticated data analysis, list-management, and campaign management. Infor Campaign Management include the EpiCenter data mart, Admin Manager, Infor Campaign Management Server, and the EpiChannel utility.

Infor Campaign Management Analytics

Web applications that allow users to view reports and create models with data in the EpiMeta. Analytics include Rows and Columns, Community Clusters, Profiles, Highs and Lows, Modeling, and Trends.

Infor Campaign Management Manager

A Microsoft Windows application that allows you to maintain all of the metadata for your Infor Campaign Management system and applications.

Infor Campaign Management Server

An application server that connects Infor Campaign Management Web applications to the EpiCenter data mart by issuing queries and generating reports.

Infor Campaign Management Monitor

A Web-based interface to Infor Campaign Management Server. Members of the Administrator group can access this page to refresh Infor Campaign Management Server, clear the query and counts caches, and control access to EpiMart databases.

Infor Campaign Management Web Page

A Web page application that allows your end-users to create marketing campaigns that target customers or prospects for whom you have records in your data mart.

Initial Load Dimension

A built-in semantic type. The entire dimension table is reloaded from the staging table without regard to the current contents of the dimension table. Saved lists that were previously generated from the dimension are invalidated by this semantic, as are all fact tables that refer to the dimension.

Initial Load Dimension, Truncate Current

A built-in semantic type. The entire dimension table is reloaded from the staging table. After dimension data is loaded, the previous copy of the dimension table is truncated. This semantic is intended for use only in a factory-mart configuration.

Initial Load Fact

A built-in semantic type. The entire fact table is reloaded from the staging table, without regard to the current contents of the fact table. All facts in the staging table are assumed to be transactional.

Initial Load Fact, Truncate Current

A built-in semantic type. The entire fact table is relocated from the staging table. After fact data is loaded, the previous copy of the fact table is truncated. The semantic is intended for use only in a factory-mart configuration.

Initial Load Statelike

A built-in semantic type. The entire fact table is reloaded from the staging table, without regard to the current contents of the fact table. All facts in the staging table are assumed to be state-like.

Initial Load Transactional/Statelike

A built-in semantic type. The entire fact table is reloaded from the staging table, without regard to the current contents of the fact table. Staging-table data is added as with the Transactional/Statelike semantic.

Initial Load Transactional/Statelike/Force Close

A built-in semantic type. The entire fact table is reloaded from the staging table, without regard to the current contents of the fact table. Staging-table data is added as with the Transactional/Statelike/Force Close semantic.

Inner Join

A join operation in which only data from matching table records is extracted.

InsertWriter

A DB2 extraction method that uses unlogged `INSERT` statements to write new data to EpiMart tables. This method is slower than the LoadWriter method, but can be performed at the same time that queries are being issued against tables, in the same tablespace. More than one instance can be executed simultaneously. This method is not as useful in DB2 v8, because the LoadWriter method does not lock the entire tablespace. See <zzz deleteme>“LoadWriter.”

Integer Mapping

Associating a unique integer value to each possible value of a dimension column. Integer mapping significantly decreases the size of a dimension table if a low-cardinality dimension column uses a significant amount of storage (for example, if the data type is `VARCHAR_50`).

Infor Interaction Advisor Campaign

A campaign that is executed during interactions with customers or prospects, such as when a customer accesses a Web site or contacts a call center.

Infor Interaction Advisor (Real-Time)

A set of tools that allow you to create and maintain real-time campaigns. Infor Interaction Advisor includes RT Server, RT Workshop, RT Administrator, and Infor Interaction Advisor Manager.

Intermediate Node

A navigation node that supplements the state information that is to be carried from one node to another.

Intertopic Link

A link that allows direct access from a navigation node in one topic to a navigation node in another topic.

JDBC

An acronym for Java Database Connectivity. JDBC is a Java API that enables Java programs to execute SQL statements against any SQL-compliant database.

Job

See "Extraction Job" on page 375.

JOB Element

A Web-Log Reader configuration element that includes global parameters that affect the operation of Web-Log Reader as a whole.

Join

A database operation that matches records in two tables.

key_REAL

A dimension table column that records the first row containing an entry for the specified `sskey`.

Killed

A queue or task execution status code. The queue or task was terminated. A queue is terminated when it exceeds its maximum run time or when it is killed by another queue. A task is terminated when it exceeds its maximum run time or when the queue in which it is running is terminated.

Label

A name that is displayed in the end-user interface.

last_extract_date

A default external table that is located in your EpiMart data store. This table is used to record the date that is used in the **Results as of ...** date in reports.

Latest Dimension Value

A built-in semantic type. If new values are extracted for an existing dimension element, then the dimension table is updated with these new values. All facts refer to the new values.

Latest Dimension Value, Ignore Unknowns

A built-in semantic type. If new values are extracted for an existing dimension element, then the dimension table is updated with all new values that are not `UNKNOWN`. All facts refer to the new values.

Latest Dimension Value With Fusion/Fission

A built-in semantic type for fused dimensions only. If new values are extracted for an existing dimension element, then the dimension table is updated with these new values. All facts refer to the new values. Fission and Fusion are performed where appropriate. This semantic should only be used in conjunction with a fact fusion semantic.

Latest Dimension Value, Preserve Fusion

A built-in semantic type for fused dimensions only. If new values are extracted for an existing row, then the dimension table is updated with these new values. All facts refer to the new values. This semantic should be used on fused dimensions whenever fact fusion is not being performed.

Latest Dimension Value, Rewrite All

A built-in semantic type. If new values are extracted for an existing row, then all existing data with the same `sskey` is updated with the new values as well. This semantic can be used to transition from a Slowly-Changing-Dimension-based table to a Latest-Dimension-Value-based table.

LDAP Server

A server that employs lightweight directory access protocol (LDAP) as an authentication mechanism for validating user accounts and group memberships.

Lifecycles Web Page

A Web page application that projects the life cycle for a new product based on information about similar products that were released previously.

Line Anchor

In regular expressions, a character that ties a pattern either to the start or the end of a line. ^ anchors the pattern to the start of a line. \$ anchors the pattern to the end of a line.

Link

A logical connection between two navigation nodes in a topic. Links allow end-users to move from one Web page application to another.

Link Behavior

The state-carrying and report-activation action of the link. Each behavior indicates whether to carry the state information that user has selected in the current Web page to the Web page at the destination node. Link behavior also specifies whether to generate a report when opening the destination Web page.

Link Category

The set of links to which a link belongs. Links in the same category appear together, typically in the side bar of a Web page.

List Filter

A filter that includes or excludes data based upon whether the data comes from an individual who is a member of a specified list.

List Management

A Web page that allows end-users to view and define lists of customers or prospects.

List Membership

A filter type option. This filter allows end-users to filter with lists that are stored in the Report Gallery.

Listbox

A filter type option. Listboxes contain a list of items for selection. End users click the down arrow to the left of the box to display a drop-down of the items in the list.

Literal

In regular expressions, a character that matches itself when compared against a target string.

LoadWriter

A DB2 extraction method that uses the DB2 bulk load API to write new data to EpiMart tables. This method is faster than the InsertLoad method. Only one instance of the method can execute at one time. See <zzz deleteme>“InsertWriter.”

Local Extraction Group

An extraction group that is only available to a single extraction job.

Locale

A specification that governs date and time formats, number symbols, and currency symbols. The locale does not alter the language used to render text.

Long Query

An end-user query that is expected to take more than a few seconds to complete.

Macro

A SQL expression that acts as a substitution for a more complex expression.

Mart-Management Commands

Commands that allow you to manage the data-propagation process between the factory and reporting servers after fresh data has been extracted to a factory server.

Materialized List

A list whose membership does not change when there are changes to the data mart.

Measure

A measure is a formula for a business calculation that you define over one or more fact columns. Measures calculate the totals and subtotals for attribute values that users specify when they create reports. You can define a measure by specifying a single measure operation, or by adding, subtracting, multiplying and dividing multiple measure operators together.

Measure Item

A label in a measure layout. You can add multiple items to a column in a measure layout. Users can then choose one item from each column to specify a measure. For example, items in one column could be **booked** and **billed**, and items in a second column could be **revenue** and **returns**. You can map an individual measure to each combination of items (for example, booked returns or billed revenue).

Measure Layout

A presentation object that allows you to map measures to different combinations of measure items. Measure layouts can be reused among different Web pages.

Measure Operation

A formula that combines an operator (such as SUM or COUNT), one or more fact terms, a transaction type, a backlog type, and filters.

Measure Set

A presentation object that provides end-users with access to measures for data-mining Web pages.

Measure Unit

The unit of measure for a particular measurement. Measure units include local currency, U.S. currency, percent, and units (for item counts).

Menu

A Web page type that allows you to specify menus of links that appear in the side bars of other Web pages.

Metacharacters

Characters that have special significance in regular expressions and are not treated as literal characters. Metacharacters include:

. * ? + () { } [] ^ \$ \

Metadata

Information about data and its organization, but not the data itself. Infor Campaign Management metadata is contained in the EpiMeta database.

Mirroring

A system that allows extractions to occur without disrupting the live usage of Infor Campaign Management. For every fact and dimension table, the data mart contains two physical tables with suffixes `_A` and `_B`. These tables contain “mirrored” copies of the table. At any time, either the A or B version of any table is current. Information about the current versions of all tables is stored in metadata, and end-user queries are run against the current versions of all tables.

Modeling Web Page

A Web page application that identifies predictive relationships for use in creating scored lists.

MomentumBuilder (MomBuilder)

An extraction step that builds indexes and creates and updates the special accelerators that are used to manage lists and campaigns. MomentumBuilder is normally run after aggregate building in the **Builders** extraction group.

Monitor

See "Infor Campaign Management Monitor" on page 382.

Navigation Node

A named location within a topic for which you configure a node type, a Web page of a type that is compatible with the node type, a set of links to other navigation nodes, and a title and prompt for end-users.

Navigation Node Type

The type of action for which the node is to be used, such as generating campaigns or lists, creating reports, or capturing information to pass along as input to a Web page at a subsequent node.

Navigation Type

The type of window in which a destination Web page should be displayed. Navigation types include **New Browser Window** , **Dialog Box** , and **Same Window** .

Next

A data mart table state. Next dimension, fact, and backfeed tables have been successfully populated by the latest extraction job but are not yet being used for end-user queries.

Nullable

A column that can include `NULL` values.

Object Gallery

A list of previously-defined objects that are appropriate for inclusion in a given dialog box or tab.

Object Property

A vendor-specific database option that relates to the manner in which an object is stored.

Object Type

A category of object that can be configured in your EpiMeta, EpiMart, and EpiOp databases.

ODBC (Open Database Connectivity)

An abstraction layer that provides a common interface to many databases.

Offline

A report server state. The server is being populated from the factory or is otherwise unavailable.

OLAP

An acronym for Online Analytical Processing. OLAP software tools enable users to analyze different dimensions of multidimensional data in a database. For example, OLAP tools provide time series and trend analysis views.

OLTP (Online Transactional Processing)

An acronym for Online Transactional Processing. OLTP is a type of computer processing in which the computer responds immediately to user requests.

Op Runtime Metadata

Records that schema-generation operations use to determine which tables to rebuild and which columns to add or remove. Without this information, schema-generation operations truncate and then rebuild EpiOp tables.

Output File

A file that Infor Campaign Management produces when a campaign is executed. Each output file contains communication codes and a list of campaign members who are to receive one or more of those communications.

Output Processor

Specifies the format of an output option that is available to an end-user.

Outer Join

A join operation in which all rows from one of the tables is extracted, even if there are no matching values in the other table.

Overdue Task Instance

An uncompleted task instance that was not executed on its scheduled date but that has not yet expired.

Overwrite Dimension

A built-in semantic type. If new values are extracted for an existing dimension row, the row is overwritten with the new values. Dimension rows that are not present in the staging table are preserved.

_P Table

The **P** version of a backfeed export table. See also "Backfeed Table Mirroring" on page 361.

Partition

An isolated section of your database or other mass storage device.

Percent Free

A physical object property that specifies the percentage of block space that is allocated for the expansion of existing objects.

Percent Used

An Oracle-based physical object property that specifies the percentage of block space that must be free before a block that was initially marked as "full" is reset to "available for inserts."

Pipelined

A built-in semantic type. Facts are tracked as they move through several life cycle phases.

Pipelined/Forceclose

A built-in semantic type. Facts are tracked as they move through several life cycle phases. Any open booking that is in the fact table but not in the staging table is automatically closed.

Presentation Object

A logical object that allows you to specify how data elements appear and function within a Web page. Presentation objects include measure and attribute layouts, transaction filters, and glossary entries.

Previous

A data mart table state. Previous dimension, fact, and backfeed tables are the tables that were current before the last extraction job was committed.

Primary Dimension

In Community Clusters, Bayesian Classifier, Influences and Modeling Web pages, the dimension that defines the scope of attributes that can be modeled.

Primary Dimension Column

A dimension column that is used for query analysis, such as age or product category. Non-primary dimension columns might include data such as street addresses or SKU numbers.

Primary Group

The group from which a user inherits default permissions and user preferences. Any group can be specified as a user's primary group, and a user can only belong to only one primary group at a time.

Process_key

A column in fact staging tables that specifies whether the row represents a transactional or state-like fact. Transactional facts have the value 1 , and state-like facts have the value 2 . This column is used only when the **Contains Transactional and Statelike Rows** option is checked in the Fact dialog box of Admin Manager.

Profiling Web Page

A Web page application that illustrates data comparisons by displaying appropriate charts, such as pie charts, bar charts, histograms, and others.

Proxy

An application that routes URL requests that a Web server receives to Infor Campaign Management Server for processing.

Pull/Push Extraction Command

A type of extraction step that issues SQL against an input data store and then inserts (or pushes) the returned (or pulled) results into the destination table for the step.

Purge

To remove tables and views that are no longer required.

_Q Table

The Q version of a backfeed export table. See "Backfeed Table Mirroring" on page 361.

Query

A request to a database server.

Query Cache

A cache that contains the results of the most recent queries that users have run. If a user repeats a query, or if another user attempts to rerun the same query for a report, Infor Campaign Management Server reuses the cached results rather than resubmitting a request to a database server.

Query Statistics

Data about the types of queries that your users actually make while using Infor Campaign Management. This data includes information about the frequency with which combinations of dimension columns or roles are queried. You can use these statistics to refine your aggregate definitions.

Queryable

A fact or dimension column, degenerate dimension, or dimension role that can be used for filtering in lists or campaigns.

Queue

A list of tasks that are executed based on their scheduled start time and a user-assigned priority level. The Infor Campaign Management Scheduler can operate multiple queues in parallel, and queues can be scheduled to run based on time and queue dependencies.

Queue Dependency

A rule that prioritizes two queues based on the status of one queue.

Queue Role

A set of tasks that should be assigned to a particular queue. Queue roles include Campaign Export, Scheduled Tasks, Favorite Charts, and Real-Time Personalization.

Radio Button

A filter type option. Radio buttons allow the end user to make one choice only.

Range Filter

A filter type option. Range filters allow users to specify one or several ranges of values by which to filter results.

RDBMS

An acronym for Relational Database Management System. RDBMSs are a type of database management system that stores data in the form of related tables.

Reflection

A topic that allows you to review the usage activity of a Release 5.0 or newer data mart.

Refresh

An extraction step that updates Infor Campaign Management Server with the most recent metadata from the EpiMeta database.

Regression Tree

A way of finding rules that can predict the value of a particular numeric measure, such as customer profitability, based on the values of a set of attributes. Regression measure sets are used with Bayes Classifier, Influences, and Modeling Web pages when you wish to model target data from a measure.

Regular Expression

A way of specifying patterns against which a target string can be compared.

Relation

A relationship between two list-producing base dimensions such that one dimension has a one-to-one, one-to-many, or many-to-many relationship with the other.

Relation Fact Table

A table that defines a relationship between two dimensions. For every combination of dimension values, the fact table contains a row that indicates whether one dimension value has a relationship with the second dimension value.

Reload Date Fact

A built-in semantic type. All facts that occurred after the earliest date in the staging table are reloaded from the staging table.

Repetition

In regular expressions, a combination of characters, some of which might repeat.

Report

A table or chart that displays information derived from an EpiMart.

Report Gallery

A repository for the reports, lists, campaigns, and other objects that end-users save.

Report Type

A variety of report. Report types include alerts, lists, campaigns, and models. You can restrict the types of reports that appear in the Report Gallery node for a particular topic.

ReportMeta

A built-in data store that is meant to be used for the EpiMeta database in a factory-mart configuration.

Reporting Configuration

Load assignments for a set of reporting servers. Each server can be assigned any proportion of short, long, and scheduled queries.

Reporting Server

In a factory-mart configuration, a database server against which Infor Campaign Management Server issues queries.

Reverse-Polish Notation (RPN)

A written syntax in which the operators follow the operands. For example, the equation $1 + 2$ is written as $1 2 +$.

Revision Percentage

The percentage below which a table can be incrementally updated during extraction.

Roll Up

To combine data.

Roll Off

To discard historical data based on times that you have configured.

Rows and Columns Web Page

A Web page application that displays selected data in tabular format and allows users to drill down to increasing degrees of specificity.

RT Administrator

The application that is used to configure the RT Server.

RTDB

A Real-Time database.

Running

A queue or task execution status code. The queue or task is currently running or the queue is waiting to run. If the Scheduler fails during queue or task execution, the executing queue or task has the RUNNING status code until the Scheduler restarts.

Runtime Metadata

Records that schema-generation operations use to determine which tables to rebuild and which columns to add or remove. Without this information, schema-generation operations truncate and then rebuild EpiMart tables.

Sampling

A process by which statistical samples of the data in your EpiMart are used to return fast approximate counts of list and campaign membership.

Scheduled Query

An end-user query that has been scheduled to run at a later time.

Scheduled_to_Run

A task execution status code. The task is scheduled to be run as part of a queue that is currently running or waiting to run. If the Scheduler fails before the task begins running, then the task log entry is removed when the Scheduler restarts.

Scheduler

A service that allows administrators to schedule individual and recurring extraction jobs. The Scheduler also allows end-users to schedule long-running or recurring reports and campaigns.

Schema

A structure for organizing data into tables.

Schema Observatory

An Infor Campaign Management window that allows you to view a graphical representation of your data mart schema.

Scoring Web Page

A Web page application that ranks list members according to a scoring model.

Scrutiny

An interactive debugging tool that verifies whether your EpiCenter is in a consistent and functioning state.

Secondary Dimension Column

A dimension column that is not normally used for query analysis, such as telephone number, street address, or SKU number. Non-secondary dimension columns might include data such as age or product category.

Seed

A dummy address that is used to verify that mailings have been sent and that the lists provided to fulfillment centers have not been sold.

Segment

A subset of the membership of a campaign or list who meet specific selection criteria.

Semantic Instance

An instance of a semantic template that has been adapted for the specific fact or dimension table that is being populated.

Semantic Template

A generic SQL program that is used to merge newly extracted data in staging tables into existing fact and dimension tables.

Semantic Transformation

The process of moving data from staging tables into an EpiMart's base tables.

Semantic Type

A method of accomplishing specific business rules during extraction. Semantic types are implemented with semantic templates.

Server Abort

A queue or task execution status code. The Scheduler failed during queue or task execution. The Scheduler assigns this code when it restarts.

Session

A set of hits that are presumed to originate from a single user session.

Short Query

An end-user query that is expected to complete within a few seconds.

Single-Metadata Scenario

A configuration in which your factory and reporting servers use the same EpiMeta database.

Sink

An output data store.

Slowly Changing Dimensions

A built-in semantic type. If new values are extracted for an existing dimension element, then a new row with these values is added to the dimension table. New facts that refer to this dimension element refer to the new row, but old facts that refer to this dimension element continue to refer to the row containing the data that was current when the fact occurred.

Slowly Changing Dimensions, Ignore Unknown

A built-in semantic type. If new values, aside from `UNKNOWN` values, are extracted for an existing dimension element, then a new row with these values is added to the dimension table. New facts that refer to this dimension element refer to the new row, but old facts that refer to this dimension element continue to refer to the row containing the data that was current when the fact occurred.

Slowly Changing/First Dim Value, Ignore Unknown

A built-in semantic type. If a new value, aside from an value, `UNKNOWN` is extracted for a primary column in an existing dimension element, then a new row is added, as with the Slowly Changing Dimensions semantic type. New values in secondary columns are ignored.

Slowly Changing Primary, Latest Secondary

A built-in semantic type. If a new value is extracted for a primary column in an existing dimension element, then a new row is added, as with the Slowly Changing Dimensions semantic type. If a new value is extracted for a secondary column in an existing dimension element, then that column is updated with the new value, as with the Latest Dimension Value semantic type.

SNMP (Simple Network Management Protocol)

A protocol that allows for status reporting across a network with Windows and Unix platforms. Infor provides an SNMP extension agent for this purpose.

Source System

A system that contains raw data from which information is extracted and incorporated into your data mart.

sskey

The source system key that allows one table to reference a record in another table.

Staging Table

A database table that serves as the first entry point of raw data from source systems into an EpiMart. The data in a staging table is transformed with semantics before it reaches the EpiMart's fact and dimension tables.

Stale

A report server state. The server has not yet been populated with new data from the factory, and Infor Campaign Management Server is issuing queries against servers populated with newer data.

Star Schema

A schema design in which a fact table is connected to multiple dimension tables, but in which the dimension tables are linked only to the fact table. This schema differs from that of conventional relational databases, in which many tables are interjoined. An Infor Campaign Management star schema consists of several fact tables that share a global collection of dimension tables. This structure allows end-users to generate reports with information that comes from multiple fact tables.

Statelike

A built-in semantic type. State-like data is transformed into transactional data and added to the fact table. The staging table is assumed to contain only state-like data.

Statelike/Error on Stage Duplicates

A built-in semantic type. State-like data is transformed into transactional data and added to the fact table. The staging table is assumed to contain only state-like data. The semantic fails if the staging table contains more than one row with a single `sskey` .

State-Like Fact

A fact that describes the current state of some business quantity, such as an inventory level or the state of an open order.

Statelike/Single Delta

A built-in semantic type. State-like data is transformed into transactional data and added to the fact table. For each `sskey` , only the earliest value in the staging table is used. The staging table is assumed to contain only state-like data.

Streaming Dimension

A built-in semantic type. The entire dimension table is reloaded, bypassing the staging table.

Streaming Extraction

A method of extraction that bypasses all staging tables and loads source system data directly into fact and dimension tables.

Streaming Fact

A built-in semantic type. The entire fact table is reloaded directly, bypassing the staging table.

String Repository

A table of predefined strings that can be reused in labels and descriptive text entries that appear on Web pages. You can define override text for individual strings and create alternate versions of strings to use in different contexts.

SumSquared Role Measure

A measure whose value is $\text{SUM}(X * X)$. Regression measure sets can optionally include the SumSquared role measure.

Synchronized Group

An Infor Campaign Management group that corresponds to an OS, domain, or lightweight directory access protocol (LDAP) group. Synchronized group memberships always match their corresponding OS, domain, or LDAP group memberships.

System Call

An extraction step command that is executed during a job as if invoked from a command line on the platform on which EpiChannel is running.

TargetSum Role Measure

A measure that calculates the sum of a quantity that a user is trying to predict. Regression measure sets must contain a TargetSum role measure.

Task Instance

A single scheduled execution of a task, such as a report or campaign.

Text Box

A filter type option. Text boxes are blank areas where end-users can enter text. Multiple values can be delimited either by a new-line character or a semi-colon.

Top N Per Group

A filter type option. Top N Per Group filters allow users to select the maximum number **N** of list members to be included in a generated list. In a scored list, this filter allows the user to choose those **N** list members with highest or lowest scores. This filter can only be used in Infor Campaign Management Web pages.

Topic

A navigational framework through which end-users gain access to Infor Campaign Management Web page applications. Topics link a set of applications together in a structured fashion and allow those applications to share data that users generate.

Touchpoint

A way of communicating with your customers, such as through direct mail, email, telephone, or Web page.

Transaction

An event in time, such as a purchase, a return, a call to a call center, the receipt of a communication, or a response to a campaign.

Transaction Filter

An end-user specification that can be used to select list members based on participation in transactions.

Transaction Filter Filter

A filter on a list that is created with a transaction filter. Transaction filter filters that are based on measures allow users to specify a range of values, such as a dollar volume of purchases between \$100 and \$500. Transaction filter filters that are based on attributes join to the fact table to select records for transactions associated with an attribute value, such as product name.

Transaction Type

A value associated with each row of a fact table that indicates what type of event generated the fact. Transaction types allow you to store facts about different kinds of events in the same fact table. For example, you can store information about both sales and returns by assigning one transaction type to sales facts and another transaction type to returns.

Transaction Type Set

A combination of transaction types that you can use to create measures. Measures cannot refer to more than one transaction type without transaction type sets.

Transactional

A built-in semantic type. Transactional data is added to the fact table. The staging table is assumed to contain only transactional data.

Transactional/Dedup Stage

A built-in semantic type. At most one row of transactional data is added to the fact table for each `sskey` in the staging table. For each `sskey`, only the earliest date value in the staging table is used, and only the first row with this date is used. The staging table is assumed to contain only transactional data.

Transactional Fact

A fact that indicates some discrete event, such as a shipment or a Web site visit.

Transactional/Statelike

A built-in semantic type. Transactional data is treated as in the Transactional semantic type. State-like data is transformed into transactional data and then merged into the fact table.

Transactional/Statelike/Force Close

A built-in semantic type. This semantic is similar to the Transactional/Statelike semantic, except that all open bookings must be found in the staging table. Any open booking that is in the fact table but not in the staging table is automatically closed.

Transtype

See "Defining a Group" on page 116 .

Transtype Dimension

A built-in dimension that contains all of the transaction types that have been defined for your EpiCenter . This dimension is common to all fact tables.

Communication

An individual promotion in a campaign.

Communication Strategy

See "Campaign Communication Strategy" on page 362.

Trends Web Page

A Web page application that identifies trends and projects future values accordingly.

Truncate

To erase all data from a table or partition.

Uniform Sampling

A Web-Log Reader sampling strategy that samples records from both known and anonymous users.

UNIT Element

A Web-Log Reader configuration element that allows you to specify parameters that affect the parsing of all Web-logs that come from a single Web server.

UNKNOWN Dimension Value

A default value that is used to indicate that a value is not known for a dimension column. By default, the string 'UNKNOWN' or the integer value 0 is used for the UNKNOWN dimension value.

User

A person who has permission to access data in your EpiMart through the Infor Campaign Management system.

User_Abort

A task execution status code. An end-user has canceled the task from the Task Manager, and the task has been terminated.

View

A way of looking at a database so that records are arranged in some particular order and only certain fields are visible. Views do not affect the physical organization of a database.

Web Log

A log file that lists every request made to a Web server.

Web-Log Reader

A utility that parses data from multiple Web-server logs and then loads that data into a relational database. The database can then be used as a source system for an EpiCenter data mart.

Web Page

A Web-browser document that allows end-users to interact with Infor Campaign Management applications. Infor Campaign Management Web pages are assigned a type that corresponds to the application that the Web page instantiates.

Web Page Type

The type of Infor Campaign Management application that is displayed in a particular Web page.

xp_epiappserver

A stored procedure that allows you to programmatically submit mart-management commands.

Index

--Refresh option [228](#)
--Refresh option of EpiChannel [228](#)
.mib [243](#)
.mib files [243](#)
/etc/syslog.conf [223](#)
/etc/syslog.conf file [223](#)
/var/adm/messages [223](#)
\$\$hf [129](#)
\$\$hf argument [129](#)
\$\$op [129](#)
\$\$op argument [129](#)

A

About this Application [47](#)
access rights [37](#), [113](#)
Access rights. [116](#), [119](#)
accessing [53](#)
activating SNMP reporting [129](#)
Active Directory Service [220](#)
 See [220](#)
Add a Filter Setting node type [196](#)
Add FOAM to ... node type [196](#)
Add parameters to trends node type [196](#)
adding [67](#), [75](#), [105](#), [202](#), [207–209](#)
adding a new service [239](#)
adding attributes, filters and objects– [150](#), [152](#)
adding entries [44](#)
adding users to groups [116](#), [119](#), [126](#), [128–129](#)
Adding users to groups [116](#), [119](#)
Admin Manager [31](#), [39](#), [47–48](#)
Admin Manager and [32](#)
administrator group [125](#)
Administrator group [125](#)
administrator privileges [126](#), [128–129](#)
ADS [220](#)
AGENT log [233](#)
Aggregate Optimizer, clearing logs [219](#)
Aggregates [155–158](#), [173](#)
 effect on Web pages [155–158](#)
 for Profiling [173](#)
aggregates for [173](#)
alert [235](#)
 out-of-memory [235](#)
Alert node type [196](#)
Alert web page type [147](#)
Allow Anonymous authentication [221](#)
allow_list_download user preference [106](#)
allow_report_download user preference [106](#)
AllowDisjointFacts [80](#)
allowing users to administer accounts [129](#)
Analyze Links [183](#)
Analyze Links command [183](#)
 and attributes [68](#)
 and disjoint attributes– [80](#)
 and filter types [68](#)
 and Infor Interaction Advisor [256](#)
 and lookup tables [79](#)
 and measure layouts [85](#)
 and navigation nodes [158–160](#)
 and nondemographic dimensions [95](#)
 and object name changes [133](#)
 and Range Filter [71](#)
 and Relative Point-in-Time Filter [71](#)
 and reports– [140–141](#)
 and string values [104](#)
 and the demographic dimension roles [158–160](#)
 and the language_key user preference [106](#)
 and web pages [85](#)
Apache Web server [217](#)
Application components [32](#), [37](#)
Approximate counts [160–163](#), [165–166](#)
Archived campaigns, viewing [44](#)
Arguments [129](#)
 \$\$hf [129](#)
 \$\$op [129](#)
arithmetic operators [60](#)
Arithmetic operators [60](#)
 in fact terms [60](#)
as a menu [202](#), [207–209](#)
as filters [35](#), [68](#), [95](#)
as numeric dimension value [60](#)
Asian languages [153](#)
 changing fonts for [153](#)
assigning access to [126](#), [128–129](#)
assigning column values to [75](#)
Assigning links to navigation nodes [202](#), [207–209](#)
assigning to groups [75](#), [124–125](#)
assigning to navigation nodes– [186](#), [196](#)
assigning web pages– [186](#), [196](#)
assigning– [202](#), [207–209](#)
associating with glossary entries [102](#), [104](#)
associating with glossary entry [102](#), [104](#)
associating with object [102](#), [104](#)
Attribute [68](#), [280](#)
Attribute Factory [100](#)
attribute labels [68](#)
Attribute Layouts [93](#), [95](#)
Attribute layouts–?? [35](#), [93](#), [95](#)
attributes [78](#)
Attributes [35](#), [68](#)
attributes for [170](#)
authentication [37](#), [113](#), [116](#), [119](#), [220](#), [243](#)
Authentication [113](#), [116](#), [119](#), [243](#)
auto-arrange nodes [186–189](#), [191–194](#)
automatic date translation [78](#)
Automatically translated date columns [78](#)

AVGB 61

B

Backlog 61
Basic authentication 221
basing a query on a non-primary dimension 155–158
Batch files, for fulfillment scripts 129
Bayesian Classifier node type 196
Bayesian Classifier Web page type– 147, 155–158
behavior 186–189, 191–194, 202, 207–210
Behavior, of links 186–189, 191–194
behaviors 202, 207–209
behaviors for Menu nodes 202, 207–209
board 147
built-in 41
Built-in objects 41
 modifying 41
built-in objects in 41
Bulk Upload node type 196
buttons 47
Buttons 47
 Admin Manager 47

C

Cache, query and counts 232
caching 219
Calendar node type 196
Calendar Web page type 147
calendar_type user preference 106
Campaign Archive 37, 114, 144
Campaign attributes, sharing with Marketing Resource Management 261
Campaign Communication node type 196
Campaign Communication Strategies node type 196
Campaign dimension 41, 158–160
Campaign Export Immediate link behavior 202, 207–209
Campaign management 37, 44, 95, 114, 144, 158–163, 165–166, 253, 264–265
 and nondemographic dimensions 95
 Campaign Archive 37, 114, 144
 Campaign dimension 158–160
 cells 158–160
 column access restrictions 95
 dimension roles 158–160
 Marketing Resource Management integration 264
 output processors 37
 scheduling recurring deployments 253
 seed entries 160–163, 165–166
 sharing campaigns with Marketing Resource Management 265
 viewing archived campaigns 44
campaign reporting 255
Campaign Segment to List Manager node type 196
Campaign to List Manager node type 196
Campaigns node type 196

Campaigns Web page types 95, 147, 158–163, 165–166
 and navigation nodes 158–160
 and the demographic dimension roles 158–160
 column access restrictions 95
 configuring attributes for lists 160–163, 165–166
 demographic filters 158–160
 making additional columns available 160–163, 165–166
 required columns assigned to campaign 160–163, 165–166
 See also 147
 transaction filters 158–160
Campaigns. 147
cancel confirmation 46
Cancel confirmation, Admin Manager 46
cannot start as service 337
Carry State for OfferOpt link behavior 202, 207–209
Carry State, Create Report link behavior 202, 207–209
Carry State, Display link behavior 202, 207–209
categories 186–189, 191–194, 202, 207–209
cells 158–160
Change Link Categories 183
Change Link Categories command 183
changing fonts for 153
changing the parameters of a service 239
checking status 227
Choose Groups 126, 128–129
Classification 89
Clear State, Create Report link behavior 202, 207–209
Clear State, Display link behavior 202, 207–209
clearing query and counts cache 232
clearing query-log tables 219
client quote character 46
Client quote character, Oracle 46
Clustering 89
CM – Enable or Disable Email services 184
CM – Enable or Disable Formatted Output 184
CM – Enable or Disable Inferred Response 184
CM – Enable or Disable Personalization 184
CM – Make List Only 184
CM – Make List Only command 184
CM – Remove Data Mining Pages 184
CM Email Services - Install command 185
CM Light link behaviors 202, 207–209
CM-Configure dialog 184
Code pages 32
code_page_key user preference 106
column access restrictions 95
column-access restrictions 95
Column-access restrictions 95
columns automatically translated 78
Command prompt for stubs and skeletons generation 309
Command prompt invocation of webservices 320
command-line arguments– 239
Commands 183–185
 Analyze Links 183
 Change Link Categories 183
 CM – Enable or Disable Email services 184

-
- Commands (*continued*)
 - CM – Enable or Disable Formatted Output [184](#)
 - CM – Enable or Disable Inferred Response [184](#)
 - CM – Make List Only [184](#)
 - CM – Remove Data Mining Pages [184](#)
 - CM Email Services - Install command [185](#)
 - Compare Topics [183](#)
 - Conversion Report [183](#)
 - Delete All Inter-Topic Links [183](#)
 - Delete Unused Link Categories [185](#)
 - Quick Start – Enable or Disable [183](#)
 - Spell Check File [185](#)
 - common log-in [255, 263](#)
 - Communication Strategy Segment to List Manager node type [196](#)
 - Communication Strategy to List Manager node type [196](#)
 - Community Clusters node type [196](#)
 - Community Clusters Web page type– [147, 155–158](#)
 - Compare Topics [183](#)
 - Compare Topics command [183](#)
 - ConfigFiles directory [46](#)
 - Configuration [42](#)
 - Configuration commands [183](#)
 - Configuration dialog box [63, 160–163, 165–166](#)
 - Configuration folder [42](#)
 - configuring [43–44, 80, 168–170, 185, 214](#)
 - configuring a campaign topic [264](#)
 - Configuring a foreign system [263](#)
 - configuring attributes [160–163, 165–166](#)
 - configuring attributes for lists [160–163, 165–166](#)
 - Configuring Event-Based Scheduling [297](#)
 - configuring for lists [160–163, 165–166](#)
 - configuring groups– [116, 125](#)
 - configuring Infor Campaign Management Server– [225–226](#)
 - Configuring navigation nodes [185](#)
 - configuring nodes [214](#)
 - configuring users [264](#)
 - Configuring users for Marketing Resource Management [264](#)
 - configuring– [114, 144, 150, 152, 225–226](#)
 - CONN log [233](#)
 - considerations for localized values [78](#)
 - Contents tab [53](#)
 - context [180–181, 186](#)
 - Context [150, 152, 186](#)
 - Context field [104](#)
 - Context Selector Dimension Picker Web page type [147](#)
 - Context, for web pages [180–181](#)
 - Conversion Report [183](#)
 - Conversion Report command [183](#)
 - copying and moving reports [137–138](#)
 - copying objects between data marts [41, 53](#)
 - Count [61](#)
 - COUNT [61](#)
 - COUNT DISTINCT [67](#)
 - over different types of events [67](#)
 - COUNTDISTINCT [61](#)
 - COUNTDISTINCT, STATELIKE [61](#)
 - crashes [339](#)
 - creating [44, 196](#)
 - creating a new group [126](#)
 - creating and deleting folders [135](#)
 - creating and editing [59](#)
 - creating with wizard [76](#)
 - Creative Placement Definition node type [196](#)
 - Creative Selection Criteria node type [196](#)
 - Cumulative Projections node type [196](#)
 - Cumulative Projections Web page type [147](#)
 - currency [63](#)
 - Currency, as a measure unit [63](#)
 - customizing the Home page [170–171](#)
- ## D
- Dangling references, from deleted topics [143](#)
 - Dashboard node type [196](#)
 - Dashboard Publish node type [196](#)
 - Dashboard Publishing [147, 168–170](#)
 - configuring [168–170](#)
 - Web page type [147](#)
 - dashboard user preferences [106](#)
 - Dashboard Web page type [147, 166–168](#)
 - Dashboards [166–168](#)
 - Data elements [35, 80](#)
 - configuring [80](#)
 - data-flow diagrams [51](#)
 - Data-flow diagrams [51](#)
 - database connections [232](#)
 - Database connections, to Infor Campaign Management Server [232](#)
 - Database Query Timeout [46](#)
 - database servers [251](#)
 - Database servers [46](#)
 - storing passwords in registry [46](#)
 - Date dimension [41, 71, 78, 338](#)
 - and Range Filter [71](#)
 - and Relative Point-in-Time Filter [71](#)
 - columns automatically translated [78](#)
 - considerations for localized values [78](#)
 - report date display [338](#)
 - values displayed localized [78](#)
 - date displayed on reports [338](#)
 - Date format [68](#)
 - date relative [71](#)
 - Date Relative Filter [71](#)
 - Date Relative Point-In-Time Filter [71](#)
 - date relative point-in-time filters [71](#)
 - date_relative flag [71](#)
 - db_epiuuseradmin role [129](#)
 - debugging [225–226](#)
 - default [67, 106](#)
 - default permissions [139](#)
 - default reports [133, 140, 209–210](#)
 - default save location [133](#)
 - default_count_to_approx user preference [106](#)
-

- Define an Uploaded File node type [196](#)
 - Define Campaign Events node type [196](#)
 - Define Data Store node type [196](#)
 - defined [179](#)
 - defining [44](#), [67](#), [85](#), [116](#), [119](#)
 - defining for list membership [91](#)
 - defining groups [116](#), [119](#)
 - delegates [113](#), [126](#), [128–129](#)
 - Delegates [113](#), [124–125](#)
 - assigning to groups [124–125](#)
 - Delete All Inter-Topic Links [183](#)
 - Delete All Inter-Topic Links command [183](#)
 - Delete All Intertopic Links command [181](#)
 - Delete Unused Link Categories [185](#)
 - Delete Unused Link Categories command [185](#)
 - deleting [65](#), [78](#), [143](#)
 - deleting a service [239](#)
 - Deleting measures [65](#)
 - deleting shared campaigns [265](#)
 - deleting while in use [129](#)
 - demographic [158–160](#)
 - demographic filters [158–160](#)
 - DeploymentManager log [233](#)
 - Description field [104](#)
 - Dest Node [186–189](#), [191–194](#)
 - Developer Label Field [48](#)
 - Developer Label Fields [48](#)
 - dialog boxes [48](#)
 - Dialog boxes [45](#), [47–49](#), [51](#), [63](#), [67–68](#), [75](#), [91](#), [93](#), [95](#), [100](#), [102](#), [104](#), [126](#), [128–129](#), [135](#), [143–144](#), [186–189](#), [191–194](#), [280](#)
 - About this Application [47](#)
 - Admin Manager [48](#)
 - Attribute [68](#), [280](#)
 - Attribute Factory [100](#)
 - Attribute Layouts [93](#), [95](#)
 - Campaign Archive [144](#)
 - Choose Groups [126](#), [128–129](#)
 - Developer Label Field [48](#)
 - Fill From Query [75](#)
 - Find Report [135](#)
 - Glossary [68](#), [102](#), [104](#)
 - Label Field [48](#)
 - Measure [63](#)
 - Measure Sets [91](#)
 - Navigation Nodes [186–189](#), [191–194](#)
 - Object Gallery [51](#)
 - Output Processor [129](#)
 - Preferences [45](#)
 - Resolve Dangling References [143](#)
 - Transaction Type Sets [67](#)
 - Usage tab [49](#)
 - dimension roles [158–160](#)
 - Dimension roles [35](#)
 - See [35](#)
 - Dimensions [35](#), [95](#), [113](#), [116](#), [119](#), [126](#), [128–129](#)
 - displaying values of [126](#), [128–129](#)
 - nondemographic dimensions [95](#)
 - Dimensions (*continued*)
 - restricting access to users and groups [113](#)
 - restricting group access [116](#), [119](#)
 - restricting user access [126](#), [128–129](#)
 - See also [35](#)
 - Dimrole setting [76](#)
 - disjoint [80](#)
 - Disjoint attributes– [80](#)
 - display_full_list_paths user preference [106](#)
 - display, Admin Manager [47](#)
 - displaying in categories [150](#), [152](#)
 - displaying values of [126](#), [128–129](#)
 - Domain names [221](#)
 - domains [221](#)
 - Domains [221](#)
 - dual roles of [95](#)
 - duplicating users [126](#)
 - dynamic check boxes [71](#)
 - dynamic listbox [71](#)
 - Dynamic Output Format node type [196](#)
- ## E
- Eclipse invoking webservice [311](#)
 - Eclipse stubs and skeletons generating [306](#), [308](#)
 - Edit List for Scoring link behavior [202](#), [207–209](#)
 - editing [67](#), [95](#)
 - Editing [67](#)
 - transaction type [67](#)
 - Editing navigation nodes [195](#)
 - editing with SQL [75](#)
 - effect of deleting fact table [95](#)
 - effect on defined transaction filters [95](#)
 - effect on Web pages [155–158](#)
 - EIIA_Schema [256](#)
 - EIIA.htm [256](#)
 - elements and groups [74](#)
 - eliminating [256](#)
 - email_address user preference [106](#)
 - email_notify_tag user preference [106](#)
 - End of Extraction [338](#)
 - epiappservice.exe command– [239](#)
 - EpiCenter [47](#)
 - EpiCenter menu [47](#)
 - EpiCenter menu, Admin Manager [47](#)
 - EpiCenter profile [253](#)
 - exporting [253](#)
 - scheduling recurring deployments [253](#)
 - EpiCenter Profiles node type [196](#), [253](#)
 - EpiCenters [47](#), [54](#)
 - opening [47](#)
 - translating strings in [54](#)
 - EpiChannel [28](#), [32](#), [228](#)
 - Refresh option [228](#)
 - overview [28](#)
 - EpiChannel executable parameter [46](#)
 - EpiLDAPLogon [220](#)
 - EpiLDAPLogon security module [220](#)

- EpiMeta database [219–220](#)
 - clearing query-log tables [219](#)
 - updating [220](#)
 - EpiNTLogon [220–221](#), [225–226](#)
 - EpiNTLogon security module [220–221](#), [225–226](#)
 - EpiPassThruLogon [220](#)
 - EpiPassThruLogon security module [220](#)
 - epipsnmp.reg [243](#)
 - EpiQueryEngineDBConnOpenFailureException [337](#)
 - EpiW2KLogon [220–221](#), [225–226](#)
 - EpiW2KLogon security module [220–221](#), [225–226](#)
 - error conditions [340](#)
 - error messages [335](#)
 - Errors [335–339](#)
 - EpiQueryEngineDBConnOpenFailureException [337](#)
 - Infor Campaign Management Server [335](#)
 - internal Windows 7 [337](#)
 - Object Not Found [339](#)
 - refresh fails [339](#)
 - Result Page Error, Extraction Date Unknown [338](#)
 - user cannot log in [336](#)
 - web browser crashes [339](#)
 - ETC Content Master node type [196](#)
 - ETC Message Content node type [196](#)
 - Event-Based Scheduling configuring [297](#)
 - execute_favorite_reports user preference [106](#)
 - execute_mailed_reports user preference [106](#)
 - execute_reports_on_load user preference [106](#)
 - execute_scheduled_files_as_saving_user user preference [106](#)
 - Executive Dashboard [166–168](#)
 - export of seed transactions [160–163](#), [165–166](#)
 - exporting [253](#)
 - Exporting metadata [53](#)
 - ExportSeedTransactions [160–163](#), [165–166](#)
 - external [202](#), [207–209](#)
 - External Data Access node type [196](#)
 - External list, import [196](#)
 - external lookup filter [68](#)
 - External lookup filters [68](#), [79](#)
 - for attributes [68](#)
 - in web pages [79](#)
 - external lookup tables [79](#)
 - External lookup tables [79](#)
 - External tables [79](#)
 - external_key [79](#)
 - Extraction folder [43](#)
 - Extraction group, End of Extraction [338](#)
- F**
- Fact table, deleting [95](#)
 - effect on defined transaction filters [95](#)
 - Fact Term [147](#)
 - Web page type [147](#)
 - Fact Term node type [196](#)
 - Fact terms [35](#), [60](#)
 - FactTerm parameter [61](#)
 - favorites [53](#), [133](#)
 - Favorites, online help [53](#)
 - File [47](#)
 - File menu [47](#)
 - File menu, Admin Manager [47](#)
 - Files [223](#), [237](#), [243](#), [256](#)
 - .mib [243](#)
 - /etc/syslog.conf [223](#)
 - /var/adm/messages [223](#)
 - EIIA.htm [256](#)
 - epipsnmp.reg [243](#)
 - mib.bin [243](#)
 - registry.properties [237](#)
 - snmputil.exe [243](#)
 - Fill from query [75](#)
 - Fill From Query [75](#)
 - Filter [61](#)
 - filter elements [74–75](#), [79](#)
 - and lookup tables [79](#)
 - assigning column values to [75](#)
 - assigning to groups [75](#)
 - Filter Elements tab [71](#), [75](#)
 - filter group [74](#)
 - Filter groups [75](#)
 - adding [75](#)
 - filter labels in date attributes [68](#)
 - Filter types [68](#), [71](#), [75](#)
 - and attributes [68](#)
 - date relative [71](#)
 - date relative point-in-time filters [71](#)
 - dynamic check boxes [71](#)
 - dynamic listbox [71](#)
 - listbox [71](#)
 - radio button [71](#)
 - range filter [71](#)
 - SSKey indicator [71](#)
 - static [75](#)
 - text box [71](#)
 - Filters– [74–75](#)
 - Filters, options, attributes, and measures (FOAM) [147](#), [202](#), [207–210](#)
 - Find Report [135](#)
 - finding aliases [337](#)
 - finding unused nodes [183](#)
 - fireEvent method from command prompt [323](#)
 - fireEvent() method [325](#)
 - FireEvent() method [318](#)
 - fireEventWithEventId method from command prompt [323](#)
 - fireEventWithEventName method from command prompt [323](#)
 - flag, date_relative [71](#)
 - folder [42](#)
 - folder and report permissions [139](#)
 - Folder menu– [135](#)
 - folders [133](#), [135](#)
 - Folders [113–114](#)
 - Groups [114](#)
 - Security/Storage [113](#)

Folders (*continued*)

- Users [114](#)
- Folders, Admin Manager [41](#), [47](#)
 - sub [41](#), [47](#)
- Fonts, for Asian languages [153](#)
- for a point in time [71](#)
- for attributes [68](#)
- for campaigns and lists— [196](#)
- for High/Low Clusters [170](#)
- for Infor Interaction Advisor [256](#)
- for Marketing Resource Management integration [264](#)
- for navigation nodes [186–189](#), [191–194](#)
- for Profiling [173](#)
- for published dashboard access [168–170](#)
- for Scoring [212](#)
- foreign system configuration [263](#)
- Foreign system configuration [263](#)
- formatting locale [78](#)
- formatting_locale_key user preference [106](#)
- FULFILLMENT log [129](#), [233](#)
- fulfillment script [129](#)
- fulfillment scripts [129](#)
- Fulfillment scripts [129](#)

G

- gallery_clump_size user preference [106](#)
- gallery_num_clumps user preference [106](#)
- gallery_show_clumps user preference [106](#)
- gallery_sort_reverse_flag user preference [106](#)
- Generating stubs and skeletons with WSDL2Java.class [302–303](#)
- GIF images, problems [337](#)
- Glossary [44](#), [68](#), [102](#), [104](#)
 - adding entries [44](#)
- Glossary entries [35](#), [102](#), [104](#)
 - associating with object [102](#), [104](#)
 - label for [102](#), [104](#)
 - on web page [102](#), [104](#)
- glossary entries on [102](#), [104](#)
- Glossary entries, HTML in [102](#), [104](#)
- granting access to [116](#), [119](#)
- granting access to topics [116](#), [119](#)
- grid editor [40](#)
- Grid editor, Admin Manager [40](#)
- group access rights [114](#)
- Group Campaign [209–210](#)
- group delegates [124–125](#)
- Group ID [37](#)
- Group List Manager [209–210](#)
- Groups [114](#), [116](#), [119](#), [168–170](#)
 - defining [116](#), [119](#)
 - linking to published dashboard instance [168–170](#)
- Groups folder [114](#)
- GroupSecurityFiltersUnionAllOrPrimary user preference [106](#)

H

- Help [47](#)
- Help menu [47](#)
- Help menu, Admin Manager [47](#)
- hidden objects [125](#)
- Hide Nodes with No Access Records option [186–189](#), [191–194](#)
- hiding nav nodes with no user permissions assigned [186–189](#), [191–194](#)
- hiding or deleting [215](#)
- hierarchies [68](#)
- high-cardinality queries [155–158](#)
- High/Low Clusters [147](#)
 - Web page type [147](#)
- High/Low Clusters node type [196](#)
- High/Low Clusters Web page type [168–170](#)
 - attributes for [170](#)
- HighMemoryThreshold [235](#)
- HighMemoryTimeThreshold [235](#)
- Home Page [147](#), [170–171](#)
 - Web page type [147](#)
- Home Page node type [196](#)
- home_nav_node_key user preference [106](#), [166–168](#)
- HTML links in glossary entries [102](#), [104](#)
- HTML, embedding in glossary descriptions [102](#), [104](#)

I

- IA Redirect Type node type [196](#)
- IA Redirect Web page type [147](#)
- ID field [104](#)
- Images, reducing bandwidth [239](#)
- Import external list Web page type [196](#)
- Import Scored List node type [196](#)
- Importing [53](#)
- Importing IA Metadata [256](#)
- Importing jar files [302–303](#)
- importing metadata [259](#)
- improving performance [155–158](#)
 - in date dimension column [71](#)
 - in fact term [60](#)
 - in fact term definition [60](#)
 - in fact terms [60](#)
 - in filters [67](#)
 - in metadata [256](#)
 - in the Campaigns Web page type [158–160](#)
 - in web pages [79](#)
- Include As Menu link behaviors [202](#), [207–209](#)
- Individual Campaign [209–210](#)
- Individual List Manager [209–210](#)
- individual privileges [126](#), [128–129](#)
- Inference Campaigns node type [196](#)
- Inference List Manager node type [196](#)
- Influences node type [196](#)
- Influences Web page type— [147](#), [155–158](#)

- Infor Campaign Management Server [32](#), [116](#), [119](#), [129](#), [219–221](#), [224–228](#), [230](#), [232–233](#), [237](#), [239](#), [243](#), [335–337](#), [339](#)
 - activating SNMP reporting [129](#)
 - adding a new service [239](#)
 - cannot start as service [337](#)
 - changing the parameters of a service [239](#)
 - checking status [227](#)
 - clearing query and counts cache [232](#)
 - command-line arguments– [239](#)
 - configuring– [225–226](#)
 - database connections [232](#)
 - debugging [225–226](#)
 - deleting a service [239](#)
 - domains [221](#)
 - error messages [335](#)
 - log file [227](#), [233](#)
 - log naming conventions [233](#)
 - managing– [239](#)
 - Monitor– [228](#), [230](#), [232](#)
 - multiple instances [116](#), [119](#), [237](#), [243](#)
 - overview [32](#)
 - query caching [219](#)
 - refresh problems [339](#)
 - refresh time [228](#)
 - refreshing [228](#)
 - restarting [228](#)
 - security– [220–221](#)
 - SNMP ??– [243](#)
 - SNMP–?? [243](#)
 - starting [224–226](#)
 - status query responses [243](#)
 - status reporting– [243](#)
 - stopping [224](#)
 - synchronized authentication [220](#)
 - troubleshooting log-in [220](#), [336](#)
 - verifying operation [224](#)
 - when to refresh [228](#)
 - Infor Campaign Management Server log [227](#), [233](#)
 - Infor Campaign Management Server optimization [217](#)
 - Infor Campaign Management Server Windows service requirements [225–226](#)
 - Infor Interaction Advisor [251](#), [255](#), [263](#)
 - campaign reporting [255](#)
 - common log-in [255](#), [263](#)
 - database servers [251](#)
 - security [255](#), [263](#)
 - Infor Omni-Channel Campaign Management [32](#)
 - localized versions [32](#)
 - Initializing a topic [180–181](#)
 - initializing– [180–181](#)
 - integer [71](#)
 - Integer attributes [71](#)
 - interface tab [186](#)
 - intermediate node types– [209–210](#)
 - intermediate– [209–210](#)
 - internal Windows NT [337](#)
 - Internal Windows NT errors [337](#)
 - international support [32](#)
 - Internationalization [32](#), [48](#), [54](#), [104](#), [106](#)
 - Admin Manager and [32](#)
 - and string values [104](#)
 - and the language_key user preference [106](#)
 - labels and [48](#)
 - translating strings for [54](#)
 - internationalization and [32](#)
 - Internationalization. See also Localization. [104](#)
 - Internet Information Server [217](#), [221](#)
 - invalid attributes in reports [133](#)
 - Invoke the webservice methods from command prompt [320](#)
 - Invoking webservice for Eclipse [311](#)
 - iPlanet Web Server [217](#)
 - See [217](#)
- ## J
- Jar files for stubs and skeletons [302–303](#)
 - Java classes [217](#)
- ## K
- key values [67](#)
 - key values, for transtypes [67](#)
- ## L
- Label Field [48](#)
 - Label Fields [48](#)
 - label for [102](#), [104](#)
 - labels and [48](#)
 - Language packs [54](#)
 - language_key user preference [32](#), [106](#)
 - Languages [32](#)
 - international support [32](#)
 - last_extract_date key [338](#)
 - LDAP [220](#)
 - LDAP (Lightweight Directory Access Protocol) [114](#), [116](#), [119](#), [243](#)
 - authentication [116](#), [119](#), [243](#)
 - LDAP (Lightweight Directory Access Protocol)– [131–132](#)
 - Lifecycles node type [196](#)
 - Lifecycles Web page type [147](#), [172](#)
 - Light Campaigns node type [196](#)
 - Light Email Campaigns node type [196](#)
 - Light Web Campaign node type [196](#)
 - Link behaviors [202](#), [207–209](#)
 - Link categories [44](#)
 - creating [44](#)
 - linking to published dashboard instance [168–170](#)
 - linking to published dashboard instance [168–170](#)
 - linking to specific instances [168–170](#)
 - links [186–189](#), [191–194](#)
 - Links [102](#), [104](#), [186–189](#), [191–194](#), [202](#), [207–210](#)
 - adding [202](#), [207–209](#)

Links (*continued*)

- assigning– 202, 207–209
 - behavior 186–189, 191–194, 202, 207–210
 - behaviors 202, 207–209
 - behaviors for Menu nodes 202, 207–209
 - categories 186–189, 191–194, 202, 207–209
 - Dest Node 186–189, 191–194
 - external 202, 207–209
 - for navigation nodes 186–189, 191–194
 - HTML, embedding in glossary descriptions 102, 104
 - menu category 202, 207–209
 - menus of– 202, 207–209
 - navigation type 202, 207–209
 - prompts, formatting 186–189, 191–194
 - special-purpose categories 202, 207–209
- links. 186
- List management 155–158, 160–163, 165–166
- configuring attributes 160–163, 165–166
 - transactional data 160–163, 165–166
 - using lists as attributes 155–158
- List Manager node type 196
- listbox 71
- Lists 253
- scheduling recurring deployments 253
- Localization 68, 78
- attribute labels 68
 - attributes 78
 - filter labels in date attributes 68
- Localization See Internationalization. 32
- localized versions 32
- Localized versions of Infor Omni-Channel Campaign Management 32
- log file 227, 233
- log files 235, 237
- log naming conventions 233
- Log-in page. 173
- Logging directory parameter 46
- Logging verification 223
- login dialog box 221
- login method from command prompt 321
- login() method 325
- logs 236
- Logs 219, 227, 233, 235–237
- clearing query-log tables 219
 - Infor Campaign Management Server log 227, 233
 - naming conventions 233
 - queue logs 236
 - Scheduler logs 235, 237
 - task logs 236

M

- Macros 43
- configuring 43
- making additional columns available 160–163, 165–166
- managing on Windows 241
- managing reports– 140–141
- Managing the Scheduler on Windows 241
- managing– 239
- mapping items to 87–88
- Marketing Resource 264
- configuring a campaign topic 264
- Marketing Resource Management 264
- configuring users 264
- Marketing Resource Management integration 259, 261, 263–265
- deleting shared campaigns 265
 - foreign system configuration 263
 - importing metadata 259
 - sharing campaign attributes 261
 - SOAP URL 263
 - working with shared campaigns 265
- matched group name and domain name 221
- MAX 61
- max_favorite_charts user preference 106
- max_favorites_per_topic user preference 106
- max_measures_carried user preference 106
- max_topics_per_row user preference 106
- Measure 63, 147, 196
- node type 196
 - Web page type 147
- Measure layouts– 35, 85, 88
- Measure Operand node type 196
- Measure Operand Web page type 147
- measure roles– 90
- measure sets 155–158
- Measure sets 35, 89
- Measure Sets 91
- Measure units 63
- currency 63
 - percent 63
 - units 63
- Measures folder 43
- Measures– 35, 59, 63
- menu category 202, 207–209
- Menu node type 196
- Menu Web page type 147, 173
- Menus 47, 183, 202, 207–209
- EpiCenter 47
 - File 47
 - Help 47
 - Object 47
 - of links– 202, 207–209
 - Server 47
 - Tools 47, 183
- menus of– 202, 207–209
- menus– 202, 207–209
- Message Definition node type 196
- Metadata 54, 256
- for Infor Interaction Advisor 256
 - name conflicts in 256
 - translating 54
- Method fireEvent() 325
- Method FireEvent() 318
- Method for returning event IDs 316
- Method login() 325

Method receiveEventResult() 325
 Method ReceiveEventResult() 320
 Method retrieveEvents() 317, 325
 mib.bin 243
 mib.bin file 243
 mibcc command 243
 Microsoft Internet Explorer 339
 MIN 61
 MLM Export link behavior 202, 207–209
 Modeling Bayes node type 196
 Modeling Influence node type 196
 Modeling node type 196
 Modeling Web page type– 147, 155–158
 modifying 41
 modifying with configuration commands 183
 modules 220
 MOM_MetaDataRead log 233
 Monitor 228
 Monitor– 228, 230, 232
 multicolumn 85
 Multicolumn measure layouts 85
 multiple instances 116, 119, 237, 243
 multiple users with the same name 221
 Multiple-fact measures 80
 Multiple-fact measures with disjoint attributes– 80

N

Name conflicts 256
 eliminating 256
 in metadata 256
 name conflicts in 256
 naming conventions 233
 navigating 54
 Navigating online help 54
 navigation node permissions 186–189, 191–194, 196
 Navigation node types 186–189, 191–194
 Navigation nodes 36, 179
 Navigation Nodes 186–189, 191–194
 navigation nodes. 179
 navigation type 202, 207–209
 Navigation types 202, 207–209
 Netscape Navigator 339
 Network, improving performance 239
 new user permissions 125
 node type 196
 nodes for 212
 nondemographic dimensions 95
 notify_saving_user_of_schedule_completion user
 preference 106
 NTLM authentication 221
 NTLM authentication, considerations for WebLogic 10
 MP1 221

O

Object 47

Object Gallery 51, 95
 Object menu 47
 Object menu, Admin Manager 47
 Object Not Found 339
 Object Not Found error 339
 objects 37
 Objects 41, 95, 104
 built-in 41
 editing 95
 Override field 104
 obtaining meaningful query results 150, 152
 of links– 202, 207–209
 Offer Optimization node type 196
 on web page 102, 104
 one-pane view 41
 One-pane view in Admin Manager 41
 online help 53
 Online help 53–54
 accessing 53
 Contents tab 53
 favorites 53
 navigating 54
 Search tab 53
 opening 39, 47
 Oracle 46
 client quote character 46
 oracle_sort_order user preference 106
 out-of-memory 235
 Out-of-memory alert 235
 output files exporting seeds information 160–163, 165–
 166
 Output Processor 129
 Output Processor runtime directory 129
 output processors 37
 Output processors– 37, 129
 over different types of events 67
 Override field 104
 overview 28, 32, 39, 68

P

Packs, language 54
 Palm Query Applications (PQA) 166–168
 PDA (Personal Digital Assistant) 166–168
 percent 63
 Performance, improving network 239
 Period 61
 permissions 125, 133, 139, 174, 186–189, 191–194, 196
 Permissions 168–170
 for published dashboard access 168–170
 Permissions. 125
 Personal Digital Assistant (PDA) 166–168
 PQA (Palm Query Applications) 166–168
 predecessor 68
 preferences 45
 Preferences 45
 Preferences, Infor Campaign Management 45
 Presentation folder 44

Presentation objects– 35, 85, 105
primary group 126, 128–129
Profiling node type 196
Profiling Web page type 147, 173
Prompts, for links 186–189, 191–194
prompts, formatting 186–189, 191–194
Properties, of reports 140–141
Proxy, web server 237
Published Dashboards 147, 168–170
 configuring 168–170
 linking to specific instances 168–170
 Web page type 147

Q

Queries 155–158, 217, 219
 caching 219
 improving performance 155–158
 Infor Campaign Management Server optimization 217
Query and counts cache, clearing 232
query caching 219
query_timeout user preference 106
queue logs 236
Queues 236
 logs 236
 status code 236
Quick Start – Enable or Disable 183
Quick Start – Enable or Disable command 183
quick start, disabling 183

R

radio button 71
range filter 71
Range filter 71
 in date dimension column 71
receiveEventResult method from command prompt 324
receiveEventResult() method 325
ReceiveEventResult() method 320
Reflection 245
refresh fails 339
refresh problems 339
refresh time 228
refreshing 181, 228
Refreshing topics 181
Registry 46
 storing passwords in 46
registry value ExportSeedTransactions 160–163, 165–166
registry.properties 237
registry.properties file 237
Regression 89
renaming 67
Renaming transaction types 67
report date display 338
Report Gallery 174

Report Gallery node type 196
Report Gallery Path Selector node type 196, 214
 configuring 214
Report Gallery– 37, 44, 133
report generation 202, 207–209
Report menu– 137–138
report types 186–189, 191–194, 202, 207–209, 213
report_gallery_sort_on user preference 106
report_gallery_type user preference 106
Reports 142–143
 transferring when deleting a topic 142–143
repository 35
required columns assigned to campaign 160–163, 165–166
Resolve Dangling References 143
Resolve Dangling References dialog box 143
Response Inference link behavior 202, 207–209
restarting 228
restricting access to dimension columns 113
restricting access to users and groups 113
restricting group access 116, 119
restricting user access 126, 128–129
Result Page Error, Extraction Date Unknown 338
retrieveEvents method from command prompt 322
retrieveEvents() method 317, 325
retriveAllEventIds method from command prompt 321
RetriveAllEventIds() method 316
Return event IDs method 316
reviewing usage of 65
Rows and Columns 147, 154
 Web page types 147, 154
Rows and Columns node type 196
RPDB 253
Rule Set node type 196
RulesManager log 233
runtime directory for Output Processor 129

S

SCHEDULE log 233
Schedule node type 196
Scheduler 28, 32, 235, 237, 241
 log files 235, 237
 managing on Windows 241
 overview 28, 32
Scheduler logs 235, 237
Schedules, for reports 140–141
scheduling recurring deployments 253
Schema 42
 folder 42
Schema folder 42
Scored list definition 60
 in fact term definition 60
Scored lists 60
 as numeric dimension value 60
 in fact term 60
Scoring 66, 147, 174–175, 212
 nodes for 212

- Scoring (*continued*)
 - using measures [66](#)
 - Web page type [147](#), [174–175](#)
- Scoring node type [196](#)
- Scrutiny, empty or missing folder errors [214](#)
- Search tab [53](#)
- Searching online help [53](#)
- Securing [225–226](#)
 - Infor Campaign Management Server Windows service requirements [225–226](#)
- security [220](#), [255](#), [263](#)
- Security and Storage [37](#), [114](#), [144](#)
 - Campaign Archive [144](#)
 - configuring– [114](#), [144](#)
 - objects [37](#)
- SECURITY log [233](#)
- security module [220–221](#), [225–226](#)
 - EpiLDAPLogon [220](#)
 - EpiNTLogon [220–221](#), [225–226](#)
 - EpiPassThruLogon [220](#)
 - EpiW2KLogon [220–221](#), [225–226](#)
 - SingleSignon [220](#)
- security– [220–221](#)
- Security– [220–221](#)
- Security/Storage [113](#)
- Security/Storage folder [44](#), [113](#)
- See [35](#), [166–168](#), [217](#), [220](#), [239](#), [243](#)
- See also [35](#), [147](#)
- seed entries [160–163](#), [165–166](#)
- Seed entries in campaigns [160–163](#), [165–166](#)
- Segment List Segment to List Manager node type [196](#)
- Segmented List node type [196](#)
- Segmented List to List Manager [196](#)
- Select a Context node type [196](#)
- Select a Navigation Path [147](#), [176](#)
 - Web page types [147](#)
- Select a Navigation Path node type [196](#)
- selecting, moving and editing [195](#)
- Separate web and application Infor Campaign Management Server [238](#)
 - separate web and application servers [238](#)
- separate web and application servers [238](#)
- Server [47](#)
- Server menu [47](#)
- Server menu, Admin Manager [47](#)
- SESSION log [233](#)
- sharing campaign attributes [261](#)
- sharing campaigns with Marketing Resource Management [265](#)
- sharing reports between users [126](#), [128–129](#)
- show_bg_mode_selector user preference [106](#)
- Show_security_filters_when_changing_context user preference [106](#)
- Simple Network Management Protocol (SNMP)– [243](#)
- Single Sign On [220](#)
 - See [220](#)
- SingleSignon [220](#)
- SingleSignonLogon security module [220](#)
- SNMP [243](#)
 - See [243](#)
- SNMP ??– [243](#)
- SNMP–?? [243](#)
- snmputil.exe [243](#)
- snmputil.exe file [243](#)
- SOAP URL [263](#)
- source attributes [155–158](#)
- Source attributes [155–158](#)
- special-purpose categories [202](#), [207–209](#)
- Spell Check File [185](#)
- Spell Check File command [185](#)
- SPNodeSelect node type [196](#)
- SQL [47](#)
 - syntax colors [47](#)
- SQL Server TCP/IP sockets [337](#)
- SQL syntax display [47](#)
- sqlserver_sort user preferences [106](#)
- SRV log [233](#), [235](#)
- SSKey indicator [71](#)
- SSO [220](#)
- SSO synchronization [114](#)
- starting [224–226](#), [239](#)
- starting and stopping Infor Campaign Management Server on [224–226](#)
- Starting folder path [106](#)
- starting_folder_path [106](#)
- state information [202](#), [207–210](#)
- STATELIKE COUNTDISTINCT [61](#)
- static [75](#)
- Static filter types [75](#)
- Static filters [75](#)
- status code [236](#)
- status query responses [243](#)
- status reporting– [243](#)
- Status, checking for Infor Campaign Management Server [227](#)
- stopping [224](#), [239](#)
- STORAGE log [233](#)
- storing passwords in [46](#)
- storing passwords in registry [46](#)
- string substitution and context [186](#)
- String values, and internationalization [104](#)
- Strings [35](#), [104–105](#), [150](#), [152](#), [179](#), [186](#)
 - adding [105](#)
 - Context [150](#), [152](#)
 - Context field [104](#)
 - Description field [104](#)
 - ID field [104](#)
 - repository [35](#)
 - string substitution and context [186](#)
 - substitution markers [179](#)
 - Value field [104](#)
- Strings repository [48](#)
- Stubs and skeletons generating for Eclipse [306](#), [308](#)
- Stubs and skeletons generation from command prompt [309](#)
- Stubs and skeletons jar files [302–303](#)

- sub 41, 47
 - Sub folders in Admin Manager 47
 - sub-folders 41, 47
 - Sub-folders in Admin Manager 41
 - substitution markers 179
 - Substitution markers 105, 179
 - Substitution-Field Collection node type 196
 - SUM 61
 - Sun ONE Web Server 217
 - supported servers 217
 - suppress_images user preference 106, 239
 - Synchronization 220
 - synchronized authentication 220
 - synchronized groups 114, 221
 - Synchronized groups 114
 - Syntax 47
 - display, Admin Manager 47
 - syntax colors 47
 - syslog daemon 223
 - System architecture overview 28
 - system log 223
- ## T
- target attribute 155–158
 - target attributes 155–158
 - task logs 236
 - Tasks 236
 - logs 236
 - status code 236
 - tasks_not_executed user preference 106
 - TCP/IP sockets, SQL Server 337
 - Templates, for topics 179
 - text box 71
 - TextFileCodePage key 233
 - the Measure Layouts folder 59
 - the Measure Sets folder 59
 - the Measures folder 59
 - the Transaction Type Sets folder 59
 - Threads 230
 - Time zone 338
 - timezone_id user preference 106
 - title and prompt 179
 - tm_mode user preference 106
 - tm_refresh_min user preference 106
 - tm_show_completed user preference 106
 - tm_show_running user preference 106
 - tm_show_scheduled user preference 106
 - tool bar 48
 - tool bars 39, 48
 - Tool bars in Admin Manager 39, 48
 - Tools 47, 183
 - Tools menu 47, 183
 - Top N Scores 147, 176
 - Web page type 147, 176
 - Top N Scores node type 196
 - top-level folders 41
 - Top-level folders in Admin Manager 41
 - Topic templates 179
 - Topics 36, 44, 116, 119, 140, 142–143, 150, 152, 179–181, 183, 186–189, 191–194, 202, 207–209
 - context 180–181, 186
 - creating 44
 - default reports 140
 - defined 179
 - deleting 143
 - granting access to 116, 119
 - initializing– 180–181
 - links. 186
 - modifying with configuration commands 183
 - navigation nodes. 179
 - refreshing 181
 - report types 186–189, 191–194, 202, 207–209
 - transferring reports when deleting a topic 142–143
 - troubleshooting 183
 - using different web pages of the same type 150, 152
 - viewing structure 186
 - Transaction filter filters 95, 100
 - transaction filters 158–160
 - Transaction filters 35, 95
 - transaction type 67
 - transaction type sets 67
 - Transaction Type Sets 67
 - Transaction types– 67
 - transactional data 160–163, 165–166
 - transferring reports when deleting a topic 142–143
 - transferring reports– 142–143
 - transferring when deleting a topic 142–143
 - translating 54
 - translating strings for 54
 - translating strings in 54
 - TransType 61
 - Trends node type 196
 - Trends Web page type 147, 177
 - troubleshooting 183
 - troubleshooting log-in 220, 336
 - Troubleshooting topics 183
 - TTLA. 150, 152
 - TUMs 54
 - two-pane view 41
 - Two-pane view in Admin Manager 41
 - two-tier list 150, 152
- ## U
- unassigned nodes 196
 - units 63
 - Unix 223–224, 256
 - and Infor Interaction Advisor 256
 - starting and stopping Infor Campaign Management Server on 224
 - system log 223
 - updating 186–189, 191–194, 220
 - Updating 253
 - RPDB 253
 - Upgrading from E5 183

URLs for viewing webservices [300](#), [302](#)
 usage [186–189](#), [191–194](#)
 Usage tab [49](#)
 Usage tabs [49](#)
 use_list_attributes user preference [106](#)
 useage [65](#)
 Useage tab, for measures [65](#)
 user cannot log in [336](#)
 User cannot log in [336](#)
 user delegates [126](#), [128–129](#)
 User ID. [37](#)
 user preferences [106](#)
 User preferences [78](#), [106](#)
 default [106](#)
 formatting locale [78](#)
 User preferences, language_key [32](#)
 user-interface locale [46](#)
 User-interface locale, Admin Manager [46](#)
 UserNotices log [233](#)
 Users [114](#), [129](#), [168–170](#), [264](#)
 allowing users to administer accounts [129](#)
 for Marketing Resource Management integration [264](#)
 linking to published dashboard instance [168–170](#)
 Users and groups [37](#), [113–114](#), [116](#), [119](#), [124–126](#), [128–129](#), [139](#), [186–189](#), [191–194](#), [196](#), [221](#)
 access rights [37](#), [113](#)
 adding users to groups [116](#), [119](#), [126](#), [128–129](#)
 administrator group [125](#)
 configuring groups– [116](#), [125](#)
 creating a new group [126](#)
 defining groups [116](#), [119](#)
 delegates [113](#)
 duplicating users [126](#)
 folder and report permissions [139](#)
 granting access to topics [116](#), [119](#)
 group delegates [124–125](#)
 hiding nav nodes with no user permissions assigned [186–189](#), [191–194](#)
 individual privileges [126](#), [128–129](#)
 matched group name and domain name [221](#)
 navigation node permissions [186–189](#), [191–194](#), [196](#)
 new user permissions [125](#)
 primary group [126](#), [128–129](#)
 restricting access to dimension columns [113](#)
 synchronized groups [114](#)
 user delegates [126](#), [128–129](#)
 Users folder [114](#)
 using [100](#)
 using an existing page as a template [150](#), [152](#)
 using attributes [35](#)
 using different web pages of the same type [150](#), [152](#)
 using for Scoring [66](#)
 using lists as [155–158](#)
 using lists as attributes [155–158](#)
 using measures [66](#)
 using scored lists [60](#)
 using transaction types [67](#)

V

value (for external lookup tables) [79](#)
 Value field [104](#)
 values displayed localized [78](#)
 verifying operation [224](#)
 View List [209–210](#)
 View List From Segment node type [196](#)
 View List node type [196](#)
 View List node types [196](#)
 viewing archived campaigns [44](#)
 viewing structure [186](#)
 Viewing webservices with URLs [300](#), [302](#)

W

W2KUsersSubTree configuration key [221](#)
 WAN [239](#)
 See [239](#)
 WAP 1.1 protocol [166–168](#)
 WCL [166–168](#)
 See [166–168](#)
 Web and application server, separate [238](#)
 Web browser [133](#), [221](#), [339](#)
 crashes [339](#)
 login dialog box [221](#)
 Microsoft Internet Explorer [339](#)
 Netscape Navigator [339](#)
 web browser crashes [339](#)
 Web Clipping (WCL) [166–168](#)
 Web Light Campaigns node type [196](#)
 Web page [174](#)
 Web page type [147](#), [174–176](#)
 Web page types [147](#), [154](#)
 Web page types– [147](#)
 Web pages [36](#), [147](#)
 Web server [337](#), [339](#)
 Web server proxy [237](#)
 WebLogic server [238](#)
 Webservices URLs [300](#), [302](#)
 WebSphere [238](#)
 WebSphere server [238](#)
 when to refresh [228](#)
 Wide-area network (WAN) [106](#), [239](#)
 window [39](#)
 Windows [114](#), [220](#), [225–226](#)
 configuring Infor Campaign Management Server–
 [225–226](#)
 group access rights [114](#)
 security [220](#)
 starting and stopping Infor Campaign Management
 Server on [225–226](#)
 Windows 2000 [220](#)
 Windows 7 groups [114](#)
 wireless access [166–168](#)
 Wireless access [166–168](#)
 Dashboards [166–168](#)
 Wireless access to Dashboards [166–168](#)

Wireless connections [166–168](#)
Wireless devices supported by AS [166–168](#)
Wireless Markup Language [166–168](#)
wireless_email_address user preference [106](#)
Wizard, attribute [76](#)
WML [166–168](#)
 See [166–168](#)
WMLkey [166–168](#)

working with shared campaigns [265](#)
WSDL2Java.class [302–303](#)

Y

YAH External Entry Points [202](#), [207–209](#)
YAH External Links [202](#), [207–209](#)