

Integration Overview of Tools and Options 2025.04

infor Pathway

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Contents

1	Introduction.....	4
2	Models and Principles	4
2.1	Master Data Management.....	4
2.2	Publication and Synchronisation using Infor ION.....	4
2.3	Pathway and ION	5
2.4	Horses for Courses	6
3	Pathway's Integration Toolkit	6
3.1	ION (Intelligent Open Network).....	6
3.2	Pathway External Web Services	6
3.3	GENCON/Data Publisher	7
3.4	Dashboard and In-context charts	7
3.5	Generic External Links	7
3.6	Pathway COM API (thick client, smart client, UX client)	7
3.7	Launching Pathway in context	8
3.8	Import/Export formats.....	8
3.9	Automated Import Utility.....	8
3.10	Bulk updates from GIS	8
3.11	Tags	9
4	Appendix – List of External Web Service Methods	10

1 Introduction

When investigating an integration use case involving Pathway there is a range of options to consider.

What pattern is involved, what model is required, what level of immediacy is required? It is an oversimplification to say every use case is different but even when there are similarities between integration use cases we need to be clear about what data is to be published/exported, what data is to be consumed/imported, what business logic is to be applied (particularly for inbound updates), the mode of process (interactive, non-interactive, real-time, batched, full, incremental, asynchronous, synchronous, navigation only etc), what events and/or processes can trigger or be triggered by the integration as well as the architecture, technology and integration toolkits of the participating systems. Integration is rarely straight forward; it's a horses for courses thing.

One mechanism might be good for one use case but not the best for another. Perhaps multiple methods are required. That's in part why there are so many options available in the Pathway integration toolkit.

Infor encourages all Pathway sites to design and implement integrations that are configurable, flexible, forwards-compatible and where possible, reusable. Those capabilities are certainly the design goals Infor uses when developing and enhancing the components of its integration toolkit.

2 Models and Principles

2.1 Master Data Management

One of the core integration models, especially at an enterprise scale, involves master data management. For instance, name and address integration is a classic example. You'd have one system designated as the master or system of record for a particular business object type (such as name and address) and then all other systems would synchronise with it even if they have to store name and address data redundantly in their own systems due to local database integrity requirements.

Similarly, property. If Pathway is the designated system of record for properties, then you'd want ways for Pathway to publish the property master data and have other systems consume some or all of that property master data in their own databases. Then you have the selective consumption model which says that Pathway will publish all the master data but a consumer might only update the portion of the master data that is relevant to it.

An example is where an asset system only consumes the property information for those properties that are customer-owned (and are therefore considered customer assets and subject to maintenance programs managed by the assets system).

Another example is if Pathway is the master of customer requests; in that case it might publish all requests but an external Environmental Health system may choose to only consume those requests which are of request types that are relevant to restaurant complaints and so on.

2.2 Publication and Synchronisation using Infor ION

With respect to a publish and synchronise capability (which can scale up to full master data management), Infor provides a solution; it is our ION middleware.

ION is an acronym which stands for Intelligent Open Network and it is a component of Infor Operating Service, or Infor OS, the family name for Infor's iPaaS and middleware technology stack comprising:

- ION Grid (a load balancing and multi-server processing platform),
- ION Connect (the enterprise service bus), ION Desk (the administration console),
- ION Process (the connectivity module for Infor applications – including Pathway),
- ION3P (the connectivity module for third party applications),
- ION API Gateway, Ming.le (the collaborative workspace/user portal. Soon to be supplanted by Infor Portal),
- Infor Data Fabric (a repository for data that is transported over ION) and

- IFS (Infor Federation Services – the module that integrates with LDAP/AD systems and provides authentication services).

There are other optional components and complementary applications including the Coleman Artificial Intelligence modules and Infor Document Management (IDM).

The messages that are transported across ION are known as BODs (business object documents). They are comprised of a noun (the business object schema) and a verb (the action to apply to a message) and are either standard formats (i.e. they comply with international business object definitions such as those for which OAGIS is the custodian) or custom formats (user/site/group defined business objects) – the definitions for which are registered in the ION Registry.

A data flow is defined in ION describing the origin end point (i.e. what type of connector is used by an application to connect to ION for the purposes of publishing BODs to ION or receiving BODs from ION), the business logic to be applied to the BOD, any transformations required (i.e. changing from a custom schema to a standard schema) and the end point(s) to which the delivery of the BOD is directed. As an application publishes a BOD to ION it is (optionally) simultaneously published to the Data Fabric layer of Infor Operating Services (Infor OS).

2.3 Pathway and ION

From a Pathway perspective we have activated a number of BODs and the Infor Pathway team has an ongoing commitment to develop and activate BODs for all business object types that Pathway manages.

The following table lists the BODs activated so far, in which the O for Direction is Outbound from Pathway and the I for Direction is Inbound to Pathway:

Noun	Verb	I/O	Noun	Verb	I/O	Noun	Verb	I/O
ContactMaster	Sync	O	SecurityUserMaster	Sync	I	PathwayProperty	Sync	O
Type: OAGIS	Process	I	Type: OAGIS			Type: Infor Application	Process	I
Entity: Personal Name	Acknowledge	O	Entity: Pathway User			Entity: Pathway Property	Acknowledge	O
(Note: Publish verb internal only)	Publish	O	SourceSystemJournalEntry	Process	O	PathwayApplication	Sync	O
	Sync	I	Type: OAGIS			Type: Infor Application	Process	I
	Process	O	Entity: Journal export (CRPFI09)	Acknowledge	I	Entity: Pathway Application	Acknowledge	O
	Acknowledge	I	(Send to external G/L)			PathwayLicence	Sync	O
CustomerPartyMaster	Sync	O	Invoice	Process	O	Type: Infor Application	Process	I
Type: OAGIS	Process	I	Type: OAGIS			Entity: Pathway Licence	Acknowledge	O
Entity: Company Name	Acknowledge	O	Entity: Pathway Debtor Inv	Acknowledge	I	PathwayRatesAssessment	Sync	O
(Note: Publish verb internal only)	Publish	O	(Send to external billing)			Type: Infor Application	Process	I
	Sync	I	ChartOfAccounts	Sync	I	Entity: Rates Assessment	Acknowledge	O
	Process	O	Type: OAGIS			PathwayPropertySale	Sync	O
	Acknowledge	I	Entity: Ledger account (CFIACCT)			Type: Infor Application	Process	I
CustomerCall	Sync	O	ProjectMaster	Sync	I	Entity: Pathway Notice of Sale	Acknowledge	O
Type: OAGIS	Process	I	Type: OAGIS			PathwayRegister	Sync	O
Entity: Customer Request	Acknowledge	O	Entity: Ledger project (CFIPROJ)			Type: Infor Application	Process	I
(Note: Publish verb internal only)	Publish	O				Entity: Pathway Register	Acknowledge	O
	Sync	I						
	Process	O						
	Acknowledge	I						

Pathway is system of record ("master")
 Pathway is maintenance system ("slave")
 I/O = Inbound to Pathway/Outbound from Pathway

As an example of how to read that information, from the table above (PathwayPropertySale) Pathway can receive and process Notice of Sale (NOS) messages from external systems to either create a new NOS transaction (for which the Pathway LPATRAN entity is the primary entity i.e. transfers) or update an existing NOS transaction.

In order to process an update transaction, the external system that sends the Process.PathwayPropertySale BOD must have previously received and processed an Acknowledge.PathwayPropertySale BOD that was published by Pathway. Why?

Because the Acknowledge BOD is sent by a master system i.e. the system of record (SOR) for a given business object type and in the case of property and NOS, that's assumed to be Pathway, to tell any consuming or maintenance systems that a previous Process BOD has been processed successfully, a new master object has been created by the SOR and to inform consuming systems what the master system's identifier is for that new instance of the master object.

The focus of our ION-isation of Pathway thus far has been master data of core business objects not transactions. The activation of transactional BODs (and documents) and search functionality are planned for future releases but thus far the implementation of support for data mastering via ION has prioritised business object master data.

2.4 Horses for Courses

Apart from ION-based integration and data synchronisation, there are many other considerations when choosing the appropriate integration model and method most suited to a given integration use case.

For instance, is the process in which the integration sponsor is interested a fundamentally asynchronous one (as is the case with data level synchronisation)? Or, is it a synchronous, real time process involving a user interface (which has to wait for responses)? Are there updates occurring behind the firewall inside customer's network or are there field operations updating data from a mobile device? Is there scheduled refreshing of data from Pathway to an external source or is there incremental updates occurring in response to defined events (in Pathway)?

Clearly there are many different use cases, therefore, Pathway's integration tool kit contains many different options. For instance, an integration use case might be thought of as a data synchronisation requirement but could be addressed more simply by enabling two-way and contextually sensitive navigation instead. Each requirement needs to be analysed to determine the best solution for the users and for the use case.

3 Pathway's Integration Toolkit

In summary, here is a list of the integration/interfacing options supported by Pathway.

3.1 ION (Intelligent Open Network)

ION is Infor's strategic direction and together with the ION API Gateway (released in Infor OS aka ION CE (Cloud Edition in Infor OS MT Cloud)) and which will be integrated with Pathway in accordance with the Pathway Roadmap Program) will be the preferred integration platform both for Pathway and for all Infor products. ION can be deployed on premise, in the cloud and can bridge hybrid deployments, usually with the use of the Enterprise Connector.

More detailed documentation is available including the mappings for Pathway fields to BOD elements i.e. Pathway's BOD Mappings, ION documentation and the set-up of Pathway-ION integration.

Please refer to your account manager to obtain copies and for the Pathway-ION documentation, refer to the \ion directory of your Pathway install.

NOTE: If third party access is required to the documentation, Infor may require the third party to execute a mutual non-disclosure agreement (MNDAs).

3.2 Pathway External Web Services

- For detailed information about the functionality supported please contact your Infor Account Representative to obtain a copy of the either the full software development kit (SDK) documentation or an overview of the methods detailed in the SDK. A summary listing of available methods is contained below as an appendix to this document. Note: if third party access is required to the SDK, Infor may require the third party to sign a mutual non-disclosure agreement (MNDAs).
- Not all Pathway modules are supported by methods in the externally facing web service although there are in excess of 70 methods supported
- Not all Pathway business objects are exposed through Pathway's external web service
- Separate software licensing applies to the external web service (it can be licensed in total or in smaller bundles each suited to the integration use case of interest)
- These external web service methods are used by our own Pathway Smart Mobile suite (and if a customer licenses a smart mobile app they are entitled to (re)use the web services for their own purposes)

- Infor offers a web services tester kit (assuming one or more web services are licensed). The tester utility is designed to help a customer and third party developers to test web service calls without having to write calling code. Note: the utility is a Uniface application that provides for only a thick client user interface.

3.3 GENCON/Data Publisher

- The Pathway generic connector (GENCON) is used primarily to enable abstracted integration between Pathway and an external Electronic Document Management system (EDMS). However, it can also be used to publish Pathway business object meta data to non-EDMS consumers
 - The folder operations and names integration components of GENCON are exposed to non-EDMS consumers as the Pathway Data Publisher (it can be thought of as GENCON without the document management components).
 - The Data Publisher can be embedded in Pathway workflow (thereby allowing controlled publishing of meta data within the context of a Pathway-managed business object's lifecycle)
 - Common use cases currently in use include:
 - customer requests to work orders
 - customer requests to external health systems
 - Pathway names to asset system contacts
 - Pathway Properties to Customer-owned Assets.
 - Whereas data publishing is essentially an outbound-only and read-only meta data export, GENCON supports a limited update capability (e.g. data publishing driver might invoke a call to an external web service and then update a field on the Pathway source object with the web service call response...example might be to publish a name to an external CRM system by invoking the CRM system's 'create name' web service method and then (synchronously) store the resulting CRM identifier in an information type against the published name).
 - Documentation of GENCON's full functionality (and that of the Data Publisher) – including real world sample code snippets – is provided in a comprehensive software development kit (SDK).
 - GENCON's SDK includes access to a test harness thereby enabling third parties to develop drivers without requiring access to a Pathway environment. (It is however recommended that drivers be tested thoroughly in a UAT environment including a commensurate Pathway UAT implementation).
- Please contact your Infor account representative to obtain a copy of the SDK documentation.
Note: if third party access is required to the SDK, Infor may require the third party to sign a mutual non-disclosure agreement (MNDA).

3.4 Dashboard and In-context charts

- SDK available which enables the native (Pathway smart & UX clients) dashboard charts and in-context charts to be surfaced in Pathway but populated with data from external systems.
- Data returned by the dashboard chart driver (a .NET assembly written in accordance with the Charting SDK documentation) can include navigation links too thereby enabling the Pathway user to drill back into the external system in-context.
- No additional software licensing is required for Pathway sites to make use of Dashboard and In-Context Charts.

3.5 Generic External Links

- This is a Pathway smart/UX client option that enables a tokenised URL format to be defined in Pathway and assigned to a user-defined label and associated with a Pathway summary form.
- Substitution tokens can be derived from the context of the business object in focus in the Pathway summary form e.g. the key of the property being viewed or the value of a status code on the request being viewed etc.
- Tokens can be derived also from the result of a SQL script (also stored in Pathway).
- No additional software licensing is required for Pathway sites to make use of generic external links.

3.6 Pathway COM API (thick client, smart client, UX client)

- Is used mostly for launching Pathway's user interface interactively from an external application or for performing specific updates in non-interactive mode (such as enabling external systems to create links between business objects in Pathway).

- Approximately 70 methods available for implementation.
- Does include ability to create requests in Pathway.
- Does include generic methods CreateEntity and UpdateEntity but each are shells that require Infor to add code as entities which require update activation are identified through customer and/or third party projects (not required if other methods already target those entities).
- With the exception of the CreateACRRequests method (in some circumstances) there are no additional software licensing implications for customers to implement calls to methods of the Pathway COM API.
- When a customer has activated the Pathway UX client and an external system invokes calls to methods of the Pathway UX API, a separately-installable client side “agent” is required to broker COM operations with the Pathway UX (browser-based) client. Note: COM operations (regardless of Pathway client in operation) are constrained to running on Windows devices thus a COM-based integration with Pathway UX will not work on a smart mobile device.
- A Pathway COM API tester utility is available enabling methods to be tested prior to calling code being written. Comprehensive sample code is also available in the SDK documentation.

NOTE: if third party access is required to the SDK, Infor may require the third party to sign a mutual non-disclosure agreement (MNDA).

3.7 Launching Pathway in context

- As of Pathway 3.10.005 there is a capability for launching Pathway via tokenised url. This is referred to as the custom protocol handler.
- Major summary forms invoked by the handler can have their context set in the call from an external application.
- Reflects the same functionality that is currently supported in the .pth functionality (this is where Pathway workflow can embed a link in an email and provided they are on the network and behind the firewall the recipient can click on the link and open a Pathway form).
- The underlying pth engine is reused to render the URL from the custom protocol handler e.g. pathway://<url>, therefore the same architectural constraints apply; that is, the URL can only be launched from a Windows device and behind the firewall (i.e. not from a mobile or internet).
- Options and supported functions for the custom protocol handler were documented in the release notes of the 3.10.005 distribution and are available in a separate user manual.

3.8 Import/Export formats

- Supported for/apply to limited range of entities.
- Incorporates both master data and transaction entities.
- Allows for user-defined formats....but does not enable *every* entity to be updated this way (common options include import of payments files from external credit agencies, Centrelink updates etc).
-

3.9 Automated Import Utility

- Initial use case was for import of images (paperclip attachments) from the Infringements module (typically, bulk import of photos from parking infringements) but can be used to facilitate the import of any files to be associated with Pathway business objects.
- Enables bulk uploads of pdf files (e.g. upload of rate notices produced by an external mailing house).
- EDMS integration will also be invoked if that is configured for the given attachment type of the imported files.

NOTE: this facility requires a specific authorised function license.

NOTE: as of release 3.10.019, paperclip attachments can be actionable URLs and can be added/updated against responses via web services.

3.10 Bulk updates from GIS

- Utility designed specifically as a component of the two-way Pathway-GIS integration.
- Enables GIS to be the source of data to be uploaded to properties e.g. use GIS to define new land use zoning etc and push new codes back into Pathway).

- Also enables creation of query results in Pathway from analysis performed in the spatial system e.g. select candidate properties within a map based on selection criteria determined from spatial data and then push that list of selected properties into Pathway, store it as a query result and use it in Pathway to drive reports or publishing or a batch process).
- Similarly, Affected Properties processing enables a GIS user to select candidate properties from a map and pass the list back into Pathway to drive subsequent processes such as letter generation.

NOTE: The navigation components of two-way GIS integration with Pathway UX requires the GIS product to be integrated via the “UXWS” code which uses the SendGisCommand and GetGisCommand web services and two-way URL-based navigation.

3.11 Tags

Pathway supports the ability to add user-defined tags to Pathway business objects through the UX interface. The primary benefit of tags is that it enables cross-module enquiries and multi-module dashboard charts.

From an integration perspective these tags can be created/modified/expired via a suite of web services. See the appendix of Web Service Methods for details.

4 Appendix – List of External Web Service Methods

Pathway External Web Service Methods	
Module	Methods
System Administration Methods	
	ReadUsers Method
	ReadStructures Method
	ClearCache Method
	TransformFormattedRefAndPpk Method
References Methods	
	ReadReferenceTypes Method
	ReadReferences Method
	UpdateReferences Method
PaperClips Methods	
	CreateAttachment Method
	FindAttachments Method
	ReadAttachment Method
	CreateResponse Method
Word Processing Methods	
	ReadMergeTypes Method
	CreateDocumentRequest Method
	GenerateDocuments Method
	ReadDocument Method
	FinaliseDocuments Method
Role Methods	
	ConditionType Method
	ReadRoles Method
	UpdateRoles Method
Name and Address Methods	
	Title Method
	PersonalNameCommType Method
	CompanyNameCommType Method
	PersonalNameInfoType Method
	CompanyNameInfoType Method
	PersonalNameCategory Method
	CompanyNameCategory Method
	ContactType Method
	AddressTemplate Method
	MailingAddress Method
	CIFV5110.PersonalName Method
	CIFV5110.CompanyName Method
	AddressSearch Method
	AddressSeachDetail Method
	NameSearch Method
	FindNames Method

Pathway External Web Service Methods	
Module	Methods
	CommunicationSearch Method
	InformationSearch Method
	CIFV5130.PersonalName Method
	CIFV5130.CompanyName Method
	CIFV5140.PersonalName Method
	CIFV5140.CompanyName Method
Other Name related Method(s)	
	ValidateNamePropertyAssmLink Method
Property Administration Methods	
	PropertyType Method
	StreetType Method
	TitlePrefix Method
	PlanType Method
	ParcelType Method
	PropertyAddressSearch Method
	FindPropByStreetRange Method
	FindPropertyById Method
	PropertyNameSearch Method
	PropertyTitleSearch Method
	PropertyParcelSearch Method
	PropertySummary Method
	StreetSuburbParms Method
	StreetSuburbSearch Method
	ReadGisReferences Method
	UpdateGisReferences Method
	ReadWards Method
Applications and Licensing	
	ClassType Method
	TypeParameters Method
	Lodgement Method
	FindApplications Method
	FindApplicationsByLocation Method
	FindApplicationsByName Method
	ReadApplication Method
	FindLicences Method
	FindLicencesByLocation Method
	FindLicencesByName Method
	ReadLicence Method
	CreateResponse Method
Inspections Methods	
	ReadModules Method
	ReadModuleParameters Method
	ReadComplianceParameters Method

Pathway External Web Service Methods	
Module	Methods
	FindInspections Method
	FindInspectionsByProperty Method
	FindInspectionsByPropertyId Method
	FindInspectionsByAddressLine Method
	FindInspectionsByApplication Method
	FindInspectionsByApplLocation Method
	FindInspectionsByLicence Method
	FindInspectionsByLicnLocation Method
	CreateInspection Method
	ReadInspection Method
	UpdateInspection Method
	UpdateAnswers Method
	ReadStreetType Method
	FindPropertyAddress Method
Animal Registrations Methods	
	ReadParameters Method
	FindAnimals Method
	FindAnimalsByProperty Method
	FindAnimalsByName Method
	ReadAnimal Method
Customer Request Management Methods	
	ReadParameters Method
	FindRequests Method
	FindRequestsByProp Method
	FindRequestsByName Method
	FindRequestsByReference Method
	ReadRequest Method
	CreateRequest Method
	UpdateRequest Method
	ReadCalendar Method
	CheckCalendar Method
	ReadParmsWithoutTypeDetails Method
	ReadRequestTypes Method
Bookings Management Methods	
	ReadBookingClasses Method
	ReadClassParameters Method
	ReadBookingAreas Method
	FindAvailableFacilities Method
	FacilityAvailableDates Method
	FacilityAvailableDateTimes Method
	MakeBooking Method
	ConfirmBooking Method
	ReadBooking Method

Pathway External Web Service Methods	
Module	Methods
	FindBookingsByName Method
	CancelTemporaryBooking Method
GIS Methods	
	GetGisCommand Method
	SendGisCommand method
Tags Methods	
	AddTag Method
	DeleteTag Method
	FindByTag Method
	GetAllTags Method
	GetTags Method
	RemoveTag Method
	UpdateTag Method