Infor IDF Setup Guide for Secure Net-Link

Infor IDF 9.2, 10 & 11

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Document code: Secure Net-Link, War file deployment

Contents

About this guide

This document describes the process of enabling TLS-secured communications for IDF web components such as Net-Link and IDFIONAPI by implementing it through reverse proxy configuration and an alternative method, WAR deployments, where applicable.

Revision History

Version	Date	Author	Comments
0.1	14/Jun/2017	Michael Dillon	Initial Draft
0.2	11/Apr/2019	Singaravizhiyan R	Added Building WAR file and Workspace Net-Link URL configuration
1.0	10/16/2020	Development	WebSphere 9.x Configuration
2.0	06/19/2021	Development	WAR file redeployment
3.0	04/13/2022	Jany Khan Patan	IDFIONAPI WAR file deployment in WebSphere
4.0	11/16/2023	Jany Khan Patan	Content restructure
5.0	7/22/2024	Jany Khan Patan	Added “Appendix D Adjust HTTP Thread Count for Secured Net-Link in WebSphere”.
6.0	06/11/2025	Jany Khan Patan	1. This document will support all applications using IDF instead of just XA. 2. Reverse Proxy configuration on IBM HTTP server to access default Net-Link is made as recommended approach.

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Chapter 1 Net-Link Deployment

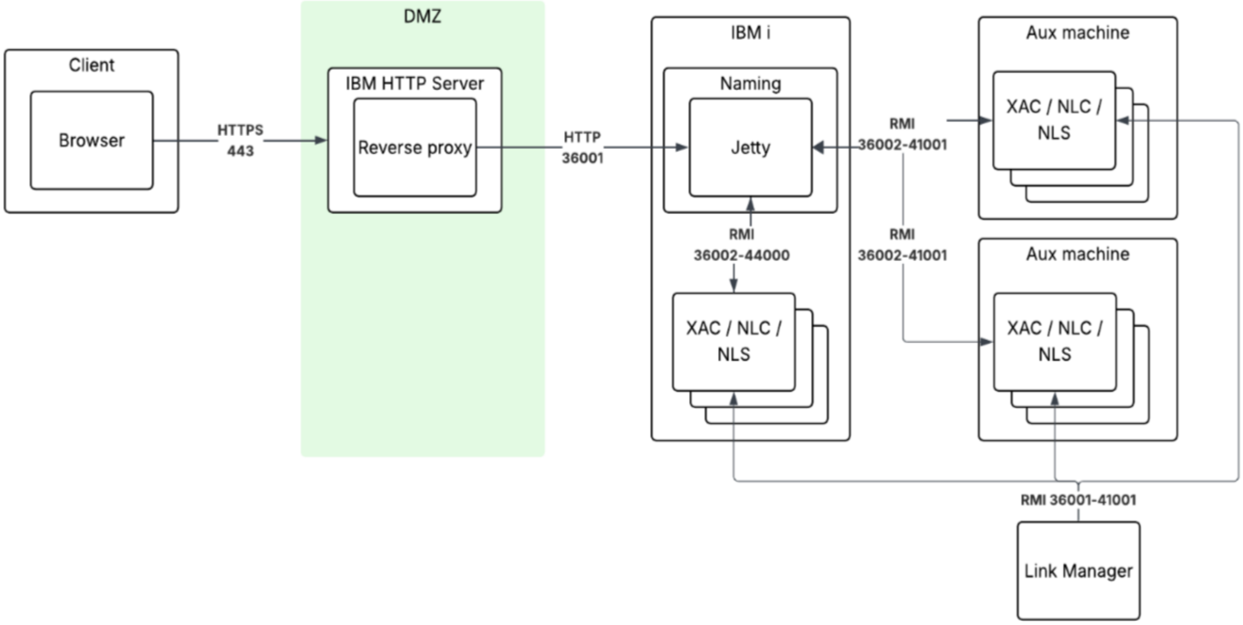
The standard installation process involves accessing the Net-Link through a URL to the IBM i due to which users are confined to a secure network. However, in some circumstances it is necessary to provide access to the users outside of the network. Although the platform is secure, and can be protected via firewall settings, connecting directly to IBM i from the web is not recommended.

Therefore, to support secure external access, it is necessary to expose the IDF web components like Net-Link through a properly secured and controlled setup.

Below are the 2 ways to deploy and access Net-Link securely from other applications.

Reverse Proxy Method:

The recommended way of accessing Net-Link web server components is using Reverse Proxy configuration on IBM HTTP server.

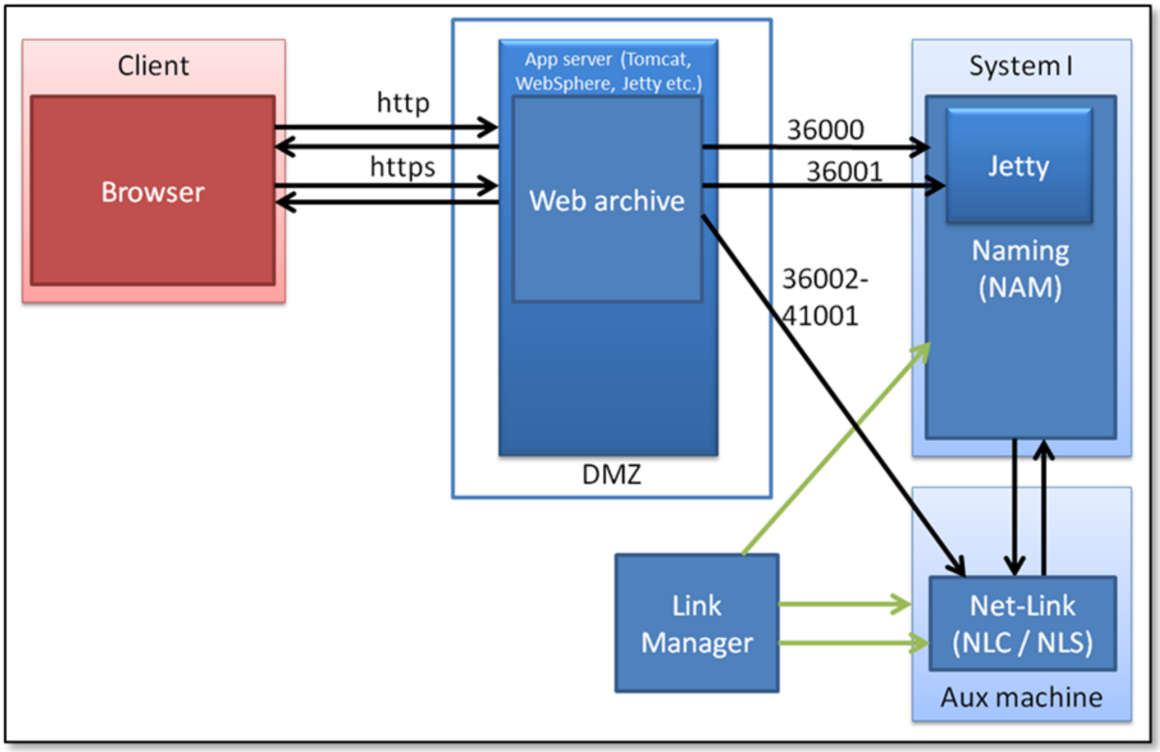


- The XAC, NLC and NLS servers can be deployed on the IBM i or an auxiliary machine.
- There can be multiple NLS servers, and they can be split among the IBM i and multiple auxiliary machines.
- Link Manager needs to communicate with all server processes.
- IBM HTTP Server could be replaced with nginx, Apache, or IIS. We provide the instructions for IBM HTTP Server.

Note: The reverse proxy implementation is simple to set up and easy to maintain. Unlike WAR deployments, It does NOT require generating and redeploying Net-Link WAR files whenever WAR updates or changes are delivered with fixes.To implement above deployment, refer to ***"Chapter 2 Reverse Proxy configuration in IBM HTTP Server to access default Net-Link"*** in this document.

WAR file deployment method:

Another example topology of the IDF components used for Net-Link in a container deployment scenario:The default ports used by IDF for HTTP and HTTPs are typically 80 and 443 respectively.



The web components of Net-Link run in a Servlet container. Examples of such a container are Apache Tomcat and IBM WebSphere. The components are packaged into a Web Archive (WAR)file.

Note: The container used for System i Workspace can also be used. This document explains how to obtain the WAR file, and to deploy it to these servers. The above implementation needs additional maintenance of generating and re-deploying ‘NetLink.war’ file on Application servers when there are changes in WAR file.

To implement above deployment, refer to ***“Appendix B Net-Link WAR file Generation and Deployment on IBM i WegSphere”*** in this document.

Fully Qualified Domain Names

For a Microsoft Windows deployment, we recommend that the Windows Server has a Fully Qualified Domain Name (FQDN) that can be used to address the Windows Server, both externally and internally (i.e. the Windows Server knows itself by this FQDN) within your enterprise.

For either Microsoft Windows or IBM i deployment, we recommend that the IBM i server also has a FQDN that it can be used to address the Windows Server, both externally and internally (i.e. the IBM i knows itself by this FQDN) within your enterprise.

It is important to have FQDNs in place before you install System i Workspace, otherwise, the URL paths, SSL configuration and other settings created during the installation may be incorrect and cause failures when trying to access or use System i Workspace.

Chapter 2 Reverse Proxy configuration in IBM i HTTP Server to access default Net-Link

To simplify web security for IDF deployments where all web related components are running on a single IBM i server, a single HTTP server can be used when deploying through a firewall. The components include SiW Anywhere and Net-Link. These instructions will provide the basics for configuring this kind of environment.

Pre-requisite: To implement the changes below, SiWA should be pre-configured and run on IBM using HTTP and App servers. The reverse proxy configuration is done on HTTP server where SiWA is running.

Using this reverse proxy setup, the default unsecured IDF Net-Link application running on port 36001 can also be accessed through SiWA URL with ‘NetLink’ as context.

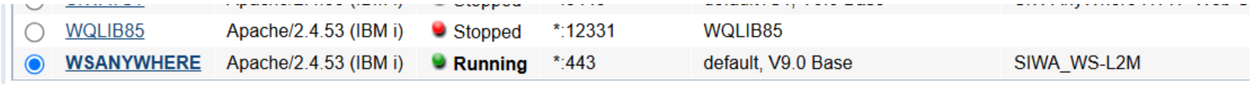
Reverse Proxy configuration in WSANYWHERE httpd.conf file

1 Login to IBM i Web Administration, using the below URL (where **hostname**, is the FQDN of the IBM i server)

http://<hostname>:port/HTTPAdmin **or htttps://<hostname>:port/HTTPAdmin**

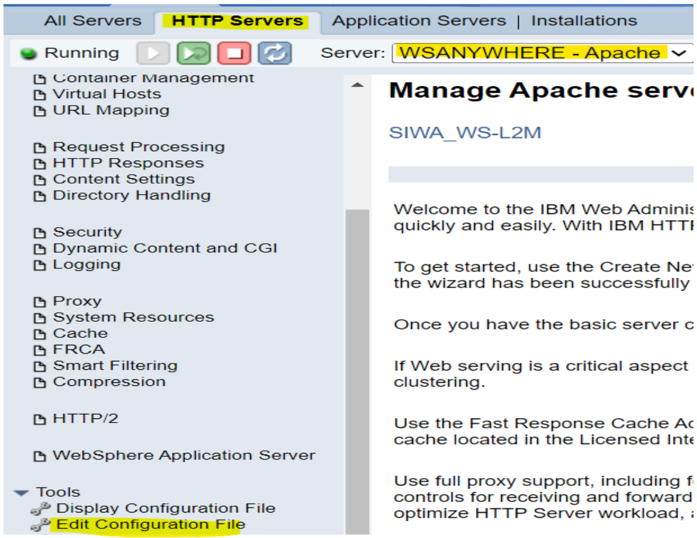
2 Navigate to **Manage** -> **All Servers** -> **All HTTP Servers. Net-Link HTTP server and SiWA HTTP server are running on different ports.**

Click on the SiWA configured HTTP server, which is running on port 443 (for example: *WSANYWHERE*) shown below.



○	WQLIB85	Apache/2.4.53 (IBM i)	● Stopped	*:12331	WQLIB85	
●	**WSANYWHERE**	Apache/2.4.53 (IBM i)	● **Running**	*:443	default, V9.0 Base	SIWA_WS-L2M

3 Click on “WSANYWHERE” HTTP Server, open the httpd.conf file by navigating to **Tools** -> **Edit Configuration File**, shown below.



Welcome to the IBM Web Adminis
quickly and easily. With IBM HTTI

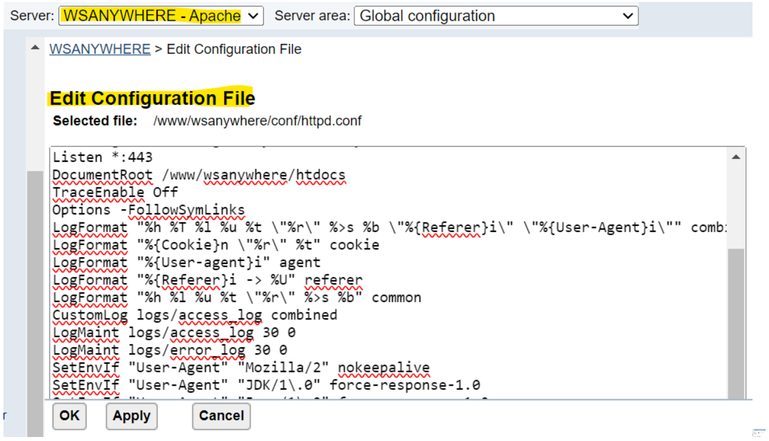
To get started, use the Create Ne
the wizard has been successfully

Once you have the basic server c

If Web serving is a critical aspect
clustering.

Use the Fast Response Cache Ac
cache located in the Licensed Inte

Use full proxy support, including f
controls for receiving and forward
optimize HTTP Server workload, a


Server: WSANYWHERE - Apache
Server area: Global configuration
WSANYWHERE > Edit Configuration File
Edit Configuration File
OK
Apply
Cancel

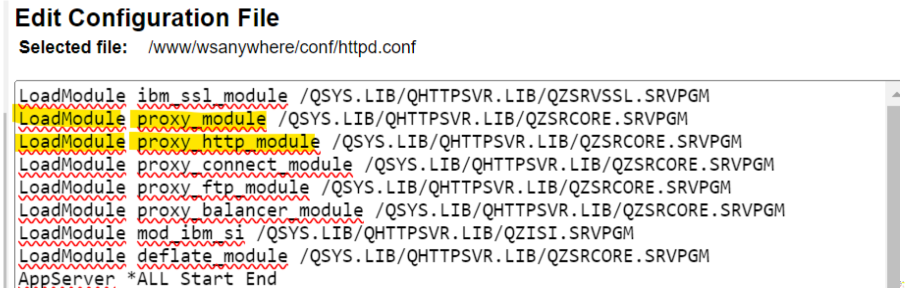
Selected file: /www/wsanywhere/conf/httpd.conf

```
Listen *:443
DocumentRoot /www/wsanywhere/htdocs
TraceEnable Off
Options -FollowSymLinks
LogFormat "%h %T %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\"" comb:
LogFormat "%{Cookie}n \"%r\" %t" cookie
LogFormat "%{User-agent}i" agent
LogFormat "%{Referer}i -> %U" referer
LogFormat "%h %l %u %t \"%r\" %>s %b" common
CustomLog logs/access_log combined
LogMaint logs/access_log 30 0
LogMaint logs/error_log 30 0
SetEnvIf "User-Agent" "Mozilla/2" nokeepalive
SetEnvIf "User-Agent" "JDK/1\.0" force-response-1.0
```

4 It is suggestible to take a backup of httpd.conf file, before proceeding with any changes.

5 Add the below statements to the httpd.conf file in the SiWA environment. If these LoadModule statements already exist be sure they are not commented out.

```
LoadModule proxy_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
LoadModule proxy_HTTP_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
```



Edit Configuration File

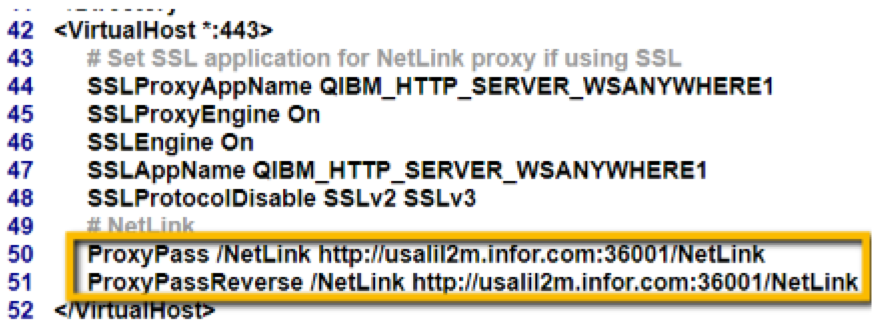
Selected file: /www/wsanywhere/conf/httpd.conf

```
LoadModule ibm_ssl_module /QSYS.LIB/QHTTPSVR.LIB/QZSRVSSL.SRVPGM
LoadModule proxy_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
LoadModule proxy_http_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
LoadModule proxy_connect_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
LoadModule proxy_ftp_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
LoadModule proxy_balancer_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
LoadModule mod_ibm_si /QSYS.LIB/QHTTPSVR.LIB/QZISI.SRVPGM
LoadModule deflate_module /QSYS.LIB/QHTTPSVR.LIB/QZSRCORE.SRVPGM
AppServer *ALL Start End
```

6 Add the below statements to the virtual host section for SSL for SiWA. The virtual host section would be between the **<VirtualHost.443>** and **</VirtualHost>** lines. There will be other statements in this section as well.

Note*:* The Net-Link proxypass would point to the IDF default Net-Link running on 36001 port.

```
<VirtualHost *:443>

# Set SSL application for NetLink proxy if using SSL

SSLProxyAppName QIBM_HTTP_SERVER_WSANYWHERE

SSLProxyEngine on

#  NetLink

ProxyPass /NetLink http://myIBM i.domain.com:36001/NetLink

ProxyPassReverse /NetLink http://myIBM i.domain.com:36001/NetLink

</VirtualHost>
```



```
<VirtualHost *:443>
   # Set SSL application for NetLink proxy if using SSL
   SSLProxyAppName QIBM_HTTP_SERVER_WSANYWHERE1
   SSLProxyEngine On
   SSLEngine On
   SSLAppName QIBM_HTTP_SERVER_WSANYWHERE1
   SSLProtocolDisable SSLv2 SSLv3
   # NetLink
   ProxyPass /NetLink http://usalil2m.infor.com:36001/NetLink
   ProxyPassReverse /NetLink http://usalil2m.infor.com:36001/NetLink
</VirtualHost>
```

(Where ***myIBM i*** is the hostname of IBM i server and ***port*** is Net-Link running default port, for example shown as below)

Below example WSANYWHERE is using 443 port.

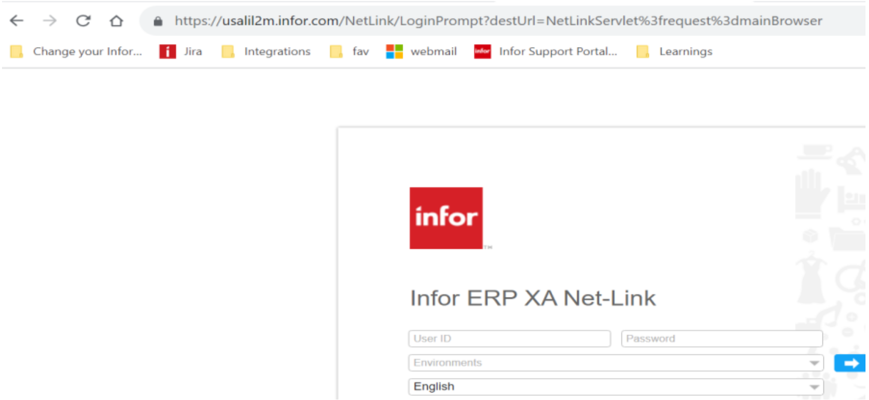
It is possible that WSANYWHERE is using a different port other than 443.

<u>Caution:</u> The parameter value of ***`SSLProxyAppName`*** should match with ***`SSLAppName`*.**

7 Click on **Apply** and **OK**.

8 Restart the SIWA configured HTTP server and its associated Application server.

9 Verify if Net-Link application is launching with same port as WSANYWHERE.



https://usalil2m.infor.com/NetLink/LoginPrompt?destUrl=NetLinkServlet%3frequest%3dmainBrowser

10 Configure the Net-Link URL in SiWA Administrator by following the steps in “***Appendix C Secured Net-Link URL configuration in SiWA Administrator***”.

Chapter 3 Net-Link WAR file Generation and Deployment on Tomcat

The WAR file contains configuration details to communicate with the IBM i. Therefore, the file cannot be shipped with the IDF as a component. The file contains components that can change during the build of IDF. Therefore, it is important to refresh the WAR file regularly when a new build is applied to the global IDF environment.

Net-Link WAR file generation in IDF

Below sections explain the different ways to generate WAR files in IDF.

Generate WAR file in IDF R92

The current WAR file can be obtained by navigating to the URL HTTP://{server}:{port}/NetLink/NetLink.war.

where {server}, is the name of the IBM i which hosts IDF, and {port} is the port used for access to IDF components over HTTP.

(For example: http://usalil02.infor.com:36001/NetLink/NetLink.war)

Caution: The URL is like the link used to access Net-Link.

Note:

- An alternative mechanism to obtain the WAR file has been created in IDF R10 & R11 releases. Previously, the war file was generated and downloaded from the server via the URL, as discussed above.
- This still works but as the war file is generated from global the contents are therefore at the build level that is current for the global environment. A new URL has been created that generates it from the environment (and at the build level of the environment)

  http://{server}:{port}/NetLink/WebArchive.

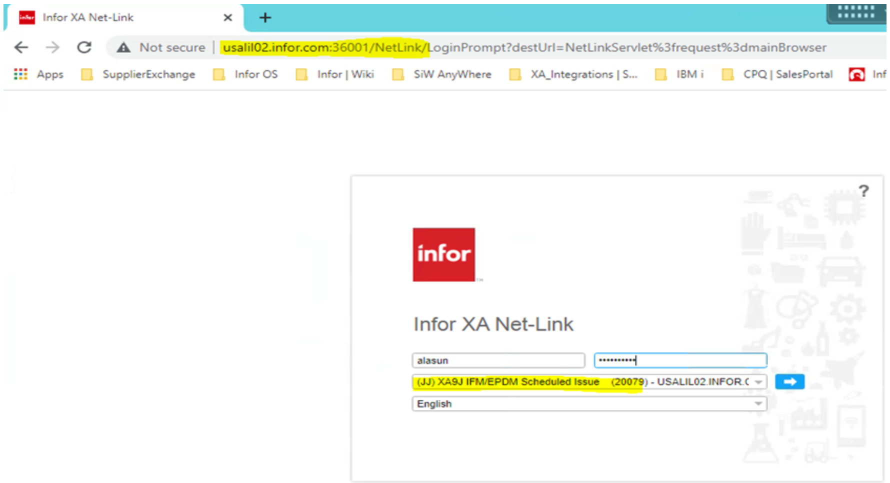
Generate WAR file in IDF R10 & R11

Note: For the purposes of this document, Infor XA Net-Link screens are used. These steps work the same for LX and System 21.

11 The user must be signed into Net-Link for the environment that has the correct build.

12 Navigate to http://{server}:{port}/NetLink where {server}, is the name of the IBM i which hosts IDF, and {port} is the port used for access to IDF components over HTTP.

13 The Net-Link login prompt should be shown below, then Sign into Net-Link for the correct environment using respective IBM i userID.



usalil02.infor.com:36001/NetLink/LoginPrompt?destUrl=NetLinkServlet%3frequest%3dmainBrowser

alasun

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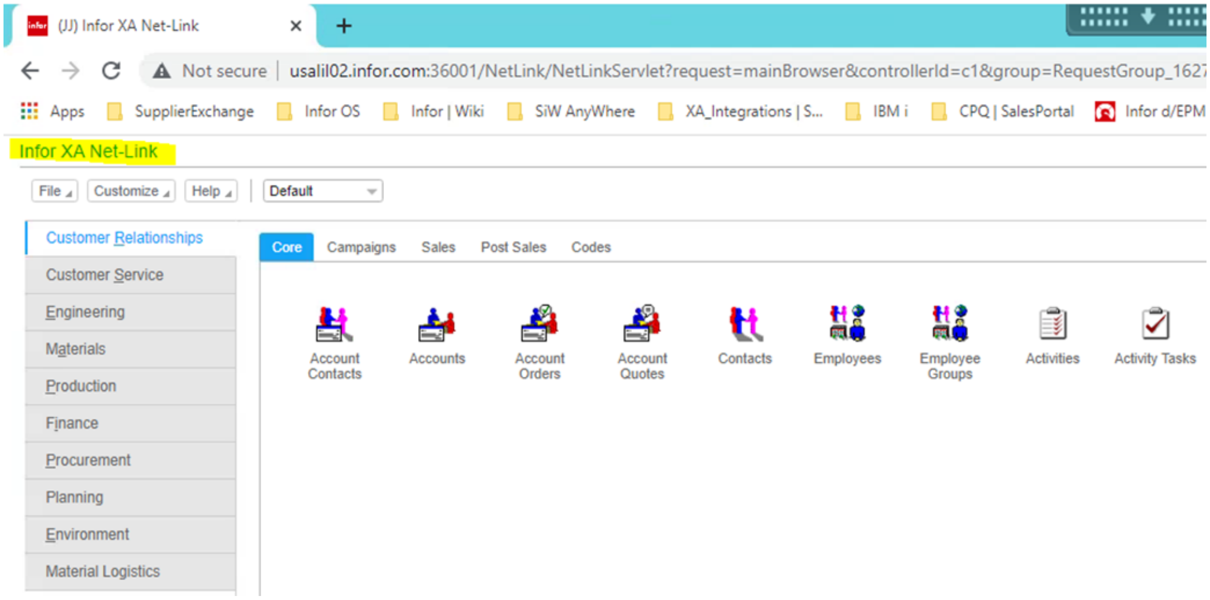
English

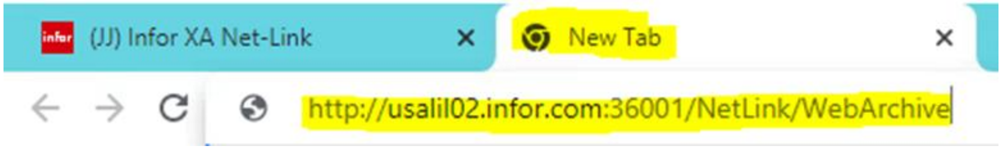
14 The Main Browser should display as below.



usalil02.infor.com:36001/NetLink/NetLinkServlet?request=mainBrowser&controllerId=c1&group=RequestGroup_1627

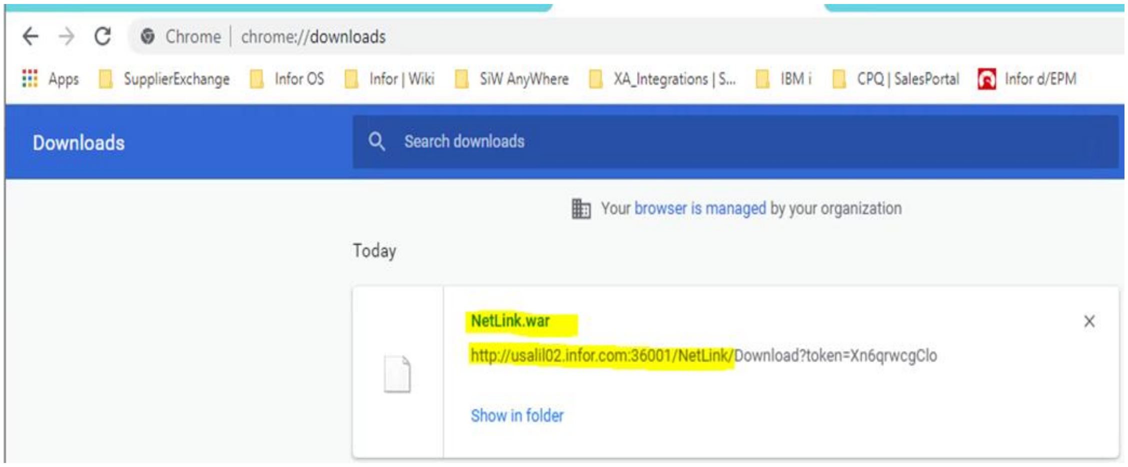
15 Either in a new tab (the browser session is shared between tabs), or in the current tab, navigate to http://{server}:{port}/NetLink/WebArchive

where {server}, is the name of the IBM i which hosts IDF, and {port} is the port used for access to IDF components over HTTP.



http://usalil02.infor.com:36001/NetLink/WebArchive

16 The NetLink.war file should be generated and downloaded.



Your browser is managed by your organization

Today

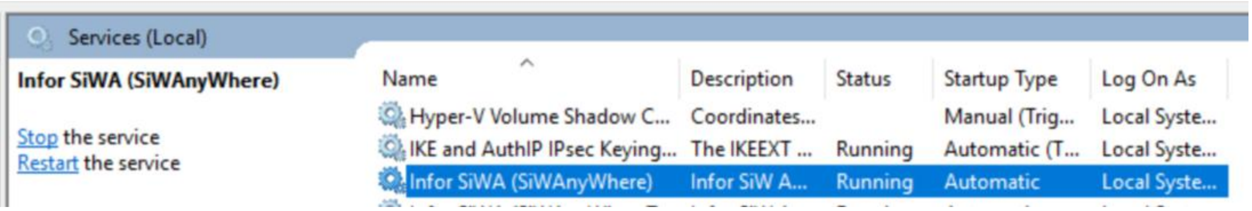
NetLink.war

http://usalil02.infor.com:36001/NetLink/Download?token=Xn6qrwcgClo

Net-Link WAR file deployment to Tomcat

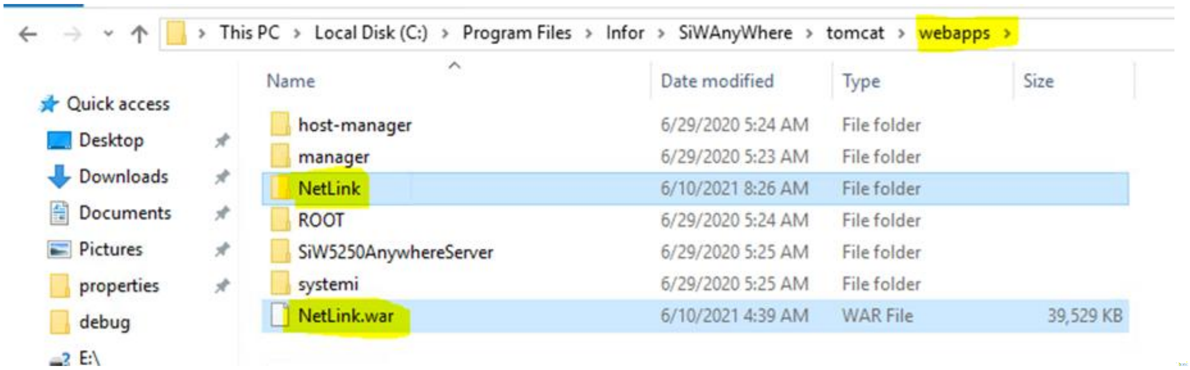
Follow the steps below to deploy the Net-Link WAR to tomcat for SiWA Windows installation.

1 Go to Windows server having SiWA Windows(tomcat) running. Go to windows services and stop the SiWA specific service.



Name	Description	Status	Startup Type	Log On As
Hyper-V Volume Shadow C...	Coordinates...		Manual (Trig...	Local Syste...
IKE and AuthIP IPsec Keying...	The IKEEXT ...	Running	Automatic (T...	Local Syste...
Infor SiWA (SiWAnyWhere)	Infor SiW A...	Running	Automatic	Local Syste...

2 Go to SiWA installation folder and webapps folder. Paste the NetLink.war file and restart the SiWA service. Tomcat will unzip the war file and deploy it automatically.



This PC > Local Disk (C:) > Program Files > Infor > SiWAnyWhere > tomcat > webapps >

Name	Date modified	Type	Size
host-manager	6/29/2020 5:24 AM	File folder	
manager	6/29/2020 5:23 AM	File folder	
NetLink	6/10/2021 8:26 AM	File folder	
ROOT	6/29/2020 5:24 AM	File folder	
SiW5250AnywhereServer	6/29/2020 5:25 AM	File folder	
systemi	6/29/2020 5:25 AM	File folder	
NetLink.war	6/10/2021 4:39 AM	WAR File	39,529 KB

3 Configure the Net-Link URL in SiWA Administrator by following the steps in “***Appendix C Secured Net-Link URL configuration in SiWA Administrator***”.

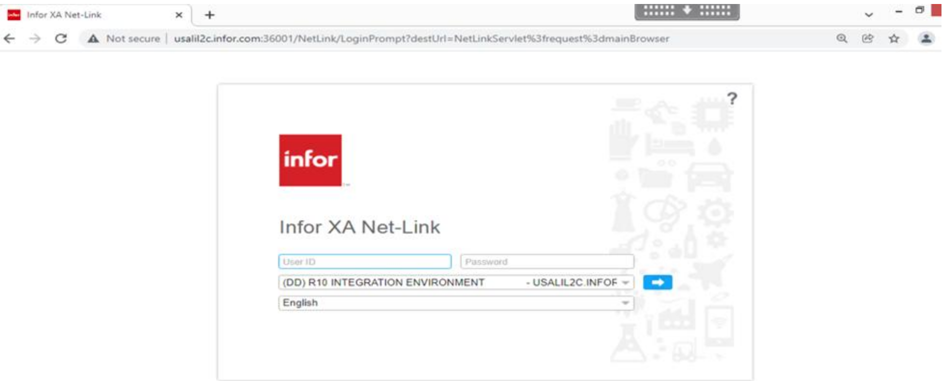
Chapter 4 IDFIONAPI WAR file Generation and Deployment

This chapter is not applicable for Customers only using Net-Link to use IDF in SiWA or Infor OS Portal. The IDFIONAPI component of IDF used to connect with ION CE using IMS needs to be deployed to a server accessible to ION CE. Customers want to use IMS via ION API to receive inbound BODs from ION CE, need this IDFIONAPI component.

This component should be accessible by IONCE running on Infor OS Portal using AWS. This component should be accessible from public network using secured port. Call to this component from AWS can be allowed using specific IP and port by whitelisting only the IPs related to Infor OS Portal based. Infor OS Portal team provide the valid Portal IPs that Customer's IT need to whitelist and allow access to this component. KB2087449 has the list of IP's Customers need to whitelist based on their region.

WAR file generation in IDF R10 & R11

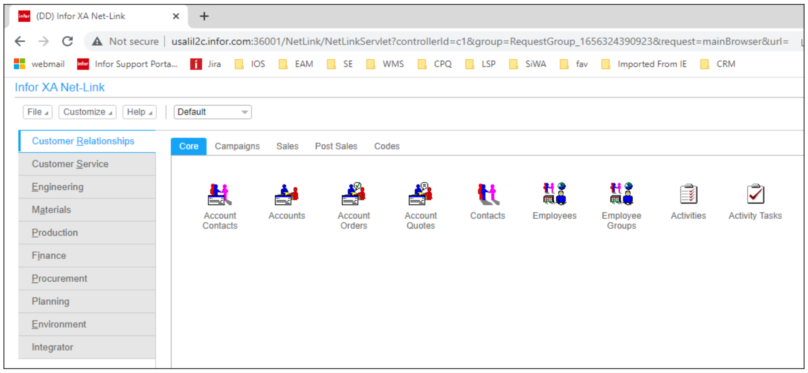
Log in to Net-Link for the environment." http://usalil2c.infor.com:36001/NetLink"



usalil2c.infor.com:36001/NetLink/LoginPrompt?destUrl=NetLinkServlet%3frequest%3dmainBrowser

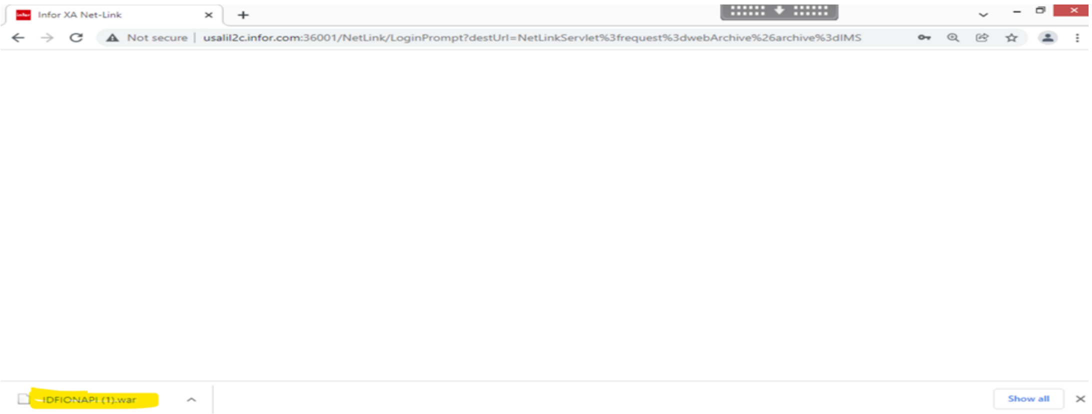
(DD) R10 INTEGRATION ENVIRONMENT - USALIL2C.INFOR

English



usalil2c.infor.com:36001/NetLink/NetLinkServlet?controllerId=c1&group=RequestGroup_1656324390923&request=mainBrowser&url=

In the Address bar, replace the “/NetLinkServlet?.....” with “/WebArchive?archive=IMS” (e.g. “http://usalil2c.infor.com:36001/NetLink/WebArchive?archive=IMS”), and press enter.



usalil2c.infor.com:36001/NetLink/LoginPrompt?destUrl=NetLinkServlet%3frequest%3dwebArchive%26archive%3dIMS

The war file is generated and downloaded to the local machine.

WAR file deployment on WebSphere

The IDFIONAPI deployment process utilizes the WebSphere Wizard function to create an IDFIONAPI Application and associated HTTP server.

Check that you have the following subsystem running, and that all ADMIN jobs are running within the subsystem:

WRKSBSJOB QHTTPSVR

If the subsystem is not active, issue the following OS400 command:

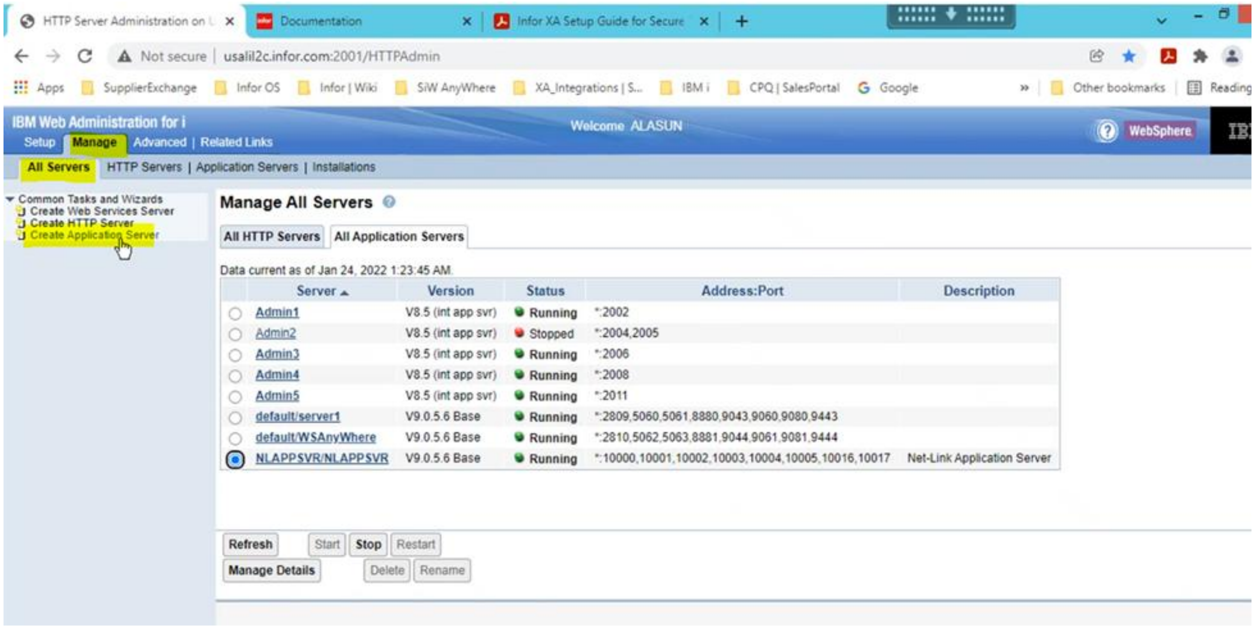
STRTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)

For deployment of WAR file using WebSphere, execute the following steps:

1 Copy the WAR file to a location on the IFS of the iSeries which is preferably a ‘temp’ folder. However, the location can also be at the root.

2 Open the HTTP Administration console (http://{hostName}:2001/HTTPAdmin) and log in with *SECADM authority.

3 Select the Manage, and All Servers tab.

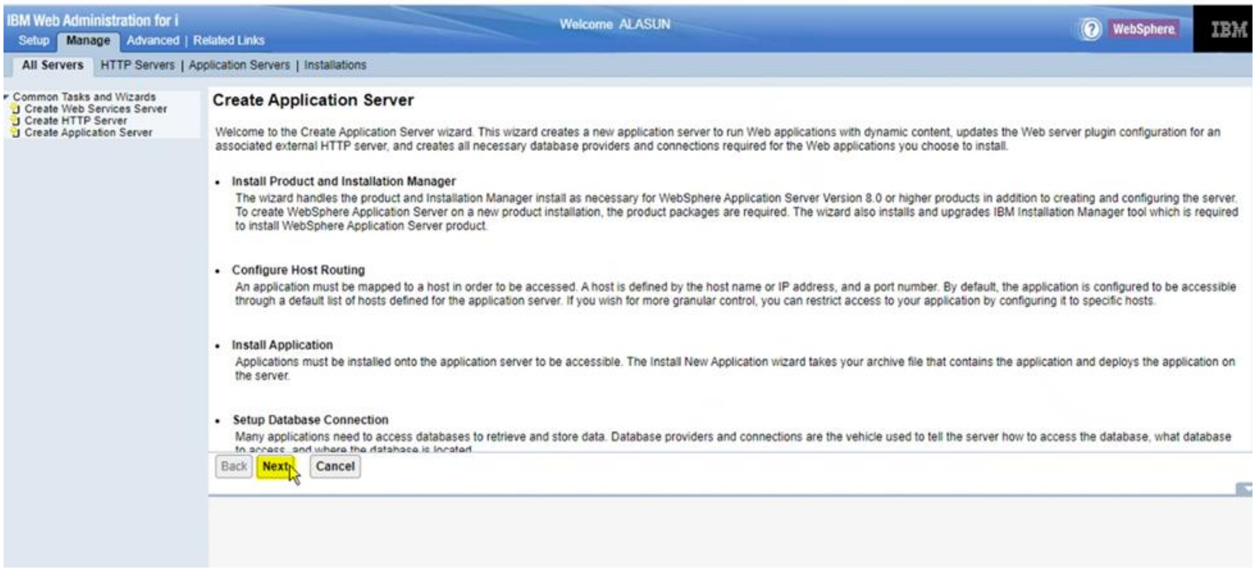


Manage All Servers

Data current as of Jan 24, 2022 1:23:45 AM.

	Server	Version	Status	Address:Port	Description
○	Admin1	V8.5 (int app svr)	● Running	*:2002	
○	Admin2	V8.5 (int app svr)	● Stopped	*:2004,2005	
○	Admin3	V8.5 (int app svr)	● Running	*:2006	
○	Admin4	V8.5 (int app svr)	● Running	*:2008	
○	Admin5	V8.5 (int app svr)	● Running	*:2011	
○	default/server1	V9.0.5.6 Base	● Running	*:2809,5060,5061,8880,9043,9060,9080,9443	
○	default/WSAnyWhere	V9.0.5.6 Base	● Running	*:2810,5062,5063,8881,9044,9061,9081,9444	
●	NLAPPSVR/NLAPPSVR	V9.0.5.6 Base	● Running	*:10000,10001,10002,10003,10004,10005,10016,10017	Net-Link Application Server

4 Select **Create Application Server** and click **Next**.


IBM Web Administration for i
Welcome ALASUN
WebSphere
IBM
Setup
Manage
Advanced | Related Links
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create Application Server

Welcome to the Create Application Server wizard. This wizard creates a new application server to run Web applications with dynamic content, updates the Web server plugin configuration for an associated external HTTP server, and creates all necessary database providers and connections required for the Web applications you choose to install.

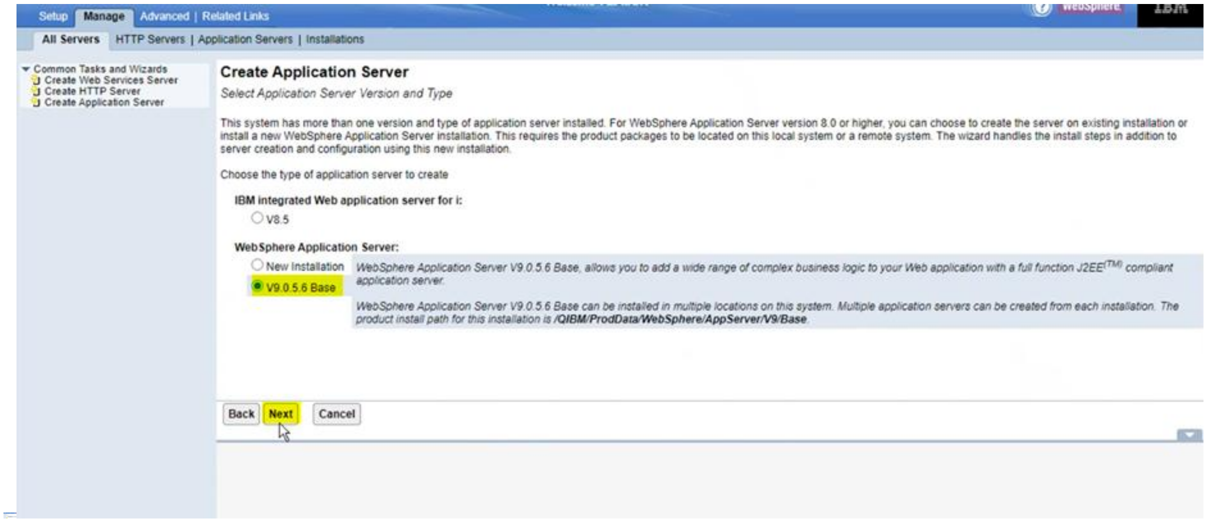
- **Install Product and Installation Manager**
  The wizard handles the product and Installation Manager install as necessary for WebSphere Application Server Version 8.0 or higher products in addition to creating and configuring the server. To create WebSphere Application Server on a new product installation, the product packages are required. The wizard also installs and upgrades IBM Installation Manager tool which is required to install WebSphere Application Server product.

- **Configure Host Routing**
  An application must be mapped to a host in order to be accessed. A host is defined by the host name or IP address, and a port number. By default, the application is configured to be accessible through a default list of hosts defined for the application server. If you wish for more granular control, you can restrict access to your application by configuring it to specific hosts.

- **Install Application**
  Applications must be installed onto the application server to be accessible. The Install New Application wizard takes your archive file that contains the application and deploys the application on the server.

- **Setup Database Connection**
  Many applications need to access databases to retrieve and store data. Database providers and connections are the vehicle used to tell the server how to access the database, what database to access, and where the database is located.

5 Select V9.0.0.xx Base and click **Next**.



Create Application Server

Select Application Server Version and Type

This system has more than one version and type of application server installed. For WebSphere Application Server version 8.0 or higher, you can choose to create the server on existing installation or install a new WebSphere Application Server installation. This requires the product packages to be located on this local system or a remote system. The wizard handles the install steps in addition to server creation and configuration using this new installation.

Choose the type of application server to create

IBM integrated Web application server for i:

○ V8.5

WebSphere Application Server:

○ New Installation

● V9.0.5.6 Base

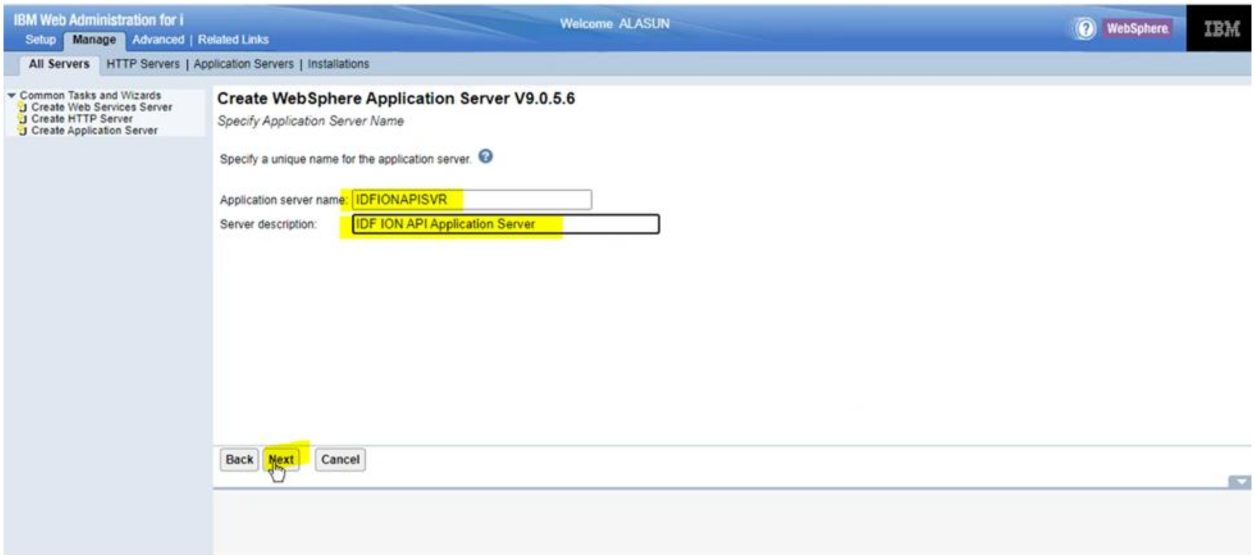
WebSphere Application Server V9.0.5.6 Base, allows you to add a wide range of complex business logic to your Web application with a full function J2EE(TM) compliant application server.

*WebSphere Application Server V9.0.5.6 Base can be installed in multiple locations on this system. Multiple application servers can be created from each installation. The product install path for this installation is **/QIBM/ProdData/WebSphere/AppServer/V9/Base**.*

6 Enter below Application server name, description and click **Next**.

Application server name: IDFIONAPISVR

Server description: IDF ION API Application Server


IBM Web Administration for i
Setup Manage Advanced | Related Links
All Servers HTTP Servers | Application Servers | Installations
Welcome ALASUN
WebSphere
IBM
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back Next Cancel

Create WebSphere Application Server V9.0.5.6

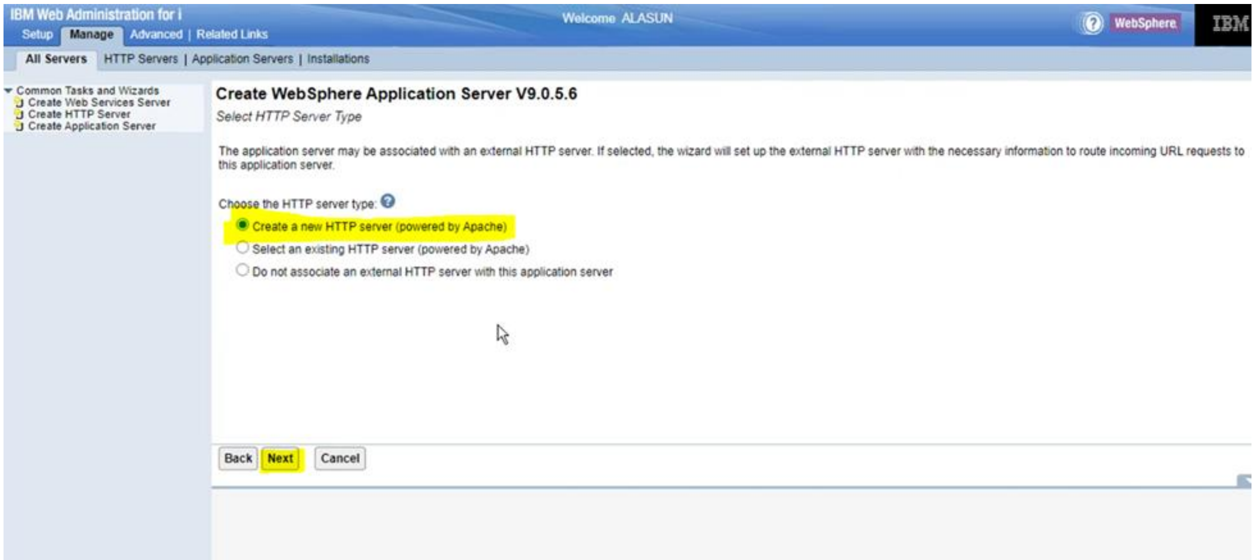
Specify Application Server Name

Specify a unique name for the application server.

Application server name: IDFIONAPISVR

Server description: IDF ION API Application Server

7 Select **Create a new HTTP server** and click **Next**.


IBM Web Administration for i
Setup Manage Advanced | Related Links
All Servers HTTP Servers | Application Servers | Installations
Welcome ALASUN
WebSphere
IBM
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back Next Cancel

Create WebSphere Application Server V9.0.5.6

Select HTTP Server Type

The application server may be associated with an external HTTP server. If selected, the wizard will set up the external HTTP server with the necessary information to route incoming URL requests to this application server.

Choose the HTTP server type:

● Create a new HTTP server (powered by Apache)

○ Select an existing HTTP server (powered by Apache)

○ Do not associate an external HTTP server with this application server

8 Enter below HTTP server name, HTTP server description and click **Next**.

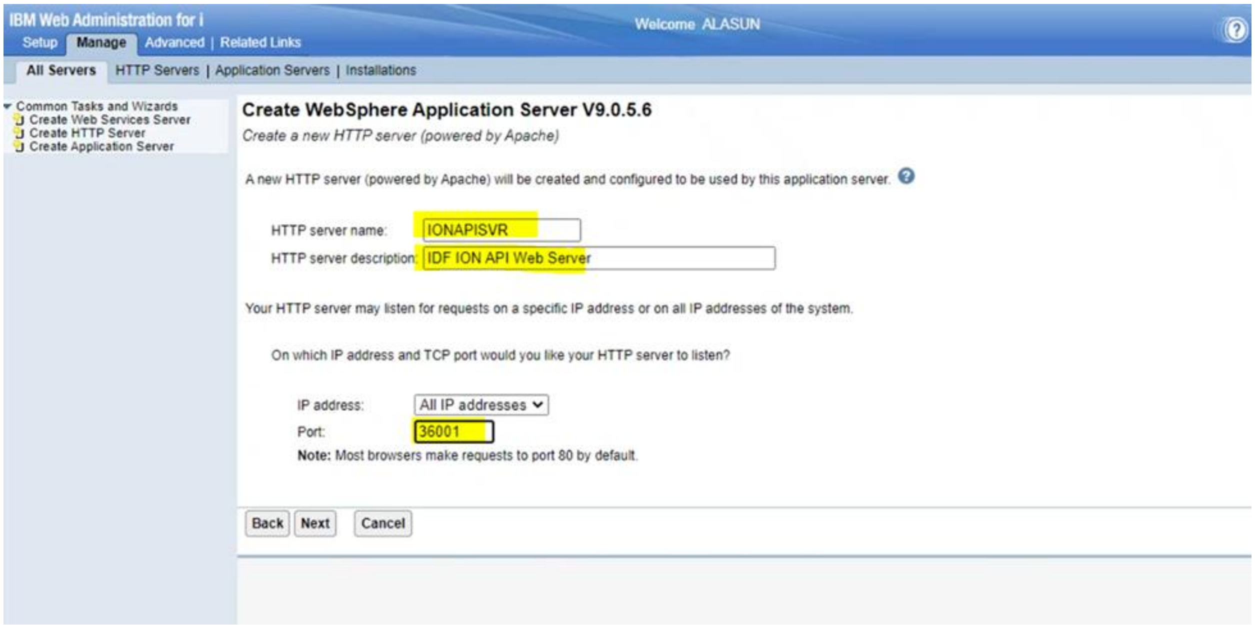
HTTP server name: IONAPISVR

HTTP server description: IDF ION API Web Server

IP address: All IP address

Port: 36001

Note: The port should be the same as that you have used in the WAR file generation section


IBM Web Administration for i
Setup
Manage
Advanced | Related Links
Welcome ALASUN
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.5.6

Create a new HTTP server (powered by Apache)

A new HTTP server (powered by Apache) will be created and configured to be used by this application server.

HTTP server name: IONAPISVR

HTTP server description: IDF ION API Web Server

Your HTTP server may listen for requests on a specific IP address or on all IP addresses of the system.

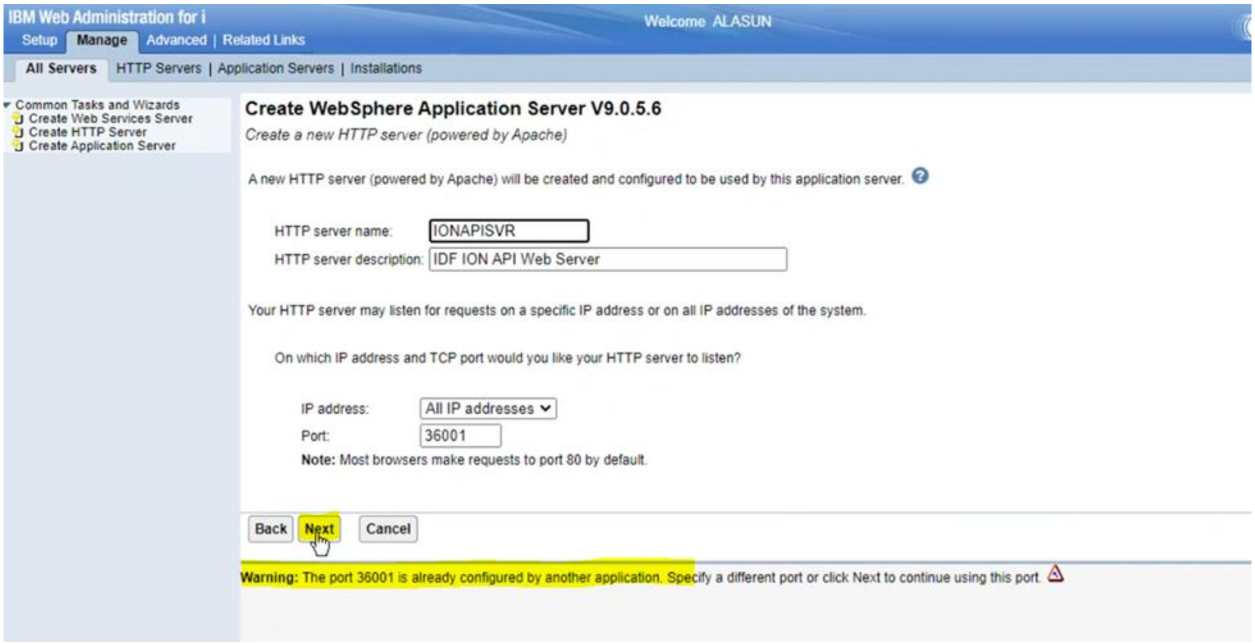
On which IP address and TCP port would you like your HTTP server to listen?

IP address: All IP addresses

Port: 36001

Note: Most browsers make requests to port 80 by default.

9 Click **Next**.


IBM Web Administration for i
Setup
Manage
Advanced | Related Links
Welcome ALASUN
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.5.6

Create a new HTTP server (powered by Apache)

A new HTTP server (powered by Apache) will be created and configured to be used by this application server.

HTTP server name: IONAPISVR

HTTP server description: IDF ION API Web Server

Your HTTP server may listen for requests on a specific IP address or on all IP addresses of the system.

On which IP address and TCP port would you like your HTTP server to listen?

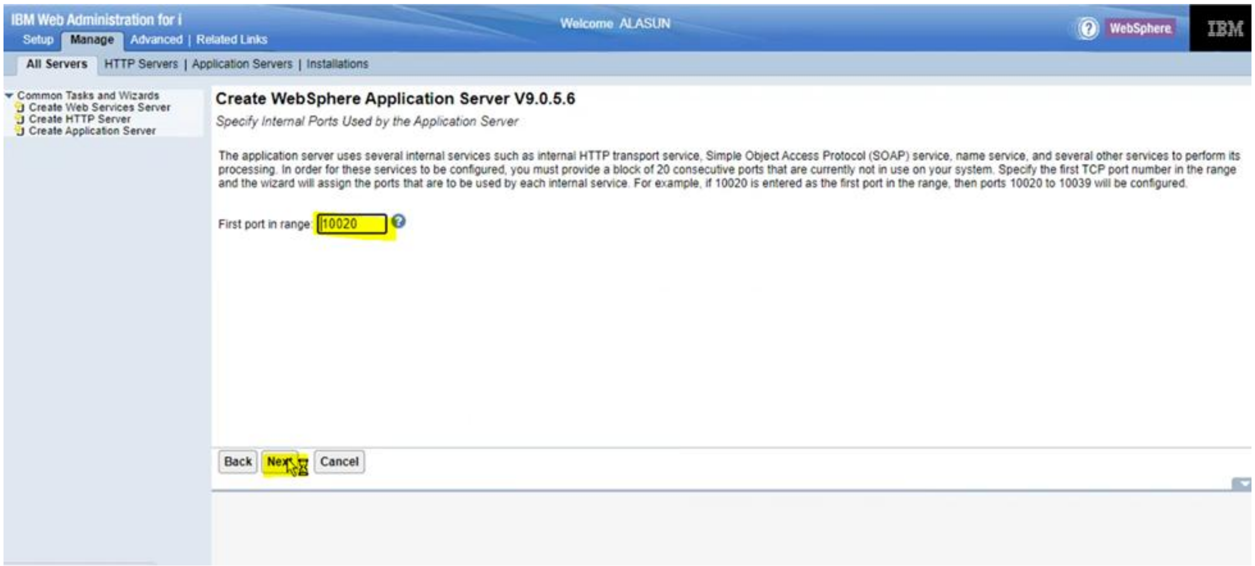
IP address: All IP addresses

Port: 36001

Note: Most browsers make requests to port 80 by default.

Warning: The port 36001 is already configured by another application. Specify a different port or click Next to continue using this port.

10 Accept the default First port in range: default values and click **Next**.


IBM Web Administration for i
Setup
Manage
Advanced | Related Links
Welcome ALASUN
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

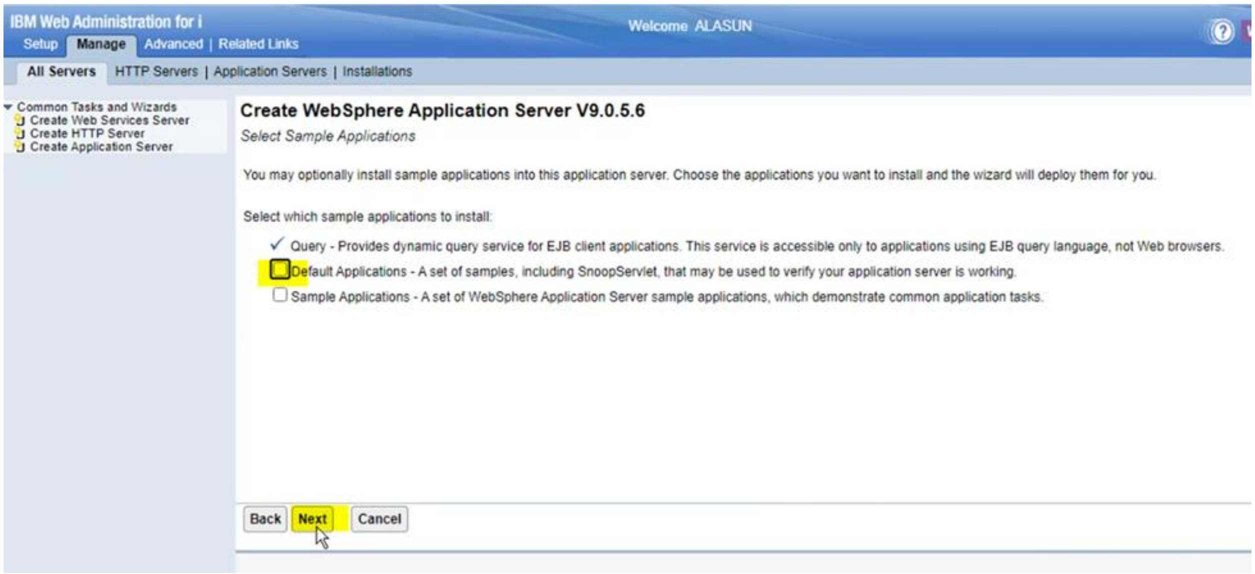
Create WebSphere Application Server V9.0.5.6

Specify Internal Ports Used by the Application Server

The application server uses several internal services such as internal HTTP transport service, Simple Object Access Protocol (SOAP) service, name service, and several other services to perform its processing. In order for these services to be configured, you must provide a block of 20 consecutive ports that are currently not in use on your system. Specify the first TCP port number in the range and the wizard will assign the ports that are to be used by each internal service. For example, if 10020 is entered as the first port in the range, then ports 10020 to 10039 will be configured.

First port in range: 10020

11 Clear Default Applications and click **Next**.


IBM Web Administration for i
Setup
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Advanced | Related Links
Welcome ALASUN
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.5.6

Select Sample Applications

You may optionally install sample applications into this application server. Choose the applications you want to install and the wizard will deploy them for you.

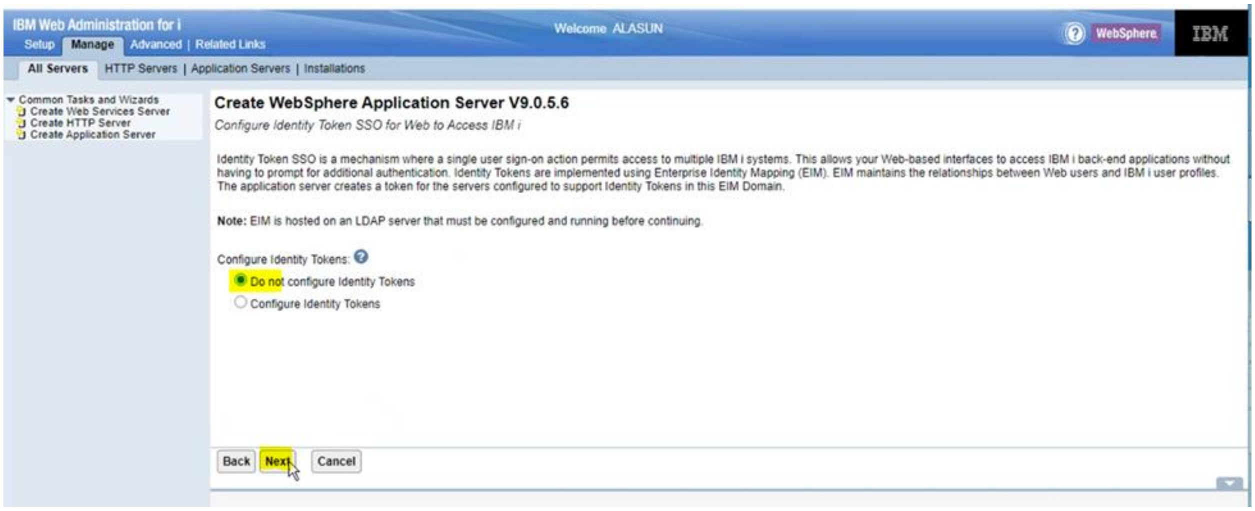
Select which sample applications to install:

✓ Query - Provides dynamic query service for EJB client applications. This service is accessible only to applications using EJB query language, not Web browsers.

□ Default Applications - A set of samples, including SnoopServlet, that may be used to verify your application server is working.

□ Sample Applications - A set of WebSphere Application Server sample applications, which demonstrate common application tasks.

12 Select **Do not configure Identity Tokens** and click **Next**.



IBM Web Administration for i
Setup
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Advanced | Related Links
Welcome ALASUN
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server

Create WebSphere Application Server V9.0.5.6

Configure Identity Token SSO for Web to Access IBM i

Identity Token SSO is a mechanism where a single user sign-on action permits access to multiple IBM i systems. This allows your Web-based interfaces to access IBM i back-end applications without having to prompt for additional authentication. Identity Tokens are implemented using Enterprise Identity Mapping (EIM). EIM maintains the relationships between Web users and IBM i user profiles. The application server creates a token for the servers configured to support Identity Tokens in this EIM Domain.

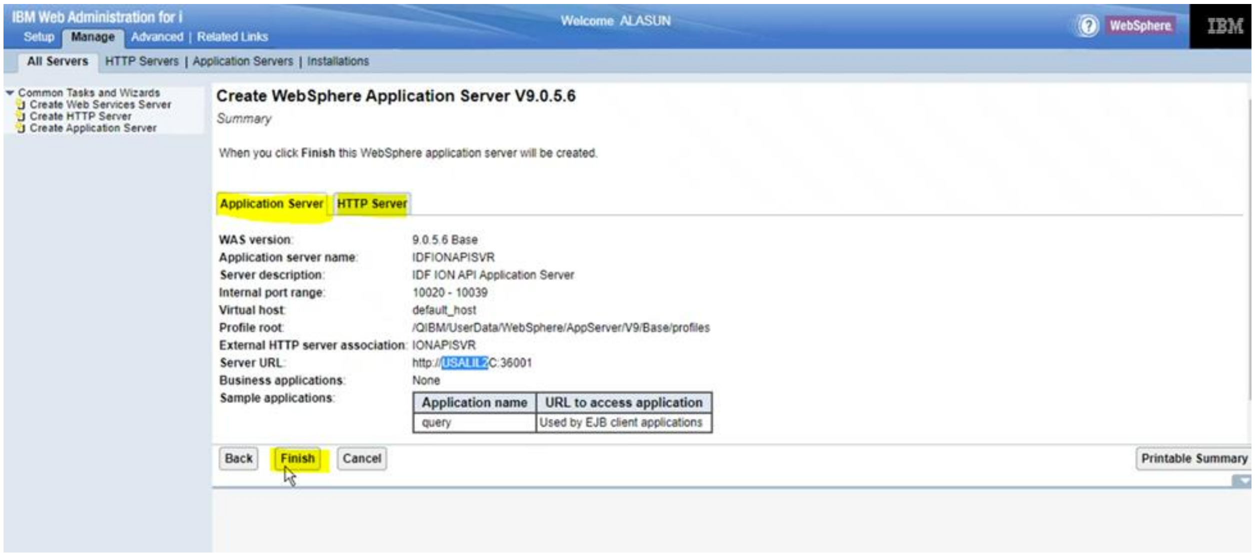
Note: EIM is hosted on an LDAP server that must be configured and running before continuing.

Configure Identity Tokens:

● Do not configure Identity Tokens

○ Configure Identity Tokens

13 Review the Summary and click **Finish**.



IBM Web Administration for i
Setup
Manage
Advanced | Related Links
Welcome ALASUN
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server

Create WebSphere Application Server V9.0.5.6

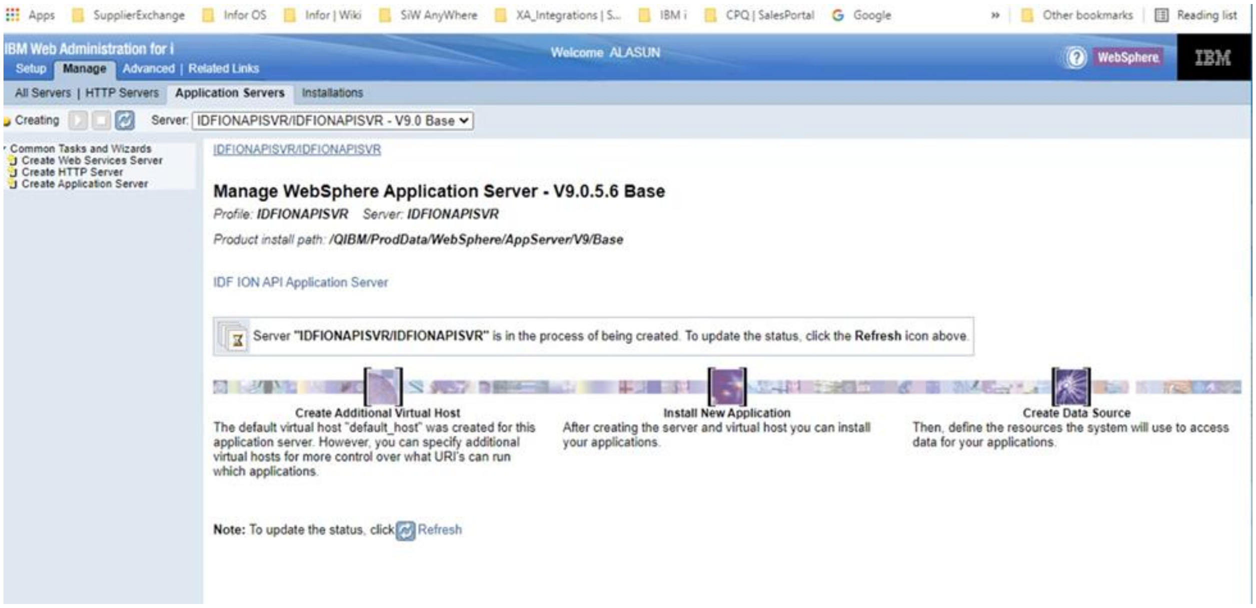
Summary

When you click **Finish** this WebSphere application server will be created.

WAS version:	9.0.5.6 Base
Application server name:	IDFIONAPISVR
Server description:	IDF ION API Application Server
Internal port range:	10020 - 10039
Virtual host:	default_host
Profile root:	/QIBM/UserData/WebSphere/AppServer/V9/Base/profiles
External HTTP server association:	IONAPISVR
Server URL:	http://USALIL2C:36001
Business applications:	None
Sample applications:	

Application name	URL to access application
query	Used by EJB client applications

14 Wait until the creation process is complete.



IDFIONAPISVR/IDFIONAPISVR

Manage WebSphere Application Server - V9.0.5.6 Base

Profile: ***IDFIONAPISVR*** *Server:* ***IDFIONAPISVR***

Product install path: ***/QIBM/ProdData/WebSphere/AppServer/V9/Base***

IDF ION API Application Server

Server "**IDFIONAPISVR/IDFIONAPISVR**" is in the process of being created. To update the status, click the **Refresh** icon above.

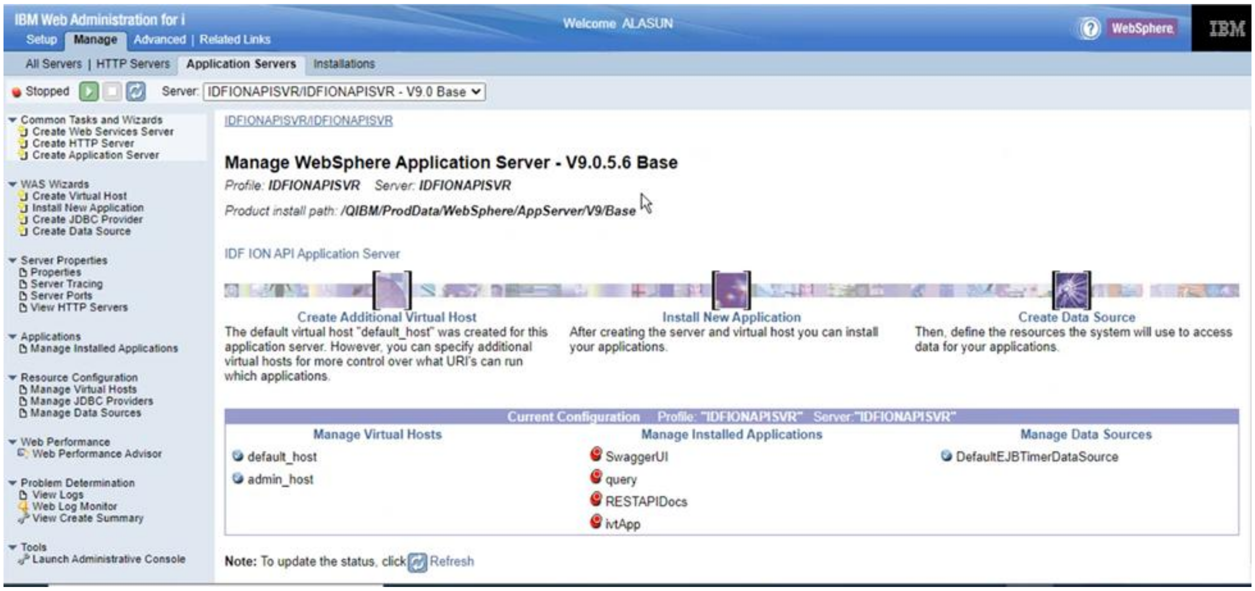
Create Additional Virtual Host
The default virtual host "default_host" was created for this application server. However, you can specify additional virtual hosts for more control over what URI's can run which applications.

Install New Application
After creating the server and virtual host you can install your applications.

Create Data Source
Then, define the resources the system will use to access data for your applications.

Note: To update the status, click Refresh

15 Click on refresh to update the status.



IDFIONAPISVR/IDFIONAPISVR

Manage WebSphere Application Server - V9.0.5.6 Base

Profile: ***IDFIONAPISVR*** *Server:* ***IDFIONAPISVR***

Product install path: ***/QIBM/ProdData/WebSphere/AppServer/V9/Base***

IDF ION API Application Server

Create Additional Virtual Host
The default virtual host "default_host" was created for this application server. However, you can specify additional virtual hosts for more control over what URI's can run which applications.

Install New Application
After creating the server and virtual host you can install your applications.

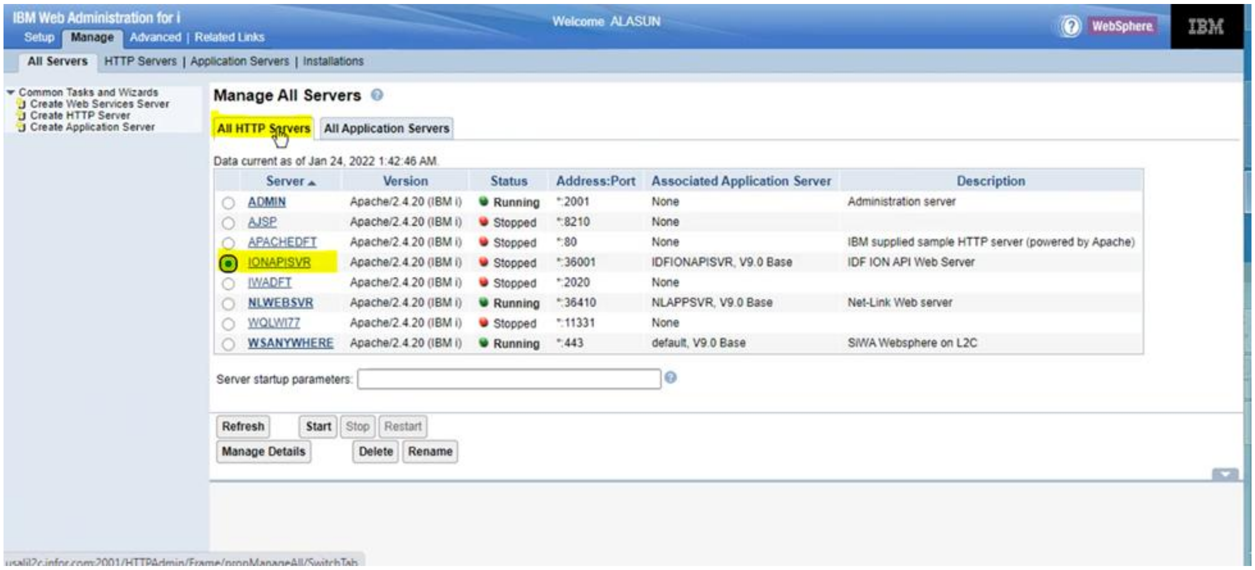
Create Data Source
Then, define the resources the system will use to access data for your applications.

Current Configuration Profile: "IDFIONAPISVR" Server:"IDFIONAPISVR"

Manage Virtual Hosts	Manage Installed Applications	Manage Data Sources
default_host	SwaggerUI	DefaultEJBTimerDataSource
admin_host	query	
	RESTAPIDocs	
	ivtApp	

Note: To update the status, click Refresh

16 Check for the newly created server in All Servers.



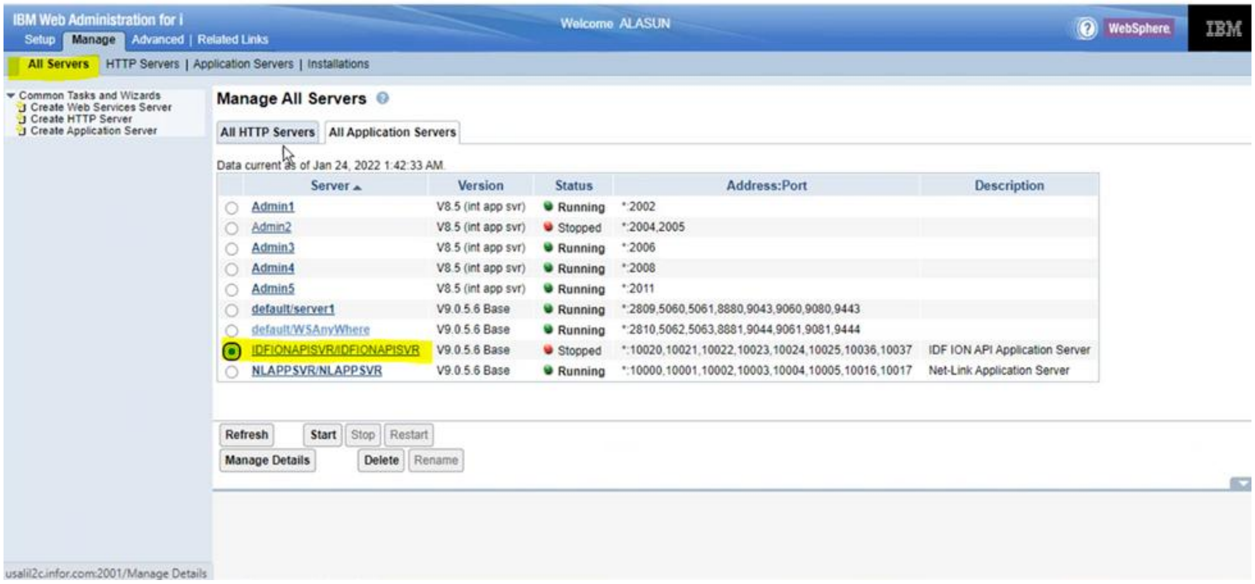
Manage All Servers

Data current as of Jan 24, 2022 1:42:46 AM.

	Server ▲	Version	Status	Address:Port	Associated Application Server	Description
○	ADMIN	Apache/2.4.20 (IBM i)	● Running	*:2001	None	Administration server
○	AJSP	Apache/2.4.20 (IBM i)	● Stopped	*:8210	None	
○	APACHEDFT	Apache/2.4.20 (IBM i)	● Stopped	*:80	None	IBM supplied sample HTTP server (powered by Apache)
●	IONAPISVR	Apache/2.4.20 (IBM i)	● Stopped	*:36001	IDFIONAPISVR, V9.0 Base	IDF ION API Web Server
○	IWADFT	Apache/2.4.20 (IBM i)	● Stopped	*:2020	None	
○	NLWEBSVR	Apache/2.4.20 (IBM i)	● Running	*:36410	NLAPPSVR, V9.0 Base	Net-Link Web server
○	WQLWI77	Apache/2.4.20 (IBM i)	● Stopped	*:11331	None	
○	WSANYWHERE	Apache/2.4.20 (IBM i)	● Running	*:443	default, V9.0 Base	SIWA Websphere on L2C

Server startup parameters:

usalil2c.infor.com:2001/HTTPAdmin/Frame/propManageAll/SwitchTab



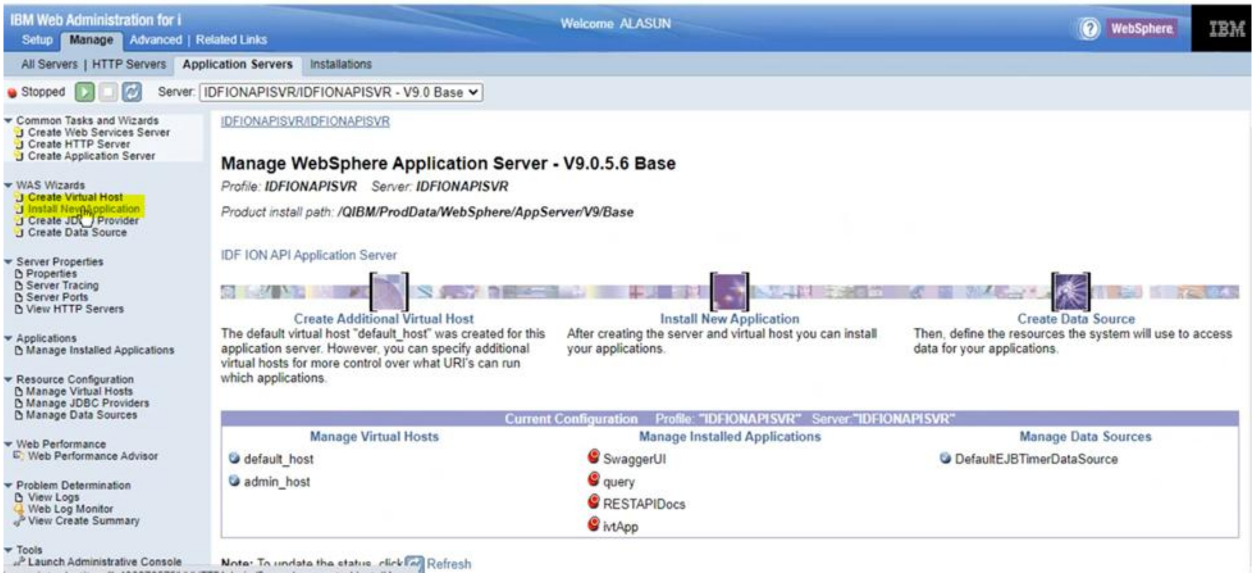
Manage All Servers

Data current as of Jan 24, 2022 1:42:33 AM.

	Server ▲	Version	Status	Address:Port	Description
○	Admin1	V8.5 (int app svr)	● Running	*:2002	
○	Admin2	V8.5 (int app svr)	● Stopped	*:2004,2005	
○	Admin3	V8.5 (int app svr)	● Running	*:2006	
○	Admin4	V8.5 (int app svr)	● Running	*:2008	
○	Admin5	V8.5 (int app svr)	● Running	*:2011	
○	default/server1	V9.0.5.6 Base	● Running	*:2809,5060,5061,8880,9043,9060,9080,9443	
○	default/WSAnyWhere	V9.0.5.6 Base	● Running	*:2810,5062,5063,8881,9044,9061,9081,9444	
●	IDFIONAPISVR/IDFIONAPISVR	V9.0.5.6 Base	● Stopped	*:10020,10021,10022,10023,10024,10025,10036,10037	IDF ION API Application Server
○	NLAPPSVR/NLAPPSVR	V9.0.5.6 Base	● Running	*:10000,10001,10002,10003,10004,10005,10016,10017	Net-Link Application Server

usalil2c.infor.com:2001/Manage Details

17 Click on the created application server (IDFIONAPISVR) and select **Install New Application** from the WAS Wizards menu.



IDFIONAPISVR/IDFIONAPISVR

Manage WebSphere Application Server - V9.0.5.6 Base

Profile: ***IDFIONAPISVR*** *Server:* ***IDFIONAPISVR***

Product install path: ***/QIBM/ProdData/WebSphere/AppServer/V9/Base***

IDF ION API Application Server

Create Additional Virtual Host
The default virtual host "default_host" was created for this application server. However, you can specify additional virtual hosts for more control over what URI's can run which applications.

Install New Application
After creating the server and virtual host you can install your applications.

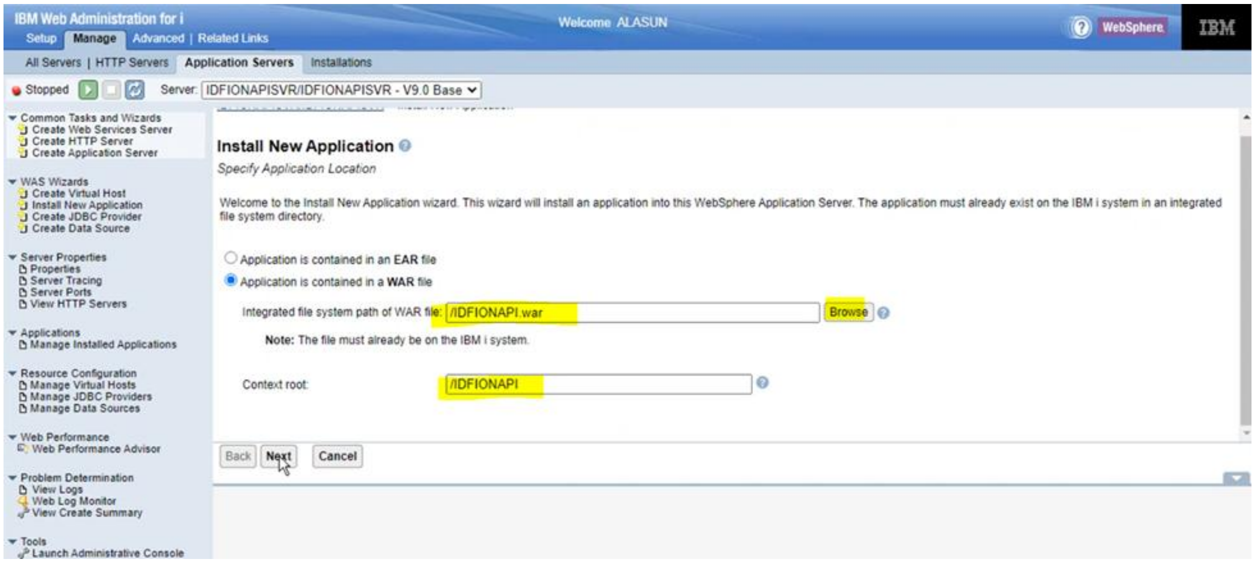
Create Data Source
Then, define the resources the system will use to access data for your applications.

Current Configuration Profile: "IDFIONAPISVR" Server: "IDFIONAPISVR"

Manage Virtual Hosts	Manage Installed Applications	Manage Data Sources
default_host	SwaggerUI	DefaultEJBTimerDataSource
admin_host	query	
	RESTAPIDocs	
	ivtApp	

Note: To update the status, click Refresh

18 Select Application is contained in a WAR file and click **Browse** to locate and select the WAR file located on the IFS from Step 1 and then at Context root field, update with /myContexRoot value (for eg:/IDFIONAPI) and click **Next**.



Install New Application

Specify Application Location

Welcome to the Install New Application wizard. This wizard will install an application into this WebSphere Application Server. The application must already exist on the IBM i system in an integrated file system directory.

○ Application is contained in an **EAR** file

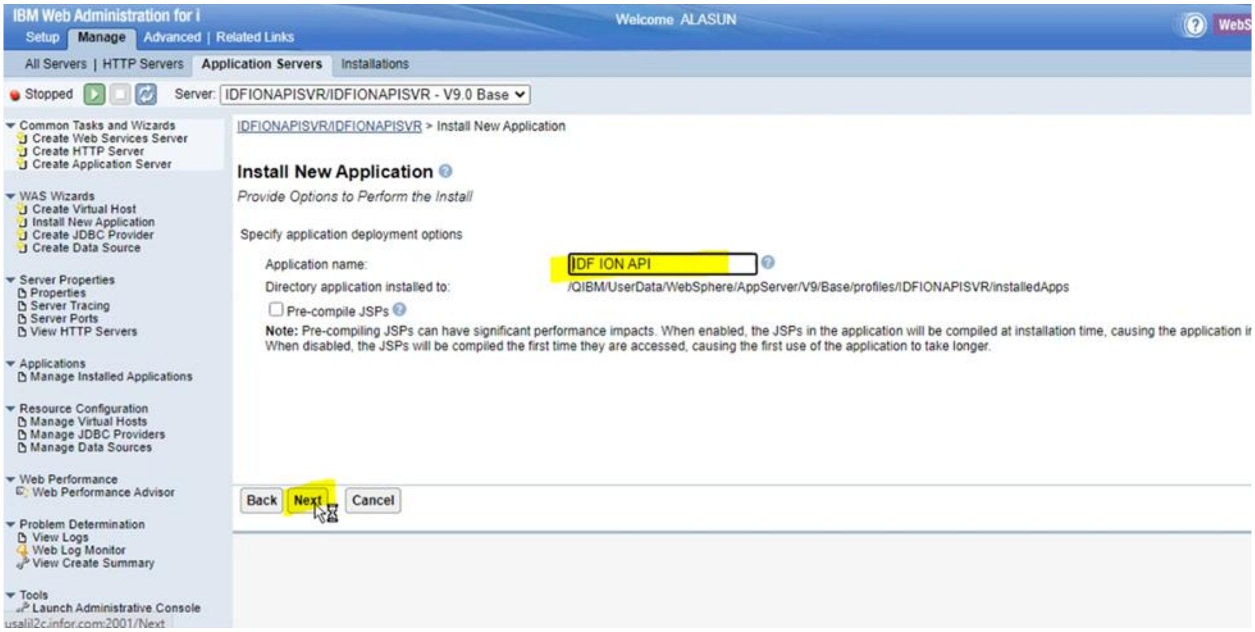
● Application is contained in a **WAR** file

Integrated file system path of WAR file: /IDFIONAPI.war Browse

Note: The file must already be on the IBM i system.

Context root: /IDFIONAPI

19 Click Next.



Server: IDFIONAPISVR/IDFIONAPISVR - V9.0 Base

IDFIONAPISVR/IDFIONAPISVR > Install New Application

Install New Application

Provide Options to Perform the Install

Specify application deployment options

Application name: IDF ION API

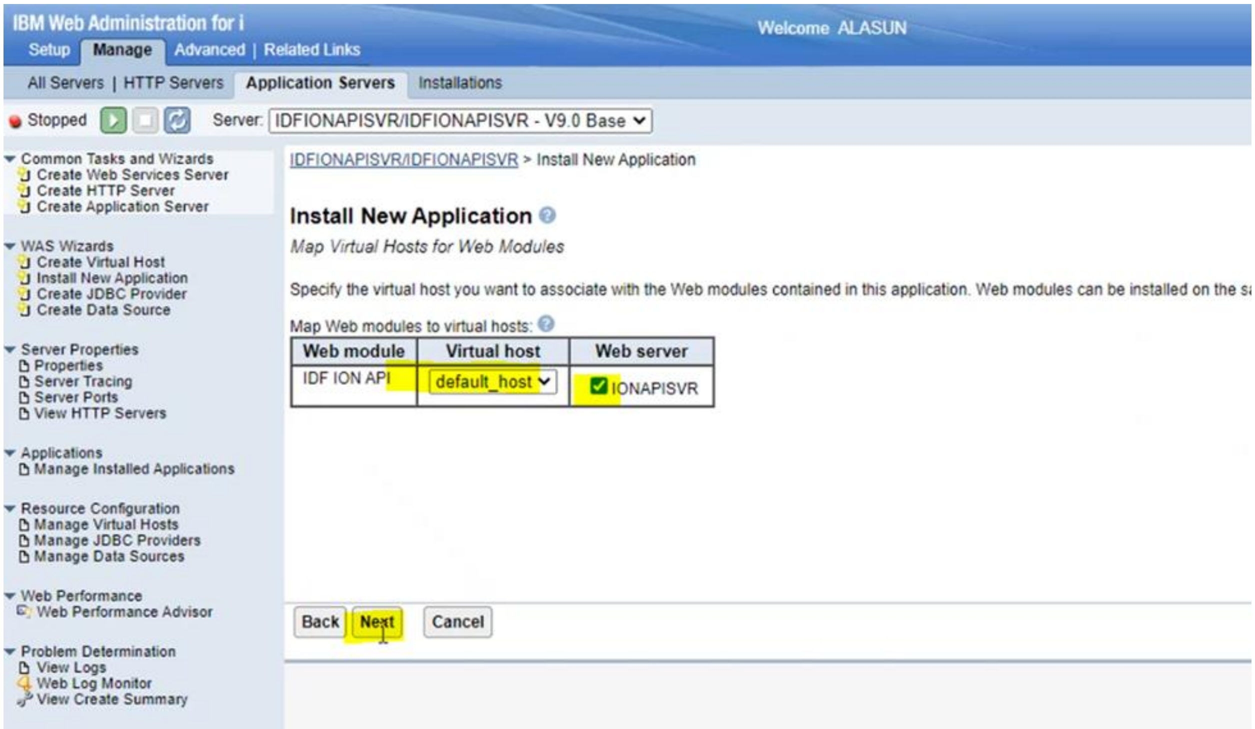
Directory application installed to: /QIBM/UserData/WebSphere/AppServer/V9/Base/profiles/IDFIONAPISVR/installedApps

□ Pre-compile JSPs

Note: Pre-compiling JSPs can have significant performance impacts. When enabled, the JSPs in the application will be compiled at installation time, causing the application i
When disabled, the JSPs will be compiled the first time they are accessed, causing the first use of the application to take longer.

usalil2c.infor.com:2001/Next

20 Check the **Web server** check box and click **Next**.



Server: IDFIONAPISVR/IDFIONAPISVR - V9.0 Base

IDFIONAPISVR/IDFIONAPISVR > Install New Application

Install New Application

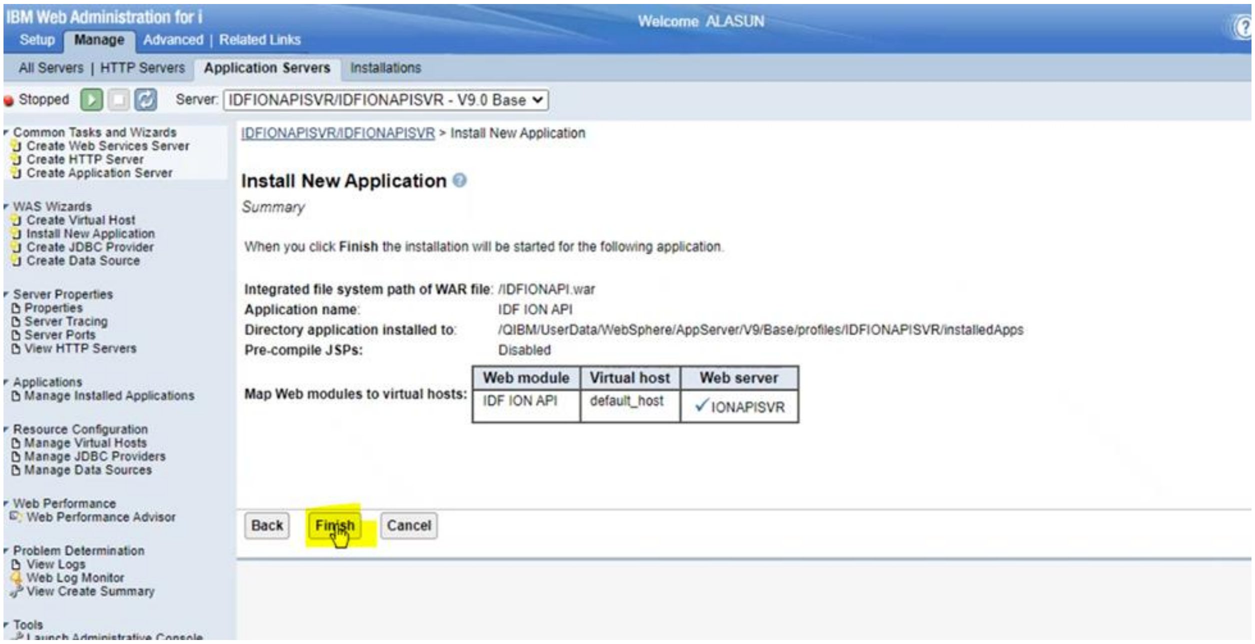
Map Virtual Hosts for Web Modules

Specify the virtual host you want to associate with the Web modules contained in this application. Web modules can be installed on the s

Map Web modules to virtual hosts:

Web module	Virtual host	Web server
IDF ION API	default_host	☑ IONAPISVR

21 Click **Finish**.



Install New Application

Summary

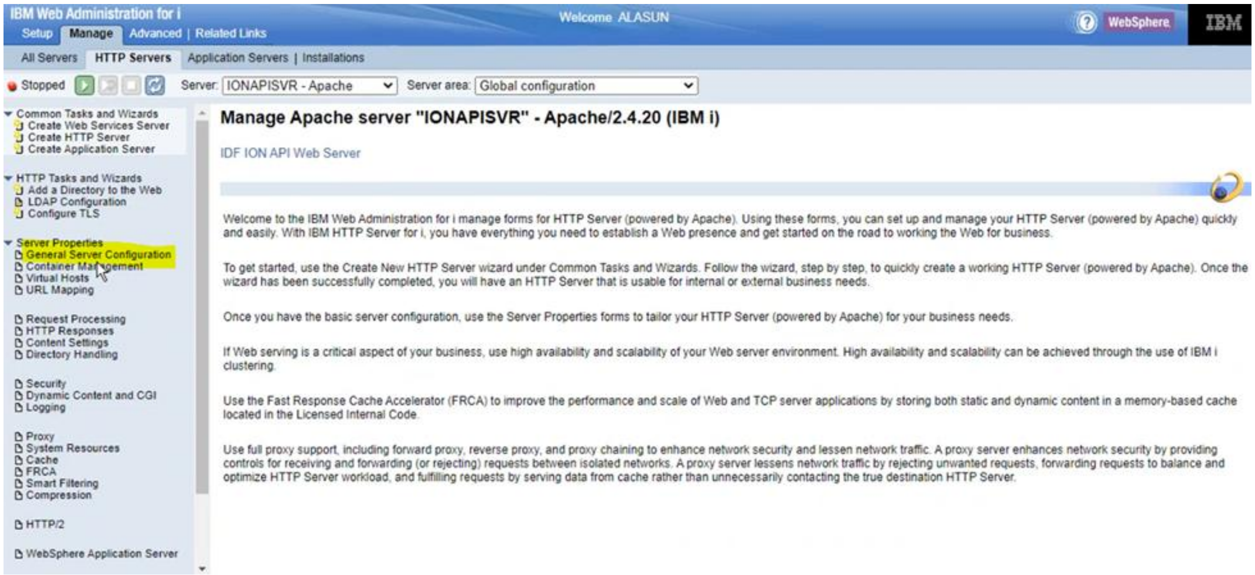
When you click **Finish** the installation will be started for the following application.

Integrated file system path of WAR file: /IDFIONAPI.war
Application name: IDF ION API
Directory application installed to: /QIBM/UserData/WebSphere/AppServer/V9/Base/profiles/IDFIONAPISVR/installedApps
Pre-compile JSPs: Disabled

Map Web modules to virtual hosts:

Web module	Virtual host	Web server
IDF ION API	default_host	✓IONAPISVR

22 Now go to manage HTTP servers, in IDFIONAPI Web Server, click on general server configuration.



Manage Apache server "IONAPISVR" - Apache/2.4.20 (IBM i)

IDF ION API Web Server

Welcome to the IBM Web Administration for i manage forms for HTTP Server (powered by Apache). Using these forms, you can set up and manage your HTTP Server (powered by Apache) quickly and easily. With IBM HTTP Server for i, you have everything you need to establish a Web presence and get started on the road to working the Web for business.

To get started, use the Create New HTTP Server wizard under Common Tasks and Wizards. Follow the wizard, step by step, to quickly create a working HTTP Server (powered by Apache). Once the wizard has been successfully completed, you will have an HTTP Server that is usable for internal or external business needs.

Once you have the basic server configuration, use the Server Properties forms to tailor your HTTP Server (powered by Apache) for your business needs.

If Web serving is a critical aspect of your business, use high availability and scalability of your Web server environment. High availability and scalability can be achieved through the use of IBM i clustering.

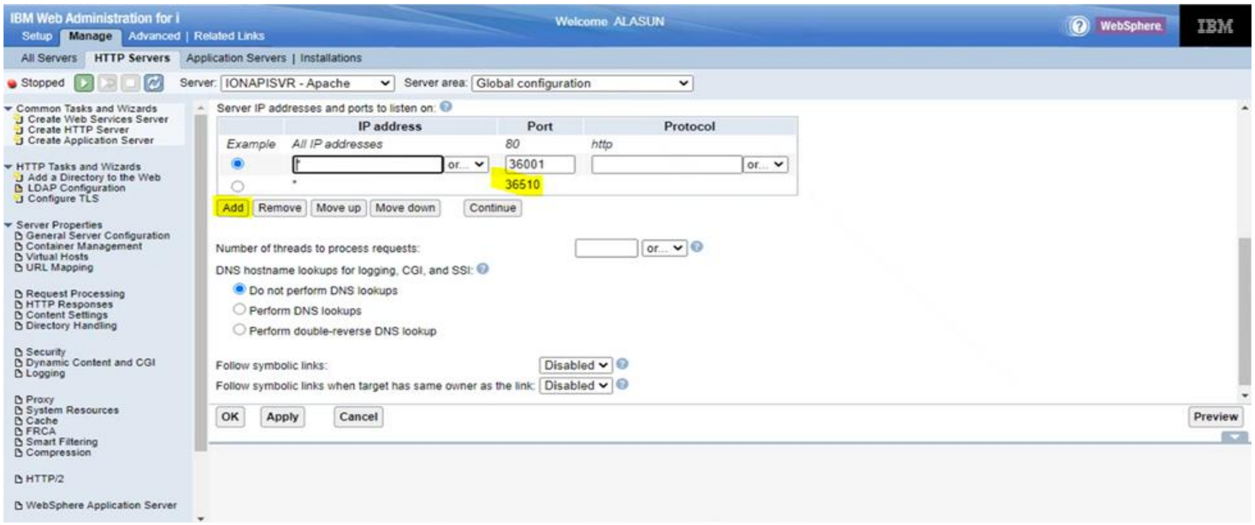
Use the Fast Response Cache Accelerator (FRCA) to improve the performance and scale of Web and TCP server applications by storing both static and dynamic content in a memory-based cache located in the Licensed Internal Code.

Use full proxy support, including forward proxy, reverse proxy, and proxy chaining to enhance network security and lessen network traffic. A proxy server enhances network security by providing controls for receiving and forwarding (or rejecting) requests between isolated networks. A proxy server lessens network traffic by rejecting unwanted requests, forwarding requests to balance and optimize HTTP Server workload, and fulfilling requests by serving data from cache rather than unnecessarily contacting the true destination HTTP Server.

23 Click on add to add the new port and remove the old port. Secured port **443** is a preferable port for IDFIONAPI. But if that port is in use by other applications on the server, then you can use a different port. The same port should be secured and made available for ION CE to connect with IDFIONAPI by making necessary network changes.

Port: 36510

Protocol: HTTP



Stopped Server: IONAPISVR - Apache Server area: Global configuration

Server IP addresses and ports to listen on:

	IP address	Port	Protocol
Example	All IP addresses	80	http
●		36001	
○	*	36510	

Number of threads to process requests:

DNS hostname lookups for logging, CGI, and SSI:

● Do not perform DNS lookups

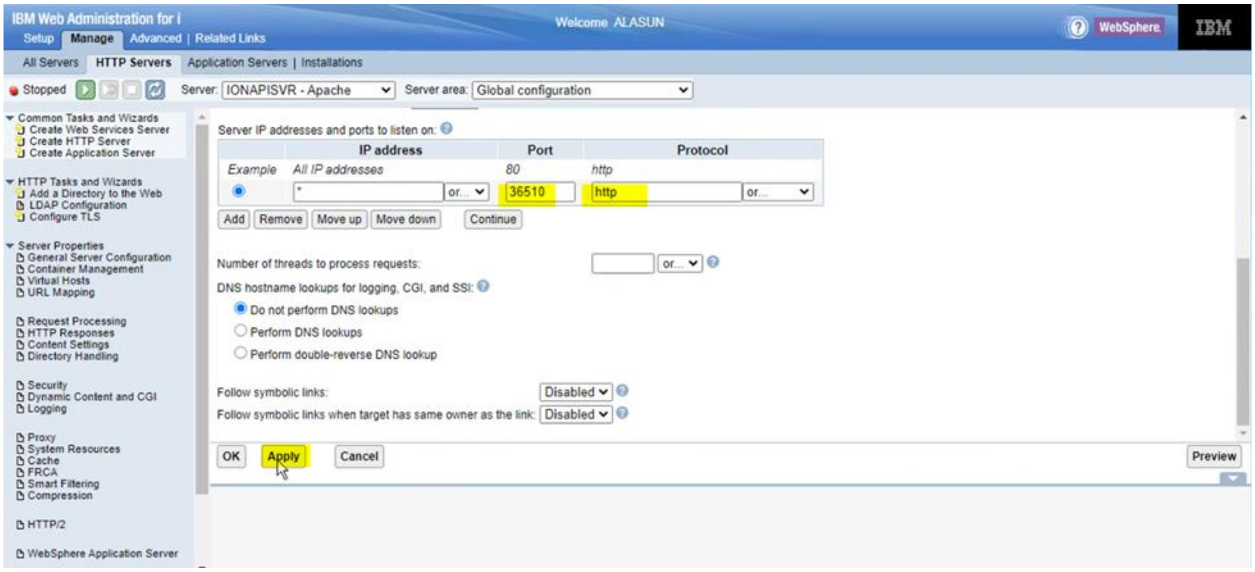
○ Perform DNS lookups

○ Perform double-reverse DNS lookup

Follow symbolic links: Disabled

Follow symbolic links when target has same owner as the link: Disabled

24 Click **Apply**, then **OK**.



Stopped Server: IONAPISVR - Apache Server area: Global configuration

Server IP addresses and ports to listen on:

	IP address	Port	Protocol
Example	All IP addresses	80	http
●	*	36510	http

Number of threads to process requests:

DNS hostname lookups for logging, CGI, and SSI:

● Do not perform DNS lookups

○ Perform DNS lookups

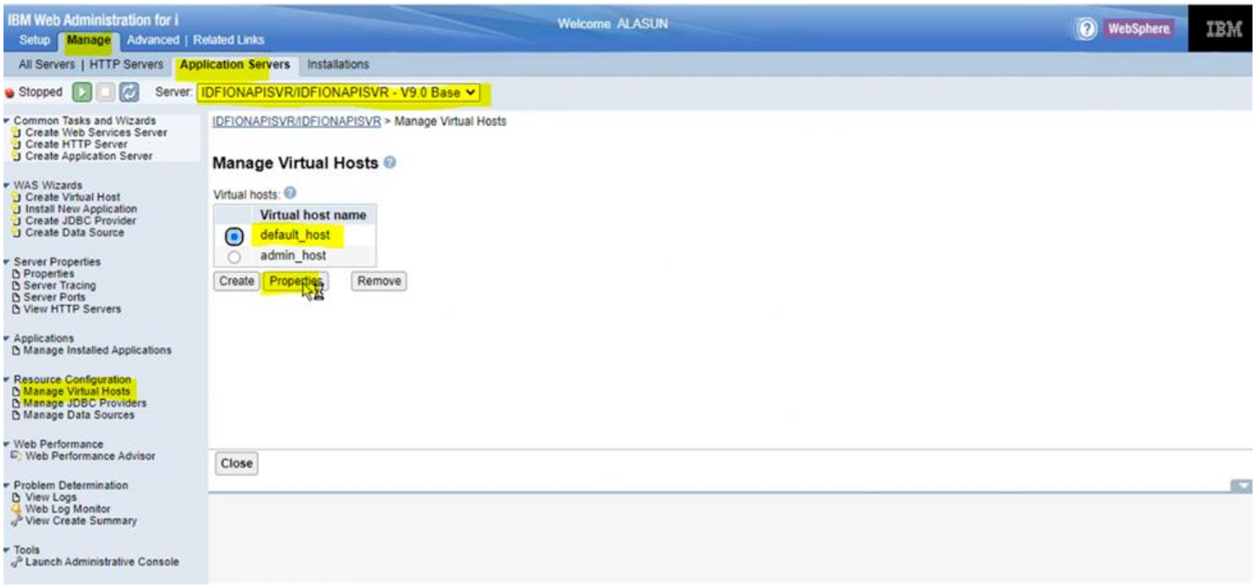
○ Perform double-reverse DNS lookup

Follow symbolic links: Disabled

Follow symbolic links when target has same owner as the link: Disabled

25 Select the Manage Virtual Hosts under Resource Configuration from the IDFIONAPISVR Application server, as shown in below screenshot.

Select the default host and click **Properties**.



Server: IDFIONAPISVR/IDFIONAPISVR - V9.0 Base

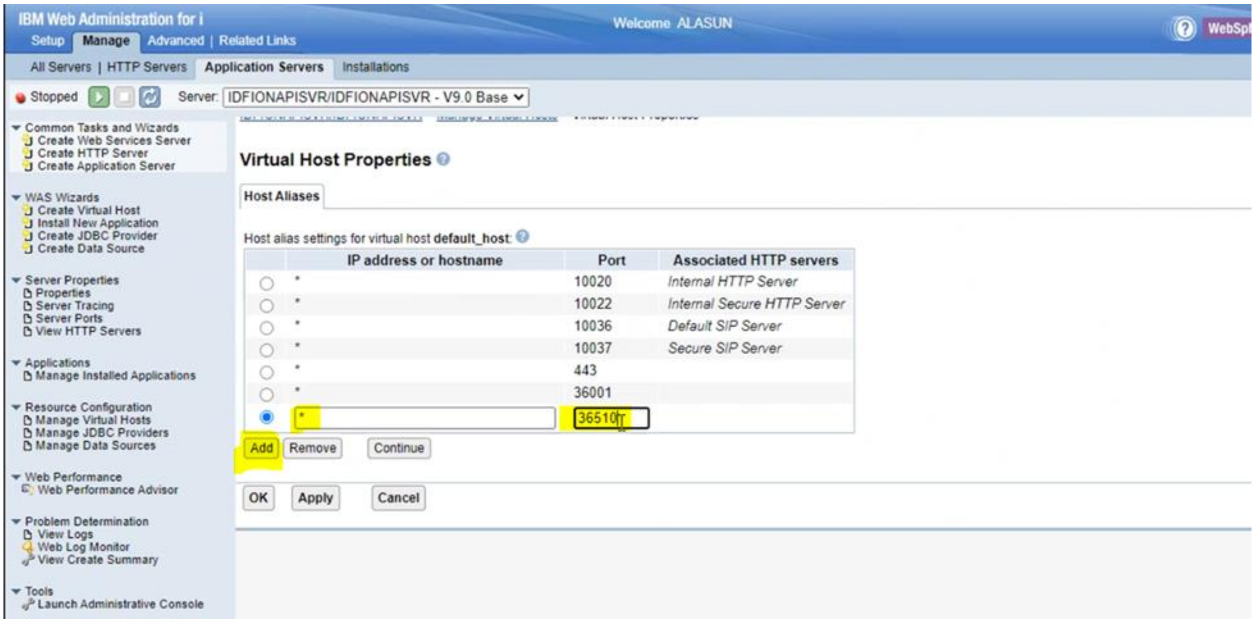
IDFIONAPISVR/IDFIONAPISVR > Manage Virtual Hosts

Manage Virtual Hosts

Virtual hosts:

	Virtual host name
●	default_host
○	admin_host

26 Click **Add** to add a Host Aliases (In the below example, added 36510 as a port).



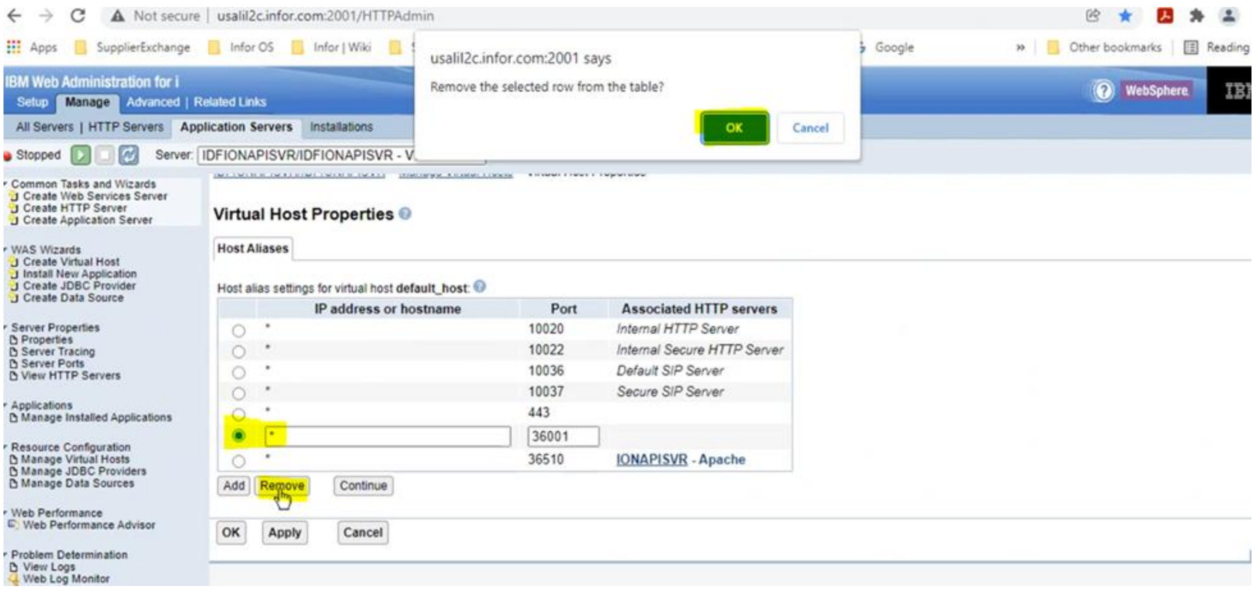
Server: IDFIONAPISVR/IDFIONAPISVR - V9.0 Base

Virtual Host Properties

Host alias settings for virtual host **default_host**:

	IP address or hostname	Port	Associated HTTP servers
○	*	10020	*Internal HTTP Server*
○	*	10022	*Internal Secure HTTP Server*
○	*	10036	*Default SIP Server*
○	*	10037	*Secure SIP Server*
○	*	443	
○	*	36001	
●	*	36510	

27 Select the 36001 port and click **Remove**. Click **Apply**.



usalil2c.infor.com:2001 says

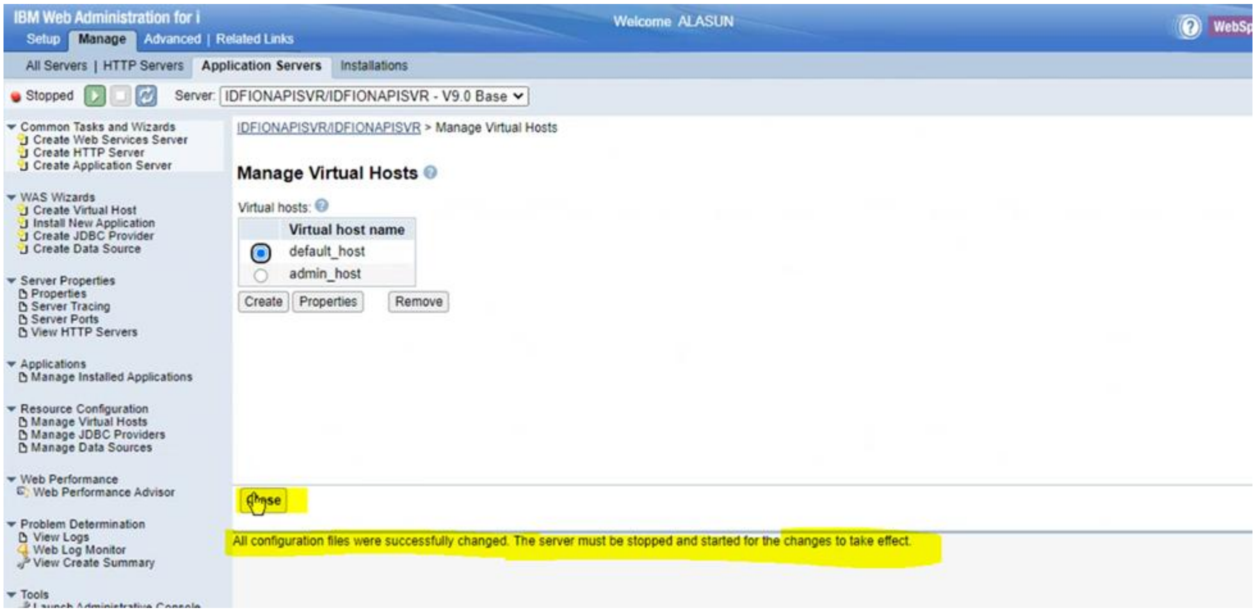
Remove the selected row from the table?

Virtual Host Properties

Host alias settings for virtual host **default_host**:

	IP address or hostname	Port	Associated HTTP servers
○	*	10020	Internal HTTP Server
○	*	10022	Internal Secure HTTP Server
○	*	10036	Default SIP Server
○	*	10037	Secure SIP Server
○	*	443	
●	*	36001	
○	*	36510	IONAPISVR - Apache

28 Click **Close**. As all configuration is saved, the server must be restarted.



IDFIONAPISVR/IDFIONAPISVR > Manage Virtual Hosts

Manage Virtual Hosts

Virtual hosts:

	Virtual host name
●	default_host
○	admin_host

All configuration files were successfully changed. The server must be stopped and started for the changes to take effect.

29 After successful deployment of IDFIONAPI application, complete the SSL/TLS process by following steps in “**Chapter 5 Configuring TLS**”.

Chapter 5 WAR file Re-deployment

This section explains the procedure to re-deploy the WAR file for Net-Link or IDFIONAPI applications. We perform this section only, whenever we want to redeploy the war file with new changes.

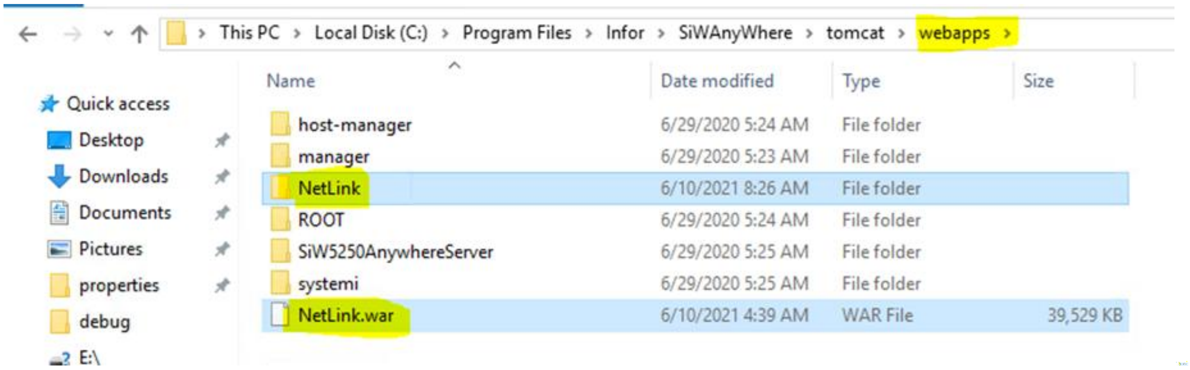
WAR file generation

Follow the required “Net-Link **WAR file generation in IDF**” chapter in this document based on your application.

Re-deployment on Tomcat

1 Stop the Infor SiWA service from Windows Services.

2 Delete or take the backup of the NetLink.war file & NetLink folder from the root of the webapps folder of the Tomcat instance, shown below.


This PC › Local Disk (C:) › Program Files › Infor › SiWAnyWhere › tomcat › webapps ›
Quick access
Desktop
Downloads
Documents
Pictures
properties
debug
E:\

Name	Date modified	Type	Size
host-manager	6/29/2020 5:24 AM	File folder	
manager	6/29/2020 5:23 AM	File folder	
NetLink	6/10/2021 8:26 AM	File folder	
ROOT	6/29/2020 5:24 AM	File folder	
SiW5250AnywhereServer	6/29/2020 5:25 AM	File folder	
systemi	6/29/2020 5:25 AM	File folder	
NetLink.war	6/10/2021 4:39 AM	WAR File	39,529 KB

3 The redeployment of WAR file involves copying the WAR file to the root of the webapps folder of the Tomcat instance. The update is automatically loaded by Tomcat.

4 Start the Infor SiWA service from Windows Services.

Re-deployment on WebSphere (version 9.x)

Check that you have the following subsystem running, and that all ADMIN jobs are running within the subsystem:

WRKSBSJOB QHTTPSVR

If the subsystem is not active, issue the following OS400 command:

STRTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)

For deployment of WAR file using WebSphere, execute below steps:

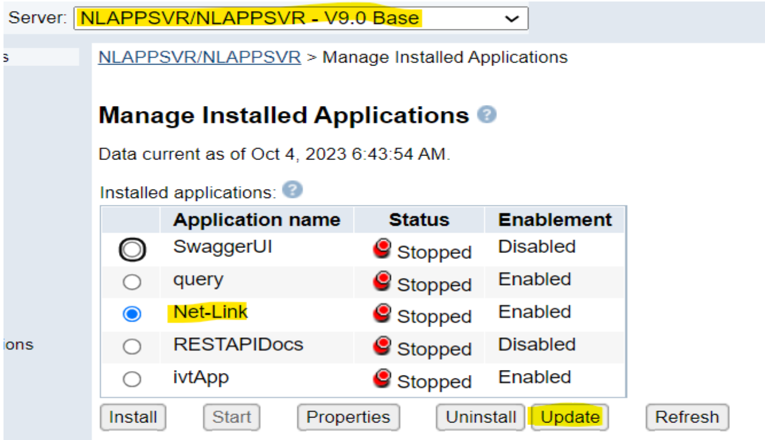
1 Replace the existing Net-Link WAR file with the new Net-Link WAR file on the IFS of the iSeries which is preferably a ‘scratch’ folder.However, the location can also be in the root.

2 Open the HTTP Administration console (http://{hostName}:2001/HTTPAdmin), and log in with *SECADM authority.

3 Stop the HTTP server and its associated Application server instances for both the SiWA & Net-Link applications.

4 Click on the Net-Link application server (NLAPPSVR/NLAPPSVR) and then Select ***Manage Installed Applications*** under ***Applications***.

5 Select the **Net-Link** application and click on ***Update***, as shown below.



Server: NLAPPSVR/NLAPPSVR - V9.0 Base

NLAPPSVR/NLAPPSVR > Manage Installed Applications

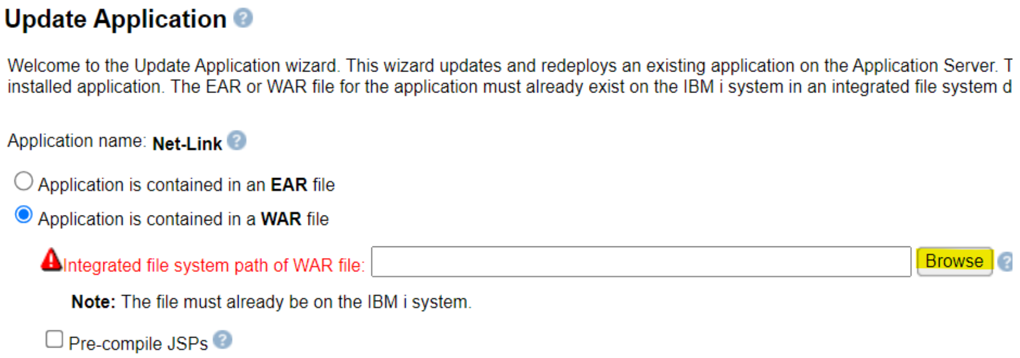
Manage Installed Applications

Data current as of Oct 4, 2023 6:43:54 AM.

Installed applications:

	Application name	Status	Enablement
○	SwaggerUI	Stopped	Disabled
○	query	Stopped	Enabled
●	Net-Link	Stopped	Enabled
○	RESTAPIDocs	Stopped	Disabled
○	ivtApp	Stopped	Enabled

6 Select the “***Application is connected in a WAR file”***, click on ***Browse.***



Update Application

Welcome to the Update Application wizard. This wizard updates and redeploys an existing application on the Application Server. T
installed application. The EAR or WAR file for the application must already exist on the IBM i system in an integrated file system d

Application name: **Net-Link**

○ Application is contained in an **EAR** file

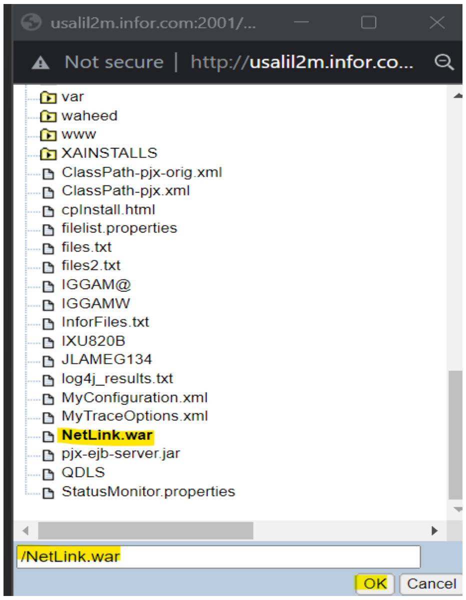
● Application is contained in a **WAR** file

Integrated file system path of WAR file: Browse

Note: The file must already be on the IBM i system.

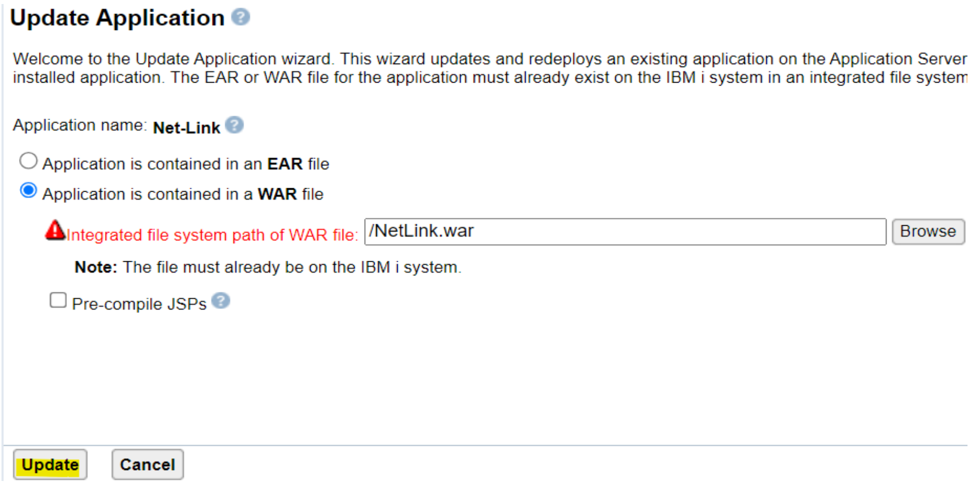
□ Pre-compile JSPs

7 Select the latest NetLink.war file and click **OK**.



/NetLink.war

8 Click **Update**.



Update Application

Welcome to the Update Application wizard. This wizard updates and redeploys an existing application on the Application Server installed application. The EAR or WAR file for the application must already exist on the IBM i system in an integrated file system

Application name: **Net-Link**

○ Application is contained in an **EAR** file

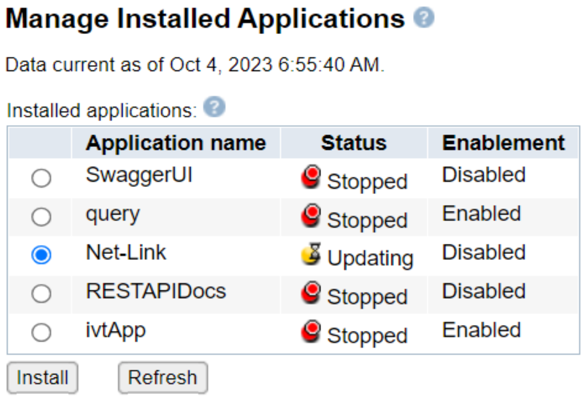
● Application is contained in a **WAR** file

Integrated file system path of WAR file: /NetLink.war

Note: The file must already be on the IBM i system.

□ Pre-compile JSPs

9 The Status of the Net-Link is now changed to Updating.



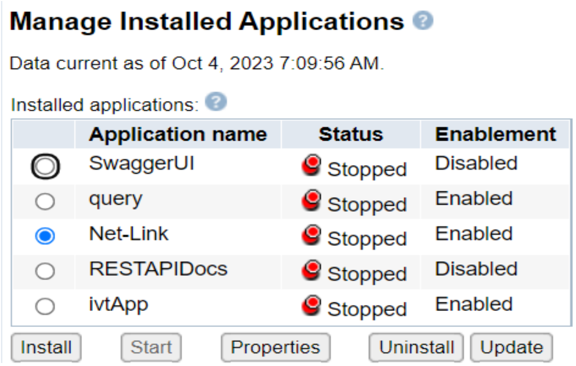
Manage Installed Applications

Data current as of Oct 4, 2023 6:55:40 AM.

Installed applications:

	Application name	Status	Enablement
○	SwaggerUI	Stopped	Disabled
○	query	Stopped	Enabled
●	Net-Link	Updating	Disabled
○	RESTAPIDocs	Stopped	Disabled
○	ivtApp	Stopped	Enabled

10 After successful update, the status of the Net-Link will change to Stopped.



Manage Installed Applications

Data current as of Oct 4, 2023 7:09:56 AM.

Installed applications:

	Application name	Status	Enablement
○	SwaggerUI	Stopped	Disabled
○	query	Stopped	Enabled
●	Net-Link	Stopped	Enabled
○	RESTAPIDocs	Stopped	Disabled
○	ivtApp	Stopped	Enabled

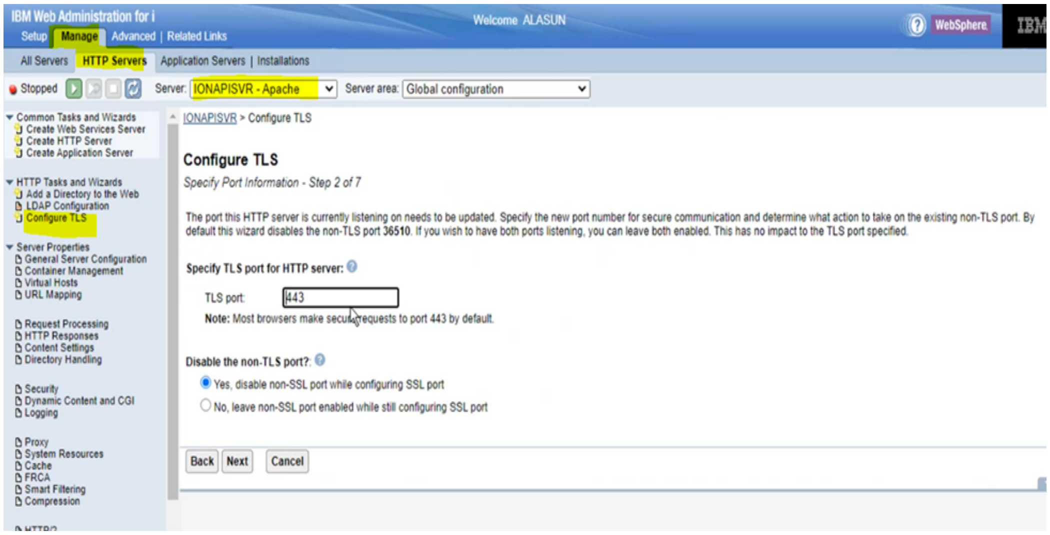
11 Start the HTTP server and its associated Application server instances for both the SiWA & Net-Link applications.

Chapter 6 Configuring TLS

To secure applications like Net-Link, WSANYWHERE and IDFIONAPI the steps below need to be followed.

Securing IDFIONAPI application is shown below as an example.

1 Select Manage tab | Select HTTP Servers tab | Select Configure TLS – (HTTP Tasks and Wizards).



Server: IONAPISVR - Apache
Server area: Global configuration

Configure TLS

Specify Port Information - Step 2 of 7

The port this HTTP server is currently listening on needs to be updated. Specify the new port number for secure communication and determine what action to take on the existing non-TLS port. By default this wizard disables the non-TLS port **36510**. If you wish to have both ports listening, you can leave both enabled. This has no impact to the TLS port specified.

Specify TLS port for HTTP server:

TLS port: 443

Note: Most browsers make secure requests to port 443 by default.

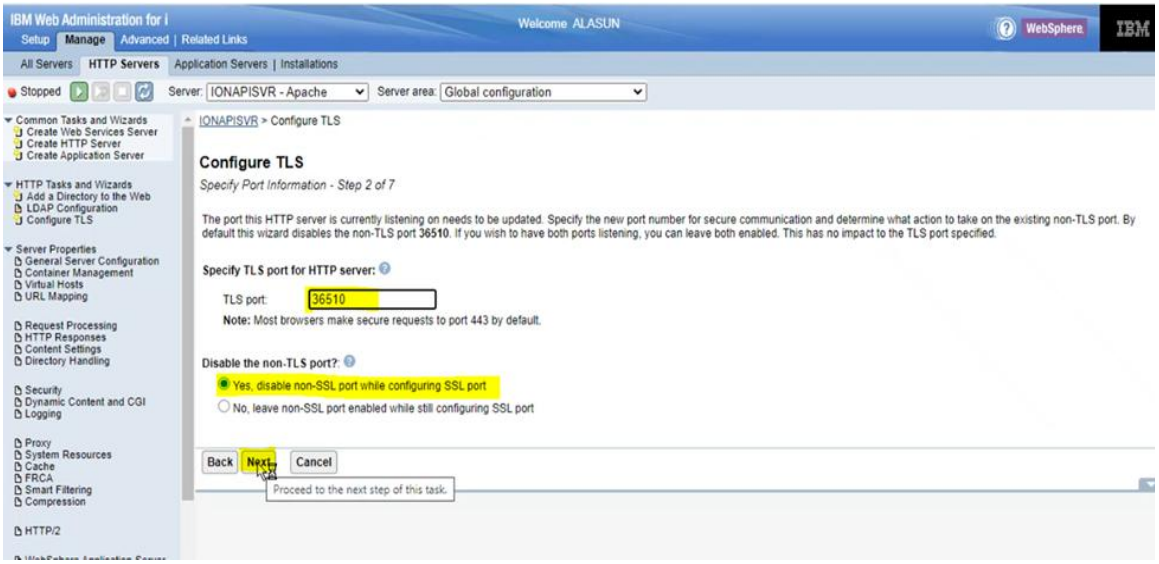
Disable the non-TLS port?:

● Yes, disable non-SSL port while configuring SSL port

○ No, leave non-SSL port enabled while still configuring SSL port

2 Give the required port number (Ex: 36510) select radio button for “Yes, disable non-SSL…” and Click Next.

Note: If you have received the warning ‘**port is already configured by another application’** while deploying the Net-Link or WSANYWHERE or IDFIONAPI application and performed Port Warning rest instructions by following “**Appendix A Reset Port on Warning”**, then specify that new port number as **TLS Port** number. Otherwise, proceed with the default port.



Configure TLS

Specify Port Information - Step 2 of 7

The port this HTTP server is currently listening on needs to be updated. Specify the new port number for secure communication and determine what action to take on the existing non-TLS port. By default this wizard disables the non-TLS port **36510**. If you wish to have both ports listening, you can leave both enabled. This has no impact to the TLS port specified.

Specify TLS port for HTTP server:

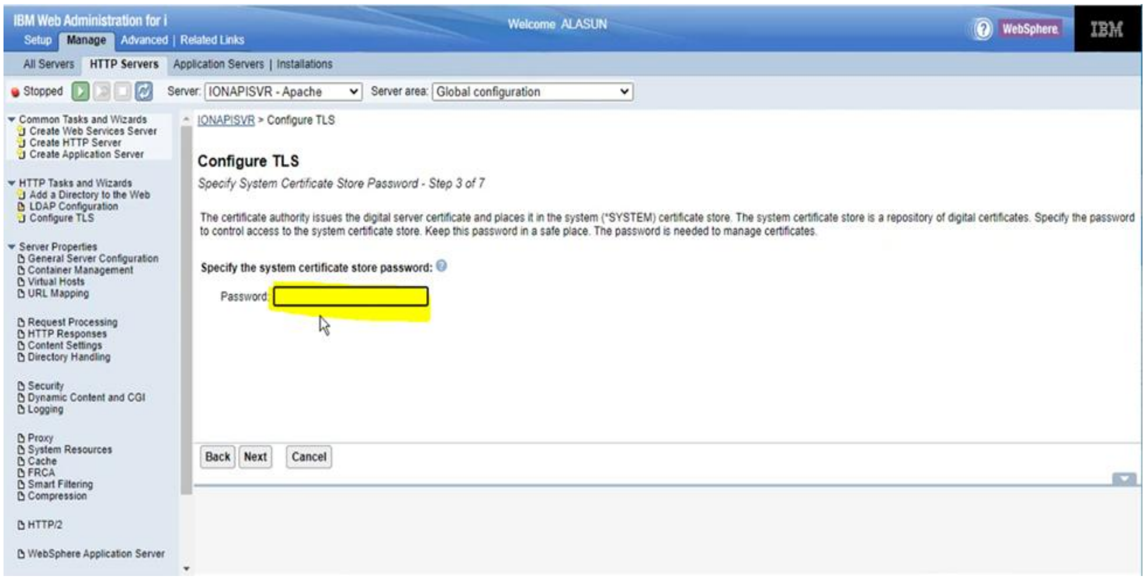
TLS port: 36510

Note: Most browsers make secure requests to port 443 by default.

Disable the non-TLS port?:

● Yes, disable non-SSL port while configuring SSL port

○ No, leave non-SSL port enabled while still configuring SSL port



Configure TLS

Specify System Certificate Store Password - Step 3 of 7

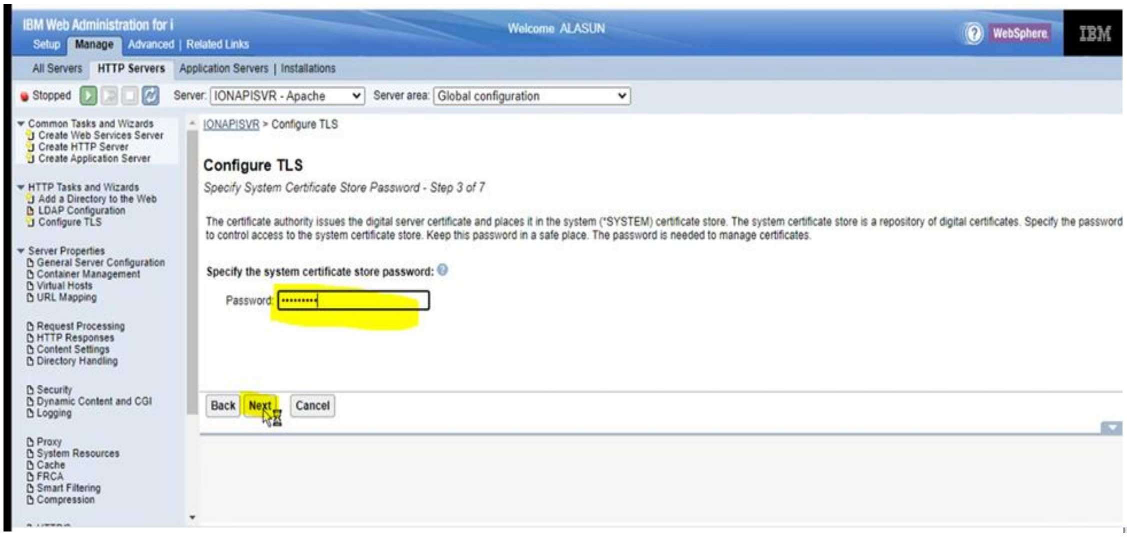
The certificate authority issues the digital server certificate and places it in the system (*SYSTEM) certificate store. The system certificate store is a repository of digital certificates. Specify the password to control access to the system certificate store. Keep this password in a safe place. The password is needed to manage certificates.

Specify the system certificate store password:

Password:

3 Enter the required system certificate store password. If password is not available, please check with the IBM i admin or IT team.

4 Enter the password and click on **Next**.



Configure TLS

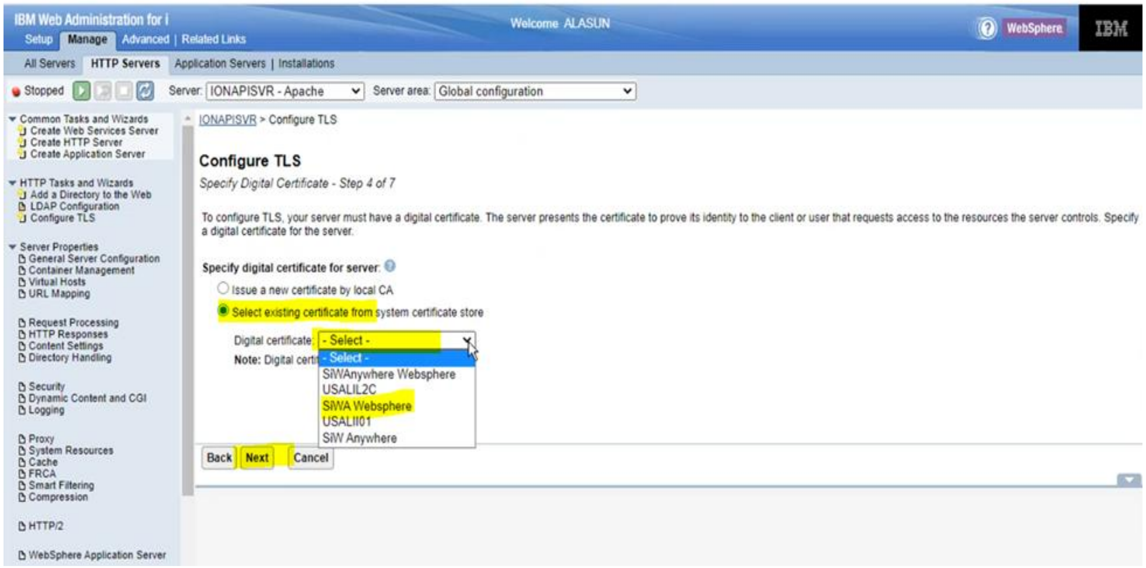
Specify System Certificate Store Password - Step 3 of 7

The certificate authority issues the digital server certificate and places it in the system (*SYSTEM) certificate store. The system certificate store is a repository of digital certificates. Specify the password to control access to the system certificate store. Keep this password in a safe place. The password is needed to manage certificates.

Specify the system certificate store password:

Password: ••••••••

5 Select existing certificate from system certificate store. And select SIWA WebSphere**.**



Configure TLS

Specify Digital Certificate - Step 4 of 7

To configure TLS, your server must have a digital certificate. The server presents the certificate to prove its identity to the client or user that requests access to the resources the server controls. Specify a digital certificate for the server.

Specify digital certificate for server:

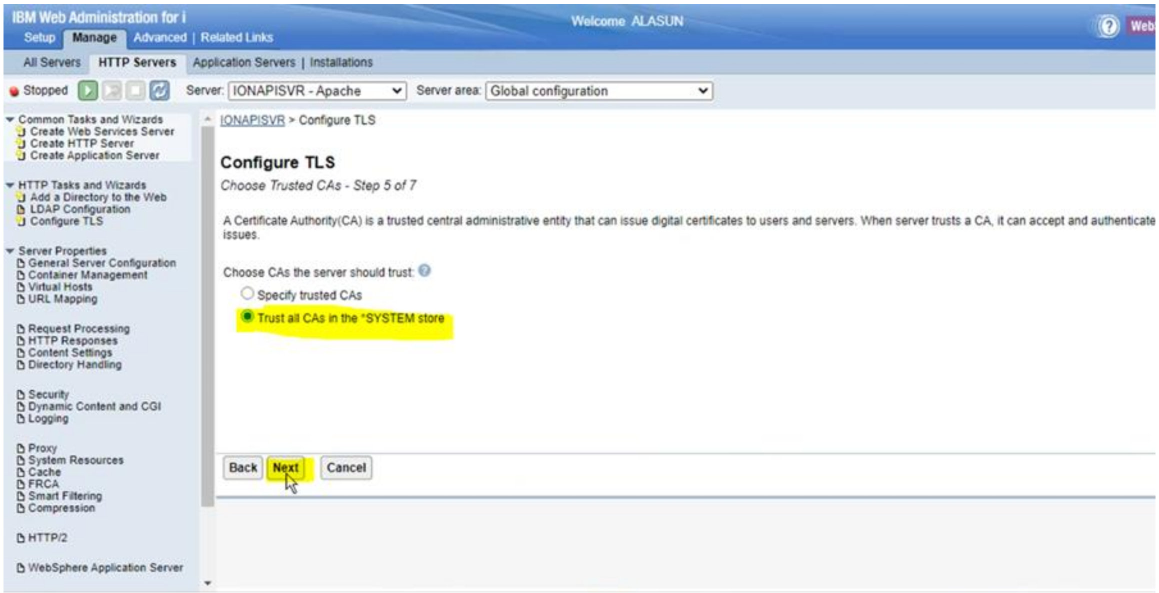
○ Issue a new certificate by local CA

● Select existing certificate from system certificate store

Digital certificate: - Select -

Note: Digital certi

6 Select “Trust all CAs in the *SYSTEM store” and click on **Next**.



IONAPISVR > Configure TLS

Configure TLS

Choose Trusted CAs - Step 5 of 7

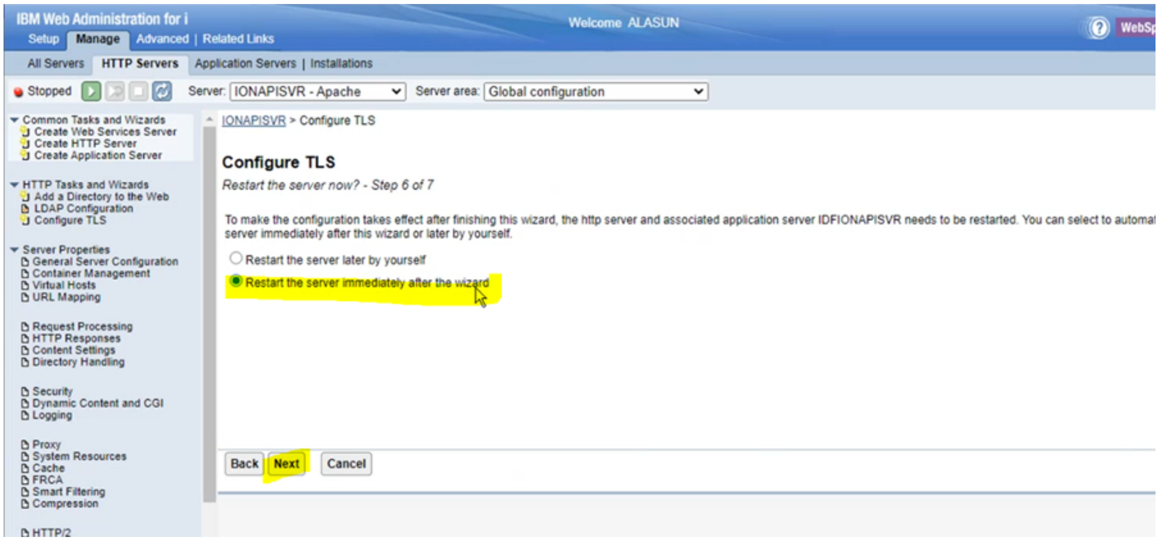
A Certificate Authority(CA) is a trusted central administrative entity that can issue digital certificates to users and servers. When server trusts a CA, it can accept and authenticate issues.

Choose CAs the server should trust:

○ Specify trusted CAs

● Trust all CAs in the *SYSTEM store

7 Select restart the server immediately option and click **Next**.



IONAPISVR > Configure TLS

Configure TLS

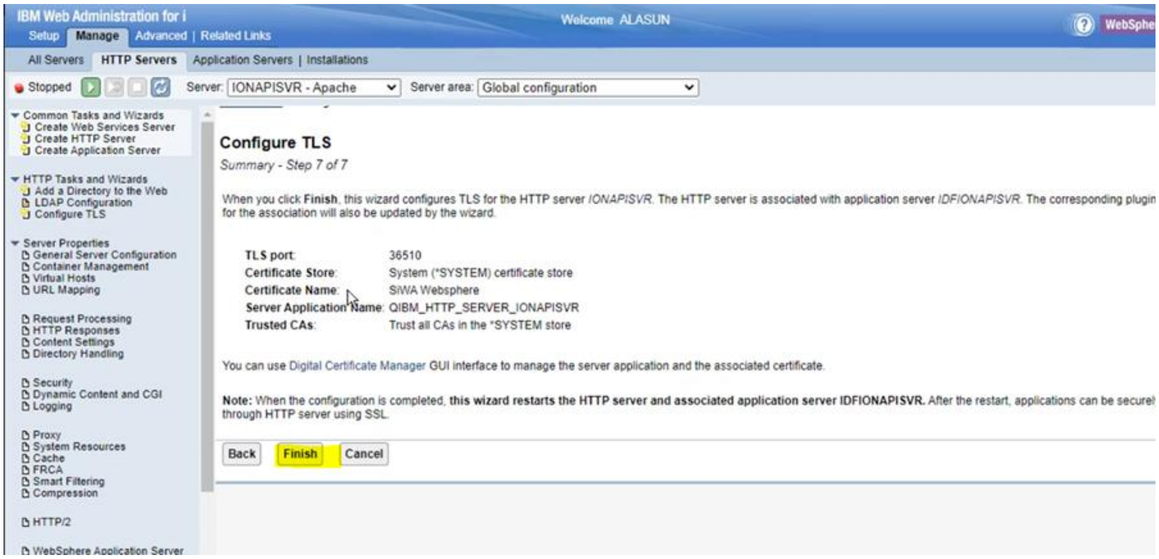
Restart the server now? - Step 6 of 7

To make the configuration takes effect after finishing this wizard, the http server and associated application server IDFIONAPISVR needs to be restarted. You can select to automat server immediately after this wizard or later by yourself.

○ Restart the server later by yourself

● Restart the server immediately after the wizard

8 Click on finish and the servers will be restarted.



Configure TLS

Summary - Step 7 of 7

When you click **Finish**, this wizard configures TLS for the HTTP server *IONAPISVR*. The HTTP server is associated with application server *IDFIONAPISVR*. The corresponding plugin for the association will also be updated by the wizard.

TLS port:	36510
Certificate Store:	System (*SYSTEM) certificate store
Certificate Name:	SIWA Websphere
Server Application Name:	QIBM_HTTP_SERVER_IONAPISVR
Trusted CAs:	Trust all CAs in the *SYSTEM store

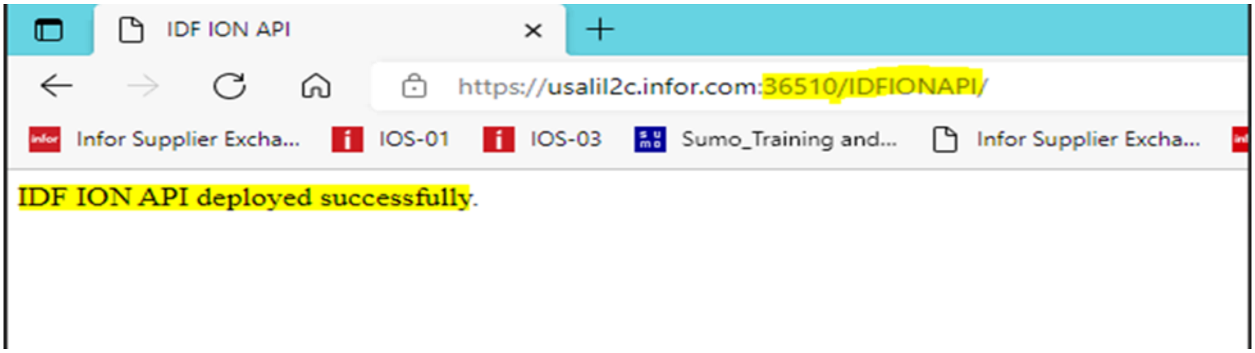
You can use Digital Certificate Manager GUI interface to manage the server application and the associated certificate.

Note: When the configuration is completed, **this wizard restarts the HTTP server and associated application server IDFIONAPISVR.** After the restart, applications can be secure through HTTP server using SSL.

9 After restart validate if the IDFIONAPI deployment is successful.

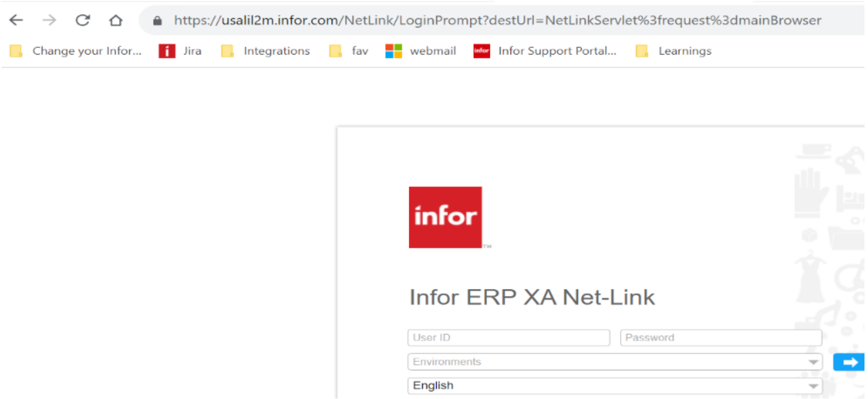
10 Launch secured URL “https://usalil2c.infor.com:36510/IDFIONAPI/”

11 “IDF ION API deployed successfully” will be displayed.



IDF ION API deployed successfully.

Note: In the case of secured Net-Link, launch the URL and see if secured Net-Link application is launching fine.



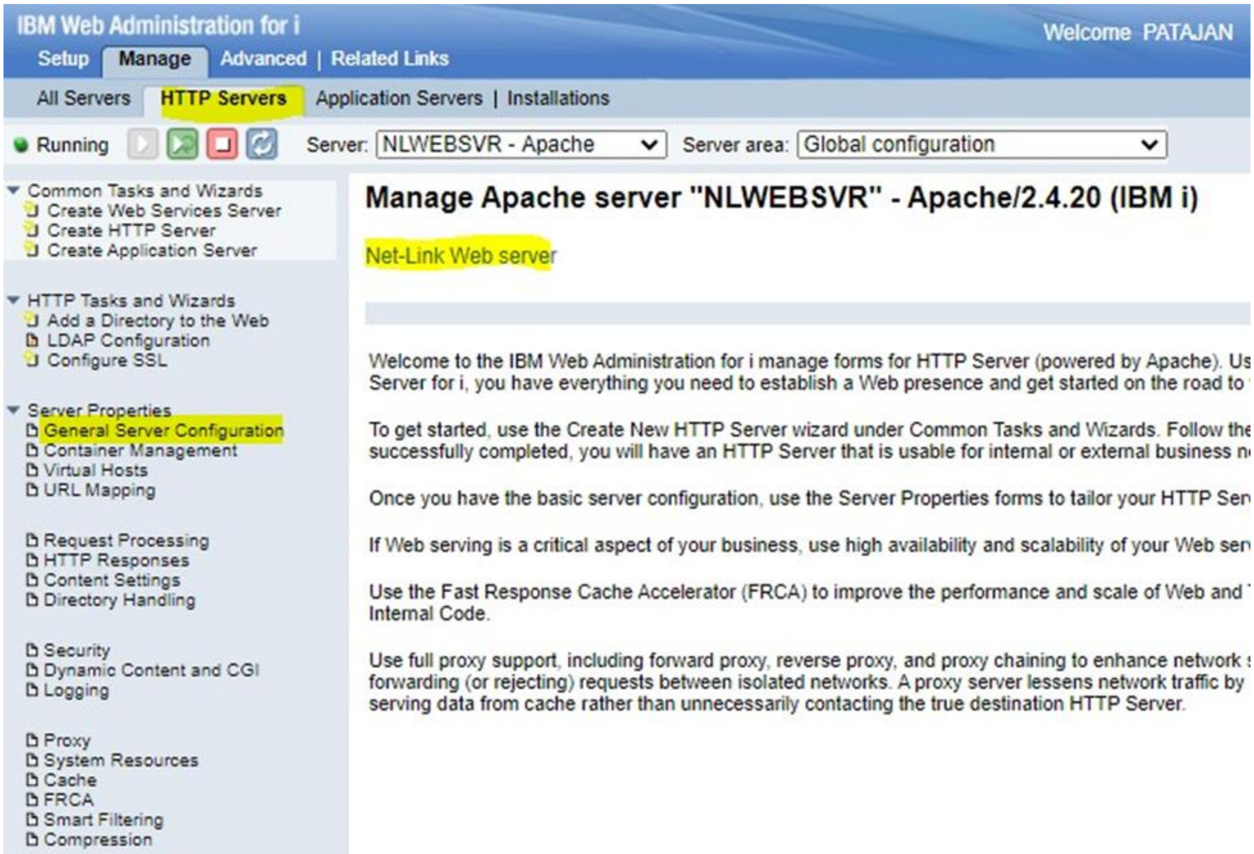
https://usalil2m.infor.com/NetLink/LoginPrompt?destUrl=NetLinkServlet%3frequest%3dmainBrowser

12 Configure the Net-Link URL in SiWA Administrator by following the steps in "***Appendix C Secured Net-Link URL configuration in SiWA Administrator***".

Appendix A Reset Port on Warning

Follow these steps if you need to change or reset the assigned default port Net-Link or any application running.

1 Select the General Server Configuration under Server Properties from the Net-Link HTTP server, as shown in below screenshot.



Manage Apache server "NLWEBSVR" - Apache/2.4.20 (IBM i)

Net-Link Web server

Welcome to the IBM Web Administration for i manage forms for HTTP Server (powered by Apache). Us Server for i, you have everything you need to establish a Web presence and get started on the road to

To get started, use the Create New HTTP Server wizard under Common Tasks and Wizards. Follow the successfully completed, you will have an HTTP Server that is usable for internal or external business n

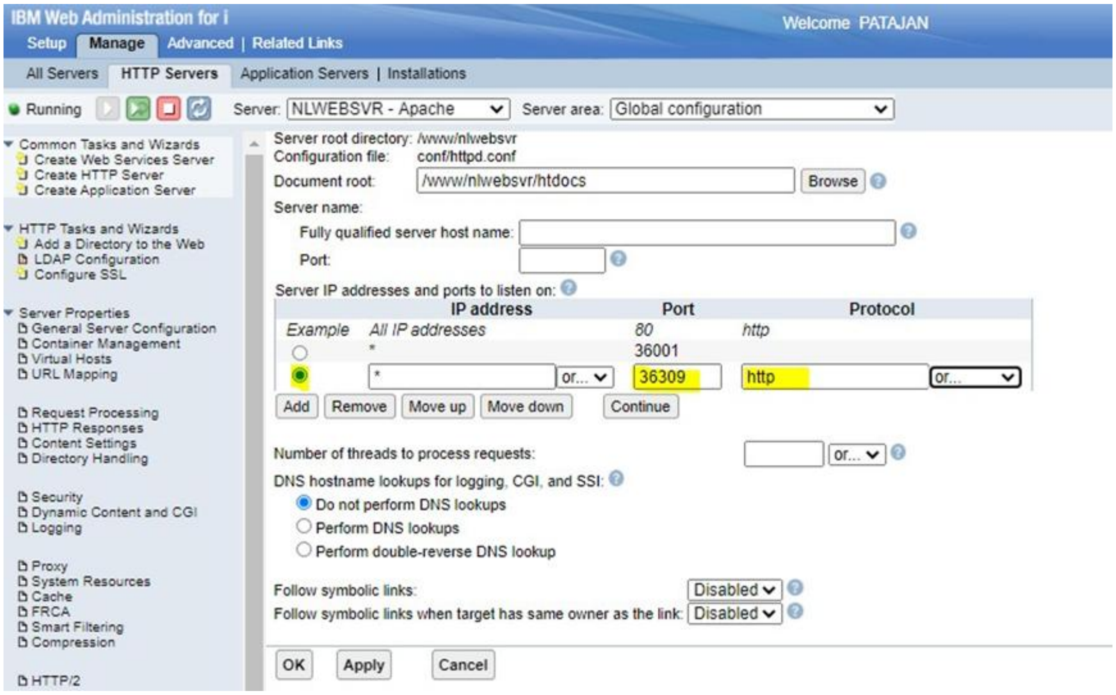
Once you have the basic server configuration, use the Server Properties forms to tailor your HTTP Ser

If Web serving is a critical aspect of your business, use high availability and scalability of your Web ser

Use the Fast Response Cache Accelerator (FRCA) to improve the performance and scale of Web and Internal Code.

Use full proxy support, including forward proxy, reverse proxy, and proxy chaining to enhance network forwarding (or rejecting) requests between isolated networks. A proxy server lessens network traffic by serving data from cache rather than unnecessarily contacting the true destination HTTP Server.

2 Navigate to General settings and click **Add** to add a new port with HTTP as a protocol (In the below example, added 36309 as a new unused port).



Running

Server: NLWEBSVR - Apache Server area: Global configuration

Server root directory: /www/nlwebsvr

Configuration file: conf/httpd.conf

Document root: /www/nlwebsvr/htdocs

Server name:

Fully qualified server host name:

Port:

Server IP addresses and ports to listen on:

	IP address	Port	Protocol
Example	All IP addresses	80	http
○	*	36001	
●	* or...	36309	http or...

Number of threads to process requests: or...

DNS hostname lookups for logging, CGI, and SSI:

● Do not perform DNS lookups

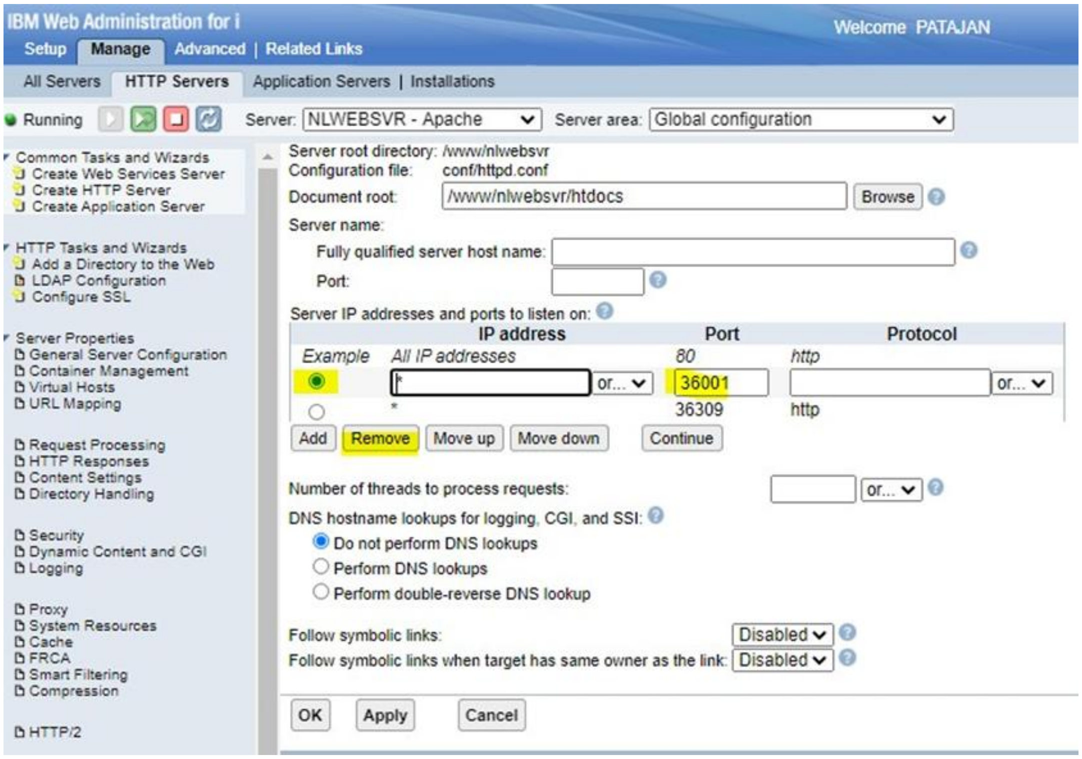
○ Perform DNS lookups

○ Perform double-reverse DNS lookup

Follow symbolic links: Disabled

Follow symbolic links when target has same owner as the link: Disabled

3 Select the 36001 port and Click on **Remove**.



Running

Server: NLWEBSVR - Apache Server area: Global configuration

Server root directory: /www/nlwebsvr

Configuration file: conf/httpd.conf

Document root: /www/nlwebsvr/htdocs

Server name:

Fully qualified server host name:

Port:

Server IP addresses and ports to listen on:

	IP address	Port	Protocol
Example	All IP addresses	80	http
●	* or...	36001	or...
○	*	36309	http

Number of threads to process requests: or...

DNS hostname lookups for logging, CGI, and SSI:

● Do not perform DNS lookups

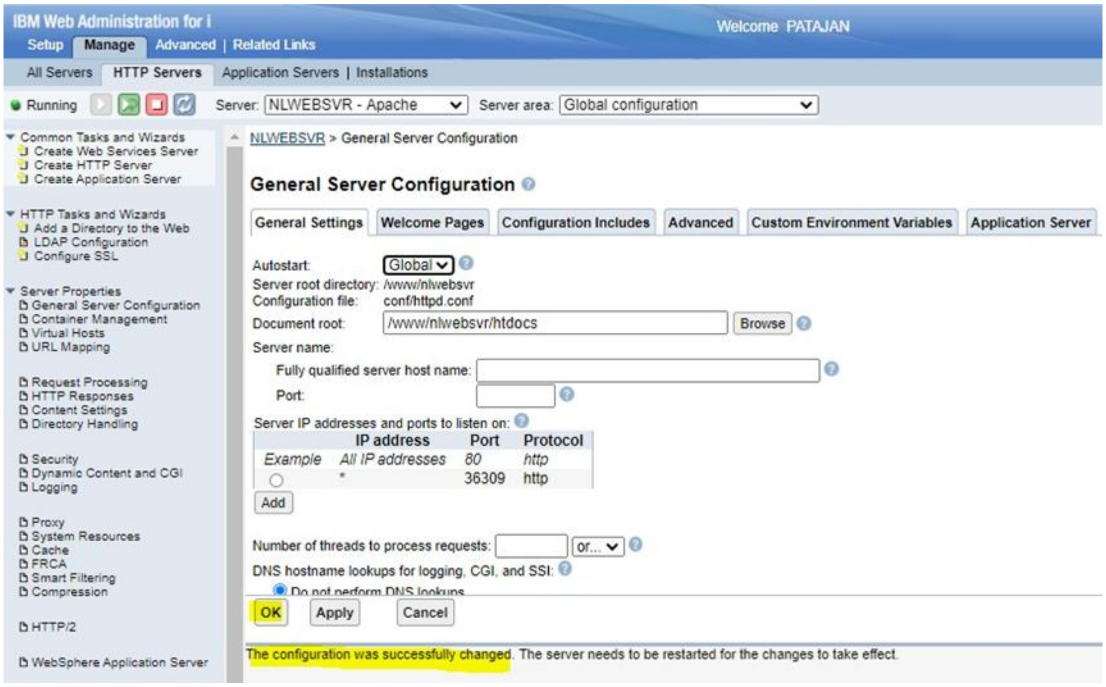
○ Perform DNS lookups

○ Perform double-reverse DNS lookup

Follow symbolic links: Disabled

Follow symbolic links when target has same owner as the link: Disabled

4 Click Apply.



Server: NLWEBSVR - Apache
Server area: Global configuration

NLWEBSVR > General Server Configuration

General Server Configuration

Autostart: Global
Server root directory: /www/nlwebsvr
Configuration file: conf/httpd.conf
Document root: /www/nlwebsvr/htdocs
Server name:
Fully qualified server host name:
Port:
Server IP addresses and ports to listen on:

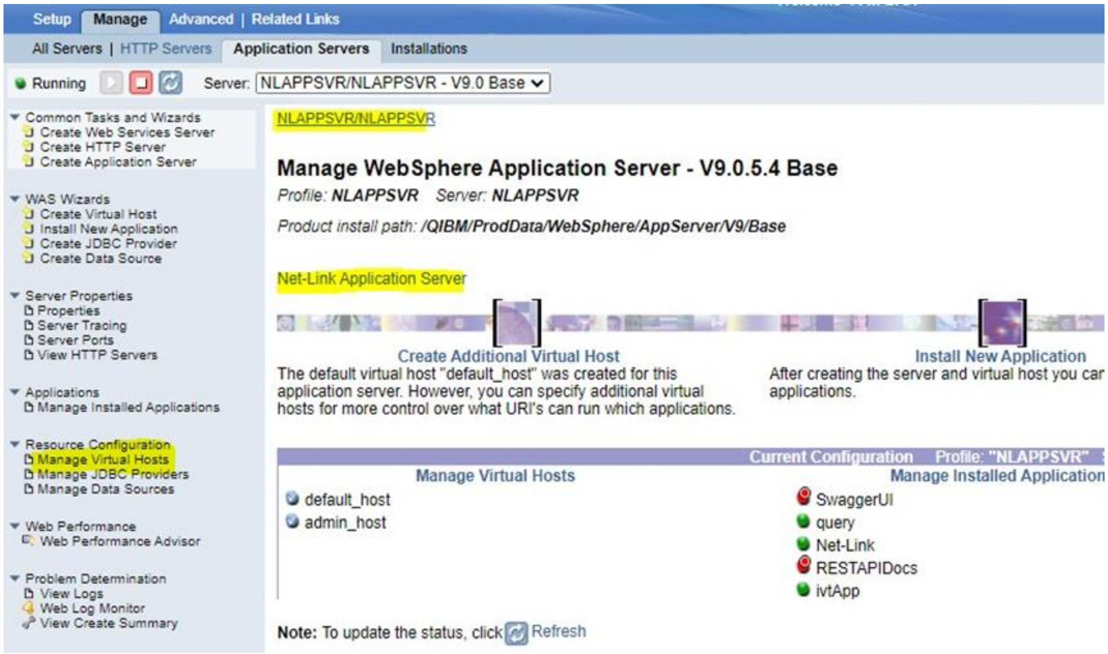
	IP address	Port	Protocol
Example	*All IP addresses*	*80*	*http*
○	*	36309	http

Number of threads to process requests: or...
DNS hostname lookups for logging, CGI, and SSI:
● Do not perform DNS lookups

The configuration was successfully changed. The server needs to be restarted for the changes to take effect.

5 Click **OK** then Click **Close**.

6 Select the Manage Virtual Hosts under Resource Configuration from the Net-Link Application server, as shown in below screenshot.



Server: NLAPPSVR/NLAPPSVR - V9.0 Base

NLAPPSVR/NLAPPSVR

Manage WebSphere Application Server - V9.0.5.4 Base

Profile: ***NLAPPSVR*** *Server:* ***NLAPPSVR***

Product install path: ***/QIBM/ProdData/WebSphere/AppServer/V9/Base***

Net-Link Application Server

The default virtual host "default_host" was created for this application server. However, you can specify additional virtual hosts for more control over what URI's can run which applications.

After creating the server and virtual host you car applications.

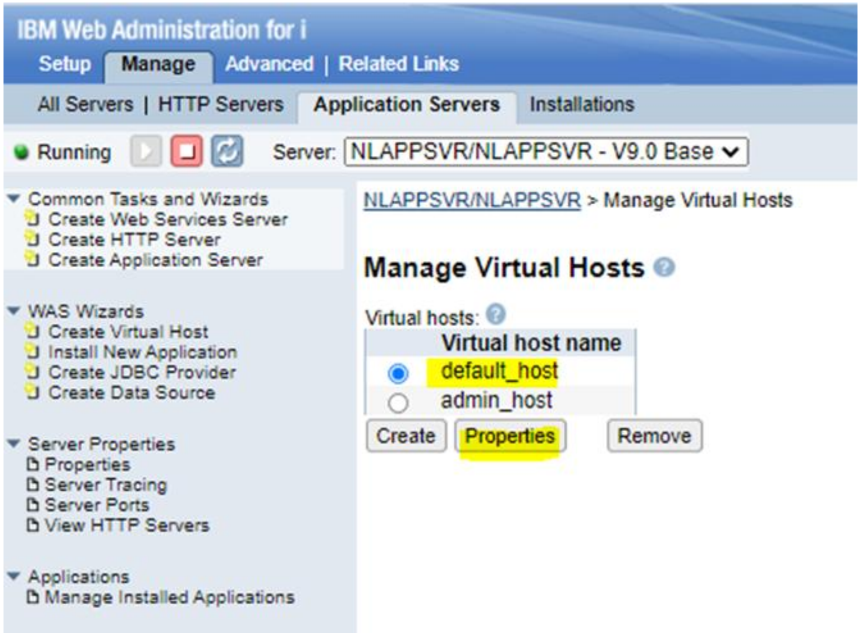
Current Configuration Profile: "NLAPPSVR"

Manage Virtual Hosts
- default_host
- admin_host

Manage Installed Application
- SwaggerUI
- query
- Net-Link
- RESTAPIDocs
- ivtApp

Note: To update the status, click Refresh

7 Select the default host and Click **Properties**.


IBM Web Administration for i
Setup | Manage | Advanced | Related Links
All Servers | HTTP Servers | Application Servers | Installations
Running
Server: NLAPPSVR/NLAPPSVR - V9.0 Base
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
WAS Wizards
Create Virtual Host
Install New Application
Create JDBC Provider
Create Data Source
Server Properties
Properties
Server Tracing
Server Ports
View HTTP Servers
Applications
Manage Installed Applications

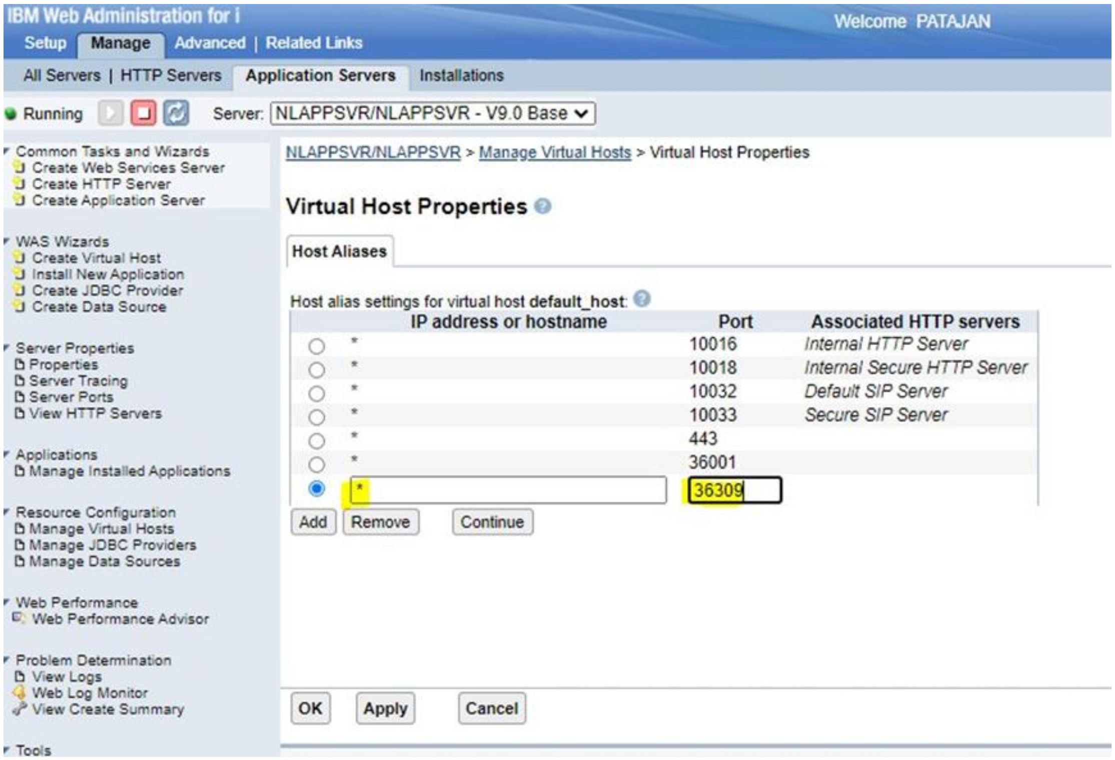
NLAPPSVR/NLAPPSVR > Manage Virtual Hosts

Manage Virtual Hosts

Virtual hosts:

	Virtual host name
●	default_host
○	admin_host

8 Click **Add** to add a Host Aliases (In the below example, added 36309 as a port).



NLAPPSVR/NLAPPSVR > Manage Virtual Hosts > Virtual Host Properties

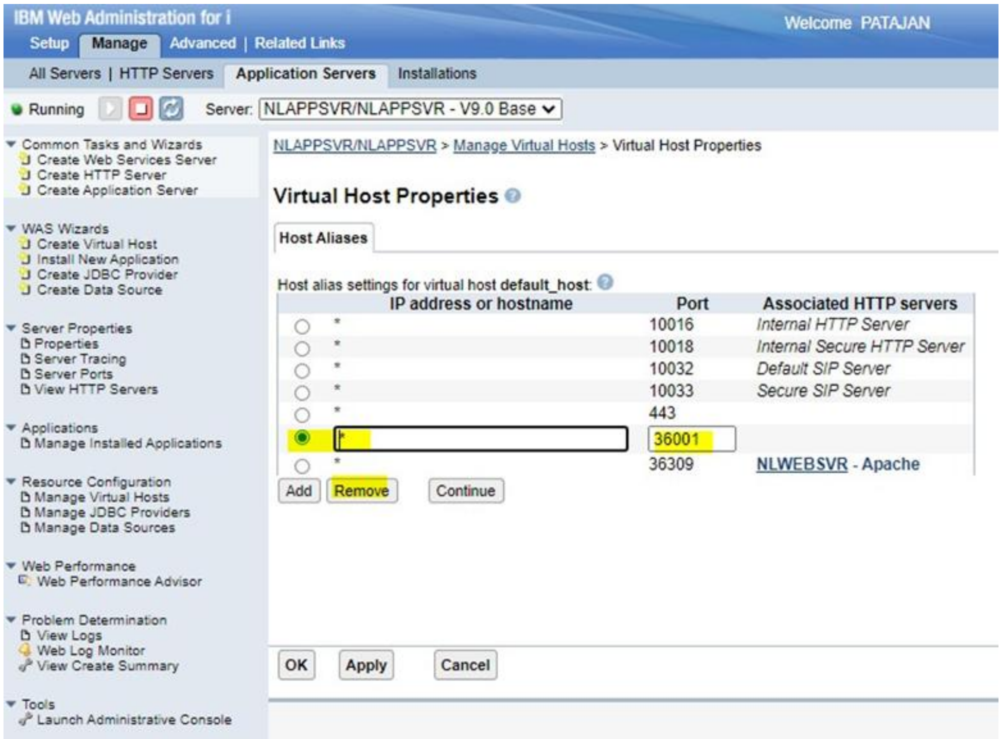
Virtual Host Properties

Host Aliases

Host alias settings for virtual host default_host:

	IP address or hostname	Port	Associated HTTP servers
○	*	10016	*Internal HTTP Server*
○	*	10018	*Internal Secure HTTP Server*
○	*	10032	*Default SIP Server*
○	*	10033	*Secure SIP Server*
○	*	443	
○	*	36001	
●	*	36309	

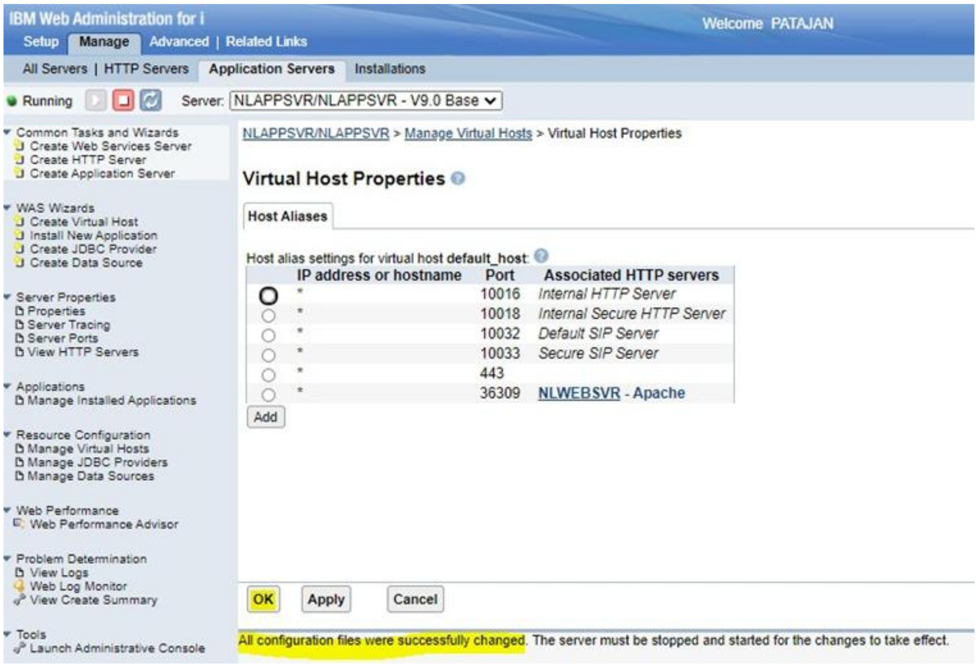
9 Select the 36001 port and Click **Remove**. Click **Apply.**



Host alias settings for virtual host default_host:

	IP address or hostname	Port	Associated HTTP servers
○	*	10016	*Internal HTTP Server*
○	*	10018	*Internal Secure HTTP Server*
○	*	10032	*Default SIP Server*
○	*	10033	*Secure SIP Server*
○	*	443	
●	*	36001	
○	*	36309	NLWEBSVR - Apache

10 Click **OK** then Click **Close**.



Host alias settings for virtual host default_host:

	IP address or hostname	Port	Associated HTTP servers
○	*	10016	*Internal HTTP Server*
○	*	10018	*Internal Secure HTTP Server*
○	*	10032	*Default SIP Server*
○	*	10033	*Secure SIP Server*
○	*	443	
○	*	36309	NLWEBSVR - Apache

All configuration files were successfully changed. The server must be stopped and started for the changes to take effect.

Restart both the Net-Link HTTP and Application servers to make sure changes have reflected successfully.

Appendix B Net-Link WAR Generation and Deployment on IBM i WebSphere

This Appendix explains, how to implement ***“WAR file deployment method”*** scenario mentioned in ***“Chapter 1”***. This involves generation and deployment of WAR file as a sperate application on App server running on IBM i WebSphere. This Net-Link can be deployed on the same or different App server where SiWA is deployed.

Net-Link WAR file generation

Refer to ***“Net-Link WAR file generation in IDF”*** section in ***“Chapter 3”*** in this document to generate Net-Link WAR file based on IDF version to deploy it on App server in WebSphere.

Net-Link WAR file deployment on WebSphere

If you are using WebSphere with version 8.5, please follow the steps below in ***WebSphere (Version 8.5)*** section. Else, if you are using WebSphere version 9.x and above, please follow the below steps in ***WebSphere (Version 9.x)*** section.

WebSphere (version 8.5)

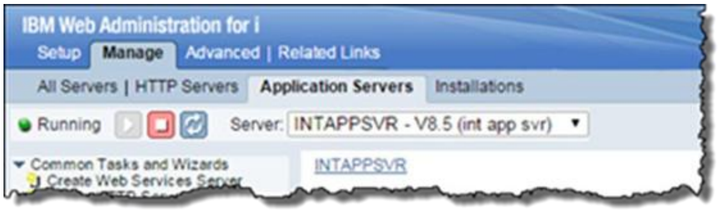
For deployment of WAR file using WebSphere, execute these steps:

1 Copy the WAR file to a location on the IFS of the iSeries which is preferably a ‘scratch’ folder. However, the location can also be in the root.

Note: If using the WebSphere instance of Systemi Workspace, make a copy of the plugin configuration (see the Systemi Workspace instructions for details).

2 Open the HTTP Administration console (http://{hostName}:2001/HTTPAdmin), and log in with *SECADM authority.

3 Select the Manage, and Application Servers tabs.

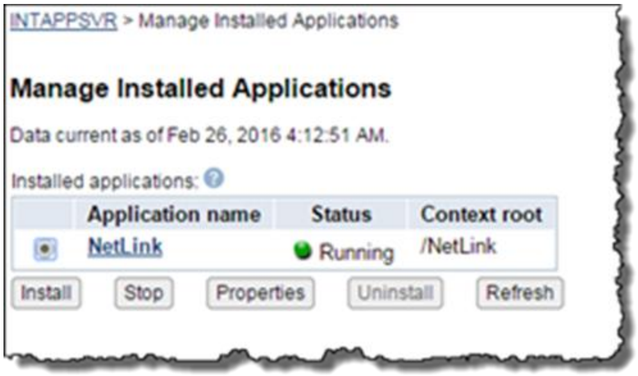


Server: INTAPPSVR - V8.5 (int app svr)

4 Specify a server instance in the Server field or select the instance used by Systemi Workspace.

5 Select Manage > Manage Installed Applications.

6 Click **Install** to add Net-Link as a new application.



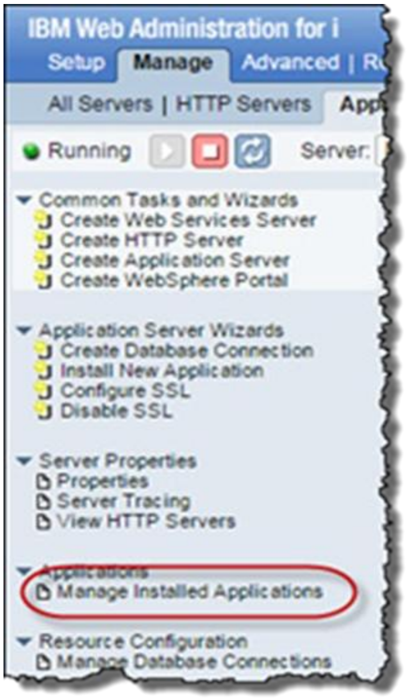
INTAPPSVR > Manage Installed Applications

Manage Installed Applications

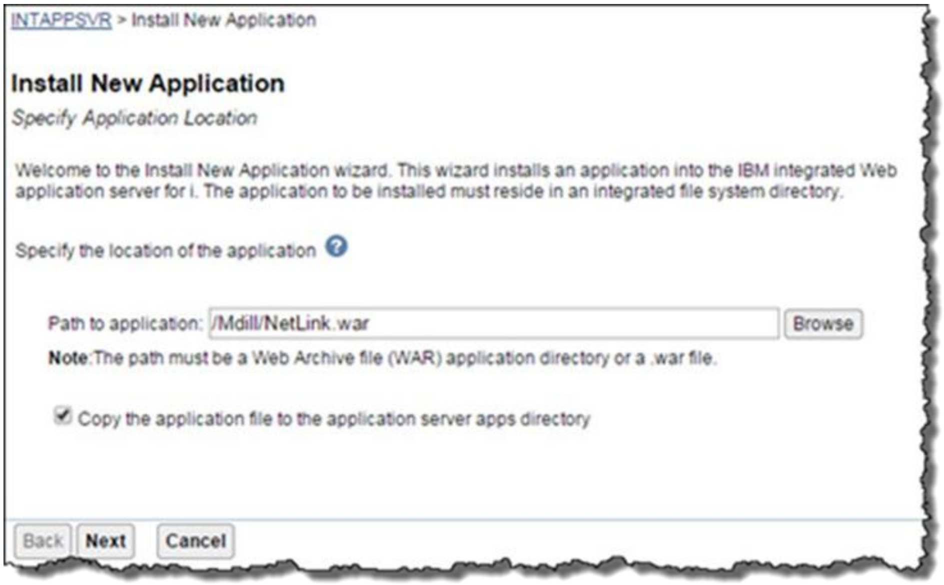
Data current as of Feb 26, 2016 4:12:51 AM.

Installed applications:

	Application name	Status	Context root
●	NetLink	● Running	/NetLink



7 Specify the location of the WAR file (the location specified in Step 1) in the **Path to application** field.


INTAPPSVR > Install New Application

Install New Application

Specify Application Location

Welcome to the Install New Application wizard. This wizard installs an application into the IBM integrated Web application server for i. The application to be installed must reside in an integrated file system directory.

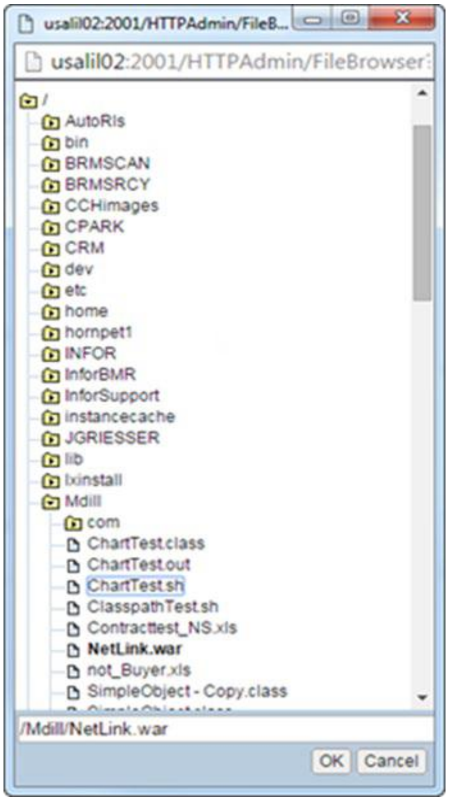
Specify the location of the application

Path to application: /Mdill/NetLink.war

Note:The path must be a Web Archive file (WAR) application directory or a .war file.

☑ Copy the application file to the application server apps directory

Note: You can also use the Browse option to select the **File.**



usalil02:2001/HTTPAdmin/FileB...

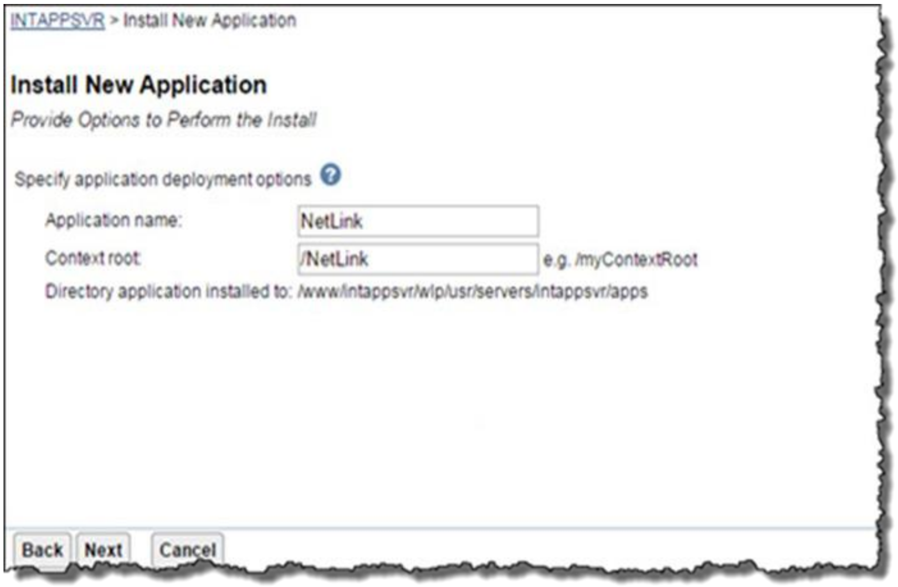
usalil02:2001/HTTPAdmin/FileBrowser:

```
/
  AutoRls
  bin
  BRMSCAN
  BRMSRCY
  CCHimages
  CPARK
  CRM
  dev
  etc
  home
  hornpet1
  INFOR
  InforBMR
  InforSupport
  instancecache
  JGRIESSER
  lib
  lxinstall
  Mdill
    com
    ChartTest.class
    ChartTest.out
    ChartTest.sh
    ClasspathTest.sh
    Contracttest_NS.xls
    NetLink.war
    not_Buyer.xls
    SimpleObject - Copy.class
```

/Mdill/NetLink.war

Note: Make sure that the location of the WAR file is correct.

8 Select the Copy the application file… check box.



INTAPPSVR > Install New Application

Install New Application

Provide Options to Perform the Install

Specify application deployment options

Application name: NetLink

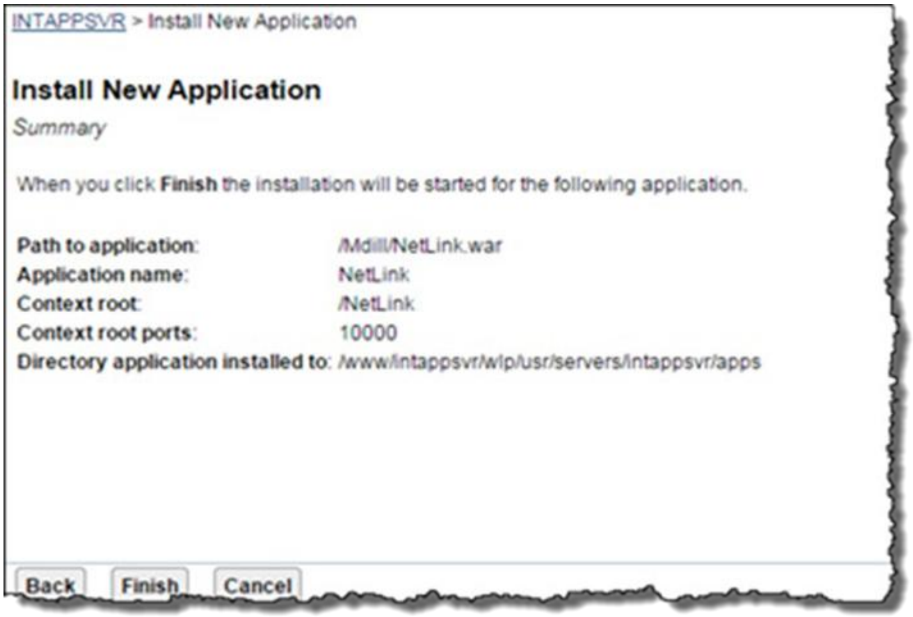
Context root: /NetLink e.g. /myContextRoot

Directory application installed to: /www/intappsvr/wlp/usr/servers/intappsvr/apps

9 Click **Next**. The Provide Options to perform the Install window is displayed.

10 Accept the default values for the **Application name** and **Context root**.

11 Click **Next**. The **Summary** window is displayed.



INTAPPSVR > Install New Application

Install New Application

Summary

When you click **Finish** the installation will be started for the following application.

Path to application:	/Mdill/NetLink.war
Application name:	NetLink
Context root:	/NetLink
Context root ports:	10000
Directory application installed to:	/www/intappsvr/wlp/usr/servers/intappsvr/apps

12 Review the content on the **Summary** window.

13 Click **Finish**.

Note: It is assumed that System i Workspace is already deployed to WebSphere.

WebSphere (version 9.x)

The deployment process utilizes the WebSphere Wizard function to create a Net-Link Application and associated HTTP server.

Check that you have the following subsystem running, and that all ADMIN jobs are running within the subsystem:

WRKSBSJOB QHTTPSVR

If the subsystem is not active, issue the following OS400 command:

STRTCPSVR SERVER(*HTTP) HTTPSVR(*ADMIN)

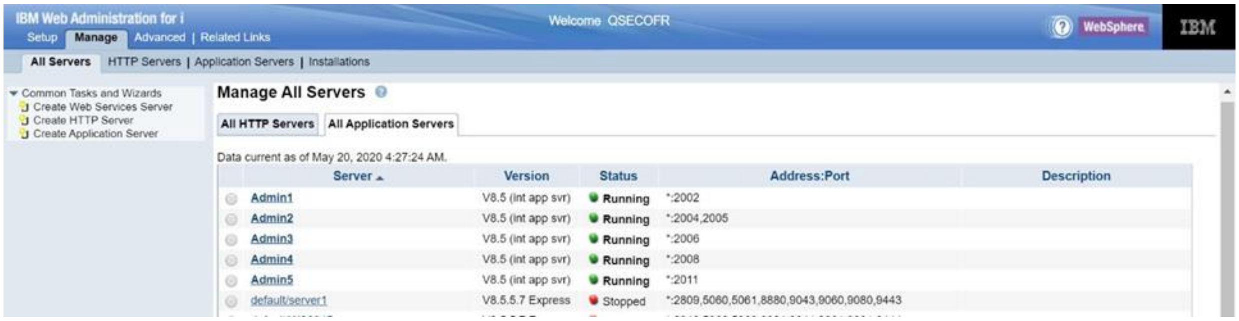
For deployment of WAR file using WebSphere, execute these steps:

1 Copy the WAR file to a location on the IFS of the iSeries which is preferably a ‘scratch’ folder. However, the location can also be in the root.

2 Open the HTTP Administration console (http://{hostName}:2001/HTTPAdmin), and log in with *SECADM authority.

3 Select the **Manage**, and **All Servers** tab.

4 Select **Create Application Server** and click **Next**.

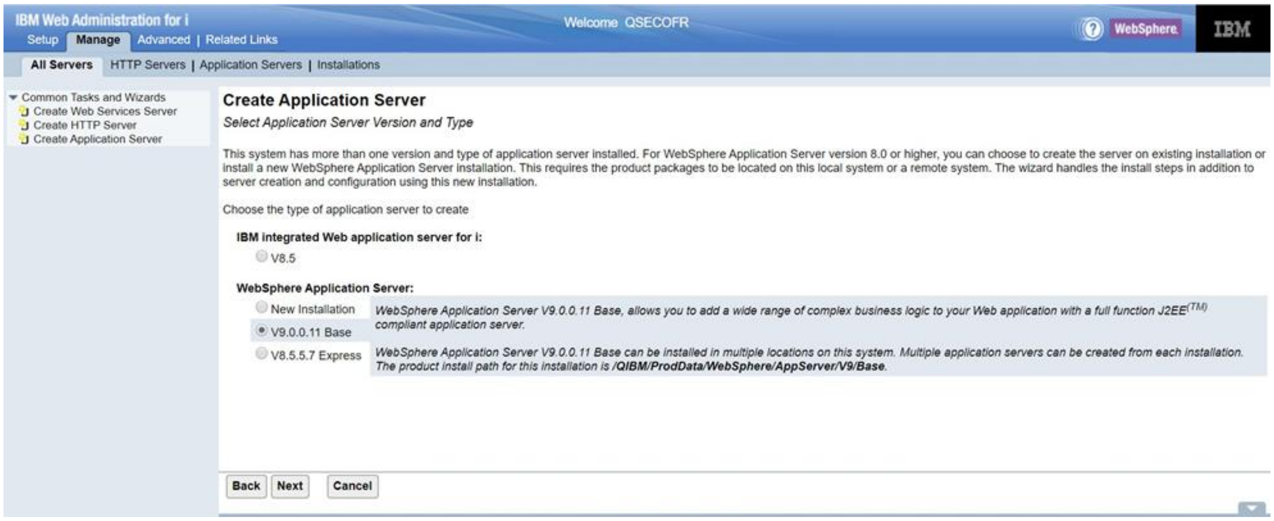


Manage All Servers

Data current as of May 20, 2020 4:27:24 AM.

	Server	Version	Status	Address:Port	Description
○	Admin1	V8.5 (int app svr)	● Running	*:2002	
○	Admin2	V8.5 (int app svr)	● Running	*:2004,2005	
○	Admin3	V8.5 (int app svr)	● Running	*:2006	
○	Admin4	V8.5 (int app svr)	● Running	*:2008	
○	Admin5	V8.5 (int app svr)	● Running	*:2011	
○	default/server1	V8.5.5.7 Express	● Stopped	*:2809,5060,5061,8880,9043,9060,9080,9443	

5 Select V9.0.0.xx Base and Click **Next**.


IBM Web Administration for i
Welcome QSECOFR
WebSphere
IBM
Setup
Manage
Advanced | Related Links
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create Application Server

Select Application Server Version and Type

This system has more than one version and type of application server installed. For WebSphere Application Server version 8.0 or higher, you can choose to create the server on existing installation or install a new WebSphere Application Server installation. This requires the product packages to be located on this local system or a remote system. The wizard handles the install steps in addition to server creation and configuration using this new installation.

Choose the type of application server to create

IBM integrated Web application server for i:

○ V8.5

WebSphere Application Server:

○ New Installation

● V9.0.0.11 Base

○ V8.5.5.7 Express

WebSphere Application Server V9.0.0.11 Base, allows you to add a wide range of complex business logic to your Web application with a full function J2EE(TM) compliant application server.

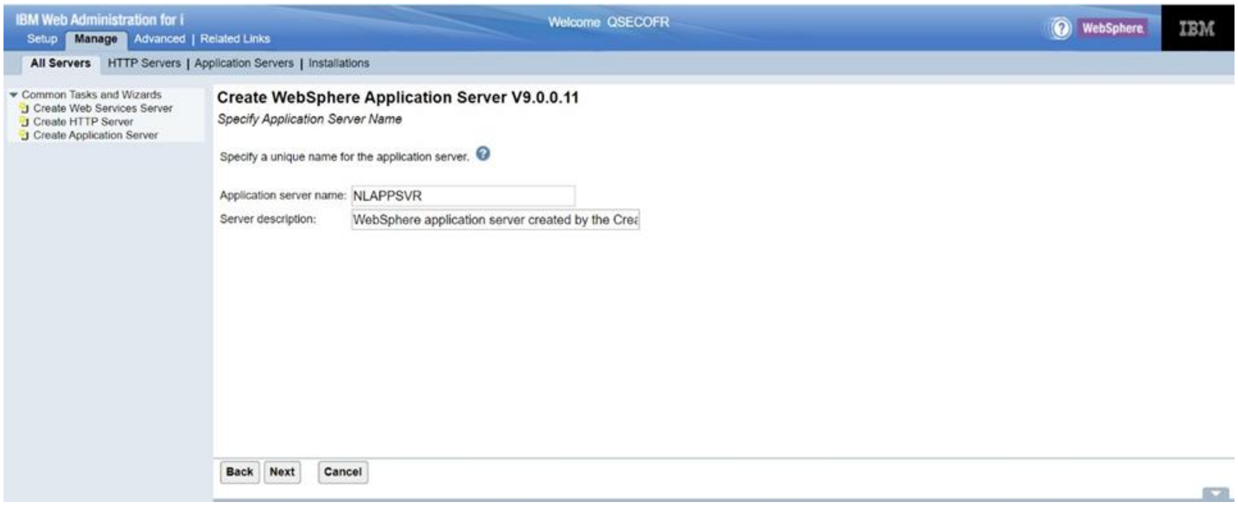
*WebSphere Application Server V9.0.0.11 Base can be installed in multiple locations on this system. Multiple application servers can be created from each installation. The product install path for this installation is **/QIBM/ProdData/WebSphere/AppServer/V9/Base**.*

6 Enter the appropriate Application server name and Server description and click **Next**.

Suggested values

Application server name: NLAPPSVR

Server description: Net-Link Application Server


IBM Web Administration for i
Setup
Manage
Advanced | Related Links
Welcome QSECOFR
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.0.11

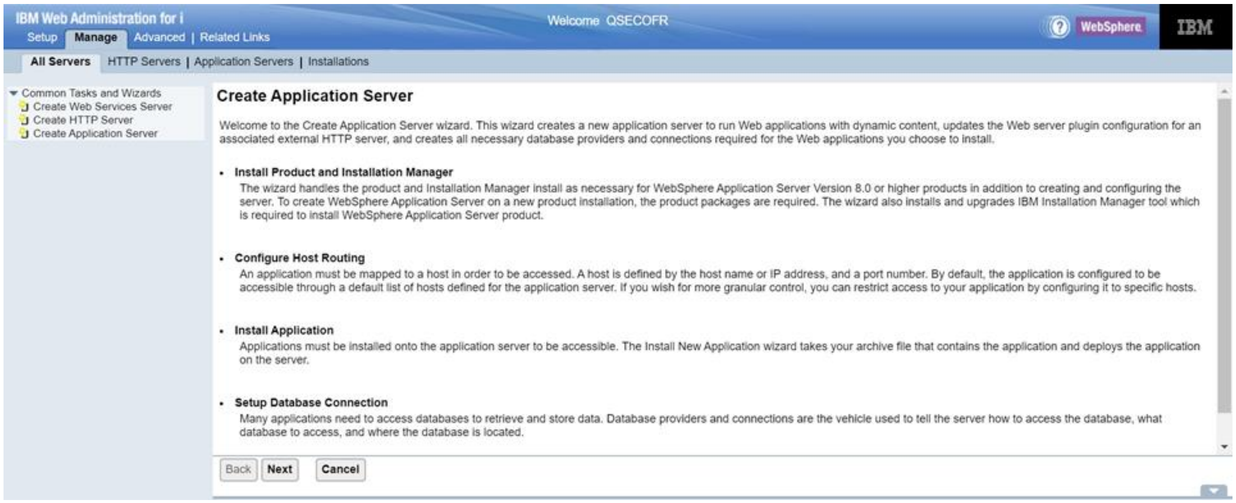
Specify Application Server Name

Specify a unique name for the application server.

Application server name: NLAPPSVR

Server description: WebSphere application server created by the Crea

7 Click **Next**.

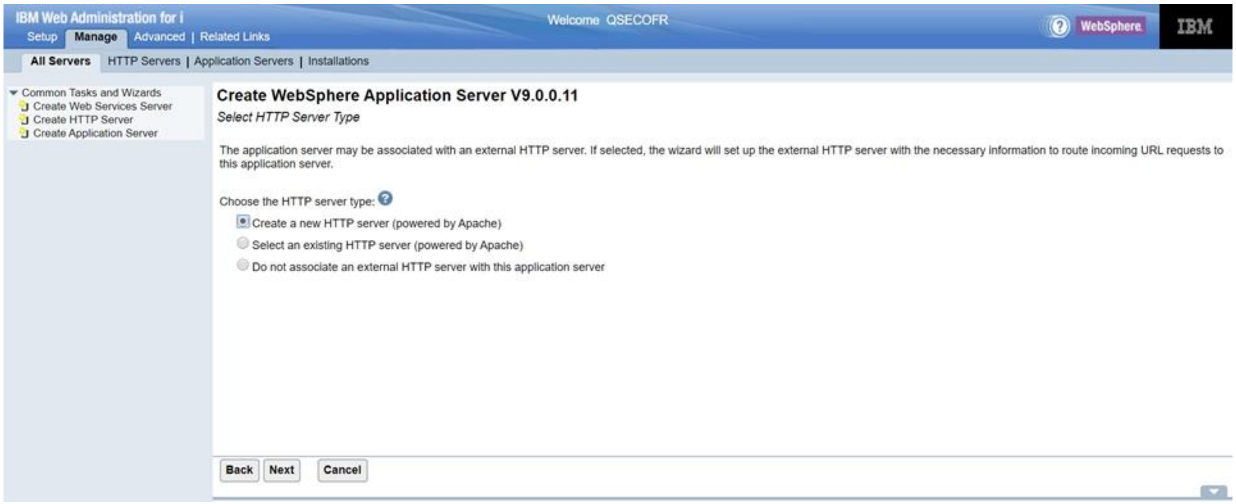

IBM Web Administration for i
Setup
Manage
Advanced | Related Links
Welcome QSECOFR
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create Application Server

Welcome to the Create Application Server wizard. This wizard creates a new application server to run Web applications with dynamic content, updates the Web server plugin configuration for an associated external HTTP server, and creates all necessary database providers and connections required for the Web applications you choose to install.

- **Install Product and Installation Manager**
  The wizard handles the product and Installation Manager install as necessary for WebSphere Application Server Version 8.0 or higher products in addition to creating and configuring the server. To create WebSphere Application Server on a new product installation, the product packages are required. The wizard also installs and upgrades IBM Installation Manager tool which is required to install WebSphere Application Server product.
- **Configure Host Routing**
  An application must be mapped to a host in order to be accessed. A host is defined by the host name or IP address, and a port number. By default, the application is configured to be accessible through a default list of hosts defined for the application server. If you wish for more granular control, you can restrict access to your application by configuring it to specific hosts.
- **Install Application**
  Applications must be installed onto the application server to be accessible. The Install New Application wizard takes your archive file that contains the application and deploys the application on the server.
- **Setup Database Connection**
  Many applications need to access databases to retrieve and store data. Database providers and connections are the vehicle used to tell the server how to access the database, what database to access, and where the database is located.

8 Select Create a new HTTP server (powered by Apache) and click **Next**.


IBM Web Administration for i
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Advanced | Related Links
Welcome QSECOFR
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.0.11

Select HTTP Server Type

The application server may be associated with an external HTTP server. If selected, the wizard will set up the external HTTP server with the necessary information to route incoming URL requests to this application server.

Choose the HTTP server type:

● Create a new HTTP server (powered by Apache)

○ Select an existing HTTP server (powered by Apache)

○ Do not associate an external HTTP server with this application server

9 Enter the appropriate HTTP server name and HTTP server description and click **Next**.

Suggested values

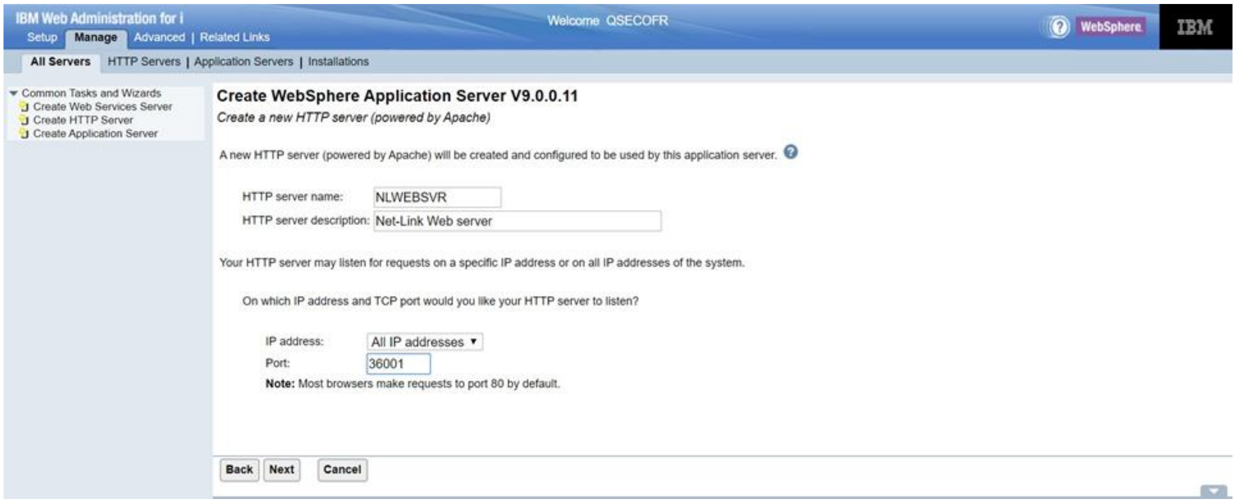
Application server name: NLWEBSVR

HTTP server description: Net-Link Web server

IP address: All IP address

Port: 36001

Note: The port should be the same as that you have used in the **WAR file generation** section.


IBM Web Administration for i
Setup
Manage
Advanced | Related Links
Welcome QSECOFR
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.0.11

Create a new HTTP server (powered by Apache)

A new HTTP server (powered by Apache) will be created and configured to be used by this application server.

HTTP server name: NLWEBSVR

HTTP server description: Net-Link Web server

Your HTTP server may listen for requests on a specific IP address or on all IP addresses of the system.

On which IP address and TCP port would you like your HTTP server to listen?

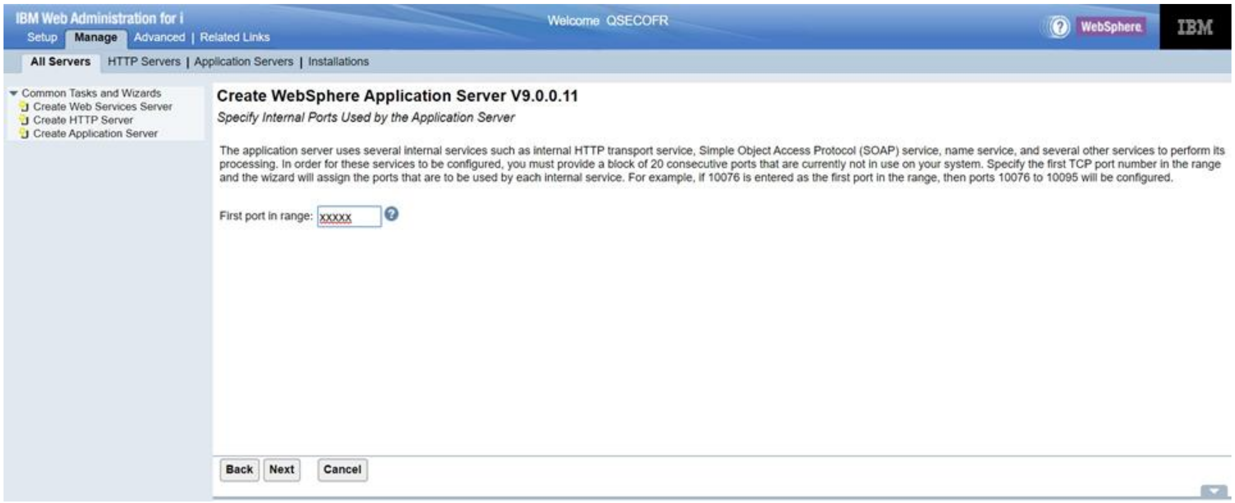
IP address: All IP addresses ▾

Port: 36001

Note: Most browsers make requests to port 80 by default.

Note: If you receive the below Warning that the port is already configured by another application is displayed. Enter a new port, which hasn’t been configured by another application, please make a note of the new port and click Next *to* continue the wizard using the port (36001), which is already been configured by another application. You will be asked to change the port (36001) to the new port by following “**Appendix A Reset Port on Warning”** at the end of this wizard.

10 Accept the default **First port in range**: default values and click **Next.**


IBM Web Administration for i
Welcome QSECOFR
WebSphere
IBM
Setup
Manage
Advanced | Related Links
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

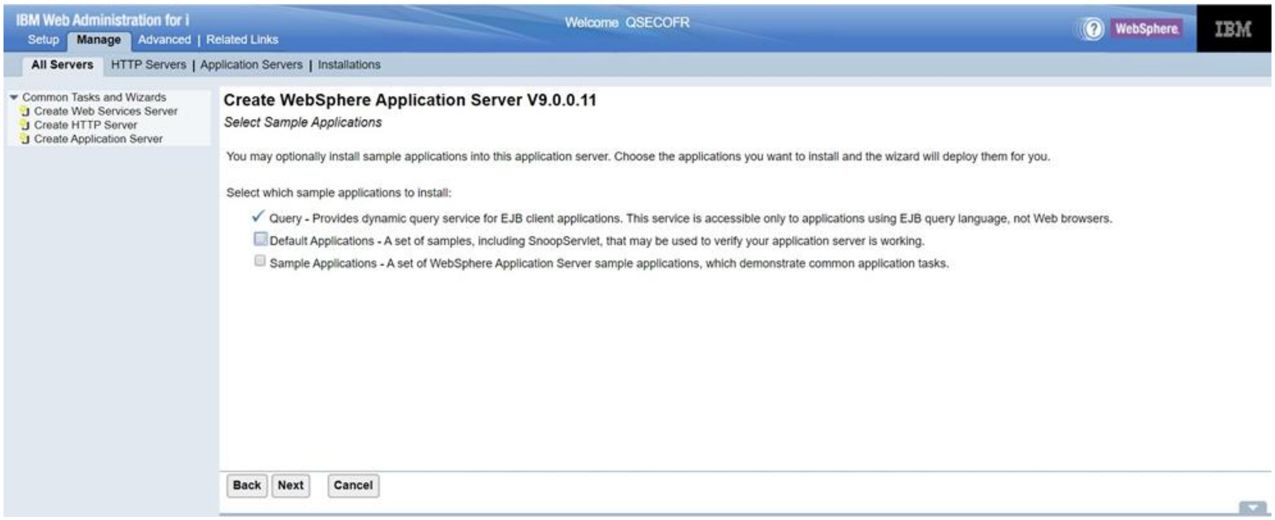
Create WebSphere Application Server V9.0.0.11

Specify Internal Ports Used by the Application Server

The application server uses several internal services such as internal HTTP transport service, Simple Object Access Protocol (SOAP) service, name service, and several other services to perform its processing. In order for these services to be configured, you must provide a block of 20 consecutive ports that are currently not in use on your system. Specify the first TCP port number in the range and the wizard will assign the ports that are to be used by each internal service. For example, if 10076 is entered as the first port in the range, then ports 10076 to 10095 will be configured.

First port in range: xxxxx

11 Clear Default Applications and click **Next**.


IBM Web Administration for i
Welcome QSECOFR
WebSphere
IBM
Setup
Manage
Advanced | Related Links
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.0.11

Select Sample Applications

You may optionally install sample applications into this application server. Choose the applications you want to install and the wizard will deploy them for you.

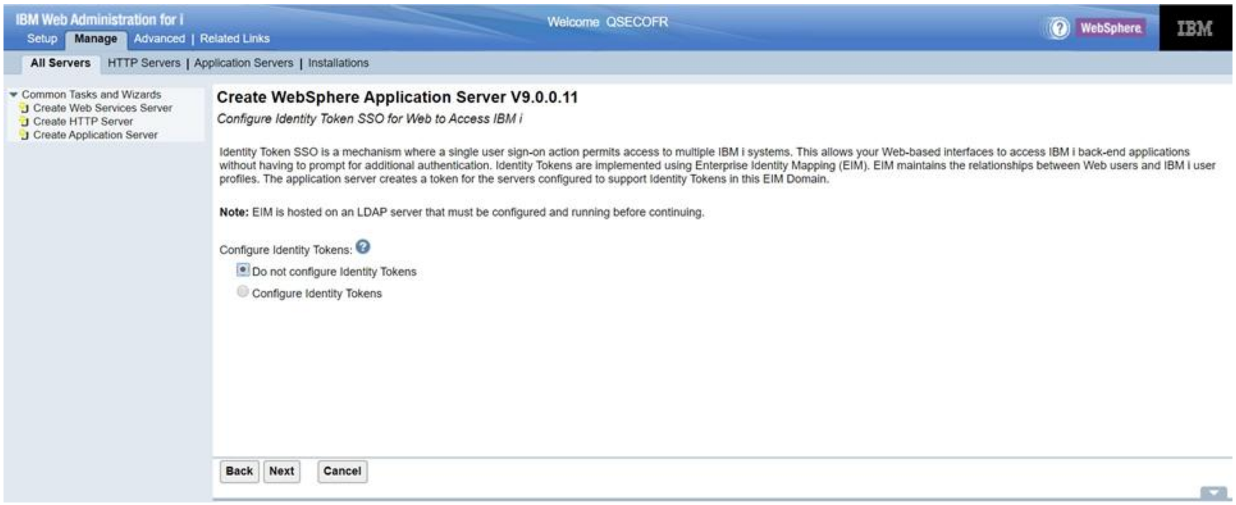
Select which sample applications to install:

✓ Query - Provides dynamic query service for EJB client applications. This service is accessible only to applications using EJB query language, not Web browsers.

☐ Default Applications - A set of samples, including SnoopServlet, that may be used to verify your application server is working.

☐ Sample Applications - A set of WebSphere Application Server sample applications, which demonstrate common application tasks.

12 Select **Do not configure Identity Tokens** and click **Next**.


IBM Web Administration for i
Setup
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Advanced | Related Links
Welcome QSECOFR
WebSphere
IBM
All Servers
HTTP Servers | Application Servers | Installations
Common Tasks and Wizards
Create Web Services Server
Create HTTP Server
Create Application Server
Back
Next
Cancel

Create WebSphere Application Server V9.0.0.11

Configure Identity Token SSO for Web to Access IBM i

Identity Token SSO is a mechanism where a single user sign-on action permits access to multiple IBM i systems. This allows your Web-based interfaces to access IBM i back-end applications without having to prompt for additional authentication. Identity Tokens are implemented using Enterprise Identity Mapping (EIM). EIM maintains the relationships between Web users and IBM i user profiles. The application server creates a token for the servers configured to support Identity Tokens in this EIM Domain.

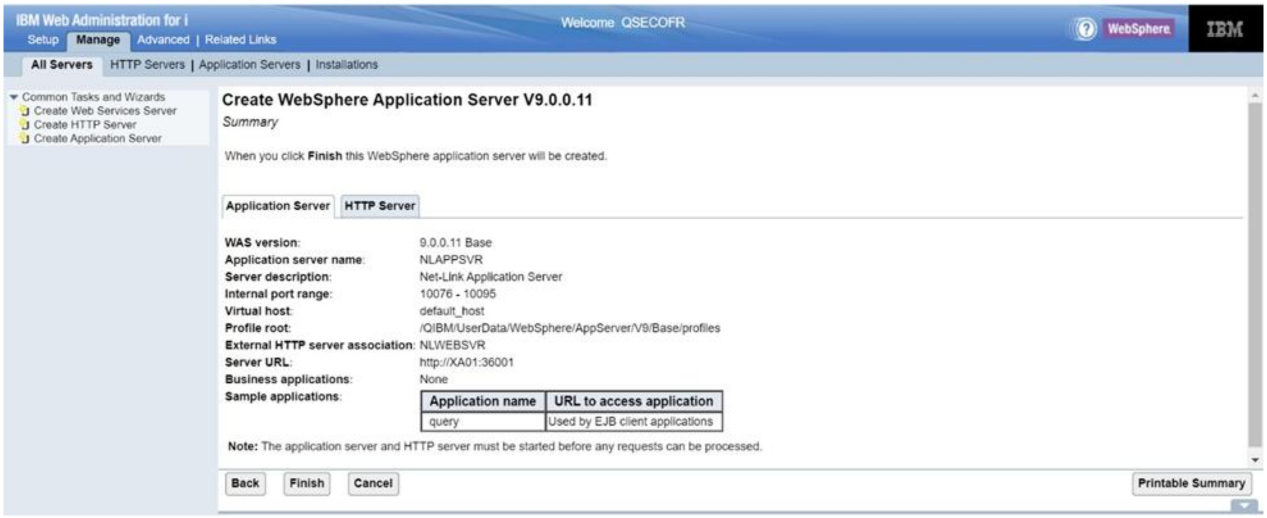
Note: EIM is hosted on an LDAP server that must be configured and running before continuing.

Configure Identity Tokens:

● Do not configure Identity Tokens

○ Configure Identity Tokens

13 Review the Summary and click **Finish.**



Create WebSphere Application Server V9.0.0.11

Summary

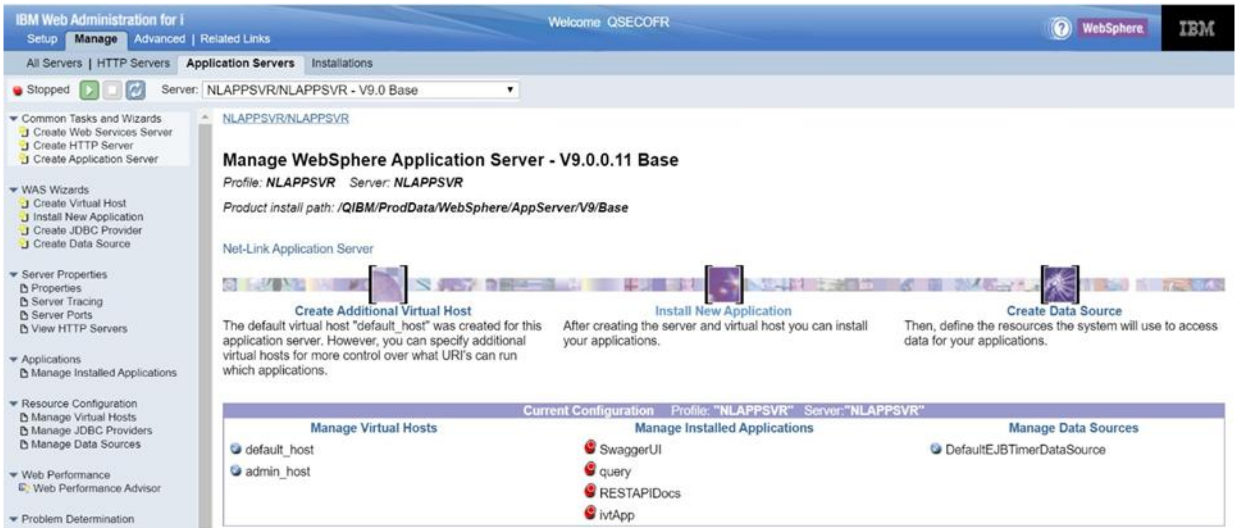
When you click **Finish** this WebSphere application server will be created.

WAS version:	9.0.0.11 Base
Application server name:	NLAPPSVR
Server description:	Net-Link Application Server
Internal port range:	10076 - 10095
Virtual host:	default_host
Profile root:	/QIBM/UserData/WebSphere/AppServer/V9/Base/profiles
External HTTP server association:	NLWEBSVR
Server URL:	http://XA01:36001
Business applications:	None
Sample applications:	

Application name	URL to access application
query	Used by EJB client applications

Note: The application server and HTTP server must be started before any requests can be processed.

14 Select **Install New Application** from the *WAS Wizards* menu.



Server: NLAPPSVR/NLAPPSVR - V9.0 Base

NLAPPSVR/NLAPPSVR

Manage WebSphere Application Server - V9.0.0.11 Base

Profile: ***NLAPPSVR*** *Server:* ***NLAPPSVR***

Product install path: ***/QIBM/ProdData/WebSphere/AppServer/V9/Base***

Net-Link Application Server

Create Additional Virtual Host
The default virtual host "default_host" was created for this application server. However, you can specify additional virtual hosts for more control over what URI's can run which applications.

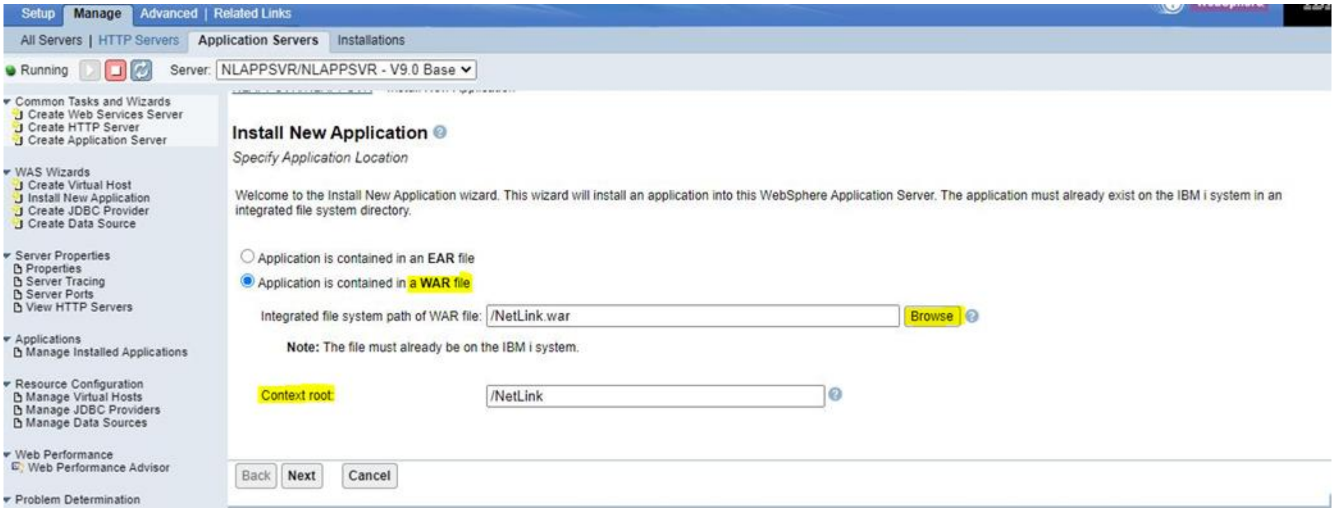
Install New Application
After creating the server and virtual host you can install your applications.

Create Data Source
Then, define the resources the system will use to access data for your applications.

Current Configuration Profile: "NLAPPSVR" Server:"NLAPPSVR"

Manage Virtual Hosts	Manage Installed Applications	Manage Data Sources
default_host	SwaggerUI	DefaultEJBTimerDataSource
admin_host	query	
	RESTAPIDocs	
	ivtApp	

15 Select **Application is contained in a WAR file** and click **Browse** to locate and select the WAR file located on the IFS from Step **1** and then at Context root field, update with ***/myContexRoot*** value (for eg:/NetLink) and Click **Next.**



Server: NLAPPSVR/NLAPPSVR - V9.0 Base

Install New Application

Specify Application Location

Welcome to the Install New Application wizard. This wizard will install an application into this WebSphere Application Server. The application must already exist on the IBM i system in an integrated file system directory.

○ Application is contained in an **EAR** file

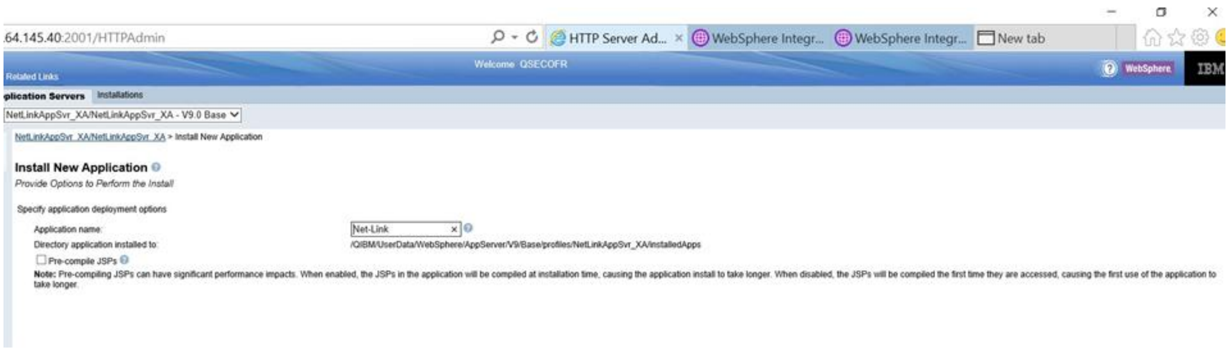
● Application is contained in a **WAR** file

Integrated file system path of WAR file: /NetLink.war Browse

Note: The file must already be on the IBM i system.

Context root: /NetLink

16 Click **Next.**



NetLinkAppSvr_XA/NetLinkAppSvr_XA > Install New Application

Install New Application

Provide Options to Perform the Install

Specify application deployment options

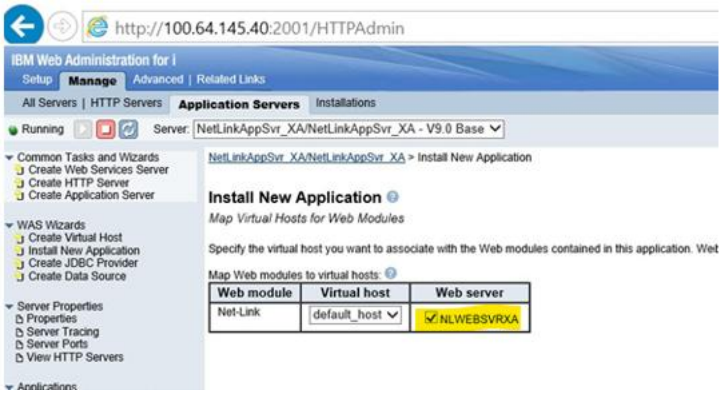
Application name: Net-Link

Directory application installed to: /QIBM/UserData/WebSphere/AppServer/V9/Base/profiles/NetLinkAppSvr_XA/installedApps

□ Pre-compile JSPs

Note: Pre-compiling JSPs can have significant performance impacts. When enabled, the JSPs in the application will be compiled at installation time, causing the application install to take longer. When disabled, the JSPs will be compiled the first time they are accessed, causing the first use of the application to take longer.

17 Check the **Web server** check box and click **Next.**



Server: NetLinkAppSvr_XA/NetLinkAppSvr_XA - V9.0 Base

NetLinkAppSvr_XA/NetLinkAppSvr_XA > Install New Application

Install New Application

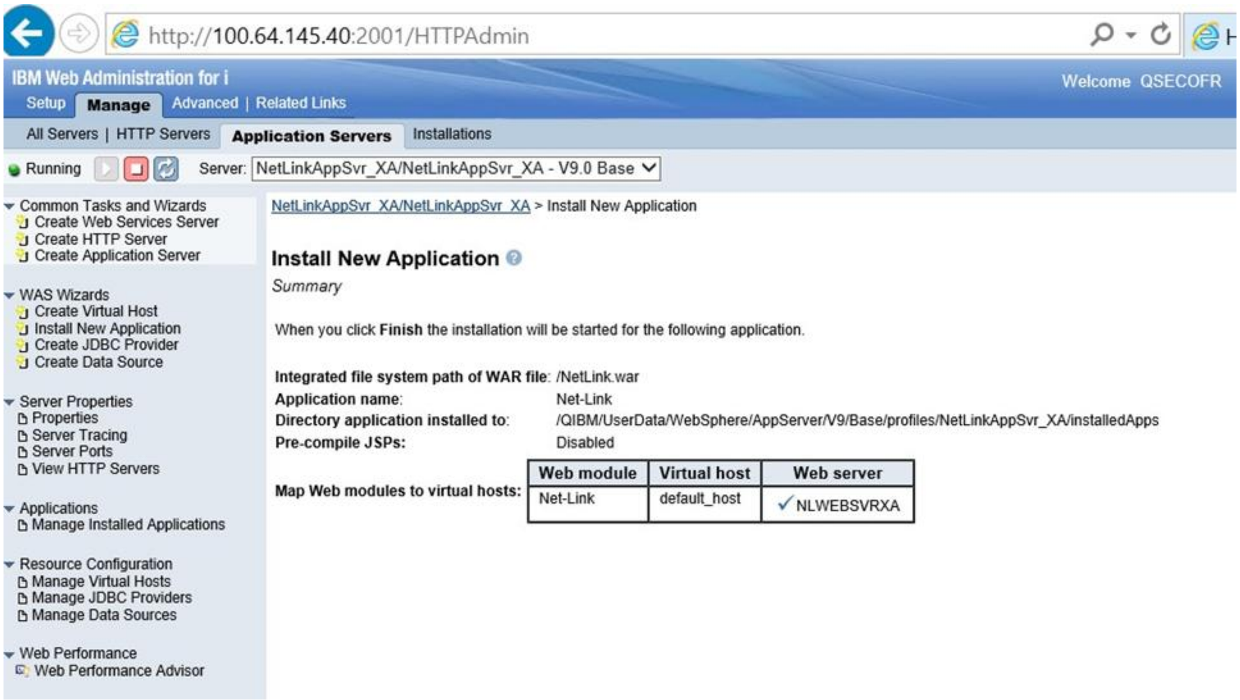
Map Virtual Hosts for Web Modules

Specify the virtual host you want to associate with the Web modules contained in this application. Wet

Map Web modules to virtual hosts:

Web module	Virtual host	Web server
Net-Link	default_host	☑ NLWEBSVRXA

18 Click **Finish**.



Server: NetLinkAppSvr_XA/NetLinkAppSvr_XA - V9.0 Base

NetLinkAppSvr_XA/NetLinkAppSvr_XA > Install New Application

Install New Application

Summary

When you click **Finish** the installation will be started for the following application.

Integrated file system path of WAR file: /NetLink.war
Application name: Net-Link
Directory application installed to: /QIBM/UserData/WebSphere/AppServer/V9/Base/profiles/NetLinkAppSvr_XA/installedApps
Pre-compile JSPs: Disabled

Map Web modules to virtual hosts:

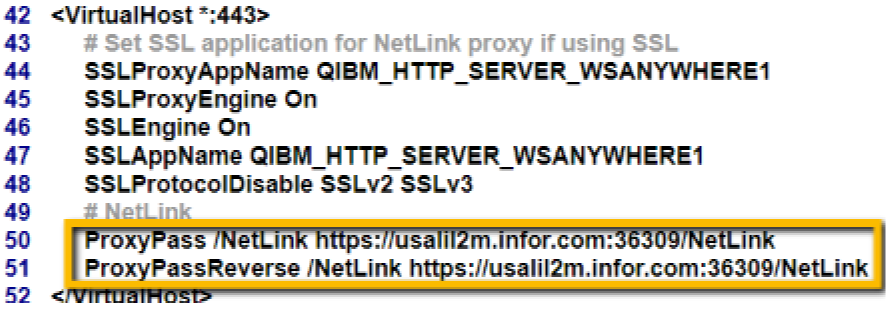
Web module	Virtual host	Web server
Net-Link	default_host	✓ NLWEBSVRXA

19 If you did not change the default port (36001) to the new port and continued with the warning '**port is already configured by another application**'**,** then complete steps in **"*Appendix A Reset Port on Warning*"** to change the default port to different port to avoid further issues due to port clash**.**

20 After successful deployment of Net-Link application through above steps, complete the SSL/TLS process by following steps in "**Chapter 5 Configuring TLS**".

21 After Net-Link application is secured, configure Reverse Proxy settings to access Secured Net-Link Via Secured SiWA Application URL, by following ***Chapter 2 Reverse Proxy configuration in IBM i HTTP Server to access default Net-Link***.

Example:



```
<VirtualHost *:443>
    # Set SSL application for NetLink proxy if using SSL
    SSLProxyAppName QIBM_HTTP_SERVER_WSANYWHERE1
    SSLProxyEngine On
    SSLEngine On
    SSLAppName QIBM_HTTP_SERVER_WSANYWHERE1
    SSLProtocolDisable SSLv2 SSLv3
    # NetLink
    ProxyPass /NetLink https://usalil2m.infor.com:36309/NetLink
    ProxyPassReverse /NetLink https://usalil2m.infor.com:36309/NetLink
</VirtualHost>
```

Appendix CSecured Net-Link URL configuration in SiWA Administrator

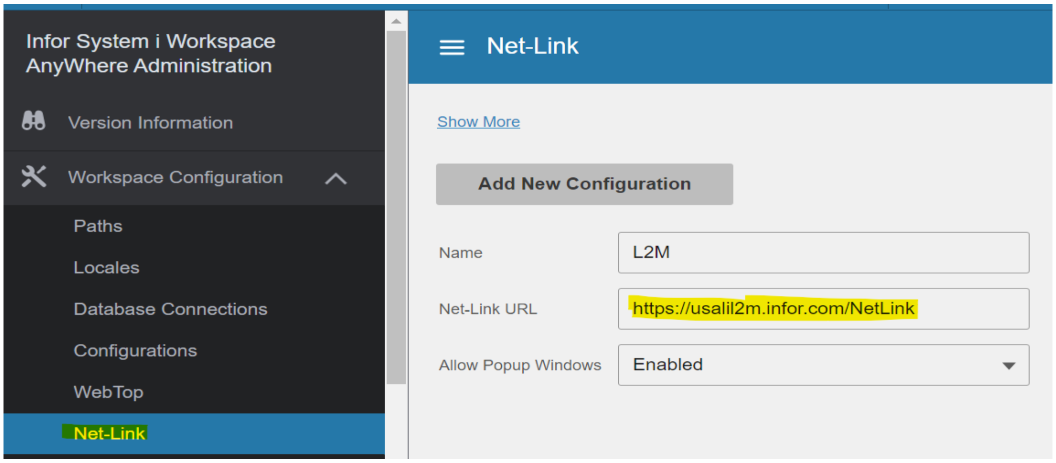
SiW Anywhere Admin settings

Once secured Net-Link is deployed successfully and validated by launching the URL, we need to configure the Net-Link secured URL in SiW AnyWhere Admin application.

Go to SiWA Admin page -> Workspace Configuration -> Net-Link. Update the Net-Link URL setting with the secured URL and save the configuration.

Note: In the case of SiWA Windows deployment both SiWA and Net-Link will be using the same port. But in the case of SiWA IBM i deployment, by default the WSANYWHERE and Net-Link applications will be using different ports.

It is highly recommended to configure both WSANYWHERE and Net-Link to use same port as WSANYWHERE by following steps in "***Chapter 2 Reverse Proxy configuration in IBM i HTTP Server to access default Net-Link***" in this guide and configure below.

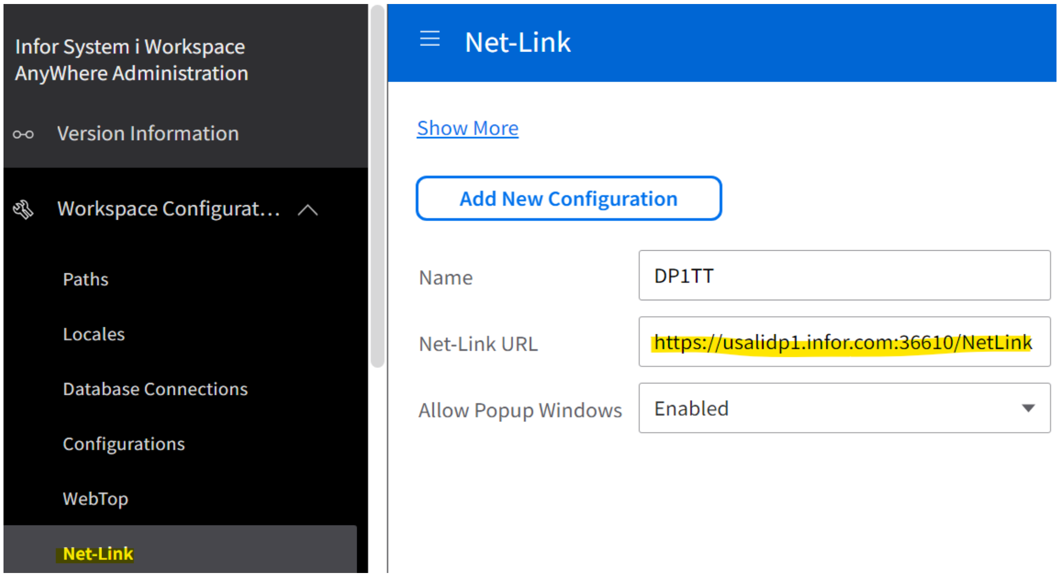


Name: L2M

Net-Link URL: https://usalil2m.infor.com/NetLink

Allow Popup Windows: Enabled

If SiWA runs on different port other 443, then mention port in the URL.



Name: DP1TT

Net-Link URL: https://usalidp1.infor.com:36610/NetLink

Allow Popup Windows: Enabled

Appendix DAdjust HTTP Thread Count for Secured Net-Link in WebSphere

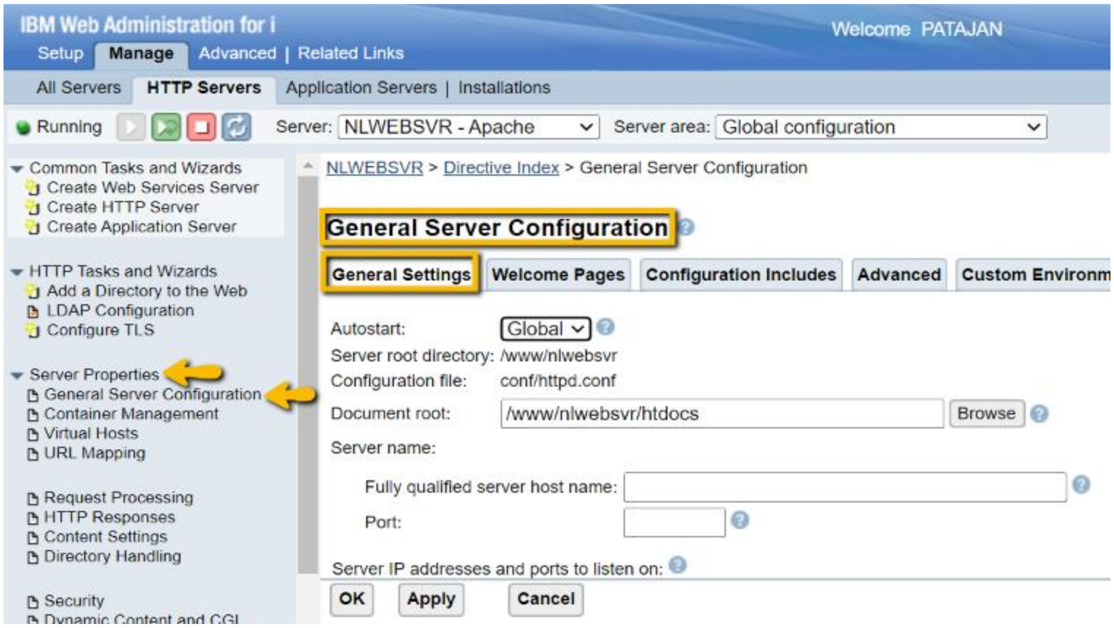
Based on recent observations, it has been noted that IBM's default thread counts for HTTP and WebSphere Application servers are lower than what is required by some customers. This may need to be adjusted as per the customer's user base. Therefore, it is recommended to increase the default thread counts for both the HTTP server and IBM WebSphere Application server, in addition to the current SSL configuration.

IBM recommends setting the thread count number to - **User count x 125%** to achieve the best result.

HTTP threads configuration:

Once you have completed the SSL configuration, you can set the HTTP threads from the HTTP admin console. The default value is 40, but you can increase it to a higher number, depending on your customer base.

To set the number of threads to process requests, go to your HTTP server instance, -> **Server Properties** -> **General Server Configuration**. There you can configure the value for “**Number of threads to process requests**”.



Server: NLWEBSVR - Apache Server area: Global configuration

NLWEBSVR > Directive Index > General Server Configuration

General Server Configuration

Autostart: Global

Server root directory: /www/nlwebsvr

Configuration file: conf/httpd.conf

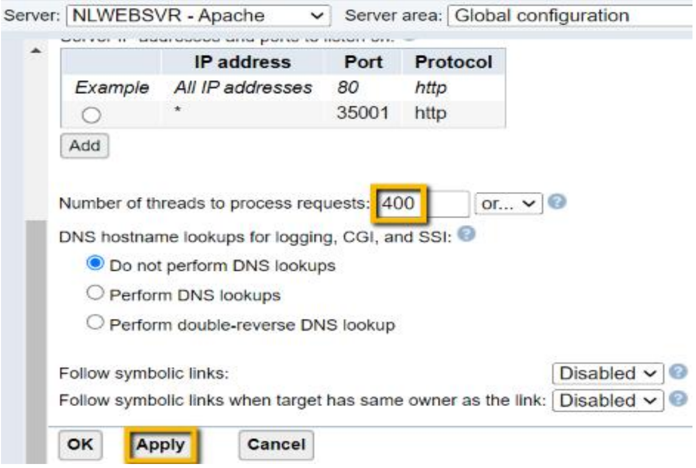
Document root: /www/nlwebsvr/htdocs

Server name:

Fully qualified server host name:

Port:

Server IP addresses and ports to listen on:



Server: NLWEBSVR - Apache Server area: Global configuration

	IP address	Port	Protocol
Example	*All IP addresses*	*80*	*http*
○	*	35001	http

Number of threads to process requests: 400 or...

DNS hostname lookups for logging, CGI, and SSI:

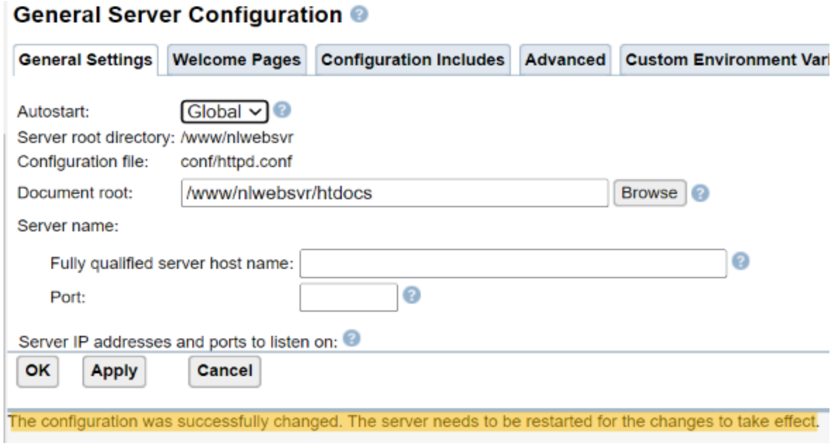
● Do not perform DNS lookups

○ Perform DNS lookups

○ Perform double-reverse DNS lookup

Follow symbolic links: Disabled

Follow symbolic links when target has same owner as the link: Disabled



General Server Configuration

Autostart: Global

Server root directory: /www/nlwebsvr

Configuration file: conf/httpd.conf

Document root: /www/nlwebsvr/htdocs

Server name:

Fully qualified server host name:

Port:

Server IP addresses and ports to listen on:

The configuration was successfully changed. The server needs to be restarted for the changes to take effect.

Web container threads configuration

Note: If Reverse Proxy is configured to access Net-Link, then this section is not applicable.

The Web container threads should always set them to be **10** more than HTTP value i.e. user base X125% + 10. By default, the web container threads are set to 50.

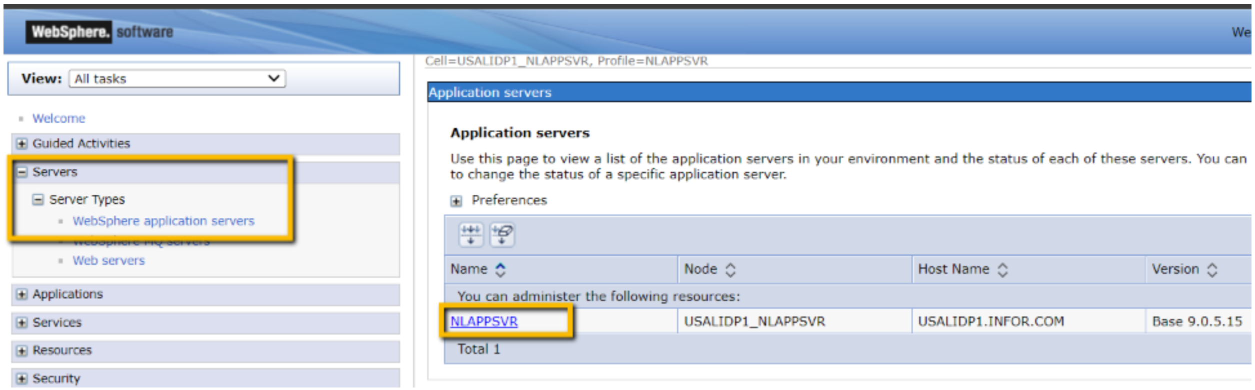
To increase this value, follow these steps:

From the **HTTP Admin console** – **Click on your application server** -> Click on "**Launch administrative console**" -> Once you log in -> Navigate to your application server.

Click on "Thread Pools" under "Additional Properties" in the bottom right corner -> Select "Web Container." ->Set the maximum value to your desired number as recommended.

Be sure to save the setting to your master configuration.

For the changes to take effect, please restart both the HTTP and app servers. Let me know if you have any further questions.

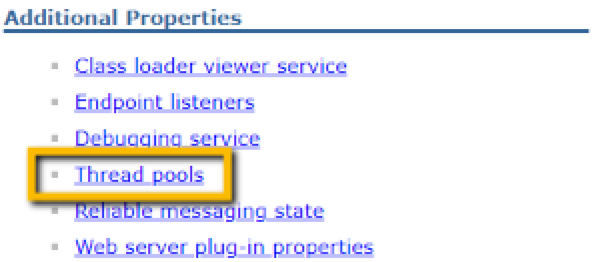


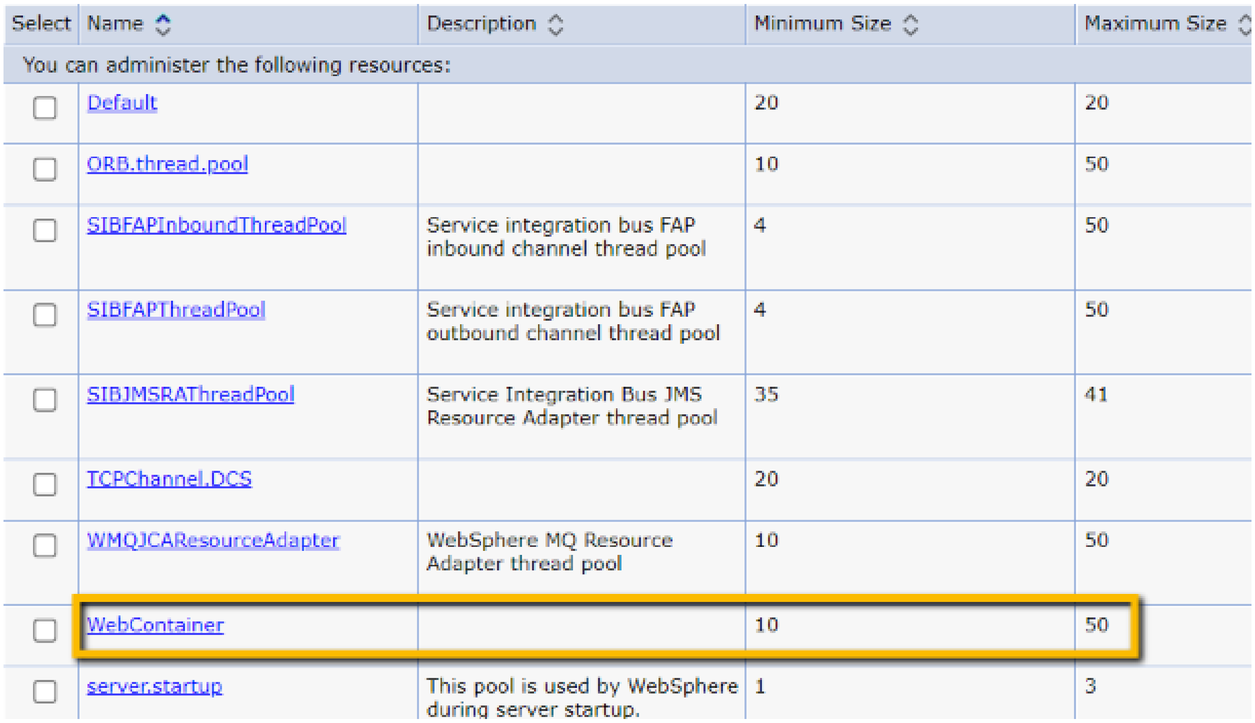
Cell=USALIDP1_NLAPPSVR, Profile=NLAPPSVR

Application servers

Use this page to view a list of the application servers in your environment and the status of each of these servers. You can to change the status of a specific application server.

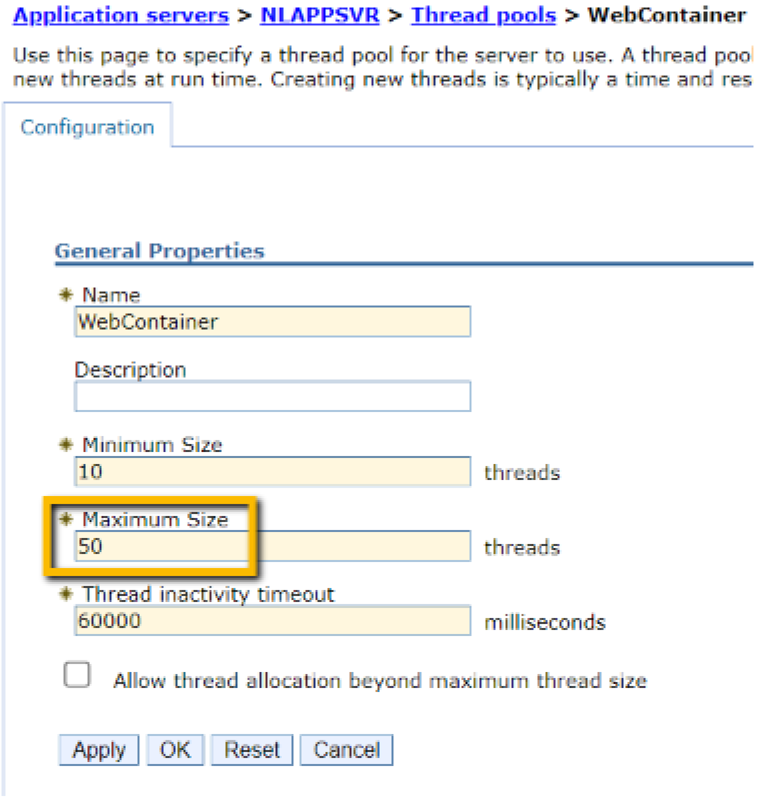
Name	Node	Host Name	Version
You can administer the following resources:			
NLAPPSVR	USALIDP1_NLAPPSVR	USALIDP1.INFOR.COM	Base 9.0.5.15
Total 1			





Select	Name	Description	Minimum Size	Maximum Size
You can administer the following resources:				
□	Default		20	20
□	ORB.thread.pool		10	50
□	SIBFAPInboundThreadPool	Service integration bus FAP inbound channel thread pool	4	50
□	SIBFAPThreadPool	Service integration bus FAP outbound channel thread pool	4	50
□	SIBJMSRAThreadPool	Service Integration Bus JMS Resource Adapter thread pool	35	41
□	TCPChannel.DCS		20	20
□	WMQJCAResourceAdapter	WebSphere MQ Resource Adapter thread pool	10	50
□	WebContainer		10	50
□	server.startup	This pool is used by WebSphere during server startup.	1	3

Default Maximum Size is 50. Change it based on business need.



Application servers > NLAPPSVR > Thread pools > WebContainer

Use this page to specify a thread pool for the server to use. A thread pool
new threads at run time. Creating new threads is typically a time and res

Configuration

General Properties

* Name
WebContainer

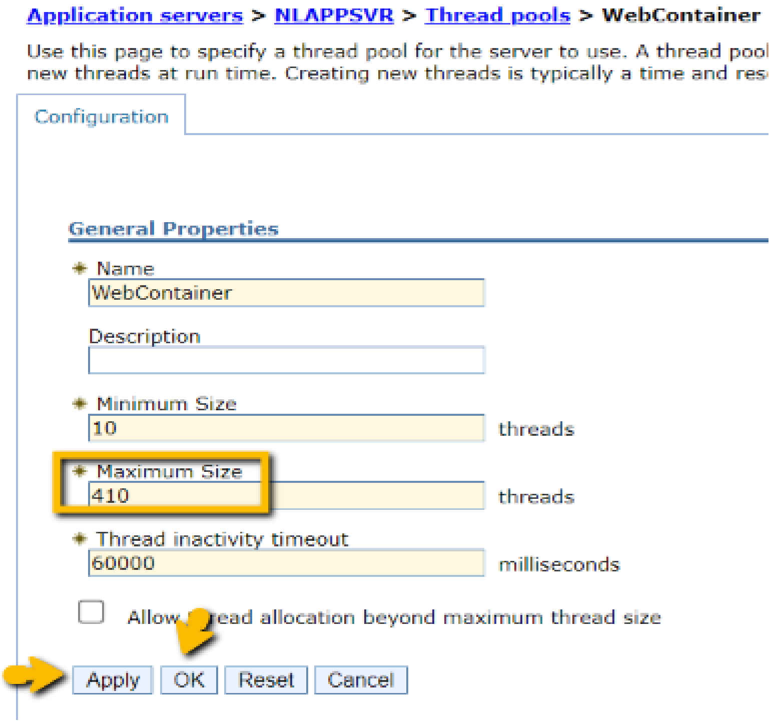
Description

* Minimum Size
10 threads

* Maximum Size
50 threads

* Thread inactivity timeout
60000 milliseconds

□ Allow thread allocation beyond maximum thread size



Application servers > NLAPPSVR > Thread pools > WebContainer

Use this page to specify a thread pool for the server to use. A thread pool new threads at run time. Creating new threads is typically a time and res

General Properties

* Name
WebContainer

Description

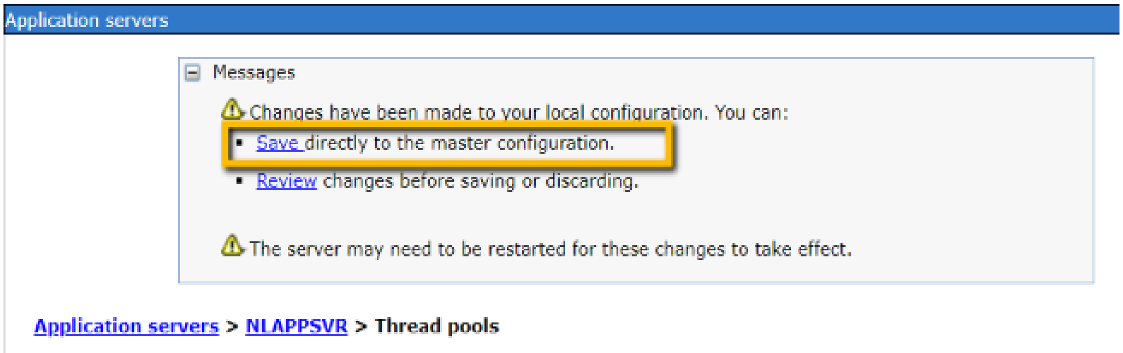
* Minimum Size
10 threads

* Maximum Size
410 threads

* Thread inactivity timeout
60000 milliseconds

□ Allow thread allocation beyond maximum thread size

Save master configuration without fail.



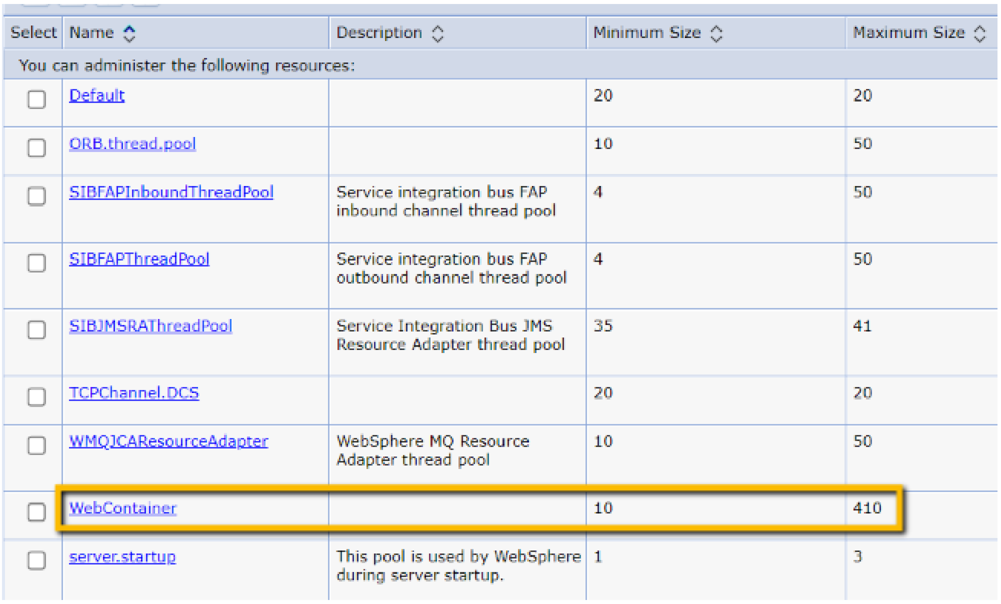
Messages

⚠ Changes have been made to your local configuration. You can:

- Save directly to the master configuration.
- Review changes before saving or discarding.

⚠ The server may need to be restarted for these changes to take effect.

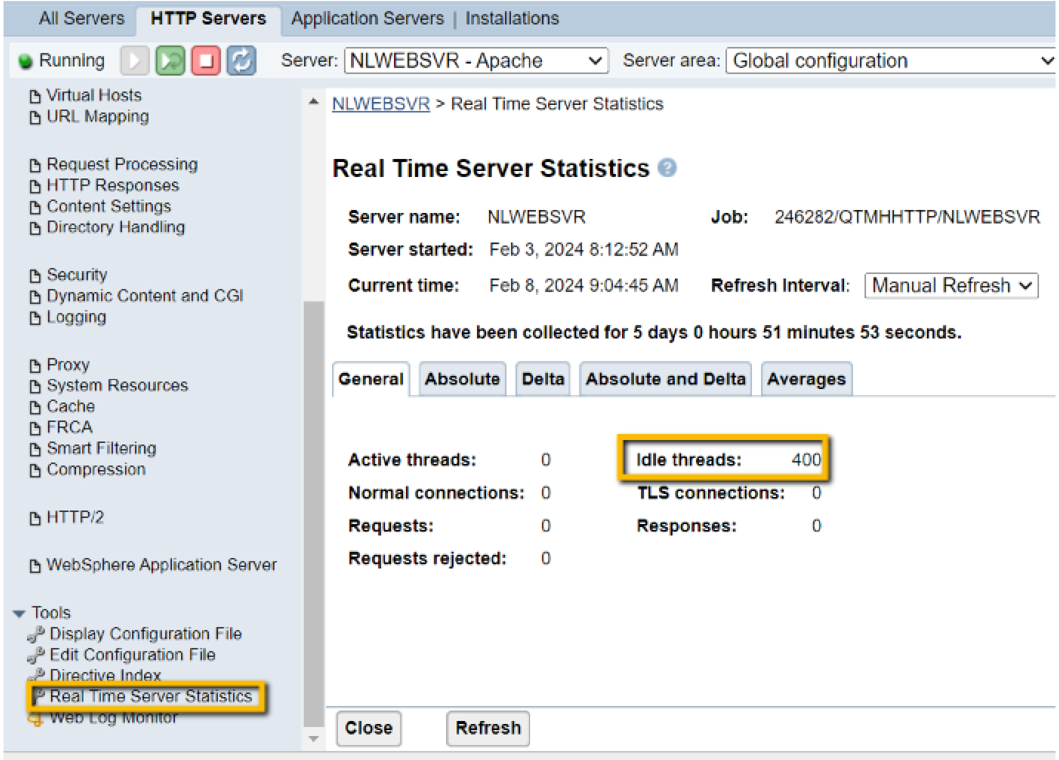
Application servers > NLAPPSVR > Thread pools



Select	Name	Description	Minimum Size	Maximum Size
You can administer the following resources:				
□	Default		20	20
□	ORB.thread.pool		10	50
□	SIBFAPInboundThreadPool	Service integration bus FAP inbound channel thread pool	4	50
□	SIBFAPThreadPool	Service integration bus FAP outbound channel thread pool	4	50
□	SIBJMSRAThreadPool	Service Integration Bus JMS Resource Adapter thread pool	35	41
□	TCPChannel.DCS		20	20
□	WMQJCAResourceAdapter	WebSphere MQ Resource Adapter thread pool	10	50
□	WebContainer		10	410
□	server.startup	This pool is used by WebSphere during server startup.	1	3

Restart the HTTP server and Application servers for changes reflect.

Now, the thread count has increased.



Server: NLWEBSVR - Apache   Server area: Global configuration

NLWEBSVR > Real Time Server Statistics

Real Time Server Statistics

Server name: NLWEBSVR   **Job:** 246282/QTMHHTTP/NLWEBSVR

Server started: Feb 3, 2024 8:12:52 AM

Current time: Feb 8, 2024 9:04:45 AM   **Refresh Interval:** Manual Refresh

Statistics have been collected for 5 days 0 hours 51 minutes 53 seconds.

Active threads:	0	**Idle threads:**	400
Normal connections:	0	**TLS connections:**	0
Requests:	0	**Responses:**	0
Requests rejected:	0		