# **Installing LANSA on IBM i**

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# Edition Date May 14, 2015

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**Note:** Do not use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx.

You cannot use a Typical Install to install LANSA in an IASP.

### **About this Guide**

This guide has been created for LANSA Version 13.

Before you use this guide, you should review the following:

Who should use this Guide

How to use this Guide

Additional Information.

For the latest product information and updates, please refer to the technical information section of the LANSA Web site at www.LANSA.com/support

Note: The information in this guide is specific to the LANSA Version 13 software and cannot be used with earlier versions. If you are installing an earlier version, please be sure to use the related version's guides and installation media.

## Who should use this Guide

This guide has been written for IBM i system administrators or developers who are responsible for installing and maintaining the LANSA development and execution environments.

It describes the installation of LANSA software components on an IBM i Server.

The LANSA software installation may include the following:

- LANSA for i
- LANSA for the Web
- LANSA Integrator
- Open Systems Utilities.

It is assumed that the installer has some knowledge of the IBM I operating system.

#### How to use this Guide

The *Installing LANSA* on *IBM i* guide has been designed for online access. Information has been cross-referenced to help you understand how the installation parameters from one step relate to the next step. If you are using a printed version of this guide, you will not have the hyperlinks available. It will be helpful to have access to the online version of this guide during the installation.

This guide contains detailed instructions for the installation and upgrade of LANSA software products on the IBM i platform.

The Start Here section provides a high level roadmap of the LANSA software installation on Windows. Whether you are new to LANSA or are familiar with the installation/upgrade process, it is strongly recommended that you begin with Start Here. This section provides a summary of the tasks that you will need to complete.

If you are not familiar with the LANSA family of products, review What is LANSA? This section describes the software products and their basic architecture.

If this is your first time installing a LANSA system, review the Planning a New Installation before you begin the installation process.

It is recommended that you review the Requirements Checklist before you begin the software installation. This section provides general guidelines, and the hardware and software requirements for the LANSA software.

The remainder of the guide is divided into specific product installation tasks.

If you encounter any problems during the installation, please refer to Troubleshooting.

You will require the *Installing LANSA* on *Windows Guide* in order to complete the installation or upgrade of any LANSA products on Windows. For example, LANSA for the Web and LANSA Integrator have Windows-based development utilities.

#### Additional Information

For more details about installing, configuring or troubleshooting LANSA software, you may need to refer to these guides:

- Installing LANSA on Windows
- Introduction to LANSA for i
- LANSA Communications Set Up
- LANSA Integrator
- LANSA Open.

For the latest product information, refer to the LANSA product Web site at www.LANSA.com/support

Before you contact your local vendor for technical support, please review the Troubleshooting information. In particular, be sure to review the Troubleshooting Checklist. If your problem involves LANSA for the Web, be sure to review the Troubleshooting information in the *Installing LANSA* on *Windows Guide*.

For additional information about Web serving using the IBM i, refer to these guides:

- SC41-5430 TCP/IP Fastpath Setup
- SC41-5420 TCP/IP Configuration and Reference
- SG24-4815 Cool Title about the AS/400 & Internet (You can see more IBM Red Books at http://www.redbooks.ibm.com/redbooks.nsf/redbooks/)

Your feedback will help us improve the overall quality of the LANSA documentation and training. Please email your comments to lansatraining@LANSA.com.au

You will require the *Installing LANSA* on *Windows Guide* in order to complete the installation and configuration of LANSA for the Web.

#### 1. Start Here

The IBM i program LODRUN performs the LANSA install/upgrade process. The program has four options. You will use one or more of these options, depending on your requirements, to install or upgrade your LANSA software.

The options are:

- Typical Installation
- Custom Installation
- LANSA Integrator Installation
- Upgrade LANSA on IBM i

This software will only install on supported IBM i versions. Refer to Supported Software Versions on the LANSA web site for further information.

**Note:** The Upgrade option is only available if the program finds a LANSA component.

If you know the type of LANSA installation required, go to 1.1 Overview of Install Process. If unsure, refer to Planning a New Installation on IBM i.

The LANSA IBM i Software DVD or CD-ROM contains the guided install menu.

### 1.1 Overview of Install Process

From the following list, select the particular install/upgrade that you wish to perform. You may need to refer to more than one item on this list if you are doing a multi-tier installation.

If you're unsure which items you require, refer to Planning a New Installation on IBM i for guidance.

- 1.1.1 Upgrade LANSA on IBMi
- 1.1.2 Upgrade Web Server Only
- 1.1.3 Typical LANSA for i Installation
- 1.1.4 LANSA for i Only Installation
- 1.1.5 Single-tier LANSA for the Web Installation
- 1.1.6 Single-tier LANSA for the Web Installation (LANSA for i Installed)
- 1.1.7 Multi-tier LANSA for the Web Installation
- 1.1.8 Multi-tier LANSA for the Web Installation (LANSA for i Installed)
- 1.1.9 LANSA Integrator Installation
- 1.1.10 Open System Utilities Installation
- 1.1.11 Set up LANSA Open on IBM i
- 1.1.12 Set up LANSA Client on IBM i

### 1.1.1 Upgrade LANSA on IBMi

If you are upgrading existing LANSA for i software, then you should complete these tasks:

1. If your LANSA version is:

Version 12, Version 12 SP1 or Version 13, go straight to the Task: Upgrade an Existing LANSA IBMi System to upgrade to Version 13 SP2.

- earlier than the required version, you must update your system to that version, before continuing with this upgrade. Please contact your LANSA vendor, if necessary, for the software required to update your current LANSA software.
- 2. When your IBM i is updated to the required version, go to Upgrade LANSA for Windows Software to consider the Windows software that needs to be upgraded to match your IBM i software.
- 3. If you have a Multi-tier LANSA for the Web Installation, you must also complete the 1.1.2 Upgrade Web Server Only on IBM i.

If you encounter problems, refer to Troubleshooting.

# 1.1.2 Upgrade Web Server Only

If you are using a Multi-tier LANSA for the Web Installation, you will have LANSA for the Web software installed on a separate IBM i machine acting as the Web Server. This IBM i machine may not have a LANSA for i system installed. Only the Web Server software for LANSA for the Web needs to be installed on the machine.

1. On the Web Server, complete the Task: Upgrade an Existing LANSA for the Web - Web Server Only on IBM i.

If you encounter problems, refer to Troubleshooting.

After completing these steps, review the LANSA for i - What's Next?.

# 1.1.3 Typical LANSA for i Installation

If you are using the Typical Installation, then complete these tasks:

- 1. Complete the Task: Typical Installation.
- 2. Task: Enter the LANSA License Code.
- 3. Task: Install LANSA for the Web Administrator.
- 4. Task: Test LANSA for i and carry out the Simple WAM to check my web configuration.
- 5. Task: LANSA Email Setup on IBM i if you are planning to use email with LANSA.

Before you begin development with LANSA for the Web, you may wish to review the Task: Configure LANSA for the Web Security.

If you encounter problems, refer to Troubleshooting.

# 1.1.4 LANSA for i Only Installation

If you are only installing a new LANSA for i system (and LANSA for the Web is NOT to be installed), complete the following tasks:

- 1. Task: Custom Installation and select the Component: LANSA IBM i .
- 2. Task: Enter the LANSA License Code.
- 3. Task: Test LANSA for i.

If you encounter problems, refer to Troubleshooting.

After completing these steps, review LANSA for i - What's Next?.

## 1.1.5 Single-tier LANSA for the Web Installation

If you are installing a new LANSA for i system that includes LANSA for the Web on a single IBM i Server (and you have decided not to use the Typical installation), then complete these tasks:

- Task: Custom Installation and select the LANSA IBM i and LANSA for Web
   Complete Web Install components.
- 2. Task: Enter the LANSA License Code.
- 3. Task: Install LANSA for the Web Administrator.
- 4. Task: Configure IBM i Web Server.
- 5. Task: Test LANSA for i and carry out the Simple WAM to check my web configuration.
- 6. Task: LANSA Email Setup on IBM i if you are planning to use email with LANSA.

Before you begin development with LANSA for the Web, you may wish to review the Task: Configure LANSA for the Web Security.

If you encounter problems, refer to Troubleshooting.

# 1.1.6 Single-tier LANSA for the Web Installation (LANSA for i Installed)

If you already have a LANSA for i system installed, and you wish to install LANSA for the Web for the first time, then follow these steps.

Your LANSA for i system must be at Version 12, Version 12 SP1 or Version 13. If not, go to 1.1.1 Upgrade LANSA on IBMi before starting these steps.

- 1. Install the Web components using Custom Installation and select the LANSA for Web Complete Web Install component.
- 2. Task: Enter the LANSA License Code.
- 3. Task: Install LANSA for the Web Administrator.
- 4. Task: Configure IBM i Web Server.
- 5. Simple WAM to check my web configuration.
- 6. Task: LANSA Email Setup on IBM i if you are planning to use email with LANSA.

Before you begin development with LANSA for the Web, you may wish to review the Task: Configure LANSA for the Web Security.

If you encounter problems, refer to Troubleshooting.

### 1.1.7 Multi-tier LANSA for the Web Installation

If you are installing LANSA for the Web using two IBM i servers, it is recommended that you start with a 1.1.5 Single-tier LANSA for the Web Installation. Once you have LANSA for the Web working in a Single-tier environment, you can convert to a Multi-tier installation as described in the Task: Upgrade from a Single-tier to a Multi-tier IBM i Web Model.

A Multi-tier installation involves the installation of LANSA software on both the Data/Application Server and the Web Server.

If you are installing a new LANSA for i system that includes LANSA for the Web in a Multi-tier configuration, then you should follow these steps:

# On the Data/Application Server:

To install a new LANSA for the Web system on the Data/Application Server, complete the following tasks:

- 1. Task: Custom Installation and select the *LANSA IBM i* and *LANSA for Web Complete Web Install* components.
- 2. Task: Enter the LANSA License Code.
- 3. Task: Install LANSA for the Web Administrator.
- 4. Task: LANSA Email Setup on IBM i if you are planning to use email with LANSA.

See a further step for the Data/Application Server below.

### On the Web Server:

To install the LANSA for the Web software components on the Web Server, complete the following tasks:

- 1. Task: Custom Installation and select the *LANSA* for the Web Web Server *ONLY Installation* component.
- 2. Task: Configure Multi-tier IBM i LANSA for the Web Installation.
- 3. Task: Configure IBM i Web Server.

## On the Data/Application Server:

Complete the following tasks:

1. Task: Test LANSA for i and do the Simple WAM to check my web

# configuration.

If you encounter problems, refer to Troubleshooting.

Before you begin development with LANSA for the Web, you may wish to review the Task: Configure LANSA for the Web Security.

# 1.1.8 Multi-tier LANSA for the Web Installation (LANSA for i Installed)

A Multi-tier installation involves the installation of LANSA software on both the Data/Application Server and the Web Server.

If you already have a LANSA for i system installed, and you wish to install a Multi-tier LANSA for the Web for the first time, then follow these steps:

# On the Data/Application Server:

Your LANSA for i system must be at Version 12, Version 12 SP1 or Version 13. If not, go to 1.1.1 Upgrade LANSA on IBMi before starting these steps.

To install a new LANSA for the Web system on the Data/Application Server, complete the following tasks:

- 1. Install the Web components using the Custom Installation and selecting the LANSA for Web Complete Web Install component.
- 2. Task: Enter the LANSA License Code.
- 3. Task: Install LANSA for the Web Administrator & Editor.
- 4. Task: LANSA Email Setup on IBM i if you are planning to use email with LANSA.

See a further step for the Data/Application Server below.

### On the Web Server:

To install the LANSA for the Web software components on the Web Server, complete the following tasks:

- 1. Task: Custom Installation and select the *LANSA* for the Web Web Server *ONLY Installation* component.
- 2. Task: Configure Multi-tier IBM i LANSA for the Web Installation.
- 3. Task: Configure IBM i Web Server.

# On the Data/Application Server:

1. Complete the Simple WAM to check my web configuration.

If you encounter problems, refer to Troubleshooting.

Before you begin development with LANSA for the Web, you may wish to review the Task: Configure LANSA for the Web Security.

# 1.1.9 LANSA Integrator Installation

Complete the following tasks:

1. Complete the Task: Custom Installation, selecting the *LANSA Integrator Installation* component

or

Select the *LANSA Integrator Install* option from the main window. The Integrator options will then be pre-selected for you and will be installed as a separate process.

- 2. Task: Configure the Java Service Manager on IBM i.
- 3. Configure JSMDirect on IBM i.
- 4. Task: Install LANSA Integrator Software on Windows.
- 5. Task: Test the Java Service Manager on IBM i.

If you encounter problems, refer to Troubleshooting.

# 1.1.10 Open System Utilities Installation

Complete the following task:

1. Task: Custom Installation, selecting the *Open System Utilities* component.

If you encounter problems, refer to Troubleshooting.

# 1.1.11 Set up LANSA Open on IBM i

If you are using LANSA Open (previously called LANSA/Server) with your LANSA for i system, you must complete the following task:

1. Task: LANSA Open Setup on IBM i.

# 1.1.12 Set up LANSA Client on IBM i

If you are using the LANSA Client with your LANSA for i system, you must complete the following task:

1. Task: LANSA Client Setup on IBM i.

# 2. Planning a New Installation on IBM i

Before you begin installing a new LANSA system, you should carefully plan your installation. Review the following sections:

- 2.1 Summary of LANSA IBM i Software Options
- 2.2 Requirements Checklist
- 2.3 Frequently Asked Questions.

The information in this guide is specific to the LANSA Version 13 SP2 software. It cannot be used with earlier versions of the software. If you are attempting to install an earlier version, please be sure to use the guides corresponding to the installation media.

# 2.1 Summary of LANSA IBM i Software Options

This section provides a high level description of the LANSA IBM i Software installation program options to assist you in determining the option that best meets your requirements.

The LANSA IBM i software installation offers you these options:

- 2.1.2 Typical LANSA for IBM i Installation
- 2.1.3 Custom LANSA for i Installations
- 2.1.4 LANSA Integrator Installation
- 2.1.5 Upgrade LANSA for i Installations
- 2.1.6 LANSA for the Web on IBM i
- If you are using an Independent Auxiliary Storage Pool then please refer to Using Independent Auxiliary Storage Pool (IASP) for further information before you begin the installation.

If you insert the LANSA IBM i Software DVD into a Windows PC, an autorun program will open an HTML browser window displaying the LANSA for i software Installation Main Menu. This menu simply describes the steps to execute the Installation Program. You cannot install the LANSA IBM i software from this interface. For details, refer to 2.1.1 LANSA IBM i Software DVD.

### 2.1.1 LANSA IBM i Software DVD

If the LANSA IBM i Software DVD is inserted into a Windows PC, an auto run program will open an HTML browser window displaying the LANSA for i Software Installation Main Window. (If this screen does not appear automatically, use Windows Explorer to open the index.htm file.)



This screen lists, in the left hand menu, the various items you might wish to review. Press menu item: *Installation* to open the next window which shows you the steps you will take to run the install process. This is the same information as you will see in this guide.

Remove the DVD from the PC's drive and place it in an IBM i drive to continue with the install or upgrade, as required. You cannot install the LANSA IBM i software from a PC.

# 2.1.2 Typical LANSA for IBM i Installation

The Typical Install is the quickest and easiest way to install a new LANSA for i and LANSA for the Web system on an IBM i Server.

Use this option ONLY if you are:

- Installing a brand new LANSA system
- Installing both LANSA for i and LANSA for the Web
- Using the IBM HTTP Server with CGI to access data
- Satisfied with the system configuration as described in Summary of Installed Objects. Please check that these objects will suit your site.

If you are planning to use LANSA for the Web, before you start, refer to the overview of all the proposed models in LANSA for the Web Deployment Models in the LANSA for Windows Installation Guide.

# **Single-Tier LANSA for the Web Installations**

The Typical Install loads LANSA for i and LANSA for the Web in a Single-tier LANSA for the Web configuration. The Web Server and the Data/Application Server are installed on a single IBM i machine. For considerations when choosing this model, refer to Web Single-tier model Considerations.

### Multi-tier LANSA for the Web Installations

For multi-tier configuration, use the Typical Install to load the required LANSA for i and LANSA for the Web software on the Data/Application Server. You must also use the Custom Install - Web Server Only option to install the necessary components on the Web Server. For considerations when choosing this model, refer to Web Multi-tier Model Considerations.

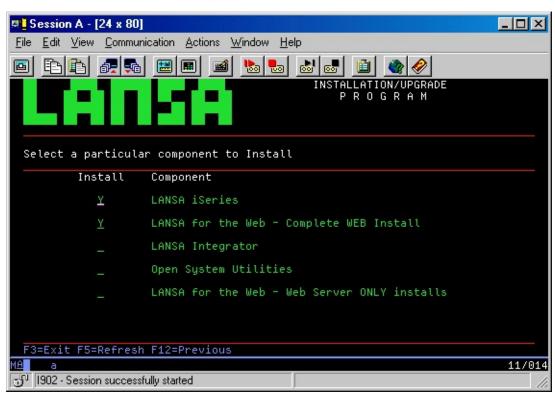
#### 2.1.3 Custom LANSA for i Installations

The Custom Install allows you to select the specific LANSA software components to be installed.

You may select from the following:

- LANSA for i
- LANSA for the Web
- LANSA Integrator
- Open System Utilities
- LANSA for the Web Web Server Only.

More than one software component may be installed at the same time. For a list of recommended combinations, see below.



Recommended installation combinations are:

- LANSA for i and LANSA for the Web at the same time, if you are using LANSA for the Web.
- LANSA Integrator as a separate install.
- Open System Utilities as a separate install.
- If you perform a Web Server Only install, do not install other components at

the same time. A Web Server Only is installed on a Web Server used in a multi-tier installation.

#### Be aware that:

- If LANSA for i is already installed, you can install LANSA for the Web. You can also install LANSA Integrator or the Open System Utilities after LANSA for i has been installed.
- You can install just LANSA Integrator on a server with or without LANSA for i installed.
- You would only install the Open System Utilities on an IBM i that has a LANSA for i system installed.

# 2.1.4 LANSA Integrator Installation

If you select the LANSA Integrator installation option, you will immediately be taken to the Component selection screen. LANSA Integrator component will be selected for you. Press *Enter* to continue to install just LANSA Integrator or F12 to return to the previous screen to change your options.



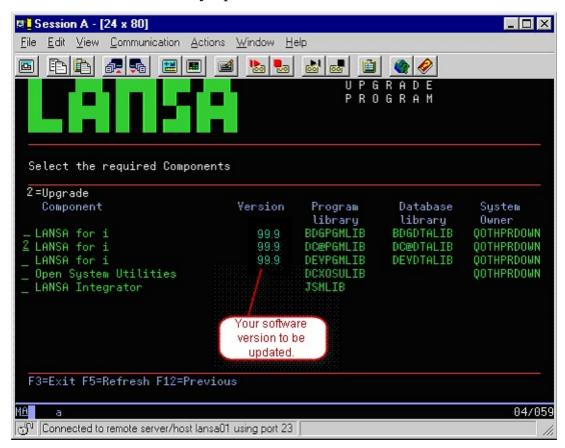
Refer to 2.2.5 LANSA Integrator IBM i Requirements before you install or update LANSA Integrator.

## 2.1.5 Upgrade LANSA for i Installations

When executing the LANSA IBM i software installation, the upgrade option will automatically appear on the installation program menu if any LANSA software components are detected on the IBM i.

This easy to use upgrade facility will list all LANSA Systems and LANSA Software Components detected. You may select a single system or component for upgrade.

If your LANSA for i includes LANSA for the Web software, the LANSA for the Web software is automatically updated.

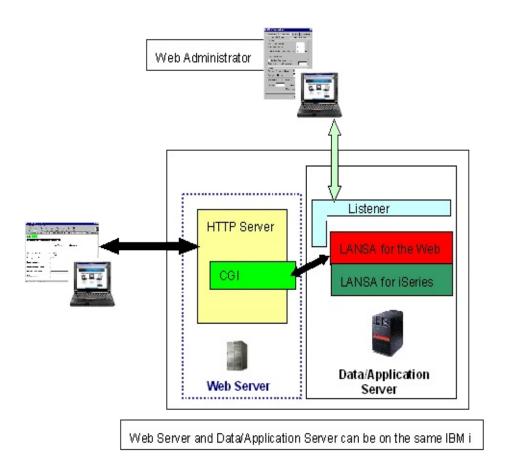


Once you have upgraded the LANSA IBM i software, you should upgrade any associated LANSA Windows software.

If you wish to add new software components (refer to 2.1.3 Custom LANSA for i Installations), it is recommended that you upgrade your existing system before you install the new components.

### 2.1.6 LANSA for the Web on IBM i

The LANSA for the Web IBM i Architecture supports both single-tier and multi-tier installations.



**A single-tier installation** includes the Web Server and Data/Application Server on a single IBM i server.

**A multi-tier installation** uses two IBM i servers. The Web Server is located on one IBM i server and the Data/Application Server is located on a second IBM i Server. The LANSA for i software and the LANSA for the Web software are always installed on the Data/Application Server. For a multi-tier installation, additional Web components must be installed on the Web Server. LANSA for the Web supports CGI for communication.

Using a multi-tier model can provide an additional level of security by limiting the exposure of your Data/Application Server directly to the Internet.

You may use an IBM i to act as both your Web Server and Data/Application Server for your Internet applications. If this server is separate from your other

internal production systems, a single-tier model is appropriate. If your Web site is used for an Intranet (which is not connected to the Internet), the single-tier model may be sufficient.

When using an IBM i, you may wish to start with a single-tier model. For example, you may use a single-tier model when you first install, develop and test your applications. Once you are ready to deploy your applications to the Internet, you may wish to use the multi-tier model.

#### Also see

Web Single-tier model Considerations Web Multi-tier Model Considerations

# Web Single-tier model Considerations

- In a single-tier model, you are using a single IBM i for your Web Server and Data/Application Server. All of the LANSA software is installed on a single Server. Only a single IP address is required to identify the Server as the Web Server and the Data/Application Server are on the same machine.
- This model is the simplest to install and configure. You may wish to begin with this model and move to a multi-tier application model where the Web Server is located on another Server. (Refer to the Task: Upgrading from a Single-tier to a Multi-tier IBM i Web Model). The single-tier model is useful for testing your LANSA applications before deploying the applications on the Internet.
- You will not have to configure the Web Server to Data/Application Server communications since you are using just one machine.
- This model may be sufficient if you are intending to deploy your applications in an Intranet. An Intranet limits the number of people who can access your IBM i so your security considerations do not need to be as strict as for an Internet application.
- If you are deploying your application on the Internet, a single-tier model has security risks because your IBM i will be on the Internet. You should consider using a firewall and other security precautions to protect your IBM i.
- It is strongly recommended that you use the Typical install for a new singletier installation.

### **Web Multi-tier Model Considerations**

- In a multi-tier deployment model, you are using two separate machines for your Web Server and Data/Application Server. Two IP addresses are required: one to identify the Web Server and one to identify the Data/Application Server.
- Only the Data/Application Server requires a full LANSA development environment installed. The LANSA Repository (including the generated HTML) and your application data are installed on this machine. The LANSA for the Web software is also installed on the Data/Application Server.
- The Web Server will have a small component of LANSA for the Web installed. Its main task is to act as the interface between the Web serving software and LANSA for the Web. The Web Server does not require a LANSA system to be installed on it.
- The Web Server can be an IBM i or a Windows server.
- In an IBM i multi-tier deployment, you will be using IBM i servers for both the Web Server and Data/Application Server. The LANSA for the Web PCbased Administrator will only need to connect to the IBM i Data/Application Server.
- You must configure Web Server to Data/Application Server communications using TCP/IP and a Listener.
- Although the multi-tier model is a secure model for deploying your applications on the Web, there is a small performance overhead because of the link between the two machines as well as extra processing that has to be done by LANSA for the Web. This performance overhead may have an impact on the overall performance of your application.
- As a variation to this model, you can use a firewall that is attached to the Web serving machine. The machine with the attached firewall will be connected to the Internet.
- If you are installing LANSA for the Web using two IBM i servers, it is strongly recommended that you start with a single-tier installation. Once you have LANSA for the Web working in a single-tier environment, you can convert to a multi-tier installation. Refer to Task: Upgrade from a Single-tier to a Multi-tier IBM i Web Model.

# 2.2 Requirements Checklist

The requirements checklists for LANSA IBM i Software have been grouped by the software product being installed:

- 2.2.1 Skills Requirements
- 2.2.2 IBM i System Requirements
- 2.2.3 General Installation/Upgrade Requirements Checklist
- 2.2.4 LANSA for the Web Requirements
- 2.2.5 LANSA Integrator IBM i Requirements
- 2.2.6 Open System Utilities IBM i Requirements

# 2.2.1 Skills Requirements

Skills recommended for completing the LANSA software installation on IBM i:

- Working knowledge of IBM i.
- Experience with LANSA environments. This is an asset but not essential.

No LANSA programming experience is required to perform the installation.

If you are installing LANSA for the Web, the following skills are recommended:

- Familiarity with IBM HTTP Web Server powered by Apache or access to staff with these skills.
- Familiarity with TCP/IP (if used) or access to staff with these skills.

# 2.2.2 IBM i System Requirements

Following is a summary of the IBM i specific requirements:

- An IBM actively supported version of the IBM i Operating System. Refer to the Supported Platforms and Versions document, for supported platforms/software compatibility.
- Minimum disk space of 2 gigabytes. This includes LANSA for IBM i, LANSA for the Web and LANSA Integrator.
- RPG and/or C/C++ compilers.
- SEU Editor.

**Note:** The SEU (Source Edit Utility) is recommended for editing templates and help text. Edit File command (EDTF) will be used if SEU is unavailable. SEU is required if you wish to use the optional features of editing virtual RPG code.

- TCP/IP correctly configured.
- If using SELECT\_SQL, then DB2 Query Manager and SQL Development Kit is required for compiling functions.
- If using spool file Built-In Functions, a supported Web server must be installed.
- For details of the Web Server requirements, refer to the 2.2.4 LANSA for the Web Requirements.
- For details of the Java requirements, refer to 2.2.5 LANSA Integrator IBM i Requirements.

## 2.2.3 General Installation/Upgrade Requirements Checklist

Before starting the LANSA for i installation/upgrade, complete this checklist. Do you have:

- The correct version of the LANSA IBM i Product software?
- A RISC IBM i at an IBM supported IBM i operating system release level?
- The device name of the IBM i DVD/CD-ROM drive? (Default is often OPT01)
- The appropriate LANSA licenses for components and options being installed?
- Have you selected a library name prefix if the default library name prefix (DCX) is already in use?
  - **Note:** Do not use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx.
- Access to the QSECOFR user id? (This is the recommended identifier to be used when installing or upgrading the LANSA software.) The use of other profiles or the removal of the special authorities will cause security and integrity alterations to the installed system.
  - If you do not have access to QSECOFR for the installation, you will need to create one with the same permission as QSECOFR.
- Reviewed the topic Summary of Installed Objects?
- If you are using a Custom Install, have you reviewed the Software Installation Combinations in the Custom LANSA for i Installations?
- If you are installing LANSA for the Web, have you decided on a single-tier or multi-tier installation?
  - If you are not using the default IFS directories, have you created the directories that you want to use? (They must exist before you can use them in the install.)
  - Have you reviewed the topic 2.2.4 LANSA for the Web Requirements?
- If you are installing LANSA Integrator, have you reviewed the topic 2.2.5 LANSA Integrator IBM i Requirements?
- Have you reviewed the 2.2.2 IBM i System Requirements checklist?
- Does the IBM supplied default job description QDFTJOBD exist? The install/upgrade will end if it does not exist.

#### **Installation Notes**

Following are some tips, techniques and considerations for new installations:

- The install/upgrade will use the following commands from the QSYS library regardless of any other libraries you may have created:
- Library
- CRTLIB Create CRTJOBQ Create job CRTSBSD Create queue
  - subsystem

- directory
- MD Create IFS CRTJOBD Create job description
  - CRTUSRPRF Create user profile
- The LANSA installation will create a user profile named QOTHPRDOWN. This profile owns the LANSA system. Do not modify the authority rights of QOTHPRDOWN until you have completed the installation. Refer to If QOTHPRDOWN Profile is not used as your Product Owner for actions you must take after the installation is completed.
- Do not install LANSA for i into libraries already containing user objects.
- Do not create objects of your own in the main LANSA for i program or **data libraries.** (That is: DCXPGMLIB, DCXDTALIB or their equivalents.)
- Arrange and test your back up procedures before making any use of a LANSA for i system.

## 2.2.4 LANSA for the Web Requirements

Following is a summary of the software requirements for using LANSA for the Web:

- The correct version of the LANSA IBM i Product software.
- Licenses for the components and options being installed.
- IBM actively supported version of the IBM i Operating System. Refer to the Supported Platforms and Versions document, for supported platforms/software compatibility.
- TCP/IP correctly configured.
- Internet browser with JavaScript enabled. See the Supported Platforms and Versions document for a list of the supported browsers.

## **Web Server Software Requirements**

IBM HTTP Server powered by Apache for CGI.

The Web serving software must be configured and running before attempting to use LANSA for the Web. A quick test is to attempt to load the home page, using http://<as400address>/.

## 2.2.5 LANSA Integrator IBM i Requirements

- The correct version of the LANSA IBM i Product software.
- Licenses for the components and options being installed.

## **Integrator Installation Notes**

Following are some general tips & techniques for assisting in the Java Service Manager installation:

- A library (default JSMLIB) will be created on the IBM i to store objects used by the Java Service Manager. This includes a number of work management objects such as job descriptions and sub-system descriptions.
- Add the JSMLIB library to your library list for job descriptions and user profiles using the Java Service Manager.
- Java Service Manager IFS objects are restored to an instance directory (default /jsm/instance). This includes .jar files and property files.
- The content of data area JSMMGRDTA is the Java Service Manager instance directory.
- The content of data area JSMCLTDTA is used to determine the host server.
- RPG program examples are located in source file QRPGSRC in the JSMLIB library.
- Refer to the Supported Platforms and Versions document, for supported platforms/software compatibility.

•

## 2.2.6 Open System Utilities IBM i Requirements

Following is a summary of the software requirements for using the Open System Utilities:

- The correct version of the LANSA IBM i Product software.
- Licenses for the components and options being installed.
- IBM actively supported version of the IBM i Operating System. Refer to the Supported Platforms and Versions document, for supported platforms/software compatibility.
- Access to the QSECOFR user profile (recommended profile to be used during an installation).

# 2.3 Frequently Asked Questions

Frequently asked questions about installing and configuring LANSA software have been grouped by the software product being installed:

- 2.3.1 General Questions
- 2.3.2 LANSA for i Questions
- 2.3.3 LANSA for the Web Questions
- 2.3.4 LANSA Integrator Questions
- 2.3.5 Open System Utilities Questions

## 2.3.1 General Questions

Following are some frequently asked questions about LANSA IBM i Software installation/upgrades:

Should I Use the Typical or Custom Installation?

Do I have to install all products at the same time?

Do I have to use Partition Initialization?

How long will the installation or upgrade take?

When is a good time to install LANSA software?

Can developers or users be using the system during the upgrade?

Where can I find more information about installation and configuration?

Is this version compatible with previous versions?

## **Should I Use the Typical or Custom Installation?**

The LANSA software installation program provides two types of installations: Typical and Custom.

**Note:** You CANNOT use these install options to upgrade existing LANSA components.

## **Typical Installation**

This option will install, with the minimum of intervention:

- A brand new LANSA system
- Both LANSA for i and LANSA for the Web
- The IBM HTTP Server powered by Apache with CGI to access data
- Satisfied with the system configuration as described in Summary of Installed Objects.

You can use the Typical Install with both single-tier and multi-tier LANSA for the Web deployment models. (For multi-tier, you must follow the Typical Install with a Custom Install to install the Web Server Only components on the Web Server.)

### **Custom Installation**

The Custom install allows you to select the installation components, parameters and options, rather than using the default settings selected for you in the Typical install.

You will use this option if you meet ANY of the following criteria:

- Installing a brand new LANSA for i system
- Installing LANSA for i in an IASP. Refer to Using an Independent Auxiliary Storage Pool (IASP) for further information.
- Installing LANSA for the Web for the first time
- Installing the Web Server Only components in a multi-tier LANSA for the Web installation
- Installing the LANSA Open System Utilities
- Installing LANSA Integrator.

The Custom option allows you to install more than one software component at a time. Refer to the Software Installation Combinations in the Custom LANSA for i Installations.

## Do I have to install all products at the same time?

When you perform a Custom install, you can install a single product or multiple products. Sometimes there are advantages of installing a single product in terms of testing, job logs, etc. Following are some general recommendations:

- LANSA for i and LANSA for the Web should be installed together. Where possible, use the Typical Install to install these products.
- LANSA Integrator can be installed separately, after you have completed the LANSA for i installation.
- The Open System Utilities can be installed separately, after you have completed the LANSA for i installation.

## Do I have to use Partition Initialization?

Partition Initialization provides a quick and easy way to install optional products and objects at the same time as installing/upgrading your LANSA system.

You do not have to use the Partition Initialization. All of the imports can be performed manually at a later time. Refer to <u>Initialization Imports</u> for notes on manually importing these options.

#### **Notes:**

- The Partition Initialization screen is displayed during the Custom Install or Upgrade. It allows you to select, for each partition, from the standard imports shipped with a new LANSA system.
- The list of Partition Initialization options displayed will depend upon the component being installed.
- If you are installing LANSA for i, you will see a complete list of Options. If you are only installing LANSA for the Web, a limited number of Web specific Options will be displayed.

## How long will the installation or upgrade take?

The time for the installation and upgrade will vary depending upon the number of software components installed. If installing LANSA for the Web, it will also vary depending upon the type of Web Server and installation model.

As a general rule:

- A LANSA for i system can be installed in less than one hour.
- Allow at least 2-3 hours for the installation and configuration of LANSA for the Web.

If you are not familiar with the HTTP Web Serving software and its configuration, allow more time.

Developers and end users cannot be using the LANSA system during the installation/upgrade.

# When is a good time to install LANSA software?

Developers and end users cannot use the LANSA system during the installation/upgrade. You may want to schedule the upgrade at a time which will not disrupt your development efforts.

If you are installing a new LANSA system, LANSA for the Web can be installed at the same time as the LANSA for i.

## Can developers or users be using the system during the upgrade?

No. Developers and end users cannot use the LANSA for i or LANSA for the Web applications during the installation/upgrade. There must be no LANSA jobs running during the upgrade and no other LANSA jobs running on other LANSA systems on the same machine.

**Note:** "Developers" and "end users" also include the LANSA Listener and Java Service Manager.

# Where can I find more information about installation and configuration?

You should check the LANSA Web site at www.lansa.com/support for the latest product, configuration and installation updates. Refer to Additional Information.

## Is this version compatible with previous versions?

RDMLX objects compiled on this version of LANSA cannot be ported in compiled form backwards to any previous LANSA version.

RDML objects compiled on this version of LANSA may be ported backwards to the immediately preceding LANSA version provided that:

- They can be successfully re-encapsulated by the target IBM i operating system as required.
- No new version facilities have been directly or indirectly used in the RDML objects or database file definitions involved.
- All required LANSA run time routines are present and correct on the target system. Run time routines that may not be present and have to be individually installed from the later version system are normally prefixed DC@P8\*, DC@P9\*, BI@\*, M@\*, F@\*, DC@S\*, DCXS\*.
- This facility is used only for very short term stop gap or emergency situations.

# 2.3.2 LANSA for i Questions

Following are some frequently asked questions about LANSA for i installation/upgrade:

How can I determine the name of the IBM i LANSA program library? Can I install more than one LANSA System on the same IBM i?

# How can I determine the name of the IBM i LANSA program library?

You can determine the LANSA program library name by displaying the data area DC@A01 for this LANSA system and checking the entry in positions 1-10.

## Can I install more than one LANSA System on the same IBM i?

You may install more than one LANSA system on the same IBM i.

Some common reasons for running more than one LANSA system on the same IBM i server include:

- For security, deployment, or other reasons, your development and production systems require completely separate LANSA systems, that is, you cannot use the partition approach.
- You require LANSA systems installed in different Auxiliary Storage Pools.
- If you are installing for a trial or evaluation you would normally install only one system. Additional systems may be installed at a later stage, or you may just choose to partition one system into separate environments.

Following are some considerations for installing multiple LANSA systems:

- Determine if you will need more than one LANSA for i system installed before you begin your installation.
- Do not share libraries between your LANSA systems. Each system should have its own unique set of libraries especially for such items as the LANSA communications library.
- Always install a LANSA for i system into four separate and unique IBM i libraries. For example, if you wish to install two completely separate LANSA for i systems, (e.g. a production system and a development system), you might choose this configuration:

## LANSA for i System 1 LANSA for i System 2

Use for:	Production:	Development:
Program library	PRLANSAPGM	DVLANSAPGM
Data library	PRLANSADTA	DVLANSADTA
SYS Partition	PRLANSASYS	DVLANSASYS
TST Partition	PRLANSATST	DVLANSATST

# 2.3.3 LANSA for the Web Questions

Following are some frequently asked questions about LANSA for the Web installation/upgrade:

What IBM i Web Server should I use? How much Web security do I need?

## What IBM i Web Server should I use?

IBM Apache HTTP Server and CGI.

The IBM HTTP Web Server powered by Apache, is shipped as a standard feature of the IBM i operating system.

## How much Web security do I need?

The level of security required will be determined by the type of Web site you are creating. Internet, Intranet and Extranet applications require different levels of security.

Security can be defined at the network, Web Server, Data/Application Server and LANSA levels. For example, you can use firewalls on the network along with user profile and object level security on the IBM i. LANSA for the Web provides an additional three levels of security.

During the initial installation and configuration of LANSA for the Web, you may wish to begin with very basic security requirements. The anonymous user access to LANSA for the Web is recommended when you first install and test LANSA for the Web. Once your system is operating properly, you can enhance the security features used.

Following are some considerations for LANSA for the Web security:

- LANSA for the Web provides additional security features, on top of the security features provided by the Web serving products.
- LANSA for the Web allows for anonymous user access. Anonymous access allows a casual visitor to use your Web applications without a user profile. There is a Data/Application Server user profile assigned to this anonymous user. This profile should only have minimal access rights on your Server.
- By default, LANSA for the Web will install a system for anonymous user access.
- It is recommended that you start with anonymous user access when you first install, configure and test the LANSA for the Web software. Once you have this level of authentication working properly, you can easily implement partial or full user authentication.
- If you intend to allow for anonymous user access to your applications, you can also configure LANSA for the Web to enforce user authentication to specific Web applications. Partial or process level authentication allows you to restrict access to a specific set of Web enabled applications while still allowing the anonymous user access to the rest of your Web enabled applications. The casual visitor to your Web site can access the applications which are intended for public access.
- You may choose to implement the full user authentication model. In this case, a user must enter a valid user profile and password to access any part

- of your application. Public access will not be allowed to any part of your application.
- LANSA for the Web supports the use of Secure Socket Layers.

  Note: The IBM HTTP Server does not allow the use of Secure Socket

  Layers when the configuration instance name contains an "@" character. It

  you require SSL, you cannot use this default configuration. Simply create a
  new instance.
- A multi-tier LANSA for the Web installation can also increase your site security so that your Data/Application Server is not directly connected to the Internet.

For more details about LANSA for the Web security, refer to the Task: Configuring LANSA for the Web Security.

# 2.3.4 LANSA Integrator Questions

Following are some frequently asked questions about LANSA Integrator installation/upgrade:

Can I have multiple LANSA Integrator systems installed?

What license do I need?

Do I need LANSA for i installed to use LANSA Integrator?

# Can I have multiple LANSA Integrator systems installed?

You can have more than one instance of the LANSA Integrator Java Service Manager executing on a single IBM i Server. Multiple JSM Servers are configured using multiple instances. You do not have to install LANSA Integrator more than once. For more details, refer to the LANSA Integrator Guide.

## What license do I need?

Many of the LANSA Integrator services and tools are individually licensed or licensed as collections or bundles. You may not be licensed to use all the services and tools available.

When you first purchase LANSA Integrator, your supplier will provide the license keys for the services and tools you have licensed, along with instructions to apply them.

To request a LANSA Integrator license, you will need to provide information about your IBM i including processor, serial and model numbers as well as the IBM i version to your LANSA Distributor. Refer to your LANSA product distributor for further information.

# Do I need LANSA for i installed to use LANSA Integrator?

If you are using the 3GL interface for LANSA Integrator, you do not require a LANSA for i system installed. You can call LANSA Integrator from RPG or COBOL applications.

If you are using the LANSA Built-In Functions to integrate with your existing LANSA applications and databases, then you must have LANSA for i installed on the IBM i Server.

# 2.3.5 Open System Utilities Questions

Following are some frequently asked questions about Open System Utilities installation/upgrade:

Should I install the Open System Utilities?

Do I need a license for Open System Utilities?

## **Should I install the Open System Utilities?**

Following are some considerations for using the Open System Utilities with your LANSA development environment:

- Refer to What are the Open System Utilities? if you are not familiar with them.
- The utilities are provided on an "as is" basis with complete documentation. Refer to the *LANSA Open System Utilities Guide* for information.
- The nature of the manipulations they perform require that skill and care be exercised by the user.
  - No warranty is expressed or implied in the provision of these utilities.
- The utilities provide you with extensive knowledge of the internals of your LANSA for i environment, allowing you to extend the shipped utilities, or to develop new ones.
- Source code and documentation for each utility is provided.

# Do I need a license for Open System Utilities?

You do not require a license to use the Open System Utilities.

## 3. Install LANSA on IBM i

The following choices are available using the LANSA IBM i software installation:

- 3.1 Task: Typical Installation
- 3.2 Task: Custom Installation
- LANSA Integrator Installation
- Task: Upgrade LANSA on IBM i.

**Note:** The Upgrade option is only available if the program finds a LANSA component.

After the installation tasks, review LANSA on IBM i - What's Next?

Refer to the Supported Platforms and Versions document, for supported platforms/software compatibility.

Note that you cannot use a Typical Install with an Independent Auxiliary Storage Pool (IASP).

## 3.1 Task: Typical Installation

The Typical Installation is the quickest and easiest way to install a new LANSA system on an IBM i.

When you use the Typical Installation:

- LANSA for i is installed
- A complete single tier LANSA for the Web is installed
- A system partition will be installed with library and partition names commencing with DCX but if you need to, you can change the Library prefix to some other three characters, as described in 3.1.2 Call the Installation Program.

Do **not** use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx.

- The LANSA Communication Extensions are automatically configured and ready to use
- IBM HTTP Server Instance (Apache) is fully initialized and ready to use.

The default options selected for you result in a number of objects being loaded onto your IBM i. You will find a list of these objects in the topic Summary of Installed Objects. Please check that they suit your site.

If you would prefer not to accept the Typical Installation default options, then you can use the 3.2 Task: Custom Installation which allows you to customize the install options to suit your requirements.

The Typical Installation task includes the following steps:

- 3.1.1 Before You Begin Checklist
- 3.1.2 Call the Installation Program
- 3.1.3 Typical Installation Summary
- 3.1.4 Verify Typical Installation

Note that you cannot:

- run a Typical install twice nor can you create new partitions. If either is required, you would use a Custom install.
- use a Typical install to install LANSA into an IASP. In this case you must use a custom install.

Once you have completed the installation, go to LANSA License Codes.

# 3.1.1 Before You Begin Checklist

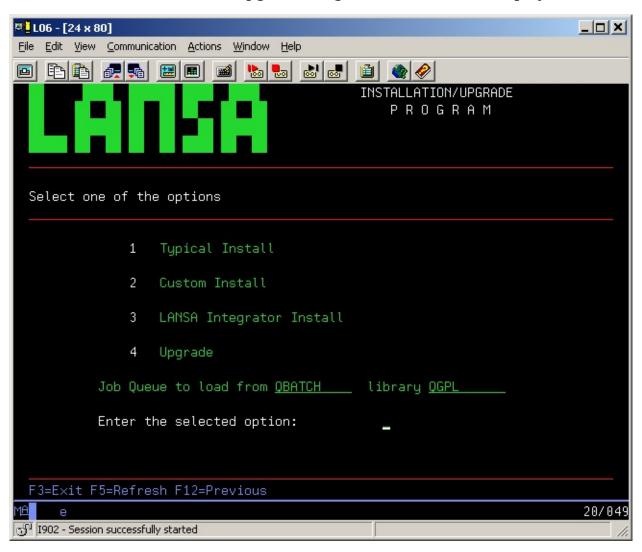
If you answer Yes to all the questions in the General Installation/Upgrade Requirements Checklist go to 3.1.2 Call the Installation Program.

## 3.1.2 Call the Installation Program

- 1. Sign on to the IBM i as either **QSECOFR** or a profile within the **QSECOFR** group.
- 2. Insert the LANSA for i Software DVD or the first CD-ROM into the IBM i drive.
- 3. From an IBM i command line (CALL QCMD), enter the following command to restore the software from the input medium:

#### **LODRUN DEV(\*OPT)**

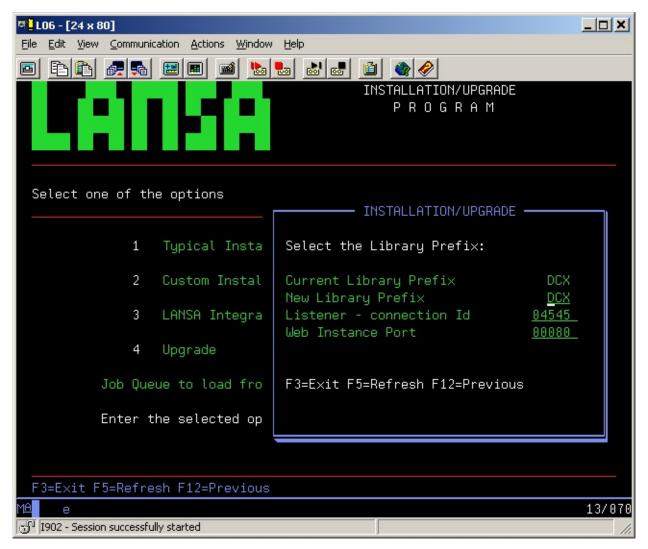
The LANSA *Installation/Upgrade Program screen* will be displayed.



4. Specify the name of the job queue and library to which the actual installation job is to be submitted. The default value is job queue QBATCH in library

QGPL. If this is not valid at your installation, change it to the name required. Enter **1** to select the Typical Install. Press *Enter*.

A pop-up box will be displayed with the defaults that will be used.



- 5. Either confirm or change the defaults:
  - a. *New Library Prefix*. If **DCX** (the default) already exists, then enter a different library prefix. If the prefix you enter already exists, an error message will be displayed.

**Note:** Do not use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx

- b. Listener connection identifier
- c. Web Instance Port the port number used by web jobs.

Note that you cannot select a second Typical Install as the libraries will have

already been created. If you do select this option again, as soon as you press *Enter*, an error message will be displayed to inform you.

6. Press *Enter* to confirm your choices and continue or press F3 to exit.

Go to 3.1.3 Typical Installation Summary.

## 3.1.3 Typical Installation Summary

Installation Summary screens are displayed for you to check that the default parameters that have been made suit your site standards.

- If you wish to change any of the parameters on the Summary screens, you must cancel the Typical installation and choose the Custom installation. The Custom installation will allow you to change the default installation parameters.
- If you are satisfied with the installation summary, on the final Summary page, press *F8* to submit the batch job. A list of the options chosen is displayed.
- If you do not wish to submit the installation job, press *F*3 to exit.
- If you wish to change the default options, press *F12* return to the starting screen and choose option 2, 3.2 Task: Custom Installation.

For a list of the objects installed, refer to Summary of Installed Objects. Go to 3.1.4 Verify Typical Installation.

## 3.1.4 Verify Typical Installation

When you see the message indicating that the batch job has finished, examine the resulting job log QPJOBLOG before attempting to use the LANSA system.

If there are any EPCs with the Install, they will be applied and the EPC log updated accordingly.

Once the LANSA update job has completed, check the job's spooled file for the following:

### Check messages

• Filename: QPDSPMSG

User Data: SUMMARYMSG and DETALMSG

and check for any errors.

### Check for required IBM i software

• Filename: QSYSPRT

• User Data: DC@LOAD20

#### The final message after a successful install is:

\*\*\*\*All selected LANSA components have successfully installed\*\*\*\*

Regardless of whether the successful install message appears or not, retain the job log that results from the install for future reference.

You must check that LANSA\_CLN has been run successfully. For details refer to Check LANSA\_CLN.

If the Installation of LANSA for i completed successfully, go to LANSA License Codes.

As LANSA for the Web is installed as part of the Typical Install, you must also install the LANSA for the Editor and Administrator as applicable.

## **QOTHPRDOWN** User Profile

If you had used QOTHPRDOWN instead QSECOFR to do the install, the QOTHPRDOWN profile might not have authority to use the command STRSBS. Because of this, the following sub systems might not start automatically:

- LISTENER
- LANSA for Integrator (if installed).

You must use a User Profile that has appropriate authority to start sub systems (STRSBS).

If you did use QOTHPRDOWN as the product owner, you must perform the steps in QOTHPRDOWN Profile not used.

# **Typical Installation failed**

If you did not see this message:

All selected LANSA components have successfully installed

read the other messages sent to the workstation and in the job log and perform any suggested actions in full.

When reading the job log, always read it backwards, starting from the last page. If you read it from the beginning, you cannot assume that the first error you see is the cause of the problem.

For instance, most job logs will contain escape messages reporting "Object xxxxxxxxxx in lllllllll type ttttttttt not found". If you read the job log forwards and stop at this apparently fatal/severe message you will miss the actual error that caused the install to fail. In this case, this error occurs when the install software tests if an object already exists. It is not fatal and does not indicate any problem with the install.

Do not restart the installation without first checking the job log produced for messages that clearly indicate the source of the problem.

### 3.2 Task: Custom Installation

The Custom Installation allows you to select the LANSA software components to be installed as well as to create new Partitions.

If you have selected the Integrator Install, then you will follow the Custom installation steps but with Integrator defaults already selected for you.

The steps performed during the installation will depend on the software components being installed. Every custom install includes these steps:

- 3.2.1 Before You Begin Checklist
- 3.2.2 Call the Installation Program
- 3.2.3 Select Software Components
- 3.2.4 Check the Custom Installation Summary
- 3.2.5 Verify the Custom Installation

Note that the new partitions option is not available independently of a Custom Install. Use LANSA's Housekeeping facility if you wish to create a new partition after you have completed a Custom install.

Once you have completed the Custom Installation, go to LANSA License Codes.

# 3.2.1 Before You Begin Checklist

Before you begin the Custom Installation task, check the following:

- If you are using an Independent Auxiliary Storage Pool please refer to Using Independent Auxiliary Storage Pool (IASP) for further information.
- Have you answered Yes to all the questions in the General Installation/Upgrade Requirements Checklist?
- If you are adding software to an existing LANSA system, are they at the same version?
- Have you read the Software Installation Combinations in the Custom LANSA for i Installations to help plan your installation?
- Have you checked the prefixes that you must supply and the parameters that you must confirm when performing the install?
   If not, you will find them at the beginning of each section for the installation options you select. For example, if you are creating a new partition, you will need to know the *Identifier* you wish to assign to the partition, the Partition you may wish to use as a base, and the names to be assigned to the *Module* and *Default* libraries. These are described in Create New Partition.
- Do you know which partition options you will be installing? For selections, refer to Partition Initialization .
- If you are not using the default IFS directories, have you created the directories that you want to use? (They must exist before you can use them in the install.)
- If you are installing LANSA for the Web, have you decided on a single-tier or multi-tier installation?

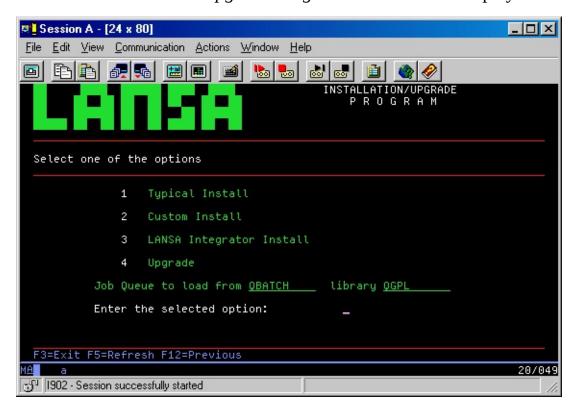
If you answer Yes to all these questions, go to 3.2.2 Call the Installation Program.

## 3.2.2 Call the Installation Program

- 1. Sign on to the IBM i as either **QSECOFR** or a profile in the QSECOFR group. The QSECOFR profile is recommended.
- 2. Insert the LANSA IBM i Software DVD or the first CD-ROM into the IBM i drive.
- 3. From an IBM i command line (CALL QCMD), execute the following command:

### **LODRUN DEV(\*OPT)**

The LANSA *Installation/Upgrade Program screen* will be displayed.



- 4. Specify the name of the job queue and library to which the actual installation job is to be submitted. The default value is job queue QBATCH in library QGPL. If this is not valid at your installation, change it to the name required.
- 5. Enter 2 to select Custom Install and press *Enter* or F3 to exit.
- 2. Insert the LANSA Integrator CD-ROM into the IBM i CD-ROM drive.
- 2. Upgrade

At the end of the install you will need to Verify the Installation.

# **3.2.3 Select Software Components**

From the list, choose the software components that you wish to install.

If you have selected the Integrator Install, then the LANSA Integrator component will be pre-selected. Press *Enter* to open the pop-up window to enter the LANSA Integrator Parameters. Be sure you know the *Integrator TCP port* and *Integrator Admin TCP port* before you begin.

Enter "Y" to select the component(s) you wish to install and press *Enter* to continue. For a list of valid combinations, refer to the Software Installation Combinations in the Custom LANSA for i Installations.

When you have selected your required option(s) and pressed Enter, a pop-up window will open for you to enter some details required for the installation.

The path you take through the install process will depend on the components you select.

#### LANSA IBM i

Enter "Y" to install the LANSA Application Development Environment which is described in What is LANSA for i?

A pop-up window will open for you to specify the *Current & New Library Prefix* to be used for the installation. If you make no change, the shipped default of DCX will be used.

**Note:** Do not use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx.

# **LANSA for the Web - Complete Web Install**

Enter "Y" to install the components that are used to build LANSA for the Web applications. These components integrate seamlessly with the LANSA Application Development Environment.

If you are using a single-tier installation, you need only install LANSA for the Web using this option.

If you select this option alone, you must already have a LANSA system installed. A pop-up window will open for you to specify the LANSA Program Library name.

**For a multi-tier installation**, you will also need to request the LANSA for the Web - Web Server ONLY Install. The Web Server ONLY install must be run on the IBM i machine acting as the Web Server.

Go to LANSA for the Web - Parameters.

### LANSA Integrator

Enter "Y" to install the components of a Java service framework that allows you to integrate Java Services with LANSA and 3GL applications. For more information, refer to What is the LANSA Integrator?

If LANSA Integrator is selected by itself, a pop-up window will open for you to specify the LANSA Program Library name.

Go to LANSA Integrator Parameters.

### **Open System Utilities**

Enter "Y" to install a library of utilities for experienced developers to manipulate the LANSA environment. These utilities enable global or system level manipulations of a LANSA for i environment. For more information, refer to What are the Open System Utilities?

In the pop-up window, you will be asked to enter the name of the Open System Utilities Library.

Go to Open System Utilities Installation Library.

#### LANSA for the Web - Web Server ONLY install

Enter "Y" to install the components that are used to execute LANSA for the Web applications on a Web Server in a Multi-tier configuration.

Only select this option if you are using a multi-tier installation.

Go to The Web Server Only - Parameters.

## The IBM i Parameters (1)

Except for your *Company Name*, the defaults are formatted according to the options that you have previously specified when selecting the components to install.

## **LANSA Program Library**

The name of the library into which the program component of LANSA for i software will be installed. This library must not exist. It will be created by the installation.

## **LANSA Data Library**

The name of the library into which the data component of LANSA for i software will be installed. This library must not exist. It will be created by the installation.

## **LANSA Communications Library**

The name of the library into which the LANSA communications software components will be installed. This library must not exist. It will be created by the installation.

## **Company Name/Title**

The name or title to appear at the top of all screens displayed by the LANSA for i system. It is recommended that you center the name/title in the 30 characters available.

# **SYS Partition Library**

The library into which objects associated with the SYS partition will be installed. This library must not exist. It will be created by the installation.

#### **Enable for full RDMLX**

Enter YES if full RDMLX is required for this partition.

Enter NO if RDMLX is not required for this partition.

If you are unsure of the implications of this option, refer to RDML and RDMLX Partitions Concepts.

If you enable this partition for RDMLX objects:

- it cannot be returned to a non-RDMLX state
- all development must be done in Visual LANSA

• development in LANSA for i is NOT permitted.

If you select YES to enable the partition for full RDMLX, you will need to specify further options, as described in If you Enable a Partition for Full RDMLX in the *LANSA* for i *User Guide*.

The default value is NO.

### **Auxiliary Storage Pool (ASP)**

If you are using ASP, then the value for this parameter must be in the range 1 to 32.

If you are using IASP, then the value for this parameter must be \*ASPDEV. In this case, you must specify the next two parameters.

Default is 1.

#### **ASP** device

If you are using IASP, then the value for this parameter must be a valid IASP device name and the device must be online.

If you are using ASP, then the value for this parameter must be \*ASP and this is the default.

## **ASP Group**

If you are using IASP, then the value for this parameter must be a valid IASP group name.

If you are using ASP, then the value for this parameter must be \*NONE and this is the default.

Press *Enter* once you have specified the required information.

Go to The IBM i Parameters (2).

## The IBM i Parameters (2)

Except for the *Listener - Connection Id*, the defaults are formatted according to the options that you specified when selecting the components to install.

### **LANSA Root Directory**

The LANSA directory used by all the LANSA objects that require the IFS. It is recommended that you do not change the default path. This directory will be created during Install process.

### **Development Language**

The development language to be used with the LANSA for i system.

#### **Product Owner**

Specify the name of an existing IBM i user profile that will be the owner of this LANSA for i system. Objects subsequently created by LANSA for i on behalf of its users will also be owned by this Product Owner.

If a Product Owner is not specified, the default value, QOTHPRDOWN will be used. This profile will be automatically created if it does not already exist. Other profiles can only be nominated if you are signed on as QSECOFR or a QSECOFR group profile. QSECOFR should not be used. Refer to If not using QOTHPDOWN as the Product Owner for extra tasks after the install process is finished.

# **Partition Security Officer**

Specify the name of an existing IBM i user who is to be the LANSA for i Partition Security Officer.

The default value is a user profile with the same name as the LANSA Program Library, for example DCXPGMLIB. If this default profile does not exist it will be automatically created.

The LANSA for i Partition Security Officer does not have to be the same as the IBM i Security Officer (QSECOFR). A user nominated as the LANSA for i Partition Security Officer has no special authority outside the LANSA system.

If using an existing profile, the library list must be changed to reflect the new libraries.

# **Job Description**

This is the job description used by LANSA.

## **Auxiliary Storage Pool**

If you wish to install into an auxiliary storage pool other than 1, change this value to a valid number supported by your operating system.

### **Listener - Subsystem**

This is the sub-system where the Listener jobs run. This name is stored in the LANSA program library.

## **Listener - Job Description**

The job description used by LANSA. Job descriptions are a native part of the IBM i operating system and are required whenever a batch job is submitted. Refer to the IBM manuals for more details. This job description is placed in the program library.

## **Listener - Job Queue**

Job queues are a native part of the IBM i operating system and all batch jobs are to be submitted onto a job queue. Refer to the IBM manuals for more details. This job queue is placed in the program library.

#### **Listener - Connection Id**

The port number that will be used to connect the Listener.

Press *Enter* to confirm the information.

If you have selected The Complete Web component, go to LANSA for the Web - Parameters.

If you have also selected other software components, then return to 3.2.3 Select Software Components otherwise go to Partition Initialization .

#### **Partition Initialization**

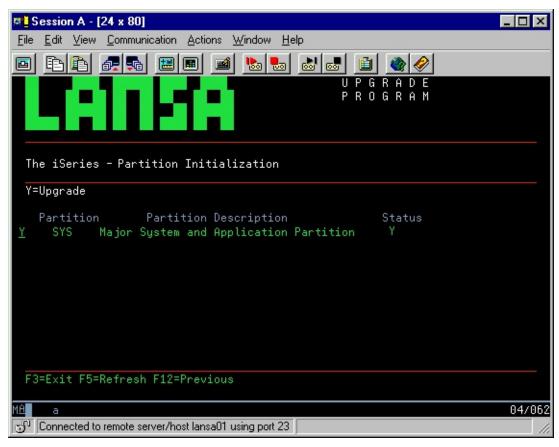
Material that supports LANSA development and applications is supplied with the LANSA install software. This material can be in several forms including LANSA standard definitions, LANSA applications or tools. For the purposes of the Install process, these definitions and applications are generically referred to as Options. When you select an option, objects are imported into the selected partition. Some options must be installed and these have been set to "Y".

The *Partition Initialization* step is performed as part of a LANSA Custom installation.

From this screen you can:

- create a new partition
- vary some of the default LANSA options to be imported into each partition.

Note that the SYS partition is created with a new LANSA system regardless of the Options you select during the *Partition Initialization*.



A "Y" in the Status column indicates options that have already been selected or pre-selected for you.

If you wish to create a new partition press F6. Refer to Create New Partition for details. When you have created the new partition, you will be returned to this window.

If you wish to delete new partitions, press F5.

Enter "Y" to select a partition and then press *Enter* to display the Options & Applications that you can install for the selected partition(s). If you select more than one partition, the options selected will apply to each partition selected.

**Note:** If you choose not to install an Option at this time, you can do so later using a LANSA Import. For more information, refer to <u>Initialization Imports</u>.



To import an object or application into your LANSA system, enter Y. The recommended options have already been selected for you.

## System Variables

Mandatory. The system variables are system wide; that is, they are used in all partitions. You only need to install system variables once per system.

## LANSA Templates

Mandatory. The LANSA templates are system wide; that is, they are used in all partitions. You only need to install templates once per system.

### **System Fields**

Mandatory. The system fields include the standard field definitions used in the LANSA development environment. System fields are required in all development partitions.

#### Web enable

Select this option to use the partition to develop LANSA for the Web applications. If you are installing LANSA for the Web (that is, you have selected the LANSA for the Web - Complete Web Install component), this indicator will be selected.

#### LANSA Client enable

Optional. If you are using the LANSA Client software, you must select this option for each partition to be used by LANSA Client.

## Multilingual Help or Non-Multilingual Help

Optional. The option displayed will reflect whether the partition is defined as multilingual or not. It imports the standard LANSA help text form for multilingual or non-multilingual help as applicable.

Note that LANSA will be installed as multilingual on Japanese and French language machines. For information, refer to When is it necessary to use Multilingual Support? in the Multiligual Guide.

# **Personnel System**

Optional. This is a demonstration application that is used by the online tutorials and during the steps that test the install of LANSA for i.

Press *Enter* once you have selected the desired options.

If you have not selected all the required options, you can import them manually at any time after the installation is complete.

If you have also selected other software components, return to 3.2.3 Select Software Components

otherwise, go to 3.2.4 Check the Custom Installation Summary.

### **Create New Partition**

If you press F6 on the *Partition Initialization* screen the *Create Partitions* window will open.



A system partition is a means of 'dividing up' or 'partitioning' one LANSA system. Each partition is completely separate from other partitions. Once a new partition is created, specific compulsory options are imported into the new partition. The compulsory options are System Fields, Help and Web enable. You can select more options from the Partition Initialize screen if required.

Before you create your new partition, you will need to know the names of the *Module* and *Default* libraries you will use with the new partition.

Note that you cannot change any of the partition options via the *Create Partition* window's entries. If you make a mistake, you can either delete the new partition (function key F5 on the *Partition Initialization* window) and create another new partition or change them using the LANSA Housekeeping facility when you have completed the installation.

### **Partition Identifier**

Specify the identifier/mnemonic to be assigned to the new partition. Must be three characters long and consist of characters in the range A to Z, 0 to 9, @ (at

sign), # (hash sign), and/or \$ (dollar). No two partitions can have the same identifier.

### **Partition Description**

The description of the new partition. Must not be left blank.

### **Module Library**

The name of the library in which the compiled RDML programs associated with this new partition are to be kept. This library must not be the same as the module library used by other partitions. It must not exist as it will be created by the initialization process. Once specified, this name can only be changed using LANSA's Housekeeping facility.

## **Default File Library**

The name of the library for the files in this partition. The library must not exist as it will be created during the initialization process. Once specified, this name can only be changed using LANSA's Housekeeping facility. If left blank, the default will be the Module Library.

#### **From Partition**

Copy details for the new partition from this partition. If the partition is multilingual, the multilingual details will be copied to the new partition. This partition must already exist.

Press *Enter* once you have entered the required details. Your new partition will immediately be included in the *Partition* list in the *Partition Initialization* window.

#### **Enable for full RDMLX**

Allowable values are:

YES full RDMLX is required for this partition.

NO full RDMLX is not required for this partition.

The default value is NO.

If you specify YES, you will be asked to confirm your selection. Once a partition is enabled for full RDMLX:

- it cannot be returned to a non-RDMLX state
- all development must be done on a workstation in Visual LANSA
- development in LANSA for i is NOT permitted.

If you select YES to enable the partition for full RDMLX, you will need to specify further options, as described in If you enable a Partition for full

RDMLX in the LANSA for i User Guide.

If you Press Enter, you will be presented with the Create Partition screen again to enter another partition. Press  $\bf F12$  or  $\bf F3$  to continue.

### LANSA for the Web - Parameters

If you have selected the LANSA for the Web - Complete Web Install, the Parameter screen will be displayed. Check that the installation parameters, especially the *Web Instance Port*, *Web Image Path* and *HTTP Server*, that will be used during the installation are correct.

If you are also installing LANSA for i, then the parameters that have already been specified for LANSA for i (*LANSA Program Library*, *Development Language & Web Interface Used*) will not be displayed.

### **LANSA Program Library**

If this field is displayed, the name of the LANSA program library used when LANSA for i was installed. This library must already exist.

#### **Web Interface**

The default value is 1 (for CGI).

#### **HTTP Server**

The default is 1 (IBM HTTP server powered by Apache) and it cannot be changed.

#### **HTTP Instance Name**

The name that is used by the HTTP instance. This name should be unique amongst all HTTP instances. If you need to change this name, refer to Appendix C. Change the HTTP Install Instance.

#### Web Instance Port

The port number used by the Web jobs. The default is 80.

## **Web Monitor Job Queue**

The job queue that is used by Web Monitor job. The default is [your specified library prefix]WEBJQ.

## Web Jobs Job Queue

The job queue that is used by Web jobs. [your specified library prefix]WEBJQ.

# **Web Work Library**

The name of the library into which the working objects used by LANSA for the Web will be stored. The Web Work Library will be used at run time by LANSA for the Web applications. The default is [your specified library prefix]WRKLIB. The library will be created by the installation.

**Note:** Do not use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx

## **Development Language**

The development language to be used with this LANSA for i system.

### **Web Image Path**

The full path and name for the Image Directory. The Image Directory is used to store the image files used by the LANSA for the Web applications. This default directory will be created if it does not exist. If you do not use the default, the directories in the path name must already exist.

Press *Enter* if the information is correct.

Go to The Web - CGI, Host & Client CCSID library parameters.

# The Web - CGI, Host & Client CCSID library parameters

For CGI as your Web interface, the CGI, Host & Client CCSID library parameters are displayed.

Press *Enter* to confirm that the following information is correct:

## **CGI Library**

The library name where the CGI program for the IBM Apache HTTP Web server should be installed. The CGI library will default to the LANSA Communications Library.

#### **Host CCSID**

The Host CCSID used for data translation purposes. The default is 00037.

### **Client CCSID**

The Client CCSID used for data translation purposes. The default is 00819.

#### ServerRoot

If you are using Apache as the HTTP Server, this is IFS name that will be used by the Apache configuration file. It is httpd.conf

Press *Enter* to continue.

If you have also selected the LANSA for i install, go to Partition Initialization; or

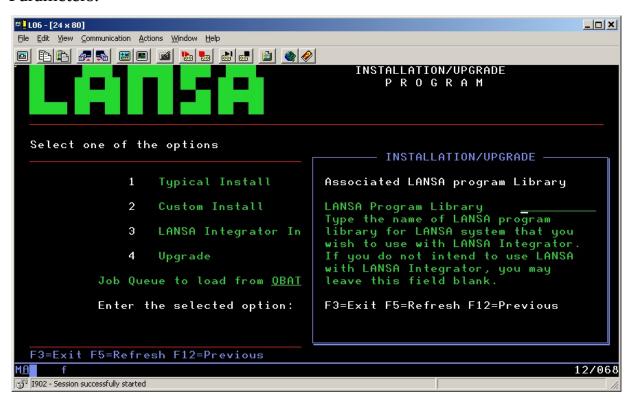
if you have selected other software components, return to 3.2.3 Select Software Components;

otherwise

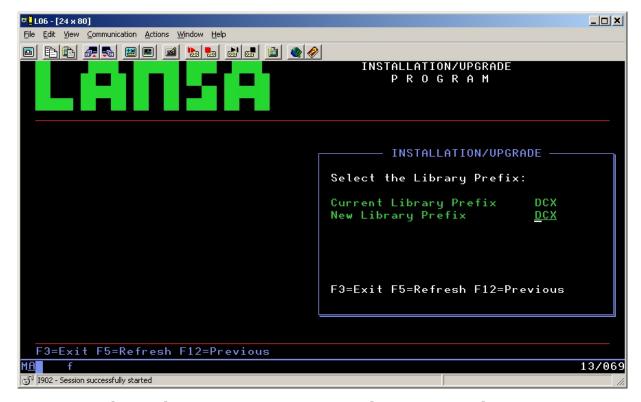
go to 3.2.4 Check the Custom Installation Summary.

# **LANSA Integrator Parameters**

If you have elected to install the LANSA Integrator either with LANSA for i, or as a separate install, these screens will be presented requesting the Integrator Parameters:



followed by:



Be sure you know the *Integrator TCP port* and *Integrator AdminTCP port* before you begin this installation.

Press *Enter* to display the default Integrator Parameters that will be used for the installation. Check that the parameters displayed are correct.

# **Associated LANSA Program Library**

The Associated LANSA program library identifies the LANSA system that you wish to use with this instance of LANSA Integrator. If you do not intend to use LANSA Integrator with LANSA, you may leave this field blank.

If entered, it must be a valid LANSA program library. The LANSA to be associated with LANSA Integrator must be at the same version.

Leave blank.

## **Java Service Manager Library**

The name of the library where the LANSA Integrator objects should be installed. The default is The default is xxxjsmlib, where xxx is the library prefix that you entered. If it does not exist, this library will be created. If the library already exists it will be cleared before objects are installed.

**Note:** Do not use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx.

# **Java Service Manager Path**

The full path name for the directory where the LANSA Integrator files should be installed. The default is /jsm/instance. This directory will be created if it does not exist. If you do not use the default, the directories in the path name must already exist.

### **Auxiliary Storage Pool (ASP)**

If you are using ASP, then the value for this parameter must be in the range 1 to 32.

If you are using IASP, then the value for this parameter must be \*ASPDEV. In this case, you must specify the next two parameters.

Default is 1.

#### **ASP** device

If you are using IASP, then the value for this parameter must be a valid IASP device name and the device must be online.

If you are using ASP, then the value for this parameter must be \*ASP and this is the default.

## **ASP Group**

If you are using IASP, then the value for this parameter must be a valid IASP group name.

If you are using ASP, then the value for this parameter must be \*NONE and this is the default.

# **Integrator Owner**

QOTHPRDOWN will be used.

# **Integrator Subsystem name**

The sub-system used to run Java Service Manager jobs. Do not change the default.

# **Integrator User Id**

The profile for running Java Service Manager jobs.

Do not use QSECOFR. If you do, the installation will fail.

#### If install is with LANSA:

The User Id that is used with the LANSA install will be used.

#### **Install without LANSA**

If the displayed default is not used, the profile must exist. Do not use QSECOFR.

## **Integrator TCP port**

Every Java Service Manager instance has a TCP/IP server listener that accepts JSM client connections. This entry contains the value of this TCP/IP port.

## **Integrator AdminTCP port**

Each Java Service Manager instance can have a HTTP web console interface that allows a remote browser to perform administration tasks on the currently active service manager. This entry contains the value of this TCP/IP port.

LANSA Integrator Studio also uses this console TCP/IP port.

#### **HTTP Server Port Number**

If installed with LANSA for the Web, the LANSA Web Port Number will be used. This cannot be changed.

If not installed with LANSA for the Web, you can change the default Port Number and this number will be used to configure an HTTP instance for Integrator. The instance name will be the Integrator Program Library.

### **Optimize Java Service Manager**

Once the install process is completed, a separate job to optimize the Integrator files can be run. This job may take a few hours to complete.

Select 1 to start this long running job.

Select 2 to not submit the optimize job. '2' is the default. If you select option 2 and do not run this job now, you will be reminded to run it when you reach the Task: Configure the Java Service Manager on IBM i.

Press *Enter* once you have specified the required information.

If you have also selected the LANSA for i install, go to Partition Initialization; or

if you have selected other software components, return to 3.2.3 Select Software Components;

otherwise

go to 3.2.4 Check the Custom Installation Summary.

# **Open System Utilities Installation Library**

You may install the Open System Utilities at the same time as the LANSA for i install or at any time afterwards. For more information about these utilities refer to What are the Open System Utilities?

When you install the Open System Utilities you must enter the Library into which they are to be installed, or accept the default that is displayed.

### **Open System Utilities Library**

The name of the library where the Open System Utilities are to be installed. If this library does not exist, it will be created. If this library does exist, any existing objects in the library with the same name as the new objects will be replaced during the installation.

Press *Enter* to continue.

**Note:** If the Open System Utilities are installed by themselves, then the owner will be the current shipped owner (QOTHPRDOWN) and if this profile is not found on the system, the IBM default owner (QDFTOWN) will be the owner.

If the Open System Utilities are installed with LANSA, then the owner will be the LANSA Product Owner.

If you have selected other software components, return to 3.2.3 Select Software Components; otherwise go to 3.2.4 Check the Custom Installation Summary.

## **The Web Server Only - Parameters**

If you have selected the LANSA for the Web - Web Server Only Install, please check the default Web Server Parameters that have been inserted for you.

## **LANSA Administration Library**

The name of the library into which the LANSA for the Web software components should be installed. This library must not already exist as it will be created.

### **LANSA Communications Library**

The name of the library into which the LANSA communications software components should be installed. This library must not exist for an install as it will be created.

### Web Work Library

The name of the library into which the working objects used by LANSA for the Web will be stored. The Web Work Library will be used at run time by LANSA for the Web applications. The default is [your specified library prefix]WRKLIB. The library will be created by the installation.

**Note:** Do not use Q as the first character of the library prefix as it is used by IBM namespace of Qxxxxx.

# LANSA object owner

Specify the name of an existing IBM i user profile that will be the owner of this LANSA for i system. Objects subsequently created by LANSA for i on behalf of its users will also be owned by this Product Owner.

If a Product Owner is not specificied, the default value, QOTHPRDOWN will be used. This profile will be automatically created if it does not already exist. Other profiles can only be nominated if you are signed on as QSECOFR or a QSECOFR group profile. QSECOFR is not recommended.

#### **HTTP Instance Name**

The name that is used by HTTP instance. This name should be unique amongst all HTTP instances. If you need to change this name, refer to Appendix C. Change the HTTP Install Instance.

#### **Web Instance Port**

The port number used by the Web jobs. The default is 80.

#### **Web Interface**

The value is 1 for CGI.

#### **HTTP Server**

The IBM i Web Server is HTTP server, powered by Apache.

## **Development Language**

The development language to be used with the LANSA for i system.

Press *Enter* to continue, once you have verified the required information.

### **LANSA Root Directory**

The LANSA directory path used by all the LANSA objects that require the IFS. It is recommended that you use the default path. This directory will be created during the Install process.

## **Web Image Path**

The full path and name for the Image Directory. The Image Directory is used to store the image files used by the LANSA for the Web applications. This default directory will be created if it does not exist. If you do not use the default, the directories in the path name must already exist.

Go to CGI, Host & Client CCSID parameters - Web Server Only.

# **CGI, Host & Client CCSID parameters - Web Server Only**

With CGI as the Web interface, you must enter the Host & Client CCSID parameters.

## **CGI Library**

The library name where the CGI program for the IBM HTTP Web server should be installed. The CGI library will default to the LANSA Communications Library.

#### **Host CCSID**

The Host CCSID used for data translation purposes. The default is 00037.

### **Client CCSID**

The Client CCSID used for data translation purposes. The default is 00819.

Press *Enter* once you have specified the required information.

Go to 3.2.4 Check the Custom Installation Summary.

# 3.2.4 Check the Custom Installation Summary

The installation i *Summary* screens display the choices you have made on the preceding screens. Press *Enter* to page through these summary screens.

The information presented will depend on the components and options being installed.

Before you start the Install process, check that the choices that you have made are correct.

If you wish to change any of the details on the summary screens:

Press *F21* to return to the beginning of the install process and change the selected parameters or Options.

Press *F12* to return to a previous screen.

If you wish to cancel the install job, press *F*3 to exit.

If you are satisfied with the installation summary, press F8 to submit the batch job.

A list of the options chosen is displayed.

For a Web Server install, once the install process is completed, a clean up job called LANSA\_CLN is submitted to delete the LANSA install work library.

Go to 3.2.5 Verify the Custom Installation.

## 3.2.5 Verify the Custom Installation

When you see the message indicating that the batch job has finished, examine the resulting job log QPJOBLOG before attempting to use the LANSA system.

If there are any EPCs with the Install, they will be applied and the EPC log updated accordingly.

Once the LANSA update job has completed, check the job's spool files for the following:

# **Check Spool Files**

• Filename: QPDSPMSG

User Data: SUMMARYMSG and DETALMSG

Check the job log for any errors.

## Check for required IBM i software

• Filename: QSYSPRT

• User Data: DC@LOAD20

### The final message after a successful install is:

\*\*\*\*All selected LANSA components have successfully installed\*\*\*\*

Retain the job log that results from the install for future reference regardless of whether the install message appears or not.

You must check that LANSA\_CLN has been run successfully. For further details refer to Check LANSA\_CLN.

Return to the relevant *Installation Process* that you are following to check the next step, if any, to be performed.

If the Installation of LANSA for i completed successfully, go to LANSA License Codes.

## **QOTHPRDOWN** User Profile

If you had used QOTHPRDOWN instead QSECOFR to do the install, the QOTHPRDOWN profile might not have authority to use the command STRSBS. Because of this, the following sub systems might not start automatically:

- LISTENER
- LANSA for Integrator (if installed).

You can use a User Profile that has appropriate authority to start sub systems (STRSBS).

If you did not not use QOTHPRDOWN as the product owner, you must perform the steps in QOTHPRDOWN Profile not used.

### **Custom Installation Failed**

If you do not see this message:

\*\*\*\*All selected LANSA components have successfully installed\*\*\*\*

read the other messages sent to the workstation and in the job log and perform any suggested actions in full.

When reading the job log, always read it backwards, starting from the last page. If you read it from the beginning, you cannot assume that the first error you see is the cause of the problem.

For instance, most job logs will contain a very early escape message reporting "Program message queue QCL not found". If you read the job log forwards and stop at this apparently fatal/severe message you will miss the actual error that caused the upgrade to fail. In this case, this error occurs when the upgrade software tests which IBM command requester program is controlling it, (QCL or QCMD). It is not fatal and does not indicate any problem with the upgrade.

Do not restart the installation without first checking the job log produced for messages that clearly indicate the source of the problem.

## 4. Upgrade LANSA on IBM i

### 4.1.8 Verify the Upgrade

**Optional step:** If you have an existing LANSA system that uses the QGPL library for many LANSA objects, you may wish to upgrade your system configuration to use a communication library other than QGPL. Refer to 4.4 LANSA Communications Library for more details.

If you are upgrading an existing LANSA system (including any of LANSA for i, LANSA for the Web, LANSA Integrator, and Open System Utilities), complete the following task:

### 4.1 Task: Upgrade an Existing LANSA for i System

If you are upgrading a Multi-tier LANSA for the Web system, you must also complete the following task on the IBM i Web Server:

4.2 Task: Upgrade an Existing LANSA for the Web - Web Server ONLY on IBM i

Once you have completed the upgrade of LANSA for i software, you should complete the following:

Upgrade LANSA Windows Software

Refer to the Supported Platforms and Versions document, for supported platforms/software compatibility.

# 4.1 Task: Upgrade an Existing LANSA for i System

## **Check your current LANSA versions**

If the version of the LANSA system that you are upgrading is

- at Version 12, Version 12 SP1 or Version 13, continue with the upgrade otherwise
- you must first upgrade your system to the required version.

  If you are unsure what you need to do, contact your local LANSA vendor for the update steps you will need to take.

If you have a single-tier LANSA for the Web installation and you wish to upgrade to a multi-tier installation, complete the following task: Multi-tier LANSA for the Web Installation.

Are you planning to create more partitions? If yes, save time by creating them during the upgrade.

You will perform the following steps to upgrade your LANSA for I system:

- 4.1.1 Before You Begin Checklist
- 4.1.2 Special Warnings
- 4.1.4 Start the Upgrade process
- 4.1.5 Select the LANSA system to be upgraded
- 4.1.6 Partition Initialization
- 4.1.7 Confirm your Selected Options

**Note:** If you have been evaluating LANSA and do not need to keep anything produced so far, you may wish to delete the existing system and simply reinstall a brand new LANSA system.

# 4.1.1 Before You Begin Checklist

Before you begin the Upgrade LANSA for i task, check the following:

- Have you reviewed the General Install/Update Checklist? This list has items that are pertinent to the upgrade.
- Do you know which software Components, Partitions and Options you will be upgrading?
  - If you do not know the answer to this question, stop now and recommence after you have obtained this information.
- Have you scheduled the upgrade at a time when no developers, users, or jobs will be using the LANSA system?
- Have you checked that there are no jobs/users accessing LANSA? Check as described in How to check for Active Users.
  - **Note:** "users" includes the Listener and JSM. Make sure both are closed. (If not closed, an error message will be displayed indicating that there are still users accessing the system.)
- Have you backed up the libraries and any IFS directories required by the LANSA system you will be upgrading?

## If you are upgrading LANSA Integrator:

- Have you backed up all the Integrator directories from the IFS and the objects library?
- Have you changed any sample source code, job description or sub-system objects? If yes, refer to LANSA Integrator Special Warnings.
- Have you verified that there are no existing installer/loader objects in QGPL? Refer to 4.4.2 Remove old Loader Objects from QGPL for details.
- Have you a plan to move your communication objects from QGPL? Refer to 4.4 LANSA Communications Library for further information.
  - **Note:** During earlier versions of LANSA, the LANSA install and upgrade objects were placed in QGPL. Now, the LANSA upgrade creates its own work library. For further information, refer to Back up your Libraries.
- Have you reviewed the 4.1.2 Special Warnings?

# 4.1.2 Special Warnings

# **User Objects in the Program Library**

The upgrade process deletes all objects from the program library before starting the upgrade. Any user defined (i.e. non-LANSA) objects should be moved to another library (or backed up) before commencing the upgrade procedures.

These objects can be moved back again after the upgrade has been completed however, the storage of user defined objects in the LANSA program library is not recommended.

# **Multilingual Users**

If you have customised versions of the DC@M01 message file in your national language (that could be DC@M01ITL or DC@M01JPN) then they should be moved or saved before the upgrade is started. After the upgrade has been completed they should be moved or restored to the program library.

## **Japanese Language Developers**

If you have additional help text members in files DC@F01 or DC@F41 (e.g.: DC@F01JPN or DC@F41JPN) then these members should be moved or saved before the upgrade is started. After the upgrade have been completed, they should be copied back into new members in the newly installed DC@F01/DC@F41 files.

# \$\$\* files in LANSA database library

The upgrade process creates its own database files as \$\$\* files. These \$\$\* files are deleted after a successful upgrade.

Note that if you have renamed any files in the LANSA database library as \$\$\*, they will also be deleted. You should save and move these files before you start the upgrade progress.

## 4.1.3 LANSA Integrator Special Warnings

If you are upgrading LANSA Integrator, please note that new source, job descriptions and sub-system description files are shipped as examples. For example, source files QRPGLESRC, QCLSRC are provided by LANSA and every upgrade replaces these files. If you have customized any source file, you are advised to keep these customized files with another name. You can then check if there have been changes to the new source members and reflect these changes in your customized files. The same applies to all objects created for those source members.

If you have previously configured JSM to run values other than the default ones (i.e. JSMLIB, JSM jobd, etc), then after the upgrade you won't be able to start JSM using the option 1 in the JSM menu. You will need to re-run the CL programs that you have previously modified.

# 4.1.4 Start the Upgrade process

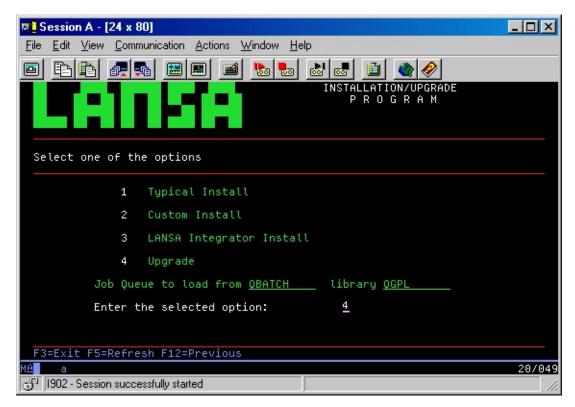
You must use the QSECOFR or a profile in the QSECOFR group. The use of other profiles or the removal of the special authorities will cause security and integrity alterations to the upgraded system.

- 1. Immediately before you start, sign off the IBM i. Sign on again but do not evoke LANSA from this session.
- 2. Insert the LANSA IBM i Software DVD or the first CD-ROM into the IBM i drive.
- 3. If you are using an Independent Auxiliary Storage Pool then you must set the IASP group by calling the SETASPGRP command. (Refer to Using Independent Auxiliary Storage Pool (IASP) for information.)
- 4. From an IBM i command line (CALL QCMD), enter the following command to restore the software:

## **LODRUN DEV(\*OPT)**

The LANSA *Installation Program* screen will be displayed.

5. The Upgrade option is only available if the program finds a LANSA component.



5. Specify the name of the Job Queue and library to which the actual upgrade job is to be submitted. The default value is job queue QBATCH in library QGPL. If this is not valid at your installation, change it to the name required.

**Note:** The upgrade will create a new LANSA Root Directory. It is recommended that you use the default directory.

6. Enter 4 to select the Upgrade and press *Enter* or F3 top Exit.

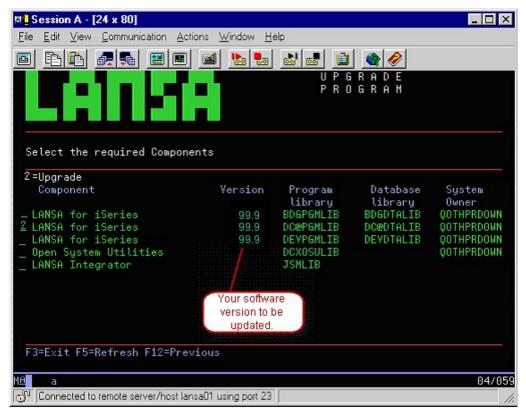
Go to 4.1.5 Select the LANSA system to be upgraded .

- 2. Insert the LANSA Integrator DVD into the IBM I's drive.
- 2.Upgrade
- 4. To complete the upgrade, simply follow the prompts on the screen.

# 4.1.5 Select the LANSA system to be upgraded

1. After you have selected the upgrade option, the *Select the required Components* screen will appear.

A list of all the LANSA Components, their versions, Libraries and System Owners that you currently have installed on your IBM i is displayed.



- 2. Press *Page Down* to view a second page, if applicable.
- 3. Enter "2" to select the LANSA Component(s) that you wish to upgrade.

# Components

You may select only one LANSA for i system to upgrade. To upgrade another LANSA for i system, you must execute the upgrade again.

If the LANSA for i system includes LANSA for the Web components, the LANSA for the Web components are automatically upgraded. (The LANSA for the Web components are not listed separately on the *Select the required Components* screen.)

When upgrading a LANSA for i system, you may also upgrade any combination of LANSA for i, LANSA Integrator and Open System Utilities - provided they

are listed.

If you are using a Multi-tier LANSA for the Web installation, you must only upgrade the LANSA for the Web Server by itself. Updating a Web server is described in 4.2 Task: Upgrade an Existing LANSA for the Web - Web Server ONLY on IBM i.

If LANSA Integrator was originally installed at the same time as LANSA was installed, LANSA integrator will be automatically selected for upgrade.

A LANSA root directory will be created and the upgrade will move existing LANSA Communication objects to the new directory.

**Note:** When LANSA Integrator or a Web Server are selected alone, Partition Initialization will be bypassed as it is not required.

After completing your selections, press *Enter* to continue.

Error messages will be displayed if:

- Anyone is still using the LANSA system
- An error is found with the parameters the upgrade will use.

#### 4.1.6 Partition Initialization

1. The LANSA components are supplied with LANSA standard definitions, applications or tools. You use the partition Initialization process to select the items to be updated for each of the partitions you are updating.

The Partition Initialization screen displays a list of the partitions containing a LANSA system on your IBM i.



- 2. Enter "Y" to select the Partition(s) that you wish to upgrade. You can upgrade the options in more than one partition during the upgrade process.
- 3. If you wish to create a new partition press F6. Refer to Create New Partition for details.
- 4. If you wish to delete new partitions, press F5.
- 5. Press *Enter* to go to Select Options to be upgraded.

If you do not choose any options to upgrade at this time, you can do so later. For further information, refer to 4.5 Initialization Imports.

Note that a "Y" in the Status column indicates that options have already been

- selected for the partition.
- 6. When you have made your selections, or if you choose not to select any options to upgrade during this process, press *Enter* to go to the 4.2.4 Start the Upgrade Process .

# **Select Options to be upgraded**



Enter "Y" for each option you wish to have upgraded for the partition you have selected.

**Note:** If you select Web Enable, make sure that LANSA for the Web has, or is being, installed. If it hasn't, install it using the Custom Install process. Refer to the Task: Custom Installation

Press *Enter* after you have made your selection(s). You will be returned to Partition Initialization.

# **4.1.7 Confirm your Selected Options**

The Upgrade Summary screens show you the parameters that will be used in the upgrade. These parameters are based on the current LANSA system that you are updating as well as options you have selected during this upgrade process.

The number of Summary screens and the information presented on them will depend on the options you have selected to be upgraded.

Check these summary screens carefully. If you do not wish to proceed with the parameters that will be used in this upgrade, you can change them by returning to either to the beginning or to Partition Initialization or you can cancel the upgrade process.

Use the *Page Down* and *Page Up* keys to scroll through the summary screens to view the parameters, options and components you have selected.

If you do not wish to submit the upgrade job, press *F*3 to exit.

To return to a previous screen to make a change, press F11.

When you are satisfied that the parameters displayed on the update Summary screens are correct on the final summary screen, press F8 to submit the batch job.

A list of software that has been updated is produced.

Leave the LANSA DVD or CD-ROM loaded until the batch job completes execution.

If there are any EPCs with the Install, they will be applied and the EPC log updated accordingly.

Go to 4.1.8 Verify the Upgrade.

# 4.1.8 Verify the Upgrade

During the upgrade, any EPCs supplied with the install will be automatically applied.

You may wish to use the IBM i command CHGMSGQ to change the nominated <message queue> to DLVRY(\*BREAK) to receive any messages from the submitted job. For example:

## CHGMSGQ DSP02 DLVRY(\*BREAK)

Once the LANSA update job has completed, check the job's spooled file for the following:

## **Check messages**

• Filename: QPDSPMSG

• User Data: SUMMARYMSG and DETALMSG

and check for any errors.

## Check for required IBM i software

• Filename: QSYSPRT

• User Data: DC@LOAD25

# The final message after a successful install is:

\*\*\*\*All selected LANSA components have successfully installed\*\*\*\*

Retain the job log that results from the install for future reference regardless of whether the install message appears or not.

Refer also to Verify Integrator Upgrade if appropriate.

Once the LANSA upgrade batch job has been completed and if Initialization options have been selected, make sure the job LANSA\_CLN is released. For details of LANSA\_CLN, refer to Check LANSA\_CLN.

# **QOTHPRDOWN** User Profile

If you had used QOTHPRDOWN instead QSECOFR to do the install, the QOTHPRDOWN profile might not have authority to use the command STRSBS. Because of this, the following sub systems might not start automatically:

- LISTENER
- LANSA for Integrator (if installed).

You can use a User Profile that has appropriate authority to start sub systems (STRSBS).

If you did not not use QOTHPRDOWN as the product owner, you must perform the steps in QOTHPRDOWN Profile not used.

## **Upgrade** failure

If you do not see the message:

All selected LANSA components have successfully installed\*\*\*\*

Read the job log that results from the upgrade to determine the reason for the upgrade's failure. When reading the job log, always read it backwards from the end. If you read it from the beginning, you cannot assume that the first error you see is the cause of the problem.

For instance, most job logs will contain a very early escape message reporting PROGRAM MESSAGE QUEUE QCL NOT FOUND. If you read the job log forwards and stop at this apparently fatal/severe message you will miss the actual error that caused the upgrade to fail. In this case, this error occurs on the job log when the upgrade software tests which IBM command requester program is controlling it, QCL or QCMD. It is not fatal and does not indicate any type of problem with the upgrade.

# Restarting an upgrade

Under no circumstances should you restart the upgrade without first checking the job log produced for messages that clearly indicate whether you can restart it or not. You must follow the recovery/restart procedures that are printed at the end of the upgrade job log.

# **Verify Integrator Upgrade**

Check for the completion message:

UPGRADE OF LANSA INTEGRATOR COMPLETED, PLEASE CHECK THE JOB LOG.

If you do not see this message:

\*\*\*\*All selected LANSA components have been successfully installed/upg

read the other messages in the job log and perform any suggested actions.

The Integrator upgrade program restores the JSM properties and JAR files and only partially upgrades the Java Service Manager.

The first time you start the Java Service Manager after an upgrade, it will run for a short while and, if the upgrade has been successful, it will restart itself, ready for you to use. If the upgrade has not been successful, the Java Service Manager will not start.

You can check the Java Service Manager upgrade's progress by viewing the UPGRADE-LOG.TXT file (example below) in the JSM instance directory. Always check this file for completion messages, to be sure that the upgrade has been completed successfully.

Upgrade JSM instance : /jsm/instance Upgrade properties file : manager.properties
Properties file upgraded
Upgrade properties file : service.properties
Properties file upgraded
Upgrade properties file : XMLQueueService.properties
Properties file upgraded
Upgrade completed
Remove upgrade files
Delete file : /devjsm/instance/upgrade/mailcap.txt

Delete file:/devjsm/instance/upgrade/integrator-feature.txt

Delete upgrade directoryRemoval completed

#### **User Exit programs**

If User Exit programs JSMADMEXT, JSMDRTEXT, JSMLSAEXT and JSMPXYEXT are used they should be checked and recompiled. Samples are provided in file QCLSRC. For information, refer to Exit Programs (IBM i).

# Review files and manually adjust

After the upgrade has completed it is important to review the files and make some manual adjustments.

All the properties files will contain Integrator Studio sections and an "unassigned" section. This section contains lines that did not belong to a section.

Review the unassigned section for possible configuration entries. Normally this section just contains # comments and the whole section can be deleted.

```
#!<studio-project id="00000000-000000" name="unassigned">
#
# Move these entries to a new or existing studio-project section.
# Delete this unassigned section.
#
#!</studio-project>
```

After reviewing the files, start the JSM instance again and the instance will be ready.

#### **PKI Editor**

The PKI Editor is available for use when using the secure mime feature to send and receive e-mails using the SMTP mail, POP3 mail and EDI-INT (AS2) services. This is only available if the secure mime jar files are installed. These jar files are not shipped with LANSA Integrator as these files relate to Public Key encryption which must be purchased separately from Phaos Technology Corporation to support secure mime (SMIME). In particular, the software that needs to be purchased is:

- Phaos Security Engine
- Phaos CMS

# • Phaos S/MIME

Please refer to the Phaos Technology Corporation web site for more information.

# 4.2 Task: Upgrade an Existing LANSA for the Web - Web Server ONLY on IBM i

If you are using a multi-tier LANSA for the Web installation, you will have LANSA for the Web software installed on a separate IBM i machine acting as the Web Server. This IBM i machine may not have a LANSA for i system installed. Only the Web Server software for LANSA for the Web may need to be installed on the machine.

In order to update this IBM i Web Server, you will perform the following steps:

- 4.2.1 Before You Begin Checklist
- 4.2.2 Start the Web Server upgrade
- 4.2.3 Select the Web Server to be upgraded
- 4.2.4 Start the Upgrade Process
- 4.2.5 Verify the Upgrade

**Note:** If you are using a single-tier installation, there is no need to perform a separate upgrade of the Web Server. The LANSA for the Web software is automatically updated with the LANSA for i software.

# 4.2.1 Before You Begin Checklist

Before you begin the Upgrade of the LANSA for the Web Server ONLY task, check the following:

- Have you reviewed the General Install/Upgrade Checklist?
- Have you scheduled the upgrade at a time when no developers, users, or jobs will be using the LANSA system?
- Have you checked that there are no jobs/users accessing LANSA? Check as described in How to check for Active Users.
- Have you backed up the libraries that you will be updating?
- Have you verified that there are no existing installer/loader objects in QGPL? Refer to Remove old Loader Objects from QGPL for details.

**Note:** During earlier versions of LANSA, the LANSA install and upgrade objects were placed in QGPL. Now, the LANSA upgrade creates its own work library. For further information, refer to Back up your Libraries.

If you answer Yes to all these questions, go to Start the Web Server upgrade.

# 4.2.2 Start the Web Server upgrade

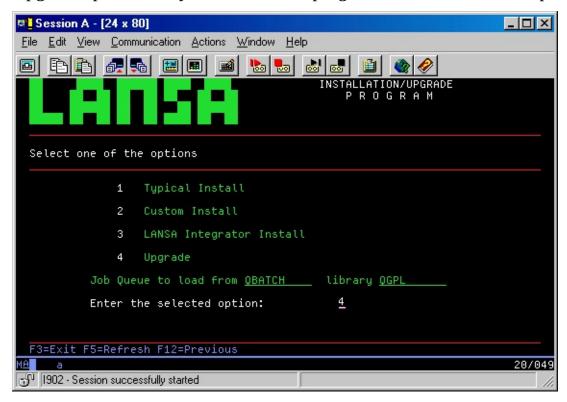
Insert the LANSA IBM i Software DVD or first CD-ROM into the relevant drive of the IBM i Web Server.

From an IBM i command line (CALL QCMD), enter the following command to restore the software:

# **LODRUN DEV(\*OPT)**

The LANSA *Installation Program* screen will appear.

The Upgrade option is only available if the program finds a LANSA component.



Specify the name of the Job Queue and library to which the actual upgrade job is to be submitted. The default value is job queue QBATCH in library QGPL. If this is not valid at your installation, change it to the name required.

**Note:** The upgrade will create a new LANSA Root Directory. It is recommended that you use the default directory.

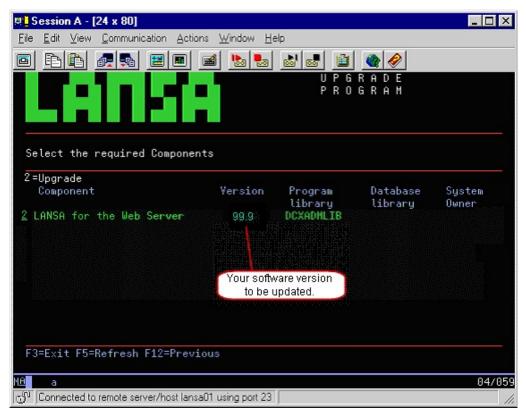
Enter 4 to select the Upgrade and press *Enter* or F3 to exit.

Go to 4.2.3 Select the Web Server to be upgraded.

# 4.2.3 Select the Web Server to be upgraded

After you have selected the upgrade option, the *Select the required Components* screen will appear.

A list of all the LANSA Components, their versions, Libraries and System Owners that you currently have installed on your IBM i is displayed.



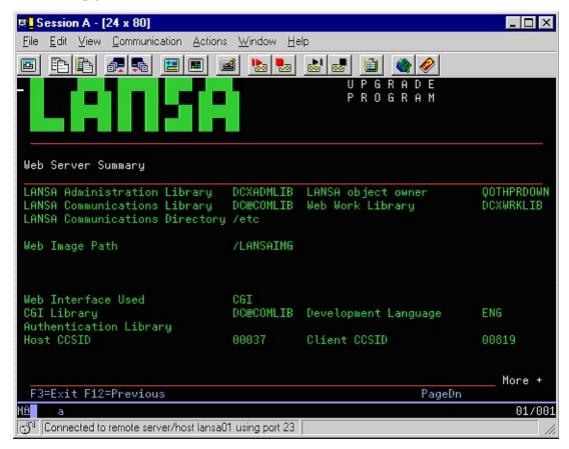
Enter "2" to select the LANSA for the Web Server that you wish to upgrade and press *Enter* to continue to Start the Upgrade Process.

If any errors are found, error messages will be displayed and you will need to take action on them before the upgrade can continue.

**Note:** When you upgrade a Web Server, you cannot upgrade any other components at the same time.

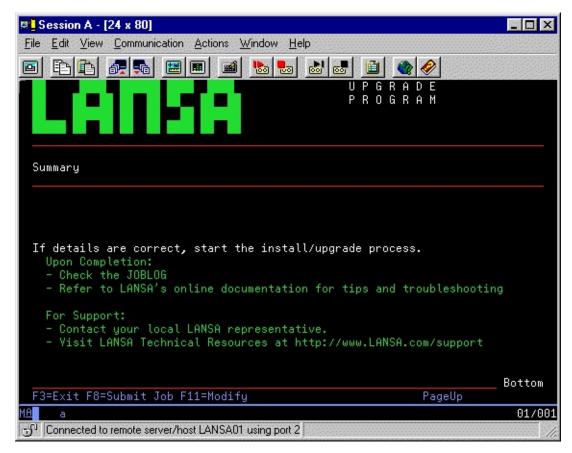
# **4.2.4 Start the Upgrade Process**

The Upgrade Summary screens show you the parameters that will be used in the Web Server upgrade.



Use the *Page Down* key to scroll through the summary screens to verify that the parameters to be used in the upgrade process are correct.

If you do not wish to proceed with the parameters that will be used in this upgrade, you can press F3 to cancel the upgrade process and return to it later.



If you do not wish to submit the upgrade job, press *F*3 to exit.

To return to a previous screen to make a change, press F11.

If you are satisfied with the upgrade summary, when you reach the final page, press *F8* to submit the batch upgrade job.

A job submitted message will be displayed followed by a list of the options that you selected.

For a Web Server upgrade, once the install process is completed, a clean up job called LANSA\_CLN is submitted to delete the LANSA install work library. Always check that LANSA\_CLN has completed successfully.

Go to 4.2.5 Verify the Upgrade.

# 4.2.5 Verify the Upgrade

Leave the LANSA DVD or CD-ROM loaded until the batch job completes execution.

If any EPCs are included with the install, they will be applied and the EPC log will be updated accordingly.

You may wish to use the IBM i command CHGMSGQ to change the nominated <message queue> to DLVRY(\*BREAK) to receive any messages from the submitted job. For example:

## CHGMSGQ DSP02 DLVRY(\*BREAK)

Once the LANSA update job has completed, check the job's spooled file for the following:

- File: QPDSPMSG
- User Data: SUMMARYMSG and DETALMSG

and check for any errors.

The final message after a successful upgrade is:

\*\*\*\*All selected LANSA components have successfully installed\*\*\*\*

Retain the job log that results from the install for future reference regardless of whether the install message appears or not.

Once the LANSA upgrade batch job has been completed and if Initialization options have been selected, make sure the job LANSA\_CLN is released. For details of LANSA\_CLN, refer to Check LANSA\_CLN.

**Note:** Regardless of whether the upgrade message appears or not, retain the job log that results from the upgrade for future reference.

Refer also to Verify Integrator Upgrade if appropriate.

If you did not not use QOTHPRDOWN as the product owner, you must perform the steps in QOTHPRDOWN Profile not used.

# **Upgrade failure**

If you do not see the message:

\*\*\*\*All selected LANSA components have successfully installed\*\*\*\*

Read the job log that results from the upgrade to determine the reason for the upgrade's failure. When reading the job log, always read it backwards from the end. If you read it from the beginning, you cannot assume that the first error you see is the cause of the problem.

## Restarting an upgrade

Under no circumstances should you restart the upgrade without first checking the job log produced for messages that clearly indicate whether you can restart it or not. You must follow the recovery/restart procedures that are printed at the end of the upgrade job log.

# 4.3 Upgrade LANSA Windows Software

Once you have completed the upgrade of LANSA software on IBM i, you must remember to upgrade any associated LANSA Windows software products.

For example, if you using Web Application Modules (WAMs), you should upgrade the Web Administrator your Windows PC.

Your LANSA software on IBM i and LANSA software on Windows should always be maintained at the same level. For example, if you are using LANSA for i at V11 SP5, then your Visual LANSA Systems should also be at V11 SP5.

LANSA Windows software includes the following components:

- Visual LANSA
- LANSA for the Web
- LANSA Integrator
- LANSA Open
- LANSA Client.

For details about upgrading the LANSA Windows Software, refer to the Installing LANSA on Windows Guide.

# **4.4 LANSA Communications Library**

The objects in the Communications Library are specific to a version of a LANSA system. Hence, if you have more than one LANSA system installed, it is recommended that you have multiple Communication Libraries. If you have customized your LANSA system installation or if you have multiple LANSA systems installed on a single IBM i, you may have created your own version of a Communications Library. For example, a QGPL2 library for a second LANSA system.

# **QGPL** as the Communication Library

You must use a different library. To create the new library **prior** to upgrading your LANSA system, use the steps in 4.4.1 Change from QGPL to a LANSA Communications Library.

# 4.4.1 Change from QGPL to a LANSA Communications Library

To use a separate Communications Library instead of QGPL, use the following procedure to update your LANSA library structure:

**Note:** You should be an experienced LANSA user if you are performing these steps. They should NOT be carried out immediately before running a LANSA upgrade as you will need to test your changes thoroughly before running the upgrade as described in Step 7.

- 1. BEFORE you upgrade your LANSA system, create the new LANSA Communications Library. You might name this library DCXCOMLIB (or use whatever name meets your site standards).
- 2. Back up the DC\*, LC\*, LX\*, W3\*, GU\*, JSM\*, LWEB.DAT, LIBEX\*, ZLIB4\* and LANSA\* objects in the QGPL library.
- 3. Restore these backed up objects to your new DCXCOMLIB.
- 4. Remove the DC\*, LC\*, LX\*, W3\*, GU\*, JSM\*, LWEB.DAT and LANSA\* objects from the QGPL library.
- 5. Remove loader objects (if there are any) left from a previous installation or upgrade. Refer to 4.4.2 Remove old Loader Objects from QGPL for details.
- 6. Modify all LANSA related job descriptions, user profiles, sub-system descriptions, etc. so that the new DCXCOMLIB is included in the library list before QGPL. (You should leave QGPL in your library list in case there are other non-LANSA objects required by your jobs.)
- 7. Change the Communications Library name in data area DCXLOADA01, position 12 using this command:

# CHGDTAARA dtaara(<pgmlib>/DCXLOADA01 (12 10)) VALUE(<comlib>)

8. Change the CGI Library name in data area DCXLOADA02, position 21 using this command

# CHGDTAARA dtaara(<pgmlib>/DCXLOADA02 (21 10)) VALUE(<cgilib>)

If the CGI Library is the same as the COMLIB then use the COMLIB for the **<cgilib>** value.

**Note:** Sometimes the CGI LIB is not the same as COMLIB.

9. Test your LANSA system to ensure that it works with the new library. Be

sure to check your developer and user profiles. Check all batch and interactive jobs. Remember to check any client/server jobs, including LANSA Client, LANSA SuperServer and Host Monitors for Visual LANSA. Test your LANSA for the Web applications. Check your LANSA for the Web Administrator and Editor. Keep checking for several days or even weeks to ensure that you have not missed any library list updates.

- 10. Once you have completed testing your LANSA systems using the new library structure, (and changed the library name in data area DCXLOADA01) you are ready to perform the upgrade.
- 11. If you are using LANSA for the Web, change your configuration to reference the new Communications Library (for example, DCXCOMLIB) instead of QGPL.
- 12.Other changes:

CHGDTAARA dtaara(<pgmlib>/DCXLOADA02 (911 10))
VALUE(<comlib>)
CHGDTAARA dtaara(<jsmlib>/JSMDRTEXT (11 10))
VALUE(<comlib>)

Any other references to QGPL in these data areas must be changed to comlib.

# 4.4.2 Remove old Loader Objects from QGPL

If the following objects exist in QGPL they should be removed:

DCXLOAD\* Type \*DTAARA Type \*DTAARA DC@LOADERI Type \*FILE DC@LOAD\* Type \*FILE DCXLOAD\* Type \*MSGF DCXLOAD\* PC@LOAD\* Type \*PGM DC@PC\* Type \*PGM DC@LOAD\* Type \*PGM DC@LOAD\* TYPE \*SRVPGM

That is, the following commands could be used

DLTDTAARA QGPL/DCXLOAD\*
DLTDTAARA QGPL/DC@LOADERI
DLTF QGPL/DC@LOAD\*
DLTF QGPL/DCXLOAD\*
DLTMSGF QGPL/DCXLOAD\*
DLTPGM QGPL/PC@LOAD\*
DLTPGM QGPL/DC@PC\*
DLTPGM QGPL/DC@LOAD\*
DLTSRVPGM QGPL/DC@LOAD\*

# 4.5 Initialization Imports

The LANSA components are supplied with LANSA standard objects, applications and tools. In this section, these objects and applications are generically referred to as imports and are listed in 4.5.1 Imports with the LANSA IBM i Software.

For a newly installed or upgraded system, import requirements should be selected for automatic inclusion in the Partition Initialization. Refer to Select Options to be upgraded and Partition Initialization in the Custom Install.

You may, however, choose to manually import the supplied objects to reset them or when you create a new partition.

# **Install Imports**

You can install Imports in one of two ways as described in the *LANSA* for i *User Guide*:

- From the Administration Menu > *Partition Initialization*
- From the The Housekeeping Menu > Import Objects into this partition.
   Use F1 to invoke the help if needed.

**WARNING:** Do not make changes to the imported files as they will be reset during the next install or upgrade.

If your partition is non-multilingual, then you may need to change it to multilingual. Refer to 4.5.1 Imports with the LANSA IBM i Software for information.

When a set of fields are imported, all fields that refer to the imported fields are updated. The action of making the referred changes to fields on import can be deferred by use of the keyword \*IMPREFFLDNOPROP in DC@OSVEROP.

# 4.5.1 Imports with the LANSA IBM i Software

Following is a list of supplied Save files.

Object	Program Library+ Save File Name	Is Save File Multilingual? See * below
System fields	<pgmlib>/SYSFLDS</pgmlib>	No
System fields - changes only	<pgmlib>/SYSFLDU</pgmlib>	No
System variables	<pgmlib>/SYSVAR</pgmlib>	No
System variables changed	<pgmlib>/SYSVARU</pgmlib>	No
LANSA templates	<pgmlib>/TEMPLATE</pgmlib>	No
Multilingual help	<pgmlib>/HELP_ML</pgmlib>	Yes *
Non-multilingual help	<pgmlib>/HELP_NML</pgmlib>	No
Data Modeler	<pgmlib>/MODELER</pgmlib>	Yes *
Personnel Demonstration System	1 < PGMLIB > / PERSYS	Yes *
LANSA Client enable	<pgmlib>/CLIENT</pgmlib>	Yes *
e-Business Framework Wizard	<pgmlib>/LWEBWIZ2</pgmlib>	Yes *
RDMLX Fields	<pgmlib>/SYS_FLDX</pgmlib>	Yes *
Web Enable	<pgmlib>/LWEBSF</pgmlib>	Yes *
WAM weblets	<pgmlib>/WEBLETS</pgmlib>	Yes *
Web Graphic Variables	<pgmlib>/GRAFVAR</pgmlib>	Yes *

<sup>\*</sup> If the Save File you wish to import is a multiligual Save File, then your

partition must be multiligual. If it is not, then you will need to change it to multilingual, import the Save File and then change it back to non-multilingual as described in 4.5.2 Multilingual Imports into Non-Multilingual Partitions.

#### Note:

- You can view all the LANSA Save files that are shipped by running: WRKF FILE(<PGMLIB>/\*ALL) FILEATR(SAVF)
- LWEBSF AND WEBLETS are imported together into an RDMLX partition if the Web enable option is selected. WEBLETS cannot be imported into an RDML partition.
- The Data Modeler is no longer installed during the Partition Initialization.

# 4.5.2 Multilingual Imports into Non-Multilingual Partitions

Some save files are multilingual files and can only be imported into a multilingual partition. (See **Yes** in *Is Save File Multilingual?* in 4.5.1 Imports with the LANSA IBM i Software.)

If the partition that you wish to import a multilingual Save File into is not defined as multilingual then before you start the import, you must change the partition to multilingual. Following are the steps to do this:

- 1. Temporarily suspend all development work in the partition.
- 2. From the Housekeeping Menu, use the Create or change system partition definitions option. Select the partition and then change the partition to Multilingual support to YES.
- 3. From the Housekeeping Menu, use the Work with partition multilingual attributes option. Add language ENG (English) as a valid language.
- 4. Perform the required import into the partition and wait for all import jobs to complete.
- 5. Change the partition definition back to Multilingual support NO. (Important Note: The job may fail with message DCM0858 indicating the language selected is not available this is normal).
- 6. Sign off and then sign on again before resuming development.

The partition will remain non-multilingual.

Note that it is recommended that all partitions are multilingual. New partitions will be automatically created as multilingual on Japanese and French language machines. For information, refer to When is it necessary to use Multilingual Support? in the Multilingual Guide.

# Warning:

If you are using Visual LANSA for development, changing the partition on the IBM i from non-multilingual to multilingual, and back to non-multilingual, can cause your non-multilingual Visual LANSA development environment to change to multilingual (English).

To check if this has occurred, start your Visual LANSA development environment and start the Host Monitor. Allow all changes to propagate to Visual LANSA. Exit the Visual LANSA development environment and Host Monitor and then log on to Visual LANSA again. If during log on the language is ENG instead of NAT, this problem has occurred. To fix the problem, exit

Visual LANSA and do a partition refresh, using language NAT. Do this before doing any further imports to the Visual LANSA environment.

## 5. LANSA IBM i License

When you install a new LANSA product you must enter the appropriate license codes. The license codes are CPU-specific and will be provided by your local LANSA vendor. To obtain a license, you must supply your product vendor with the CPU number, IBM i model number and IBM i processor feature of each IBM i on which LANSA is installed.

If you are upgrading an existing LANSA system, your license codes should have already been entered.

#### Also see

- **5.1 LANSA License Categories**
- 5.2 General Licensing Considerations
- 5.3 Task: Enter the LANSA License Code
- 5.4 Request a LANSA Product License
- 5.5 License Code List

# **5.1 LANSA License Categories**

The LANSA license categories are:

- Permanent
- Temporary

Each license code is valid for only one CPU serial number and cannot be transferred to another. If you plan to change your CPU, ensure that you obtain a new license before the change takes place.

Refer to 5.4 Request a LANSA Product License

### **Permanent License**

A permanent license gives you complete access to all the facilities that LANSA provides for the product(s) for which you have the permanent license.

If the start date is in the future, the facility will not be available until that date. Permanent licenses with a future start date will be shown in the License status display with that date.

# **Temporary License**

A temporary license is a license with an expiry date. When the expiry date is passed, the facility will stop running with a message indicating the reason.

A temporary license could be issued for the time up to changing to another CPU or for a trial of a LANSA product.

Temporary licenses are added and updated using the same procedures as permanent licenses.

#### **Seat Licenses**

A LANSA license is either a full development license, with no restriction on the number of developers, or a seat license, for a number of concurrent users.

Seat License Types have the same license codes as an unrestricted license but allow for up to 999 concurrent seats.

For more information about LANSA licenses, refer to:

5.3 Task: Enter the LANSA License Code

5.4 Request a LANSA Product License

5.2 General Licensing Considerations

5.6 Maintenance Contract

# **5.2 General Licensing Considerations**

Following are some general considerations for LANSA licenses:

- To obtain LANSA license codes from your product vendor, you must supply the CPU number, IBM i model number and IBM i processor feature of each IBM i on which LANSA is installed. For how to obtain these details refer to Identify your IBM i Details.
- The LANSA License program is installed on the Data/Application Server.
- To develop or maintain LANSA applications on the IBM i, you need a current LANSA development license.
- To develop or maintain LANSA for the Web applications on the IBM i, you need a current LANSA development license and a current LANSA for the Web development license.
- A LANSA for the Web development license also allows execution of LANSA for the Web applications.
- If you are only executing LANSA for the Web applications, then you do not require a WEB (LANSA for the Web Development) license. A PWB (LANSA for the Web Production) license is sufficient.
- You do not require license codes to use the LANSA for the Web PC-based Editor and Administrator.
- You do not require license codes to use the Open System Administrator.
- You require a license code for the LANSA Integrator.
- Remember that a Temporary License code has an expiry date.

For a list of license codes, refer to 5.5 License Code List.

# 5.3 Task: Enter the LANSA License Code

To apply one or more LANSA licenses, you will carry out these steps:

- 5.3.1 Before You Begin Checklist
- 5.3.2 Step 1. Sign on and Execute LANSA License Program
- 5.3.3 Step 2. Apply Permanent License Codes

# 5.3.1 Before You Begin Checklist

Before you begin to enter LANSA License codes, check the following:

- Do you have the QSECOFR password or access to the LANSA Product Owner user profile? You will require one of these profiles to execute the LANSA license program.
- Do you know the name of the LANSA program library for the LANSA system (cpgmlib>)?
- Does the new license xml file contain all of the required CPU specific license codes for the installed LANSA products? (Refer to 5.5 License Code List.)
- Have you copied the new license xml file to the IBM i IFS?

# 5.3.2 Step 1. Sign on and Execute LANSA License Program

Sign on to the IBM i using one of the following profiles:

- QSECOFR user profile, or
- Partition Security Officer profile for the SYS partition.

From an IBM i command entry (CALL QCMD) execute the LANSA license facility using the command:

## <pgmlib>/LANSA LICENSE

where <pgmlib> is the name of the program library specified during the installation of LANSA.

The *Display Current Licenses* screen is displayed.

XLNDCUR	Display Curi	ent License	es 1	0/08/14 11:43:58
	Start	End		
Sel Grp Product C	Code S	eats Date	Date	Status
_ AXX	202	130716 201	50921 <b>'</b>	Valid
_ C	005 201	20802 2013	30809 E	Expired
_ DEV	201	30716 201	50815 V	<i>V</i> alid
_ EDI urzsC1kzl	L8NxyQhRSz	IdoOTC	20130	716 20150815
Valid	-			
_ EDI JRQAplI1	.79jOS4QaTC	DObd6B	2013	0716 20150815
Valid				
_ JUC urzsC1kz	L8NxyQhRSz	:IdoOTC	20130	716 20150815 Valid
*				
_ JUC sNwQFnf	ZV1bLXBiG	jsVW40Hb	201	130716 20150815
Valid				
_ JUC 4PIuoUH	fdEeWLg9Lb	6GxhKHM	201	130716 20150815
Valid				
_ JUC JRQAplI1	l 79j OS4QaT (	CDObd6B	2013	0716 20150815 Valid
*				
_ LCE	2012	20802 2013	0809 E	xpired
_ LPC	201	30716 2015	50815 V	alid
_ LXX	201	30716 201	50815 V	<i>V</i> alid
_ WEB		130716 201		
_ WEB	20:	130716 201	50815	Valid

F1=Help F3=Exit F6=Add/Create F12=Cancel F14=Msgs F22=Delete

Apply new licenses by pressing **F6=Add/Create**.

Expired or duplicate licenses can be removed by selecting the licenses to remove in the Sel (select) column then pressing **F22=Delete. Duplicate product codes are indicated by a \* on the right of the license information.** Go to 5.3.3 Step 2. Apply Permanent License Codes.

# **5.3.3 Step 2. Apply Permanent License Codes**

When you press **F6** to apply new licenses from the *Display Current Licenses* screen, the *Request New License File* screen is displayed.

XLNSNEWRLF	Request New License File	10/08/14 14:26:12
New License File	Path	
F1=Help F3=Exit	F12=Cancel F14=Msgs	

Use Request New License File screen to apply the new license xml file containing the new license codes supplied by your product vendor. The new license xml file can only be applied on the IBM i for which it was issued.

#### **New License File Path**

Enter the full path including file name and extension that you have copied the new license xml file to, accessible on the IFS (Integrated File System) on the IBM i.

Press Enter and the *Select New Licenses* screen will be displayed.

XLNSNEV	VSNL	Select New Licenses	10/08/14 14:52:22
Sel Type L	PAR Prod	Start End luct Code Seats Date	Date Status
OLD	AXX	20120716 2012	20815 Valid

1 /		DO 4 DO T 4 G DO 4 DO G 4 T T T 1 4 1
/ NEW	AXX	20120716 20120815 Valid
OLD	С	005 20120802 20120809 Expired
OLD	DEV	20120716 20120815 Valid
/ NEW	DEV	20120716 20120815 Valid
OLD	LCE	20120802 20120809 Expired
OLD	LPC	20120716 20120815 Valid
/ NEW	LPC	20120716 20120815 Valid
OLD	LXX	20120716 20120815 Valid
/ NEW	LXX	20120716 20120815 Valid
OLD	NET	20120802 20120809 Expired
OLD	TFD	20120716 20120815 Valid
/ NEW	TFD	20120716 20120815 Valid
OLD	WEB	20120716 20120815 Valid
/ NEW	WEB	20120716 20120815 Valid
F1=Help	F6=Creat	e F12=Cancel F14=Msgs
•		

Use the *Select New Licenses* screen to select or deselect which new licenses from the new license xml file are to be applied.

The Sel (select) column will only be input capable for the new licenses. Blank means don't apply, nonblank means apply. In most cases the new licenses will be preselected to be applied. You are able to deselect these.

Press **F12=Cancel** to not go ahead and apply any new licenses. You will be returned to the *Display Current Licenses* screen

Press **F6=Add/Create** to apply the new licenses that have been selected. They will be applied and the *Display Current Licenses* screen will be displayed with the new licenses and a message stating that the new licenses have been applied.

# **5.4 Request a LANSA Product License**

If you need to request a LANSA product license, you will need to provide information about your IBM i. Refer to Identify your IBM i Details for how to do this.

# **5.5 License Code List**

Following is a list of some of the LANSA license codes:

License Code	Type of License
AXX	Unlimited RAMP Choreographer license.
DEV	LANSA for i full development license. With this license you have complete access to all LANSA for i development facilities.
FCD	LANSA for the Web Commerce Edition Development License
FCE	Commerce Edition Direct
FCP	LANSA for the Web Commerce Production License
LCE	LANSA Open
LXX	LANSA SuperServer for dynamic access from the PC to the Windows or IBM i server.
PWB	LANSA for the Web Production License
WEB	LANSA for the Web Development License

#### **5.6 Maintenance Contract**

A maintenance contract provides you with valuable services such as software upgrades, updates to documentation and a support line.

If you are using the LANSA workstation products, such as LANSA Open and LANSA Client, it is recommended that you also have a maintenance contract for LANSA for i. This will ensure that you are automatically notified about all LANSA Repository enhancements.

The LANSA system administrator should receive and review the upgrade information and should have a means of keeping you up to date with the latest enhancements. The system administrator should also act as the liaison with your local LANSA vendor.

Many of the changes to the LANSA software have been the direct result of input from current LANSA users. Your comments are encouraged. The maintenance contract is part of your investment in the future of the software.

If your site's maintenance does not include LANSA for i, contact your local LANSA vendor for details.

# 6. LANSA for the Web Configuration and Set Up on IBM i

If you are using LANSA for the Web on IBM i, you may need to perform one or more of the following configuration and set up tasks:

- 6.1 Task: Install LANSA for the Web Administrator
- 6.2 Task: Configure IBM i Web Server (powered by Apache)
- 6.3 Task: Configure Multi-tier IBM i LANSA for the Web Installation
- 6.4 Task: Upgrade from a Single-tier to a Multi-tier IBM i Web Model
- 6.5 Task: Configure LANSA for the Web Security
- 6.6 Task: Set up IBM i Partition for Web Development

For everyday housekeeping tasks such as pre-starting jobs, clean ups and considerations when importing and exporting LANSA for the Web applications, refer to the *LANSA* for the Web Administration Guide.

#### 6.1 Task: Install LANSA for the Web Administrator

This program is installed on a Windows based PC and operated in a client/server mode to the IBM i Data/Application Server.

It is installed from the LANSA Windows Software DVD.

#### LANSA for the Web Administrator

The LANSA for the Web Administrator is used to configure the LANSA for the Web software on the Data/Application Server. It is only required by the LANSA system administrator.

#### To install

On the required workstation, start the *Installing LANSA* on *Windows DVD* and select the Install Process. Select the **Other LANSA Features** as the *Install Type* and then, on the product selection list, tick **LANSA for the Web** then the **Web Administrator**.

Further information on this install can be found in the *Installing LANSA* on *Windows Guide*.

# 6.2 Task: Configure IBM i Web Server (powered by Apache)

LANSA for the Web supports CGI on IBM i.

If you have used a Typical Install or if you have selected CGI during the Custom Install of the LANSA for the Web, then a default IBM HTTP Server (powered by Apache) configuration will have been installed on your system named the same as your LANSA program library.

After reviewing the installation configuration, you should be ready to test your LANSA for the Web environment using the Simple test of a WAM to test my web configuration.

Refer to Summary of Installed Objects.

If you are using a Multi-tier installation, go to 6.3 Task: Configure Multi-tier IBM i LANSA for the Web Installation .

If you wish to configure the IBM HTTP Server and CGI yourself, you will find instructions for doing so on the LANSA Web site www.LANSA.com/support titled *Configuration of IBM HTTP Server using CGI*.

# **6.3 Task: Configure Multi-tier IBM i LANSA for the Web Installation**

If you are using a Multi-tier LANSA for the Web Installation, you must perform the following tasks to complete your Web server configuration:

6.3.1 Configure LANSA for the Web on a Multi-tier IBM i Web Server

6.3.2 Configure IBM i Web Server for Communications with IBM i Data/Application Server

Once you have completed these steps, go to Simple WAM to check my web configuration.

# 6.3.1 Configure LANSA for the Web on a Multi-tier IBM i Web Server

These instructions describe the configuration of a Multi-tier LANSA for the Web installation with a CGI based IBM i Web Server using the W3@P2901 program.

The Configure LANSA for the Web on a Multi-tier IBM i Web Server task includes the following steps:

Before You Begin Checklist

Step 1. Execute W3@P2901

Step 2. Work with Communication Routing on IBM i

Step 3. Add Routing Record on IBM i

Step 4. Configure IBM i Web Server

Step 5. Maintain System Information on IBM i Web Server

Step 6. Add New System Information on IBM i Web Server

Other Considerations for Multi-tier Installations

## **Before You Begin Checklist**

Before you begin the Multi-tier Configuration Web Server task, check the following:

- Have you completed the LANSA for the Web software installation on the Web Server? If not, refer to Step 2. Select Software Components of the *Custom Installation Task*.
- Do you have the QSECOFR user profile?
- Do you know the name of the LANSA program library on the Data/Application Server?
- Do you know the name of the LANSA for the Web Administration Library?
- Do you know the name of the image file directory to be used on the IFS?
- Do you know the name of the CGI libraries to be used for the Web Server?
- Do you know the LANSA Listener configuration on the Data/Application Server?
- Do you have an IBM i user profile on the Data/Application Server which can be used for the communications sessions?
- Have you confirmed that the IBM i Web Server and IBM i Data/Application Server can communicate with each other?

Go to Step 1. Execute W3@P2901

# **Step 1. Execute W3@P2901**

Sign on to the IBM i using the QSECOR profile. (You require \*ALLOBJ and \*SECADM special authority.)

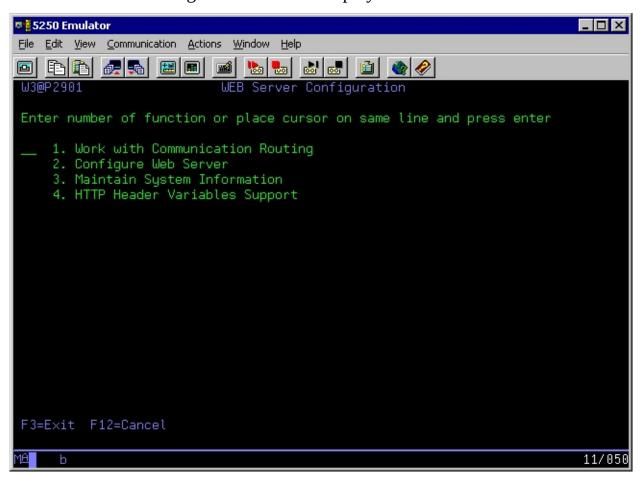
Add the LANSA for the Web Administration library to the library list using the ADDLIBLE command. For example,

#### ADDLIBLE LIB(DCXPGMLIB)

From an IBM i command entry (CALL QCMD), execute the W3@P2901 program using the command:

## CALL <pgmlib>/W3@P2901

The Web Server Configuration menu is displayed.



Select *Work with Communication Routing* and press *Enter*.

Go to Step 2. Work with Communication Routing on IBM i.

# Step 2. Work with Communication Routing on IBM i

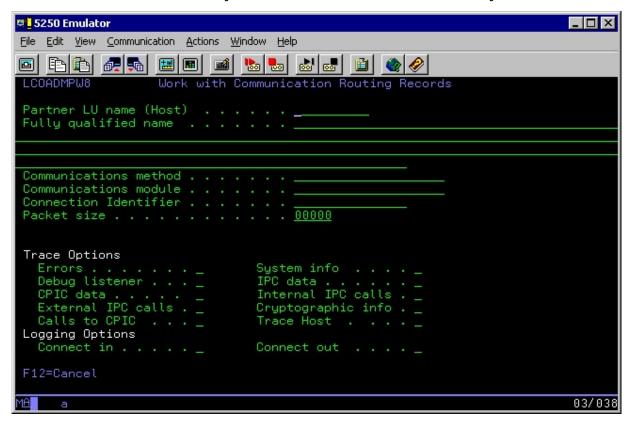
When you select the *Work with Communication Routing* option from the *Web Server Configuration* menu, a list of all defined routings to other IBM i servers is displayed.



Press F6=Add to create a new routing entry to your Data/Application Server. Go to Step 3. Add Routing Record on IBM i.

# Step 3. Add Routing Record on IBM i

The routing information you enter on this screen is stored in the communications routing table /LANSA\_adminlib/connect/lroute.dat where LANSA\_adminlib is your LANSA administration library.



Enter the following information:

# Partner LU name (Host)

This is the name for the Data/Application Server. (For example, the name might appear as S102ABCD.) This name is simply used to represent the fully qualified name. You will enter this name in Step 6. Add New System Information on IBM i Web Server.

# **Fully qualified name**

For an IP connection, the fully qualified host name can be the IP address (for example 123.123.123.123) or it can be the assigned TCP Host Name (for example S102ABCD.APPN.SNA.IBM.COM) for the Application/Data Server.

#### Communications method

Enter SOCKET.

Press *Enter* to update.

Go to Step 4. Configure IBM i Web Server.

# Step 4. Configure IBM i Web Server

From the *Work Web Server Configuration* menu, select the *Configure Web Server* option to display the *Configure Web Server* screen.

```
5250 Emulator
File Edit View Communication Actions Window Help
W3@P2901
                     Configure Web Server
File Location
  Image files . . . .
  Authentication Library . .
Miscellaneous
  Working Library . . . . . <u>DEVWEBWORK</u>
 Transaction Monitor
 Monitor Job Priority . . . . 20
F3=Exit F12=Cancel
                                                      04/033
```

This information is stored in the data area DC@RWEB.

Enter the following information:

#### **CGI**

Specify CGI-BIN as the location of the CGI files used by the Web Server software.

This alias must be defined in the IBM's HTTP Server (powered by Apache) configuration.

# **Image Files**

Enter the location of the image files used by LANSA for the Web. LANSA for the Web expects to find all the image files in a single location.

This alias must be defined in IBM's HTTP Server (powered by Apache) configuration.

# **Authentication Library**

Specify AUTHLIB as the name of the library set up for user authentication on the IBM i Web Server. This is used by partial authentication.

This alias must be defined in the IBM's HTTP Server (powered by Apache) configuration.

#### **Home Page**

Enter the URL to be called when the user selects the Home button in LANSA functions.

By default, this parameter is left blank. If it is blank, LANSA for the Web will call the home page as defined in the IBM's HTTP Server (powered by Apache).

#### **Working Library**

Enter the name of the library on the Web serving IBM i where LANSA for the Web will create its internal objects at runtime.

### **Router Job Subsystem**

This is the name of the JOB QUEUE for the subsystem where the LANSA Web jobs (LWEB\_WSRV) will run on the Web Server. Do NOT enter the subsystem name. You will use this name in 6.3.2 Configure IBM i Web Server for Communications with IBM i Data/Application Server.

#### **Web Job Priority**

Enter the priority of LWEB\_WSRV jobs started by the CGI program.

# **Response Timeout**

Enter the time (in seconds) that the CGI program should wait for the Application Server to return the request. This value **must always** be greater than the related response timeout defined on the Application Server otherwise strange and unpredictable problems may occur. The extra time should exceed the maximum expected delay for the data traveling between the Application Server and the Web Server.

#### **Reset Monitor**

Use this field when you wish to reset the transaction monitor job (LWEB\_WMON).

#### **Monitor Checks**

Specify the time interval (in seconds) for the transaction monitor to check the status of the LWEB\_JOB jobs. A typical **Web** site might specify 120 seconds (2 minutes).

## **Monitor Job Queue**

Enter the JOB QUEUE name used for the subsystem where the LANSA Web jobs (LWEB\_JOB) will run on the Web Server. This can be the same job queue used for the router jobs.

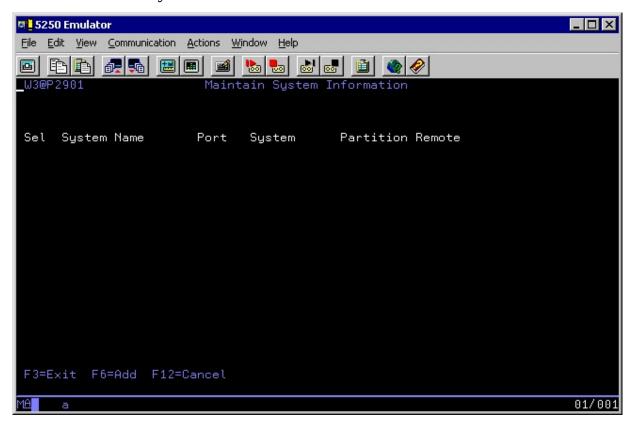
## **Monitor Job Priority**

Enter the priority of the remote web monitor job.

Go to Step 5. Maintain System Information on IBM i Web Server.

# Step 5. Maintain System Information on IBM i Web Server

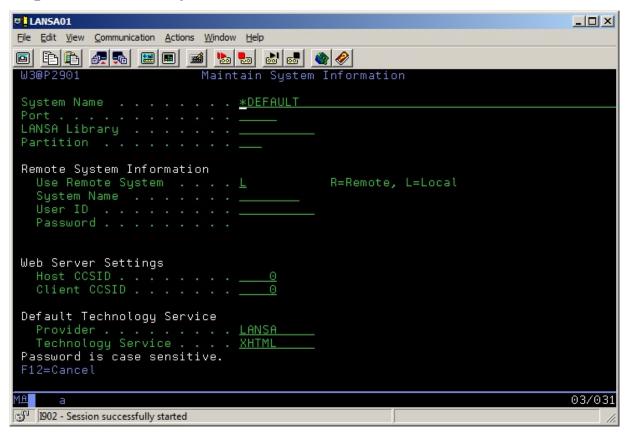
Select the *Maintain system information* option from the *Work Web Server Configuration* menu to display the *Maintain System Information* screen. This screen will list all systems defined to LANSA for the Web.



Press F6=Add, to create a new system definition.

Go to Step 6. Add New System Information on IBM i Web Server.

Step 6. Add New System Information on IBM i Web Server



This information is stored in the file DC@W12 in the LANSA Communications Library.

Enter:

#### **System Name**

This is the system name or IP address of the IBM i Web Server.

If you are not using multi-homing support, enter \*DEFAULT as the System Name.

If you are using multi-homing support, enter either the DNS Name (for example: demo.lansa.com) or the IP Address (for example: 123.123.123.123) in the System Name field.

#### Port

This is the port on which the IBM i Web Server software is listening.

If you are using the default port, 80, you may enter 99999.

Port 443 is only defined when SSL is enabled. The Web Server configuration must have the same information.

#### LANSA library

The LANSA program library on the Data/Application Server. The default is DCXPGMLIB.

#### **Partition**

Specify the partition if you want to have all the requests for that port use a particular LANSA partition. If a partition is specified, it will override any partition specified in the URL.

If no partition is specified, you must specify the partition parameter in your URL.

#### **Remote System Information**

#### **Use Remote System**

Set to 'R' for Multi-tier configuration.

#### **System Name**

Specify the name of the IBM i which is acting as your Application/Data Server. This must match the system name defined in Step 3. Add Routing Record on IBM i.

#### User ID/Password

Specify a user profile and its password. A user profile is required to allocate a communications conversation between the IBM i Web Server and the IBM i Application/Data Served.

Note: This user profile must exist on the IBM i Application/Data Server and must have sufficient authority to start jobs. It must also be enabled and include the libraries QTEMP, <LANSA Communications library>, <LANSA program library> and <LANSA data library> in its JOBD.

Note: Passwords are case sensitive. For example: "ABCDEF", "AbCdEf" and "abcdef" are not the same value.

# **Web Server Settings**

#### **Host CCSID**

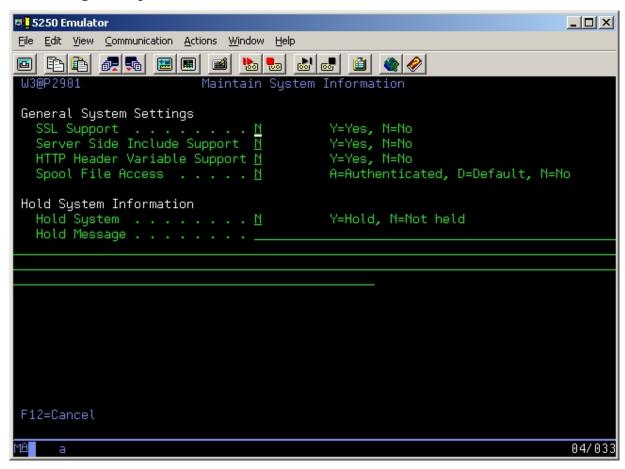
The Host CCSID used for data translation purposes. The default is 00037.

#### **Client CCSID**

The Client CCSID used for data translation purposes. The default is 00819. Press enter to go to the next screen.

# **Default Technology Service**

The technology service to use if no specific technology service is nominated in the user agent request.



## **General System Settings**

# SSL (Secured Sockets Layer) Support

Select this option if you want to enable SSL for this system.

The default LANSA library is the LANSA system assigned to port 80. This is the default port identifier for the HTTP protocol.

If you have SSL support enabled, remember that the default port for SSL is 443.

## Server Side Include (SSI) Support

Select this option if you want to enable SSI support for this system. Make sure that your Web serving product is capable of supporting this feature before enabling this option.

## **HTTP Header Variable Support**

Select this option if you wish to enable header variable support.

# **Spool File Access**

Specify N. Spool file access is not allowed for this system

# **Hold System Information**

### **Hold System**

Specify N. Incoming requests for this system will not run but a hold message will be displayed.

## **Hold Message**

If the Hold System option is specified 'Y'. This message will be displayed for all requests to this system.

Go to Other Considerations for Multi-tier Installations.

#### Other Considerations for Multi-tier Installations

Following are some important considerations for Multi-tier Installations.

### Listener running on Application/Data Server

Check that the Listener program is running at the Application/Data Server.

## **Using a Validation List for Standard Authentication**

The validation list must be created on the IBM i Web Server. You should be able to add or delete users from the validation list using the ADMIN IBM HTTP Server instance or calling LANSA's W3@P2301 program.

Add authority \*PUBLIC \*USE to both the validation list and the library it resides in.

You have now completed the steps to *Configure LANSA* for the Web on a Multitier *IBM* i. Now you must 6.3.2 Configure IBM i Web Server for Communications with IBM i Data/Application Server.

# 6.3.2 Configure IBM i Web Server for Communications with IBM i Data/Application Server

When using TCP/IP for communication between the IBM i Web Server and IBM i Data/Application Server, you may wish to create a subsystem for executing the Web Server router jobs (LWEB\_WSRV). For installation of new systems, these steps are not necessary has it has been handled in the install process.

For more details, refer to the Router Job Subsystem in Step 4. Configure IBM i Web Server in the *Configure LANSA* for the Web on a Multi-tier IBM i Web Server task. This set up is very similar to the LANSA Listener set up on the Data/Application Server.

The Configure IBM i Web Server for Communications with IBM i Data/Application Server task includes the following steps:

Before You Begin Checklist

Step 1. Sign On to IBM i Web Server

Step 2. Create LANSAWORK Job Queue

Step 3. Create LANSAWORK Subsystem Description

Step 4. Create LANSAWORK Job Description

Step 5. Add a LANSAWORK Job Queue Entry

Step 6. Add a LANSAWORK Auto Start Job Entry

Step 7. Create the LANSAWORK Class

Step 8. Add a LANSAWORK Routing Entry

Step 9. Add a Second LANSAWORK Routing Entry

Step 10. Start the LANSAWORK Subsystem

Step 11. Verify LANSAWORK Subsystem is Active.

# **Before You Begin Checklist**

Only begin the *Configure IBM i Web Server for Communications with IBM i Data/Application Server* task if you can answer Yes to these questions:

- Is a LANSA Listener configured on the Data/Application Server?
- Have you tested any communications (non-LANSA) between the Web Server and Data/Application Server?

Go to Step 1. Sign On to IBM i Web Server.

# Step 1. Sign On to IBM i Web Server

Sign on to the IBM i Web Server using a user profile with sufficient authority to work with job queues, job descriptions and subsystems. (QSECOFR is recommended.)

Go to Step 2. Create LANSAWORK Job Queue.

# **Step 2. Create LANSAWORK Job Queue**

From an IBM i command entry (CALL QCMD), use the CRTJOBQ command. Press F4 to prompt the Create Job Queue command.

Enter:

**Library:** QGPL - where most job queues are created by default.

**Job queue:** LANSAWORK - suggested default.

Text LANSA FOR THE WEB SUBSYSTEM QUEUE - suggested

**description:** naming convention.

The command should appear as follows:

# CRTJOBQ JOBQ(QGPL/LANSAWORK) TEXT('LANSA FOR THE WEB SUBSYSTEM QUEUE')

The name of the job queue must match the Router Job Subsystem name defined in Step 4. Configure IBM i Web Server in the Configure LANSA for the Web on a Multi-tier IBM i Web Server task.

Go to Step 3. Create LANSAWORK Subsystem Description.

# Step 3. Create LANSAWORK Subsystem Description

From an IBM i command entry, use the CRTSBSD command. Press F4 to prompt the Create Subsystem Description command. Enter:

Library: QGPL - required to run in this library.

Subsystem description: LANSAWORK - suggested default.

Pool identifier: 1 - required value.

Storage size: \*BASE - required value.

Text 'description': LANSA FOR THE WEB SUBSYSTEM

The command should appear as follows:

CRTSBSD SBSD(QGPL/LANSAWORK) POOLS((1 \*BASE)) TEXT('LANSA FOR THE WEB SUBSYSTEM')

Go to Step 4. Create LANSAWORK Job Description.

# Step 4. Create LANSAWORK Job Description

From an IBM i command entry, use the CRTJOBD command.

Press F4 to display the Create Job Description parameters.

Press F10 for additional parameters (press PageDown or Shift-Rollup to see additional parameters).

#### Enter:

Library: QGPL - where most job descriptions are created by default.

Job description: LANSAWORK - suggested default.

Job queue: LANSAWORK - name of the job queue created in Step 2.

Library: QGPL - library specified in Step 2.

User: Should be the LANSA owner, normally QOTHPRDOWN.

The command should appear as follows:

CRTJOBD JOBD(QGPL/LANSAWORK)
JOBQ(QGPL/LANSAWORK) TEXT('LANSA WEB JOBD')
USER(QOTHPRDOWN)

Go to Step 5. Add a LANSAWORK Job Queue Entry.

# Step 5. Add a LANSAWORK Job Queue Entry

From an IBM i command entry, use the ADDJOBQE command.

Press F4 to prompt the Add Job Queue Entry screen.

Enter:

Library: QGPL - required to run in this library

Subsystem LANSAWORK - description as entered in Step 3. Create

description: LANSAWORK Subsystem Description.

Library: QGPL - required to run in this library

Job queue: LANSAWORK - job queue created in Step 2. Create

LANSAWORK Job Queue.

Maximum \*NOMAX - required value

active jobs:

The command should appear as follows:

ADDJOBQE SBSD(QGPL/LANSAWORK)
JOBQ(QGPL/LANSAWORK) MAXACT(\*NOMAX)

Go to Step 6. Add a LANSAWORK Auto Start Job Entry.

# Step 6. Add a LANSAWORK Auto Start Job Entry

From an IBM i command entry, use the ADDAJE command to add an auto start job entry to the LANSAWORK subsystem.

Press F4 to prompt the Auto Start Job Entry command.

Enter:

Library: QGPL - required to run in this library.

Subsystem LANSAWORK - description as created in Step 3. Create

description: LANSAWORK Subsystem Description.

Job name: LANSAWORK

Library: QGPL - required to run in this library.

Job LANSAWORK - description created in Step 4. Create

description: LANSAWORK Job Description.

The command should appear as follows:

ADDAJE SBSD(QGPL/LANSAWORK) JOB(LANSAWORK) JOBD(QGPL/LANSAWORK)

Go to Step 7. Create the LANSAWORK Class.

# **Step 7. Create the LANSAWORK Class**

From an IBM i command entry (CALL QCMD), use the CRTCLS command. Press F4 to prompt the Create Class command.

Enter:

Library: QGPL

Class: LANSAWORK - suggested default.

Text description: LANSA FOR THE WEB CLASS

The command should appear as follows:

CRTCLS CLS(QGPL/LANSAWORK) TEXT('LANSA FOR THE WEB CLASS')

Go to Step 8. Add a LANSAWORK Routing Entry.

# Step 8. Add a LANSAWORK Routing Entry

From an IBM i command entry, use the ADDRTGE command to add the first routing entry for the LANSAWORK subsystem.

Press F4 to prompt the Add Routing Entry command.

Enter:

Library: QGPL - as specified in Step 3. Create LANSAWORK

Subsystem Description.

Subsystem LANSAWORK - subsystem description as created in Step 3.

description: Create LANSAWORK Subsystem Description.

Routing entry 10 - suggested sequence.

sequence #:

Compare QCMDI - required compare value.

value:

Program to QCMD - system program to execute.

call:

The command should appear as follows:

ADDRTGE SBSD(QGPL/LANSAWORK) SEQNBR(10) CMPVAL(QCMDI) PGM(QCMD)

Go to Step 9. Add a Second LANSAWORK Routing Entry.

## Step 9. Add a Second LANSAWORK Routing Entry

Two routing table entries are required for the subsystem description.

To add an additional routing entry for the LANSAWORK subsystem description, use the ADDRTGE command again.

Press F4 to prompt the Add Routing Entry command.

Enter:

Library: QGPL

Subsystem LANSAWORK - subsystem description as created in Step 3.

description: Create LANSAWORK Subsystem Description.

Routing entry 999 - required value

sequence #:

Compare \*ANY - required compare value

value:

Program to QCMD - system program to execute

call:

The command should appear as follows:

ADDRTGE SBSD(QGPL/LANSAWORK) SEQNBR(999) CMPVAL(\*ANY) PGM(QCMD)

Go to Step 10. Start the LANSAWORK Subsystem.

# **Step 10. Start the LANSAWORK Subsystem**

To start the LANSAWORK subsystem, use this command: **STRSBS LANSAWORK** 

Go to Step 11. Verify LANSAWORK Subsystem is Active.

## Step 11. Verify LANSAWORK Subsystem is Active

To verify that the LANSAWORK subsystem is running, use this command:

#### **WRKACTJOB**

You should see the following items in the Work Active Job display:

Subsystem created in step 3: LANSAWORK

Active Job: LANSAWORK

You have now completed the steps to *Configure IBM i Web Server for Communications with IBM i Data/Application Server* which completes the *Task: Configure Multi-tier IBM i LANSA for the Web Installation*.

# 6.4 Task: Upgrade from a Single-tier to a Multi-tier IBM i Web Model

The following instructions describe the process of changing a Single-tier IBM i model to a Multi-tier IBM i model where the Web Server is another IBM i.

If you currently have a Single-tier model and you are changing to a Multi-tier model, you will need to complete the following steps:

- 6.4.1 Before You Begin Checklist
- 6.4.2 Steps for Installing Programs on the IBM i Web Server
- 6.4.3 Other Considerations When Changing to Multi-tier

If you wish, you can continue to use the Web serving software on the Data/Application Server. You can use a combined Single-tier and Multi-tier system. One Data/Application Server can be used with both local and remote Web Servers.

# 6.4.1 Before You Begin Checklist

Before you begin the Upgrade from a Single-tier IBM i Model to a Multi-tier IBM i Model task, check the following:

- Do you have a LANSA for the Web deployment license for the IBM i Web Server?
- Do you have the LANSA Listener running on the Data/Application Server?
- Have you reviewed 6.4.3 Other Considerations When Changing to Multitier?

If you can answer Yes to these questions, go to 6.4.2 Steps for Installing Programs on the IBM i Web Server.

## 6.4.2 Steps for Installing Programs on the IBM i Web Server

To install and configure the LANSA for the Web software components on the Web Server, complete the following tasks:

- 1. Complete the steps in Multi-tier LANSA for the Web Installation (LANSA for i installed).
- 2. 6.2 Task: Configure IBM i Web Server (powered by Apache).

If you wish, you can continue to use the Web serving software on the Data/Application Server. You can use a combined Single-tier and Multi-tier system. One Data/Application Server can be used with both local and remote Web Servers.

## 6.4.3 Other Considerations When Changing to Multi-tier

Following are some additional considerations when changing from a Single-tier model to a Multi-tier model:

- You must move or copy any of your customized or application image files which were stored on the Data/Application Server IFS to the Web Server IFS.
- If you are using SSI (Server Side Includes), remember that these are URL dependant and may require files to be moved to the IFS on the Web Server.
- If you are using validation lists for standard authentication, these lists must be created on the Web Server.

## 6.5 Task: Configure LANSA for the Web Security

In order to determine the most suitable LANSA for the Web security model, review the following:

- 6.5.1 Introduction to LANSA for the Web Security
- 6.5.2 No User Authentication Anonymous User Access
- 6.5.3 Full User Authentication
- 6.5.4 Partial User Authentication Process Level Security
- 6.5.5 Modifying Multi-tier IBM i LANSA for the Web User Information
- 6.5.6 Modifying IBM i Validation Lists

# **6.5.1 Introduction to LANSA for the Web Security**

To understand the LANSA for the Web security options, review the following: Overview of the LANSA for the Web Security Models Understanding the Web Server and IBM i User Profiles LANSA for the Web and IBM i User Profiles

### Overview of the LANSA for the Web Security Models

LANSA for the Web provides you with additional security features, on top of the security of the Web serving software.

There are three alternative security models for implementing user authentication in LANSA for the Web.

#### No User Authentication

You can assign a user profile that is used for anonymous access to your applications. You create the default user profile on your Data/Application Server. The casual visitor to your site uses the anonymous user access to execute your applications without entering a profile or password. The casual visitor does not know that LANSA is running on the Data/Application Server with a default user profile.

#### **Full User Authentication**

Full user authentication uses the CGI-BIN library to request user authentication from the Web Server. All requests to the Web Server and all LANSA for the Web requests will require the Web Server to authenticate the user. All users, even casual visitors to your applications, will be required to provide a user profile.

#### **Partial User Authentication**

Partial user authentication requires user profiles for only a specific set of LANSA processes. You can nominate one or more of your LANSA processes to require user authentication. This LANSA for the Web security model also allows for anonymous access to your applications. If a user accesses a process which has no authentication required, no user profile is requested - the anonymous user access and default profile are used.

This alternative is useful if you intend to deploy your applications over the Internet. It allows the casual visitor to use most of the applications on your Web site, but not all. You can secure parts of your applications that require strict user authentication.

### **Understanding the Web Server and IBM i User Profiles**

Under full authentication, the Web Server will not permit you to access an application unless you provide a valid profile. If a valid profile is provided, then LANSA for the Web is invoked. The Web Server user profile is specific to the Web Server. It is not an IBM i user profile. The Web profiles are created as part of a Web Server validation list. Users are not entering IBM i user profiles over the Internet.

For process level authentication, LANSA for the Web checks if the Web Server user profile is a registered LANSA for the Web user. If the user is known to LANSA for the Web, an associated IBM i user profile is used to execute LANSA at the IBM i. LANSA for the Web will map the Web Server (external Internet profile) onto to a real IBM i (internal) user profile. This IBM i user profile will be used to determine the access rights to IBM i objects.

If the Web Server user profile is not registered with LANSA for the Web, the user will still be allowed to use LANSA for the Web, provided that there is an anonymous user registered. This means that LANSA for the Web will use the default user profile on the IBM i to determine the user's access rights to the IBM i objects. The default user profile should always have minimum authority to the IBM i and LANSA.

Note that once the user has been authenticated by the Web Server, the profile will persist throughout the life of the browser. This means that subsequent requests to LANSA for the Web will use the same user profile, irrespective of whether or not the LANSA process requires user authentication.

**Note:** You should NOT use the same user profiles and passwords throughout your system. If an individual learns your Internet userid and password, they would be able to access that particular Internet application. They would be able to use Telnet and log on to your IBM i!

#### LANSA for the Web and IBM i User Profiles

Web user profiles are maintained by the Web serving software. These user profiles are used by the Web Server to determine the authority levels against directories (or libraries) defined in the Web Server. For example, with full user authentication, the WWWCGI library is defined to require user authentication in the Web Server. In other words, Web user profiles are used by the Web Server. However, these user profiles are only used by the Web Server and they bear no relationship to IBM i user profiles. These are maintained separately.

IBM i user profiles are used to determine the authority level against IBM i objects. LANSA uses the IBM i user profile (not the Web user profile) to determine the authority level of the user.

LANSA for the Web provides a mapping facility between the Web user profiles and the IBM i user profiles so that you can map a Web user profile to an IBM i profile. This is a security feature since the Web user profile is the only user profile that is exposed. The IBM i user profile is not exposed at all. Since the Web user profile only allows you access to the Web Server and not IBM i objects, this LANSA for the Web facility provides you with an additional layer of security in your application. For example, you can change the authority level of the IBM i profile without changing any details of the Web user profile. You can even change the IBM i user profile mapped to a Web user profile.

As a security feature, it is strongly recommended that the Web and IBM i user profiles not be identical.

LANSA for the Web does not perform any object level authority checks. The object level authority checks are performed by LANSA. LANSA for the Web only provides you with a facility to map Web user profiles onto IBM i user profiles. In other words, when you run your Web enabled LANSA application, the object level authority checks are performed by LANSA. LANSA for the Web does not add or remove any of these authority checks from LANSA.

## 6.5.2 No User Authentication - Anonymous User Access

The Anonymous User Access security model uses a default user profile for all your LANSA applications. You should only use this alternative to test your **Web** applications, since it does not limit access to your applications by user profile.

This model does not require you to set up user authentication in the Web Server. In fact, the CGI-BIN library in the Web Server should not be set to require user authentication.

The anonymous user is defined as DFTUSR. This DFTUSR profile is registered to LANSA for the Web using the LANSA for the Web Administrator. The user profile defined for the anonymous user should only have minimal access rights.

For a LANSA partition it is possible to assign anonymous users in the form of DFT\_<partition>, where <partition> is the name of your partition. This feature allows you to set the access for each partition.

Using this model, all your applications are executed using the anonymous user profile.

To use this model, review the Before You Begin Checklist and refer to Steps for Anonymous User Access.

## **Before You Begin Checklist**

Before you begin the Anonymous User Access task, check the following:

- Do you have a LANSA partition security officer profile so that you can execute the LANSA for the Web Administrator?
- Do you have an IBM i user profile to map to DFTUSR?
- Have you checked the authority given to the IBM i user profile to be used with the DFTUSR?

Go to Steps for Anonymous User Access.

# **Steps for Anonymous User Access**

#### **IBM i Servers**

The procedure for setting up anonymous user access is defined in Data/Application iSeries Server Configuration which is on the LANSA Web site.

For more information about IBM i user profiles, refer to Web and IBM i User Profiles in the *LANSA* for the Web Administration Guide.

#### 6.5.3 Full User Authentication

Full user authentication via the Web Server involves setting up the CGI-BIN library to require user authentication. This means that all requests to LANSA for the Web will require the Web Server to authenticate the user. This model uses the Web Server validation and is not LANSA specific.

All users, even casual visitors to your applications, will be required to provide a user profile. This alternative is useful for deploying applications on an Intranet or an Extranet, where you want to control user access to your applications. You will have a defined number of users who are allowed access to your applications.

The Web Server will not permit the user to progress any further unless they provide a valid user profile. If a valid user profile is provided, then LANSA for the Web is invoked.

LANSA for the Web checks to determine if the Web Server user profile is a registered LANSA for the Web user. If the user is known to LANSA for the Web, the associated Data/Application user profile is used to execute LANSA. This user profile will be used to determine the user's access rights at the Data/Application Server.

If the Web Server user profile is not registered, the user will still be allowed to use LANSA for the Web, provided that there is an anonymous user registered in LANSA for the Web. This means that LANSA for the Web will use the default user profile at the Data/Application Server to determine the user's access rights.

If an anonymous user has not been registered, they will not be allowed to use LANSA for the Web.

When configuring the directory limits, remember to enable the GET and POST methods.

To configure Full User Authentication on an IBM i Web Server, complete the following steps:

Before You Begin Checklist

Step 1. Create IBM i Validation List & Add Users

Step 2. Define the Scope for Protection

Step 3. Set Security

Step 4. Register User in LANSA for Web

The screen examples used in these steps were created using the IBM

HTTP Server (powered by Apache) shipped with V5R2.

## **Before You Begin Checklist**

Before you begin to configure the Full User Authentication, check the following:

- Do you have the partition security officer profile & password to use with the LANSA for the Web Administrator? In order to change security definitions, you must use the partition security officer profile.
- Have you checked that you can execute the process and function without process authentication?

Go to Step 1. Create IBM i Validation List & Add Users

### Step 1. Create IBM i Validation List & Add Users

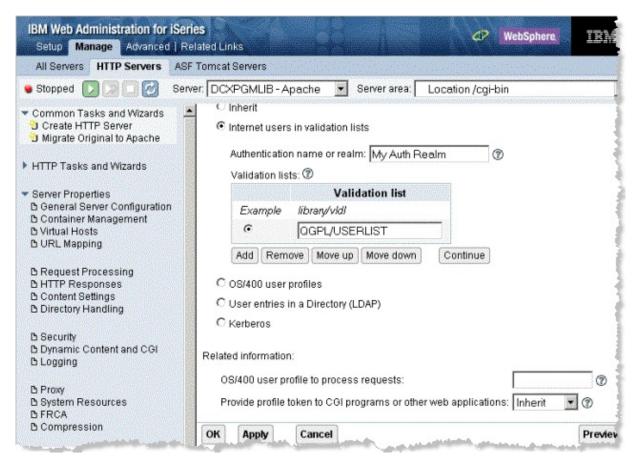
If you do not already have a validation list, you must create one.

To do this:

1. From an IBM i command entry (CALL QCMD), create a validation list using the CRTVLDL command. To create a validation list named USERLIST in QGPL, enter the following:

#### CRTVLDL VLDL(QGPL/USERLIST) TEXT('Validation List')

- 2. Use the **WRKOBJ** command to ensure the validation list has \*PUBLIC with \*USE authority.
- 3. To add users to the newly created validation list, use the IBM Web Administration for IBM i by starting the \*ADMIN instance. From the browser select the *Advanced* tab, from the *Internet Users and Groups* section select **Add Internet User**.



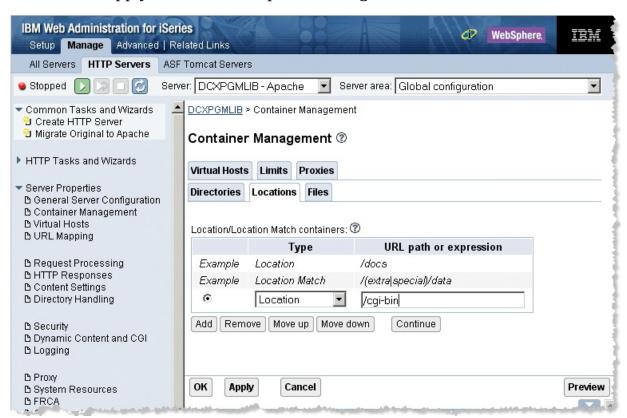
You may also use the W3@P2301 program to add users to the validation list. For more details, refer to 6.5.6 Modifying IBM i Validation Lists.

Go to Step 2. Define the Scope for Protection

### **Step 2. Define the Scope for Protection**

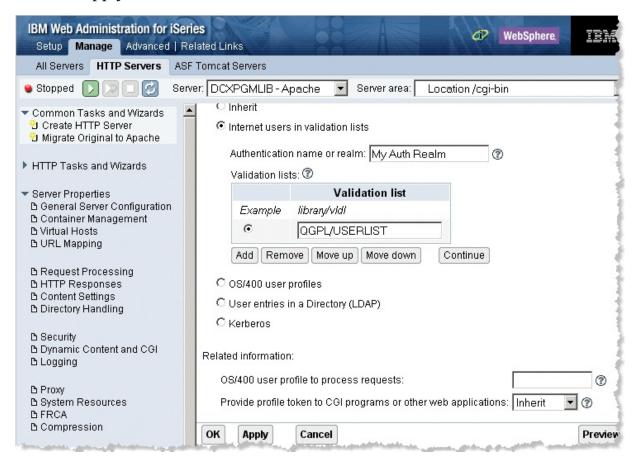
The scope for the CGI-BIN must be defined for the validation list to operate within.

- 1. From within your server instance of the IBM Web Administration for IBM i, expand the Server Properties menu and select *Container Management* to display the Container Management page.
- 2. Select the *Locations* tab.
- 3. From the *Type* column, select **Location** from the dropdown list.
- 4. From the URL path or expression column type in /cgi-bin as the URL path.
- 5. Press the *Apply* button to accept this configuration.



#### Step 3. Set Security

- 1. From within your server instance of the IBM Web Administration for IBM i, expand the *Server Properties* menu and select *Security* to display the *Security* page.
- 2. Use the Server area dropdown list set Location to: /cgi-bin
- 3. Select the *Authentication* tab. Choose the **Internet users in validation lists**.
- 4. Enter an authentication name of your choice.
- 5. Press *Add* to specify the location of your validation list on the IBM i.
- 6. Press Apply.



## Sample IBM HTTP Server (powered by Apache)Configuration

Following is a sample IBM HTTP Server Instance configured for standard authentication running under V5R3 or later.

- This Instance will run on Port 80.
- The CGI library is DCXCOMLIB

• The Validation List it uses is USERLIST in QGPL.

All requests to the Web Server using cgi-bin will require authentication.

# LANSA for the Web Apache HTTP Configuration File

Alias /images /LANSA\_dcxpgmlib/webserver/images

ScriptAliasMatch \(^/cgi-\)

bin/jsmdirect(.\*)/QSYS.LIB/JSMLIB.LIB/JSMDIRECT.PGM\$1

ScriptAliasMatch ^/cgi-

bin/lansaweb(.\*)/QSYS.LIB/DCXCOMLIB.LIB/LANSAWEB.PGM\$1

ScriptAliasMatch \(^/cgi-\)

bin/lansaxml(.\*)/QSYS.LIB/DCXCOMLIB.LIB/LANSAXML.PGM\$1

Listen \*:80

DocumentRoot /LANSA\_dcxpgmlib/WebServer/www/htdocs

# DirectoryIndex /index.html

ServerRoot /www/dcxpgmlib

Options -ExecCGI -FollowSymLinks -SymLinksIfOwnerMatch -Includes -

IncludesNoExec -Indexes -MultiViews

DefaultFsCCSID 37

DefaultNetCCSID 819

LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-

Agent}i\"" combined

 $LogFormat "\%{Cookie}n \"\%r\" \%t" cookie$ 

LogFormat "%{User-agent}i" agent

LogFormat "%{Referer}i -> %U" referer

LogFormat "%h %l %u %t \"%r\" %>s %b" common

CustomLog logs/access\_log combined

SetEnvIf "User-Agent" "Mozilla/2" nokeepalive

SetEnvIf "User-Agent" "JDK/1\.0" force-response-1.0

SetEnvIf "User-Agent" "Java/1\.0" force-response-1.0

SetEnvIf "User-Agent" "RealPlayer 4\.0" force-response-1.0

SetEnvIf "User-Agent" "MSIE 4\.0b2;" nokeepalive

SetEnvIf "User-Agent" "MSIE 4\.0b2;" force-response-1.0

SetEnvIf "User-Agent" ".\*MSIE.\*" nokeepalive ssl-unclean-

shutdown downgrade-1.0 force-response-1.0

ServerUserID DCXPGMLIB

<Directory />

Order Deny, Allow

Deny From all

</Directory>

```
<Directory /QSYS.LIB/JSMLIB.LIB>
 Order Allow, Deny
 Allow From all
</Directory>
<Directory /QSYS.LIB/DCXCOMLIB.LIB>
 Order Allow, Deny
 Allow From all
</Directory>
<Directory /LANSAIMG>
 Order Allow, Deny
 Allow From all
</Directory>
<Directory /LANSA_ii3pgmlib/WebServer/www/htdocs>
 Order Allow, Deny
 Allow From all
</Directory>
<Location /cgi-bin>
 PasswdFile QGPL/USERLIST
 AuthType Basic
 AuthName "My Auth Realm"
 Require valid-user
</Location>
```

Go to Step 4. Register User in LANSA for Web.

## **Step 4. Register User in LANSA for Web**

If you have created a default user (DFTUSR) for LANSA for the Web, all users who pass the Web Server validation will use the anonymous user profile to access the LANSA System.

Alternatively if you are using individual user profiles in the Web Server validation list, you can map them to specific IBM i user profiles. The mapped IBM i user profile will be used to access the LANSA system. You will need to ensure that the IBM i user profiles have proper authority to LANSA and have the correct library lists, etc. For more details refer to LANSA for the Web and IBM i User Profiles.

For details of how to register the users, refer to Step 4. Register Web Users in Partial User Authentication.

#### 6.5.4 Partial User Authentication - Process Level Security

The Partial User security model allows specific processes to be authenticated while the remainder of your application uses anonymous access. With this model you can choose which of your LANSA processes require user authentication.

When LANSA for the Web is invoked, it will check if the Web Server has passed a user profile. If the Web Server has not passed any user profile, then it determines if the requested LANSA process requires user authentication. If no authentication is required for the process, the user will be allowed access as an anonymous user.

However, when the user attempts to use a LANSA process that has been registered as requiring user authentication, LANSA for the Web will redirect the request to the LANSAWEB script program in a library which forces the Web Server to request a user profile. The Web Server will not permit any further progress until a valid user profile is provided. If a valid user profile is provided, then LANSA for the Web is invoked.

You do not have to modify the URL of your LANSA applications using this alternative. Your URL will still point to the CGI-BIN library. LANSA for the Web looks after the redirection of the request to the authentication library automatically for processes that have been set up for user authentication.

If a Web Server has passed a user profile, LANSA for the Web checks if it is a registered LANSA for the Web user. If the user is known to LANSA for the Web, the associated Data/Application Server user profile is used to execute LANSA. This user profile will be used to determine the access rights at the Data/Application Server.

If the Web Server user profile is not registered with LANSA for the Web, the user will still be allowed to use LANSA for the Web provided there is an anonymous user registered. This means that LANSA for the Web will use the default user profile to determine your access rights.

Note that once the Web Server has authenticated the user, the profile is persistent throughout the life of the browser. This means that a subsequent request to LANSA for the Web will use the same user profile, irrespective of whether or not the LANSA process requires user authentication.

To configure Partial User Authentication on an IBM i Web Server, complete the following steps:

Before You Begin Checklist

- Step 1. IBM i Validation Lists & Add Users
- Step 2. Update IBM i Web Server Configuration
- Step 3. Execute Administrator to Define Process Authentication
- Step 4. Register Web Users

For details of authentication using a Windows Web Server, refer to the Installing LANSA on Windows Guide.

## **Before You Begin Checklist**

Before you begin to configure the Partial User Authentication, check the following:

- Do you have the partition security officer profile & password to use with the LANSA for the Web Administrator? In order to change security definitions, you must use the partition security officer profile.
- Have you checked that you can execute the process and function without process authentication?

Go to Step 1. IBM i Validation Lists & Add Users.

# Step 1. IBM i Validation Lists & Add Users

Follow the instructions in Step 1. Create IBM i Validation List & Add Users as described for Full User Authentication.

You may wish to create a new validation list or use an existing validation list. In this example, the validation list is named USERLIST.

Go to Step 2. Update IBM i Web Server Configuration.

### Step 2. Update IBM i Web Server Configuration

Start the \*ADMIN instance to use the IBM Web Administration for IBM i to configure your server.

You will then need to create a Web Server alias for this library. By default, LANSA for the Web assigns the alias as AUTHLIB. Once the AUTHLIB alias is set up, you will then configure your LANSA Communications library, DCXCOMLIB, to require user authentication. This means that the CGI-BIN library does not require user authentication, but when processes require authentication, the request is always redirected to the AUTHLIB URL path for identification.

Create the Web Server alias for authentication.

Using the Web Administration for IBM i, expand the Server Properties menu tree.

- 1. Click on the URL Mapping menu item.
- 2. From the Alias Tab, click Add.
- 3. Select the Script Alias Match.
- 4. Set the URL path of the LANSAWEB CGI program to \(^\au\text{authlib}\)/lansaweb(.\*)
- 5. Set the Host directory or file to /QSYS.LIB/DCXCOMLIB.LIB/LANSAWEB.PGM\$1
- 6. Repeat steps 1 5 for to set the Script Alias Match directive the URL path \(^\authlib/\lansaxml(.\*)\) for the host file \(^\QSYS.LIB/DCXCOMLIB.LIB/LANSAXML.PGM\$1\)
- 7. Press the *Apply* button.

Your configuration now contains the added lines:

ScriptAliasMatch \( \alpha\) authlib/lansaweb(.\*) \( \QSYS.LIB/DCXCOMLIB.LIB/LAN \) ScriptAliasMatch \( \alpha\) authlib/lansaxml(.\*) \( \QSYS.LIB/DCXCOMLIB.LIB/LAN \)

Define the location path for authentication.

- 1. From Container Management, check you are in the Server area: Global configuration.
- 2. Select the Locations tab.
- 3. Add a Location type to the /authlib URL path.

4. Press the *Apply* button.

Define the scope of protection and set the security.

- 1. From Security, ensure Server area is set to Location: /authlib
- 2. From the Security menu item, select the Authentication tab.
- 3. Choose the Internet users in validation lists.
- 4. Type in your authentication name/realm of your choice.
- 5. Click Add to specifiy the location of your validation list on the IBM i.
- 6. Press the *Apply* button.

Your configuration now contains the added lines:

<Location /authlib>
PasswdFile QGPL/USERLIST
AuthType Basic
AuthName "My Auth Realm"
Require valid-user
</Location>

## Sample IBM HTTP Server (powered by Apache)Configuration:

Following is a sample IBM HTTP Server Instance configured for standard authentication running under V5R3 or later.

This Instance will run on Port 80.

The CGI library is DCXCOMLIB

The Authenticated library is DCXCOMLIB

The Validation List it uses is USERLIST in QGPL.

Once a LANSA for the Web Process is configured for Process Authentication using the Web Administrator, the following IBM HTTP Server Configuration will prompt the User for User ID and Password. This is validated against the USERLIST Validation List in QGPL.

# LANSA for the Web Apache HTTP Configuration File Alias /images /LANSAIMG/
ScriptAliasMatch ^/cgibin/jsmdirect(.\*) /QSYS.LIB/JSMLIB.LIB/JSMDIRECT.PGM\$1
ScriptAliasMatch ^/cgibin/lansaweb(.\*) /QSYS.LIB/DCXCOMLIB.LIB/LANSAWEB.PGM\$1

ScriptAliasMatch ^/cgi-

bin/lansaxml(.\*)/QSYS.LIB/DCXCOMLIB.LIB/LANSAXML.PGM\$1

ScriptAliasMatch ^/authlib/lansaweb(.\*) /QSYS.LIB/DCXCOMLIB.LIB/LAN

 $ScriptAliasMatch \land / authlib/lansaxml (.*) / QSYS.LIB/DCXCOMLIB.LIB/LAN$ 

Listen \*:80

DocumentRoot /www/dcxpgmlib/htdocs

# DirectoryIndex /index.html

ServerRoot /www/dcxpgmlib

Options -ExecCGI -FollowSymLinks -SymLinksIfOwnerMatch -Includes -

IncludesNoExec -Indexes -MultiViews

DefaultFsCCSID 37

DefaultNetCCSID 819

LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-

Agent}i\"" combined

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

SetEnvIf "User-Agent" "Mozilla/2" nokeepalive

SetEnvIf "User-Agent" "JDK/1\.0" force-response-1.0

SetEnvIf "User-Agent" "Java/1\.0" force-response-1.0

SetEnvIf "User-Agent" "RealPlayer 4\.0" force-response-1.0

SetEnvIf "User-Agent" "MSIE 4\.0b2;" nokeepalive

SetEnvIf "User-Agent" "MSIE 4\.0b2;" force-response-1.0

SetEnvIf "User-Agent" ".\*MSIE.\*" nokeepalive ssl-unclean-

shutdown downgrade-1.0 force-response-1.0

ServerUserID DCXPGMLIB

<Directory />

Order Deny, Allow

Deny From all

</Directory>

<Directory /QSYS.LIB/JSMLIB.LIB>

Order Allow, Deny

Allow From all

</Directory>

<Directory /QSYS.LIB/DCXCOMLIB.LIB>

Order Allow, Deny

Allow From all

```
</Directory>
<Directory /LANSAIMG>
Order Allow,Deny
Allow From all
</Directory>
<Directory /www/dcxpgmlib/htdocs>
Order Allow,Deny
Allow From all
</Directory>
<Location /authlib>
PasswdFile QGPL/USERLIST
AuthType Basic
AuthName "My Auth Realm"
Require valid-user
</Location>
```

You must enable the GET and POST methods.

Please be sure to review, on the LANSA Web site, www.LANSA.com/support, the *Important Notes for IBM HTTP Server Configuration* in the *Example IBM HTTP Server Configuration* in *Configuration of IBM HTTP Server using CGI*. Go to Step 3. Execute Administrator to Define Process Authentication.

## Step 3. Execute Administrator to Define Process Authentication

- 1. Using the LANSA for the Web Administrator, connect to the desired partition. (You must use the partition security officer profile when connecting to the IBM i.)
- 2. Select the *Security* menu and choose the *Process Authentication* option. The *Process Authentication* dialog will list all processes requiring authentication.



3. To add a new process, press the *Add*. . . button. The *Add Process* dialog box is displayed.



- 4. Enter the name of the process to be secured.

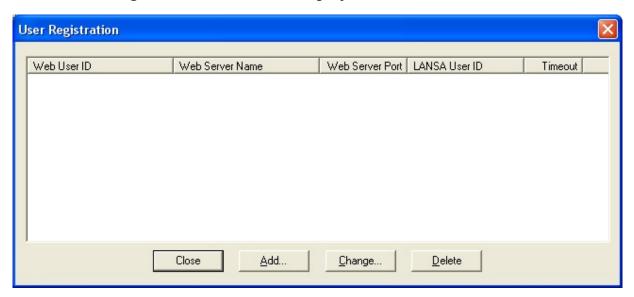
  Use the default for the Authentication Library.
- 5. Press the *OK* button.

Go to Step 4. Register Web Users.

### **Step 4. Register Web Users**

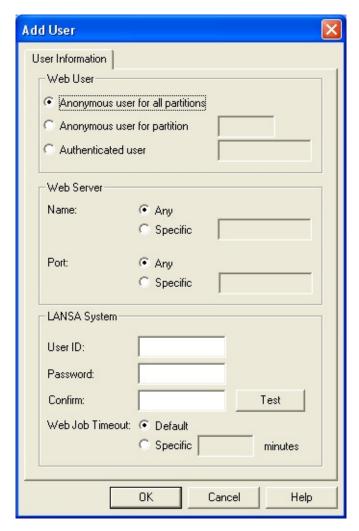
You must now register the Web Users in the validation list to specific IBM i user profiles.

- 1. Using the LANSA for the Web Administrator, connect to the desired partition. (You must use the partition security officer profile when connecting to the IBM i.)
- 2. From the *Security* menu, select *User Registration*. The *User Registration* window is displayed.



3. To create a new user press the *Add*. . . button or right click on the *Web User ID* column and select *Add* from the pop-up menu displayed.

The *Add User* window is opened.



4. Add your IBM i *Host User Information* (User ID and Password) so that the Web Users added to the validation list will be mapped to the corresponding IBM i user profiles when executing LANSA for the Web.

# 6.5.5 Modifying Multi-tier IBM i LANSA for the Web User Information

On the Web Server, in multi-tier situations where the Administrator is not available to modify the user information, you will use the program, W3@P2300 to do the modifications.

At the same time, as calling W3@P2300, you can call W3@P2301 to update an IBM i validation list for the IBM HTTP Server for the IBM i. This allows you to maintain the Web user profiles as well as the mapping between Web and IBM i user profiles.

Alternatively, you can write a CL program that calls the user configuration functions provided by the Web serving product.

The first parameter to the W3@P2300 program is the action you request. Depending on the action parameters, the other parameters differ.

Refer to the following:

Add a New User Profile

Modify Existing User Information

Delete an Existing User Profile

### Add a New User Profile

To add a new user profile mapping information to LANSA for the Web, call the W3@P2300 program with the following parameters:

Parameter	Type	Description
Action	CHAR(3)	This will be 'ADD' if you are adding a new user profile mapping.
Web user profile	CHAR(256)	This is the Web user profile as defined in your Web serving product. This value is case sensitive and must be entered in the actual case.
System Name	CHAR(50)	This is the system name to be used by the Web user. Use *DEFAULT as your Default Parameter or specify either the IP Address or DNS Name.
Port Number	CHAR(5)	This is the port number corresponding to the Web user profile and System Name.
IBM i User profile	CHAR(10)	This is the IBM i profile associated with the Web user profile.
IBM i user password	CHAR(256)	This is the password associated with the IBM i user profile. This value is case sensitive and must be entered in the actual case.
Timeout period for this new user	CHAR(11)	This parameter is optional. The timeout period must be specified in seconds.

## For example:

CALL W3@P2300 PARM('ADD' 'WEBUSER' '\*DEFAULT' '99999' 'QPGMR

## **Modify Existing User Information**

To modify an existing user's information in LANSA for the Web, the parameters to the W3@P2300 program would be:

Parameter	Type	Description
Action	CHAR(3)	This is 'CHG' if you want to modify an existing user profile.
Web user profile	CHAR(256)	This is the Web user profile you want to modify. This value is case sensitive and must be entered in the actual case.
System Name	CHAR(50)	This is the system name to be used by the Web user. Use *DEFAULT as your Default Parameter or specify either the IP Address or DNS Name.
Port Number	CHAR(5)	This is the port number corresponding to the Web user profile and System Name.
Password in existing user information	CHAR(256)	This is the password currently held in the user information table in LANSA for the Web. This value is case sensitive and must be entered in the actual case.
New password to use for user profile	CHAR(256)	This is the new password for the user profile. This value is case sensitive and must be entered in the actual case.
Timeout period	CHAR(11)	This parameter is optional. If this parameter is not specified, the timeout period for the user is not modified.

## For example:

CALL W3@P2300 PARM('CHG' 'WEBUSER' '\*DEFAULT' '99999' 'CURRP/

## **Delete an Existing User Profile**

To delete a user profile from the LANSA for the Web user information table, the parameters used with the W3@P2300 program would be:

Parameter	Type	Description
Action	CHAR(3)	This will be 'DLT' if you want to delete a user profile.
Web user profile	CHAR(256)	This is the Web user profile held in the user information table. This value is case sensitive and must be entered in the actual case.
System Name	CHAR(50)	This is the system name to be used by the Web user. Use *DEFAULT as your Default Parameter or specify either and IP Address or DNS Name.
Port Number	CHAR(5)	This is the port number corresponding the Web user profile and System Name.
Password	CHAR(256)	This is the password as currently defined in the LANSA for the Web user information table. This value is case sensitive and must be entered in the actual case.

#### For example:

CALL W3@P2300 PARM('DLT' 'WEBUSER' '\*DEFAULT' '99999' 'CURRPA

## **6.5.6 Modifying IBM i Validation Lists**

LANSA for the Web provides you with a program, W3@P2301, which allows you to update an IBM i validation list that is used by the IBM HTTP Server for the IBM i for user authentication.

The first parameter to the W3@P2301 program is the action you request. The other parameters differ, depending on the action.

Refer to the following:

Add a New Validation List User Modify an Existing Validation List User Delete An Existing Validation List User

### Add a New Validation List User

To add a new user to an IBM i validation list, you can call the W3@P2301 program with the following parameters:

Parameter	Type	Description
Action	CHAR(3)	This will be 'ADD' if you are adding a new user.
Validation list name	CHAR(10)	This is the IBM i validation list name.
Web User profile	CHAR(256)	This is the IBM i user profile name.
Web user password	CHAR(256)	This is the password associated with the IBM i user profile.
Convert user profile name and password to uppercase	CHAR(1)	This is an optional parameter. The default is "Y" which converts both user profile name and password to upper case. A value of "N" will not convert to upper case.

## For example:

CALL W3@P2301 PARM('ADD' 'USERIST' 'QPGMR' 'PASSWD')

## **Modify an Existing Validation List User**

To modify an existing user in an IBM i validation list, the parameters to the W3@P2301 program would be:

Parameter	Type	Description
Action	CHAR(3)	This is 'CHG' if you want to modify an existing user.
Validation list name	CHAR(10)	This is the IBM i validation list name.
Web User profile	CHAR(256)	This is the IBM i user profile name.
New password to use for user profile	CHAR(256)	This is the new password for the user profile.
Convert user profile name and password to uppercase	CHAR(1)	This is an optional parameter. The default is "Y" which converts both user profile name and password to upper case. A value of "N" will not convert to upper case.

## For example:

CALL W3@P2301 PARM('CHG' 'USERIST' 'WEBUSER' 'PASSWD')

## **Delete An Existing Validation List User**

To delete a user from an IBM i validation list, the parameters used with the W3@P2301 program would be:

Parameter	Type	Description
Action	CHAR(3)	This will be 'DLT' if you want to delete a user profile.
Validation list name	CHAR(10)	This is the IBM i validation list name.
Web User profile	CHAR(256)	This is the IBM i user profile name.
Convert user profile name and password to uppercase	CHAR(1)	This is an optional parameter. The default is "Y" which converts both user profile name and password to upper case. A value of "N" will not convert to upper case.

## For example:

CALL W3@P2301 PARM('DLT' 'USERIST' 'WEBUSER')

## 6.6 Task: Set up IBM i Partition for Web Development

In order to execute or to develop with LANSA for the Web in a new LANSA partition, you must first prepare the partition. You can do this using Partition Initialization during a Custom Install or Upgrade process, or you can manually do it using these instructions.

Complete the following steps (the order of these steps is important):

- 6.6.1 Before You Begin Checklist
- 6.6.2 IBM i Import of LWEBSF & WEBLETS
- 6.6.3 Web Enable IBM i Partition using LANSA for the Web Administrator
- 6.6.4 Optional: Default User for the IBM i Partition

## 6.6.1 Before You Begin Checklist

Before you begin this task, check the following:

• Is your partition Web enabled? That is, did you select the *Web Enable* option for the partition during the *Partition Initialization* process?

You can check if a partition is Web enabled using the Work with Files option and checking for the DC@W\*\* file definitions.

Go to 6.6.3 Web Enable IBM i Partition using LANSA for the Web Administrator.

#### 6.6.2 IBM i Import of LWEBSF & WEBLETS

The LWEBSF and WEBLETS save files must be imported into the partition before you begin any LANSA for the Web configuration or development. For Weblets, the partition must be RDMLX.

These steps only are required if:

you did not use Web Enable option in *Partition Initialization* during the install or upgrade process to Web enable the partition. (Refer to the 6.6.1 Before You Begin Checklist.)

or

you created a new partition after you installed LANSA.

To import the LWEBSF Save file, complete the following step:

- 1. Sign on to the IBM i using a user profile which has authority to the LANSA system.
- 2. From an IBM i command line (CALL QCMD), execute the LANSA command:

<pgmlib>/LANSA PARTITION(ppp) DEVELOPER(A)
where ppp is the partition which is to be Web enabled.

- 3. From the *Administration Menu*, select the Partition Initialization option.
- 4. Select the *Web Enable* option to automatically Web Enable the partition. Weblets will also be imported if the partition is RDMLX.
- 5. Once the job is completed, check the import job log to ensure that the job has completed successfully.

#### **General Information**

You must import the LWEBSF and WEBLETS IBM i save files into each partition in which you plan to use LANSA for the Web. The import is needed only once (per LANSA version) to each web enabled partition.

The LWEBSF and WEBLETS save files are stored in the LANSA program library. Do NOT delete these save files.

The import can be done during Partition Initialisation (refer to Partition Initialization with the install process or Partition Initialization with the upgrade process.

Always check the job log after the import has been completed.

If you have NOT imported LWEBSF and you attempt to use the LANSA for the Web PC-based Administrator, you will receive the following type of LANSA Validation Message "No file definition found with full or partial name . . .".

Go to 6.6.3 Web Enable IBM i Partition using LANSA for the Web Administrator.

# 6.6.3 Web Enable IBM i Partition using LANSA for the Web Administrator

You must use the LANSA for the Web Administrator to Web enable the partition.

Complete the following steps:

- 1. Start the Web Administrator.
- 2. Connect to the IBM i Data/Application Server as Partition Security Officer.
- 3. Choose the Tools menu and select the Enable Partition... command. The *Enable Partition* dialog will open.



4 Enter the 3 character partition identifier (such as SYS) and press OK to Web enable the partition.

This option will create the required Standard HTML pages in the partition. You should Web enable a partition only once.

5. Exit the LANSA for the Web Administrator.

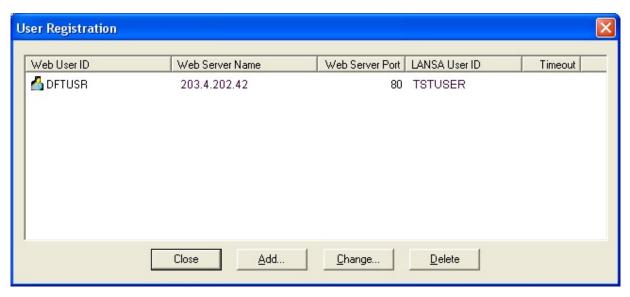
Go to 6.6.4 Optional: Default User for the IBM i Partition.

### 6.6.4 Optional: Default User for the IBM i Partition

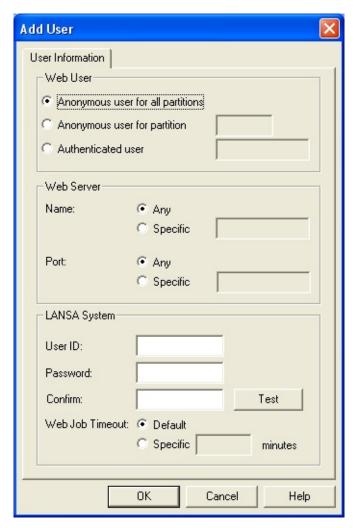
These steps are optional.

If you are using anonymous user access to the Web site, you can configure a partition-specific default user profile.

- 1. Start the Web Administrator.
- 2. Connect to the IBM i Data/Application Server as partition security officer.
- 3. Choose the *Security* menu and select the *User Registration*... command. The *User Registration* window is displayed:



4. Press the *Add* button on the *Add User* dialog to register a new user.



- 5. Enter the required information. For the Web User, choose *Anonymous user for partition* and enter the three character partition identifier. For more information about the IBM i user profile, refer to Web and IBM i User Profiles in the *LANSA for the Web Administration Guide*.
- 6. Exit from the LANSA for the Web Administrator.

The new partition is now ready for use.

You have completed the *Web Enable New IBM i Partition using Web Administrator* task.

#### 7. LANSA Integrator Configuration and Set Up on IBM i

Once the LANSA Integrator has been installed on the IBM i, you must perform some tasks to complete the configuration of the Java Service Manager. These are described in 7.1 Task: Configure the Java Service Manager on IBM i.

Once the LANSA Integrator has been installed on the IBM i, you must perform some tasks to complete the configuration of the Java Service Manager.

If you encounter any problems when installing or executing the Java Service Manager, review the Troubleshooting section of the LANSA Integrator Guide.

The Configuration of LANSA Integrator includes the following tasks:

7.1 Task: Configure the Java Service Manager on IBM i

7.2 Task: Configure JSMDirect on an IBM i

7.3 Task: Install LANSA Integrator Software on Windows PC

#### 7.1 Task: Configure the Java Service Manager on IBM i

After you have installed the LANSA Integrator, you must check that the default instance values are suitable.

#### **Before You Begin**

• Review the work management objects created in the Java Service Manager library.

A library (default JSMLIB) is created during the install and stores objects used by the Java Service Manager. This includes a number of work management objects such as the JSM subsystem description and JSM job description.

If you specified a LANSA program library when installing the Java Service Manager then the work management objects will have been adjusted to use the correct LANSA libraries.

#### Step 1. ADDLIBLE JSMLIB

Use the ADDLIBLE LIB(<jsmlib>) (e.g. JSMLIB) command to include the JSM library to your library list.

#### Step 2. Go JSM

Use the command GO JSM to call the *Java Service Manager Administrator Menu*.

#### Step 3. Check configuration values

Check the \*DEFAULT value of the JSM instance directory to confirm that the location is the same as the directory to which the JSM manager was restored.

DSPDTAARA DTAARA(JSMMGRDTA)

```
Data area . . . . : JSMMGRDTA
Library . . . . : DEVJSM
Type . . . . : *CHAR
Length . . . : 50
Text . . . : JSM Manager Configuration

Offset *..+..1...+...2...+...3...+...4...+...5
0 '/LANSA_<jsmlib>/jsm/instance '
```

Check the default value of the JSMClient host and port value. This value must

match the tcp.interface and tcp.port entry from the manager.properties file. DSPDTAARA DTAARA(JSMCLTDTA)

```
Data area . . . . : JSMCLTDTA
Library . . . . : DEVJSM
Type . . . . : *CHAR
Length . . . : 100
Text . . . : JSM Client Configuration

Offset *..+...1...+...2...+...3...+...4...+...5
0 'LOCALHOST:4560 '
50 'JSM '
```

Use menu option 4. *Edit Manager Properties* of the *Java Service Manager Administrator Menu*, to display the contents of the manager.properties file.

Edit File: /devjsm/instance/system/manager.properties

```
#
# Java Service Manager configuration
#
tcp.port=4560
tcp.backlog=20
tcp.interface=*all
#
console.tcp.port=4561
console.tcp.backlog=5
console.tcp.interface=*all
```

The tcp.interface value of \*all means all interfaces on the machine, so LOCALHOST is valid.

#### Step 4. Optimize Java Service Manager

If you did not run this process when you installed LANSA Integrator, you will need to optimise the supplied jar files now.

The optimize process uses the CRTJVAPGM command to create IBM i objects from the JSM jar files.

These IBM i objects are used by the JAVA command for direct program execution.

Use option 3. *Optimize Java Service Manager* of the *Java Service Manager Administrator Menu*.

Note that this job is submitted to batch and is a long running task.

You have now completed the Java Service Manager installation.

#### 7.2 Task: Configure JSMDirect on an IBM i

If you intend to use the CGI program JSMDIRECT, then you will need to have the correct mapping in your HTTP server configuration.

If you have installed LANSA for the Web with your LANSA system, then the default HTTP configuration will already have the information for JSMDIRECT.

If you are using the IBM Original HTTP server your configuration should contain an entry as follows:

Exec /cgi-

bin/jsmdirect/QSYS.LIB/<jsmlib>.lib/JSMDIRECT.PGM %%BINARY%%

If you are using the IBM Apache HTTP server, your configuration should contain the following entries:

<Directory /QSYS.LIB/<jsmlib>.LIB>
Order Allow,Deny
Allow From all
Options -ExecCGI
CGIConvMode BINARY
</Directory>

## 7.3 Task: Install LANSA Integrator Software on Windows PC

The LANSA Integrator software includes a number of Windows-based tools including:

- Integrator Studio
- User Agent
- RFI Example

To use any of these tools, perform the relevant installation tasks as described in the *Installing LANSA* on *Windows Guide*.

## 8. Other Configuration and Setup Tasks on IBM i

These are the additional configuration and setup tasks on the IBM i:

- 8.1 Task: LANSA Open Setup on IBM i
- 8.2 Task: LANSA Client Setup on IBM i
- 8.3 Task: LANSA Email Setup on IBM i
- 8.4 Task: Test LANSA for i on IBM i
- 8.5 Testing using the Personnel System
- 8.6 LANSA for i What's Next?

Task: Upgrade an Additional Listener in the *LANSA Communications Setup Guide*.

### 8.1 Task: LANSA Open Setup on IBM i

LANSA Open, previously called LANSA/Server, is 'middleware' or software that facilitates the high-speed transfer of information and data between PC-based client applications and an IBM i server using LANSA.

Before you can run LANSA Open, you must have:

- LANSA for i software loaded on the IBM i.
- A LANSA Open license installed on the IBM i.
- LANSA Open software installed on the workstation.

For details about the tasks to be completed on the IBM i, review the following:

- 8.1.1 Preparing LANSA for i for LANSA Open
- 8.1.2 Adjusting the DC@A1O Buffer/Data Area
- 8.1.3 TCP/IP and LANSA Listeners

#### 8.1.1 Preparing LANSA for i for LANSA Open

If you are not already using LANSA Open, you will need to prepare the IBM i server for access by your client/server applications. Following is an outline of the steps you will need to perform when using an IBM i server as the host to LANSA Open.

- 1. Sign on to the IBM i with a user profile that has the authority to carry out these steps
- 2. Check that your LANSA system is at Version V12, Version 12 SP1 or Version 13 and that all required EPCs (Expedited Program Changes) have been applied. If your LANSA system is not at the required level, you must upgrade it before using this version of LANSA Open. For the required upgrade steps, please contact your LANSA product vendor.
  - For how to check the EPCs that have been loaded, refer to For information about Expedited Program Changes (EPCs), in the LANSA for i User Guide.
- 3. Set up IBM i User Profiles for the PC users to access the data on the IBM i. When these user profiles are created, be sure that they are granted authority for access to LANSA programs and that a proper job description is specified. The job description for the user profile must have a library list which contains the following libraries:

**QGPL** 

**QTEMP** 

LANSA for IBM i program library

LANSA Communications library

4. Add a directory entry to the System Distribution Directory for each IBM i User Profile.

Ensure that the User Profiles are enabled to connect to the IBM i via TCP/IP.

- 5. Enter the LANSA Open license code supplied by your LANSA vendor. Refer to LANSA IBM i License for information.
- 6. Review and set the DC@A10 data area to a level suitable for your applications. For more details, refer to 8.1.2 Adjusting the DC@A10 Buffer/Data Area.
- 7. Review the settings for

- Support Client, SuperServer or Server (\*IOMXSERVER)
- Support high speed record blocking in PF key order (\*IOMBLOCKBYKEY)
- Support high speed record blocking in RRN order (\*IOMBLOCKBYRRN)

Note that if you change these keywords you must compile (or recompile) the I/O modules of the files to be accessed. Refer to Compile and Edit Settings in the *LANSA for i User Guide* for more information about these keywords.

- 8. You must configure and start a LANSA Listener if you have not already done so. Refer to 8.1.3 TCP/IP and LANSA Listeners.
- 9. Make the fields and files to be accessed via LANSA Open known to the LANSA Repository on the IBM i. Refer to the *Introduction to LANSA for i Guide* for details on the options available.
- 10.Once you have made your files known to LANSA, you may want to extend their functionality through the use of virtual fields, predetermined joins, access routes, or any of the many Repository features. To learn more about implementing these features refer to the *LANSA for i User Guide*.

#### 8.1.2 Adjusting the DC@A1O Buffer/Data Area

The DC@A10 data area is an optional data area used by LANSA Open to buffer requested data.

When the IBM i receives a request to select records, and to save all the records selected pending transfer to the workstation, it uses this user space to hold the selected records.

By default, the size of this user space is 500,000 bytes. If you wish to allow larger requests or limit requests, specify the value in data area DC@A10.

For example, records are stored in this data area when an LceRequestSelect function is used with the \*RECEIVEIMMED option **not** set, pending the receipt of the LceReceiveSelect function. Note that if the LceRequestSelect selects records which exceed the space specified, an error will occur.

The LANSA data areas are described in detail in the System Data Areas in the *LANSA* for *i User Guide*.

#### 8.1.3 TCP/IP and LANSA Listeners

When you use TCP/IP for LANSA Open communications to the IBM i, you will require a LANSA Listener.

A Listener is simply a communications manager. The IBM i Listener is a subsystem and group of jobs which are defined to accept requests from LANSA Open. The subsystem is used to manage the LANSA Listener jobs for communication to the workstation products.

To check that the Listener is working, go to Verify Listener is Active or to install a LANSA Listener, go to the *Communications Setup Guide*: IBM i Configuration.

#### 8.2 Task: LANSA Client Setup on IBM i

LANSA Client is LANSA's end user query and reporting tool which executes under Windows to access the repository that resides on the IBM i.

Before you can run LANSA Client, you must have:

- LANSA for i software loaded on the IBM i.
- A LANSA Client license installed on the IBM i.
- Specific LANSA Client components installed in each partition which LANSA Client will be using.
- LANSA Client software installed on the workstation.

The installation of these components is described in the *LANSA Client Guide*.

LANSA Client is supplied with a Tutorial that gives a step-by-step introduction to the LANSA Client features. For details of installing the partition and files, refer to the *LANSA Client Guide*:

- for an **IBM i host**, refer to Set up the Tutorial files on an IBM i Host. or
- for a **Windows host**, refer to Set up the Tutorial files on a Windows Host.

To see LANSA Client running against a pre-existing set of files, you can install the client side software and immediately run LANSA Client against the Personnel System file supplied. It contains the fields, files, processes and functions to run a mini Personnel System.

### 8.3 Task: LANSA Email Setup on IBM i

The LANSA Email Setup on IBM i task includes the following steps.

- 8.3.1 Step 1. Configure TCP/IP
- 8.3.2 Step 2. Configure Simple Mail Transfer Protocol (SMTP)
- 8.3.3 Step 3. Setup the Mail Server Framework (MSF)
- 8.3.4 Step 4. Set System Value QUTCOFFSET
- 8.3.5 Step 5. Grant object authorities to the LANSA Product Owner
- 8.3.6 Step 6. Test your Configuration

You may also wish to review the 8.3.7 Sample LANSA Email Function.

## 8.3.1 Step 1. Configure TCP/IP

Refer to the *IBM i TCP/IP Configuration and Reference guide (SC41-5420-00)*. Read the chapter named *Configuring TCP/IP* for details of the basic TCP/IP configuration.

You may wish to automate the startup of TCP/IP so it is automatically started after IPL.

Ensure your TCP/IP configuration is working properly before proceeding any further. Use the **ping** command to verify you can reach another machine through TCP/IP.

#### 8.3.2 Step 2. Configure Simple Mail Transfer Protocol (SMTP)

Once you have TCP/IP working correctly, the next step is to configure SMTP. Read the chapter *Simple Mail Transfer Protocol (SMTP)* in the *TCP/IP Configuration and Reference guide (SC41-5420-00)*.

This IBM guide explains how to send and receive mail with OfficeVision or with the SNDDST and RCVDST commands if you don't have OfficeVision. Although it is not required that you learn how to use these commands to send and receive mail, they can be very useful for testing and troubleshooting at a later stage.

You don't need to setup the distribution directory to send messages using the LANSA Email Built-In Functions. The LANSA Email Built-In Function MAIL\_ADD\_RECIPIENT accepts a full SMTP address. Refer to the *LANSA Technical Reference Guide* for details of the Email Built-In Functions.

#### Tip

Define one remote SNADS name with its corresponding SMTP alias to use when testing the sending of messages using either OfficeVision or the SNDDST command. This SNADS name must have SMTP as its preferred address.

#### Note:

- If you want to use the current user as the default originator, that is, you won't be adding an originator with the built-in function MAIL\_ADD\_
  ORIGINATOR, then the current user must be registered in the SNADS distribution directory with SMTP as his/her preferred address and have a SMTP alias.
- If you want to receive replies to your mail messages, which would be outside LANSA (either using OfficeVision or the RCVDST command) you will need to be registered in the SNADS distribution directory and have your SMTP alias to allow SNADS to translate the SMTP address of the incoming mail into your SNADS name.

If you will be sending mail over the Internet, the remote name server that you nominate should be able to resolve domain names (i.e. be a Domain Name Server).

#### 8.3.3 Step 3. Setup the Mail Server Framework (MSF)

The Mail Server Framework (MSF) is the distribution framework which supports mail on the IBM i.

You don't need to configure MSF to use LANSA Email Built-In Functions. LANSA writes MSF messages which mimic a SNADS generated mail message and is handled by the IBM provided MSF exit point programs (the programs which process the mail messages written to MSF).

To start MSF manually enter the command:

#### STRMSF NBRMSFJOB(n)

Where n is the number of MSF jobs you want to start. Each MSF job processes a message from start to end before processing the next one in the queue. The more MSF jobs you nominate in the "Number of MSF Jobs" parameter, the more messages can be processed concurrently.

To end MSF manually enter the command:

#### **ENDMSF**

The MSF jobs run in subsystem QSYSWRK. Note that by default, QSYSWRK has an autostart job (QZMFECOX) which starts MSF jobs. You may want to customize this autostart job.

For more details about these commands, refer to the chapter *Operations Considerations* in the *AnyMail/400 Mail Server Framework Support Guide* (SC41-5411-00).

## 8.3.4 Step 4. Set System Value QUTCOFFSET

This system value stores the Coordinated Universal Time Offset. If this value is not set you must set it up so that your mail messages will be stamped with the correct date and time.

# 8.3.5 Step 5. Grant object authorities to the LANSA Product Owner

LANSA uses MSF API programs to create mail messages. IBM ships these API programs with an object authority of user \*PUBLIC with authorization \*EXCLUDE to restrict access to the APIs.

You must grant the LANSA Product Owner \*USE authority to the following MSF API programs:

ProgramLibraryQZMFACRTQSYSQZMFARTVQSYS

#### 8.3.6 Step 6. Test your Configuration

Use this step to confirm you have completed the previous steps correctly. You will need access to another IBM i or a PC to which you will send the test mail message.

- 1. Send a mail message using OfficeVision or the SNDDST command to your test recipient (as described in Step 2).
- 2. Send a mail message from a LANSA function using the Email Built-In Functions. You may use the following sample function or create one of your own. To keep the example simple we have omitted error handling, but you would normally check the return codes in your real-life application:

```
FUNCTION OPTIONS(*DIRECT);
****** COMMENT(Working fields, lists and groups);
DEFINE FIELD(#ORGL) TYPE(*CHAR) LENGTH(60) LABEL('From') DE!
DEFINE FIELD(#RCPL) TYPE(*CHAR) LENGTH(60) LABEL('To') DESC(
DEFINE FIELD(#SUBJECT) TYPE(*CHAR) LENGTH(60) LABEL('Subject
DEFINE FIELD(#RET_CODE) TYPE(*CHAR) LENGTH(2) DESC('BIF retu
GROUP BY NAME(#PANELDATA) FIELDS(#ORGL #RCPL #SUBJECT);
BEGIN_LOOP;
REQUEST FIELDS(#PANELDATA)
****** COMMENT(Start a mail message);
USE BUILTIN(MAIL_START) TO_GET(#RET_CODE)
****** COMMENT(Add the originator);
USE BUILTIN(MAIL_ADD_ORIGINATOR) WITH_ARGS(#ORGL) TO_GI
****** COMMENT(Add the recipient);
USE BUILTIN(MAIL ADD RECIPIENT) WITH ARGS (TO #RCPL) TO (
****** COMMENT(Set the mail message subject);
USE BUILTIN(MAIL SET SUBJECT) WITH ARGS(#SUBJECT) TO GET
****** COMMENT(Send the mail message);
USE BUILTIN(MAIL_SEND) TO_GET(#RET_CODE);
END LOOP;
RETURN;
```

#### 8.3.7 Sample LANSA Email Function

This example of a LANSA function will generically copy an IBM i spooled file (i.e. a report) and email it to a nominated address. If you have Visual LANSA you can directly cut-and-paste this example into your system and then check it into your IBM i:

```
FUNCTION OPTIONS(*DIRECT);
****** COMMENT(Fields that the caller can optionally exchange in);
****** COMMENT(which should really be defined in the dictionary);
DEFINE FIELD(#EMSPLFN) TYPE(*CHAR) LENGTH(010) DESC('Report
DEFINE FIELD(#EMSPLFD) TYPE(*CHAR) LENGTH(001) DESC('Delete
DEFINE FIELD(#EMORIGIN) TYPE(*CHAR) LENGTH(060) DESC('Email
DEFINE FIELD(#EMRECPNT) TYPE(*CHAR) LENGTH(060) DESC('Emai
DEFINE FIELD(#EMSUBJECT) TYPE(*CHAR) LENGTH(060) DESC('Ema
****** COMMENT(Local Fields for this function);
DEFINE FIELD(#EMLINE) TYPE(*CHAR) LENGTH(132) DESC('Line of t
DEFINE FIELD(#EMRETC) TYPE(*CHAR) LENGTH(002) DESC('Return of the context of the 
****** COMMENT(Create the holding file SPOOLDTA in QTEMP);
EXEC_OS400 COMMAND('CRTPF QTEMP/SPOOLDTA RCDLEN(132) A
USE BUILTIN(CLR MESSAGES);
EXEC OS400 COMMAND('CPYSPLF FILE(#EMSPLFN) TOFILE(QTEMP
****** COMMENT(Start the mail and read and send all lines in report);
USE BUILTIN(MAIL_START) TO_GET(#EMRETC);
EXECUTE SUBROUTINE(CHECKERROR);
USE BUILTIN(MAIL_ADD_RECIPIENT) WITH ARGS(TO #EMRECPNT)
EXECUTE SUBROUTINE(CHECKERROR);
IF COND('#EMORIGIN *NE *BLANKS');
USE BUILTIN(MAIL_ADD_ORIGINATOR) WITH_ARGS(#EMORIGIN) T
EXECUTE SUBROUTINE(CHECKERROR);
ENDIF;
```

```
IF COND('#EMSUBJECT *NE *BLANKS');
USE BUILTIN(MAIL_SET_SUBJECT) WITH_ARGS(#EMSUBJECT) TO_(
EXECUTE SUBROUTINE(CHECKERROR);
ENDIF;
USE BUILTIN(ACCESS FILE) WITH ARGS(OPEN SPOOLDTA QTEMP)
EXECUTE SUBROUTINE(CHECKERROR);
USE BUILTIN(ACCESS_FILE) WITH_ARGS(READ SPOOLDTA QTEMP)
EXECUTE SUBROUTINE(CHECKERROR);
DOWHILE COND('#EMRETC = OK');
USE BUILTIN(MAIL_ADD_TEXT) WITH_ARGS(#EMLINE) TO_GET(#E
EXECUTE SUBROUTINE(CHECKERROR);
USE BUILTIN(ACCESS_FILE) WITH_ARGS(READ SPOOLDTA QTEMP)
EXECUTE SUBROUTINE(CHECKERROR);
ENDWHILE:
****** COMMENT(Close the temporary file and send the mail);
USE BUILTIN(ACCESS_FILE) WITH_ARGS(CLOSE SPOOLDTA QTEMP
EXECUTE SUBROUTINE(CHECKERROR);
USE BUILTIN(MAIL_SEND) TO_GET(#EMRETC);
EXECUTE SUBROUTINE(CHECKERROR);
******* COMMENT(Delete the spool file if required);
IF COND('#EMSPLFD = Y');
EXEC OS400 COMMAND('DLTSPLF FILE(#EMSPLFN) SPLNBR(*LAST
ENDIF:
****** COMMENT(Finished);
RETURN;
****** COMMENT(Error checking subroutine);
SUBROUTINE NAME(CHECKERROR);
IF COND('(#EMRETC *NE OK) *AND (#EMRETC *NE EF)');
ABORT MSGTXT('Fatal error detected during Email transfer. See previous mo
ENDIF;
ENDROUTINE;
```

Once you have this function compiled on your IBM i you could add code like

```
this to the end of new or existing reporting programs:

<< PRODUCE THE REPORT >>>
ENDPRINT
CHANGE FIELD(#EMRECPNT) TO('name.user@site');
EXCHANGE FIELDS(#EMRECPNT);
CALL PROCESS(*DIRECT) FUNCTION(<email function name>);
This will send a copy of the report to name.user@site.
Similarly:
```

CHANGE FIELD(#EMRECPNT) TO('name.user@site');
CHANGE FIELD(#EMSUBJECT) TO('YTD Budget Report');
EXCHANGE FIELDS(#EMRECPNT #EMSUBJECT);
CALL PROCESS(\*DIRECT) FUNCTION(MAILRPT);
will send a copy of the report under the subject "YTD Budget Report".

#### 8.4 Task: Test LANSA for i on IBM i

Once you have completed the LANSA software installation and configuration tasks, you are ready to test your system by creating and executing a simple LANSA function.

If you have installed the 8.5.1 Personnel System Demonstration Files, you can perform a test using the following steps:

The Test LANSA for i on IBM i task includes the following steps:

- 8.4.1 Before You Begin Checklist
- 8.4.2 Step 1. Log on to LANSA
- 8.4.3 Step 2. Create a Test Process and Function
- 8.4.4 Step 3. Compile the Test Function
- 8.4.5 Step 4. Execute the Test Function

If you encounter any problems, refer to Troubleshooting.

These instructions have been written to test a LANSA function using the Personnel System. The partition must be Web enabled.

Once you have completed Testing LANSA for i on an IBM i, you have completed the LANSA installation.

# 8.4.1 Before You Begin Checklist

Before you begin the Test LANSA for i task, check the following:

- Do you have the Personnel System imported into the partition you will use?
- Do you have a user profile and password with authority to the partition you will be using?
- Have you reviewed the information about the 8.5.1 Personnel System Demonstration Files?
- Have you reviewed 8.5 Testing using the Personnel System?
- Do you have the appropriate LANSA licenses installed?

Go to 8.4.2 Step 1. Log on to LANSA.

# 8.4.2 Step 1. Log on to LANSA

- 1. Sign on to the IBM i using a user profile that has authority to the partition you will be using. In this example, the SYS partition will be used. The QOTHPRDOWN profile is recommended.
- 2. From an IBM i command entry (CALL QCMD), execute LANSA using the following command:

# <pgmlib>/LANSA PARTITION(SYS) DEVELOPER(A)

3. The LANSA Main System Menu (Advanced) should be displayed.

Go to 8.4.3 Step 2. Create a Test Process and Function.

# 8.4.3 Step 2. Create a Test Process and Function

In this step, you will create a test process named iiPROC00 Test Process and a test function named iiFN000. The test function will use the FRENQ02 template to create a function which can be used to display information in the Department (DEPTAB) and Section (SECTAB) files.

- 1. From the LANSA Main System Menu (Advanced), select the Work with Processes option.
- 2. Press function key F6 to create a new process. Enter the following details (and then press Enter):

New process name	iiPROC00 (where ii are your initials)
Description	Test Process

- 3. From the Work with Processes menu, use option 2=Review/Change Functions to work with your iiPROC01 process.
- 4. Press the F6 function key to create a new function. Enter the following details, then press Enter:

New function name	iiFN000 (where ii are your initials)
Description	Display Sections.
New function type	1 (Generate from Application Template)

5. When the Application Template Selection screen appears, scroll down and select the FRENQ02 Header/Detail Inquiry template. Answer the template questions as shown in the table below. Use the online help if you need additional information about the answer to each template question.

ANSWER
DEPTAB

Select related files to be used	Select Section code table SECTAB
Do you want this function to be part of an action-bar style process?	N
Fields in Header Area	Select all fields
Fields in Detail/List Area	Select DEPTMENT, SECTION, SECTDESC, SECPHBUS
Design the fields in the header are DOWN the screen or ACROSS the screen?	DOWN

- 6. Your function is now created and saved. It is ready for compilation. It is not necessary to edit the RDML.
- 7. Press F12 to exit Work with Functions. The status of your RDML functions will be displayed. Simply press Enter or F12 to return to the Work with Processes menu.

Go to 8.4.4 Step 3. Compile the Test Function.

# 8.4.4 Step 3. Compile the Test Function

- 1. From the Work with Processes menu, use option *7=Compile* to compile your **iiPROC00** process and its function.
- 2. Use the default options on the *Compile/Recompile a Process* screen. Simply press *Enter* to submit the compile.
- 3. Check that the compile completed successfully.

Go to 8.4.5 Step 4. Execute the Test Function.

# 8.4.5 Step 4. Execute the Test Function

- 1. From the *Work with Processes* menu, use option *10=Use* to execute your **iiPROC00** process.
- 2. When the *Test Process* menu appears, select the *Display Sections*.
- 3. When the *Display Sections* function appears, enter a *Department* code of ADM and press *Enter* to see all Sections in the Administration department.
- 4. Exit the function.
- 5. Exit the process.

#### 8.5 Testing using the Personnel System

A very simple Personnel System is supplied to demonstrate application and files. For details about the application, refer to 8.5.1 Personnel System Demonstration Files.

If you plan to use the Personnel System Demonstration Files for testing, you must Web enable the partition. If you didn't Web enable the partition, you can do so manually using the steps in the Task: Set up IBM i Partition for Web Development.

If you do not have the Personnel System installed, you may perform a test provided you create a Web-enabled process and function.

If you are using a Visual LANSA development environment, the Partition Initialization will load the Personnel System database and executable objects. In order to add data to the database files, it is recommended that you execute the Visual LANSA form VL\_INIT. When you execute the Visual LANSA demonstration programs, you can copy data into the Personnel System files.

#### 8.5.1 Personnel System Demonstration Files

The company has a simple organizational structure. It is divided into departments such as Administration, Audit, Information Services, Legal, Travel, etc. Each of these departments may have one or more sections such as Accounting, Purchasing, Sales, etc. The Department table (DEPTAB) stores the list of departments. The Section table (SECTAB) is used to store the sections within each department.

The Personnel Master file (PSLMST) stores details about each employee. For example, the employee's name, address, and telephone number are stored in this master file. As each employee works in a section of a department, this information is also stored in the Personnel Master file.

Each employee also has a list of skills. For example, an employee might have Cobol, C and C++ programming skills or management and administration skills. A Skills table (SKLTAB) is used to store the skill codes. A Personnel Skills file (PSLSKL) stores the specific skills of each employee.

The Personal Event Log file (PSLEVENT) allows significant events and notes to be recorded against an employee. It logically extends the PSLMST file. It is an RDMLX file and therefore will only be available in an RDMLX partition.

The Personnel Time Sheet file (PSLTIMES) records employee time sheet details. Details are recorded by week number (1 to 52) within a year for each employee. It is designed mostly for use with L/Client and to show extensive trigger power by performing relatively complex calculations and storing them in the DBMS without the application needing to know what is happening. Note that all the data is created and stored in the DBMS when information is created or updated, which means that LANSA Client applications have read access to it without needing to use the triggers. It is an RDMLX file and therefore will only be available in an RDMLX partition. It contains examples of a number of RDMLX field types including BLOB.

The physical database layout follows.

**Note:** The LANSA Personnel Demonstration System was originally created in 1987 to execute on a System 38. This same application can still be executed on IBM i as well as Windows, WEB and Linux platforms. The original database and application are virtually unchanged. There have been some extensions to the database to demonstrate RDMLX concepts. This shows how LANSA can protect

your investment in your applications.

The Personnel System uses WAM technology. This is included with the IBM i demonstration material and can be checked out to a Visual LANSA environment as required. This application can be used to give you ideas of how to create and include the elements required for WAM processing.

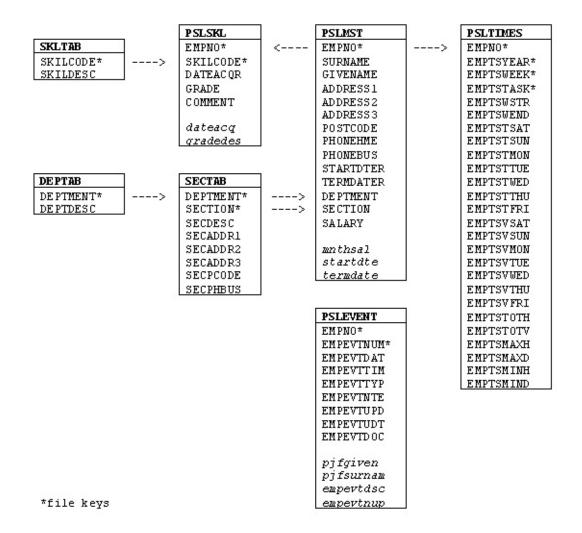
**wam** (web enabled RDMLX partition, only supported for technology service **LANSA:XHTML**):

http://<your path>/CGI-BIN/lansaweb?

webapp=LWAMSYS+webrtn=ldemhome+ml=LANSA:XHTML+I

# **Physical Database Map of Personnel System**

(Including Virtual and Predetermined Join Fields)



## 8.6 LANSA for i - What's Next?

After completing an install or upgrade of a LANSA system, there are several activities that should be completed to help you get the best use from your LANSA system.

Review the following:

- 8.6.1 Learning About LANSA
- 8.6.2 Getting Started with LANSA for i
- 8.6.3 System Settings
- 8.6.4 Installing Other Products and IBM i Tasks.

#### 8.6.1 Learning About LANSA

# **Online Reading**

Whether you have installed a new system or upgraded to the current version, there is some information for you to read to ensure you are aware of what is new and available to you.

For new LANSA users, the online guide *Introduction to LANSA for i* is a good starting point.

# **Personnel Demonstration System**

If you are not familiar with LANSA and the features it offers, you may find it helpful to use the Personnel Demonstration System that is provided in all new LANSA systems. This application comprises a group of fields, files, processes and functions and demonstrates many of LANSA's Repository and display features. The application is compiled and ready to run in both native IBM i mode and from a browser. Data is included.

There is no documentation for this application but there is extensive help text. We suggest you "play" with the application and look at the file and function source that drives it, to gain a good understanding of a LANSA application.

You should load this application if you are planning to use any of the tutorials in the LANSA guides. All tutorials are based on the Personnel Demonstration System.

For more details, refer to 8.5 Testing using the Personnel System.

## Visit LANSA's Web Site

The LANSA web site can be found at www.LANSA.com/support

If you are not already familiar with this web site you will find that it contains detailed information about product versions, support desk tips and techniques, courses available, support contact details, demonstrations, etc.

# 8.6.2 Getting Started with LANSA for i

#### **Create New Partitions**

If you are using LANSA for the first time or if you are getting reacquainted with LANSA to use one of the other products in the LANSA family, it is probably appropriate for you to create at least one new partition for development. Refer to LANSA Partitions in the Introduction to LANSA for i Guide for a description of partitions and how to create a new one.

# **Give Authority to Users**

If you have created a new partition or wish to use new features on the LANSA menus, you must provide your users with the authority to use the new features. To give users the required authority, sign on as QSECOFR or the partition security officer then, from the *Housekeeping Menu*, choose option *2. Review user access to LANSA system*. To simplify the administration of the Repository and LANSA applications, it is recommended that you give authority to a group profile rather than to each individual.

Menu authority is now available in Visual LANSA. Slave Visual LANSA systems are configured from their IBM i masters.

#### 8.6.3 System Settings

Many of LANSA's system wide settings are held in data areas, which can be found in the LANSA program library (this is usually DCXPGMLIB, but it may be different on your machine). You should familiarize yourself with the contents of the data areas using the Review System Settings facility in the *LANSA for i User Guide*.

# **Target Version**

A system setting that you should particularly consider before beginning development is the target version for compiles. Your LANSA system is installed with a default, but this value should be reviewed to ensure its suitability for your requirements. For more information, refer to *Compile and export IBM i target release* in Export and Import settings in the *LANSA for i User Guide*.

# 8.6.4 Installing Other Products and IBM i Tasks

If you installed LANSA for i to support another LANSA product in the LANSA family, return now to that section of this guide describing that product.

# Setup LANSA Open on IBM i

If you are intending to use LANSA Open to build client/server applications, you should complete the 8.1 Task: LANSA Open Setup on IBM i.

# **Setup LANSA Client on IBM i**

If you are intending to use LANSA Client query and reporting tool with your LANSA for i system, you should complete the 8.2 Task: LANSA Client Setup on IBM i.

# Set up LANSA Email on IBM i

If you are intending to use the LANSA Email option, you should complete the 8.3 Task: LANSA Email Setup on IBM i. You will find a description and an example for using each of the Email Built-In Functions in the online LANSA Technical Reference Guide.

#### Set up an extra Listener

If you need to set up an extra Listener, refer to Set up a Separate Listener in the *LANSA Communications Setup Guide*.

# Applying EPCs on IBM i

For information about Expedited Program Changes (EPCs), in the *LANSA* for i *User Guide*.

# 9. Using Independent Auxiliary Storage Pool (IASP)

This description assumes that you understand the purpose of using IASPs. For more information than provided here, please refer to IBM documentation for IASPs.

#### Also see

- 9.1 Upgrade in an IASP
- 9.2 Install in an IASP
- 9.3 How we installed a LANSA System on IASP

# 9.1 Upgrade in an IASP

Before running the LODRUN command you must set the IASP group in which LANSA has been installed.

- Make sure that the IASP group is online.
- Use the IBM i command SETASPGRP < IASPGROUP>

This will allow the LANSA upgrade to include the LANSA system in that IASP group to the list of LANSA systems that may be upgraded. This will not display any LANSA systems in any other IASP groups.

Regardless of the IASP group used, the Install/Upgrade will display all the LANSA systems that are installed in \*SYSBASE ASP to the list of LANSA systems that may be upgraded.

# 9.2 Install in an IASP

The following LANSA components can be installed in an Auxiliary Storage Pool (IASP).

- LANSA
- LANSA for the WEB
- LANSA Integrator
- Open system Utilities

#### You cannot:

- install LANSA Web server (multi-Tier only)in an IASP
- use a Typical Install. You must use a Custom install.

#### Also see

9.2.1 IFS objects

9.2.2 Limitations

# 9.2.1 IFS objects

When installing, the IFS path is displayed without the IASP path name. When the IFS path is created and stored in the data area, it uses the absolute path name.

For example, the IFS path may be displayed as /LANSA\_pgmlib but it is created and stored as /IASP/LANSA\_pgmlib.

#### 9.2.2 Limitations

You cannot use the same user profile name that is used by a LANSA system that is already installed. You must use different users for each LANSA system.

This is not an issue if the LANSA systems are in the \*SYSBAS asp as the user profile name is by default the same as the LANSA program library name but it may be an issue when LANSA systems are installed into IASP groups.

For example, you can install two LANSA systems with the same library names in two different IASP groups but the following must be unique across the IBM i system:

- Partition security officer cannot be the same
- If WEB is used you cannot have the same HTTP Instance name.

During an install, the default subsystem description for the LANSA system is created and placed in the LANSA program library. This subsystem is not able to be started due to a limitation of the current IBM i operating systems. It is possible to move this subsystem description into the \*SYSBAS asp or create your own subsystem description in the \*SYSBAS asp and configure this with the LANSA job entries.

The default job descriptions are also created and placed in the LANSA program library. But the job description that is used for the Partition security officer user profile must be manually moved to a \*SYSBAS asp.

The default work management objects that are created during the install of a LANSA system are essentially created for LANSA to function in a \*SYSBAS asp environment but the necessary changes have been made to be compatible with the use of IASPs. These changes may not be correct for your operational environment. It is strongly recommended that you review and make any necessary changes that are appropriate for your operational environment.

#### 9.3 How we installed a LANSA System on IASP

The LANSA system was installed on IBM i V7R1 system using a custom install with the following values for the ASP parameters:

Auxiliary Storage Pool \*ASPDEV/p>

ASP Device IASP1 Where this is your ASP device name

ASP Group IASP1 Where this is your ASP group name

Once the install is completed the listener subsystem will not start automatically, such as it does when installing in the \*SYSBAS asp.

Following are the steps carried out by LANSA after the install. These steps are for your guidance:

- 1. Sign on as the QSECOFR or the profile that used to do the install.
- 2. SETASPGRP IASP1 (your ASP group).
- 3. Duplicate the Subsystem Description from LANSA Program Library to a Library in the \*SYSBAS asp for this we used QGPL.
- 4. Find the Job Description name and the Library from the Partition Security Officer User Profile that was created by install.
- 5. Duplicate this Job Description from the LANSA Program Library to \*SYSBAS asp library (we used QGPL for this).
- 6. Change the User Profile Job Description Library to use this Library (we used QGPL).
- 7. Start this Subsystem and the Listener Jobs will start as normal.
- 8. This user profile is used to sign on and run the LANSA command to start LANSA.

# 10. Troubleshooting

Before you contact your local vendor for technical support, please review the relevant Troubleshooting section.

The troubleshooting information is divided into the following categories:

- 10.1 Troubleshooting Checklist
- 10.2 Troubleshooting LANSA Listener on IBM i
- 10.3 Troubleshooting Email Setup
- 10.4 Web Troubleshooting

You may wish to review some of the Requirements Checklists, specifically:

- General Installation/Update Requirements Checklist
- *Web Server Software Requirements* in the LANSA for the Web IBM i Requirements.

# 10.1 Troubleshooting Checklist

Before you contact your local LANSA vendor for support, please complete the following checklist and have the answers available.

#### IBM i Servers with LANSA for the Web

- Do you have TCP/IP (STRTCP) running?
- Do you have the HTTP Web Server configured and running?
- Are you able to display the index or home page for the Web Server by entering the IP address of the Web Server into a browser?
- If you are using the IBM HTTP Server for the IBM i and you are using the default user profiles for the IBM HTTP Server configuration, have you checked that both the QTMHHTTP and QTMHHTP1 user profiles are enabled?
- Do you have a LANSA Listener running?
- Have you used WRKACTJOB to confirm that Web Server instances and the LANSA Listener jobs are running?
- Have you used NETSTAT to confirm the Listener port is being listened on? (For example, NETSTAT \*CNN followed by F13, select local port, F14 normally port 4545.)
- Do you have a LANSA for i and LANSA for the Web development license installed?
- Have you installed the LANSA for the Web PC-based Administrator?
- Is the partition Web enabled?
  Have you web enabled the partition using Partition Initialization or have you imported the LWEBSF save file into the partition? You must import LWEBSF before you Web Enable a partition using the LANSA for the Web Administrator.
- Have you created a Default User (DFTUSR) to allow anonymous user access (from the LANSA for the Web Administrator)?
- Have you confirmed that the IBM i user profile associated with the Default User exists and has the correct library list and authority? (For example, QTEMP, QGPL, DCXPGMLIB should be in the library list and the user should have \*JOBCTL authority.)
- Have you set the user profile(s) used to run the LISTENER, TP, LWEB\_MON, LWEB\_JOB so that they have a JOBD with its message

- logging set to \*SECLVL.
- Have you Web enabled the test process you are using? (To do this, select option 28 (*Work with Processes*) on the Advanced Work with menu.)
- Have you recompiled the functions after Web enabling the process? (See step above.)
- Have you configured LANSA for the Web to access your LANSA system correctly using the LANSA for the Web Administrator? Specifically, have you configured LANSA for the Web, including the file location, the working library and the Transaction Server settings, other than the defaults?
- If you have pre-started your transaction monitor, have you used WRKACTJOB to confirm that LWEB\_MON and the LWEB\_JOBS are active?
- Have you checked the Maintain System definitions using the LANSA for the Web Administrator to ensure that you have complete details for the system? For example, do you know the port being used with your system or partition? Initially, and before you change the basic defaults, test this with System Name set to "\*DEFAULT"; PORT set to your port number i.e. 80; LANSA Library set to DCXPGMLIB or your PGM library and Partition left blank.)

# 10.2 Troubleshooting LANSA Listener on IBM i

Following are some of the common errors that may be encountered when executing the LANSA Listener:

- 10.2.1 What should I see if the IBM i Listener is running?
- 10.2.2 How do I know if the IBM i Listener port is active?
- 10.2.3 How do I know if the port is accessible from the Internet?
- 10.2.4 The Listener IBM i sub-system starts but there are no jobs
- 10.2.5 The Listener IBM i sub-system starts and a job starts and then stops. There are no jobs running.
- 10.4 Web Troubleshooting.

# 10.2.1 What should I see if the IBM i Listener is running?

You should see at least three items in the Work Active Job display when you execute the WRKACTJOB command:

Subsystem named: LANLISTEN

Listener Job defined in the Job Description: LISTENER

A TP (Transaction job): TP00000001

If you do not see the subsystem or jobs, then the Listener is not executing properly.

When you start the LANSA for the Web Editor, for example, you should see another job, such as TP000000002, being started. However, bear in mind that if you use a custom prefix for the transaction jobs, then that will be the name of the jobs rather than TP000000nn

**Note**: In this section, "LANLISTEN" and "TP000000nn" are used as the default names for the Subsystem name and the Transaction Jobs. These are the names used by LANSA when a standard LANSA install is performed. Depending on your chosen naming convention, your Subsystem and Transaction jobs may be named differently.

# 10.2.2 How do I know if the IBM i Listener port is active?

Use the IBM i command NETSTAT.

Select the option to Work with IPv4 connection status.

Look for Local Port 4545 (default) and check that the state is LISTEN.

# 10.2.3 How do I know if the port is accessible from the Internet?

If you are using the Internet and cannot access the port, check with your network administrator to ensure that the port is open to Internet access.

If you are using your IBM i on the Internet, there may be firewalls and other servers which may protect the ports being used on the IBM i. Even if the port appears open on the IBM i and the Listener is active, the port could be blocked by a firewall. You must consider your own firewall as well as firewalls used by your customers and your ISP. If any one of these blocks the port, access will not be allowed.

# 10.2.4 The Listener IBM i sub-system starts but there are no jobs

If you see a LANLISTEN subsystem started but no jobs listed in the subsystem, then select option 5 to Work with the subsystem, display the job logs by selecting option 10, and look for any errors.

Also look in the QEZJOBLOG out queue for the job logs of the programs that ran and failed. Check for any authority problems.

Also check the library lists being used for the jobs. Make sure that the proper libraries such as QTEMP, QGPL and the LANSA program library are included in that sequence. (QOTHPRDOWN is used in the instructions for setting up the LANLISTEN Subsystem. QOTHPRDOWN, by default, has a job description QDFTJOBD. This usually does not have DCXPGMLIB in its library list.)

# 10.2.5 The Listener IBM i sub-system starts and a job starts and then stops. There are no jobs running.

When you start the LANLISTEN subsystem, you may see jobs start and then stop.

Look in the QEZJOBLOG for the job logs of the programs that ran and failed. These transaction jobs will have a prefix of TP (unless you have changed the default prefix). Check for any authority problems. If no job logs are generated, you should change the jobs message logging level to LOG (4 00 \*SECLVL) to get full details in the job log.

Also check the library lists being used for the jobs. Make sure that the proper libraries such as QTEMP, QGPL and the LANSA program library are included in that sequence. (QOTHPRDOWN is used in the instructions for setting up the LANLISTEN Subsystem. QOTHPRDOWN by default has a job description QDFTJOBD. This usually does not have DCXPGMLIB in its library list.)

For multiple systems, ensure that there are separate names for the User Queue for Session Jobs otherwise you may receive errors such as "Message . . . . : Lock operation for object LCOTPJOBS not satisfied" in the job logs.

# 10.3 Troubleshooting Email Setup

Troubleshooting a mail application is not easy because:

- there are many components involved, and
- it involves communications with other machines or networks.

For more information, refer to:

10.3.1 Finding the Email Problem

10.3.2 LANSA Email Tracing

# 10.3.1 Finding the Email Problem

# **Configuration and setup:**

- 1. Are TCP/IP and MSF running?
- 2. Check the delivery schedule of the SMTP distribution queues.
- 3. If your recipient machine is an IBM i and you are using OfficeVision, is SNADS running?
- 4. Is your SMTP configuration correct? Have you nominated a Remote Name Server? Is the address of the Remote Name Server correct?
- 5. Has your IBM i exceeded the configured system storage threshold? It is usually shipped as 90%. The current usage can be checked by using command DSPSYSSTS.

#### Where to look:

If LANSA Email is not working, you can attempt to identify where the problem is by looking at:

- 1. The return code of the Email BIFs. If they return an error status, review the job log of the job where the LANSA function is running to read any diagnostic messages issued by LANSA.
- 2. The job log of the MSF job. The MSF job handles the processing of the mail message once it is written to MSF by LANSA. Review the job log to see if there is any indication of a problem.
- 3. The LANSA Email Tracing spooled file. This file traces the mail messages as they are processed by the MSF exit points. Refer to 10.3.2 LANSA Email Tracing for details about tracing LANSA Email messages.
- 4. The chapter *Simple Mail Transfer Protocol (SMTP)* in the *IBM i TCP/IP Configuration and Reference guide (SC41-5420-00)* explains how to send and receive mail with OfficeVision or with the SNDDST and RCVDST commands, if you don't have OfficeVision. You should ensure that SNDDST is set up and functions correctly before setting up LANSA Email.

# **Mail message options:**

The mail message options PRIORITY, SENSITIVITY, IMPORTANCE and RECEIPT\_REQUESTED may be ignored by some mail clients. If your application is only used within your organization, then you can verify that these

options are being recognized. If you are sending mail messages over the Internet and you make these options available to the application users, it is your responsibility to advise them that these options may not be recognized.

#### 10.3.2 LANSA Email Tracing

LANSA for i provides an exit point program which can be registered to MSF for the purpose of tracing mail messages as they are processed by MSF. To register the LANSA Email tracing program perform these steps:

#### Step 1

Work with registration information for exit point. Enter this command:

#### WRKREGINF EXITPNT(QIBM\_QZMFMSF\_TRK\_CHG)

## Step 2

Choose the option to work with exit programs. If there is already a registered exit point program, it is important that you write down its details. You will need these details when and if you need to restore this exit point program.

# Step 3

Register (add) the LANSA Email tracing program (DCXP8711). This program is installed in your LANSA program library (normally DCXPGMLIB). Use these parameters:

```
Add Exit Program (ADDEXITPGM)
Type choices, press Enter.
Exit point . . . . . . > QIBM_QZMFMSF_TRK_CHG
Exit point format ..... > MSFF0100
                                    Name
Program number \ldots > 1
                              1-2147483647, *LOW, *HIGH
Program ..... > DCXP8711
                                 Name
Library ..... > DCXPGMLIB
                                   Name, *CURLIB
Text 'description' . . . . LANSA Email tracing
            Additional Parameters
Replace existing entry . . . > *NO
                                   *YES, *NO
                                *YES, *NO
Create exit point ..... *NO
                                 More
```

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display F24=More keys

### continued ...

Add Exit Program (ADDEXITPGM)							
Type choices, press Enter.							
Exit program data:  Coded character set ID *NONE Number, *NONE, *JOB Length of data 8 0-2048, *CALC Program data TCMM0100							
Bottom							
F3=Exit F4=Prompt F5=Refresh F12=Cancel							
F13=How to use this display F24=More keys							

### Step 4

To start tracing you need to restart the MSF job. When you trace messages it is recommended that you start only one MSF job.

## Step 5

To see the contents of the trace file, find the active MSF job and work with its spooled files. Note that the spooled file won't be opened until mail messages are written to the MSF.

## Step 6

When you have finished tracing, remove DCXP8711 from the registered point (restore the previous exit point program if there was one).

### **Note:**

- DCXP8711 traces all mail messages written to MSF, not just the mail messages generated with LANSA.
- Due to buffering, the last message(s) may not appear in the trace spooled file. You may need to send an extra dummy mail message to make visible the mail message you are looking for.

Tracing will have a significant impact on the performance of your mail processing jobs. You should disable tracing during normal operations.

## 10.4 Web Troubleshooting

Following are common questions asked about installing, configuring and executing LANSA for the Web applications:

- 10.4.1 How can I test if I have a problem with my Web Server configuration?
- 10.4.2 Where do I look for details about problems using IBM i?
- 10.4.3 Is there a simple WAM I can use to test my web configuration?
- 10.4.4 How do I restart the LANSA for the Web monitors?

# 10.4.1 How can I test if I have a problem with my Web Server configuration?

You can try three different tests:

**Test 1**. Using a browser, enter the IP or domain name for your Web Server. You should receive a default index page or home page specified for the Web Server. If you do not receive this page, you must review the Web Server configuration. The problem will need to be resolved before starting LANSA for the Web

**Test 2**. Use the LANSA for the Web Administrator and use the Maintain System option to put the system on hold. If you get the hold message displayed when you try to access your application, then the Web Server configuration is working. (This test does not mean that your LANSA application is working properly.)

**Test 3**. Enter the URL for your **Web** site up to LANSAWEB? For example, you might enter:

### http://123.45.67.89/cgi-bin/lansaweb?

If the configuration is working properly, it will find the LANSAWEB CGI program and you should receive this message: "JOB HAS ALREADY TIMED OUT".

## 10.4.2 Where do I look for details about problems using IBM i?

If you work with the active jobs (WRKACTJOB), view the job logs for the LWEB\_JOBS jobs to see if there are any errors stated in the log.

Also, work with the jobs and check that the library list is correct. The jobs must contain the LANSA libraries in order to execute properly.

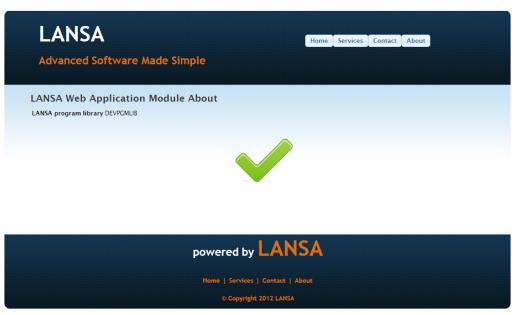
The LWEB\_JOBS will run as your Default User. Be sure to check the associated library list.

# 10.4.3 Is there a simple WAM I can use to test my web configuration?

After you have installed and configured LANSA for the Web for an RDMLX partition, you can execute the following URL as a simple test of your web configuration:

http://<your path>/cgi-bin/lansaweb?
wam=xabout&webrtn=show&ml=LANSA:XHTML&part=<your
RDMLX partition>

The following page should be displayed:



### 10.4.4 How do I restart the LANSA for the Web monitors?

To restart the monitors, you may use the LANSA for the Web Administrator. Choose the Tools menu and select the Configure System command. Under the Transaction Monitor tab, you will see a check box to Reset the Transaction Monitor.

If you prefer to restart the LANSA for the Web from the IBM i command line, then you will:

- 1. Terminate the transaction monitor using program W3@P2200.
- 2. Restart the transaction monitor using this command:

SBMJOB CMD(CALL PGM(W3@P2000) PARM(<pgmlib> <datalib> \*I JOB(LWEB\_MON) JOBQ(<jobq name>)

## **Appendix A. IBM i Objects & Parameters**

When the install has been completed, a number of objects will have been added to the IBM i.

Summary of Installed Objects contains a list of the default objects that may be installed, if a typical install is selected.

The parameters used for the install are stored in data areas. These data areas are used for the next LANSA for i upgrade. For further information refer to LANSA IBM i Install/Upgrade Data Areas.

### **Summary of Installed Objects**

The LANSA IBM i Installation program will install some or all of the following objects depending upon the options selected during the installation:

### LANSA for i (defaults)

- New libraries will be created for the LANSA programs, data and communications including:
  - DCXPGMLIB
  - DCXDTALIB
  - DCXMODLIB
  - DCXCOMLIB
- QOTHPRDOWN user profile will be created.
- DCXPGMLIB user profile as the LANSA for i Partition Security Officer. Note that this partition security officer has no special authority outside the LANSA system. You must give authority to this user profile (or user profile of your choice) to the IFS directory, which is used by the Listener.
  - Password: LANSA
  - Expiry: No.
  - Job description: DCXJOBD.
- LANSA directory tree:
  - /LANSA\_dcxpgmlib (\_dcxpgmlib will be replaced with the name that was selected during install.)
  - /LANSA\_dcxpgmlib/connect used by Listener
  - /LANSA\_dcxpgmlib/jsm used by LANSA Integrator
  - /LANSA\_dcxpgmlib/support used by the About function to store the save file that might require by LANSA support
  - /LANSA\_dcxpgmlib/tmp LANSA directory used as a work directory
  - /LANSA\_dcxpgmlib/webserver/images used by LANSA for the Web
  - /LANSA\_dcxpgmlib/webserver/servlet used by LANSA for the Web. No longer applicable.
  - /LANSA\_dcxpgmlib/webserver/www used for the HTTP server

- RDMLX object directories:
- /LANSA\_dcxpgmlib/x\_LANSA/source
- /LANSA\_dcxpgmlib/x\_LANSA/bin
- /LANSA\_dcxpgmlib/x\_LANSA/web
- /LANSA\_dcxpgmlib/x\_LANSA/x\_SYS
- If LANSA PASE objects are installed, the following directories will be created:
  - /QOpenSys/LANSA\_dcxpgmlib/
- New Listener configuration file will be created in the IFS directory LANSA\_dcxpgmlib/connect
- New subsystem will be created for the Listener.
  - DCXPGMLIB
- New job description will be created for the Listener.
  - DCXLISTJQ
- New job queue will be created for the Listener.

### LANSA for the Web (defaults)

- New work library will be created:
  - DCXWRKLIB
- New directories will be created on the IFS including:
  - /LANSA\_dcxpgmlib/webserver/images
  - /LANSA\_dcxpgmlib/webserver/servlet No longer applicable
- New HTTP configuration instance will be defined with the name DCXPGMLIB.

## LANSA for the Web - Web Server Only (defaults)

- New libraries will be created for the LANSA programs including:
  - DCXADMLIB
  - DCXCOMLIB
  - DCXWRKLIB
- QOTHPRDOWN user profile will be created.

- New directories will be created on the IFS including:
  - /LANSA\_dcxpgmlib/webserver/images
  - /LANSA\_dcxpgmlib/webserver/servlet No longer applicable

### **LANSA Integrator (defaults)**

- Java Service Manager objects will be restored to the nominated library named JSMLIB.
- QOTHPRDOWN user profile will be created.
- New directory LANSA\_dcxpgmlib/jsm/instance or LANSA\_JSMLIB/jsm/instance will be created on the IFS for Java Service Manager files.
- New job description will be created for the Java Service Manager.
- New subsystem description will be created for the Java Service Manager.

### **Open System Utilities (defaults)**

• Programs will be restored to the nominated library named DCXOSULIB.

### **Partition Initialization (defaults)**

- File contents will be updated in the LANSA data library.
- Objects will be restored to the SYS partition library named DCXMODLIB.

## Objects Created but not Deleted by LANSA\_CLN

If your install or upgrade has been unsuccessful, some objects may remain in the LANSA Work library. This library is created during the install and upgrade and is deleted by LANSA\_CLN if the install was successfully completed. The Work Library's name is LANSAINSxx (where xx is a derived number.) Each install and upgrade process will create its own unique version of the work library.

You should delete this library if it remains after the install or upgrade.

### LANSA IBM i Install/Upgrade Data Areas

The data areas used by this upgrade are a subset of the LANSA data areas described in the LANSA Technical Reference Guide.

The values in these data areas are inserted during the initial IBM i LANSA install. No changes are made to these areas when equivalent changes are made to the LANSA objects for which the values are stored. If, for example, the library names are changed after you have installed LANSA, the information displayed will not refer to the new names unless it is manually changed in these data areas.

Should you wish to change the parameters displayed in the summary screens of the Upgrade process, you will do so by changing the value in the relevant data area.

Great care should be taken when updating the data area details.

The maintenance of the LANSA system data areas should be assigned to the LANSA System Administrator, as one of the LANSA System Administrator's tasks is to review and maintain the system defaults to ensure that they are appropriate.

The data areas used by the IBM i Install/upgrade process are:

DCXLOADA01

DCXLOADA02

DCXLOADA04

DCXLOADA05

DCXLOADA01

This data contains the LANSA install/upgrade screen's default field values.

Field/Item	Length	From	To	Description	Options
PGMLIB	10	1	10	Program Library	
DTALIB	10	11	20	Data Library	
COMLIB	10	21	30	Share / Common Library	
	10	31	40	Blank	
	10	41	50	Blank	
CONNIFS	128	51	178	LANSA Connect IFS	Full Path
COMPANY	30	179	208	Company Name	
SYSOWN	10	209	218	Product Owner	
	10	219	228	Blank	
MULTSUPP	1	229	229	Install Multilingual Support	Y/N
DEVLNG	4	230	233	Development Language	ENG, FRA, JPN
IN_ISERIES	1	286	286	LANSA IBM i Install/Update	
IN_WEB	1	287	287	LANSA Web Single Tier Install/Upgrade	
WEBSRV		288	288	Web Server	
IN_INT	1	289	289	LANSA Integrator Install/Upgrade with this LANSA system	
IN_OSU	1	290	290	Open System Utilities install/Upgrade with this LANSA system	

ADMLIB	10	302	311	Administration Library - Web server Multi-tier install	
OSVERSION	1	312	312	OS Version	
JSMLIB	10	500	509	LANSA Integrator - JSM Library	If not Installed with LANSA it will blank
JSMPATH	256	510	765	LANSA Integrator - JSM Path	If not Installed with LANSA it will blank
LST_JOBQ	10	766	775	Listener Job Queue	
LST_JOBD	10	776	785	Listener Job Description	
LST_SBS	10	786	795	Listener Subsystem	
JOBD	10	796	805	Default job description	
USER	10	806	815	Default user	
Directory	40	872	911	LANSA IFS	LANSA Path
ASP	7	960	966	Auxiliary Storage Pool (ASP)	
ASPDEV	10	967	976	ASP device	
ASPGRP	10	977	986	ASP Group	

## **DCXLOADA02**

This data area contains the LANSA for Web install/upgrade screen's default field values (except the required PGM library for Web server install).

Field/Item	Length	From	To	Description	Options
WEBSRVIFC	1	1	1	Web server interface	1- CGI
WEBWRKLIB	10	2	11	Web work library	
WEBCGILIB	10	12	21	CGI library	
WEBAUTLIB	10	22	31	Authentication library	
HOSTCCSID	5	32	36	Host CCSID	
CLNTCCSID	5	37	41	Client CCSID	
WEBIMGIFS	256	50	305	Web Images Path	
WEBJVAIFS	256	306	561	Not applicable	
WEBUSER	10	562	571	LANSA Web default user profile	
WEBJOBD	10	572	581	LANSA Web default Job description	
WEBLIBBKUP	10	582	591	LANSA Multi-tier back out library	
WEBPORT	5	592	596	Web instance default port	
MON_JOBQ	10	601	610	Web Monitor Job queue	
LWEB_JOBQ	10	611	620	Web- LWEB Job queue	
HTTPSRV	256	621	876	Apache HTTP Path	
HTTPTYP	1	877	877	HTTP server type	1= APACHE 2= Original

## **DCXLOADA04**

This data area contains the LANSA Integrator install/upgrade screen's default field values.

Field/Item	Length	From	To	Description	Options
PDBLIB	10	1	10		
JSMLIB	10	11	20	LANSA Integrator - JSM Library	
JSMPATH	40	21	276	LANSA Integrator - JSM Path	
	4	277	280	Not used	
OWNER	10	297	306	JSM Owner	
PREFIX	3	342	344	Library prefix	
JSMJOBUSR	10	385	394	JSM Job user profile	
JSMSBS	10	395	404	JSM subsystem name	
JSMAPORT	5	405	409	JSM Port no	
JSMPORT	5	410	414	JSM Port No	

## **DCXLOADA05**

This data area contains the LANSA Open System Utilities install/upgrade screen's default field values.

Field/Item	Length	From	To	Description	<b>Options</b>
OSULIB	10	1	10	Open system library	
OSUOWN	10	11	20	Owner	
LPGMLIB	10	21	30	LANSA Program library	
OSVERNO	4	52	55	Version	

## **Appendix B. IBM i Operator Procedures**

These procedures are described in this appendix:

How to check for Active Users

Back up your Libraries

If not using QOTHPRDOWN as the Product Owner

Identify your IBM i Details

Check LANSA\_CLN

### How to check for Active Users

To check for active users in your LANSA system, use the following procedure:

- 1. Sign on to the IBM i using the Partition Security Officer profile QSECOFR or as some other user that is part of the QSECOFR group.
- 2. If the Command Entry screen is not already displayed, then invoke it by using this command:

### **CALL QCMD**

3. Make sure that no jobs/users are accessing LANSA using the following commands:

## WRKOBJLCK <pgmlib>/DC@A01 \*DTAARA WRKOBJLCK <datalib>/DC@F02 \*FILE \*FIRST

4. If locks exist, ask the users to sign off or wait until the batch jobs have ended before continuing with the upgrade.

If you use LANSA workstation products connected to your LANSA system, you may find that the listener job has a lock on the system. If a listener job is active, stop it by ending the subsystem it is running in.

Repeat both of these commands until there are no locks on the specified objects.

**Note 1:** The upgrade process will not commence if active users are found.

### **Back up your Libraries**

### **Back up LANSA Libraries**

You must back up the LANSA libraries and IFS directories that you will be upgrading.

As an example, LANSA IFS directories named:

### /LANSA\_xxxpgmlib and QOpenSys/LANSA\_xxxpgmlib

Should the upgrade fail or be interrupted, you will need to restore the old version from this backup before attempting the upgrade again. In the event of a failure, you must follow the restart/recovery procedures that are printed at the end of the job log.

During earlier versions of LANSA, the LANSA install and upgrade objects were placed in QGPL. Now, the LANSA install and upgrade will create its own work library. This work library is LANSAINSxx (where xx is a derived number), for example LANSAINS01. This library is deleted after a successful install or upgrade.

### Move communication objects from QGPL?

If you wish to move the communications objects from QGPL before the upgrade, plan to do this now. Refer to LANSA Communications Library for further information.

Do not continue until you are sure that this backup has been completed successfully. It is also recommended that you check your backup to ensure that the backup media has no errors. For example, you might use a DSPTAP command to check your backup tapes.

## If not using QOTHPRDOWN as the Product Owner

If you are NOT planning to use the QOTHPRDOWN profile as the LANSA product owner, then you must perform the following steps where "other profile" is used as the name of your chosen profile:

- 1. Create the other profile with all the defaults and minimum authority.
- 2. Proceed with the Installation or Upgrade as described in this guide.
- 3. After the installation/upgrade has been completed, check if this other profile owns any objects. If it owns any, transfer the ownership to the profile that was used as the LANSA product owner.
- 4. Delete the other profile.

It is strongly recommended that QOTHPRDOWN profile is the LANSA product owner.

### **Identify your IBM i Details**

You will need to provide the following details when you request a license. You will also need to supply this information when requesting support.

- Processor, Serial and Model Number
- LANSA System
- IBM i Operating System version.

If you are using LANSA, you can use the LANSA command: **LANSA ABOUT** to locate this information. You may need to qualify the command with the LANSA program library, for example, DCXPGMLIB/LANSA ABOUT.

If you're not yet using LANSA, you can obtain this information using the **WRKSYSVAL** command from an IBM i Command Entry. On the Work System Values screen, use option 5 to display the required values:

- System serial number (QSRLNBR)
- System model number (QMODEL)
- Processor Feature (QPRCFEAT).

To display a single system value, you may also use the DSPSYSVAL command. For example, DSPSYSVAL QPRCFEAT will display the Processor Feature code.

## Check LANSA\_CLN

We recommend that you always check that LANSA\_CLN has completed successfully.

### Unsuccessful LANSA\_CLN process

If LANSA\_CLN hasn't completed successfully the LANSA work library that was created by the install or upgrade will not be deleted.

Always check the Job Log for the reason for the job not completing successfully.

## Appendix C. Miscellaneous Tasks

The following section includes steps for these tasks:

Verify Listener is Active

Change the LANSA Communications Extensions on the IBM i Change the HTTP Install Instance

A LANSA Listener is automatically installed as part of the LANSA for i software installation.

## **Verify Listener is Active**

To verify that the Listener job is running, use the following command:

WRKACTJOB and look for your listener subsystem.

If you wish to changethe listener or create a different listener instance, copy the existing objects for the listener and change them.

You should see these three items in the Work Active Job display:

Subsystem created in the by default, the program library name

install:

A TP (Transaction job): started by the Listener job e.g.

TP000000001

Go to Change the LANSA Communications Extensions on the IBM i.

## Change the LANSA Communications Extensions on the IBM i

Only use these steps if you do **NOT** use the LANSA default TCP/IP communication port 4545 for the listener.

To change the LANSA Communication Extensions on the IBM i, follow these steps:

Before You Begin Checklist

Step 1. Work with Configuration Items

Step 2. Review Communication Definition

Step 3. Work with Listener Records

## **Before You Begin Checklist**

Before you begin to change the LANSA Communication Extensions on the IBM i task, check the following:

- Do you have a user profile with authority to the LANSA system?
- Has TCP/IP been configured on the IBM i? By default, the listener will use port 4545.

Go to Step 1. Work with Configuration Items.

## **Step 1. Work with Configuration Items**

From an IBM i command entry (CALL QCMD), enter the command:

### LANSA REQUEST(CONFIGURE)

The Work with Configuration Items screen is displayed.

DC@P401601 Work with Configuration Items

Current position . : /

Select configuration item to be reviewed or changed:

Sel Configuration Item Description

- \_ COMMS\_EXTENSIONS LANSA communications extensions
- \_ ILE\_EXT LANSA ILE Extension

F1=Help F3=Exit F12=Cancel F14=Messages

Select the COMMS\_EXTENSIONS.

A list of configuration items is displayed.

DC@P401601 Work with Configuration Items

Current position . : /COMMS\_EXTENSIONS

Select configuration item to be reviewed or changed:

Sel Configuration Item Description

- \_ COMMS\_DEFINITIONS LANSA communications definitions
- \_ COMMS\_FACILITY\_TRACE Communications facility tracing records
- \_ COMMS\_LISTENER\_RECS Communications listener records
- \_ COMMS\_ROUTING\_RECS Communications routing records

F1=Help F3=Exit F12=Cancel F14=Messages

This screen lists all configuration items related to LANSA Communications Extensions.

Go to Step 2. Review Communication Definition.

### **Step 2. Review Communication Definition**

From the Work with Configuration Items menu, select configuration item COMMS\_DEFINITIONS to review LANSA communications definitions. The Display Communication Definitions screen is displayed.

LCOADMP401 Display Communications Definitions Communications routing table . . . /etc/dc\_pgmlib/lroute.dat

Trace file name . . . . . . . . /tmp/dc\_pgmlib/lroute.trc

Maximum size of trace file (bytes) 640000 User queue for session jobs . . . . QUSRSYS/LCOTPJOBS Job description for session jobs . \*LISTENER Prefix for session jobs' name . . . TP

Line turnaround wait & retry:
Wait time (milliseconds) . . . . 300
Number of retries . . . . . . . . 300

Object LCOA01 in library DCXPGMLIB now locked by this job. F1=Help F12=Cancel F14=Messages F21=Change

This screen displays the basic definitions required to use LANSA Communications Extensions. LANSA provides default values that can be left unchanged unless you plan to set up multiple listeners. For details on setting up multiple listeners, refer to Setting up Multiple Listeners for an IBM i host in the LANSA Communications Setup guide.

Return to Step 1. Work with Configuration Items menu. Go to Step 3. Work with Listener Records.

### **Step 3. Work with Listener Records**

From the Work with Configuration Items menu, select the COMMS\_LISTENER\_RECS to review these records.

The Work with Communications Listener Records screen is displayed.

LCOADMP404 Work with Communications Listener Records

Type options, press Enter.
2=Review/Change 4=Delete

Prestart Connection
Sel Comms Method Session Jobs Id
SOCKET 1 4545

Object LCROUT.DAT in library QGPL now locked by this job. F1=Help F6=Add/Create F12=Cancel F14=Messages

This screen lists all the listener records stored in the LANSA Communications Extensions routing table.

There is one listener record for each supported communications method.

If a record has been defined for the system, make note of the Connection ID.

You can use option 2 to change the connection ID if required.

If a record has not been defined, press F6=Add/Create.

The Add Communication Listener Record screen is displayed.

LCOADMP411 Add Communications Listener Record

Communications method . . . . . . SOCKET

These input options are required on the Add Listener Record screen:

#### **Communications Method**

Specify SOCKET.

### **Number of Session Jobs to Prestart**

Enter the number of session jobs to be prestarted by the listener job. Session jobs are prestarted to reduce the connection time from requesting clients by avoiding the time required by the operating system to start a job. It must be a positive number in the range 1 to 9,999.

### **Connection Identifier**

For SOCKET (TCP/IP), this is the port number at which the listener job will listen for connection requests. If left blank, the default value of 4545 is used. The workstations must be configured to connect to the port number nominated here. If left blank, they will use the default value of 4545.

### **Cryptographic Algorithm**

Specify the cryptographic algorithm used to encrypt transmitted data. It is recommended that you initially use \*NONE -No encryption. This is compatible with prior releases of LANSA Communication extension.

### **Data Compression**

Specify YES to allow LANSA Communications Extensions to compress the data before it is transmitted. This is the default value.

Don't change the defaults for:

**Login timeout (seconds)** 

TCP\_NODELAY TCP/IP socket option

TCP\_KeepAlive TCP/IP socket option

## **Change the HTTP Install Instance**

If you need to change the install HTTP instance, use the following IBM provided tools:

1. Start ADMIN HTTP Instance.

The HTTP Server (powered by Apache) can be configured via a browser interface. First you need to start the ADMIN HTTP instance using this command:

## STRTCPSVR SERVER(\*HTTP) HTTPSVR(\*ADMIN)

2. Start HTTP Server Administration Interface.

Start your browser and access the HTTP Server Administration Interface with this URL:

http://[your IBM i name]:2001