Documentation Library

aXes Product Suite Installation Guide

Planning and Installation Guide

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Welcome to aXes

This document describes the aXes product. It explains how to plan for, install, and begin to use the product. For the latest information about aXes, refer to the aXes site (axeslive.com).

Road Map

Use the following table to find the information you need to get started with aXes.

If you want to ...	Refer to ...
Learn about system requirements for aXes	Section 1. Planning aXes Installation
Install aXes and start aXes Application Server	Section 2. Installing and running aXes
Apply maintenance to aXes	Section 3. Applying maintenance to aXes
Remove aXes	Section 4. Removing aXes
Start using commands	Section 5. aXes commands

For detailed information about using aXes, including problem solving and command syntax diagrams, see the aXes User Guide and the aXes Reference.

aXes comprises an application server, a terminal server, a spool file server, a database explorer, and a set of tools that allow you to distribute existing IBM i applications via a TCP/IP network using a web browser. The application server component is called aXesW3, the terminal server component is called aXes-TS, the spool file server component is called aXes-WS, and the database explorer is called aXes-DE. Multiple instances of each server can be active at the same time. CL commands are provided to start, stop and manage these servers.

If your primary language is not English

If your primary language is not English the installation process requires additional information and actions. For example, when installing aXes you must specify the language code on the language (LNG) keyword of the restore licensed program (RSTLICPGM) command. Also, you must execute the restore licensed program (RSTLICPGM) and restore object (RSTOBJ) commands twice.

The installation section of this document explains how to install aXes on a non English system.

For more information about installation refer to the aXes Reference Guide – Appendix F.

Licenses

aXes 3.1.0 requires a new licensing key.

License keys from previous aXes versions cannot be reused.

Please contact your aXes distributor or reseller for your new aXes licence key.

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Section 1 - Planning aXes installation

This section provides a summary of the requirements for running aXes. It discusses the network protocols, supported environments, the delivery media, and the components of the product. It covers the following topics:

- Hardware requirements
- Software requirements
- Connectivity
- Licensing
- Delivery
- PTFs
- Components
- Installation libraries and directories
- User profiles
- National language support (essential reading for non English systems)

The national language support section of this document is essential reading when installing aXes on non English systems.

Hardware Requirements

Host system requirements

The installation requirements depend on the components you install and how much working space you need.

Hardware

aXes requires the following hardware:

- Any IBM i model running IBM i V5R4M0 or later.
- Any communication hardware supported by the TCP/IP protocol stack.

The machine must have sufficient storage to meet the combined requirements of the software prerequisites, aXes servers, and any application programs.

Disk space required

aXes Components	Storage	Locations
Base	15 MB	QSYS.LIB=14.39 MB, root=338K
aXes Terminal Server	4.5 MB	QSYS.LIB=3.32 MB, root=1,204K
aXes Application Server, Data Explorer	4.6 MB	QSYS.LIB=4.32 MB, root=396K
aXes Spool File Server	3.1 MB	QSYS.LIB=2.6 MB, root=483K
aXes InterSession	0.7 MB	QSYS.LIB=0.67 MB, root=0

The increase in size over previous releases is due to retaining the creation data necessary to allow installation on IBM i version 6.1.

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Client system requirements

To use aXes you need a PC that can run a browser and a faster CPU and more RAM will result in better performance.

See the aXes web site and the Reference Guide for information about supported platforms.

Software Requirements

IBM i Licensed programs

Use the GO LICPGM command to check for the installation of the following licensed programs. Running aXes requires that you have the following software installed:

IBM i Version 5 Release 4 or later versions
IBM i Java JDK 1.4 or greater installed
IBM i Java Toolbox 7.2 (jt400.jar) – included with aXes 3.1 installation
TCP/IP Connectivity Utilities for AS/400
aXes Application Server (1AXES-01 option 2)
If you plan to use the aXes Terminal Server or aXes Spool File Server you must have IBM i Host Servers installed (option 12 of the Base Operating System Support).
If you plan to use aXes Spool File Server to convert spooled files, such as AFPDS files, into imaged-based PDF documents you must have at least one, and possibly more than one, of the following IBM products installed: • IBM AFP Font Collection • AFP Fonts/400 • AFP DBCS Fonts/400 Whether you need multiple products installed will depend on your National Language. See the aXes Reference for more information.
If you plan to use Secure Sockets Layer (SSL) to encrypt client-server sessions then your system requires one of the following IBM Cryptographic Access provider products installed: • Crypto Access Provider 40-bit for AS/400. • Crypto Access Provider 56-bit for AS/400. • Cryptographic Access Provider 128-bit.
In order to provide the required support for handling digital server certificates, used by SSL for secure Web serving, the aXes Application Server also requires i5/OS** - Digital Certificate Manager (option 34 of the Base Operating System Support).
To create or import certificates requires that the IBM Apache Server be installed and that the *ADMIN instance is operational.

Browser requirements

To use the aXes Terminal Server you need an XML capable Web browser that supports the HTTP 1.1 protocol, frames, and JavaScript. One browser that currently provides the required support is Microsoft Internet Explorer 8.0 or later.

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To use the Configuration and Administration forms you need a Web browser that supports the HTTP 1.0 or 1.1 protocol, frames, and JavaScript. Browsers such as Netscape and Internet Explorer will work with the Configuration and Administration forms browser interface.

IBM i mandatory PTFs

To use aXes the following IBM i PTFs are mandatory:

IBM i Version	Mandatory PTFs
V5R4M0	SI35079 - QTVOPNVT ignores initial pgm, menu, curlib with Key 8. This PTF also includes and supersedes SI22470.

To check if a PTF is installed use the DSPPTF command. Confirm that it has a status of temporarily or permanently applied.

If you apply a PTF after aXes has been installed you will need to stop and restart all aXes server jobs for it to take effect.

Planning for IBM i version 6.1 and above

Important information when upgrading aXes versions lower than V1.35 and upgrading to IBM i version 6.1 or above

If you have aXes installed with a version lower than 1.35, and intend to upgrade your operating system to IBM i version 6.1 or above, you must upgrade aXes to V1.35 or above, BEFORE you upgrade the operating system, AND you must install aXes option 4, EVEN if you do not require aXes Intersession.

After upgrading aXes to V1.35 or above, you must remove aXes option 4 BEFORE you upgrade the operating system to IBM i version 6.1 or above.

While this may seem like an unnecessary process it is required and you will experience installation or upgrade problems if you do not comply.

You also must follow the Setting ATN Key and SYS Req key instruction to enable the attention key and system request to work again.

aXes V1.34 and above supports installation on IBM i version 6.1 and above. However, the aXes Intersession component is not supported. If you are installing on an IBM i version 6.1 or above system, you cannot install the aXes Intersession feature (Option 4).

When installing on IBM i version 6.1 and above, you must specify FRCOBJCVN(*YES *ALL) on the Restore Licensed Program (RSTLICPGM) command for each aXes option you install.

All program objects on IBM i version 6.1 or above must be converted to a new format. The conversion process will remove the system-state attribute from any non-IBM programs. It also requires that the program to be converted retain the creation-data part of the program template.

aXes supplies a number of system-state programs to support various features. When they were converted the system-state attribute would be removed and they would no longer perform their function.

Refer to the Understanding Authorities and Permissions section in the aXes User Guide for a list of system-state programs, the features they support, and the effect of no longer having these programs installed on the system.

While preparing for your upgrade to IBM i version 6.1 or above, you may choose to run the Analyze Object Conversion (ANZOBJCVN) command to determine whether installed components on your system are capable of being converted to the new format required by IBM i version 6.1 or above. Running this command on versions of aXes prior to V1.35 will result in conversion errors being reported by the command. The only version of aXes supported for IBM i version 6.1 or above of the operating system is V1.35 and above.

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Attention Key and System Request Key support on IBM i version 6.1 and above

If you are on aXes V1.35 and above you can activate the attention key and system request functions.

A command called SETPGMSTT is provided with the aXes base product to set the system status for the programs required by the attention key and system request to process.

You must sign on as QSECOFR and need the Service tools user ID and Service tools password for the command (SRTSST – Start System Service Tools).

For details refer to: Section 2 - Installing aXes and Setting ATN Key and SYS Req key.

Communications

The communications protocols supported by aXes are TCP/IP, HTTP and HTTPS.

Licensing

aXes is licensed by processor or session. Some components are available only with processor licensing while others are available in your choice of processor or session licensing.

aXes 3.1.0 requires a new licensing key, and keys from aXes 2.2 cannot be reused. Please contact your aXes distributor or Reseller for your new aXes 3.1.0 licence key.

Processor usage and session usage is counted across Logical Partitions. This means you must purchase enough processor licences and session licences to cover your total usage requirements. You may install aXes into multiple partitions as long as the total usage does not exceed the licensed usage you have purchased.

aXes is a licensed program product. It will function for 60 contiguous days from the date of first use without a licence key. This 60-day period is intended only for evaluation purposes. The product will not continue to operate after the 60-day grace period without an installed licence key for each component.

Delivery and download files

aXes is supplied as one or more zipped save files which you can download from the aXes web site.

Program temporary fixes

LANSA provides periodic fixes to correct defects in the product.

You should check the aXes web site for the current set of PTFs, download them, and apply them after you have installed the product.

aXes components

The aXes product is supplied as a licensed program product with a base component and a number of optional components.

aXes Base (Option *BASE)

This component contains common product objects.

The base option is licensed by processor.

aXes Terminal Server (Option 1 or Option 11)

This component contains the aXes Terminal Server.

Option 1 is licensed by session and option 11 is licensed by processor.

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Both options are mutually exclusive and you must install the correct option for the licence you have purchased.

If you are installing option 11 in place of an existing option 1, or vice versa, you must remove the existing option first.

aXes Application Server and aXes Data Explorer (Option 2 or Option 12)

This component contains aXes Data Explorer.

Option 2 is licensed by session and option 12 is licensed by processor.

aXes Spool File Server (Option 3 or Option 13)

This component contains the aXes Spool File Server which provides a browser-based interface to spooled files.

Option 3 is licensed by session and option 13 is licensed by processor.

Both options are mutually exclusive and you must install the correct option for the licence you have purchased.

If you are installing option 13 in place of an existing option 3, or vice versa, you must remove the existing option first.

aXes Intersession (Option 4)

This component contains the aXes Intersession and other objects that require system-state to operate.

This option cannot be installed in IBM i version 6.1 or above of the Operating System.

Installation libraries and directories

aXes installs into the IBM i library structure and also uses directories in the IFS root file system.

The installation is performed using the IBM-supplied Restore Licensed Program (RSTLICPGM) command, which is the standard method for installing IBM i software.

The aXes product will install into a default library called AXES but you can change the target library by specifying a library of your choice on the LIB keyword of the RSTLICPGM command.

If you choose to install in a library different from the default you must be aware of the following caveats:

- The target library should not exist unless it contains other products from LANSA.
- If the library does exist, it must not contain products from other vendors.
- Do not put your own objects in the target library because they will be deleted when the last installed product is removed from that library.

Library structure

A standard installation of aXes creates the following libraries:

AXES	The aXes base product library
AXES29nn	A library containing objects that are specific to your national language

You can change the names of the base product library and the language libraries during the installation.

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Integrated File System (IFS) directories

The Integrated File System (IFS) is a part of the IBM i that supports stream files and storage management similar to personal computer and Unix operating systems, while providing an integrating structure over all information stored in the IBM i. When you install aXes, a number of directories are created in the IFS root file system. They are:

axes	This directory is the root directory for the product.
axes/admin	This directory controls access to the server administration and configuration forms.
axes/agi	This directory contains the Lua script files.
axes/configs	This directory contains the default configuration files.
axes/de	This directory contains the aXes Data Explorer files.
axes/de/images	This directory contains the aXes Data Explorer images
axes/de/lua	This directory contains the aXes Data Explorer script files.
axes/de/skins	This directory contains the aXes Data Explorer skins.
axes/errors	This directory contains customized HTTP error pages.
axes/images	This directory contains image files (i.e., JPEGs and GIFs, etc.).
axes/logs	This directory contains HTTP log information and trace output.
axes/ts	This directory contains aXes Terminal Server files.
axes/ts/admin	This directory contains the aXes Terminal Server administration and configuration forms.
axes/ts/framework	This directory contains the aXes Framework files.
axes/ts/skins	This directory contains the aXes Terminal Server skins and images.
axes/wba	This directory contains the aXes Server administration and configuration forms and images.
axes/ws	This directory contains aXes Spool File Server files.
axes/ws/images	This directory contains the aXes Spool File Server images.
axes/ws/lua	This directory contains the aXes Spool File Server script files.
axes/ws/skins	This directory contains the aXes Spool File Server skins.

You can change the name of the root directory during the installation.

User profiles

When you install aXes, two user profiles are created; AXES_GROUP and AXES. These two profiles are central to the correct running of aXes.

AXES_GROUP is used as the Primary Group Profile for stream files in the IFS. AXES is used as the profile under which the aXes server jobs are run and has *JOBCTL special authority.

During installation a random password is generated for the aXes user profile. You may change this password at will but the aXes user profile must have a password in order to allow it to connect to the *LOCAL database.

These profiles remain on the system when the product is deleted.

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National language support

aXes provides support for different national languages. If a product language exists on the installation media that is the same as the installed primary language then the installation program will install the language-specific objects into the product library.

However, if no product language matches the primary language then you must specify a secondary language on the LNG keyword of the RSTLICPGM command. Secondary languages are installed in a library called AXES**nnnn** where **nnnn** indicates the language identifier. You can override the name of the language library by specifying a library of your choice on the LNGLIB keyword of the RSTLICPGM command but be aware of the caveats described above.

The following national language versions are available for aXes:

Language ID	Language
2924	English Uppercase and Lowercase You should use this language identifier when installing on a Single-Byte Character Set (SBCS) system for which no translated version of aXes is provided.
2938	English Uppercase Support for Double-Byte Character Set (DBCS) You should use this value when installing on a DBCS system for which no translated version of aXes is provided and the system does not support lower-case English characters (for example Katakana-Kanji).
2950	English Uppercase
2984	English Uppercase and Lowercase Support for Double-Byte Character Set (DBCS) You should use this language identifier when installing on a DBCS system for which no translated version of aXes is provided.

Support for other languages will be provided as demand requires.

IBM i V5R4M0 and above is inherently a DBCS capable environment so you should install a DBCS national language version of aXes.

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Section 2 - Installing and running aXes

This section describes the installation of aXes. It covers the following topics:

- Before installation
- Considerations for IBM i version 6.1 or above
- Installation of translated versions
- Installing from Save Files
- Verifying the installation
- After installation

Before Installation

This section describes how to install aXes.

Please read the information in the planning section before starting the installation.

Required authority *ALLOBJ and *SPLCTL

The profile you use to install aXes must be authorized to the Restore Licensed Program (RSTLICPGM) command and must have *ALLOBJ and *SPLCTL special authority. The profile you use to remove aXes must be authorized to the Delete Licensed Program (DLTLICPGM) command, must have *ALLOBJ and *SPLCTL special authority. We recommend you use the QSECOFR user profile to avoid any authorization problems.

Setting system values

Before installing aXes you should use the Display System Value (DSPSYSVAL) command to check that the following system values are set to the requirements of your company:

- QCCSID
- QUTCOFFSET
- QAUTOVRT
- QALWOBJRST
- QVFYOBJRST
- QFRCCVNRST

You can change these values, if required, using the Change System Value (CHGSYSVAL) command. More information about these system values can be found in the Work Management (SC41-5306) manual.

QCCSID

This system value defines the coded character set identifier, which in turn defines:

- A specific set of encoding scheme identifiers
- Character set identifiers
- Code page identifiers

Every stream file has a code page or coded-character set identifier (CCSID) describing the encoding of the data contained in the stream file. The operating system uses the CCSID of the stream file and the CCSID of the current job to convert IBM i data stored in stream files.

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Every message has a CCSID tag in its header. The CCSID tag identifies the code page and character set of the message. The IBM i uses the CCSID to ensure messages are displayed correctly within different jobs.

Every database file has a CCSID tag associated with each field that describes the encoding of the data contained in that field. The operating system uses the CCSID of the field and the CCSID of the current job to convert the data stored in database files.

You should set QCCSID to a value appropriate for your environment. LANSA recommends that you avoid using the default value of 65535. While aXes, and the operating system, is likely to function acceptably with 65535, this value means that all database data is treated as hexadecimal data and no conversion will occur. This is likely to cause problems when transferring data to PC systems or to remote systems that have a different CCSID setting. It will cause problems if you support multiple languages on the same system.

Because the correct CCSID value will vary according to your environment, LANSA cannot tell you what value to use. IBM has provided a number of resources to assist you in choosing the correct value. See section 4.2.5 of the Road Map for Changing to PowerPC Technology for considerations before changing QCCSID. Additional information about QCCSID can be found in section 2.3.22 of the Work Management Guide, section 3.1.1 of the National Language Support manual, and many sections of the IBM i International Application Development manual.

> The CCSID must be either Single-byte character set (SBCS), or Mixed, that is SBCS and DBCS. It must not be DBCS only. For a list of CCSIDs that are supported by IBM i see the IBM i National Language Support book.

QUTCOFFSET

This system value indicates the difference in hours and minutes between the local system time and Universal Time Coordinated (UTC), also known as Greenwich Mean Time (GMT).

You should check that the coordinated universal time offset (QUTCOFFSET) system value has been set correctly. Many system functions, such as Management Central and alert processing, require that this value is set correctly.

If QUTCOFFSET is not set, it uses a default value of zero. aXes then presumes that the system time is coordinated universal time (UTC)—that is, GMT—and uses UTC time stamps for log and trace messages.

QAUTOVRT

This system value controls automatic configuration of virtual devices. It determines whether virtual devices can be automatically created, and how many of them may be created.

You should check that the automatic configuration of virtual devices (QAUTOVRT) system value has been set to a value large enough for the number of users, and sessions per user, you expect to connect via the aXes Terminal Server.

> You can initially set QAUTOVRT to a large value, allow aXes to automatically create the required number of devices, and then set QAUTOVRT to zero to prevent the creation of additional devices.

If the QAUTOVRT value is zero then you must manually create virtual devices that match the devices aXes needs. For example on a DBCS system you should create devices of type 555-G02, on an SBCS system you should create devices of type 3487-HC. See the DefaultWorkstationType= directive in the Terminal Server Configuration section of the aXes User Guide.

QALWOBJRST

This system value controls whether security sensitive objects can be restored.

Ensure that the allow object restore (QALWOBJRST) system value is set to *ALL or includes *ALWPGMADP and *ALWSYSSTT before you install aXes. If it is set to *NONE, the installation will fail.

After installation, reset QALWOBJRST to its original value to maintain system integrity.

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QVFYOBJRST

This system value controls verification of objects without signatures or with invalid signatures.

If you are on IBM i Version 5 Release 4 (V5R4) or later, ensure that the verify object restore (QVFYOBJRST) system value is set to 1 before you install aXes. If it is set to any value other than 1, the installation will fail.

After installation, reset QVFYOBJRST to its original value to maintain system integrity.

QFRCCVNRST

This system value controls whether or not to convert objects during restore.

If you plan to install Intersession then ensure that the force conversion on restore (QFRCCVNRST) system value is set to 0 before you install aXes Option 4.

After installation, reset QFRCCVNRST to its original value to maintain system integrity.

Installation of translated versions

aXes provides support for different national languages. If a product language exists on the installation media that is the same as the installed primary language then the installation program will install the language-specific objects into the product library.

However, if no product language matches the primary language then you must specify a secondary language on the LNG keyword of the RSTLICPGM command. Secondary languages are installed in a library called AXESnnnn where "nnnn" indicates the language identifier. You can override the name of the language library by specifying a library of your choice on the LNGLIB keyword of the RSTLICPGM command but be aware of the caveats described in the planning information.

If you are installing a new version of aXes beside a previous version and the primary language is different from the aXes language then you must install the *PGM and *LNG objects separately.

> See Appendix G. Installing National Language Support in the aXes Reference for step-by-step instructions.

The language library will contain all objects that have translatable text. This includes commands, panel groups, display files, printer files, menus, and other similar objects. The commands and menus are built so they automatically include the product library in the library list so you need only have the language library in your library list. If you prefer, you can qualify the commands and menus with the language library. For example:

AXES2950/STRAXESW3

Or

GO AXES2950/AXESADM

Of course, if you installed aXes using a product language that matches the primary language of your system then the translatable objects are installed in the product library.

The following national language versions are available for aXes:

Language ID	Language
2924	English Uppercase and Lowercase You should use this language identifier when installing on a Single-Byte Character Set (SBCS) system for which no translated version of aXes is provided.
2938	English Uppercase Support for Double-Byte Character Set (DBCS) You should use this value when installing on a DBCS system for which no translated version of aXes is provided and the system does not support lower-case English characters (for example Katakana-Kanji).

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Language ID	Language
2950	English Uppercase
2984	English Uppercase and Lowercase Support for Double-Byte Character Set (DBCS) You should use this language identifier when installing on a DBCS system for which no translated version of aXes is provided.

IBM i V5R4M0 and above is inherently a DBCS capable environment so you should install a DBCS national language version of aXes.

Installation save files

aXes is packaged using IBM i save files which have been zipped to reduce the size of the file in order to improve download speeds and reduce network traffic.

You may choose to download a single save file (e.g. axes_310) containing all product-options or download individual save files for each product option.

The save files can be downloaded from the aXes web site. You should only download the files for the options you intend to install.

The zip files for aXes version 3.1.0 contain the following save files:

AXES_31000.savf	The base product option contains shared common objects and aXes Application Server
AXES_31001.savf	Product option 1 contains aXes Terminal Server. This option supports session licensing. Use this file for product evaluation.
AXES_31002.savf	Product option 2 contains aXes Data Explorer. This option supports session licensing. Use this file for product evaluation.
AXES_31003.savf	Product option 3 contains aXes Spool File Server. This option supports session licensing. Use this file for product evaluation.
AXES_31004.savf	Product option 4 contains the aXes Intersession feature and other system-state programs.
AXES_31011.savf	Product option 11 contains aXes Terminal Server. This option supports processor licensing.
AXES_31012.savf	Product option 12 contains aXes Data Explorer. This option supports processor licensing.
AXES_31013.savf	Product option 13 contains aXes Spool File Server. This option supports processor licensing.
AXES_31099.savf	Product option 99 contains the aXes Examples.

The product options will be installed by default into a library named AXES and a directory named /axes but you can change these names during the installation.

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Preparing the save files

Preparing the save files unzips the aXes download file on your PC and transfers the unzipped files to your IBM i server.

1. Download the zipped files to your PC

Download the zipped files to your PC. You will need approximately 12-24 MB of disk space to download and unzip.

2. Unzip the files

Unzip the files into a directory on your PC using your favourite unzip tool. For example:

file-name

Where **file-name** is the name of the zip file.

The unzipped file may be up to 3 times larger than the zipped version so please ensure you have enough space on your PC hard drive

3. Transfer the unzipped files to your IBM i server

Transfer the save files to your IBM i system via FTP. Ensure the IBM i FTP server is running. The FTP server can be started by running the command STRTCPSVR *FTP but you must have authority to the command.

File Transfer Commands	Command Explanations
FTP **server**	**server** is the IP address or name of your IBM i
Name: **user profile**	**user profile** is your user profile for the server
Password: **password**	**password** is the password for your user profile
QUOTE SITE NAMEFMT 1	Set the name format to use the library file system
BINARY	Use binary file transfer mode
CD QSYS.LIB	Go to the QSYS.LIB directory
CD QGPL.LIB	Go to the QGPL.LIB directory
MPUT AXES_310*.SAVF	Send multiple files and save them on the server
QUIT	End the FTP session

3. Clean up your PC

Clean up your PC by deleting the zipped files and the unzipped save files.

> If the full save file (axes_310) is used, then you have to restore all product save files from this save file. Use the IBM i command RSTOBJ to restore all product save files.

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Installing when no current or previous release is installed

Use these steps when installing an aXes release on a system that has never had aXes installed or no longer has aXes installed.

Object conversion must be performed during the installation on IBM i version 6.1 or above.

1. Sign on

Sign on using a suitably authorized profile.

The profile you use must be authorized to the Restore Licensed Program (RSTLICPGM) command and must have *ALLOBJ and *SECADM special authority.

We recommend you use the QSECOFR user profile to avoid any authorization problems.

2. Restore the base option of the aXes licensed program

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    SAVF(QGPL/AXES_31000) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31000) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31000)
```

You must select the correct value for the LNG parameter.

If you want to install into a library different from the default AXES library you may specify the library name on the LIB parameter.

If you want to install into a directory different from the default /axes directory you may specify the directory name on the CODEHOMEDIR parameter.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

3. Install aXes Terminal Server

Session licensing

If you want to use session licensing then restore option 1.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    SAVF(QGPL/AXES_31001) FRCOBJCVN(*YES *ALL)
```

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Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31001) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31001)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 11.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    SAVF(QGPL/AXES_31011) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31011) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31011)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

4. Install aXes Data Explorer

Session licensing

If you want to use session licensing then restore option 2.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    SAVF(QGPL/AXES_31002) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31002) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31002)
```

You must select the correct value for the LNG parameter.

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Processor licensing

If you want to use processor licensing then restore option 12.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    SAVF(QGPL/AXES_31012) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31012) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31012)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

5. Install aXes Spool File Server

Session licensing

If you want to use session licensing then restore option 3.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    SAVF(QGPL/AXES_31003) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31003) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31003)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 13.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    SAVF(QGPL/AXES_31013) FRCOBJCVN(*YES *ALL)
```

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Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31013) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31013)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

6. Install the aXes Intersession component (optional)

Install the aXes Intersession component if you require Batch CPW for aXes terminal sessions.

Change the system value QFRCCVNRST to 0, before restoring.

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(4)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31004)
```

The aXes Intersession component will not install on IBM i version 6.1 or above.

7. Decompress the installed objects

Many objects are shipped in a compressed state to reduce download bandwidth requirements. Decompressing them before use will avoid a performance penalty incurred when the objects are first used because the operating system will decompress them.

```
DCPOBJ OBJ(AXES/*ALL) OBJTYPE(*ALL)
```

If you installed the aXes components into a library different from the default AXES library, you must specify that library name on the OBJ parameter. If the translatable components of aXes were installed into a secondary language library then decompress those objects:

```
DCPOBJ OBJ(AXESnnnn/*ALL) OBJTYPE(*ALL)
```

Where **nnnn** is the language identifier. If you specified a secondary language library different from the default library you must specify that library name on the OBJ parameter.

8. License key

If you received a license key, follow the instructions supplied with the license key.

If you did not receive a license key, the product will function for 30 days from the date of first use. A license key for aXesW3, aXes-TS, aXes-WS, or aXes-DE is chargeable and can be obtained from LANSA.

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Installing a new release beside a previous release

Use these steps when you want to test a new release of aXes while continuing to use the previously installed release. Once you have tested the new release you should uninstall it and reinstall using the steps for installing a new release over a previous release.

> If the primary language is different from the aXes language then you must install the *PGM and *LNG objects separately. See Appendix G. Installing National Language Support in the aXes Reference for more information.

Object conversion must be performed during the installation on IBM i version 6.1 or above.

Installation steps

1. Sign on

Sign on using a suitably authorized profile.

The profile you use must be authorized to the Restore Licensed Program (RSTLICPGM) command and must have *ALLOBJ and *SECADM special authority.

We recommend you use the QSECOFR user profile to avoid any authorization problems.

2. Restore the base option of the aXes licensed program

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    REPLACERLS(*NO) SAVF(QGPL/AXES_31000)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*PGM) REPLACERLS(*NO) SAVF(QGPL/AXES_31000)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*LNG) LNG(2924) REPLACERLS(*NO) SAVF(QGPL/AXES_31000)
    LNGLIB(new-lang-lib)
```

You must select the correct value for the LNG parameter.

Where:

new-lib	The library in which you want to install the option.
new-dir	The base directory you want to use for this release.
new-lang-lib	The language library to use for this release.

You must install into a library and directory different from the library and directory used by the currently installed release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

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3. Install aXes Terminal Server

Session licensing

If you want to use session licensing then restore option 1.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    REPLACERLS(*NO) SAVF(QGPL/AXES_31001)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*PGM) REPLACERLS(*NO) SAVF(QGPL/AXES_31001)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*LNG) LNG(2924) REPLACERLS(*NO) SAVF(QGPL/AXES_31001)
    LNGLIB(new-lang-lib) FRCOBJCVN(*YES *ALL)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 11.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    REPLACERLS(*NO) SAVF(QGPL/AXES_31011)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    RSTOBJ(*PGM) REPLACERLS(*NO) SAVF(QGPL/AXES_31011)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    RSTOBJ(*LNG) LNG(2924) REPLACERLS(*NO) SAVF(QGPL/AXES_31011)
    LNGLIB(new-lang-lib)
```

You must select the correct value for the LNG parameter.

Where:

new-lib	The library in which you want to install the option.
new-dir	The base directory you want to use for this release.
new-lang-lib	The language library to use for this release.

You must install into a library and directory different from the library and directory used by the currently installed release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

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4. Install aXes Data Explorer

Session licensing

If you want to use session licensing then restore option 2.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    REPLACERLS(*NO) SAVF(QGPL/AXES_31002)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*PGM) REPLACERLS(*NO) SAVF(QGPL/AXES_31002)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*LNG) LNG(2924) REPLACERLS(*NO) SAVF(QGPL/AXES_31002)
    LNGLIB(new-lang-lib)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 12.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    REPLACERLS(*NO) SAVF(QGPL/AXES_31012)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*PGM) REPLACERLS)*NO) SAVF(QGPL/AXES_31012)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*LNG) LNG(2924) REPLACERLS(*NO) SAVF(QGPL/AXES_31012)
    LNGLIB(new-lang-lib)
```

You must select the correct value for the LNG parameter.

Where:

new-lib	The library in which you want to install the option.
new-dir	The base directory you want to use for this release.
new-lang-lib	The language library to use for this release.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

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5. Install aXes Spool File Server

Session licensing

If you want to use session licensing then restore option 3.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    REPLACERLS(*NO) SAVF(QGPL/AXES_31003)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*PGM) REPLACERLS(*NO) SAVF(QGPL/AXES_31003)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*LNG) LNG(2924) REPLACERLS(*NO) SAVF(QGPL/AXES_31003)
    LNGLIB(new-lang-lib)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 13.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    REPLACERLS(*NO) SAVF(QGPL/AXES_31013)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*PGM) REPLACERLS(*NO) SAVF(QGPL/AXES_31013)
    LIB(new-lib) CODHOMEDIR('/new-dir') FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*LNG) LNG(2924) REPLACERLS(*NO) SAVF(QGPL/AXES_31013)
    LNGLIB(new-lang-lib)
```

You must select the correct value for the LNG parameter.

Where:

new-lib	The library in which you want to install the option.
new-dir	The base directory you want to use for this release.
new-lang-lib	The language library to use for this release.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

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6. Install the aXes Intersession component (optional)

Install the aXes Intersession component if you require Batch CPW for aXes terminal sessions.

The aXes Intersession component will not install on IBM i version 6.1 or above.

Change the system value QFRCCVNRST to 0, before restoring.
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(4) RSTOBJ(*PGM) REPLACERLS(*NO) SAVF(QGPL/AXES_31004) LIB(**new-lib**)

Where **new-lib** is the library in which you want to install the option.

You must install into the same library and directory in which you installed the base component of this release.

7. Decompress the installed objects

Many objects are shipped in a compressed state to reduce download bandwidth requirements. Decompressing them before use will avoid a performance penalty incurred when the objects are first used because the operating system will decompress them.

```
DCPOBJ OBJ(new-lib/*ALL) OBJTYPE(*ALL)
```

If you installed the aXes components into a library different from the default AXES library, you must specify that library name on the OBJ parameter. If the translatable components of aXes were installed into a secondary language library then decompress those objects:

```
DCPOBJ OBJ(AXESnnnn/*ALL) OBJTYPE(*ALL)
```

Where **nnnn** is the language identifier. If you specified a secondary language library different from the default library you must specify that library name on the OBJ parameter.

8. License key

If you received a license key, follow the instructions supplied with the license key.

If you did not receive a license key, the product will function for 30 days from the date of first use. A license key for aXesW3, aXes-TS, aXes-WS, or aXes-DE is chargeable and can be obtained from LANSA.

9. Installation adds job queue and auto start job entries

You have now installed your new aXes software in the library **new-lib** and in the IFS directory **new-dir**.

Since it's a side by side install, your previous aXes software is in the library **previous-lib**. You could just start your new aXes install straight away, but all the jobs in the aXes sub-system would be called axes. Hence it would make it very difficult to differentiate which job belongs to which version.

Renaming your new instances.

This step involves changing the names of the aXes instance so they can be easily differentiated. Run the Work with aXes Server command:

```
new-lib/WRKAXESSVR
```

The work with aXes servers list will be displayed.

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```
Opt   Instance    Server     Autostart  ----Status----   Function
      __________  _________
      AXES        *AXESW3     Yes
      AXES        *AXESTS     No
      AXES        *AXESWS     No
      AXES        *AXESDE     No
```

Create the following new instances. They will look like a copy of the old ones with different names. Choose a new job name **new-instance-name**.

Create a new instance of type *AXESW3:

Option 1 **new-instance-name** *AXESW3.

Leave all default values, except for the following

- Configuration file: /**new-dir**/configs/aXesW3.conf
- Autostart: *YES

Create a new instance of type *AXESTS:

Option 1 **new-instance-name** *AXESTS.

Leave all default values, except for the following

- Configuration file: /**new-dir**/configs/aXesTS.conf
- Internet address to bind: *ANY
- Non-Secure port: 50123
- Autostart: *NO

Create a new instance of type *AXESWS:

Option 1 **new-instance-name** *AXESWS.

Leave all default values, except for the following

- Configuration file: /**new-dir**/configs/aXesWS.conf
- Internet address to bind: *ANY
- Non-Secure port: 50456
- Autostart: *NO

Create a new instance of type *AXESDE:

Option 1 **new-instance-name** *AXESDE.

Leave all default values, except for the following

- Configuration file: /**new-dir**/configs/aXesDE.conf
- Internet address to bind: *ANY
- Non-Secure port: 50567
- Autostart: *NO

You can now delete all the old jobs called AXES.

The final result should look like this if you chose AXES310 as your new job name.

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```
Opt   Instance    Server     Autostart  ----Status----   Function
      AXES310     *AXESW3     Yes
      AXES310     *AXESTS     No
      AXES310     *AXESWS     No
      AXES310     *AXESDE     No
```

Adding auto start job entries

You can now add auto start job entries using the ADDJAE command.

aXes jobs

The command here under adds an auto job entry with your new instance to the previous job.

ADDAJE SBSD(**previous-lib**/AXES) JOB(**job-entry-name**) JOBD(**new-lib**/AXES)

Ex: ADDAJE SBSD(AXES/AXES) JOB(MYAXESSTR) JOBD(AXES310/AXES)

Where:

job-entry-name The name of the job in the subsystem. You must choose a different name than the ones already in the auto start entries. Name must be < 10 characters.

JSM jobs

Since different versions of aXes have different versions of JSM, you might want to have the JSM shipped with your new install running side by side with the JSM from you previous install.

Use the command here under to add an auto start job entry for JSM to the previous job.

ADDAJE SBSD(**previous-lib**/AXES) JOB(**job-entry-name**) JOBD(**new-lib**/JSM)

Ex: ADDAJE SBSD(AXES/AXES) JOB(MYJSMSVR) JOBD(AXES310/JSM)

Where:

job-entry-name The name of the job in the subsystem. You must choose a different name than the ones already in the auto start entries. Name must be < 10 characters.

Review your auto job entries

Use the following command to review your auto job entries, followed by option 4.

DSPSBSD **previous-lib**/AXES

followed by option 4

Ex: DSPSBSD(AXES/AXES)

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Installing a new release over a previous release

Use these steps when you want to upgrade an existing installed aXes release to a new aXes release.

Before installing a new release over a previous release, you must:
Permanently apply all aXes PTFs to the release you are upgrading. Delete option 2 before you install the new option 2. Use the DLTLICPGM command.

Object conversion must be performed during the installation on IBM i version 6.1 or above.

1. Sign on

Sign on using a suitably authorized profile.

The profile you use must be authorized to the Restore Licensed Program (RSTLICPGM) command and must have *ALLOBJ and *SECADM special authority.

We recommend you use the QSECOFR user profile to avoid any authorization problems.

2. End active instances of aXes servers

End active instances of the aXes servers. Use the Work with aXes Servers (WRKAXESSVR) command to display a list of active server instances, then use option 10=End to end them.

End the AXES subsystem using the End Subsystem (ENDSBS) command. For example: ENDSBS SBS(AXES)

3. If you have changed stream files in the product directories

If you have made any changes to stream files in the product directories such as configuration files, Access Control Lists, or skins then you should save the product directory in case you need to restore your changes or merge your changes into the new release. The installation process will preserve new configuration files you have created and keep any existing copies of supplied default configuration files but it will not preserve changes to skins. Skins should be changed by first copying them to a different directory structure and then making changes in the new directory.

Create a save file to contain the saved objects. For example:

CRTSAVF FILE(QGPL/**AX_IFS_xxx**)

TEXT('aXes directory to prior to upgrade')

The name of the save file should be changed depending on which previous version of aXes you have installed. In this example the **xxx** in the file name **AX_IFS_xxx** represents the version number.

Save the contents of the aXes directory structure to the save file you created. For example:

SAV DEV('/QSYS.LIB/QGPL.LIB/**AX_IFS_xxx**.FILE') OBJ('/axes')

4. If you have changed configuration files

If you have changed the configuration files, make a copy of them in a different directory because you have to apply any changes to the new configuration files after the install.

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5. Deleting and replacing options

You must delete the existing option 2 before you install the new option 2. To delete it, use the DLTLICPGM command.

If you are replacing option 1 or option 3 of a previous release with option 11 or option 13 of the new release, or vice versa, you must delete the existing option before you start the upgrade.

If you are replacing option 2 or option 12 of a previous release with option 12 or option 2 of the new release, or vice versa, you must delete the existing option before you start the upgrade.

6. Restore the base option of the aXes licensed program

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    SAVF(QGPL/AXES_31000) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31000) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31000)
```

You must select the correct value for the LNG parameter.

You must install the new release into the same library and directory as the currently installed release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

7. Install aXes Terminal Server

Session licensing

If you want to use session licensing then restore option 1.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    SAVF(QGPL/AXES_31001) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31001) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31001)
```

You must select the correct value for the LNG parameter.

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Processor licensing

If you want to use processor licensing then restore option 11.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    SAVF(QGPL/AXES_31011) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31011) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31011)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

8. Install aXes Data Explorer

Session licensing

If you want to use session licensing then restore option 2.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    SAVF(QGPL/AXES_31002) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31002) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31002)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 12.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    SAVF(QGPL/AXES_31012) FRCOBJCVN(*YES *ALL)
```

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Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31012) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31012)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

9. Install aXes Spool File Server

Session licensing

If you want to use session licensing then restore option 3.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    SAVF(QGPL/AXES_31003) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31003) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31003)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 13.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    SAVF(QGPL/AXES_31013) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31013) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31013)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

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> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

10. Install the aXes Intersession component (optional)

Install the aXes Intersession component if you require Batch CPW for aXes terminal sessions.

Change the system value QFRCCVNRST to 0, before restoring.
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(4) RSTOBJ(*PGM) SAVF(QGPL/AXES_31004)

The aXes Intersession component will not install on IBM i version 6.1 or above.

11. Decompress the installed objects

Many objects are shipped in a compressed state to reduce download bandwidth requirements. Decompressing them before use will avoid a performance penalty incurred when the objects are first used because the operating system will decompress them.

```
DCPOBJ OBJ(AXES/*ALL) OBJTYPE(*ALL)
```

If you installed the aXes components into a library different from the default AXES library, you must specify that library name on the OBJ parameter. If the translatable components of aXes were installed into a secondary language library then decompress those objects:

```
DCPOBJ OBJ(AXESnnnn/*ALL) OBJTYPE(*ALL)
```

Where **nnnn** is the language identifier. If you specified a secondary language library different from the default library you must specify that library name on the OBJ parameter.

12. License key

If you received a license key, follow the instructions supplied with the license key.

If you did not receive a license key, the product will function for 30 days from the date of first use. A license key for aXesW3, aXes-TS, aXes-WS, or aXes-DE is chargeable and can be obtained from LANSA.

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Installing a new version of the same release

Use these steps when you want to upgrade an existing installed aXes release to a new version of the same aXes release.

Before installing a new version of the same release, you must:
Permanently apply all aXes PTFs to the release you are upgrading.

Object conversion must be performed during the installation on IBM i version 6.1 or above.

1. Sign on

Sign on using a suitably authorized profile.

The profile you use must be authorized to the Restore Licensed Program (RSTLICPGM) command and must have *ALLOBJ and *SECADM special authority.

We recommend you use the QSECOFR user profile to avoid any authorization problems.

2. End active instances of aXes servers

End active instances of the aXes servers. Use the Work with aXes Servers (WRKAXESSVR) command to display a list of active server instances, then use option 10=End to end them.

End the AXES subsystem using the End Subsystem (ENDSBS) command. For example: ENDSBS SBS(AXES)

3. If you have changed stream files in the product directories

If you have made any changes to stream files in the product directories such as configuration files, Access Control Lists, or skins then you should save the product directory in case you need to restore your changes or merge your changes into the new release. The installation process will preserve new configuration files you have created and keep any existing copies of supplied default configuration files but it will not preserve changes to skins. Skins should be changed by first copying them to a different directory structure and then making changes in the new directory.

Create a save file to contain the saved objects. For example:

CRTSAVF FILE(QGPL/**AX_IFS_xxx**)

TEXT('aXes directory to prior to upgrade')

The name of the save file should be changed depending on which previous version of aXes you have installed. In this example the **xxx** in the file name **AX_IFS_xxx** represents the version number.

Save the contents of the aXes directory structure to the save file you created. For example:

SAV DEV('/QSYS.LIB/QGPL.LIB/**AX_IFS_xxx**.FILE') OBJ('/axes')

4. If you have changed configuration files

If you have changed the configuration files, make a copy of them in a different directory because you have to apply any changes to the new configuration files after the install.

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5. Deleting and replacing options

You must delete the existing option 2 before you install the new option 2. To delete it, use the DLTLICPGM command.

If you are replacing option 1 or option 3 of a previous release with option 11 or option 13 of the new release, or vice versa, you must delete the existing option before you start the upgrade.

If you are replacing option 2 or option 12 of a previous release with option 12 or option 2 of the new release, or vice versa, you must delete the existing option before you start the upgrade.

6. Restore the base option of the aXes licensed program

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    SAVF(QGPL/AXES_31000) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31000) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(*BASE)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31000)
```

You must select the correct value for the LNG parameter.

You must install the new release into the same library and directory as the currently installed release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

7. Install aXes Terminal Server

Session licensing

If you want to use session licensing then restore option 1.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    SAVF(QGPL/AXES_31001) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31001) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31001)
```

You must select the correct value for the LNG parameter.

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Processor licensing

If you want to use processor licensing then restore option 11.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    SAVF(QGPL/AXES_31011) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(11)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31011) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(1)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31011)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

8. Install aXes Data Explorer

Session licensing

If you want to use session licensing then restore option 2.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    SAVF(QGPL/AXES_31002) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31002) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(2)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31002)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 12.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    SAVF(QGPL/AXES_31012) FRCOBJCVN(*YES *ALL)
```

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Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31012) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(12)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31012)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

9. Install aXes Spool File Server

Session licensing

If you want to use session licensing then restore option 3.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    SAVF(QGPL/AXES_31003) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31003) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(3)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31003)
```

You must select the correct value for the LNG parameter.

Processor licensing

If you want to use processor licensing then restore option 13.

English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    SAVF(QGPL/AXES_31013) FRCOBJCVN(*YES *ALL)
```

Non English systems:

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*PGM) SAVF(QGPL/AXES_31013) FRCOBJCVN(*YES *ALL)
```

```
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(13)
    RSTOBJ(*LNG) LNG(2924) SAVF(QGPL/AXES_31013)
```

You must select the correct value for the LNG parameter.

You must install into the same library and directory in which you installed the base component of this release.

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> If you are installing on IBM i version 5.4, do not include the FRCOBJCVN(*YES *ALL) parameter.

10. Install the aXes Intersession component (optional)

Install the aXes Intersession component if you require Batch CPW for aXes terminal sessions.

Change the system value QFRCCVNRST to 0, before restoring.
RSTLICPGM LICPGM(1AXES01) DEV(*SAVF) OPTION(4) RSTOBJ(*PGM) SAVF(QGPL/AXES_31004)

The aXes Intersession component will not install on IBM i version 6.1 or above.

11. Decompress the installed objects

Many objects are shipped in a compressed state to reduce download bandwidth requirements. Decompressing them before use will avoid a performance penalty incurred when the objects are first used because the operating system will decompress them.

```
DCPOBJ OBJ(AXES/*ALL) OBJTYPE(*ALL)
```

If you installed the aXes components into a library different from the default AXES library, you must specify that library name on the OBJ parameter. If the translatable components of aXes were installed into a secondary language library then decompress those objects:

```
DCPOBJ OBJ(AXESnnnn/*ALL) OBJTYPE(*ALL)
```

Where **nnnn** is the language identifier. If you specified a secondary language library different from the default library you must specify that library name on the OBJ parameter.

12. License key

If you received a license key, follow the instructions supplied with the license key.

If you did not receive a license key, the product will function for 30 days from the date of first use. A license key for aXesW3, aXes-TS, aXes-WS, or aXes-DE is chargeable and can be obtained from LANSA.

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Verifying the Installation

Review the installed software resources

To ensure that the product has installed correctly, run the Display Software Resources (DSPSFWRSC) command and check that the licensed program 1AXES01 is listed.

If you have installed all the options, you should see:

```
Resource
   ID      Option  Feature  Description
1AXES01    *BASE    5050    aXes Base
1AXES01    *BASE    2924    aXes Base
1AXES01    1        5101    aXes Terminal Server
1AXES01    1        2924    aXes Terminal Server
1AXES01    2        5102    aXes Application Server
1AXES01    2        2924    aXes Application Server
1AXES01    3        5103    aXes Spool File Server
1AXES01    3        2924    aXes Spool File Server
1AXES01    4        5104    aXes Intersession
```

If you press F11 while viewing the Display Software Resources panel, you will see the library and version number of the products installed:

```
Resource                     Feature
   ID      Option  Feature    Type    Library     Release
1AXES01    *BASE    5050      *CODE   AXES        3.1.0
1AXES01    *BASE    2924      *LNG    AXES        3.1.0
1AXES01    1        5101      *CODE   AXES        3.1.0
1AXES01    1        2924      *LNG    AXES        3.1.0
1AXES01    2        5102      *CODE   AXES        3.1.0
1AXES01    2        2924      *LNG    AXES        3.1.0
1AXES01    3        5103      *CODE   AXES        3.1.0
1AXES01    3        2924      *LNG    AXES        3.1.0
1AXES01    4        5104      *CODE   AXES        3.1.0
```

If you have installed additional language versions, you will also see entries for these. For example, if you have installed the English DBCS version, for which the language identifier is 2984, as a secondary language you will see:

```
Resource
   ID      Option  Feature  Description
1AXES01    *BASE    2984    aXes Base
1AXES01    1        2984    aXes Terminal Server
1AXES01    2        2984    aXes Application Server
1AXES01    3        2984    aXes Spool File Server
```

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When you press F11 the library and release:

```
Resource                    Feature
   ID      Option  Feature   Type    Library     Release
1AXES01    *BASE    2984     *LNG    AXES2984    3.1.0
1AXES01    1        2984     *LNG    AXES2984    3.1.0
1AXES01    2        2984     *LNG    AXES2984    3.1.0
1AXES01    3        2984     *LNG    AXES2984    3.1.0
```

If aXes was installed correctly, read the special instructions for Reduced Interactive Capacity systems and then perform the following steps.

Up and running with aXes Application Server

Perform the following steps to verify that the aXes product was installed correctly.

1. Determine the availability of port 80

Determine if port 80 is available or in use by another application.

1.1 Run the command:

NETSTAT OPTION(*CNN)

1.2 Press F14=Display port numbers

1.3 Check the local port column for port 80

2. Start aXes Application Server

Start aXes Application Server by issuing the start command and defining a port number.

Port 80 is available and not used by another application:

<lang-lib>/STRAXESW3

Where **<lang-lib>** is the installed language library name.

Port 80 is unavailable (it is already in use by another application):

<lang-lib>/STRAXESW3(**port-number**)

Where:

<lang-lib> is the installed language library name, and

port-number is an available port number.

Use a port number that does not appear in the NETSTAT list.

You can use this syntax of the command to define port 80 explicitly.

Note: All releases of aXes will have default servers defined with the same name (AXES). You may use the ADDAXESSVR command to define instances for the new release that have different instance names from those used by the existing release.

All releases of aXes have default servers defined with the same name (AXES).

You may use the ADDAXESSVR command to define instances for the new release that have different instance names from those used by the existing release.

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3. Start the IBM i host servers

Start all host servers using the following command (recommended start method):

STRHOSTSVR *ALL

The database host server can be started individually to allow the Java Toolbox JDBC driver to connect.

To start the DB2 host server use the following command:

STRHOSTSVR *DATABASE

You can verify that the database host server is running by running the NETSTAT *CNN command. When the Work with TCP/IP Connection Status screen is displayed, look for the as-database entry under the Local Port heading and ensure that the entry is in Listen status.

4. Verify that the servers started successfully

Verify that the servers started successfully by running the command:

WRKACTJOB SBS(AXES)

Check that the AXES subsystem is running and that there are at least four jobs named AXES active in the subsystem. If the jobs are not active follow the steps in the Troubleshooting section of the aXes User Guide.

5. Check connection from a browser

Start a browser on your personal computer and open one of the following URLs.

aXes Application Server is listening on port 80:

http://**system**

Where **system** is the name or IP address of your IBM i server.

aXes Application Server is listening on a port other than 80:

http://**system:port-number**

Where:

system is the name or IP address of your IBM i server.

port-number is the port number specified when aXes Application Server was started.

If aXes was correctly installed the browser will display the aXes default page.

6. Log on and test the aXes services

The aXes home page contains links on the right-hand side you can use to start aXes Terminal Server, Spool File Server and Data Explorer sessions. Click on a link to display the log on panel. Type your IBM i user profile and password and press Enter or click the log on button.

Click on the aXes Terminal Server link. If it was installed correctly, the browser will display an IBM i terminal session.

Click on the aXes Spool File Server link. If it was installed correctly, the browser will display the aXes Spool File Server home page.

Click on the aXes Data Explorer link. If it was installed correctly, the browser will display the aXes Data Explorer home page.

If any of these services does not display correctly, read the information in the Troubleshooting section of the aXes Reference to determine the cause of the problem.

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Recovering From a Failed Installation

If installation of aXes fails, you should remove the partly installed objects before attempting reinstallation.

The profile you use must be authorized to the Delete Licensed Program (DLTLICPGM) command and must have *ALLOBJ and *SPLCTL special authority. We recommend you use the QSECOFR user profile to avoid any authorization problems.

Remove library list entries

You may find that the installation library has been left in your library list. Remove it using the Remove Library List Entry (RMVLIBLE) command. For example:

RMVLIBLE LIB(AXES)

Delete the programs

You can remove the partly installed product by running:

DLTLICPGM LICPGM(1AXES01) RLS(**VnRnMn**)

Where **VnRnMn** is the version of aXes you want to remove.

What to do if deleting the programs fails

If the Delete Licensed Program command fails and you cannot resolve the problem, you can remove aXes by deleting the aXes product library and the product directory and subdirectories.

Libraries and IFS directories

You may also need to delete:

- AXESDEMO library, and
- The directory /axesdemo and its subdirectories.

Use the Delete Library (DLTLIB) command to delete the libraries. To delete the IFS directories, use the Edit File (EDTF) command. For example:

EDTF STMF('/*')

Select option 9=Recursive delete for the /axes directory and the /axesdemo directory.

Alternatively, you can remove the /axes and /axesdemo directories by repeated use of the RMVLNK and RMVDIR commands, or the equivalent QSHELL statements.

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Enable ATN and SYS Req keys

If you are using IBM i version 6.1 (or later) and need to enable the Attention key and/or the System Request key you need to complete these steps:

1. Sign on as QSECOFR
2. Add the aXes product library (typically AXES) to library list:

   ADDLIBLE LIB(**axes_lib**)
3. Run the command SETPGMSTT as follows:

   SETPGMSTT SSTUID(**user**) SSTPWD(**pwd**) PRDLIB(**axes_lib**) PGM(AXCHKATNKY)

   SETPGMSTT SSTUID(**user**) SSTPWD(**pwd**) PRDLIB(**axes_lib**) PGM(AXCHKPGSTK)

   SETPGMSTT SSTUID(**user**) SSTPWD(**pwd**) PRDLIB(**axes_lib**) PGM(AXDSPMSGW)

Where:

axes_lib This is the name of the library you use for aXes.

pwd Service Tools user's password.

The Service tools password is not necessarily the same as the QSECOFR user password.

user Service Tools user identification.

Whenever you restore aXes, you must perform this procedure after the completion of the restore.

> Service tools provide powerful functions and, if used incorrectly, can compromise your system. The IBM i instructions described above assume a sound knowledge of IBM i and we recommend that they be entered by an IBM i system administrator as they require access to the QSECOFR profile and the system service tools.
>
> Please follow the directions exactly as listed.

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Using reduced interactive capacity

Enabling aXes Intersession

The ability to access the full batch CPW is enabled by the aXes Intersession configuration directive. You must enable aXes Intersession to use full batch CPW.

To use the aXes Intersession feature you must install option 4 of the aXes product.

To enable aXes Intersession you must edit the aXes Terminal Server configuration file (usually <prod-dir>/configs/aXesTS.conf) and remove the comment (#) from the InterSession directive.

See Section 1.Terminal Server Configuration in the aXes Reference for a detailed explanation of the syntax.

Constraints

If you are installing on an IBM i server running IBM i version 6.1 or above, the aXes Intersession components will not install and you cannot take advantage of the aXes Intersession features.

If you are running on a Model 515 or Model 525 server you do not need aXes Intersession.

In either of these cases the aXes Terminal Server configuration file must disable aXes Intersession.

Using aXes Intersession and named devices

If you are installing aXes on an IBM i server with zero interactive capacity running IBM i V5R4M0 or above, you must use named devices.

In addition, if you are running aXes on an i5 Standard Edition Server with zero or reduced interactive capacity running IBM i V5R4M0 or above, you must used named devices and all virtual display devices must begin with the letters QQF.

See the Users Section and Device Selection information in the Terminal Server Configuration chapter of the aXes Reference for detailed information on controlling device naming and the meaning of special substitution values.

For IBM i servers on IBM i V5R4M0 or above ensure that all virtual devices used by aXes will be named devices by adding one of the following entries as the last entry in the list of user entries:

=1,QPADEV$

-or-

=1,QPAU

For i5 servers running IBM i V5R4M0 or above ensure that all virtual display devices used by aXes will have the prefix QQF by adding one of the following entries as the last entry in the list of user entries:

=1,QQFDEV$

-or-

=1,QQFU

Named device values must go in either the Users section of the aXes Terminal Server configuration file or in the file referenced in that section, usually <prod-dir>/configs/axesTS_users.conf.

If you already have a ‘catch-all’ entry such as this then you must modify it to match the required device naming criteria.

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If you already have device names for individual users, or plan to add them, then you must ensure that they also match the required device naming criteria.

If aXes terminal client sessions receive “AXS8124 – Error occurred opening terminal” and the AXES5250 job log shows “CPF8902 – Virtual device not available” then multiple users are requesting the same virtual device. You can either ignore this error and sign-on again or choose a device naming convention that reduces the possibility of device name collision by including the user name in the device name. For example:

=1,QPAU

-or-

=1,QQFU

Be aware that if you change the device naming convention you must ensure the system value QAUTOVRT is set to a sufficiently high value to allow the new devices to be created. You may delete existing devices that no longer satisfy the required naming convention.

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After installation or upgrade

Load and apply PTFs

If you have not yet checked the aXes web site for the latest PTFs, you should do so now.

Load and apply the latest PTFs by following the instructions in Section 3. - Applying Maintenance to aXes, and any special instructions found in the PTF cover letter.

Change default passwords

Use the CHGAXESUSR (Change aXes User) command to change the default password for the **ADMIN** user protecting the **<base-dir>/ts/admin** and **<base-dir>/admin** directories. For example:

```
CHGAXESUSR USER(admin) PASSWORD(F#56NSQ) DIR('/axes/ts/admin')
```

```
CHGAXESUSR USER(admin) PASSWORD(F#56NSQ) DIR('/axes/admin')
```

Use the CHGAXESUSR (Change aXes User) command to change the default password for the dev user protecting the <base-dir>/ts/dev directory. For example:

```
CHGAXESUSR USER(dev) PASSWORD(TopGunPgm) DIR('/axes/ts/dev')
```

The AXES user profile has a randomly generated password. If you want to change this password do so using the CHGUSRPRF (Change User Profile) command.

The AXES user profile must have a password to allow it to access the *LOCAL database.

If you changed any of these values as part of a previous installation and you are installing an upgrade over an existing installation then any changes you made previously will be preserved.

Changing library lists

The aXes commands, menus, and messages are regarded as translatable components. They are installed into the aXes product library if the primary language of your system matches the aXes primary language, thus the product library and the product language library are the same. If the languages are different then the translatable components are installed into a separate language library. In either case you will need to make the translatable components available.

You can make the commands and menus available to your job by adding the product language library to the library list using the Add Library List Entry (ADDLIBLE) command, by adding the product language library to the INLLIBL parameter of the user's job description (*JOBD) object, or by qualifying the commands with the product language library name. For example:

```
<lang-lib>/WRKAXESSVR
```

where **<lang-lib>** is the name of the library into which the aXes translatable components were installed.

You can make the commands and menus available to all jobs by:

- Adding the product language library to the QSYSLIBL or QUSRLIBL system values
- Duplicating the commands into a library that is in your library list such as QGPL or QSYS

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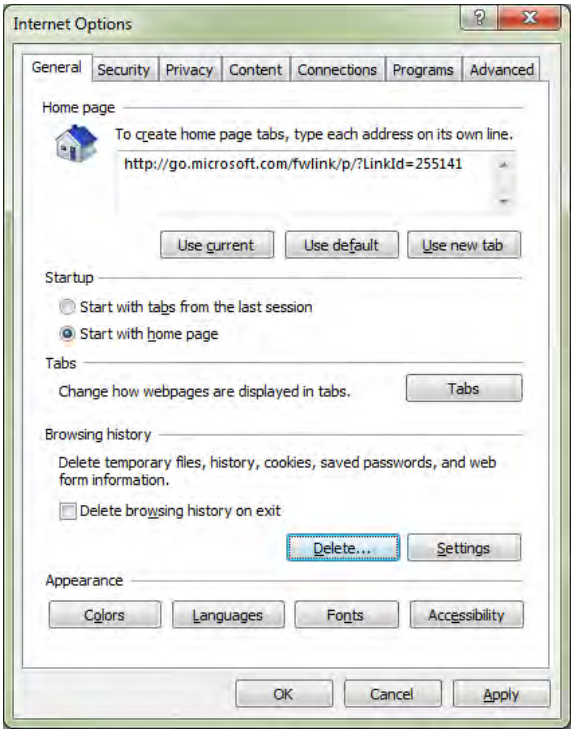
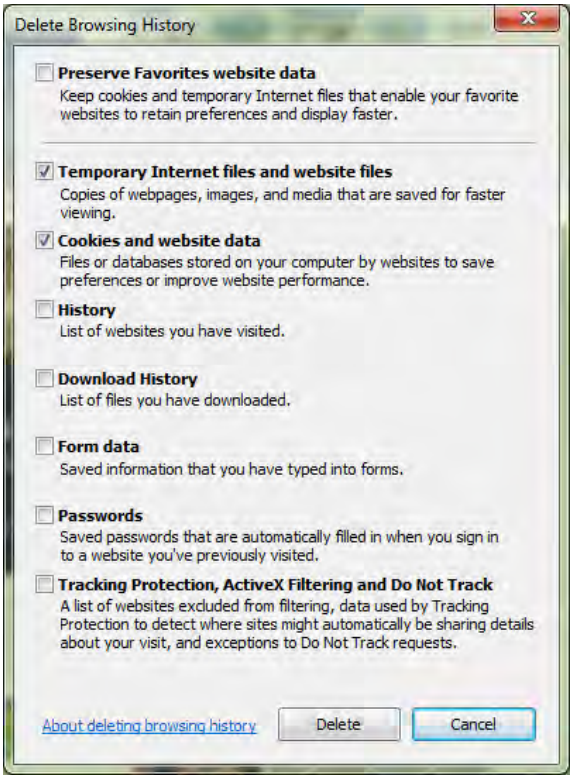
Clearing the browser cache

Internet Explorer caches files locally to improve access to servers. aXes Terminal Server tells Internet Explorer not to cache terminal files but it often caches them anyway. When a new release of aXes is installed, the cache used by Internet Explorer should be cleared to ensure the new terminal files are accessed. You can do this by selecting Tools->Internet Options from the Internet Explorer menu bar and then select the General tab and click the Delete Files button in the Browsing history section.





The Delete Browsing History window opens. Check “Temporary Internet files and website data” as well “Cookies and website data”, leaving all other options unchecked.

Click Delete to confirm and then OK to close the Internet Options window. Once the cache has been cleared you must close all Internet Explorer windows to complete the operation. Restart Internet Explorer and connect to the aXes Terminal Server to refresh the terminal files.

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Installing or upgrading LongRange

LongRange is also shipped aXes in save file named LRNG_DIST.SAVF that must be uploaded to your IBM i server.

1. Transfer the file

You may use your preferred upload method or use the following file transfer procedure.

For example, if the file LRNG_DIST.SAVF was unzipped to your C:\TEMP folder you could use these FTP commands from a command window:

File Transfer Commands	Command Explanations
FTP **server**	**server** is the IP address or name of your IBM i
Name: **user profile**	**user profile** is your user profile for the server
Password: **password**	**password** is the password for your user profile
QUOTE SITE NAMEFMT 1	Set the name format to use the library file system
BINARY	Use binary file transfer mode
CD QSYS.LIB	Go to the QSYS.LIB directory
CD QGPL.LIB	Go to the QGPL.LIB directory
PUT C:\TEMP\LRNG_DIST.SAVF	Send the file and save it on the server
QUIT	End the FTP session

2. Sign on with authority to restore and create libraries

Sign on to your IBM i server as QSECOFR or another user profile that has authority to restore and create libraries on your server.

3. Restore the save file

```
CALL QCMD
```

```
RSTOBJ OBJ(INSTALLMAN) SAVLIB(LRNG_DIST) DEV(*SAVF) SAVF(QGPL/LRNG_DIST)
    FRCOBJCVN(*YES) RSTLIB(QTEMP)
```

```
CALL QTEMP/INSTALLMAN
```

4. Confirm a successful restore

Look for a completion message that says ** ENDED NORMALLY **. If you see ** OPERATION FAILED - UNEXPECTED ERROR TRAPPED ** examine the errors in detail by pressing F10. If you can determine the cause of the failure, correct it and run the command CALL QTEMP/INSTALLMAN again.

If you cannot determine the cause of the failure use the SIGNOFF LOG(*LIST) command to produce a job log. Send the job log (QPJOBLOG) spool file to product support for further advice.

Refer to the LongRange Rapid Install Instructions for more information.

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Section 3 - Applying maintenance to aXes

This section describes how to apply software maintenance to aXes.

Updates and fixes for aXes are supplied as Program Temporary Fixes (PTFs). They may be obtained electronically, as save files, from the aXes web site. For general information regarding how to load and apply PTFs and read their associated cover letters, see the AS/400 Basic System Operation, Administration, and Problem Management (SC41-5206) book.

Before loading and applying or removing a PTF:

- Read the cover letter carefully to see if you need to perform any special action.
- End all aXes server instances.

Use the standard Load PTF (LODPTF) and Apply PTF (APYPTF) commands to load and apply a PTF. Use the standard Remove PTF (RMVPTF) command to remove a PTF. You can also use the PTF menu (GO PTF) to manage PTFs.

Installation instructions

aXes PTFs install using the IBM-supplied Load PTF (LODPTF) and Apply PTF (APYPTF) commands. These commands are the standard method of installing IBM i software fixes.

Each PTF is supplied in a save file and will automatically install into the correct product library.

Before loading a PTF you may have to perform some special instructions. See the Special Instructions section of the PTF cover letter.

After a PTF is installed you may have perform an action to activate the PTF. See the Activation Instructions section of the PTF cover letter.

You must install PTFs using a suitably authorized profile. The profile you use must be authorized to the Load PTF (LODPTF) and Apply PTF (APYPTF) commands and must have *ALLOBJ special authority. We recommend you use the QSECOFR user profile to avoid any authorization problems.

A PTF may provide changed stream files. These will be installed in the product directory structure.

If you have copied the supplied stream files to a different location (such as copied the <prod-dir>/ts/skins files to another system, or a different directory, or a different file name) you may have to copy any files changed by the PTF to the new location.

If you have modified any of the supplied stream files the PTF may replace the modified files. In this case you will have to reapply any modifications after the PTF has been applied. For this reason, it is always preferable to make copies of the supplied files and modify those rather than the original files.

The aXes development team will try not to PTF the skin files but sometimes this is unavoidable, in which case you will have to merge any custom skin changes to the files supplied by the PTF. See the section about determining objects changed by a PTF.

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Loading cover letters

The cover letters are supplied as plain text files on the aXes web site so you can read them within the browser before you install the PTF. If you want to read the cover letters via the Display PTF (DSPPTF) command then you must copy the cover letter to the QAPZCOVER file in QGPL.

1. Save the cover letter

Download the cover letter and save it in a PC directory (folder).

The file will be named Q**xxxxxxxnn**.mbr

Where:

xxxxxxx is the PTF identifier

nn is a language identifier (this value might not be present)

2. Transfer the cover letter to your IBM i system

Transfer the cover letter (there may be multiple cover letters) to your IBM i system via FTP.

Ensure the IBM i FTP server is running. Start the FTP server by running the command STRTCPSVR *FTP, but you must have authority to use the command.

2.1 Start a command window on you PC

2.2 Change to the directory containing the cover letter

2.3 Start FTP to your IBM i server and transfer the cover letter:

File Transfer Commands	Command Explanations
FTP **server**	**server** is the IP address or name of your IBM i system
Name: **user profile**	**user profile** is your user profile for the server
Password: **password**	**password** is the password for your user profile
QUOTE SITE NAMEFMT 1	Set the name format to use the library file system
BINARY	Use binary file transfer mode
CD QSYS.LIB	Go to the QSYS.LIB directory
CD QGPL.LIB	Go to the QGPL.LIB directory
PUT **cover-letter**.mbr	Send the cover letter file and save it on the server
QUIT	End the FTP session

Replace the words **server**, **user profile**, **password**, and **cover-letter** with appropriate values for your environment.

Repeat the PUT command for each cover letter.

> If the cover letter fails to display correctly and the job log shows the error message CPF3568 “Cover letter not converted”, then the likely cause is a data corruption of the cover letter CCSID during the file transfer process.
>
> You can obtain a program from LANSA to correct the cover letter CCSID.

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Installing PTFs from save files

The PTFs are packaged as a save file which has been zipped to reduce the size of the file. There may be more than one save file.

1. Download zipped PTF files

Download the zipped PTF files to your PC. Each zip file will contain a single save file object.

2. Unzip the PTF files

Unzip the files into a directory on your PC using your favourite unzip tool, for example:

UNZIP **file-name**.ZIP

Where **file-name** is the name of the zip file.

The unzipped file may be significantly larger than the zipped version so please ensure you have enough space on your PC hard drive.

3. Transfer the save file to your IBM i system

Transfer the unzipped save file (or files) to your IBM i system via FTP.

Ensure the IBM i FTP server is running. Start the FTP server by running the command STRTCPSVR *FTP, but you must have authority to use the command.

2.1 Start a command window on you PC

2.2 Change to the directory containing the cover letter

2.3 Start FTP to your IBM i server and transfer the cover letter:

File Transfer Commands	Command Explanations
FTP **server**	**server** is the IP address or name of your IBM i system
Name: **user profile**	**user profile** is your user profile for the server
Password: **password**	**password** is the password for your user profile
QUOTE SITE NAMEFMT 1	Set the name format to use the library file system
BINARY	Use binary file transfer mode
CD QSYS.LIB	Go to the QSYS.LIB directory
CD QGPL.LIB	Go to the QGPL.LIB directory
PUT **file-name.savf**	Send the cover letter file and save it on the server
QUIT	End the FTP session

Replace the words **server**, **user profile**, **password**, and **file-name.savf** with appropriate values for your environment.

Repeat the PUT command for each save file.

4. Clean up your PC

Clean up your PC by deleting the zipped files and the unzipped save files.

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5. Load PTFs

Loading the PTFs can be performed while the aXes is in use and all PTFs can be loaded at the same time. The load command is:

```
LODPTF LICPGM(1ASEA01) DEV(*SAVF) SAVF(QGPL/ptf-name)
```

Where **ptf-name** is the name of the save file.

Repeat the command for each PTF.

6. Read cover letters

Use the Display PTF (DSPPTF) command and read the cover letter supplied with the PTF for any special instructions.

7. Apply PTFs

Applying the PTFs must be performed while aXes is not in use. The apply command is:

```
APYPTF LICPGM(1ASEA01)
```

You must load the PTFs individually but you can apply them all with a single APYPTF command.

Determining objects changed by a PTF

A PTF may change IBM i objects or stream files. Determining changed objects for a PTF can be done by using the Display PTF (DSPPTF) command to list the PTFs for product 1AXES01. Then take option 5=Display, then menu item 6. PTF Objects. If the PTF affected IBM i objects they will appear in the list.

However, if the PTF affected stream files the object list will show one or more Save File objects. These save files start with the letter Q, then have a PTF ID, then end with a suffix of Jn where n is a sequential number. For example:

```
                                Display PTF Objects

      Product ID/PTF ID  . . . . . . . . . . :   1AXES01  1AX0184
      Release  . . . . . . . . . . . . . . . :   V1R2M3

      Object      Type                           Object      Type
      Q1AX0184J1  *FILE
      Q1AX0127J1  *FILE
      AXPTF00063  *PGM
```

There may be multiple save files and they may show different values in the PTF ID part of the file name, which indicates files from a superseded PTF are included in this PTF. When the PTF is loaded these save file objects will be found in the product library.

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To determine the stream files contained in the PTF you must use the Display Save File (DSPSAVF) command to view one or more of these save file objects. For example:

DSPSAVF AXES/Q1AX0184J1

Shows:

```
                         Display Saved Objects - Save File

Display level . . . . . :   1
Directory . . . . . . . :     /axesfix123/ts/Q1AX0184J1

Type options, press Enter.
  5=Display objects in subdirectory   8=Display object specific
information

Opt  Object            Type        Owner                Size  Data
 _   axapi.mjs         *STMF       QSYS                16384  Yes
 _   axcursor.mjs      *STMF       QSYS                16384  Yes
 _   axdata.mjs        *STMF       QSYS                16384  Yes
 _   axdelegates.mj >  *STMF       AXES                16384  Yes
 _   axes.css          *STMF       QSYS                 8192  Yes
 _   axesterm.xsl      *STMF       QSYS                32768  Yes
 _   axevent.mjs       *STMF       QSYS                 8192  Yes
 _   axfind.mjs        *STMF       QSYS                 8192  Yes
 _   axinterface.mj >  *STMF       QSYS                 8192  Yes
 _   axlayoutmanage >  *STMF       QSYS                16384  Yes

More
F3=Exit   F11=View 2   F12=Cancel   F16=Display header
F22=Display entire field
15 objects saved on media file
```

These stream files are the ones that will be replaced by the PTF. Even though they have been saved from a different directory (e.g., /axesfix123) they will be installed into the correct product directory. There may be multiple directory levels stored in the save file. Press Enter to see them all. Some of these files are from superseded PTFs but the PTF process supplies them all in case previous PTFs have not been installed.

You could also use the change date and time values from the file attributes to determine which files were changed by a given PTF. Use the Work with Links (WRKLNK) command and take option 8=Display attributes to see the change date values.

Removing PTFs

aXes PTFs from can be removed using the IBM-supplied Remove PTF (RMVPTF) command. This command is the standard method of removing IBM i software fixes.

This step should be performed when aXes is not in use.

RMVPTF LICPGM(**product-id**) SELECT(**ptf-id**)

Where **product-id** is the same value you specified on the LODPTF command and **ptf-id** is the identifier of the PTF you want to remove.

> You can only remove PTFs that are temporarily applied.

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National Language Support

aXes provides support for different national languages. PTFs that correct defects in program code are shared between all national language versions. PTFs that correct defects in translatable components require a separate PTF for each national language version. PTFs for NLS defects are unusual due to the costs involved in translating text.

In many cases the PTF cover letter will be translated into different national languages. You will be able to choose your preferred language when displaying the cover letter. When cover letters are not translated they will be shipped as English Uppercase (2950).

The supported national languages are:

Language ID	Language
2924	English Uppercase and Lowercase
2938	English Uppercase Support for Double-Byte Character Set (DBCS)
2950	English Uppercase
2984	English Uppercase and Lowercase Support for Double-Byte Character Set (DBCS)

Support for other languages will be provided as demand requires.

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Section 4 - Removing aXes

This section describes how to remove aXes from your system. There are two ways to remove aXes:

- A standard removal removes aXes product code but attempts to preserve user data.
- An entire removal removes both aXes product code and user data.

In all cases if you have installed the product into a library or directory other than the default you should replace references to library AXES and directory /axes with the appropriate names from your installed environment.

> The AXES job queue and AXES output queue are cleared as part of the removal process.
>
> If these queues contain jobs or spooled files that you want to keep you should move them to another queue prior to removing the product.

> If objects exist in the product library or product directory paths that are not part of the product, including objects created during the installation such as index.html, then the library or directory containing those objects will not be deleted during the removal process. Also the product directory (e.g. /axes) created during the installation might not be deleted. No error message will be sent.
>
> You may manually delete the library or directories.

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Standard Removal

Perform a standard removal of aXes when you want to retain your user data, for example, because you intend to reinstall the product at a later date.

User data is any object that is not tagged as being part of the shipped product. Examples are new configuration files, style-sheets that you create, and copies of the ts/skins directory. User data does not include changes you make to objects such as default configuration files.

1. Sign on to your IBM i server

Sign on to your IBM i using a suitably authorized profile. The profile you use must be authorized to the Delete Licensed Program (DLTLICPGM) command and must have *ALLOBJ and *SPLCTL special authority. We recommend you use the QSECOFR user profile to avoid authorization problems.

2. End all active aXes server instances

End all active aXes server instances by entering the commands:

```
ENDAXESTS   INSTANCE(*ALL)
ENDAXESWS   INSTANCE(*ALL)
ENDAXESDE   INSTANCE(*ALL)
ENDAXESW3   INSTANCE(*ALL)
```

Wait until all instances shut down before proceeding to the next step.

3. End the AXES subsystem

End the AXES subsystem by entering:

```
ENDSBS   SBS(AXES)
```

Wait until the subsystem closes before proceeding to the next step.

4. Check for object locks

Ensure that no locks are held on the library AXES.

Use the Work with Object Locks (WRKOBJLCK) command. For example:

```
WRKOBJLCK   OBJ(AXES) OBJTYPE(*LIB)
```

If there are locks, end the jobs or ask users to remove the library from their library list.

5. Delete aXes base and installed options

Use the Delete Licensed Program (DLTLICPGM) command to delete aXes base and installed options.

To delete the base product and any installed options enter:

```
DLTLICPGM   LICPGM(1AXES01) OPTION(*ALL)
```

To delete only the aXes Application Server option, you would enter:

```
DLTLICPGM   LICPGM(1AXES01) OPTION(2)
```

To delete only the aXes Terminal Server option, you would enter:

```
DLTLICPGM   LICPGM(1AXES01) OPTION(1)
```

--or--

```
DLTLICPGM   LICPGM(1AXES01) OPTION(11)
```

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Depending on which licence option you installed.

> You cannot remove aXes base without also removing all installed options.

6. Remove *JOBCTL from QTMHHTTP user profile

Remove *JOBCTL special authority from the QTMHHTTP user profile.

> Warning
>
> You should not perform this step if your organization has specifically added *JOBCTL special authority to the QTMHHTTP user profile, apart from aXes.

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Entire Removal

You can remove aXes entirely, including all user data. If you do so, you should save your user data first, it will not be recoverable.

To perform this removal:

1. Sign on to your IBM i server

Sign on to your IBM i using a suitably authorized profile. The profile you use must be authorized to the Delete Licensed Program (DLTLICPGM) command and must have *ALLOBJ and *SPLCTL special authority. We recommend you use the QSECOFR user profile to avoid authorization problems.

2. End all active aXes server instances

End all active aXes server instances by entering the commands:

```
ENDAXESTS   INSTANCE(*ALL)
ENDAXESWS   INSTANCE(*ALL)
ENDAXESDE   INSTANCE(*ALL)
ENDAXESW3   INSTANCE(*ALL)
```

Wait until all instances shut down before proceeding to the next step.

3. End the AXES subsystem

End the AXES subsystem by entering:

```
ENDSBS   SBS(AXES)
```

Wait until the subsystem closes before proceeding to the next step.

4. Check for object locks

Ensure that no locks are held on the library AXES.

Use the Work with Object Locks (WRKOBJLCK) command. For example:

```
WRKOBJLCK   OBJ(AXES) OBJTYPE(*LIB)
```

If there are locks, end the jobs or ask users to remove the library from their library list.

5. Delete aXes base and installed options

Use the Delete Licensed Program (DLTLICPGM) command to delete the base product and installed options.

To delete the base product and any installed options enter:

```
DLTLICPGM   LICPGM(1AXES01) OPTION(*ALL)
```

> You cannot remove aXes base without also removing all installed options.

6. Identify user who belong to AXES_GROUP or AXES profiles

Identify all users who belong to the AXES_GROUP or AXES profiles. Use the Display User Profile (DSPUSRPRF) command to display a list of them. You must remove the AXES_GROUP and AXES profiles from these user profiles before you can delete the AXES_GROUP and AXES profiles. The format of the command is:

```
DSPUSRPRF   USRPRF(AXES_GROUP) TYPE(*GRPMBR)
```

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7. Find objects owned by AXES_GROUP and AXES profile

For each of the user profiles AXES_GROUP and AXES, use the Work with Object Owner (WRKOBJOWN) command to list all the objects owned by the profile.

For the AXES_GROUP profile the command is:

```
WRKOBJOWN   USRPRF(AXES_GROUP)
```

For the AXES profile the command is:

```
WRKOBJOWN   USRPRF(AXES)
```

You must alter the ownership or delete the objects.

8. Delete AXES_GROUP and AXES profiles

Delete the AXES_GROUP and AXES user profiles.

For the AXES_GROUP profile the command is:

```
DLTUSRPRF  USRPRF(AXES_GROUP)
```

For the AXES profile the command is:

```
DLTUSRPRF  USRPRF(AXES)
```

9. Delete copies of aXes skins directories

Delete any copies you may have made of the aXes skins directories. Do this using the Edit File (EDTF) command and then use option 9 for the directory.

Alternatively, you can remove the aXes skins directories by repeated use of the RMVLNK and RMVDIR commands, or by using the QSHELL rm command.

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Section 5 - aXes commands

This section provides a brief description of the Control Language (CL) commands supplied with aXes. See the User Guide for complete information and syntax diagrams.

The commands are also available through a menu interface. Commands are grouped by function on the aXes Administration Menu (GO AXESADM), and grouped alphabetically on the aXes Command Menu (GO CMDAXES). If the product language library is not in your library list you will have to qualify the menu name.

You can make the commands and menus available to your job by:

- Adding the product language library to the library list
- Qualifying the commands with the product language library name

You can make the commands and menus available to all jobs by:

- Adding the product language library to the QSYSLIBL or QUSRLIBL system values
- Duplicating the commands into a library that is in your library list

The following commands are available.

Commands defined

Work with aXes Servers

The Work with aXes Servers (WRKAXESSVR) command allows you to display and work with a list of aXes servers. You can add, change, display, remove, start, and end servers.

Add aXes Application Server

The Add aXes Application Server (ADDAXESW3) command allows you to add an aXes Application Server instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

Add aXes Data Explorer

The Add aXes Data Explorer (ADDAXESDE) command allows you to add an aXes Data Explorer instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

Add aXes Spool File Server

The Add aXes Spool File Server (ADDAXESWS) command allows you to add an aXes Spool File Server instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

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Add aXes Terminal Server

The Add aXes Terminal Server (ADDAXESTS) command allows you to add an aXes Terminal Server instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

Change aXes Application Server

The Change aXes Application Server (CHGAXESW3) command allows you to change an aXes Application Server instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

Change aXes Data Explorer

The Change aXes Data Explorer (CHGAXESDE) command allows you to change an aXes Data Explorer instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

Change aXes Spool File Server

The Change aXes Spool File Server (CHGAXESWS) command allows you to change an aXes Spool File Server instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

Change aXes Terminal Server

The Change aXes Terminal Server (CHGAXESTS) command allows you to change an aXes Terminal Server instance definition.

A server instance allows you to associate a name with a configuration file thus making it easier to use the corresponding start command. Server instances can also be automatically started when the AXES subsystem is started.

End aXes Application Server

The End aXes Application Server (ENDAXESW3) command allows you to end an instance of the aXes Application Server.

End aXes Data Explorer

The End aXes Data Explorer (ENDAXESDE) command allows you to end an instance of the aXes Data Explorer.

End aXes Spool File Server

The End aXes Spool File Server (ENDAXESWS) command allows you to end an instance of the aXes Spool File Server.

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End aXes Terminal Server

The End aXes Terminal Server (ENDAXESTS) command allows you to end an instance of the aXes Terminal Server.

Remove aXes Application Server

The Remove aXes Application Server (RMVAXESW3) command allows you to remove an aXes Application Server instance definition.

Remove aXes Data Explorer

The Remove aXes Data Explorer (RMVAXESDE) command allows you to remove aXes Data Explorer instance definition.

Remove aXes Spool File Server

The Remove aXes Spool File Server (RMVAXESWS) command allows you to remove an aXes Spool File Server instance definition.

Remove aXes Terminal Server

The Remove aXes Terminal Server (RMVAXESTS) command allows you to remove an aXes Terminal Server instance definition.

Start aXes Application Server

The Start aXes Application Server (STRAXESW3) command allows you to start an instance of the aXes Application Server. The aXes Application Server handles the interaction with the browser.

Start aXes Data Explorer

The Start aXes Data Explorer (STRAXESDE) command allows you to start an instance of the aXes Data Explorer.

Start aXes Spool File Server

The Start aXes Spool File Server (STRAXESWS) command allows you to start an instance of the aXes Spool File Server.

Start aXes Terminal Server

The Start aXes Terminal Server (STRAXESTS) command allows you to start an instance of the aXes Terminal Server.

Create aXes Access Control List

The Create aXes Access Control List (CRTAXESACL) command allows you to create an aXes access control list object.

An access control list (ACL) is an object that contains the names of authorized users and encrypted passwords. It is used to control access to a directory path.

Delete aXes Access Control List

The Delete aXes Access Control List (DLTAXESACL) command allows you to delete an aXes access control list object.

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An access control list (ACL) is an object that contains the names of authorized users and encrypted passwords. It is used to control access to a directory path.

Display aXes Licence Information

The Display aXes Licence Information (DSPAXESLIC) command displays information about the licences for the aXes servers.

Display Interactive-CPW Jobs

The Display Interactive-CPW Jobs (DSPICPWJOB) command allows you to display a list of jobs on the system that consume Interactive CPW.

Display Interactive-CPW Messages

The Display Interactive-CPW Messages (DSPICPWMSG) command searches the history log (QHST) for messages indicating the available amount of Interactive CPW is nearing the limit.

Release aXes Licence

The Release aXes Licence (RLSAXESLIC) command allows you to release licences for the aXes servers.

Work with aXes Users

The Work with aXes Users (WRKAXESUSR) command allows you to display and work with a list of user defined in an aXes access control list. You can add, change, and remove users.

> To use this command you must have *SECADM special authority.

Add aXes User

The Add aXes User (ADDAXESUSR) command allows you to add a user to an aXes access control list object.

An access control list (ACL) is an object that contains the names of authorized users and encrypted passwords. It is used to control access to a directory path.

> To use this command you must have *SECADM special authority.

Change aXes User

The Change aXes User (CHGAXESUSR) command allows you to change a user in an aXes access control list object.

An access control list (ACL) is an object that contains the names of authorized users and encrypted passwords. It is used to control access to a directory path.

Remove aXes User

The Remove aXes User (RMVAXESUSR) command allows you to remove a user from an aXes access control list object.

An access control list (ACL) is an object that contains the names of authorized users and encrypted passwords. It is used to control access to a directory path.

> To use this command you must have *SECADM special authority.

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