Universal Agent 7.0.x

Installation Requirements and Summary

Universal Agent 7.0.x Installation Requirements and Summary

Universal Agent Components

Universal Agent is comprised of a suite of components that are installed as a single installation package.

There is a separate package for each of the Universal Agent supported platforms. There also are additional, separate packages for Windows and UNIX.

The following table provides links to the installation requirements and summary (including any customization information) for the packages on each platform:

Platforms	Packages
z/OS	Universal Agent 7.0.x for z/OS
Windows	Universal Agent 7.0.x for Windows Universal Enterprise Controller 7.0.x Universal Enterprise Controller Client Applications 7.0.x Universal Agent for SOA 7.0.x
UNIX	Universal Agent 7.0.x for UNIX Universal Agent for SOA 7.0.x
IBM i	Workload Automation 5.1.1 for IBM i

For complete instructions on product installation and customization, see the Universal Agent 7.0.x Installation, Upgrade, and Applying Maintenance.

Platform Requirements

Since platform requirements may change with new releases of a product, please consult the Platform Support for Universal Controller 7.0.x and Universal Agent 7.0.x page to make sure that your platform is supported before performing an installation.

Space Requirements

Space requirements for Universal Agent are driven largely by logging. A minimum 500MB of space is recommended. Each Agent contains a Universal Broker log and an Agent log.

The Universal Broker LOG_FILE_GENERATIONS configuration option lets you specify how many log files to save in the Universal Broker log directory. The default is 5.

The Agent log rolls over at midnight (12:00 a.m.) or whenever the Agent is restarted. The Log File Retention Period in Days Universal Controller system property lets you specify the number of days that an Agent log file (in addition to a Controller log file) is retained before it is purged. The default is 5 days.

Network Requirements

Universal Agent components run on z/OS, Windows, UNIX, and IBM i operating systems. These systems must be connected with a network that supports TCP/IP. For example, the Universal Command Manager running on a z/OS system must be able to establish a TCP/IP socket connection with the Universal Command Server running on a UNIX or Windows system.

TCP/IP provides a set of commands to verify network connectivity between systems. For example, the ping command can determine if an IP connection is possible between two systems. However, the ping command may not work in all network environments. In addition, the ping command may work, but a firewall may deny all other connection attempts between the two systems. Check with your local network administrator to determine the capabilities and topology of your network.

Universal Agent offers configuration parameters that can facilitate connections through network firewalls. Due to the large variety of firewall configurations, all possibilities cannot be discussed in this document. Check with your local network administrator to determine if a firewall is between the computer systems involved.

Ports Configuration

Universal Agent is composed of several components that utilize the TCP/IP network for component communications. TCP/IP routes must be available between the distributed components and firewall rules open, if necessary. The primary components using TCP/IP are Universal Broker, Universal Managers, and Universal Automation Center Agent (UAG).

- Universal Broker executes on all servers on which workload management services are required. The Universal Broker accepts TCP socket connections on port 7887 from remote clients such as Universal Command Manager and Universal Data Mover Manager. A server running Universal Agent will need to be able to accept TCP connections on port 7887 in order to provide such services.

- Universal Manager components include Universal Command Manager, Universal Data Mover Manager, and others. Manager components initiate TCP socket connections to remote Universal Brokers. If Universal Manager services are required, the Managers will need to be able to open TCP connections to remote Universal Brokers on port 7887.

- UAG initiates a TCP socket connection to the Universal Message Service (OMS) deployed on a remote, centrally located server. OMS accepts TCP connections on port 7878. UAG must be able to open a TCP connection to the remote OMS server on port 7878.

The port numbers above are default port numbers. They can be changed in the respective component configuration, if necessary.

Additional Requirements

In order to install any of these Universal Agent components, you must be able to write to the directory from which the installation is launched.

Installation Requirements and Summary - z/OS

Objective

This page provides installation requirements and summary for Universal Agent 7.0.x on a z/OS operating system.

System Requirements

Universal Agent for z/OS requires the following software releases:

- z/OS 2.2, 2.3, or 2.4.
- SMP/E 3.5 or later.
- IBM Communication Server for z/OS 2.2, 2.3, or 2.4.
- IBM Language Environment (LE) for z/OS 2.2, 2.3, or 2.4.
- Windows workstation capable of establishing a TCP/IP network connection to the z/OS system.
- TSO user ID with an OMVS segment.
- About 1900 cylinders of DASD.
- Two available TCP/IP ports on z/OS.

All Universal Agent programs use z/OS UNIX System Services. As such, z/OS UNIX requires the user profile with which a program executes to have a properly defined OMVS segment. The OMVS segment should define a unique UID value. The HOME value must specify an existing home directory to which the user ID has read and write access.

Additionally, the group(s) that the user ID is associated with must have an OMVS segment that defines a unique GID value for the group. Refer to IBM's UNIX System Services Planning manual for additional details on defining z/OS UNIX users.

Platform Requirements

Since platform requirements may change with new releases of a product, please consult the Platform Support for Universal Controller 7.0.x and Universal Agent 7.0.x page to make sure that your platform is supported before performing an installation.

Data Set Space Requirements

As part of the Universal Agent for z/OS package installation, a number of SMP/E and non-SMP/E data sets are allocated and cataloged. The space requirements for these data sets are listed in z/OS Installation - Data Set Inventory.

Installation Summary

Step 1	Download one of the Universal Agent 7.0.x for z/OS product distribution files.
Step 2a	If one of the distribution files with the .tar.Z extension was downloaded, decompress it using any utility that can process files in Lempel-Ziv (that is, **compress**) format. Use **tar** to extract the files from the uncompressed file. To do both in a single statement, decompress the file to stdout and pipe the result to **tar** (for example, **zcat sb-v.r.m.l-zos.tar.Z | tar xvf -**).
Step 2b	If one of the distribution files with the .zip extension was downloaded, decompress it using any utility that can process files in **ZIP** (or, PKZIP) format. The .zip file can also be extracted using Windows native file extraction tools.
Step 3	Modify the UNVFTP.TXT script provided by the distribution file. This script contains statements to upload the installation files and sample JCL, which can be used to process the files after upload. Two versions of these files are included in the distribution file. The files in the main directory are EBCDIC-encoded files. ASCII-encoded versions of these files are in the `./ascii` subdirectory. See z/OS Installation - Transferring Installation Files to z/OS for complete details.
Step 4	Modify the JCL uploaded from UNVRECV.JCL and run the job to receive the TSO XMIT file(s). If the distribution file that contains the DFDSS archive is used, UNVRECV.JCL also contains a step to restore the contents of the archive. See Receive the Installation Datasets for complete details.

Step 5	Edit the INSTALL(#SETUP) member to meet local requirements as described in the #SETUP comment prolog. #SETUP creates customized installation JCL members in the INSTALL library. Execute the installation jobs as required for your SMP/E environment. See z/OS Installation - SMPE Installation for complete details.
Step 6	Create started task user and group profiles for Universal Broker and Universal Enterprise Controller. See z/OS Configuration - Started Tasks for complete details.
Step 7	Define the SUNVLOAD library to APF, Program Control, and LNKLST. See z/OS Configuration - Load Library for complete details.
Step 8	Define SMF exits for Universal Command and Universal Automation Center Agent. See z/OS Configuration - SMF Exits for complete details.
Step 9	Configure the UNIX System Services file systems used by the Universal Broker and Universal Enterprise Controller. See Universal Agent Database Configuration for complete details.
Step 10	Perform individual component customization, including JCL procedure edits and adding component licenses. See z/OS Installation - Customization for complete details.
Step 11	Follow the optional steps described in z/OS USS Installation to complete the installation, if desired.

Customization

Customization consists of editing PDS members in the Universal configuration library, UNVCONF.

Installation Requirements and Summary - Windows

Objective

This page provides installation requirements and summary for Universal Agent 7.0.x on a Windows operating system.

Universal Agent for Windows is comprised of one required package - Universal Agent - and three optional packages: Universal Enterprise Controller, Universal Enterprise Controller Client Applications, and Universal Agent for SOA.

Universal Agent - System Installation

Windows Versions

To install Universal Agent for Windows, you must have one of the following versions of Windows:

- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

Additional Requirements

- An account with administrative privileges.
- Possible reboot: a reboot is required if the Windows Installer service is not installed, a version of the Windows Installer prior to 3.1.4000.1823 is installed, or if required files are in use at the time of the installation.
- TCP/IP.
- About 325 megabytes of disk space.

Platform Requirements

Since platform requirements may change with new releases of a product, please consult the Platform Support for Universal Controller 7.0.x and Universal Agent 7.0.x page to make sure that your platform is supported before performing an installation.

Installation Account

The account used to install the package must have administrative privileges.

Universal Broker Service

The Universal Broker service runs either with an Administrative account or with the Local System account.

If you are using an Administrative account, the account must have the following privileges:

- Act as part of the operating system
- Adjust memory quotas for a process
- Bypass traverse checking
- Debug programs
- Deny log on as batch job
- Deny log on locally
- Deny log on through Terminal Services
- Log on as a service
- Impersonate a client after authentication
- Increase scheduling priority
- Replace a process level token
- Take ownership of files and other objects

UBrokerService: The Default Universal Broker Service Account

The Universal Agent for Windows installation will create an account with the privileges listed above, if the account does not already exist. The name of this account is **UBrokerService**. A default password provided for the account can be obtained by contacting Stonebranch support. We strongly suggest that you set this password at install time via the installation dialogs or via the **BROKERPWD** command line option.

Note

If the UBrokerService account already exists, its password cannot be changed from the install.

See Installing a Universal Agent System Install via the Graphical Interface for detailed information about setting up the Universal Broker service account at install time.

Using a Windows Domain Account to Execute Universal Broker

The Universal Broker Service may be configured to execute with an existing Windows domain account, provided that account has been granted the privileges listed in this section, above, on the local system and the account has the file system permissions described in Service Security.

Note

Depending on your environment, it may be necessary to add this account to the Domain Admins group. This will ensure the account has sufficient access to domain resources and is recognized as a true administrative account on all domain member systems that run the Universal Broker service as that account.

Spool Directory

The spool directory is used to store the following types of information:

- Execution information for Universal Agent components started by Universal Broker.
- Event definitions and event handlers managed by Universal Broker and used by Universal Event Monitor.
- Results of events tracked by Universal Event Monitor.
- Redirected standard I/O files (stdin, stdout, and stderr) captured by Universal Command when run with Manager Fault Tolerance enabled.
- Configuration information for Universal Agent components, when a local Universal Broker is operating in managed mode.

The default location for the spooled standard I/O files is `.\Universal\spool\ucmdsrv`.

The default location for the other database files is `.\Universal\spool\ubroker`.

Universal Command Server

Location

The spool directory must reside on a local device. It cannot reside on any network device, including network drives that may be mapped to a local drive. By default, the spool files are located in directory `.\Universal\spool\ucmdsrv`.

Space

You must have approximately 50 megabytes of disk space for the installation.

The amount of disk space required for the spool directory depend on the following factors:

- Number of spooling user processes that will be executing simultaneously. A user process is created for each command requested by a Universal Command Manager. The default maximum number is 50.
- When a user process ends and a Manager has received all the spool files, the spool files themselves are deleted.
- Average size of the user processes standard input, output, and error files. Keep in mind that spooling is not a feature for file transfer purposes. File transfer-related processes should execute without spooling enabled.

When these numbers have been determined, the average amount of disk space is calculated with the following formula:

`MAX-PROCESSES x AVERAGE-STDIO-SIZE x 2 = required disk space.`

For example, if the maximum number of simultaneous user processes is estimated at 20 and the average size of processes standard I/O files is 100,000 bytes, the average amount of required disk space is 4MB (20 x 100000 x 2).

The Universal Command Server is configured with spooling disabled to prevent unintentional disk utilization. This feature can be enabled through the Universal Configuration Manager.

For more information on the Manager Fault Tolerant feature, spooling of redirected standard I/O files, and Universal Configuration Manager, see the Universal Agent 7.0.x User Guide.

Security

Universal Broker and Universal Command Server require read/write access to the spool directory. No other Universal Agent components access the spool directory directly.

UAG Cache

UAG cache is used by Universal Automation Center Agent (UAG) for storing standard I/O files.

Space

Cache files are located, by default, in directory `.\Universal\UagSrv\cache`.

Cache files are created for each job that is run by Universal Agent. They remain in the cache until they are purged by an automated purge process scheduled nightly by Universal Controller. You can configure the number of days that files remain in the cache using the Agent Cache Retention Period in Days Universal Controller system property.

The amount of disk space required for the cache directory depends on:

- Number of jobs you estimate will run during the cache retention period you specified.
- These files remain until they are purged by the automated cache purge process scheduled by Universal Controller daily at midnight.
- Average size of the user processes standard output and error files.

When these numbers have been determined, the average amount of disk space is calculated with the following formula:

`(RETENTION PERIOD x MAX-JOBS) x (AVERAGE-STDOUT-SIZE + AVERAGE-STDERR-SIZE) = required disk space.`

For example:

If the files are purged every 7 days, and you run 1200 jobs on that agent server daily, and the average size of the STDOUT + STDERR files is 3,000 bytes, the average amount of required disk space is 25MB (7 x 1,200 x 3000).

UAG automatically redirects the standard output and standard error files to the cache directory with no required user input.

Security

Universal Automation Center Agent (UAG) requires read/write access to the UAG cache directory. No other Universal Agent components access the cache directory. No general user access is required.

Universal Agent - User Mode Installation

Windows Versions

To install Universal Agent for Windows, you must have one of the following versions of Windows:

- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

Note

The Universal Agent for Windows User Mode installation package will execute only on a 64-bit version of Windows.

Additional Requirements

- Administrative authority to execute the installation.
- Network connectivity via TCP/IP.
- About 120 MB available disk space.
- Interactive access to the Windows system (command line support will be provided in an upcoming release).
- Microsoft Visual C++ 14 Runtime
- Microsoft Universal C Runtime

Note

The Universal Agent User Mode install does not provide the required Microsoft runtimes. If either of these do not exist, the install will issue an error and stop without installing any files. Both runtimes are available as redistributable packages from Microsoft. The Universal C Runtime is built into Windows 10, Server 2016, and Server 2019. It is available via a Microsoft update for Windows Server 2012 and Windows Server 20102 R2.

Platform Requirements

Since platform requirements may change with new releases of a product, please consult the Platform Support for Universal Controller 7.0.x and Universal Agent 7.0.x page to make sure that your platform is supported before performing an installation.

Installation Account

The account used to execute a Universal Agent for Windows user mode installation must have administrative privileges.

Universal Broker Service

The Universal Broker service runs either with an Administrative account or with the Local System account.

If you are using an Administrative account, the account must have the following privileges on the system upon which the Universal Agent resides (optional, but recommended privileges are noted):

- Act as part of the operating system
- Adjust memory quotas for a process
- Bypass traverse checking
- Debug programs
- Deny log on as batch job (optional, recommended)
- Deny log on locally (optional, recommended)
- Deny log on through Terminal Services (optional, recommended)
- Log on as a service
- Impersonate a client after authentication
- Increase scheduling priority
- Replace a process level token
- Take ownership of files and other objects

Selecting a Universal Broker Service Account

The Universal Agent for Windows user mode install will supply default credentials for an account named UBrokerService. This is the same default account that the Universal Agent for Windows system installation creates (if it does not already exist).

If the Universal Broker service will execute with a different account, you can provide that account's user ID and password during the install or specify them post-install in the Universal Broker service's configured settings within the Windows Services application.

If the Universal Broker service will execute with a domain account, that account must have the privileges listed above on the local Universal Agent system. The privileges can be granted locally or inherited via Active Directory policy, but they must be granted on the local system.

In all cases, the account chosen to run the Universal Broker service must be an existing Administrative account. The Universal Agent for Windows user mode install will not create it.

Spool Directory

The spool directory is used to store the following types of information:

- Execution information for Universal Agent components started by Universal Broker.
- Event definitions and event handlers managed by Universal Broker and used by Universal Event Monitor.
- Results of events tracked by Universal Event Monitor.
- Redirected standard I/O files (stdin, stdout, and stderr) captured by Universal Command when run with Manager Fault Tolerance enabled.
- Configuration information for Universal Agent components, when a local Universal Broker is operating in managed mode.

For user mode installations, the spool directory resides just under the main install directory.

- Most database files reside in `.\spool\ubroker`.
- Spooled standard I/O files reside in `.\spool\ucmdsrv`.

Universal Command Server

Location

The spool directory must reside on a local device. It cannot reside on any network device, including network drives that may be mapped to a local drive. By default, the spool files are located in directory `.\spool\ucmdsrv` (relative to the main installation directory).

Space

You must have approximately 125 MB available disk space for each instance of a Universal Agent for Windows user mode installation.

The amount of disk space required for the spool directory depend on the following factors:

- Number of spooling user processes that will be executing simultaneously. A user process is created for each command requested by a Universal Command Manager. The default maximum number is 50.
- When a user process ends and a Manager has received all the spool files, the spool files themselves are deleted.
- Average size of the user processes standard input, output, and error files. Keep in mind that spooling is not a feature for file transfer purposes. File transfer-related processes should execute without spooling enabled.

When these numbers have been determined, the average amount of disk space is calculated with the following formula:

`MAX-PROCESSES x AVERAGE-STDIO-SIZE x 2 = required disk space.`

For example, if the maximum number of simultaneous user processes is estimated at 20 and the average size of processes standard I/O files is 100,000 bytes, the average amount of required disk space is 4MB (20 x 100000 x 2).

The Universal Command Server is configured with spooling disabled to prevent unintentional disk utilization. This feature can be enabled by updating the Universal Command Server configuration file, `.\conf\ucmds.conf`.

For more information on the Manager Fault Tolerant feature and spooling of redirected standard I/O files, see the Universal Agent 7.0.x User Guide.

Security

Universal Broker and Universal Command Server require read/write access to the spool directory. No other Universal Agent components access the spool directory directly.

UAG Cache

The Universal Automation Center Agent (UAGSRV) stores standard I/O redirected from processes it executes to files in the UAG cache locations below.

Space

Cache files are located, by default, in directory `.\UagSrv\cache`, relative to the main Universal Agent for Windows user mode installation directory.

Cache files are created for each job that is run by Universal Agent. They remain in the cache until they are purged by an automated purge process scheduled nightly by Universal Controller. You can configure the number of days that files remain in the cache using the Agent Cache Retention Period in Days Universal Controller system property.

For each instance of a Universal Agent user mode installation, the amount of disk space required for the cache directory depends on:

1. Number of jobs you estimate will run during the cache retention period you specified.
2. These files remain until they are purged by the automated cache purge process scheduled by the Controller daily at midnight.
3. Average size of the user processes standard output and error files.

When these numbers have been determined, the average amount of disk space is calculated with the following formula:

`(RETENTION PERIOD x MAX-JOBS) x (AVERAGE-STDOUT-SIZE + AVERAGE-STDERR-SIZE) = required disk space.`

For example:

If the files are purged every 7 days, and you run 1200 jobs daily on a particular user mode Universal Agent and the average size of the STDOUT + STDERR files is 3,000 bytes, the average amount of required disk space is 25MB (7 x 1,200 x 3000).

UAG automatically redirects the standard output and standard error files to the cache directory with no required user input.

Security

Universal Automation Center Agent (UAG) requires read/write access to the UAG cache directory. No other Universal Agent components access the cache directory. No general user access is required.

Universal Enterprise Controller (UEC)

Windows Versions

- Windows XP SP3
- Windows Server 2003 SP1 and higher
- Windows Vista
- Windows 7
- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012

Additional Requirements

- An account with administrative privileges.
- Possible reboot: a reboot is required if the Windows Installer service is not installed, a version of the Windows Installer prior to 3.1.4000.1823 is installed, or if required files are in use at the time of the installation.
- TCP/IP.
- About 35 megabytes of disk space.

Universal Enterprise Controller Client Applications

Windows Versions

- Windows XP SP3
- Windows Server 2003 SP1 and higher
- Windows Vista
- Windows 7
- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012

Note

Itanium not supported for Windows Server 2003 and Windows Server 2008.

Additional Requirements

- For a per-machine install, Administrator access is required. For a per-user install, any account with the authority to install software can be used.
- The following conditions must be met before the UEC Client Applications can be successfully installed:
  - Account used for the installation must have write access to the desired destination folder.
  - No system policies (defined in Windows by your system administrator) may be in place that prohibit non-Administrative accounts from installing software.
- Possible reboot: a reboot is required if the Windows Installer service is not installed, a version of the Windows Installer prior to 3.1.4000.1823 is installed, or if required files are in use at the time of the installation.
- TCP/IP.
- About 5 megabytes of disk space. This value does not include space required for the Java Runtime Environment (JRE). See the JRE installation requirements, available from Sun, for more information.
- Sun Java Runtime Environment (JRE 1.5 or above).

Java Runtime Environment

To run the UEC Client Applications, you also must have the Java Runtime Environment (JRE) version 1.5 or above. You can download the latest JRE installation package directly from Sun's website, www.java.com.

A Stonebranch Tip

Changes in Sun's versioning scheme for Java has created some confusion.

With version 1.2 of the Java environment, Sun began referring to Java as Java 2. The formal name was actually Java 2 with SDK 1.2.

As of January 2008, version 1.6 is latest version of the Java environment - a newer version than the original Java 2.

Universal Agent for SOA

Universal Agent for SOA on Windows is now available as 6.7.0.0. It is a 64-bit package, supported on the same Windows versions as the Agent: Windows 7, Server 2008 R2, Server 2012, Server 2012 R2, Server 2016, and Server 2019.

Note

Starting with the 6.7.0.0 release, the Universal Agent for SOA on Windows is a 64-bit application that replaces all previous versions. There is no upgrade path from the older 32-bit version to the 64-bit implementation. If the install detects an existing 32-bit version, it will prompt you to remove that version before proceeding.

You are responsible for preserving your existing configuration in this scenario. PLEASE remember to collect the license information stored in the `uacs.conf` file so that you can re-apply it following the 64-bit install. If you lose your license information, you will need to contact Stonebranch customer support to retrieve that information.

Additional Requirements

- An account with administrative privileges.
- Possible reboot. A reboot is required if the Windows Installer service is not installed, a version of the Windows Installer prior to 3.1.4000.1283 is installed, or required files are in use at the time of the installation.
- TCP/IP.
- About 110 megabytes of disk space.
- A supported 64-bit Universal Agent.

Installation Summary

Step 1	Download the distribution file from the Stonebranch Customer Portal.
Step 2	Log on to Windows using an account with the privileges noted above.
Step 3	Exit all running programs to reduce the likelihood of a reboot.
Step 4	Execute the installation file.
Step 5	Follow installation instructions presented by the graphical installation program.

Customization

Customization consists of starting the Universal Configuration Manager control panel applet and modifying the configuration options as required by the local environment.

Installation Requirements and Summary - UNIX

Objective

This page provides installation requirements and summary for Universal Agent 7.0.x on a UNIX system.

Universal Agent for UNIX is comprised of one required package - Universal Agent (the Agent) - and one optional package: Universal Agent for SOA.

Universal Agent for UNIX

UNIX Versions

One of the following UNIX operating systems that are supported by Universal Agent 7.0.x:

- AIX 7.1 TL5 and above or AIX 7.2 TL2 and above
- HP-UX 11.23 and above (HP-UX IA64 package)
- Solaris 10 and above (SPARC-based)

Note

Universal Agent for Solaris 10 systems require libxnet.so version SUNW_1.3.1 or higher.

Note

The Python 3.6 Distribution for Universal Agent requires libintl.so version 0.18.1.1, REV=2011.03.15 or higher. The install will proceed if the required dependency does not exist, but the UA-specific python instance will not run until libintl is available.

- Solaris 10 and above (Intel-based)

Note

The Python 3.6 Distribution for Universal Agent requires libintl.so version 0.18.1.1, REV=2011.03.15 or higher. The install will proceed if the required dependency does not exist, but the UA-specific python instance will not run until libintl is available.

- Linux Environments with the following qualifications:
    - Intel x86_64-based system
        - Linux Kernel 3.10 or greater
        - glibc 2.17-78 or higher
    - IBM PowerPC-based system
        - Linux Kernel 3.10 or greater
        - glibc 2.17-157 or higher
        - Configured for little endian (LE)
    - zSeries 64-bit (S/390) system
        - Linux Kernel 2.6 or greater
        - glibc 2.4-31 or greater
    - RedHat Package Manager (RPM) distributions
    - Debian distributions
        - Linux Kernel 3.0 or greater
        - glibc 2.15 or higher

The list of supported systems grows rapidly. Contact Stonebranch, Inc. for a current list of supported UNIX operating systems if you require support for a system that is not listed.

Additional Requirements

- Superuser (root) access.
- TCP/IP Socket implementation.

- Approximately 400 megabytes of disk space for the installation. More disk space is required for variable files, such as log files, spool files, and trace files.
- Bourne shell or compatible.

Platform Requirements

Since platform requirements may change with new releases of a product, see Platform Support for Universal Controller 7.0.x and Universal Agent 7.0.x to make sure that your platform is supported before performing an installation.

Directories and Files

All product files that are written to during product execution are stored in the **/var/opt/universal** directory by default. This section documents the estimated amount of space required on the file system for all directories (and their sub-directories), required security access, and mount requirements.

Command Reference Directory

Universal Command Server can execute commands of type **cmdref**. A command reference is a predefined command or script to which the Universal Command Manager refers by its file name.

The command reference directory is **/var/opt/universal/cmdref**.

Space

The amount of space required is solely dependent on the number of command reference files you define. No command reference files are included in the installation.

Security

Universal Command Server requires read access to the **cmdref** directory. The product administrator requires read/write access in order to maintain the command reference files. No general user access is required.

Log Directory

Universal Broker can be configured to write its messages to a log file.

The current log file and previous log file generations are stored in the **/var/opt/universal/log** directory.

Space

A log file size grows to about 150,000 bytes and is then rolled over to a generation file. Five generations of log files are saved. The oldest generation log file is deleted. The amount of space required for the five generations and the current log file is about 900,000 bytes.

Security

Universal Broker requires read/write access to the log directory and read/write access to all files in the log directory. No other Universal Agent components use the log directory at this time. No general user access is required.

Trace Directory

Universal Broker and its server components (for example, Universal Command Server) create product trace files when configured to do so. A trace file is used by Stonebranch, Inc. Customer Support to resolve product problems.

Space

Trace files can grow to significant size depending on how long the trace is active and how much work the program is doing during the tracing period. A trace file size of about 10MB is not unusual.

Trace file sizes can be limited by setting the maximum number of lines to write to a file with the MAX_TRACE_LINES configuration option. Once the maximum is reached, the trace file will wrap to the beginning.

Under normal operation, no space is required for trace files. Trace files are requested by Stonebranch, Inc. Customer Support only for problem resolution. When trace files are required, at least 20MB of disk space should be available.

Security

Universal Broker and the Broker components (Universal Command Server and Universal Control Server) require read/write access to the trace directory. No other Universal Agent components access the trace directory. No general user access is required.

Spool Directory

The spool directory is used to store the following types of information:

- Execution information for Universal Agent components started by Universal Broker.
- Event definitions and event handlers managed by Universal Broker and used by Universal Event Monitor.
- Results of events tracked by Universal Event Monitor.
- Redirected standard I/O files (stdin, stdout, and stderr) captured by Universal Command when run with Manager Fault Tolerance enabled.

The default location for the spooled standard I/O files and other database files is the **/var/opt/universal/spool** directory.

Universal Command Server

Space

Spool files are located, by default, in directory **/var/opt/universal/spool**. The location of various product files can be can be configured via the product configuration files.

The amount of disk space required for the spool directory depends on:

1. Number of spooling user processes that will be executing simultaneously. A user process is created for each command requested by a Universal Command Manager. The default maximum number is 50.
   When a user process ends and a Manager has received all the spool files, the spool files themselves are deleted.
2. Average size of the user processes standard input, output, and error files.

A Stonebranch Tip

Keep in mind that spooling is not a feature for file transfer purposes.

File transfer-related processes should execute without spooling enabled.

When these numbers have been determined, the average amount of disk space is calculated with the following formula:

`MAX-PROCESSES x AVERAGE-STDIO-SIZE x 2 = required disk space.`

For example:

If the maximum number of simultaneous user processes is estimated at 20 and the average size of processes standard I/O files is 100,000 bytes, the average amount of required disk space is 4MB (20 x 100000 x 2).

The Universal Command Server is configured with spooling disabled to prevent unintentional disk utilization. The feature must be turned on through the ALLOW_SPOOLING configuration settings.

For more information on the Manager Fault Tolerant feature and the spooling of redirected standard I/O files, see the Universal Agent 7.0.x User Guide.

Security

Universal Broker, Universal Command Server, and Universal Event Monitor require read/write access to the spool directory. No other Universal Agent components access the spool directory. No general user access is required.

Mount

The spool directory must be mounted on a local device. It cannot be mounted on a network device, such as an NFS or SAMBA mount.

UAG Cache

UAG cache is used by Universal Automation Center Agent (UAG) for storing standard I/O files.

Space

Cache files are located, by default, in directory `/var/opt/universal/uag/cache`.

Cache files are created for each job that is run by the Agent. They remain in the cache until they are purged by an automated purge process scheduled nightly by Universal Controller. You can configure the number of days that files remain in the cache via the Universal Controller user interface (see the Agent Cache Retention Period in Days Universal Controller system property).

The amount of disk space required for the cache directory depends on:

1. Number of jobs you estimate will run during the cache retention period you specified.
2. These files remain until they are purged by the automated cache purge process scheduled by the Controller daily at midnight.
3. Average size of the user processes standard output and error files.

When these numbers have been determined, the average amount of disk space is calculated with the following formula:

`(RETENTION PERIOD x MAX-JOBS) x (AVERAGE-STDOUT-SIZE + AVERAGE-STDERR-SIZE) = required disk space.`

For example:

If the files are purged every 7 days, and you run 1200 jobs on that agent server daily, and the average size of the STDOUT + STDERR files is 3,000 bytes, the average amount of required disk space is 25MB (7 x 1,200 x 3000).

The Universal Automation Center Agent Server automatically redirects the standard output and standard error files to the cache directory with no required user input.

Security

Universal Automation Center Agent require read/write access to the UAG cache directory. No other Universal Agent components access the cache directory. No general user access is required.

Universal Agent for SOA

UNIX Versions

To install Universal Agent for SOA for UNIX, you must have a Linux environment that satisfies the following requirements:

- RedHat Package Manager (RPM) distributions
    - Intel x86_64-based system
    - Linux Kernel 3.10 or greater
    - gllibc 2.17-78 or higher
- Debian distributions
    - Linux Kernel 3.0 or greater
    - glibc 2.15 or higher

Platform Requirements

Since platform requirements may change with new releases of a product, see Platform Support for Universal Controller 7.0.x and Universal Agent 7.0.x to make sure that your platform is supported before performing an installation.

Additional Requirements

- 512MB RAM minimum, 1 GB or more preferred.
- 150 MB free disk space.
- TCP/IP socket implementation.
- Superuser (root) access.
- Universal Agent 6.3.0.1 or later.

Installation Summary

Step 1	Download the distribution file from the Stonebranch Customer Portal.
Step 2	Copy the distribution file to the UNIX system.
Step 3	Logon to the UNIX system as root or execute **su** (substitute user) command to root.
Step 4	Uncompress the distribution file.
Step 5	Extract the files from the uncompressed **tar** file.
Step 6	Run the Stonebranch, Inc.-supplied script.

Customization

Customization consists of editing one or more of the product configuration files.

Installation Requirements and Summary - IBM i

Currently, IBM i runs Workload Automation 5.1.1.   These pages provide information for that version.

Objective

This page provides installation requirements and summary for Workload Automation 5.1.1 on an IBM i system.

System Requirements

The requirements for installation of Workload Automation for IBM i are:

- IBM i V5R4M0 or above.
- TCP/IP.
- User profile with *ALLOBJ, *SPLCTL, *JOBCTL, and *SECADM authorities.
- About 360 megabytes of disk space.
- Network-attached workstation.
- PTF SI27629 installed on V5R4 systems.
  For additional information, see the documentation for APAR SE28859 and PTF SI27629 at both:
    - https://www\-912.ibm.com/n_dir/nas4apar.nsf/aaf5d88f9cc2ee10862571020058635c/a2b5a3b3ac874a9d862572d8003c7457? OpenDocument&Highlight=2,QGYOLJBL
    - https://www\-912.ibm.com/a_dir/as4ptf.nsf/c2fd98f5d2eccb83862574ce00520341/7529dd654f63941b862572eb00581099? OpenDocument

The Workload Automation 5 for IBM i installation process creates a product user profile, **UNVUBR511**, that is given ***ALLOBJ** special authority. **UNVUBR5 11**, with ***ALLOBJ** special authority, is required to successfully complete the installation.

Note

Some organizations and companies require the removal of ***ALLOBJ** authority from non-administrative user profiles. Workload Automation may be configured to run without ***ALLOBJ** authority; however, to do so requires additional administrative overhead. The steps required to remove product ***ALLO BJ** authority are described in Universal Broker Security.

The ***BASE** option contains the complete installation. This includes all of the components and utilities listed above.

Platform Requirements

Since platform requirements may change with new releases of a product, please consult the Platform Support for Universal Controller 7.0.x and Universal Agent 7.0.x page to make sure that your platform is supported before performing an installation.

Libraries and Logs

Under the IBM i native file system, Workload Automation write to product files residing in various libraries and write information to job logs.

This section specifies the following information for various libraries and logs:

- Estimated amount of space required
- Required security access
- Location of the production files

Universal Broker Job Log

Under IBM i, Universal Broker writes its messages to the **UBROKER** job log.

Space

Job log file growth is dependent on use of the Workload Automation Servers. The disposition and size of the job log depends on the job definition as well as system variables **QJOBMSGQMX** (maximum job log size) and **QJOBMSGQFL** (action when job log is full).

Security

Since Universal Broker uses a normal job log, no special security is required.

Command Reference Library

Universal Command Server can execute commands of type **cmdref**. A command reference is a predefined command or script to which the Universal Command Manager refers by its file name.

The default command reference library name is **UNVCMDREF**. For security reasons, the name of this library can be changed only via the Universal Command Server configuration, located in the **UNVCONF** file and **UCMDS** member. The configuration file entry has precedence over the default value. If the name is changed to something other than the default or configured value, Universal Command Manager will no longer be able to read the command reference files; it will generate appropriate error messages if an attempt is made to do so.

Space

The amount of space is dependent solely on the number of command reference files defined.

Security

Universal Command Server requires read access to the **UNVCMDREF** library files. Administrator accounts require appropriate access in order to maintain the command reference files. No general user access is required.

Trace File Location Library

Universal Broker and its server components (for example, Universal Command Server) create product trace files when configured to do so. A trace file is used by Stonebranch, Inc. Customer Support to resolve product problems.

On IBM i, Workload Automation trace files normally are written to ***CURLIB** (current library). Under Universal Broker and the associated servers, the current library is the temporary library designated at installation time (**UNVTMP511**).

Otherwise, current library is the default current library of the user.

Space

Trace files can grow to significant size, depending on how long the trace is active and how much work the program is doing during the tracing period. Due to the information associated with IBM i pointers and fact that physical database files are fixed record lengths, trace files quickly can grow very large on a system with high Universal Broker and server activity.

If the trace file size is increased beyond 500,000 records, the maximum file size must be changed or the associated job will hang. The hang results from a system generated inquiry message, which is issued when the maximum file size is exceeded. By default, trace files wrap before reaching the maximum file size, thus avoiding the system inquiry message.

The MAX_TRACE_LINES configuration option sets the number of records at which the trace file wrapping occurs. When the maximum size is reached, the trace file will wrap to the beginning.

No space is required under normal operation for trace files. Trace files are requested by Stonebranch, Inc. Customer Support only for problem resolution. When trace files are required, at least 40MB of disk space should be available.

Security

The **UNVUBR511** user profile requires at least ***CHANGE** authority to the **UNVTMP511** library to create and use the Universal Broker and server trace files. No general user access is required.

Spool Library

The spool library is used to store the following types of information:

- Execution information for Workload Automation components started by Universal Broker, **UBR_CMP_DB**.
- Universal Command Server status, **SRV_CMP_DB**.
- Redirected standard I/O files (stdin, stdout, and stderr) captured by Universal Command when run with manager fault tolerance enabled.

Spool files are stored in the **UNVSPL511** library.

Space

The spool files are located in the **UNVSPL511** library. The amount of disk space required for the spool directory depends on these factors:

1. Number of spooling user processes that will be executing simultaneously.
   A user process is created for each command requested by a Universal Command Manager. The default maximum number is 50. Once a user process ends and a Manager has received all the spool files, the spool files themselves are deleted.
2. Average number of records of the user processes for standard input, output, and error files.
   Each record is 32764 bytes in length. Keep in mind that spooling is not intended as a feature for file transfer purposes. File transfer related processes should execute without spooling enabled.

Once these numbers are determined, the average amount of disk space is calculated with the following formula:

```
MAX-PROCESSES x AVERAGE NUMBER-OF-REC0RDS x 32764 = required disk space.
```

As an example, if the maximum number simultaneous user processes is estimated at 20 and the average number of records in files is 1,000 bytes, the average amount of required disk space is 655MB (20 x 1000 x 32764).

The Universal Command Server is configured with spooling disabled to prevent unintentional disk utilization. The feature must be turned on through the ALLOW_SPOOLING configuration settings.

Further details on the Manager Fault Tolerant feature and spooling of redirected standard I/O files can be found in the Universal Agent 7.0.x User Guide.

Security

The **UNVUBR511** user profile requires at least *CHANGE authority to the **UNVSPL511** library to create and use the spool files. No general user access is required.

No other Workload Automation 5 for IBM i components access the spool library.

Installation Summary

Warning

This installation procedure is intended only for default installations into simple environments. Installing into high availability environments may require a customized installation. For customized installation, parallel installation or multiple system roll out see the Installation Guide for IBM i.

Step 1	Download the distribution file from the Stonebranch Customer Portal to a computer running a supported version of Windows or UNIX.
Step 2	Extract the Licensed Program Save File from the distribution file.
Step 3	If transferring the installation file to the native, QSYS file system, create a save file, UNV511, on the target IBM I system in library QGPL. This step is not necessary if transferring the file to the IFS.
Step 4	FTP the Licensed Program Save File to either the save file created in step 1 or to /QSYS.LIB/QGPL.LIB/UNV511.SAVF.

Step 5	Execute the following command to install Workload Automation 5 for IBM i to the default libraries:
	
	```RSTLICPGM LICPGM(0UNV511) DEV(*SAVF) SAVF(QGPL/UNV511)```
	
	Add the `FRCOBJCVN` parameter when installing on a version of IBMi that is greater than the version identified in the distribution file. For example, when using the 7.2-targeted distribution file to install on IBMi 7.4, enter:
	
	```RSTLICPGM LICPGM(0UNV511) DEV(*SAVF) SAVF(QGPL/UNV511) FRCOBJCVN(*YES *ALL)```

Step 6	Verify the correctness of the install by executing the following command: ```CHKPRDOPT OUNV5120```
Step 7	Optionally, rename the UNVUBR511 subsystem to UBROKER for consistent operation across future installations.

Customization

Customization consists of editing configuration members in the UNVPRD511/UNVCONF source file.