Before using this information and the product it supports, read the information in “Notices” on page 35.

This edition of the IBM Tivoli System Automation for Multiplatforms Release Notes applies to IBM Tivoli System Automation for Multiplatforms Version 2.2, program number 5724–M00, and to all subsequent releases of this product until otherwise indicated in new editions.

This edition replaces SC33-8216-06.

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</tbody>
</table>
Chapter 1. Read this before installation

This software may contain errors that could result in critical business impact. It is highly recommended that you install the latest available fixes prior to using this software.

Fixes can be obtained from IBM Tivoli System Automation for Multiplatforms support at the following Web site:

The Release Notes document for IBM Tivoli System Automation for Multiplatforms, Version 2.2, includes information that will help you install this software. Always view the most current version of the release notes before installing and using the product.

The most current version of the release notes is available at the following Web site:
http://publib.boulder.ibm.com/tividd/td/IBMTivoliSystemAutomationforMultiplatforms2.2.html

The release notes document contains the latest updates for the product IBM Tivoli System Automation for Multiplatforms:

- Updates for the base component of IBM Tivoli System Automation for Multiplatforms are contained in Chapter 2, “IBM Tivoli System Automation for Multiplatforms 2.2 – base component,” on page 3
- Updates for the End-to-End Automation Management Component are located in Chapter 3, “IBM Tivoli System Automation for Multiplatforms 2.2 - End-to-End Automation Management Component,” on page 25

Changes since the last edition of this document are marked with a vertical bar (|) in the left margin.

Where to find IBM Tivoli System Automation for Multiplatforms documentation

Additional documentation about this software can be found either on the product CD, or on the product Web site at:
Chapter 2. IBM Tivoli System Automation for Multiplatforms
2.2 – base component

Required hardware and software

Supported platforms and distributions

Version 2.2 of the base component of IBM Tivoli System Automation for Multiplatforms supports Linux on System z, System x, System i, and System p, as well as AIX 5.2, AIX 5.3, and AIX 6.1.

The base component runs on all IBM eServer machines running Linux, and on IBM eServer pSeries machines running AIX.
Detailed information about support of specific Linux distributions and AIX versions can be found in the following table:

Table 1. Supported platforms and distributions for the base component of IBM Tivoli System Automation for Multiplatforms

<table>
<thead>
<tr>
<th></th>
<th>System x¹</th>
<th>System z</th>
<th>System p</th>
<th>System i</th>
</tr>
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<tr>
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<tr>
<td>RedHat RHEL 5.0 (32 bit)</td>
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<tr>
<td>RedHat RHEL 4.0 (64 bit)</td>
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</tr>
<tr>
<td>RedHat RHEL 5.0 (64 bit)</td>
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<td>x²</td>
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</tr>
<tr>
<td>AIX 5.3</td>
<td></td>
<td></td>
<td>x³</td>
<td></td>
</tr>
<tr>
<td>AIX 6.1</td>
<td></td>
<td></td>
<td>x³</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. IBM System x (except Intel IA64 based servers) and any other 32-bit Intel based server, or AMD Opteron based server (64-bit), or Intel EM64T based server (64 bit).
2. Requires SUSE SLES9 SP1
3. Requires C++ Runtime Library for AIX version 7.0.0.1, which is included in PTFs U800738 and U800739
4. Requires IBM Tivoli System Automation for Multiplatforms V2.2 with Fix Pack 3 or higher; SELinux is not supported and needs to be disabled.
5. Requires IBM Tivoli System Automation for Multiplatforms V2.2 with Fix Pack 5 or higher
6. Requires SUSE SLES 10 SP1
Prerequisites on AIX systems

Supported RSCT versions and required RSCT APARs

The following RSCT prerequisites must be met before the base component can be installed:

- The file set rsct.basic must be installed. It is available on the AIX installation media.
- The RSCT versions and the corresponding APAR fixes listed in Table 2 must be available on the AIX system.

Table 2. RSCT prerequisites on AIX

<table>
<thead>
<tr>
<th>IBM Tivoli System Automation level</th>
<th>IBM Tivoli System Automation version</th>
<th>RSCT version</th>
<th>RSCT APAR number</th>
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<tr>
<td>2.2 GA</td>
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<td>IY87838 (AIX 5.2)</td>
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<td>IY91597 (AIX 5.2)</td>
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<td>2.4.6.2 (AIX 5.3)</td>
<td>IY91595 (AIX 5.3)</td>
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<tr>
<td>2.2 Fix Pack 2</td>
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<td>2.3.10.3 (AIX 5.2)</td>
<td>IY94804 (AIX 5.2)</td>
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<td>IZ55805 (AIX 6.1)</td>
</tr>
</tbody>
</table>

For additional prerequisites on AIX systems, see the *IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide*, SC33-8273.

Prerequisites on Linux systems

The following prerequisites must be met before the base component can be installed on a Linux system:

- The Korn shell must be installed.
- If Linux is running on System z under a VM environment, the fix for the following VM APAR must be applied for the ECKD tie breaker functionality to work properly:
  - VM63119
- Some 32-bit libraries must be installed on each RedHat 4.0 or RedHat 5.0 system, even if a 64-bit kernel is running, before the base component can be installed. These libraries are contained in the following RPM packages:
  - compat-libstdc++-33-3.2.3
For additional prerequisites on Linux systems, see the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide, SC33-8273.

Prerequisites for the tie breaker resource

The tie breaker is a very important resource within a cluster with an equal number of nodes. Therefore it is very important to ensure the defined tie breaker works as expected. See the following list of potential issues in order to verify if the defined tie breaker resource is valid or not:

- **Disk tie breaker**
  
  The disk tie breaker performs an SCSI-2 reserve against the defined SCSI disk. To be a valid tie breaker, the resource has to meet the following requirements:

  1. The disk must be accessible from all nodes at the same time (directly attached to each node).
  2. The SCSI-2 reserve must be able to reserve the disk.
  3. The SCSI-2 reserve must 'exclusively' reserve the disk. A reserve request of any other node will be rejected.

  The third requirement may not be given for virtual environments like VIO attached disks on a System p. Use the following procedure to test whether the exclusive reserve is working for a given disk:

  1. Create a 2-node domain and define a disk tie breaker resource as described in the base component Administration and Users Guide. To make sure that no resource is currently Online, stop any defined resource and do not create any resources.
  2. Log on to the console of both nodes and start a listing of the syslog (for example, tail -f /var/log/messages on a Linux system).
  3. Disable the network connection on one of the nodes, for example, unplug the network cable(s) or use 'ifconfig <if> down'.
  4. Check the output of the syslog listing: after some seconds one of the nodes should show 'HAS_QUORUM', whereas the other node should show 'PENDING_QUORUM'. If both nodes show 'HAS_QUORUM', then the disk cannot be used, as the reserve is not exclusive. The disk is not able to handle real split brain situations.

  If the domain is composed out of a larger number of nodes, the test is similar - the network needs to be split in half the number of nodes on both sides, and then the quorum state needs to be determined on one node of either sub cluster.

- **Network tie breaker**
  
  The network tie breaker should only be used for domains where all nodes are in the same IP sub net. Having the nodes in different IP sub nets makes it more likely that both nodes can ping the network tie breaker, while they cannot communicate to each other. Additionally, the default gateway IP address must not be used if it is virtualized by the network infrastructure. Choose an IP address, which can only be reached via a single path from each node in the domain.

Prerequisites for IBM Tivoli System Automation for GDPS/PPRC Multiplatform Resiliency on System z (xDR)

IBM Tivoli System Automation for Multiplatforms 2.2.0.0 or later requires the following prerequisites for IBM Tivoli System Automation for GDPS/PPRC Multiplatform Resiliency on System z (xDR):

- GDPS 3.3 with APAR PK30315

With System Automation for Multiplatforms 2.2 Fix Pack 4 and above, xDR is also supported on RHEL4 and RHEL5 running under z/VM.

Considerations regarding the load on the nodes

System Automation for Multiplatforms requires some of its subsystems to be processed constantly on the node to ensure that the cluster services are working properly (for example, heartbeating and
communication between those subsystems). If this is not guaranteed, System Automation may trigger the methods of 'critical resource protection' in case those subsystems cannot communicate in a given period of time. This leads eventually to a reboot of the node on which this issue occurred. To prevent this, it is recommended that the following prerequisites are satisfied:

- On AIX and Linux clusters:
  - CPU load <= 100%
  - Constant I/O and swap load < 10%
Migration considerations

It is possible to migrate from IBM Tivoli System Automation for Multiplatforms release 2.1 to IBM Tivoli System Automation for Multiplatforms release 2.2 using the procedure described within the *Installation and Configuration Guide* in chapter 1 within topic 'Migrating the base component'. Releases prior to 2.1 cannot be migrated to release 2.2 using a node-by-node migration. A migration from release 1.2 can only be performed as an entire domain migration.

However, there are some important facts to pay attention to before a migration should be performed. These are all related to the changes introduced with IBM Tivoli System Automation for Multiplatforms release 2.2, which are described within the 'Summary of changes' section of the *base component Administration and User's Guide*:

1. The command *resetrsrc* now performs the execution of the StopCommand of the specified resource.
2. The StopCommand of a resource is executed a second time in case the first execution did not succeed taking the resource into OpState Offline or Failed Offline.
3. The value of the MonitorCommandTimeout attribute of an IBM.Application resource can now be larger than the value of the MonitorCommandPeriod attribute of that resource.

These changes may have an impact for the currently running policy or operator scripts, so it is necessary to check whether a change is required. Here is the checklist:

1. Check all operator instructions and scripts executed by operators for the use of the *resetrsrc* command. If this command is used, ensure that the 'NodeNameList' attribute is provided in the SelectionString to avoid the stop of resources that are Online.

   The following examples illustrate what happens when the command is invoked with or without a NodeNameList in V2R2 or higher. The examples assume that the resource "resource1" is Online on "node1" and Failed Offline on "node2"

   **Example 1:**
   The *resetrsrc* command is issued without a NodeNameList:
   ```
   resetrsrc -s 'Name like "resource1"' IBM.Application
   ```

   **Results:**
   The StopCommand for the resource is executed on both nodes. As a result, the resource on "node1" is stopped and the OpState of the resource on "node2" is set to Offline.

   **Example 2:**
   The *resetrsrc* command is issued with a NodeNameList:
   ```
   resetrsrc -s 'Name like "resource1" && NodeNameList={"node2"}' IBM.Application
   ```

   **Results:**
   The StopCommand for the resource is only executed on "node2". As a result, the OpState of the resource on "node2" is set to Offline while the resource running on "node1" remains untouched.

2. Second execution of the StopCommand.

   Check all resources and 'StopCommand' scripts for those resources, whether executing the StopCommand of the resource a second time will perform successfully.

   Usually this should perform well and no change is needed. If, however, the StopCommand of the resource is not to be executed a second time, then a change is needed for the StopCommand of the resource in order to prevent the stop operation within the second execution of the StopCommand.

   A new environment variable 'SA_RESET' is now set within each execution environment of a StopCommand, and its value is set to 1 in case the StopCommand is executed a second time. The StopCommand of resources, which should not be stopped a second time, need to be adjusted as in the following example:

   ```
   #/bin/sh
   # stop/reset automation script for the application xxx
   #
   ```
if [ $SA_RESET == 1 ]; then
    # prevent executing the stop of the resource a second time
    exit 0
else
    # here should be the 'original' content of the StopCommand
    # e.g. <normal-application-stop-command>
    exit $?;
fi

Additionally this feature now provides an option to react more 'forceful' in case the StopCommand is executed a second time or in order to perform a reset.

With the new environment variable 'SA_RESET' it can be easily determined whether the StopCommand is executed normally, a second time, or for a reset operation (for example, using the resetresrc command). The value of this environment variable is 0 for a normal stop operation, but 1 in case the StopCommand is executed a second time or a reset is necessary. If a change of the StopCommand is intended to introduce the new functionality, the following condition has to be included into the StopCommand of the resource:

#!/bin/sh
# stop/reset automation script for the application xxx
#
if [ $SA_RESET == 1 ]
then
    # to have a more 'forceful' stop of the resource in case of a reset or second
    # StopCommand execution add those commands here,
    # e.g. killall -9 <application-process>
    exit $?;
else
    # here should be the 'original' content of the StopCommand
    # e.g. <normal-application-stop-command>
    exit $?;
fi

3. Optional: adjusting of the MonitorCommandPeriod attribute for IBM.Application resources

Previous releases of IBM Tivoli System Automation for Multiplatforms had the firm requirement that the value of the MonitorCommandPeriod attribute of a resource needed to be equal or higher than the value of the MonitorCommandTimeout attribute of the same resource. This limitation does not exist anymore. Now the value of the MonitorCommandPeriod attribute of a resource can be lower than the value of the MonitorCommandTimeout attribute. Only one MonitorCommand can be running for a resource at a given time, because the MonitorCommandPeriod attribute is in fact the 'delay' between the completion of the previous MonitorCommand and the start of the next MonitorCommand. The value of the MonitorCommandTimeout attribute of an IBM.Application resource can now be larger than the value of the MonitorCommandPeriod attribute of that resource.

This permits to lower the MonitorCommandPeriod attribute if it needed to be high in order to meet the restriction to be equal or larger than the MonitorCommandTimeout attribute. To find out the actual settings for those attributes, execute the following command:

# lsrsrc IBM.Application Name MonitorCommandPeriod MonitorCommandTimeout

If you want to change the value of the MonitorCommandPeriod for a resource, execute the following command for each resource:

# chrsrc -s 'Name="<resource-name>"' IBM.Application MonitorCommandPeriod=<new-value>

Check the results using the 'lsrsrc' command again:

# lsrsrc IBM.Application Name MonitorCommandPeriod MonitorCommandTimeout

Besides those changes that may affect operation, there are also two new valuable commands introduced with V2R2: prereqSAM and lssam.

The command prereqSAM is automatically executed during the installation (execution of installSAM), and it will determine whether all prerequisites for the installation of IBM Tivoli System Automation are met or not.
If the prerequisites are not all there, then the installation will fail, and a log file shows the information which prerequisite has not been met. This command, however, can also be executed standalone before the installation is started (it is found at the same location as ‘installSAM’). This provides the chance to check whether all prerequisites are installed without really performing the installation.

Use the `lssam` command to find out the status of the resources running within the domain. It provides colored output to outline the states of the resources. The following information is displayed for the resources:

- NominalState of the resource groups
- OpState of the individual resources on the individual nodes
- Nodes are marked, if these are excluded
- Automation state of the domain (Automation vs. Manual)
- Requests against resources (start, stop, move)
- Binding issues (e.g. Sacrificed resources)

The resources are listed in a tree format in order to easily identify resources belonging to a certain resource group.
Automating RSCT Storage resource manager resources

Starting with V2.2.0.1, IBM Tivoli System Automation for Multiplatforms exploits the Storage resource manager (StorageRM) functionality provided by RSCT, which allows you to automate file system resources of class IBM.AgFileSystem. The extent of support provided by IBM Tivoli System Automation for Multiplatforms for automating these resources varies depending on a number of factors, such as the type of storage device on which the file system resides, the operating system of the node to which the storage device is attached, and whether storage entities are harvested or user-defined:

- The platform-specific scope of support is outlined in "Supported storage devices."
- To automate IBM.AgFileSystem resources, online monitoring must be enabled. To do so, you must perform the steps described in "Activating monitoring of automated IBM.AgFileSystem resources" on page 13.
- To automate IBM.AgFileSystem resources that are automatically harvested, no further additional manual configuration is required. To automate file systems that are not automatically harvested, you use user-defined IBM.AgFileSystem resources. The following sections describe the steps you need to perform to define and automate these resources:
  - "Automating user-defined IBM.AgFileSystem resources residing on a partition" on page 13
  - "Automating user-defined IBM.AgFileSystem resources in an LVM environment" on page 13

Supported storage devices

The following sections give a platform-specific overview of the scope of support that is available for automating IBM.AgFileSystem resources with IBM Tivoli System Automation for Multiplatforms.
### Automation support for single-path and multipath storage devices of the IBM TotalStorage DS4000 family

**Table 3. Support for single-path and multipath storage devices of the IBM TotalStorage DS4000 family**

<table>
<thead>
<tr>
<th>Linux on POWER and Linux on System x</th>
<th>Linux on System z</th>
<th>AIX</th>
</tr>
</thead>
</table>
| Limited support is available for single-path storage devices, and for multipath storage devices with Redundant Disk Array Controller (RDAC) device drivers:  
  - Harvested IBM.AgFileSystem resources can be automated. IBM.AgFileSystem resources are harvested if they are of type `ext2`, `ext3`, or `reiserfs` and reside on storage entities that are harvested themselves (storage entities of class `IBM.LogicalVolume`, `IBM.Partition`, `IBM.VolumeGroup`, `IBM.Disk`).  
  - User-defined IBM.AgFileSystem resources can be automated (for example, network file systems).  
  - SCSI-2 reservation is supported. | Only user-defined IBM.AgFileSystem resources can be automated.  
**Limitations:**  
- Resource harvesting is not supported. Even if harvesting is successful, the harvested resources cannot be automated.  
- SCSI reservation is not supported.  
- User-defined IBM.AgFileSystem resources can only be automated if the disk hosting the file system has the same device name on all nodes of the cluster. | Full support is available for single-path storage devices and for multipath MPIO devices:  
  - Harvested IBM.AgFileSystem resources can be automated. IBM.AgFileSystem resources are harvested if they are of type `jfs` or `jfs2` and reside on storage entities that are harvested themselves (storage entities of class `IBM.LogicalVolume`, `IBM.VolumeGroup`, `IBM.Disk`).  
  - User-defined IBM.AgFileSystem resources can be automated (for example, network file systems).  
  - SCSI-2 reservation is supported.  
**Limitations:**  
- No mirroring  
- No striping  
- User-defined IBM.AgFileSystem resources can only be automated if the disk hosting the file system has the same device name on all nodes of the cluster. |

### Support for non-DS4000 multipath storage devices

**Table 4. Support for other multipath storage devices**

<table>
<thead>
<tr>
<th>Linux on POWER, Linux on System x, Linux on System z, and AIX</th>
</tr>
</thead>
</table>
| Only user-defined IBM.AgFileSystem resources can be automated.  
**Limitations:**  
- Resource harvesting is not supported. Even if harvesting is successful, the harvested resources cannot be automated.  
- SCSI reservation is not supported.  
- User-defined IBM.AgFileSystem resources can only be automated if the disk hosting the file system has the same device name on all nodes of the cluster. |
### Support for non-DS4000 single-path storage devices

**Table 5. Support for other single-path storage devices**

<table>
<thead>
<tr>
<th>Linux on POWER and Linux on System x</th>
<th>Linux on System z</th>
<th>AIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited support is provided:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Harvested IBM.AgFileSystem resources can be automated.</td>
<td>Only user-defined IBM.AgFileSystem resources can be automated.</td>
<td>Full support is provided for single-path storage devices:</td>
</tr>
<tr>
<td>IBM.AgFileSystem resources are harvested if they are of type ext2, ext3, or reiserfs and reside on storage entities that are harvested themselves (storage entities of class IBM.LogicalVolume, IBM.Partition, IBM.VolumeGroup, IBM.Disk).</td>
<td>• Resource harvesting is not supported. Even if harvesting is successful, the harvested resources cannot be automated.</td>
<td>• Harvested IBM.AgFileSystem resources can be automated. IBM.AgFileSystem resources are harvested if they are of type jfs or jfs2 and reside on storage entities that are harvested themselves (storage entities of class IBM.LogicalVolume, IBM.VolumeGroup, IBM.Disk).</td>
</tr>
<tr>
<td>• User-defined IBM.AgFileSystem resources can be automated (for example, network file systems).</td>
<td>• SCSI reservation is not supported</td>
<td>• User-defined IBM.AgFileSystem resources can be automated (for example, network file systems).</td>
</tr>
<tr>
<td><strong>Limitations:</strong></td>
<td><strong>Limitations:</strong></td>
<td><strong>Limitations:</strong></td>
</tr>
<tr>
<td>• Support for SCSI reservation is limited. Perform a disk reserve operation to check whether SCSI reservation is available.</td>
<td>• No mirroring</td>
<td>• No mirroring</td>
</tr>
<tr>
<td>• User-defined IBM.AgFileSystem resources can only be automated if the disk hosting the file system has the same device name on all nodes of the cluster.</td>
<td>• No striping</td>
<td>• User-defined IBM.AgFileSystem resources can only be automated if the disk hosting the file system has the same device name on all nodes of the cluster.</td>
</tr>
</tbody>
</table>

### Support for network file systems

**Table 6. Support for network file systems (NFS)**

<table>
<thead>
<tr>
<th>Linux on POWER, Linux on System x, Linux on System z, and AIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network file systems are not harvested. To automate such file systems, you use user-defined IBM.AgFileSystem resources.</td>
</tr>
<tr>
<td>Note that network file systems of class IBM.AgFileSystem can only be automated and monitored successfully if the root user of the importing system has write access to the file system.</td>
</tr>
<tr>
<td><strong>Limitation:</strong></td>
</tr>
<tr>
<td>• <strong>Cascaded usage of file systems is not possible:</strong></td>
</tr>
<tr>
<td>With IBM Tivoli System Automation for Multiplatforms you can define a highly available NFS server, where the exported file systems are automated as resources of class IBM.AgFileSystem which reside on a shared disk medium. The NFS server itself is automated as a resource of class IBM.Application which may float on systems that have access to the shared disk medium. When an additional system imports the network file systems, however, the imported file systems must not already exist as user-defined IBM.AgFileSystem resources on the importing system, otherwise, monitoring of the file systems will fail and the resources will go into OpState 3 (FAILED OFFLINE).</td>
</tr>
</tbody>
</table>
Activating monitoring of automated IBM.AgFileSystem resources

To activate monitoring of automated IBM.AgFileSystem resources, their AutoMonitor attribute must be set to 1:

- For harvested resources, change the attribute with the `chrsrc` command:
  ```
  chrsrc -s "Name == '<name of the file system resource>'" IBM.AgFileSystem AutoMonitor=1
  ```

- For user-defined IBM.AgFileSystem resources, you specify the AutoMonitor attribute when you create the resource with the `mkrsrc` command, for example:
  ```
  mkrsrc IBM.AgFileSystem Name=<name> DeviceName=<device-name>
  Vfs=<file-system-type> MountPoint=<mount-point> AutoMonitor=1
  NodeNameList={<list-of-node-names>}
  ```

Automating user-defined IBM.AgFilesystem resources residing on a partition

To automate file systems that reside on partitions and are not automatically harvested, you use the `mkrsrc` to create the corresponding IBM.AgFileSystem resources.

Example:
```
  mkrsrc IBM.AgFileSystem Name=<name> DeviceName=<partition-name>
  Vfs=<file-system-type> MountPoint=<mount-point> AutoMonitor=1
  NodeNameList={<list-of-node-names>}
  ```

Automating user-defined IBM.AgFilesystem resources in an LVM environment

To automate file systems that reside on logical volumes and are not automatically harvested, you must define the dependencies between the file systems, logical volumes, and volume groups using IBM Tivoli System Automation for Multiplatforms means. The following actions must be taken:

1. Define a resource of class IBM.Application to represent the volume group. Create scripts for the StartCommand, StopCommand, and MonitorCommand attributes of the IBM.Application resource which contain the proper commands for activating, deactivating, and status reporting for the volume group.
2. Define a resource of class IBM.AgFileSystem to represent the file system.
3. Define a DependsOn relationship in which the file system resource is the source and the application resource representing the volume group is the target.
Service

See the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide for information about installing service for the base component and the base component operations console.

Fixes and problem-solving databases

Information about fixes and service updates for this software can be found at the following Web site:


Installing fix packs to obtain level 2.2.0.1

These are the archives you use for applying service to the base component to obtain level 2.2.0.1:

- 2.2.0-TIV-SABASE-AIX-FP0001.tar
- 2.2.0-TIV-SABASE-LIN-FP0001.tar

These are the archives you use for applying service to the operations console:

- 2.2.0-TIV-SAE2E-AIX-FP0001.bin
- 2.2.0-TIV-SAE2E-I386-FP0001.tar
- 2.2.0-TIV-SAE2E-PPC-FP0001.tar
- 2.2.0-TIV-SAE2E-S390-FP0001.tar
- 2.2.0-TIV-SAE2E-WIN-FP0001.exe

Installing fix packs to obtain level 2.2.0.2

These are the archives you use for applying service to the base component to obtain level 2.2.0.2:

- 2.2.0-TIV-SABASE-AIX-FP0002.tar
- 2.2.0-TIV-SABASE-LIN-FP0002.tar

These are the archives you use for applying service to the operations console:

- 2.2.0-TIV-SAE2E-AIX-FP0002.bin
- 2.2.0-TIV-SAE2E-I386-FP0002.tar
- 2.2.0-TIV-SAE2E-PPC-FP0002.tar
- 2.2.0-TIV-SAE2E-S390-FP0002.tar
- 2.2.0-TIV-SAE2E-WIN-FP0002.exe

Installing fix packs to obtain level 2.2.0.3

These are the archives you use for applying service to the base component to obtain level 2.2.0.3:

- 2.2.0-TIV-SABASE-AIX-FP0003.tar
- 2.2.0-TIV-SABASE-LIN-FP0003.tar

These are the archives you use for applying service to the operations console:

- 2.2.0-TIV-SAE2E-AIX-FP0003.bin
- 2.2.0-TIV-SAE2E-I386-FP0003.tar
- 2.2.0-TIV-SAE2E-PPC-FP0003.tar
- 2.2.0-TIV-SAE2E-S390-FP0003.tar
- 2.2.0-TIV-SAE2E-WIN-FP0003.exe
**Installing fix packs to obtain level 2.2.0.4**
These are the archives you use for applying service to the base component to obtain level 2.2.0.4:
- 2.2.0-TIV-SABASE-AIX-FP0004.tar
- 2.2.0-TIV-SABASE-LIN-FP0004.tar

These are the archives you use for applying service to the operations console:
- 2.2.0-TIV-SAE2E-AIX-FP0004.bin
- 2.2.0-TIV-SAE2E-I386-FP0004.tar
- 2.2.0-TIV-SAE2E-PPC-FP0004.tar
- 2.2.0-TIV-SAE2E-S390-FP0004.tar
- 2.2.0-TIV-SAE2E-WIN-FP0004.exe

**Installing fix packs to obtain level 2.2.0.5**
These are the archives you use for applying service to the base component to obtain level 2.2.0.5:
- 2.2.0-TIV-SABASE-AIX-FP0005.tar
- 2.2.0-TIV-SABASE-LIN-FP0005.tar

These are the archives you use for applying service to the operations console:
- 2.2.0-TIV-SAE2E-AIX-FP0005.bin
- 2.2.0-TIV-SAE2E-I386-FP0005.tar
- 2.2.0-TIV-SAE2E-PPC-FP0005.tar
- 2.2.0-TIV-SAE2E-S390-FP0005.tar
- 2.2.0-TIV-SAE2E-WIN-FP0005.exe

**Installing fix packs to obtain level 2.2.0.6**
These are the archives you use for applying service to the base component to obtain level 2.2.0.6:
- 2.2.0-TIV-SABASE-AIX-FP0006.tar
- 2.2.0-TIV-SABASE-LIN-FP0006.tar

These are the archives you use for applying service to the operations console:
- 2.2.0-TIV-SAE2E-AIX-FP0006.bin
- 2.2.0-TIV-SAE2E-I386-FP0006.tar
- 2.2.0-TIV-SAE2E-PPC-FP0006.tar
- 2.2.0-TIV-SAE2E-S390-FP0006.tar
- 2.2.0-TIV-SAE2E-WIN-FP0006.exe
Installing fix packs to obtain level 2.2.0.7
These are the archives you use for applying service to the base component to obtain level 2.2.0.7:
- 2.2.0-TIV-SABASE-AIX-FP0007.tar
- 2.2.0-TIV-SABASE-LIN-FP0007.tar

These are the archives you use for applying service to the operations console:
- 2.2.0-TIV-SAE2E-AIX-FP0007.bin
- 2.2.0-TIV-SAE2E-I386-FP0007.tar
- 2.2.0-TIV-SAE2E-PPC-FP0007.tar
- 2.2.0-TIV-SAE2E-S390-FP0007.tar
- 2.2.0-TIV-SAE2E-WIN-FP0007.exe

The content of the archives for the operations console is unchanged from the content of Fix Pack FP0006, so if Fix Pack FP0006 is already installed, there is no need to install the packages for the operations console of Fix Pack FP0007.

Installing fix packs to obtain level 2.2.0.8
These are the archives you use for applying service to the base component to obtain level 2.2.0.8:
- 2.2.0-TIV-SABASE-AIX-FP0008.tar
- 2.2.0-TIV-SABASE-LIN-FP0008.tar

These are the archives you use for applying service to the operations console:
- 2.2.0-TIV-SAE2E-AIX-FP0008.bin
- 2.2.0-TIV-SAE2E-I386-FP0008.tar
- 2.2.0-TIV-SAE2E-PPC-FP0008.tar
- 2.2.0-TIV-SAE2E-S390-FP0008.tar
- 2.2.0-TIV-SAE2E-WIN-FP0008.exe

The content of the archives for the operations console is unchanged from the content of Fix Pack FP0007, so if Fix Pack FP0007 is already installed, there is no need to install the packages for the operations console of Fix Pack FP0008.

Installing fix packs to obtain level 2.2.0.9
These are the archives you use for applying service to the base component to obtain level 2.2.0.9:
- 2.2.0-TIV-SABASE-AIX-FP0009.tar
- 2.2.0-TIV-SABASE-LIN-FP0009.tar

These are the archives you use for applying service to the operations console:
- 2.2.0-TIV-SAE2E-AIX-FP0009.bin
- 2.2.0-TIV-SAE2E-I386-FP0009.tar
- 2.2.0-TIV-SAE2E-PPC-FP0009.tar
- 2.2.0-TIV-SAE2E-S390-FP0009.tar
- 2.2.0-TIV-SAE2E-WIN-FP0009.exe

The content of the archives for the operations console is unchanged from the content of Fix Pack FP0006, so if Fix Pack FP0006 is already installed, there is no need to install the packages for the operations console of Fix Pack FP0009.
Known problems and issues

base component

Known problems and issues:

On RedHat 4.xx Linux distributions, the installation of the base component fails during the prerequisites check

Affected System Automation versions: 2.2.0.0, 2.2.0.1

**Symptom:** The installation of the base component with the script `installSAM` fails during the prerequisites check with error messages similar to the following:

```
./prereqSAM: line 755: [: 4.92: integer expression expected
./prereqSAM: line 755: [: 4.92: integer expression expected
```

**Problem:** On RedHat 4.xx Linux distributions, the script `prereqSAM`, which performs the prerequisites check, fails to accept decimal-fraction version numbers (for instance, version number 4.92 in the example error messages above).

**Circumvention:** Invoke the `installSAM` script with the option `--noprereqcheck`.

Note: Because the prerequisites check could not be completed, you may encounter problems during the installation due to prerequisites not being met.

On AIX 5.3, the RSCT prerequisite level is not enforced correctly when `smit(ty)` or the `installp` command is used to install the Base Component

Affected System Automation version: 2.2.0.0

**Problem:** On AIX 5.3, the RSCT prerequisite level is not enforced correctly if the base component is installed using `smit(ty)` or the `installp` command.

**Solution:** To ensure that the required RSCT level is enforced correctly, use the `installSAM` command to install or upgrade the product.

If you do use `smit(ty)` or `installp` to install or upgrade the product, you must ensure that the required RSCT level is already installed on the target machine. To check the RSCT level before starting the installation, use one of the following approaches:

- To perform a complete prerequisites check, which is highly recommended, run the `prereqSAM` command that is shipped with the product.
- To only check that the required RSCT APAR is installed, you can run the following command:
  ```
  instfix -ik <APAR_number>
  ```
  See Table 2 on page 4 for the appropriate APAR number.

Prerequisites check for RSCT version 2.3.10 or higher fails on AIX 5.2

Affected System Automation version: 2.2.0.0

**Problem:** On AIX 5.2, the RSCT prerequisites check incorrectly fails when RSCT version 2.3.10 or higher is installed.

**Solution:** Contact IBM support to obtain an updated version of the scripts that are used for prerequisites checking. If no other prerequisite checks failed (with return code 21), you can also rerun the `installSAM` command with the option `--noprereqcheck`.

Obsolete kernel messages appear in `/var/log/messages`

Messages like the following may appear in the `/var/log/messages` directory:

```
Aug 11 13:18:27 saxb11 kernel: program IBM.RecoveryRMd is using a deprecated
    SCSI ioctl, please convert it to SG_IO
```

These messages can be ignored.
Message 2645-061 appears although the prerequisite preprpnode commands have been completed successfully.

**Affected System Automation version:** All 2.2.*

**Problem:** mkrdomain returns "2645-061 The requesting node cannot be authenticated by the target node" on SuSE SLES 10. The message appears although the prerequisite preprpnode commands have been completed successfully.

**Solution:** The SuSE SLES 10 installation leaves an entry

```
127.0.0.2 <your-hostname>
```

in the file /etc/hosts. RSCT does not work correctly with this entry. Remove the entry on all of your cluster nodes and retry the mkrdomain command.

**Creating a relationship against an empty resource group will not be honored by the source resource of the relationship**

**Affected System Automation version:** All 2.2.*

**Problem:** Creating a relationship against an empty resource group will not be honored by the source resource of the relationship. In this case the relationship has no effect, even if members are added later into the resource group.

**Solution:** Relationships against resource groups should not be created until at least one member resources has been added to the resource group.

**RSCT version 2.3.11.0 / 2.4.7.0 should not be used**

**Affected OS:** AIX 5.2 and AIX 5.3 (Linux is not affected, because version 2.4.7.0 is not shipped with any IBM Tivoli System Automation for Multiplatforms deliverable)

**Problem:** RSCT version 2.3.11.0/2.4.7.0 has an issue where the IBM.ConfigRM master daemon crashes after each day at the same time (every 24 hours after the domain start-up time). This finally results in a node reboot if there are critical resources running on that node. This issue usually happens if the domain has been created on a lower version of RSCT and is then migrated to the 2.3.11.0/2.4.7.0 version.

**Solution:** If RSCT is needed at level 2.3.11.0/2.4.7.0 or higher, upgrade to RSCT version 2.3.11.1 (APAR IY94673) / 2.4.7.1 (APAR IY94672).

**IBM.RecoveryRM messages are written to the system log but are not available in the IBM Tivoli System Automation for Multiplatforms documentation**

**Affected System Automation version:** All 2.2, **Affected operating systems:** All

The messages that are currently missing from the user documentation are listed below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>2621-400</td>
<td>RECOVERYRM_2621_400_ER Resource manager asynchronous error. Error id error_id.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>An asynchronous error has been detected.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Check if the resource manager has been restarted.</td>
</tr>
<tr>
<td>2621-401</td>
<td>RECOVERYRM_2621_401_ER IBM.RecoveryRM daemon exiting - cluster is running in IW mode.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>IW mode is not supported - invoked stopsam IW Mode.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Use the mkrdomain and startrpdomain commands to define and start a cluster.</td>
</tr>
<tr>
<td>2621-402</td>
<td>RECOVERYRM_2621_402_ER IBM.RecoveryRM daemon stopped by SRC command or exiting due to an error condition. Error id error_id.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>An error has been detected. The daemon was stopped by a SRC command.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Check the error code.</td>
</tr>
<tr>
<td>Code</td>
<td>Message</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2621-403</td>
<td>RECOVERYRM_2621_403_ER Internal error - GS_JOIN_RETRY_COUNT exceeded limit.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-404</td>
<td>RECOVERYRM_2621_404_ER Internal error - Group Services(GS) has died abruptly.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-405</td>
<td>RECOVERYRM_2621_405_ER IBM.RecoveryRM group has been dissolved.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-406</td>
<td>RECOVERYRM_2621_406_ER Received an EXPEL-PROTOCOL, stopping IBM.RecoveryRM daemon.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-407</td>
<td>RECOVERYRM_2621_407_ER Received an RC_NOGO return code from RIBM, There may be a configuration error.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-408</td>
<td>RECOVERYRM_2621_408_ER IBM.RecoveryRM daemon is exiting. Exit reason: Our install version (IVN) is incompatible to the current active version (AVN).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-409</td>
<td>RECOVERYRM_2621_409_ER IBM.RecoveryRM daemon is exiting. Exit reason: Our install version (IVN) is lower than the current active version (AVN).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-410</td>
<td>RECOVERYRM_2621_410_ER IBM.RecoveryRM daemon is exiting. Exit reason: Our local registry active version (AVN) is higher than our install version (IVN).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-411</td>
<td>RECOVERYRM_2621_411_ER IBM.RecoveryRM daemon is exiting. Exit reason: Our local registry active version (AVN) is higher than group state value (GAVN).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2621-500  RECOVERYRM_2621_500_ER IBM.RecoveryRM publisher configuration file syntax error. Publisher configuration file name: file_name

Explanation: The publisher is disabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `samctrl -e <publisher>` command.

2621-501  RECOVERYRM_2621_501_ER IBM.RecoveryRM publisher configuration file not found. Publisher configuration file name: file_name

Explanation: The publisher is disabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `samctrl -e <publisher>` command.

2621-502  RECOVERYRM_2621_502_ER IBM.RecoveryRM publisher shared library load error. Publisher configuration file name: file_name

Explanation: The publisher is disabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `samctrl -e <publisher>` command.

2621-503  RECOVERYRM_2621_503_ER IBM.RecoveryRM publisher TEC EIF configuration problem. Publisher configuration file name: file_name

Explanation: The publisher is disabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `samctrl -e <publisher>` command.

2621-504  RECOVERYRM_2621_504_ER IBM.RecoveryRM publisher TEC EIF configuration file not found. Publisher configuration file name: file_name

Explanation: The publisher is disabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `samctrl -e <publisher>` command.

2621-505  RECOVERYRM_2621_505_ER IBM.RecoveryRM publisher configuration causes problems and all publishers will be disabled when the IBM.RecoveryRM restarts. Fix the problem with the publisher configuration files and enable the publishers by using the "samctrl -e <publisher>" command.

Explanation: All publishers will be disabled when the IBM.RecoveryRM restarts.

User response: Fix the problem with the publisher configuration files and enable the publishers by using the `samctrl -e <publisher>` command.

2621-506  RECOVERYRM_2621_506_ER One IBM.RecoveryRM publisher caused problems and is now disabled. Fix the problem with the publisher configuration files and enable this publisher by using the "samctrl -e <publisher>" command. Publisher name: publisher_name

Explanation: The publisher is disabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `samctrl -e <publisher>` command.

Node-by-node migration on AIX 6.1 is not supported

Affected System Automation versions: 2.2.0.5 on AIX 6.1

Problem: A node-by-node migration on AIX 6.1 is not supported.

Solution: On AIX 6.1 always perform a migration of the entire domain.
Fix pack 9: Node-by-node migration with fixed resources requires additional action
Affected System Automation versions: 2.2.0.9 all platforms

Problem: Fixed resources may not start after a node-by-node migration to fix pack 9 until the
domain is restarted or the RecoveryRM master daemon is recycled.

Solution: Recycle the RecoveryRM master if there are fixed resources defined in a domain, which
is migrated to fix pack 9 using node-by-node migration. Identify the node that runs the
RecoveryRM master daemon using the command lssrc -ls IBM.RecoveryRM| grep Master. Get
the process id for the IBM.RecoveryRM on the node that runs the RecoveryRM master daemon.
Kill the process using the kill -9 <process id> command.
Automation adapter for the base component

Known problem:

The adapter stops whenever the base component operations console is stopped

**Symptom:** An automation adapter that is connected to a base component operations console stops whenever the operations console is stopped.

**Solution:** To avoid this behavior, set the value of the adapter property Remote contact activity interval to 0. You change the property value in the Advanced window of the Automation adapter configuration dialog (Configure -> Adapter tab -> Advanced button).

base component adapter on AIX fails to start if only Java 5 is installed

**Conditions:**
1. The base component adapter (that is, the package sam.adapter) is installed at version 2.2.0.0.
2. No Java 1.4 (32 bit) is installed, but Java 5 (32 bit) is installed:
   Java 1.4 is installed if the directory /usr/java14 exists. Java 5 is installed if the directory /usr/java5 exists.

**Symptom:** The command samadapter start fails to start the adapter.

**Solution:** To resolve the problem, use one of the following approaches:
- Upgrade the base component adapter on AIX to version 2.2.0.1.
- Install Java 1.4 (32 bit) JRE or JDK in addition to Java 5. Both versions can coexist.

base component operations console

Known problems:

Upgrade to version 2.2.0 fails if the base component operations console had been upgraded to version 2.1.1

**Problem:** The upgrade path from version 2.1 through version 2.1.1 to version 2.2 is not valid. If you followed the upgrade path, the upgrade from V2.1.1 to V2.2 fails.

Customers who installed the base component operations console at V2.1.1 are not affected and can upgrade to V2.2 using the normal upgrade procedure.

**Solution:** If you followed the upgrade path for the Base operations console from version 2.1 through version 2.1.1 to version 2.2, you need to deinstall the base component operations console and reinstall with version 2.2.0.

After installing V2.2.0 of the operations console, you need to perform the following steps:
1. Start the newly installed operations console.
2. Recreate all users and user preferences you created in the Base operations console V2.1.1.
3. Log on to all connected first-level automation domains and recycle the automation adapters using the following commands:
   ```
   samadapter stop
   samadapter start
   ```

Resource state changes are not shown on the operations console in direct access mode

**Conditions:**
1. The operations console is running in direct access mode (that is, no end-to-end automation management is active) and has version 2.2.0.0.
2. An automation adapter for the base component of IBM Tivoli System Automation for Multiplatforms that is connected to this particular operations console has been upgraded to version 2.2.0.1 or higher.

**Symptoms:** Resource state changes (for example, when a resource goes online or offline) are not automatically reflected on the operations console but are properly updated only after a Refresh all (Menu -> Refresh all).
Solution: Upgrade the operations console to version 2.2.0.1 or higher. (Note that adapters that are still at version 2.2.0.0 will continue to work correctly with the upgraded operations console.)

RSCT Storage resource manager

Known problems:

Automated file system goes into OpState 3 (FAILED OFFLINE) when it is unmounted manually

Problem: Resources that are defined in an automation policy are controlled by IBM Tivoli System Automation for Multiplatforms and should not be activated or deactivated manually. If you do unmount an automated file system manually and monitoring is activated through the AutoMonitor attribute, System Automation detects the manual unmount and sets the OpState to 3 (FAILED_OFFLINE) for the manually unmounted file system resources, making them ineligible for further automation.

Solution: Resources in OpState 3 must be reset manually with the resetrsrc command to allow automation of the resources.

AutoMonitor attribute is ignored by the sampolicy command

Problem: When an automation policy is saved to an XML file using the command sampolicy -s and the policy contains user-defined resources of class IBM.AgFileSystem, the AutoMonitor attribute is ignored and not written to the XML file. When such a policy is reactivated with the command sampolicy -a, the file system resources will be created but the AutoMonitor attribute will no be set.

Solution: To enable active monitoring of all user-defined file systems after using the sampolicy -a command, you must set the attribute for all user-defined IBM.AgFileSystem resources using the chrsrc command:

```
chrsrc -s "UserControl == 1" IBM.AgFileSystem AutoMonitor=1
```

Planned takeover (Move, Exclude node) fails on AIX

Affected releases: rsct.opt.storagerm 2.4.6.* (on AIX 5.3) and 2.3.10.* (on AIX 5.2)

Problem: On AIX a planned takeover of IBM.AgFileSystem resources fails because the IBM.VolumeGroup resource is not taken over correctly before trying to activate the IBM.AgFileSystem resource.

Solution: Install rsct.opt.storagerm 2.4.7.0 (APAR IY94670) on AIX 5.3 or rsct.opt.storagerm 2.3.11.0 (APAR IY94671) on AIX 5.2.

LVM resources (VolumeGroup, AGFileSystem) can disappear after a planned takeover for AgFileSystem when AutoDelete=1 is set.

Affected releases: 2.2.* running on Linux

Problem: After a planned takeover, the locagal volumes for AgFileSystem resources become GhostDevices. If the AutoDelete class attribute of IBM.Disk is set to 1, these GhostDevices will be automatically deleted on the next harvest cycle. A new harvest cycle of StorageRM is not able to find them anymore.

Solution: Do not set AutoDelete=1.
## Required hardware and software

### Supported platforms and distributions

The following table lists the platforms and distributions that are supported by the End-to-End Automation Management Component:

#### Table 7. Supported platforms and distributions

<table>
<thead>
<tr>
<th>Platform</th>
<th>System x</th>
<th>System i</th>
<th>System p</th>
<th>System z</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX 5.2 (AIX 5L Version 5.2) ML 5</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>AIX 5.3 (AIX 5L Version 5.3) ML 2</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SUSE SLES 9 (32 bit)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUSE SLES 9 (64 bit)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X³</td>
</tr>
<tr>
<td>SUSE SLES 10 (32 bit)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUSE SLES 10 (64 bit)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X²</td>
</tr>
<tr>
<td>Red Hat RHEL 4.0 AS (32 bit)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Hat RHEL 4.0 AS (64 bit)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X³</td>
</tr>
<tr>
<td>Red Hat RHEL 5.0 AS (32 bit)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Hat RHEL 5.0 AS (64 bit)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X²</td>
</tr>
</tbody>
</table>

**Notes:**

1. IBM System x with IA32, EM64T, or AMD64 architecture. Any other systems with IA32, EM64T, or AMD64 architecture are also supported. Systems with IA64 architecture are not supported.
2. SUSE SLES 9, SUSE SLES 10, and RHEL 4.0 AS on s390x kernel require IBM DB2 UDB Version 8.2 Run-Time Client with Fix Pack 10 running as 31 bit application. This precludes IBM DB2 UDB Version 8.2 server from running on the same system, that is, remote DB2 setup is required.
3. APAR IY65979 must be installed.
Supported WebSphere Application Server version

IBM Tivoli System Automation for Multiplatforms only supports the 32-bit version of WebSphere Application Server. Before you install the End-to-End Automation Management Component, ensure that the system is pre-installed with a 32-bit version of WebSphere Application Server (for example, the version shipped with IBM Tivoli System Automation for Multiplatforms).

WebSphere Application Server network deployment (WAS ND) is not supported for the End-to-End Automation Management Component of IBM Tivoli System Automation for Multiplatforms.

Installation prerequisites on SUSE SLES 10 Linux servers with Japanese locale

Before installing the End-to-End Automation Management Component on a SUSE SLES 10 Linux server with Japanese locale, make sure to install the kochi fonts on top of the SLES 10 installation.

You download the package that contains the kochi fonts from:


The name of the package is kochi-substitute-20030809.tar.

If the fonts are not installed, Japanese characters are not displayed correctly on the pages of the following dialogs:

- WebSphere Application Server installation dialog
- Tivoli System Automation for Multiplatforms installation wizard
- Tivoli System Automation configuration dialogs

Service

See the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide for general information about installing service for the End-to-End Automation Management Component.

Fixes and problem-solving databases

The information about fixes and service updates for this software can be found at the following Web site:


Installing fix packs to obtain level 2.2.0.1

You upgrade the End-to-End Automation Management Component to level 2.2.0.1 by installing Fix Pack 1 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0. The archives you use to install the Fix Pack are listed in Table 8.

For a description of how to install fix packs, refer to the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

Table 8. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV-SAE2E-WIN-FP0001.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV-SAE2E-AIX-FP0001.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV-SAE2E-I386-FP0001.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV-SAE2E-PPC-FP0001.tar</td>
</tr>
</tbody>
</table>
Table 8. Product Fix Pack archives (continued)

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV- SAEE2E-S390-FP0001.tar</td>
</tr>
</tbody>
</table>

Installing fix packs to obtain level 2.2.0.2

You upgrade the End-to-End Automation Management Component to level 2.2.0.2 by installing Fix Pack 2 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0 or 2.2.0.1. The archives you use to install the Fix Pack are listed in Table 9 and Table 10.

For a description of how to install fix packs, refer to the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

Table 9. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV- SAEE2E-WIN-FP0002.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV- SAEE2E-AIX-FP0002.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV- SAEE2E-I386-FP0002.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV- SAEE2E- PPC-FP0002.tar</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV- SAEE2E-S390-FP0002.tar</td>
</tr>
</tbody>
</table>

Table 10. Automation adapter Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (HACMP adapter)</td>
<td>2.2.0-TIV- SAAADAPT- AIX-FP0002.bin</td>
</tr>
</tbody>
</table>

Installing fix packs to obtain level 2.2.0.3

You upgrade the End-to-End Automation Management Component to level 2.2.0.3 by installing Fix Pack 3 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0, 2.2.0.1, or 2.2.0.2. The archives you use to install the Fix Pack are listed in Table 11 and Table 12 on page 28.

For a description of how to install fix packs, refer to the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

Table 11. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV- SAEE2E-WIN-FP0003.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV- SAEE2E-AIX-FP0003.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV- SAEE2E-I386-FP0003.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV- SAEE2E- PPC-FP0003.tar</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV- SAEE2E-S390-FP0003.tar</td>
</tr>
</tbody>
</table>
Table 12. Automation adapter Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (HACMP adapter)</td>
<td>2.2.0-TIV-SAADAPT-AIX-FP003.bin</td>
</tr>
</tbody>
</table>

Installing fix packs to obtain level 2.2.0.4

You upgrade the End-to-End Automation Management Component to level 2.2.0.4 by installing Fix Pack 4 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0, 2.2.0.1, 2.2.0.2, or 2.2.0.3. The archives you use to install the Fix Pack are listed in Table 13 and Table 14.

For a description of how to install fix packs, refer to the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

Table 13. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV-SAE2E-WIN-FP004.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV-SAE2E-AIX-FP004.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV-SAE2E-I386-FP004.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV-SAE2E-PPC-FP004.tar</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV-SAE2E-S390-FP004.tar</td>
</tr>
</tbody>
</table>

Table 14. Automation adapter Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (HACMP adapter)</td>
<td>2.2.0-TIV-SAADAPT-AIX-FP004.bin</td>
</tr>
</tbody>
</table>

Installing fix packs to obtain level 2.2.0.5

You upgrade the End-to-End Automation Management Component to level 2.2.0.5 by installing Fix Pack 5 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0, 2.2.0.1, 2.2.0.2, 2.2.0.3, or 2.2.0.4. The archives you use to install the Fix Pack are listed in Table 15 and Table 16 on page 29.

For a description of how to install fix packs, refer to the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

Table 15. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV-SAE2E-WIN-FP005.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV-SAE2E-AIX-FP005.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV-SAE2E-I386-FP005.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV-SAE2E-PPC-FP005.tar</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV-SAE2E-S390-FP005.tar</td>
</tr>
</tbody>
</table>
Table 16. Automation adapter Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (HACMP adapter)</td>
<td>2.2.0-TIV-SAADAPT-AIX-FP0005.bin</td>
</tr>
</tbody>
</table>

Installing fix packs to obtain level 2.2.0.6

You upgrade the End-to-End Automation Management Component to level 2.2.0.6 by installing Fix Pack 6 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0, 2.2.0.1, 2.2.0.2, 2.2.0.3, 2.2.0.4, or 2.2.0.5. The archives you use to install the Fix Pack are listed in Table 17 and Table 18.

For a description of how to install fix packs, refer to the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

Table 17. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV-SAE2E-WIN-FP0006.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV-SAE2E-AIX-FP0006.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV-SAE2E-I386-FP0006.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV-SAE2E-PPC-FP0006.tar</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV-SAE2E-S390-FP0006.tar</td>
</tr>
</tbody>
</table>

Table 18. Automation adapter Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (HACMP adapter)</td>
<td>2.2.0-TIV-SAADAPT-AIX-FP0006.bin</td>
</tr>
</tbody>
</table>

Installing fix packs to obtain level 2.2.0.7

You upgrade the End-to-End Automation Management Component to level 2.2.0.7 by installing Fix Pack 7 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0, 2.2.0.1, 2.2.0.2, 2.2.0.3, 2.2.0.4, 2.2.0.5, or 2.2.0.6. The archives you use to install the Fix Pack are listed in Table 19 and Table 20 on page 30.

For a description of how to install fix packs, refer to the IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

Table 19. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV-SAE2E-WIN-FP0007.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV-SAE2E-AIX-FP0007.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV-SAE2E-I386-FP0007.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV-SAE2E-PPC-FP0007.tar</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV-SAE2E-S390-FP0007.tar</td>
</tr>
</tbody>
</table>
### Table 20. Automation adapter Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (HACMP adapter)</td>
<td>2.2.0-TIV-SAADAPT-AIX-FP0007.bin</td>
</tr>
</tbody>
</table>

The content of the archives for the End-to-end Automation Management Component and the Automation Adapters is unchanged from the content of Fix Pack FP0006, so if Fix Pack FP0006 is already installed, there is no need to install the packages for the End-to-end Automation Management Component and the Automation Adapters of Fix Pack FP0007.

### Installing fix packs to obtain level 2.2.0.8

You upgrade the End-to-End Automation Management Component to level 2.2.0.8 by installing Fix Pack 8 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0, 2.2.0.1, 2.2.0.2, 2.2.0.3, 2.2.0.4, 2.2.0.5, or 2.2.0.6. The archives you use to install the Fix Pack are listed in Table 21 and Table 22.

For a description of how to install fix packs, refer to the *IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide*.

Before starting the installation, make sure that the WebSphere Application Server "server1" and the Integrated Solutions Console server (ISC_Portal) have been stopped.

### Table 21. Product Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2.2.0-TIV-SAE2E-WIN-FP0008.exe</td>
</tr>
<tr>
<td>AIX</td>
<td>2.2.0-TIV-SAE2E-AIX-FP0008.bin</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>2.2.0-TIV-SAE2E-i386-FP0008.tar</td>
</tr>
<tr>
<td>Linux on POWER</td>
<td>2.2.0-TIV-SAE2E-PPC-FP0008.tar</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>2.2.0-TIV-SAE2E-S390-FP0008.tar</td>
</tr>
</tbody>
</table>

### Table 22. Automation adapter Fix Pack archives

<table>
<thead>
<tr>
<th>Platform</th>
<th>Archive name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (HACMP adapter)</td>
<td>2.2.0-TIV-SAADAPT-AIX-FP0008.bin</td>
</tr>
</tbody>
</table>

The content of the archives for the End-to-end Automation Management Component and the Automation Adapters is unchanged from the content of Fix Pack FP0006, so if Fix Pack FP0006 is already installed, there is no need to install the packages for the End-to-end Automation Management Component and the Automation Adapters of Fix Pack FP0008.

### Installing fix packs to obtain level 2.2.0.9

You upgrade the End-to-End Automation Management Component to level 2.2.0.9 by installing Fix Pack 9 on top of IBM Tivoli System Automation for Multiplatforms 2.2.0.0, 2.2.0.1, 2.2.0.2, 2.2.0.3, 2.2.0.4, 2.2.0.5, or 2.2.0.6. The archives you use to install the Fix Pack are listed in Table 23 on page 31.

For a description of how to install fix packs, refer to the *IBM Tivoli System Automation for Multiplatforms Installation and Configuration Guide*.

Before starting the installation, make sure that the WebSphere Application Server server1 and the Integrated Solutions Console server ISC_Portal have been stopped.

Please stop also the end-to-end automation daemon using the following command:

```
# eezdmn -shutd
```
On AIX, the following command needs to be executed after the end-to-end management daemon has been stopped and before the installation is started:

```
# /usr/sbin/slibclean
```

<table>
<thead>
<tr>
<th>Table 23. Product Fix Pack archives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Platform</strong></td>
</tr>
<tr>
<td>Windows</td>
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<tr>
<td>AIX</td>
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</tr>
<tr>
<td>Linux on POWER</td>
</tr>
<tr>
<td>Linux on System z</td>
</tr>
</tbody>
</table>

After the installation of the Fix Pack, the End-to-end automation daemon needs to be started using the following command:

```
# eezdmn -start
```

<table>
<thead>
<tr>
<th>Table 24. Automation adapter Fix Pack archives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Platform</strong></td>
</tr>
<tr>
<td>AIX (HACMP adapter)</td>
</tr>
</tbody>
</table>

The content of the archives for the end-to-end automation management component and the automation adapters is unchanged from the content of Fix Pack FP0006, so if Fix Pack FP0006 is already installed, there is no need to install the packages for the end-to-end automation management component and the automation adapters of Fix Pack FP0009.
Known problems and issues

Installation

Known problems:

If the umask value is set to xx7, the installation on AIX and Linux fails because a connection to the database cannot be established

Symptom: The installation of the End-to-End Automation Management Component on AIX and Linux fails when the DB2 access test, which is performed in the pre-installation phase, fails. This happens if the umask value is set to xx7.

Solution: Cancel the installation, change the umask value (for example, to 022), and restart the installation.

Response file creation during MSCS adapter installation: Erroneous description in the Installation and Configuration Guide

Problem: An erroneous description of how to create a response file during the installation of the MSCS adapter is provided in the Installation and Configuration Guide, SC33-8273-00, section “Using the installation wizard to install the MSCS adapter”.

Correct description:

To launch the installation wizard, generating a response file, use the following command:

```
setup.exe -V responseFile=<response_file_name>
```

where <response_file_name> is the fully qualified name of the response file to be generated.

When you launch the wizard in this way, the values that are displayed on the wizard panels are either default values or values that were detected on your system.

During an upgrade to any level of IBM Tivoli System Automation release 2.2, a message may appear indicating that a newer version of a file is already installed

Symptom: A message like the following is displayed:

![Replace Existing File](image)

Solution: The file must be replaced. Click Yes to proceed with the upgrade.

During an upgrade to any level of IBM Tivoli System Automation release 2.2, a misleading error message may appear in the file msgengine.log: “No valid license key found on your system”

Symptom: The following error message appears in the file msgengine.log:

```
No valid installed license key found on your system.
Message returned by the license usage management library was:
Bad serial number Original return code was: 48660861.
```

Solution: The message can be ignored. The error message will not reappear when you stop the end-to-end automation engine, delete the files msgengine.log and traceengine.log, and restart the end-to-end automation engine.
The installation of the End-to-end Automation Management Component fails, if the CD image has been copied to a local directory of a machine.

**Symptom:** The installation of the End-to-End Automation Management Component fails with an issue of 'vpd.properties' if the CD image has been copied to a local directory.

**Solution:** Cancel the installation, and then restart the installation from the CD.

---

## Automation adapters

### All automation adapters

**Known problem:**

*The adapter stops whenever the base component operations console is stopped*

**Symptom:** An automation adapter that is connected to a base component operations console stops whenever the operations console is stopped.

**Solution:** To avoid this behavior, set the value of the adapter property **Remote contact activity interval** to 0. You change the property value in the Advanced window of the Automation adapter configuration dialog (**Configure -> Adapter tab -> Advanced** button).

### HACMP adapter

**Known problem:**

*HACMP adapter fails to start if only Java 5 is installed*

**Conditions:**

1. No Java 1.4 (32 bit) is installed, but Java 5 (32 bit) is installed:
   - Java 1.4 is installed if the directory `usr/java14` exists. Java 5 is installed if the directory `usr/java5` exists.
2. The HACMP adapter (that is, the package `hac.adapter`) is installed at version 2.2.0.0.

**Symptom:** The command `hacadapter start` fails to start the HACMP adapter.

**Solution:** Install Java 1.4 (32 bit) JRE or JDK in addition to Java 5. Both versions can coexist.
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