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This set of Release Notes covers the 8.3 release of BMC Atrium Discovery and Dependency Mapping (BMC Atrium Discovery).
Version history

BMC Atrium Discovery 8.3 was released on 12 September 2011.
BMC Atrium Discovery 8.3 SP1 was released on 14 December 2011.
BMC Atrium Discovery 8.3 SP2 was released on 27 February 2012.
BMC Atrium Discovery 8.3 SP3 was released on 16 November 2012.
Release Notes

These Release Notes detail the following information:

- **New in this version**: Highlights the new design and features provided by BMC Atrium Discovery Version 8.3.
- **New in version 8.3 SP1**: Highlights the new design and features provided by BMC Atrium Discovery Version 8.3 SP1.
- **New in version 8.3 SP2**: Highlights the new design and features provided by BMC Atrium Discovery Version 8.3 SP2.
- **New in version 8.3 SP3**: Highlights the new design and features provided by BMC Atrium Discovery Version 8.3 SP3.
- **Important information for users of BMC Atrium CMDB**: Highlights what users of the Export to Atrium CMDB need to know.
- **Documentation changes since release**: Details any significant documentation changes since BMC Atrium Discovery 8.3 was released.
- **Limitations and restrictions of this version**: Describes the known limitations and restrictions of this version of BMC Atrium Discovery.
- **Defects resolved in this version**: Details defects that have been addressed in this release. The defects are listed in defect number order and a brief description of what the issue was and its resolution is provided.
- **Known defects in this version**: Details all significant defects in this release. The defects are listed in reverse defect number order with the latest defects listed first and provide a brief description of what the issue is. Where available a workaround for the issue is described and associated customer case numbers are listed where relevant.
- **Installing BMC Atrium Discovery**: Provides instructions on installing BMC Atrium Discovery on to customer supplied hardware.
- **Upgrading to version 8.3**: Describes upgrading to BMC Atrium Discovery version 8.3.
- **Upgrading to version 8.3 SP1**: Describes upgrading to BMC Atrium Discovery version 8.3 SP1.
- **Upgrading to version 8.3 SP2**: Describes upgrading to BMC Atrium Discovery version 8.3 SP2.
- **Upgrading to version 8.3 SP3**: Describes upgrading to BMC Atrium Discovery version 8.3 SP3.
- **Changes to Discovery Commands**: Details the changes that have been made to discovery commands in this and recent releases.
- **Windows proxy compatibility matrix**: Provides a matrix showing compatibility between Windows proxy types and versions, and the operating systems on which the Windows proxy runs.
- **Appliance specification summary**: Summarizes the minimum specifications to support BMC Atrium Discovery on physical platforms and virtual machines.
- **Changes to third party software license terms**: Describes any changes in the license terms of open source and freely distributable binary components.
- **Package list - BMC Atrium Discovery 8.3**: Provides a list of all OS and application packages contained in a default BMC Atrium Discovery installation.
- **Package list - BMC Atrium Discovery 8.3 SP1**: Provides a list of all OS and application packages contained in a default BMC Atrium Discovery installation for version 8.3 SP1.
- **Package list - BMC Atrium Discovery 8.3 SP2**: Provides a list of all OS and application packages contained in a default BMC Atrium Discovery installation for version 8.3 SP2.
- **Package list - BMC Atrium Discovery 8.3 SP3**: Provides a list of all OS and application packages contained in a default BMC Atrium Discovery installation for version 8.3 SP3.
- **Supported versions of BMC Atrium Discovery**: Details the versions of BMC Atrium Discovery which are currently supported, the level of support available, and the most recent unsupported version.
- **Copyright information**: Provides third party copyright information.
New in this version

The following new features and enhancements have been introduced in the release of BMC Atrium Discovery version 8.3. This release of BMC Atrium Discovery was released October 2011.

New users of BMC Atrium Discovery are urged to use the Getting started Guide as an introduction to using BMC Atrium Discovery.

Collaborative Application Mapping (CAM)

BMC Atrium Discovery version 8.3 introduces a sophisticated new user interface to help you map your business applications. It is now possible to model complex applications without writing any TPL.

Some features available for application mapping are also applicable in other areas of the product, including:

- **Manual groups**: Part of BMC Atrium Discovery 8.2, this feature is enhanced in version 8.3 because it provides a more flexible way to collect items of interest. You can store everything that is relevant to your particular task in a single group using the new ability to store multiple node kind per group. You can also organize and understand the contents of your group by using subgroups and adding notes. You can easily share the annotated contents of your group as part of your mapping prototype by generating a PDF.

- **The query builder**, which is now available on search results, is used inside CAM for building functional components, and used in a modified form for filtering the data sent to the CMDB, has several improvements:
  - It now supports traversals, helping you browse around your data by, for example, traversing from a set of hosts to the software running on all of those hosts.
  - Attributes and traversals are initially limited to the most commonly used ones, to make it easier to find them, though you can show all with a single click.
  - It is now possible to select attributes that are not in the taxonomy. This is useful for filtering on things like TKU-populated attributes on software instances, such as "Catalina Home" for Tomcat SIs.

Discovery

BMC Atrium Discovery version 8.3 also has the following additional improvements:
J2EE

- Discovering detailed information about Tomcat by JMX (added in version 8.2) has a significant drawback: Tomcat has to be configured specifically to allow it. In version 8.3, BMC Atrium Discovery uses configuration files instead, so that no JMX configuration or credentials are required. BMC Atrium Discovery retrieves the following additional detail in this way:
  - discovered user-defined resources
  - databases and mail resources (also discovered in version 8.2)
  - resources related to the webapps that are using them
- Extended discovery of WebSphere and Weblogic using configuration files

IBM Power

Power System discovery has been significantly upgraded:

- BMC Atrium Discovery can relate LPARs running Linux to the frame that they are running in (version 8.2 discovers the LPARs, but does not provide any linking).
- VIO (Virtual I/O) LPARs are discovered and related to the frame. This allows you to follow the dependencies of an application running on an LPAR to the physical network and HBA interfaces on the frame.
- HMCs (Hardware Management Consoles) are discovered and related to the LPARs and frames that they are managing.

HBA

The Host Bus Adapters (HBA) discovery scripts have been revised and updated from a monolithic script to one in which multiple scripts are provided, each one discovering using a single technique.

- BMC Atrium Discovery now retrieves more HBA information on more platforms and more card types. The new techniques used are vendor agnostic, meaning that Emulex and QLogic are fully supported, but you should also get information from other vendors. These methods are supported on the following platforms:
  - Linux (2.6 and 2.4 kernels)
  - VMware ESX/ESXi
  - Solaris
  - AIX
  - Windows
VMware

- VMware ESX/ESXi has been supported for a long time using ssh. BMC Atrium Discovery adds the ability to use the vsphere API, which is fully supported by VMware and may become the only access method in the future.
- ESX/ESXi hosts can be scanned directly, or they can be scanned using vCenter.

Windows

The Windows Slave has been renamed the Windows Proxy in BMC Atrium Discovery version 8.3.

- To enable you to better scale your Windows discovery capabilities, Windows Proxy Pools enable you to group sets of Windows proxies together. The system distributes discovery requests across the pools to properly balance the load.
- The Windows proxy management user interface has been improved to make it more consistent and easier to use.

Edge switch connectivity

- Network topology discovery has been replaced with a new feature called edge switch connectivity discovery. This new method of gathering switch-to-host connection information significantly improves on topology discovery by being properly integrated into discovery runs (no separate topology run is necessary). It is fully compatible with consolidation, and it puts far less of a memory and CPU usage load on the appliance. If you are upgrading and have previously used topology discovery, you can easily change to edge switch connectivity.

Mainframe discovery

- Mainframe discovery now retrieves evidence of applications running inside WebSphere, WLM, and MVTA. This information can be used in collaborative application mapping to model applications that include (or are exclusively run on) the mainframe.
- Error feedback has been significantly improved.
- Mainframe credential testing now provides a lot of information about the configuration of the agent, enabling you to ensure that it is installed correctly before starting normal discovery.

SNMP

- BMC Atrium Discovery now supports discovery of devices using SNMPv3.
- SNMP discovery is significantly faster in version 8.3 than in previous versions.
• In previous versions, for a scan on a given endpoint, sufficiently different results from an SNMP scan and a subsequent scan using login credentials did not always identify that the host was identical. Consequently, duplicate hosts could be created. In BMC Atrium Discovery 8.3, the likelihood that this behavior will occur has been significantly reduced.

Printer discovery

• BMC Atrium Discovery recognizes printers as a new inferred node kind, similar to hosts, network devices, and so on. Printer definitions are shipped in TKU in the same way as network device definitions. See supported printers for a list of printers that can be discovered with BMC Atrium Discovery version 8.3.

CMDB sync

• CMDB sync blackout windows, configured using a file on the command line in version 8.2, can now be configured in the user interface.
• A CMDB status summary channel has been added to the home page, similar to the Discovery dashboard, that enables you to quickly get an overview of your synchronization status.
• New reports enable you to find all nodes that were not successfully synced to the CMDB on the most recent attempt. There is also a link to this information from the CMDB sync user interface.
• CMDB sync supports multitenancy by setting the Company attribute on all synchronized CIs. The Company to set can be selected on each discovery run, or can be overridden on a host-by-host basis.

TPL

• TPL now provides the following functions to specify how nodes should be removed when what they represent no longer exists:
  • model.setRemovalGroup
  • model.suppressRemovalGroup

Credentials user interface

• The credentials user interface has been improved to make things work better and more consistently. Test mainframe credentials to help you check information about the mainframe agent and its capabilities before performing a discovery.
Miscellaneous

- The **upgrade** handles user customizations better. If you have customized the taxonomy or the visualizations using `/usr/tideway/data/custom` and `/usr/tideway/data/customer`, any problems that might have occurred because of updates in the new version will be handled more effectively. The system will start smoothly, and it is easy to find what needs to be fixed to bring the custom definitions up to date with the new version.
- The command line MIB dumper tool, used for capturing information about unsupported network devices for sending to BMC for future support, has been replaced with a user interface. It is easier to find unsupported devices in a report, drop them into the device capture user interface, and watch the progress of the **capture**.
- The appliance configuration page has two new sections:
  - The color of the banner at the very top of every page can be configured. This is useful for distinguishing several instances of BMC Atrium Discovery by setting corresponding color schemes.
  - A new hardware section displays a summary of the hardware on which BMC Atrium Discovery is currently running, including the number of processors, RAM, and disk sizes. It compares this information against the defined appliance sizing guidelines and warns if the hardware is underpowered.

Since 8.2.00

The following changes are new beginning after version 8.2.00, but have appeared in maintenance releases on version 8.2.

- A **standalone Windows scanning tool** has been added. This is a manual tool for gathering data from Windows machines that are not connected to a network to complement the equivalent UNIX scanner scripts. This tool does not allow the interactive running of patterns to gather the full depth of data that a Windows Proxy provides; however, it allows these otherwise unreachable hosts to have basic discovered information in BMC Atrium Discovery and synchronizes the information to the CMDB.
- SNMP and WMI discovery is significantly faster.
- The OIDs used to discover devices by SNMP are now displayed in the user interface, in a similar fashion to platform commands.
- CMDB synchronization uses newer APIs to talk to the CMDB where possible, improving performance and reducing load on the CMDB.
- Better diagnostics information is displayed when a discovery run is put on hold in order to wait to scan an IP address not in a current window. Without the diagnostics information, this can look as though the run is “stuck”.
- The Windows proxy supports a **WMI timeout option**, so that you do not have to wait for the full system timeout of 30 minutes.
New in version 8.3 SP1

This section describes new features for BMC Atrium Discovery version 8.3 SP1.

If you are new to BMC Atrium Discovery, BMC Software recommends that you refer to Getting started as an introduction to using the product.

New in this version

This is a maintenance release that resolves several defects, but contains no new features. See Defects resolved in this version for information about how defects have been resolved in this version.
New in version 8.3 SP2

This section describes new features for BMC Atrium Discovery version 8.3 SP2, released on 27 February 2012.

If you are new to BMC Atrium Discovery, BMC Software recommends that you refer to Getting started as an introduction to using the product.

BMC Atrium Discovery version 8.3 SP2 patch 2

The version of BMC Atrium Discovery currently available on the BMC EPD site is version 8.3 SP2 patch 2. This replaces the original version 8.3 SP2 to correct an issue with PDF generation. You should ensure that the user interface refers to the version number as 8.3.2.2.

New in BMC Atrium Discovery 8.3 SP2

- **Network device discovery redesign**: Network discovery has been redesigned in order to make it much faster and use fewer resources.
  - Network topology discovery has been removed in this version. It was replaced in BMC Atrium Discovery version 8.3 with Edge Connectivity discovery.
  - The SNMP Device page has been modified to display the SNMP queries used for each call to each device, rather than the current dump of all of the OIDs.
  - The list of SNMP devices per manufacturer now has a **Notes** field which shows additional notes on devices if they are required.

- **Scheduled DDD removal blackout windows**: In BMC Atrium Discovery systems where discovery (or consolidation) is in progress for most of the available time, contention between the removal (aging out) of DDD nodes (in this case DA nodes and their children) and the creation of new nodes, may affect the performance of in-progress discovery runs. To avoid this performance impact you can **schedule DDD removal blackout windows** during which no DDD removal is undertaken. This is only likely to be needed at the Consolidated Enterprise scale, or possibly in the very largest scanning appliances.

- **DDD removal statistics**: A new **DDD removal statistics** page has been added to the appliance performance pages which shows the total number of DAs in the datastore and those eligible for removal. The DDD removal statistics page can be used to track the removal of DDD if you have scheduled DDD removal blackout windows, and to help decide whether you actually need to schedule DDD removal blackout windows.
- **Changes to datastore cache**: Changes have been made to the datastore cache which should improve performance in some situations:
  - **Default datastore cache size**: The default datastore cache size has been changed to be equal to half of the RAM in the appliance. This value is shown in the drop-down list of cache sizes on the Model Maintenance page. On upgrade to this release, the new default is used if the existing cache size is set to the previous default of 1GB.
  - **Datastore cache performance**: A new Datastore cache performance page has been added to the appliance performance pages which shows information on the performance of the datastore cache.
- **Datastore page size**: For new installations of 8.3 SP2, the page size used in the datastore for some operations has been changed.
- **Lightweight vSphere API**: VMware ESX and ESXi hosts are now discovered using a new lightweight API. The lightweight API provides improved performance and uses less memory than the one used in BMC Atrium Discovery 8.3.
- **Mainframe discovery methods optimized**: The `getDatabase` and `getMQDetail` methods have been split into separate calls to reduce the likelihood of timeouts when large quantities of database and MQ (Message Queue) data are being discovered.
- **Query builder enhancements**: The query builder has been improved and made more efficient and robust.
  - When removing a column, it is now immediately removed from the column list. Previously it was displayed in strikethrough text.
  - The **Apply** button has been renamed **Refresh results**.
- **Windows Proxy Manager**: The Windows Proxy Manager is a new management UI that has been added to the Windows Proxy, permitting users to run multiple proxies on one Windows server with different accounts. This is useful for the rare case where a customer needs to use multiple credential on the same (or trusted) Windows domain to do discovery. If you have multiple credentials from different domains unrelated by trust relationships, you will still require multiple Windows servers - one per domain.
- **Show matching credentials**: Where many credentials are configured, finding those that match a given IP address is now made simpler using Show matching credentials in the Hosts and other credentials pages.
- **Prevent cross site framing**: The user interface is now prevented from being "framed" into another user interface to defend against possible "clickjacking" attacks. You can re-enable framing (and accept the resulting security risks) in the Security policies page.
- Other security improvements have been made.
- Support for Microsoft Internet Explorer version 6 is deprecated.
Scheduling DDD removal blackout windows

In BMC Atrium Discovery systems where discovery (or consolidation) is in progress for most of the available time, contention between the removal (aging out) of DDD nodes (in this case DiscoveryAccess nodes and their children) and the creation of new nodes, may affect the performance of in-progress discovery runs. From BMC Atrium Discovery 8.3 SP2 you can avoid this performance impact by scheduling DDD removal blackout windows during which no DDD removal is undertaken.

When should DDD removal blackout windows be used?

DDD removal blackout windows should typically only be used on consolidation appliances when you need to achieve maximum discovery throughput. This is only likely to be needed at the Consolidated Enterprise scale, or possibly in the very largest scanning appliances. In virtually every discovery schedule used, the continual aging scheme used by BMC Atrium Discovery can remove “old” DDD at a similar rate as they are created.

You can determine whether scheduling DDD removal blackout windows may be beneficial using the DDD removal statistics page. The DDD removal statistics page shows the total number of DiscoveryAccesses in the datastore and those eligible for removal. If DiscoveryAccess removal is keeping up with DiscoveryAccess creation, then the number of eligible DiscoveryAccess nodes is zero, or near zero, DDD removal blackout windows are not required. If the trend of eligible DiscoveryAccess is rising over a two week period, then DDD removal blackout windows may be a solution. See DDD removal statistics page for more information.

Viewing existing DDD aging blackout windows

To view existing DDD aging blackout windows:

1. From the Model section of the Administration tab, select Model Maintenance.
2. Select the DDD Removal Blackout Windows tab.

![DDD Removal Blackout Windows tab](image)

This screen shows existing DDD removal blackout windows and provides links to edit or delete existing windows and a button to add a new one.

When you view the DDD Removal Blackout Windows tab, the active blackout window is highlighted. If multiple blackout windows are active, the one with the longest time remaining before it ends is highlighted. This is not automatically refreshed.
DDD nodes are removed in batches which are not interrupted. Once removal starts, it continues to completion. Therefore, if a batch removal is in progress at the beginning of a DDD removal blackout window, it will continue into the blackout until completion. In normal operation this should take no more than a few minutes.

**Adding a new DDD aging blackout window**

You can schedule a new DDD aging blackout window to occur daily, weekly, or monthly and can specify a start time and duration. To schedule a new DDD aging blackout window:

1. Click the Add button.
   The **Add a New DDD Removal Blackout Window** dialog box is displayed.
2. Enter the information for the blackout window in the fields described below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment</td>
<td>Enter a descriptive comment for the blackout window.</td>
</tr>
</tbody>
</table>

- **Frequency**
  - Select a frequency for the window to operate. For example, this can be Daily, Weekly, or Monthly.
  - For a weekly blackout window, you are provided with buttons for each day. Select the day or days that you want the window to operate.
  - For a monthly blackout window, you are provided with buttons for each day in the month. Select the day or days that you want the window to operate. Alternatively, select the **No Removal On The** radio button and choose one of:
    - First
    - Second
    - Third
    - Fourth
    - Last
  - and the day that you want the window to operate. In this way you can select the Second Tuesday of the month and so forth.

- **Start Time**
  - Select a time for the window to start.

- **Duration**
  - Select a duration in hours. This is the length of time that the blackout window operates and can be from 1 to 24 hours. For a daily blackout window the maximum number of hours you can select is 23. This prevents you from inadvertently scheduling a 24/7 blackout.

3. Click **OK**.

**Show matching credentials**

A new feature is introduced in BMC Atrium Discovery 8.3 SP2 which enables you to highlight all credentials which match a specified IP address.

To show matching credentials:

1. From the Credentials > Devices > Hosts page, click the **Show Matching Credentials** button.
2. Enter the IP address that you want to check into the dialog box and click **Search**.
3. Any credential which has an IP range matching the specified IP address is highlighted in yellow and a banner summarizing the results is displayed just below the page heading.

![Page showing the configured credentials whose valid IP range match or contain a specified IP address](image)

If no matching credentials are found this is stated in the banner.

The **Show matching credentials** button is available on the following credential pages:

- Hosts
- SNMP
- vCenter
- vSphere
- Mainframe

### SNMP Device page

In BMC Atrium Discovery version 8.3 SP2 the pages showing SNMP devices pages have been improved.

An SNMP device in BMC Atrium Discovery represents a switch, a router, a router-firewall combination, a printer, and so forth. Each object is identified by an IP address range. Network devices are discovered using SNMP credentials.

For a separate list of supported printers, see supported printers.

To view network devices that can be discovered by BMC Atrium Discovery:

1. From the Discovery section on the **Administration** tab, click **SNMP Devices**. On the SNMP Devices page, supported devices are displayed organized in the following categories:
   - vendor
   - capability (for example, router, firewall, or load balancer)
   - kind (Networking devices and printers)
2. The SNMP Devices page is shown in the following illustration. In BMC Atrium Discovery 8.3 SP2 and later, the notes field is populated with any additional notes on devices where required.

![SNMP Devices](image)

This screen displays the SNMP devices that can be discovered.

3. Click on a link to view a list of devices that in that category, displayed with model, kind, capabilities, sysObjectld, and notes. This is illustrated in the following screen.

![Devices](image)

This screen illustrates the devices discovered by a specific manufacturer.

4. Click on a device to display a list of all of methods that BMC Atrium Discovery might use to obtain data from a device, and the Object Identifiers accessed. Where an OID contains a table, a plus (+) icon is displayed. Click the plus icon to reveal the table. Click the minus (-) icon to collapse the table. This is illustrated in the following screen.

![Methods](image)

This screen illustrates the methods discovery might use to obtain data from a device.

**Note**

Not all devices support all methods.

For a list of network devices supported by BMC Atrium Discovery, see Supported Network Devices.
The DiscoveryAccess page for network devices also shows the reduction in the number of discovery methods. See the DiscoveryAccess page for details of the other information displayed in the DiscoveryAccess page.

This screen illustrates the DiscoveryAccess page for 8.3 SP1 and shows the discovery methods used to discover an SNMP device.

**Windows proxy manager**

The Windows proxy manager is a simple tool which enables you to install and manage proxies on the Windows host on which the manager is installed. The Windows proxy manager is installed when you install a proxy. See Installation for more information.

**Running the Windows proxy manager**

To run the Windows proxy manager:

1. From the Start Menu, select Programs => BMC Software => ADDM Proxy => Proxy Manager.

   The Windows proxy manager is displayed.

   Tha main Windows proxy manager showing a credential and an Active Directory proxy.
## Managing Windows proxies

You can perform the following management tasks using the Windows proxy manager:

- Create (install a new proxy service)
- Edit the port that the proxy uses
- Delete (uninstall a proxy service)
- Start a selected proxy
- Stop a selected proxy
- Restart a selected proxy

These are described in the following table:

<table>
<thead>
<tr>
<th>Task</th>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
</table>
| Create a new proxy        | ![Add button] | Click the Add button. The create proxy dialog is displayed. Enter the following information:  
  - **Name**: A name for the proxy  
  - **Type**: Select either Active Directory or Credential.  
  - **Port**: Enter a port if you need to use a specific unused port. Otherwise choose the port which is automatically populated.  
  - **Username**: Enter the username for the user account that will run the Windows proxy.  
  - **Password**: Enter the corresponding password for the user account.  
  - **Options**: Select the checkbox to run the proxy immediately after installation.  
  Click OK to create the new proxy. |
| Edit the selected proxy   | ![Edit button] | Click the Edit button. Edit Proxy dialog is displayed. You can only edit the port that the proxy uses. |
| Delete the selected proxy | ![Delete button] | Click the Delete button. You are prompted for confirmation before the proxy is deleted. |
| Open Log Directory       | ![Log button] | Click the Open Log Directory button. The log directory for the currently selected proxy is displayed in an Explorer window (an example pathname is `C:\Program Files\BMC Software\ADDM Proxy\runtime\AD4\log`). |
| Start                    | ![Start button] | Click the start button. When the proxy starts a green check icon is displayed next to its name. |
| Stop                     | ![Stop button] | Click the stop button. When the proxy stops a red cross icon is displayed next to its name. |
| Restart                  | ![Restart button] | Click the restart button to stop and start the proxy. |
Task | Button | Description
--- | --- | ---
Refresh proxy list |  | Click the refresh button to refresh the list. Sometimes the list does not pick up changes in the status of services so it is good practice to refresh the list before starting or stopping a proxy.

⚠️ Editing proxy config files is only undertaken through the main user interface

You cannot edit the proxy configuration file as that is better handled centrally from the appliance.

## Installation

1. **Installing or upgrading Windows proxies where anti-virus software is installed**

   Before installing Windows discovery proxies you should either disable the anti-virus software or configure it to exclude RemQuery from triggering a virus alert. You can enable the anti-virus software once the Windows proxy has been installed.

2. **Windows proxies and firewalls**

   Windows proxies are no longer restricted to the default ports of previous releases. For a new installation or an upgrade the default ports are used. Installations of additional proxies use incremental ports. You must modify the proxy host firewall, and any other firewalls between the proxy host and the appliance to permit communication on the necessary ports.

### Downloading a Windows proxy installer

When you download the proxy installer from the appliance user interface, you download a single installer file from which you install the Windows proxy manager, the Active Directory proxy, and the Credential Windows proxy.

To download a Windows proxy installer:

1. From the Tools section of the Discovery page, click the Download installer for Windows Proxy version 8.3.2 link.
2. Save the installation file to your file system.

### Installing the Windows proxy manager and proxies

To install the Windows proxy manager and Windows proxies:
1. Run the installer by double-clicking on the downloaded installer file. A welcome screen is displayed.
2. Click **Next**.
3. Click **Browse** to select an installation directory, or click **Next** to accept the default default installation directory (C:\Program Files\BMC Software\ADDM Proxy).
4. To create the Windows proxy application’s shortcuts, click **Browse** to select a different folder, or click **Next** to accept the default folder (BMC Software\ADDM Proxy). If you choose **Don’t create a Start Menu Folder** here, ensure that you clear all the start menu option check boxes in the next step.
5. On the Select Additional Tasks screen, choose options that will be available in the Start menu, and then click **Next**.
6. To install an Active Directory Proxy, select the Install Active Directory Proxy checkbox.
   a. Enter the credentials for the user account that will run the Windows proxy.
      If you do not enter the credentials at this point you can do so later, see **Specifying the Account Used to Run the Windows proxy**. The Windows proxy will run as the Local System user if credentials are not entered. However, an Active Directory Proxy running as a Local System user will not have the necessary domain credentials to perform any discovery.
   b. Click **Next**.
7. To install a Credential Proxy, select the Install Credential Proxy checkbox.
   a. Enter the credentials for the user account that will run the Windows proxy.
      If you do not enter the credentials at this point you can do so later, see **Specifying the Account Used to Run the Windows proxy**. The Windows proxy will run as the Local System user if credentials are not entered.
   b. Click **Next**.
8. Review the details in the Ready to Install window. If the details are incorrect, click **Back** and navigate through the installer to correct the error. If they are correct, click **Install** to install the selected components.
9. The Completing the BMC Atrium Discovery Proxy Setup Wizard is displayed.
   a. Check the Register Active Directory Proxy with ADDM Appliance (if installed) to register the proxy with the appliance.
   b. Check the Register Credential Proxy with ADDM Appliance (if installed) to register the proxy with the appliance.
   c. Check the Run Proxy Manager to run the Windows proxy manager immediately after installation.
10. The BMC Atrium Discovery UI Create Windows proxy page, pre-populated with details of this Windows proxy is displayed when this part of the setup is complete. You may see a dialog box regarding File Download. Accept this to go to the pre-populated Create Windows proxy page.
11. Click **Finish** to exit the installer.
1. **Service startup failure**

   Sometimes Windows may refuse the installer permission to start the Windows proxy service, resulting in a dialog box along the lines of *service installed but could not be started*. This is remedied by manually supplying the credentials directly to the service using the Windows Services control panel. See *Specifying the Account Used to Run the Windows proxy*.

See *Installing Windows proxies* for information on post installation settings and modifications that may be required for Windows proxies.

2. **Upgrading a Windows proxy**

   Before upgrading you must ensure that existing Windows proxies are not running. If you do not do this, the install will fail and you will need to reboot the computer.

   The upgrade process installs a new proxy and configures it using information taken from the previous proxy. It then uninstalls the previous proxy. As a consequence of this sequence:
   
   - **Upgrading from versions prior to 8.3 SP2**: You should not use the same installation directory as the existing Windows proxy or the installation will fail. Accepting the upgrade default prevents this.
   - **Upgrading a Workgroup proxy**: The Windows Workgroup proxy is deprecated. If you upgrade a Workgroup proxy it is converted into an AD proxy. See *Windows proxy compatibility matrix* for more information.

3. **Proxy username/password and upgrading**

   During the upgrade process you need to enter the Active Directory credentials. Usernames are preserved during the upgrade, but passwords are not.

**Running the upgrade**

To install the Windows proxy manager and upgrade all Windows proxies:

1. Run the installer by double-clicking on the downloaded installer file. A welcome screen is displayed.
2. Click **Next**.
3. Click **Browse** to select the installation directory, or click **Next** to accept the default default installation directory (C:\Program Files\BMC Software\ADDM Proxy). See the **upgrade notes** above.
4. To create the Windows proxy application’s shortcuts, click **Browse** to select a different folder, or click **Next** to accept the default folder (BMC Software\ADDM Proxy). If you choose **Don’t create a Start Menu Folder** here, ensure that you clear all the start menu option check boxes in the next step.

5. On the Select Additional Tasks screen, choose options that will be available in the Start menu, and then click **Next**.

6. If an existing Active Directory proxy is found, you are asked to enter credentials. The Account field is pre-populated with the username that the proxy is using. Enter the corresponding password in the Password field. If the proxy is currently running as the local system user, you are prompted for an Active Directory username and password. BMC recommend that Active Directory proxies are not run as local system users. Select **Migrate existing configuration file** to migrate any custom changes to the new proxy.

7. Click **Next** to proceed.

8. If an existing Workgroup proxy is found, it is converted to an Active Directory proxy. You are asked to enter credentials. The Account field is pre-populated with the username that the proxy is using. Enter the corresponding password in the Password field. If the proxy is currently running as the local system user, you are prompted for an Active Directory username and password. BMC recommend that Active Directory proxies are not run as local system users. Select **Migrate existing configuration file** to migrate any custom changes to the new proxy.

9. Click **Next** to proceed.

10. If an existing Credential proxy is found, the default is not to request credentials. BMC recommend that credential proxies are run as local system users. Select **Migrate existing configuration file** to migrate any custom changes to the new proxy.

11. Click **Next** to proceed.

12. Review the details in the Ready to Install window. If the details are incorrect, click **Back** and navigate through the installer to correct the error. If they are correct, click **Install** to install the selected components.

13. You are asked whether you want to keep the existing configuration for each proxy. Click Yes to keep the configuration.

14. Check the Run Proxy Manager checkbox to run the Windows proxy manager immediately after installation.

15. Click **Finish** to exit the installer.

**Silent installation**

The Windows proxy manager and proxy installer uses **Inno Setup** which provides silent installation capabilities at the command line.

To invoke the installer at the command line:
1. Using a command prompt, change directory to the directory into which you downloaded the installer file. Enter:

   ```
   C:\>cd "Documents and Settings\username\My Documents\Download"
   ```

2. Run the installer using the Inno Setup options and the additional Windows proxy manager installer options. Enter:

   ```
   addmproxy_installer_8.3.2_xxxxxx.exe
   ```

   The Inno Setup options are described on their website.

   Additional Windows proxy manager and proxy installer options are described in the following table:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ADCREATE=Y</td>
<td>N</td>
</tr>
<tr>
<td>/CREDCREATE=Y</td>
<td>N</td>
</tr>
<tr>
<td>/ADUSER=&quot;username&quot;</td>
<td>The username with which to run an AD proxy. The default is &quot;&quot;.</td>
</tr>
<tr>
<td>/ADPASSWORD=&quot;password&quot;</td>
<td>The corresponding password. The default is &quot;&quot;.</td>
</tr>
<tr>
<td>/CREDUSER=&quot;username&quot;</td>
<td>The username to run a credential proxy. The default is &quot;&quot;.</td>
</tr>
<tr>
<td>/CREDPASSWORD=&quot;password&quot;</td>
<td>The corresponding password. The default is &quot;&quot;.</td>
</tr>
</tbody>
</table>

   These commands are entered as a space separated list.
New in version 8.3 SP3

This section describes new features for BMC Atrium Discovery version 8.3 SP3, due for release in November 2012.

If you are new to BMC Atrium Discovery, BMC Software recommends that you refer to Getting started as an introduction to using the product.

⚠️ Upgrade path from this release

There is no upgrade or migration path from BMC Atrium Discovery version 8.3 SP3 to BMC Atrium Discovery version 9.0. Consequently, we recommend that you only upgrade to this release if you particularly need any of the new features described on this page, or defects resolved in this version.

New in BMC Atrium Discovery 8.3 SP3

- **RSA SecurID integration**: BMC Atrium Discovery 8.3 SP3 can use an RSA SecurID server to perform authentication. To do this you must first install the RSA Authentication Agent 7.1 for Web for Apache Web Server on the appliance, configure it to access your RSA Authentication Manager, and enable the RSA SecureID plugin through the Web authentication page in BMC Atrium Discovery.

- **Mainframe discovery**: A new mainframe discovery method enables discovery of the first program that a transaction uses. A program detail node is created to represent the program. Program details may be contained by multiple transactions. The `template_mainframe_transaction` template pattern is updated to make use of the new method. To support this change, the following new DDD node kinds and relationship are added:
  - DiscoveredProgram
  - DiscoveredProgramList
  - Relationship from DiscoveryAccess to DiscoveredProgramList
Out of the box discovery capabilities

Applications

The number of applications that can be discovered by BMC Atrium Discovery increases with each monthly TKU release. This section contains information from Configipedia, which details the applications that can be discovered with the latest TKU installed. Clicking one of the links in this section will take you directly into Configipedia.

TKU patterns can help you identify the configuration of run time products in your data centers. Choose how you want to find the products of interest to you:

- Product Name
- Publisher
- Product Category
- Business Applications

Host attributes by platform

Discovered Attributes by Platform

An overview of the attributes that BMC Atrium Discovery aims to recover from the different operating system platforms is shown in the tables below. The attribute descriptions for each node kind are detailed in the relevant node sections later in this document.

The discovered attributes per operating system platform for Inferred Nodes is shown in the Table below. See Operating System Platform Key below.

Operating System Platform Key

- A - AIX
- B - FreeBSD
- C - HP-UX
- D - IRIX
- E - Linux
- F - Mac OS X
- G - NetBSD
- H - OpenBSD
- I - OpenVMS
- J - POWER HMC
- K - Solaris
- L - Tru64
- M - UnixWare
- N - VMware ESX
- P - VMware ESXi
- R - Windows

<table>
<thead>
<tr>
<th>Node/Attribute</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<tbody>
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Network devices

The number of network devices that can be discovered by BMC Atrium Discovery increases with each monthly TKU release. This section contains information from Configipedia, which details the applications that can be discovered with the latest TKU installed. Clicking the link in this section will take you directly into Configipedia.
List of discoverable network devices

Network device attributes
The view network device page which shows discovered attributes is described here.

Localization support
BMC Atrium Discovery supports the discovery of systems in any locale.
Important information for users of BMC Atrium CMDB

If you plan to use the integration between BMC Atrium Discovery 8.3 and Atrium CMDB, there are some pre-requisites and known issues and limitations that you need to be aware of.

Interaction of BMC Atrium Discovery with other BMC data providers

BMC Atrium Discovery can co-exist with other BMC data providers. To prevent any potential duplicated Configuration items (CIs) in the BMC Atrium CMDB Asset dataset, BMC recommends the following minimum product versions when using other data providers with BMC Atrium Discovery:

- BMC Atrium CMDB currently supported versions (8.1, 8.0, 7.6.04, and 7.6.03): No patches required.
- BMC Atrium CMDB 7.6: Recommended Patch 001 and Hot Fix for defect SW00355736.
- BMC Atrium CMDB 7.5: Recommended Patch 004 and Hot Fix for defect SW00355736.
- BMC BladeLogic Server Automation: Recommended BladeLogic Server Automation 8.0 SP2 and Hot fixes for SW00355142 and QM001646701. For details, see the BladeLogic section.
- BMC Performance Manager (BPM) and BMC Performance Assurance (BPA): Recommended BMC Performance Manager Portal 2.7.00.040. For details, see the BPM/BPA section.
- BMC BladeLogic Client Automation (BBCA): Recommended BMC BladeLogic Client Automation 8.1.01. Version 8.1.01 contains the fix of two known issues. For more details, see the BBCA section.

Prerequisites for CMDB synchronization

Before you can synchronize data to BMC Atrium CMDB, you must satisfy the following prerequisites:

1. Extend the CMDB - In order to tightly integrate the two models, it is necessary to store a BMC Atrium Discovery-specific identifier on the corresponding BMC Classes in BMC Atrium CMDB. Additional mainframe-specific classes and relationships are required if you are discovering mainframe systems. The identifier and the mainframe classes and relationships are only present in the default CMDB data model after CMDB version 7.6.03. Versions prior to 7.6.03 require the ADDM Integration Extension and the mainframe discovery extensions.
2. Create the BMC.ADDM dataset - the BMC.ADDM dataset must be manually created in the CMDB before a synchronization is attempted.
3. Create the Job to merge the BMC.ADDM dataset with BMC.ASSET - After the BMC.ADDM dataset has been created, you must then create the job to reconcile it with the BMC.ASSET dataset.

4. Check the BMC.ADDM dataset configuration - When using ITSM 7.0 with a backwards compatibility patch, you also need to ensure that the BMC.ADDM dataset is trusted.

⚠️ In versions earlier than 7.6 Patch 001 and 7.5 Patch 004, you must modify the standard reconciliation rules before running the first reconciliation from BMC.ADDM to BMC.ASSET.

After you have performed these steps, you can start synchronizing BMC Atrium Discovery data to BMC Atrium CMDB.

Performance considerations

To obtain the maximum synchronization performance when using CMDB synchronization with BMC Atrium Discovery version 8.2.03 and later, you should consider tuning the database which BMC Atrium CMDB (or BMC Remedy AR System) is using. For more information, see the following documentation corresponding to your product version:

- **BMC Remedy AR System 8.0 Performance tuning for Business Service Management** online documentation.
- **BMC Remedy AR System Server 7.6 Performance Tuning for Business Service Management** White Paper.

The following sections in the White Paper are particularly relevant:

- Tuning an Oracle server.
- Best practices for tuning Oracle database servers.
- Tuning a SQL Server database.
- Best practices for tuning SQL Server database servers.

Supported previous versions of Discovery

New installations of BMC Atrium Discovery 8.3 are compatible with the following, previous versions of discovery products:

- **BMC Atrium Discovery**: 7.5
- **BMC Foundation Discovery**: 1.6 (upgrade to version 7.5)
- **BMC Topology Discovery**: 1.6 (upgrade to version 7.5)
- **BMC Discovery for zOS**: 1.6 (upgrade to version 7.5)
If you are migrating data from prior versions to version 8.3, you must ensure that you have upgraded any prior versions of your Discovery products to BMC Atrium Discovery 7.5.01.03. For more information on migrating your existing data to BMC Atrium CMDB, see Migrating from version 7.5 to 8.3.

Co-existence with other data providers

The following issues exist in other BMC Products that can lead to duplicate CIs in the Atrium CMDB ASSET dataset when reconciling with BMC Atrium Discovery.

All dates mentioned regarding future releases are subject to change. Fixes which are available as hot fixes will be rolled into future patches, so check the latest patch release notes for the defect number to see if the hot fix is already included.

- **BMC Atrium CMDB**: Currently supported versions of BMC Atrium CMDB, which are 8.0, 7.6.04, and 7.6.03, are recommended. If you are on an earlier version, BMC Atrium CMDB 7.6 is recommended with Patch 001 and Hot Fix for defect SW00355736 and BMC Atrium CMDB 7.5 is recommended with Patch 004 and Hot Fix for defect SW00355736. See below for details.
- **BladeLogic**: Recommended BladeLogic Server Automation 8.0 SP2 and Hot fixes for SW00355142 and QM001646701. See below for details.
- **BPM/BPA**: Recommended BMC Performance Manager Portal 2.7.00.040. See below for details.
- **BBCA**: Recommended BMC BladeLogic Client Automation 8.1.01. See below for details.

### BMC Atrium CMDB

<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
<th>Fix</th>
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</thead>
<tbody>
<tr>
<td>SW00355736</td>
<td>The standard Atrium CMDB reconciliation rules for BMC_ComputerSystem do not cope with the situation when one tool gets the serial number and another does not, but where Hostname, Domain, isVirtual, Primary Capability match. In this situation duplicate BMC_ComputerSystem CIs will be created.</td>
<td>Download Hot Fix for defect SW00355736 (7.5 P4 Hotfix - available, 7.6 P1 Hotfix - available now)</td>
</tr>
<tr>
<td>SW00348852</td>
<td>The standard Atrium CMDB reconciliation rules for BMC_Application, BMC_SoftwareServer and BMC_ConnectivitySegment have fallback rule based only on the Type attribute. These rules should be based on Name. The impact of this is that duplicate BMC_Application, BMC_SoftwareServer and BMC_ConnectivitySegment CIs will be created during reconciliation with BMC Atrium Discovery.</td>
<td>Atrium 7.5 Patch 004 Atrium 7.6 Patch 001</td>
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### BladeLogic

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<td>SW00352573</td>
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## Issue Description Fix

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<tr>
<td>SW00355356</td>
<td>Serial number is a strong indicator of identity for the BMC_ComputerSystem and is therefore used in reconciliation. On older Solaris Sparc platforms serial number is not available. BL would set the serial number to a value derived from hostid of the BMC_ComputerSystem class. In this situation duplicate BMC_ComputerSystem CIs would be created.</td>
<td>Contact BMC Customer Support requesting BladeLogic Server Automation 8.0 SP2</td>
</tr>
<tr>
<td>SW00355142</td>
<td>For Windows Hosts BladeLogic sets the Domain attribute for BMC_ComputerSystem to be the Windows Domain and not its DNS Domain. The Domain attribute forms a part of the TokenID for a BMC_ComputerSystem CI. In this situation duplicate BMC_ComputerSystem CIs will be created.</td>
<td>Contact BMC Customer Support requesting Hot Fix for defect SW00355142</td>
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<tr>
<td>SW00355359</td>
<td>isVirtual attribute incorrectly set to No for Physical system. In this situation duplicate BMC_ComputerSystem CIs will be created.</td>
<td>Contact BMC Customer Support requesting BladeLogic Server Automation 8.0 SP2</td>
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<tr>
<td>QM001646701</td>
<td>When executing the BL reconciliation job after the BMC Atrium Discovery reconciliation job the CIs associated with a merged BMC_ComputerSystem class (e.g.: BMC_Processor and BMC_IPEndpoint) are not merged and result in duplicate CIs.</td>
<td>Contact BMC Customer Support requesting Hot Fix for defect QM001646701</td>
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<tr>
<td>QM001642175</td>
<td>Server name should be picked up from FQ_HOST instead of Host property on it's product. When a ComputerSystem is discovered by both BladeLogic and BMC Atrium Discovery this issue can result in the ComputerSystem not being reconciled when the case of the Hostname is not the same for the data from the two products.</td>
<td>Contact BMC Customer Support requesting BladeLogic Server Automation 8.0 SP2</td>
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### BPM/BPA

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<td>QM001609002</td>
<td>BPM has no concept of Virtual Hosts. Therefore when it sets TokenID for a BMC_ComputerSystem it uses the format defined for Physical Hosts. The reconciliation of this data with data from other providers that are aware of virtualization will fail if you reconcile the BPM data after another discovery provider. This will result in duplicate CIs.</td>
<td>BMC Performance Manager Portal 2.7.00.040</td>
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### BBCA

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<td>SW00355355</td>
<td>Serial number is a strong indicator of identity for the BMC_ComputerSystem and is therefore used in reconciliation. On older Solaris Sparc platforms serial number is not available. BBCA would set the serial number to a value derived from hostid of the BMC_ComputerSystem class. In this situation duplicate BMC_ComputerSystem CIs would be created.</td>
<td>Fixed in BMC BladeLogic Client Automation 8.1.01.</td>
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<td>Issue</td>
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<tr>
<td>SW00355361</td>
<td>isVirtual attribute incorrectly set to No for Physical system. In this situation duplicate BMC_ComputerSystem CIs will be created.</td>
<td>Fixed in BMC BladeLogic Client Automation 8.1.01.</td>
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Documentation changes since release

The PDF documentation shipped with BMC Atrium Discovery is not updated after release. The online documentation, including these Release Notes is updated as required. This section outlines any significant changes to the online documentation that you should be aware of.

New operational warning

A new operational warning has been added stating that datastore files must not be moved to a remote filesystem. This is not a supported configuration.

Additions or enhancements to the documentation

The following sections or pages have been added to the documentation:

- **Supported printers**: This page lists the supported printers at the time of release of BMC Atrium Discovery version 8.3.
- **Printer Node**: This page describes the inferred node which represents discovered printers.
- **Appliance specification**: This page provides the recommended specification for the Dell PowerEdge R710 server running BMC Atrium Discovery in production.
- **Introduction to collaborative application mapping**: This page has been improved to help you more easily navigate through the video demonstrations included in the documentation. Graphical captions and numbered videos that match those found on the Applications tab of the user interface help you link directly to the page that contains the corresponding demonstration.
- **Network device scanning limitation**
- **Understanding security audits**: This page describes the results you may receive when running security audits against the appliance. It helps you to identify false positives from such audits.
- **Configuring a bonded NIC**: This page describes how you can configure a hardware appliance to use a bonded NIC.
- **Discovering VMware ESX and ESXi hosts**: This page now contains a Discovered versions section.
- **Operating system upgrades** are now provided every month independent of BMC Atrium Discovery releases.
- **Where an upgrade makes changes to syncmapping files**, the initial CMDB syncs after upgrade may cause longer reconciliation times. This also applies to activating a TKU which makes changes to syncmapping files.
- **Adding static routes**: This new page describes when and how to add static routes to the BMC Atrium Discovery server.
Removed from the documentation

The following sections or pages have been removed from the documentation:

- A note has been removed from the CMDB synchronization page. The note incorrectly stated that a custom pattern was required when using the Company drop-down. This is not the case.
Limitations and restrictions of this version

Operational warnings

⚠️ Warning

Failure to comply with the following instructions will result in datastore corruption, and in some cases unrecoverable datastore corruption.

Modification of datastore files and logs

Under no circumstances should you add, remove, or amend any of the datastore files or datastore log files without explicit clearance from BMC Customer Support.

The following are examples of datastore file names:

- pa55bc128f62ce9c427a1d742_nHost_hidx
- pa55bc128f62ce9c427a1d742_nHost_hist
- __db.001
- DB_CONFIG
- main

The following are examples of datastore log file names:

- log.000002301
- log.000002302

The location of the datastore and the datastore log files may be obtained by reading the /usr/tideway/etc/link.conf file. Under no circumstances should you modify this file once a system has been commissioned.

Datastore files must not be moved to a remote filesystem

The datastore files must not be moved to a remote filesystem. This is not a supported configuration, nor is this supported by the underlying Berkeley DB database environment.

Limitations and restrictions

The following list provides links to the limitations and restrictions of this version:
• Operational warnings
• Limitations and restrictions
  • Network infrastructure discovery
  • Firefox internal PDF viewer
  • Non-English Windows discovery using RemQuery
  • Non-ASCII Unicode characters in CAM
  • Network device scanning
  • Tcpvcon cannot be pushed to Windows 2000 hosts (13963)
  • Tcpvcon version later than 2.34 cannot return port information (QM001716854)
  • Scanning a real host previously scanned using pool data (6079)
  • Reinitializing the model (tw_model_init)
  • Concurrent lock attempts can lock all users from editing the port scan settings
  • Changes to user group memberships
  • ECAError nodes show tracebacks of the error that occurred
  • Third-party applications depending on Tideway security must be run after the security service has started
  • NDD discovery interface support
  • Computer CIs do not always reconcile correctly
  • Record data should not be processed with tools that change line endings
  • WMI might report incorrect memory
  • WMI arguments may be truncated
  • Home directory of discovery user on target computer must not be read-only
  • Solaris 10 truncates process information for non-privileged users
  • Solaris 8 and 9
  • Solaris 8 and ifconfig
  • Process information truncated in AIX
  • OpenVMS support
  • IP address change requires appliance restart
  • "<attrib> = None" construct in WHERE clause not supported
  • Processor type correctly reported only by non-srvinfo access methods
  • Disabling "Ping hosts" setting slows Discovery
  • AIX user password must be changed by user after creation by root
  • SNMP credential does not validate IP address key
  • Manual cron changes are overwritten
  • Do not run service tideway status as root
  • Search facility searches hidden attributes
  • Modifying standard reports
  • Visualization size limit (QM001711035)
  • Xen para-virtualized hosts discovery limitations (QM001744086)
  • IBM AIX machine serial number changes when moved from one host container to another (QM001775765)
Network infrastructure discovery

BMC Atrium Discovery supports discovery of network infrastructure devices, that is, routers, switches, and network printers. BMC Atrium Discovery does not currently support discovery of other devices that may also be accessible by or managed via SNMP.

Currently the product also includes support for discovering the presence of a small number of devices that are not network infrastructure devices, such as UPS devices, and temperature monitors, since these devices were discovered by BMC Atrium Discovery 7.5 or BMC Foundation Discovery and BMC Topology Discovery product and simply adopted into BMC Atrium Discovery 8.2. These devices are today (incorrectly) classified as NetworkDevice nodes.

When we upgrade BMC Atrium Discovery to deal with these properly, we will change how these devices are modeled. We have no plans to extend our limited support for those devices in current releases.

Firefox internal PDF viewer

The Firefox internal PDF viewer does not display the PDF reports correctly. To work around this problem, use an alternative plugin, or download the files and view in a standalone PDF viewer. See the Mozilla website for more information. Affected versions include Firefox 21.0.

Non-English Windows discovery using RemQuery

When attempting to discover Windows hosts using a non-English locale using *only* RemQuery, discovery may fail with the error message Failed to parse command output, or it may return incorrect information. They can however be successfully discovered using WMI.

Non-ASCII Unicode characters in CAM

In Collaborative Application Mapping (CAM), if you create components such as group names or functional components, that contain non-ASCII Unicode characters, the Business Application Instance (BAI) that results from running the pattern displays with unreadable characters.

Network device scanning

Scanning a network device may timeout, particularly on devices with many logical interfaces. Currently, network device discovery uses a single monolithic call when discovering a network device and once made, the call cannot be stopped. This means that when a device with multiple interfaces is scanned, a full discovery of the device is performed via all of the endpoints that it responds on, instead of discovery for the alternative endpoints being limited to the minimum required to determine that it is the same device. This slows the overall discovery of the device to the point where it can timeout at 30 minutes. Additionally, it puts unnecessary load on the network device. This issue is addressed in BMC Atrium Discovery 8.3 SP2.
Tcpvcon cannot be pushed to Windows 2000 hosts (13963)

Tcpvcon cannot be pushed to Windows 2000 hosts. The workaround is to deploy the utility manually. QM001683624

Tcpvcon version later than 2.34 cannot return port information (QM001716854)

To discover port information (getProcessToConnectionMapping) from computers running Windows 2000 or earlier, you must have version 2.34 of Tcpvcon installed on them. If a more recent version of Tcpvcon has been installed on the target, you must replace it with version 2.34 to discover port information.

Version 2.34 of Tcpvcon is shipped along with the BMC Atrium Discovery Windows proxies. To replace the recent version with version 2.34, perform the following steps:

1. On the computer running a Windows proxy, copy the tcpvcon.exe file, version 2.34, from the following location:
   C:\Program Files\BMC Software\ADDM Proxy
2. On the target host, navigate to the location of the recent version of the tcpvcon.exe file and replace that file with the version 2.34 file that you have copied.
3. Run discovery again.

⚠️ If a recent version of Tcpvcon is installed on a remote host, execution of the Tcpvcon command on the BMC Atrium Discovery appliance will fail and display the following timeout error message in the Windows proxy debug logs of the host:

```
RemQuery(): user = TSL\admintest: Timed out status = FAILURE
```

The timeout error will be reported because recent versions of Tcpvcon require a GUI-based end-user license agreement (EULA) to be confirmed when it is run for the first time. If you confirm the EULA on the host either manually or by using the accepteula switch, the Tcpvcon command is invoked successfully. However, as BMC Atrium Discovery does not support recent versions of Tcpvcon, parsing of the command output will fail and the following error message will be displayed in the log:

```
Failed to parse command output status = FAILURE
```
Scanning a real host previously scanned using pool data (6079)

When you upload scanner files to the appliance and run it in playback mode, .no-expiry files are created for each IP address. This means that this pool data will not be deleted at the next scan, and subsequent discovery runs will operate by playing back the pool data rather than by scanning the real IP address. This is true if the appliance is operating in Record or Playback mode.

If you subsequently attempt to scan the real IP address, the pool data will not be updated if the .no-expiry file is present.

If you are scanning an IP address and it is not being updated, you should check the pool data for existence of a .no-expiry file and delete it. The pool data structure is:

```
/var/pool/xx/xx/xx/xx/.no-expiry
/var/pool/xx/xx/xx/xx/<data>
```

where /xx/xx/xx/xx is the IP address of the host.

For more information on scanning hosts from scanner files and how to handle pool data, see Using scanner files.

Reinitializing the model (tw_model_init)

You can reinitialize the model by running the `tw_model_init` command. You must stop all tideway services before running the command. Restart the services when the command has completed. The `tw_model_init` utility can also install and activate a TKU after deleting the datastore. The TKU package must be stored on the appliance filesystem. For more information on using this command line utility see `tw_model_init`.

Concurrent lock attempts can lock all users from editing the port scan settings

In the port scanning page, if a user locks it for editing and another user subsequently tries lock it, the second user's attempt fails. If the user who successfully locked the page cancels the operation and leaves the page, it remains locked for the unsuccessful user, and on refresh for the successful user too.

Changes to user group memberships

If the privileges of a BMC Atrium Discovery user are extended by changing the user's group memberships, then these changes may not take effect for up to 5 minutes. However if privileges are withdrawn from the user these changes take immediate effect.
ECAError nodes show tracebacks of the error that occurred
This could cause concern during ethical hacking tests but is not actually a problem because the code shown is from patterns, which are already visible to the user, not internal to the product.

Third-party applications depending on Tideway security must be run after the security service has started
If third-party applications that depend on the Tideway Security Service are run before it has completed initialization, they will fail as you cannot validate permissions and users from the Security Service.
Ensure that the Tideway Security service has completed initializing before running third-party applications.

NDD discovery interface support
NDD discovery does not support trp interfaces.

Computer CIs do not always reconcile correctly
On certain UNIX systems, BMC Atrium CMDB cannot reconcile the same Computer System CIs from the BMC Performance Management (BPM) and BMC Atrium Discovery datasets. If the <hostname> command is not configured correctly on these systems, the command returns the fully qualified domain hostname (FQDN) instead of just the host name, resulting in duplicate Computer System CIs in the BMC.ASSET dataset.
Possible solutions include correcting the command output on the affected system, or disabling reconciliation with data from BPM. If you are unsure, contact your Customer Support representative to discuss additional options.

Record data should not be processed with tools that change line endings
BMC Atrium Discovery stores record data in UNIX and DOS formats. UNIX format files have LF line endings, and DOS format file have CR LF line endings. If you process the record data with a tool that changes line endings, you will see exceptions in the Discovery logs.

WMI might report incorrect memory
WMI may report the physical memory available on Windows hosts incorrectly.
WMI arguments may be truncated
In unusual situations the first argument to a process may not be reported to discovery by the target Windows host. This happens when a Windows process was created with `CreateProcess` with the `ApplicationName` parameter specified but without the module name used as the first argument passed in the `CommandLine` parameter.

Home directory of discovery user on target computer must not be read-only
The home directory of the user that is used for discovery on target hosts must not be read-only. If it is read-only, scripts (such as `which` on Solaris 9 and 10 hosts) that write to the home directory will fail.

Solaris 10 truncates process information for non-privileged users
In Solaris 10 `/usr/ucb/ps` will now only output the first 79 characters of commands unless it is run as root. The reason for this change is to prevent the inadvertent leak of private process data. Where process information is truncated, Discovery will be incomplete for that host. You must add the `proc_owner` right for the user account used for discovery, for example, the `my_solaris_account` user. To do this and retain all of the default privileges, as root, enter:

```
usermod -K defaultpriv=file_link_any,proc_info,proc_session,proc_fork,
       proc_exec,proc_owner my_solaris_account
```

No spaces are permitted in the `defaultpriv` argument.

Solaris 8 and 9
Patches have been rolled out to replicate this behavior on Solaris 8 and 9.

- Solaris 8 patch – 109023-05
- Solaris 9 patch – 120240-01

To workaround this, you should deploy sudoers privileges for `/usr/ucb/ps`.

Solaris 8 and ifconfig
In Solaris 8 there are two `ifconfig` binaries:

- `/sbin/ifconfig`
- `/usr/sbin/ifconfig
  
  In all versions of Solaris other than 8, there is a single binary and a symbolic link.

The default path statement set by BMC Atrium Discovery ensures that `/sbin/ifconfig` is called first. In Solaris 8 this is the incorrect version, `/usr/sbin/ifconfig` must be run to obtain the correct information. To ensure this is the case, edit the `ifconfig` discovery script to specify the full path to `ifconfig`:

```bash
IFCONFIG=`PRIV_IFCONFIG /usr/sbin/ifconfig -a 2>/dev/null`
echo "$IFCONFIG"
```

Do not modify the path statement to correct this issue as that will cause other problems.

**Process information truncated in AIX**

On AIX the `ps` command limits output to the horizontal screen size. This can be overridden using the `COLUMNS` environment variable, though the maximum permissible value for this is 2047. Piping the output of the `ps` command through `cat` removes the columns restriction on AIX hosts with a May 2007 Service Pack.

**OpenVMS support**

Support for OpenVMS is limited to systems running the native vendor TCP stack.

**IP address change requires appliance restart**

Where the IP address of the appliance is changed, for example, by DHCP or a manual change, the appliance must be restarted.

"<attrib> = None" construct in WHERE clause not supported

The Search Service uses a number of Python constructs. However, the "= None" construct should not be used to recognize undefined values. For example, the following query does not work and returns nothing:

```python
SEARCH SoftwareInstance
  WHERE version = None
```

You should state explicitly that you are looking for an undefined attribute. For example:
SEARCH SoftwareInstance
  WHERE name HAS SUBWORD "Web"
  AND NOT version IS DEFINED
and
SEARCH SoftwareInstance
  WHERE NOT version IS DEFINED

Processor type correctly reported only by non-srvinfo access methods

Processor type is correctly reported when using WMI and non-srvinfo Discovery methods. However if you discover the same host with srvinfo then it is reported incorrectly. Ensure that the WMI or non-srvinfo access method is enabled.

Disabling "Ping hosts" setting slows Discovery

If you disable the "Ping hosts before scanning" setting in the Discovery Configuration page, Discovery will try a number of methods before determining that there is no device at that IP address. If pinging is enabled, Discovery determines that there is no device immediately.

AIX user password must be changed by user after creation by root

On AIX, when a user password is changed by the root user, that password must be changed by the user at the next log in. If the password is not changed and Discovery is attempted using that user name and password, it fails when prompted to change the password. To prevent this from happening, if you are the root user and add a new user, log in as that user and change the password.

SNMP credential does not validate IP address key

When adding or editing a login or SNMP credential, the IP Address key does not validate the format. You are permitted to enter special characters, alphanumeric, and invalid IP address formats (172.17.1.3.3.4). Only enter valid IP addresses.

Manual cron changes are overwritten

If a cron job is manually edited this will not be noticed, and any change will be silently thrown away. This could be an issue where a manual change is made by someone not realising there is a cron management process. The script should be scheduled using the cron feature (in $TIDEBAY/etc/cron/) as the tideway user.
Do not run service tideway status as root

Running the service tideway status command as root will cause the ownership of the database log files to change to root. Eventually this will cause the system to fail to start.
Always run sudo service tideway status as the tideway user, never as root. That is, sudo /sbin /service tideway status.

Search facility searches hidden attributes

The search facility searches hidden attributes and system fields, even though the users cannot normally see this information.
This was observed when searching for a subnet to add relationship to from a host. The search string 127 was entered and the following two subnets were returned:

- 192.168.115.0/24
- 172.16.203.0/24

The search string does not appear in the subnets, but may have been found in hidden attributes associated with the subnets. This behavior can be confusing.

Modifying standard reports

If you place an updated reports.xml file on a system without stopping the tideway services, you may see a traceback in the UI. To avoid this stop the tideway services before adding a new or modifying the existing reports.xml file.

Visualization size limit (QM001711035)

There is a visualization size limit of 5631x4439 pixels. Larger visualizations could consume excessive system resources and cause instability.

Xen para-virtualized hosts discovery limitations (QM001744086)

BMC Atrium Discovery has the following known limitations in discovering the Xen para-virtualized hosts:

- The hosts are not discovered as virtual.
- The corresponding UUID is not correctly discovered.
- The relationship between the Xen server and the virtual machine containers (software instances), including the virtualized hosts running on it, is not discovered.

There are no workarounds to overcome this limitation.
IBM AIX machine serial number changes when moved from one host container to another (QM001775765)

When an IBM AIX machine is moved from one host container to another, the discovered serial number of the host changes. As a result, a new host node is created and synchronized to the BMC Atrium CMDB (if CMDB synchronization is configured). The earlier host node is automatically removed through aging based on the Model Maintenance settings.

It is possible to manually destroy the earlier host node before it is removed through aging. However, manual destruction of host nodes is not recommended in production appliances. For more information, see Destroying data.
Defects resolved in this version

Defects Resolved in BMC Atrium Discovery
Version 8.3 SP3

<table>
<thead>
<tr>
<th>ID</th>
<th>Details</th>
<th>Defect Number</th>
</tr>
</thead>
</table>
| 16605| **Problem:** Win32_PhysicalMemory fails with Error 'Capacity' when the memory bank is empty.  
**Resolution:** Code fix, this no longer occurs. | QM001763233     |
| 16591| **Problem:** Cannot discover virtual AIX HBA cards.  
**Resolution:** Code fix, this no longer occurs. | QM001750559     |
| 16552| **Problem:** Where hosts are related through a BAI, in some cases a sync of one host can cause SIs on another related hosts to be marked as deleted.  
**Resolution:** Code fix, this no longer occurs. | QM001768414     |
| 16423| **Problem:** Solaris machines on which serial numbers are not discovered can collapse OSIs.  
**Resolution:** Code fix, this no longer occurs. | QM001754173     |
| 16407| **Problem:** The "default" entry in the PrimaryCapability_CTI_Mapping Table is not used when no capability matches.  
**Resolution:** Code fix, this no longer occurs. | QM001725494     |
| 16406| **Problem:** ECA error in traverseFindOrCreateNode for integer values too large in 'df' data.  
**Resolution:** Code fix, this no longer occurs. | QM001749794     |
| 16399| **Problem:** Synchronization into CMDB updates CIs that have not been modified.  
**Resolution:** Code fix, this no longer occurs. | QM001759740     |
| 16110| **Problem:** Bug in JDK causing SQL Server connections to hang.  
**Resolution:** Code fix, this no longer occurs. | QM001752103     |
| 16089| **Problem:** HMC/getInterfaceList fails with exception because there is no 'speed'.  
**Resolution:** Code fix, this no longer occurs. | QM001733236     |
| 15764| **Problem:** Discovery dashboard channels using old DDD aging option.  
**Resolution:** Code fix, this no longer occurs. | QM001803416, QM001806008, QM001805996, QM001772492 and QM001768697 are also fixed. |

Defects Resolved in BMC Atrium Discovery
Version 8.3 SP2
<table>
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<tr>
<th>ID</th>
<th>Details</th>
<th>Defect Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12534</td>
<td><strong>Problem:</strong> Serial number not obtained on some Solaris/SPARC machines.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001731710</td>
</tr>
<tr>
<td>12827</td>
<td><strong>Problem:</strong> Visualizations only print in hierarchical view.</td>
<td>QM001687517</td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001659086</td>
</tr>
<tr>
<td>13119</td>
<td><strong>Problem:</strong> Processor speed conversion error.</td>
<td></td>
</tr>
<tr>
<td>13950</td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001676012</td>
</tr>
<tr>
<td>13705</td>
<td><strong>Problem:</strong> Authentication cookie is not HTTPOnly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Fixed in the code.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>13736</td>
<td><strong>Problem:</strong> Misleading error when using incorrect MS SQL Server JDBC Driver.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001659086</td>
</tr>
<tr>
<td>1376</td>
<td><strong>Problem:</strong> Only the maximum speed is discovered for multiple processor hosts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Workaround:</strong> None.</td>
<td>QM0016715432</td>
</tr>
<tr>
<td>14925</td>
<td><strong>Problem:</strong> Fujitsu machine has vendor &quot;Sun Microsystems&quot;.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>14939</td>
<td><strong>Problem:</strong> The visualization and PDF report fail when a host with a Japanese name is included.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>14942</td>
<td><strong>Problem:</strong> A failure during database discovery results in an IntegrationResult with a node as an attribute. The following error is displayed on the scanning appliance: &quot;Unexpected exception while sending data to the consolidation appliance&quot;.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>14951</td>
<td><strong>Problem:</strong> Invalid raw_speed on PortInterfaces. On high speed interfaces such as 10Gb/s, 'ifHighSpeed is not read, instead the value for raw_speed is shown in PortInterfaces. This is usually 4294.967295 Mb/s or similar.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>15171</td>
<td><strong>Problem:</strong> Mainframe discovery uses incorrect view area code for MQ Listeners.</td>
<td></td>
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<tr>
<td></td>
<td><strong>Resolution:</strong> Fixed in the code. See also Mainframe discovery commands.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>15207</td>
<td><strong>Problem:</strong> TRANSPORT_CallTimedOut errors occur when SNMP discovery attempts to scan some very complex network devices.</td>
<td></td>
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<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>15218</td>
<td><strong>Problem:</strong> If you have viewed a chart from results obtained using the query builder, using the back button does not work correctly.</td>
<td></td>
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<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>15235</td>
<td><strong>Problem:</strong> You can only select and import one credential type at a time otherwise the import will fail silently and simply refresh the Credential Migration page.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Fixed in the code.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>15273</td>
<td><strong>Problem:</strong> Consolidation start time is misleading.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>15283</td>
<td><strong>Problem:</strong> Trixwire looking for BerkeleyDB.4.7, and incorrectly named image, background4.jpg should read background4.gif.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>15285</td>
<td><strong>Problem:</strong> Cannot cancel consolidation of a run that has been canceled on the scanner.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Resolution:</strong> Code fix, this no longer occurs.</td>
<td>QM001654421</td>
</tr>
<tr>
<td>ID</td>
<td>Details</td>
<td>Defect Number</td>
</tr>
<tr>
<td>-------</td>
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</tr>
</tbody>
</table>
| 15288 | **Problem:** Legacy Mainframe MDZ code used to generate XML is inefficient.  
**Resolution:** Code fix, this no longer occurs.                                                                                      | QM001723073   |
| 15302 | **Problem:** The OS classifier identifies all variants (Novell SUSE Linux Enterprise Server (9.0 - 11.0), SUSE Linux Enterprise Server (v11 onwards), and OpenSUSE) of SUSE Linux as 'SUSE Linux'.  
**Resolution:** Code fix, this no longer occurs. This fix is also included in TKU releases 2012-01-10 and later. |               |
| 15327 | **Problem:** Search get() function accepts NodeHandles but not Nodes.  
**Resolution:** Fixed in the code.                                                                                                          | QM001723410   |
| 15356 | **Problem:** ECA engine is always O(n) on number of root trackers.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001731315   |
| 15390 | **Problem:** Daily SAR chart shows nonsense data, a date in the I/O.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001730013   |
| 15400 | **Problem:** A failure during database discovery results in an IntegrationResult with a node as an attribute. The following error is displayed on the scanning appliance: "Unexpected exception while sending data to the consolidation appliance".  
**Resolution:** Code fix, this no longer occurs.                                                                                           | QM001719307   |
| 15409 | **Problem:** RemQuery does not pass a valid stdin handle to processes it creates.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001727216   |
| 15430 | **Problem:** Issue while upgrading to 8.3 where fibre channel HBA nodes were missing.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001728184   |
| 15450 | **Problem:** Openvms Discovery: getInterfaceList failure (parser error) when an interface has no IP address assigned.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001726175   |
| 15484 | **Problem:** SNMP discovery for hosts not able to cope with "null" IP Address and Netmask values.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001730078   |
| 15487 | **Problem:** In BMC Atrium Discovery, versions 8.2, 8.2.01, 8.2.02, 8.2.03, 8.2.04, 8.3, and 8.3 SP1, the OS string for some versions of Oracle Enterprise Linux operating system (OS) are not displayed completely.  
**Resolution:** Fixed in the code.  
**Workaround:** In addition, there is a workaround for releases prior to 8.3 SP2. For more information, see the Known Defects in this Version pages for 8.3 and 8.2. | QM001727595   |
|        |                                                                                                                                          | QM001727313   |
| 15524 | **Problem:** File content comparison does not display the correct status.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001723284   |
| 15531 | **Problem:** Discovery does not populate information on filesystems for OpenVMS 8.3.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001732011   |
| 15532 | **Problem:** The drag/drop channel does not work in Internet Explorer 8.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001732253   |
| 15578 | **Problem:** Method of finding z/OS agent version is incorrect.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001733222   |
| 15597 | **Problem:** Output from netstat on Red Hat is not parsed correctly.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001724686   |
| 15603 | **Problem:** Windows Scanner file processing fails with traceback.  
**Resolution:** Code fix, this no longer occurs.                                                                                         | QM001735700   |
<table>
<thead>
<tr>
<th>ID</th>
<th>Details</th>
<th>Defect Number</th>
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</thead>
</table>
| 15606 | **Problem:** Linux "ip address show" parser doesn't handle Infiniband addresses.  
**Resolution:** Code fix, this no longer occurs. | QM001734330   |

Defects resolved in BMC Atrium Discovery version 8.3 SP1

<table>
<thead>
<tr>
<th>ID</th>
<th>Details</th>
<th>Defect Number</th>
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</thead>
</table>
| 15399 | **Problem:** Legacy Mainframe MDZ code used to generate XML is inefficient.  
**Resolution:** Fixed in the code. | QM001723073   |
| 15400 | **Problem:** A failure during Dynamic Dip database discovery results in an IntegrationResult with a node as an attribute. The following error is displayed on the scanning appliance: "Unexpected exception while sending data to the consolidation appliance".  
**Resolution:** Fixed in the code. | QM001719307   |
| 15415 | **Problem:** Authentication cookie was not flagged as HTTPOnly.  
**Resolution:** Fixed in the code. | ISS03662285, QM001676012 |
| 15434 | **Problem:** Issue while upgrading to version 8.3 where fiber channel HBA nodes were missing.  
**Resolution:** Fixed in the code. | QM001728184   |

Defects Resolved in BMC Atrium Discovery Version 8.3

<table>
<thead>
<tr>
<th>Defect Number</th>
<th>ID</th>
<th>Details</th>
<th>Customer Case</th>
</tr>
</thead>
</table>
| QM001667697   | 3781 | **Problem:** Use of "which" in discovery script breaks on some servers.  
**Resolution:** Documentation fix. |               |
| 10232         |      | **Problem:** Appliance Baseline page needs sort order.                  | 11855         |
| SF13103       | 10408| **Problem:** When an IP range list is "hidden" you cannot click to see the full list.  
**Resolution:** Code fix. |               |
<p>| SF9555        | 10537| <strong>Problem:</strong> Useful virtualisation reports needed.                      |               |
| 11381         |      | <strong>Problem:</strong> Uptime not extracted from SystemInfo or Srvinfo calls.      | 22976         |
| 11452         |      | <strong>Problem:</strong> SNMP is failing on Netware 5.70.05.                          | 16178         |
| 12030         |      | <strong>Problem:</strong> Core dump during shutdown - Discovery.                      |               |</p>
<table>
<thead>
<tr>
<th>Defect Number</th>
<th>ID</th>
<th>Details</th>
<th>Customer Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>12418</td>
<td></td>
<td><strong>Problem:</strong> Broadcom NIC not detected on Windows.</td>
<td>21247, 22334,</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td>22339</td>
</tr>
<tr>
<td>12443</td>
<td></td>
<td><strong>Problem:</strong> Privileged execution of getDirectoryListing, getFileMetaData and getFileContent.</td>
<td>22238</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>12453</td>
<td></td>
<td><strong>Problem:</strong> Need a &quot;Lack of credential&quot; error message.</td>
<td>22267</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>12587</td>
<td></td>
<td><strong>Problem:</strong> Offline compaction fails due to a pattern incorrectly storing a node reference on a Host node.</td>
<td>22679</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Workaround:</strong> Do not perform the compaction with the recode option.</td>
<td></td>
</tr>
<tr>
<td>12636</td>
<td></td>
<td><strong>Problem:</strong> Export to Oracle fails when columns have spaces.</td>
<td>22897</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>12704</td>
<td></td>
<td><strong>Problem:</strong> You cannot filter using the third column of the Installed Packages report.</td>
<td>ISS03565196</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>QM001673044</td>
<td>12952</td>
<td><strong>Problem:</strong> Slave purge button inconsistency.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td>ISS03596673</td>
</tr>
<tr>
<td>13115</td>
<td></td>
<td><strong>Problem:</strong> Linux ifconfig does not always find all bound IP addresses.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>TP13281</td>
<td></td>
<td><strong>Problem:</strong> The date selector in the Report Builder does not honor the user's date preference setting.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>QM001665930</td>
<td>13360</td>
<td><strong>Problem:</strong> Swap allocation on appliances should be increased to 8GB.</td>
<td>ISS03631844</td>
</tr>
<tr>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>13402</td>
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<td><strong>Problem:</strong> RPMs should be installed for kdump use.</td>
<td>ISS03710031</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>13472</td>
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<td><strong>Problem:</strong> After certain Discovery scans are started, runs are stopping at 99% completion.</td>
<td>ISS03637997,</td>
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<td><strong>Resolution:</strong> Code fix.</td>
<td>ISS03638945,</td>
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<td>ISS03622040,</td>
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<td>ISS03652843,</td>
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<td>ISS03632994.</td>
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<td>13482</td>
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<td><strong>Problem:</strong> Stopping discovery while the discovery of a network device is in progress can take a long time. The device may be rediscovered when discovery is restarted.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>13493</td>
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<td><strong>Problem:</strong> Discovering a large network device can take longer than the default reasoning timeout (30 minutes).</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>13682</td>
<td>Problem: The upgraded Admin group does not have permission to view the Export or CMDB-Sync pages.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001680848</td>
<td><strong>Problem:</strong> Mainframe scan ending with reason &quot;Unknown error&quot;.</td>
<td>ISS03680154</td>
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<td>Resolution: Code fix.</td>
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<td>QM001693484</td>
<td><strong>Problem:</strong> Visualisation not updated for MainFrame.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001700324</td>
<td><strong>Problem:</strong> Technical difficulties page on completion of gather.</td>
<td>ISS03712257, ISS03750161</td>
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<td>Resolution: Code fix.</td>
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<td>QM001674953</td>
<td><strong>Problem:</strong> Transaction logs from datastore compaction can fill up the whole partition.</td>
<td>ISS03658956, ISS03681960</td>
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<td>Resolution: Code and documentation fix.</td>
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<td>QM001677253</td>
<td><strong>Problem:</strong> An excessively long &quot;where&quot; clause in a query generates an unhelpful error CORBA.COMPLETED_MAYBE.</td>
<td>ISS03666994</td>
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<td>Resolution: Code fix.</td>
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<td>QM001667859</td>
<td><strong>Problem:</strong> tw_injectip --replace does not work as documented.</td>
<td>ISS03636264</td>
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<td>Resolution: Documentation fix.</td>
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<td>QM001679007</td>
<td><strong>Problem:</strong> Solaris prtdiag parse failure results in number of physical and logical processors being reported incorrectly.</td>
<td>ISS03652666</td>
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<td>Resolution: Code fix.</td>
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<td>QM001673992</td>
<td><strong>Problem:</strong> Appliance baseline gives spurious warning about ntpd and vmware-tools at runlevel 5.</td>
<td>ISS03673992</td>
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<td>Resolution: Code fix.</td>
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<td>QM001680178</td>
<td><strong>Problem:</strong> Usage notes (--help) misleading for the tw_cmdb_export2sync tool.</td>
<td>ISS03678004</td>
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<td>Resolution: Code fix.</td>
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<td>QM001677985</td>
<td><strong>Problem:</strong> For OpenVMS discovery, show network parsing fails if hostname is not known.</td>
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<td>Resolution: Code fix.</td>
<td>ISS03677985</td>
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<td>QM001662280</td>
<td><strong>Problem:</strong> Security vulnerability in returnURL redirect parameter.</td>
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<td>Resolution: Code fix.</td>
<td>ISS03662280</td>
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<td>QM001672449</td>
<td><strong>Problem:</strong> HBAs not detected on AIX, because of discovery parsing issue.</td>
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<td>Resolution: Code fix.</td>
<td>ISS03672449</td>
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<td>TP13982</td>
<td><strong>Problem:</strong> When you run a report that has relationships in the results, such as the Installed Packages report, the New Packages discovered on Hosts report, and the New Patches discovered on Hosts report, the Query Builder is not displayed.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001670520</td>
<td><strong>Problem:</strong> Discovery Access document should explain the meaning of the runCommand status.</td>
<td>ISS03680887</td>
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<td>Resolution: Documentation fix.</td>
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<td>14004</td>
<td><strong>Problem:</strong> Discovery Access document should explain the meaning of the runCommand status.</td>
<td>ISS03680887</td>
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<td><strong>Problem:</strong> Cisco Nexus Network switches show wrong serial number.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001678691</td>
<td>14029</td>
<td><strong>Problem:</strong> Bonded interfaces report nonsensical speed/duplex settings.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001685207</td>
<td>14035</td>
<td><strong>Problem:</strong> The gather page in the user interface does not collect session logs.</td>
<td>ISS03694229</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001685002</td>
<td>14048</td>
<td><strong>Problem:</strong> Reconciliation job is causing duplicate records as Domain field is not populated.</td>
<td>ISS03683463</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001685621</td>
<td>14064</td>
<td><strong>Problem:</strong> When a program running via RemCom crashes or initiates a UI pop-up on target machine, RemCom is blocked.</td>
<td>ISS03678131</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001681080</td>
<td>14073</td>
<td><strong>Problem:</strong> When a UNIX device with an unsupported shell is scanned, it fails with a timeout.</td>
<td>ISS03674449</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001682098</td>
<td>14074</td>
<td><strong>Problem:</strong> When discovering an HP-UX host, parsing getInterface list does not always find the speed, the duplex and negotiation mode.</td>
<td>ISS03669062</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td><strong>Problem:</strong> Problem with MDZ service point caching.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001686473</td>
<td>14109</td>
<td><strong>Problem:</strong> Ciscoworks import fails when a speed is not specified for an entry.</td>
<td>ISS03696044</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM00168481</td>
<td>14110</td>
<td><strong>Problem:</strong> Cisco works import does not differentiate whether InvalidEntryExceptions block the import or not.</td>
<td>ISS03696044</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td><strong>Problem:</strong> When a list view would only contain one entry, the UI displays the node view after showing the Ajax &quot;spinner&quot;. When this occurs, you are unable to use the browser's back button to return to the previous page.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001686863</td>
<td>14161</td>
<td><strong>Problem:</strong> CiscoWorks Import fails to import the CSV file content when entries without IP addresses are detected.</td>
<td>ISS03676549</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001686948</td>
<td>14190</td>
<td><strong>Problem:</strong> When running offline compaction, you cannot use the original datastore after preparation steps.</td>
<td>ISS03700422</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001688159</td>
<td>14207</td>
<td><strong>Problem:</strong> The template_sql_asset_integration.tpl file cannot be activated in 8.2 because default connections are not supported.</td>
<td>ISS03705373</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001688468</td>
<td>14220</td>
<td><strong>Problem:</strong> In the device filter, queries using LifecycleStatus and Location do not work.</td>
<td>ISS03699116</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001691290</td>
<td>14222</td>
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<td><strong>Problem:</strong> Discovery fails on OpenVMS because we add the NUL byte before any prompt string.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001690476</td>
<td>14224</td>
<td><strong>Problem:</strong> Network device discovery error &quot;Unable to get the deviceinfo: UNKNOWN_PythonException&quot;.</td>
<td>ISS03702019</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>14243</td>
<td><strong>Problem:</strong> Mainframe IMS Database information discovery incomplete.</td>
<td>ISS03693787</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001703603</td>
<td>14251</td>
<td><strong>Problem:</strong> Stop All Scans button does not work when defunct discovery processes exist.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001695701</td>
<td>14259</td>
<td><strong>Problem:</strong> WMI arguments can be truncated.</td>
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<td><strong>Resolution:</strong> Documentation fix. See WMI arguments</td>
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<td>QM001692510</td>
<td>14268</td>
<td><strong>Problem:</strong> Poor discovery performance and appliance errors from SNMP discovery.</td>
<td>ISS03704879</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001689008</td>
<td>14285</td>
<td><strong>Problem:</strong> Upgrade script should check that there is available space in /var before upgrade.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001688141</td>
<td>14300</td>
<td><strong>Problem:</strong> Create Integration point link should be removed.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001693822</td>
<td>14333</td>
<td><strong>Problem:</strong> BMC Atrium Discovery to BMC Atrium mapping requires additional dependency between Mainframe and BAI.</td>
<td>ISS03722398</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001680931</td>
<td>14358</td>
<td><strong>Problem:</strong> Remove unused 'Confirm' button in the snapshot restore screen.</td>
<td>ISS03678094</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001692734</td>
<td>14359</td>
<td><strong>Problem:</strong> Cannot discover the CPU/RAM information on HP-UX.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001686848</td>
<td>14381</td>
<td><strong>Problem:</strong> Mainframe extension for CMDB incorrectly sets audittype=none for BMC_BaseElement Core CDM attributes.</td>
<td>ISS03700534</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001696908</td>
<td>14393</td>
<td><strong>Problem:</strong> Editing a Location Node in the UI is not working as expected.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001686895</td>
<td>14401</td>
<td><strong>Problem:</strong> Discovery is failing in getInterfaceList on AIX 4.2.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001697505</td>
<td>14406</td>
<td><strong>Problem:</strong> In Mainframe JVM Settings increase maximum memory limit to 1024MB.</td>
<td>ISS03712888</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001697506</td>
<td>14408</td>
<td><strong>Problem:</strong> For &quot;Java heap space&quot; error is misleading, should read &quot;Out of memory error - Java heap space&quot;.</td>
<td>ISS03712888</td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<td>QM001696447</td>
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<td>Problem: The tideway.py file is showing as deprecated in the appliance startup.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001700149</td>
<td>14448</td>
<td>Problem: Failure in generic search caused by processwith.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001699198</td>
<td>14468</td>
<td>Problem: Xen host with &quot;aix&quot; in the hostname causes AIX discovery scripts to be used for discovery.</td>
<td>ISS03766011 ISS03745096</td>
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<td>Resolution: Code fix.</td>
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<td>QM001697510</td>
<td>14473</td>
<td>Problem: Uninformative error messages in UI when CMDB mapping patterns are not activated.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001697909</td>
<td>14474</td>
<td>Problem: The remcomsvce.exe file should be removed from Windows targets.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001701089</td>
<td>14477</td>
<td>Problem: The Observed Communications report fails.</td>
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<td>Resolution: Code fix.</td>
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<td>QM001693571</td>
<td>14500</td>
<td>Problem: Zebra printer with sysoid : 1.3.6.1.4.1.683.6 incorrectly discovered.</td>
<td>ISS03725047</td>
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<td>Resolution: Code fix.</td>
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<td>QM001687441</td>
<td>14520</td>
<td>Problem: OpenVMS process names including spaces cannot be parsed correctly.</td>
<td>ISS03701751</td>
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<td>Resolution: Code fix.</td>
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<td>QM001702664</td>
<td>14536</td>
<td>Problem: Discovery fails on Solaris 10 when sudo requires password for PRIV_PS.</td>
<td>ISS03749573</td>
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<td>Resolution: Code fix.</td>
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<td>QM001671087</td>
<td>14554</td>
<td>Problem: The /var directory fills with cron emails preventing Services from restarting.</td>
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<td>Resolution: Code fix.</td>
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<tr>
<td>QM001670514</td>
<td>14563</td>
<td>Problem: Non-existent commands are reported as &quot;OK&quot; in the DiscoveryAccess RunCommand status.</td>
<td>ISS03646411</td>
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<td>Resolution: Code fix.</td>
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<td>QM001703929</td>
<td>14578</td>
<td>Problem: SYSPLEX information not shared in environment where a sysplex spans multiple mainframes.</td>
<td>ISS03756625</td>
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<td>Resolution: Code fix.</td>
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<tr>
<td>QM001702839</td>
<td>14595</td>
<td>Problem: Documentation should explain the concept of root nodes and why new custom nodes are not automatically exported.</td>
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<td>Resolution: Documentation fix.</td>
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<td>QM001704455</td>
<td>14602</td>
<td>Problem: Discovery of OpenVMS version 8.4 fails at getInterfaceList script due to unequal lengths of Autonegotiation entries.</td>
<td>ISS03750864</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resolution: Code fix.</td>
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</tr>
<tr>
<td>QM001705138</td>
<td>14603</td>
<td>Problem: Asynchronous search can be incorrectly cancelled during blocking getResults calls.</td>
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<td></td>
<td></td>
<td>Resolution: Code fix.</td>
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<tr>
<td>QM001703740</td>
<td>14607</td>
<td></td>
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<tr>
<td>Defect Number</td>
<td>ID</td>
<td>Details</td>
<td>Customer Case</td>
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</tbody>
</table>
|               | 14614| **Problem:** From HP-UX version 11.23, "parstatus" in the host_info script cannot find the CPU information.  
**Resolution:** Code fix. |                 |
|               | QM001689493 | **Problem:** Need script to remove "dark space" - tw_remove_darkspace.  
**Resolution:** Code fix. | ISS03704879     |
|               | QM001704659, QM001704880 | **Problem:** Categorization for BMC_IPENDPOINT and BMC_LANENDPOINT submitted to CMDB is incorrect.  
**Resolution:** Code fix. |                 |
|               | QM001704910, QM001712319 | **Problem:** CSV > FTP Export fails the error messages are unhelpful.  
**Resolution:** Code fix. | ISS03737219     |
|               | QM001705586 | **Problem:** The BMC.ADDM dataset has the incorrect SoftwareServerType defined for Oracle database servers.  
**Resolution:** Code fix. |                 |
|               | QM001709102 | **Problem:** Need to add settings to DB_CONFIG file to prevent db_recover running out of memory.  
**Resolution:** Code fix. | ISS03772783     |
|               | 14644 | **Problem:** Windows hosts with identical serial number are very likely to be merged.  
**Resolution:** Code fix. | ISS03735278     |
|               | QM001685174 | **Problem:** Poorly positioned and immovable dialog boxes on restore from backup.  
**Resolution:** Code fix. |                 |
|               | QM001706866 | **Problem:** Need to alter the perception of the system to an appliance rather than a general purpose operating system.  
**Resolution:** Code and documentation fix. |                 |
|               | QM001706440, QM001707516 | **Problem:** Relationship between CICS and Sysplex not being shown.  
**Resolution:** Code fix. | ISS03774183     |
|               | QM001707001 | **Problem:** CMDB sync mapping incorrect for Host with processors with multiple CPU types and speeds.  
**Resolution:** Code fix. | ISS03779482     |
|               | QM001706278, QM001707286 | **Problem:** Processor sync mapping to CMDB (CMDB.Host_processor) does not support PowerPC 6 and 7.  
**Resolution:** Code fix. | ISS03770806, ISS03780851 |
|               | 14717 | **Problem:** Engine and pattern performance information not available at all Reasoning log levels.  
**Resolution:** Code fix. | ISS03764714     |
|               | QM001706357 | **Problem:** The tw_purge_slave_logs tool fails when run with the --oldest-days=NUM option.  
**Resolution:** Code fix. |                 |
|               | QM001706655 | **Problem:** DB Cache size setting in UI can be set too high.  
**Resolution:** Code fix. |                 |
<p>|               | QM001698828 | <strong>Problem:</strong> |                 |</p>
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<thead>
<tr>
<th>Defect Number</th>
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<th>Customer Case</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14756</td>
<td><strong>Problem:</strong> Patch name reported on Solaris systems where no patches are installed.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
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<tr>
<td>QM001709071</td>
<td>14796</td>
<td><strong>Problem:</strong> The weblogic JDBC resource is not found when the URL leads to an aliased database.</td>
<td>ISS03692485</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>QM001693910</td>
<td>14828</td>
<td><strong>Problem:</strong> CapabilityList for BMC_ComputerSystem and BMC_Mainframe is set to enum value rather than name.</td>
<td>ISS03835157, ISS03836568</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
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<tr>
<td>QM001720262</td>
<td>14836</td>
<td><strong>Problem:</strong> Discovery of HP-UX 11.31 Itanium systems does not populate RAM or Processor details.</td>
<td></td>
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<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
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<tr>
<td>QM001708299</td>
<td>14841</td>
<td><strong>Problem:</strong> The netadmin user should be the recommended way of configuring network settings.</td>
<td>ISS03806752</td>
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<td></td>
<td></td>
<td><strong>Resolution:</strong> Documentation fix.</td>
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<tr>
<td>QM001711796</td>
<td>14844</td>
<td><strong>Problem:</strong> Upgrade resets the time zone settings to BST.</td>
<td>ISS03781188</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code and documentation fix.</td>
<td></td>
</tr>
<tr>
<td>QM001680947</td>
<td>14917</td>
<td><strong>Problem:</strong> Export log file name, tw_cmdb-export.log is confusing, should be renamed tw_export.log.</td>
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<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
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<tr>
<td>QM001707385</td>
<td>14928</td>
<td><strong>Problem:</strong> Discovery stays logged in on target regardless of scan timeout value.</td>
<td>ISS03778681</td>
</tr>
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<td></td>
<td></td>
<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
</tr>
<tr>
<td>QM001705323</td>
<td>14929</td>
<td><strong>Problem:</strong> Synchronizing into a new custom CMDB attribute is not possible unless the tideway service is restarted.</td>
<td>ISS03767301</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Resolution:</strong> Code and documentation fix.</td>
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<tr>
<td>QM001664211</td>
<td>14941</td>
<td><strong>Problem:</strong> A baseline alert (MINOR: Export exporter configurations have been altered) is triggered after each export.</td>
<td></td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<tr>
<td>QM001711782</td>
<td>14946</td>
<td><strong>Problem:</strong> CMDB Sync mappings: Name needs valid value for BMC_IPEndpoint.</td>
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<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
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<tr>
<td>QM001690038</td>
<td>14949</td>
<td><strong>Problem:</strong> Mainframe discovery - Insufficient user access reported only in logs. Should be reported as script failures on Discovery Access page.</td>
<td></td>
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<tr>
<td></td>
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<td><strong>Resolution:</strong> Code fix.</td>
<td></td>
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<tr>
<td>QM001716540</td>
<td>14962</td>
<td><strong>Problem:</strong> Null Pointer Exceptions when using CMDB/API 7.6, but not when using CMDB/API 2.0 during CMDB Sync.</td>
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<td></td>
<td></td>
<td><strong>Resolution:</strong> Code and documentation fix.</td>
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<tr>
<td>QM001716869</td>
<td>14982</td>
<td><strong>Problem:</strong> Traceback when applying sensitive data filters.</td>
<td>ISS03820387</td>
</tr>
<tr>
<td></td>
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<td><strong>Resolution:</strong> Code fix.</td>
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<tr>
<td>Defect Number</td>
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</tr>
<tr>
<td>QM001706541</td>
<td>15006</td>
<td>Problem: How many threads should be specified when setting up the CMDB sync connection? Resolution: Documentation fix.</td>
<td></td>
</tr>
<tr>
<td>QM001699098</td>
<td>15007</td>
<td>Problem: Documentation does not provide enough details about the permission of the database credentials. Resolution: Documentation fix.</td>
<td></td>
</tr>
<tr>
<td>QM001719571</td>
<td>15030</td>
<td>Problem: AIX Host package_count differs from the count of packages. Resolution: Code fix.</td>
<td>ISS03830890</td>
</tr>
<tr>
<td>QM001703981</td>
<td>15042</td>
<td>Problem: Technical difficulties page on LDAP Configuration when an invalid CA Certificate is uploaded. Resolution: Code fix.</td>
<td>ISS03763880</td>
</tr>
<tr>
<td>QM001719109</td>
<td>15054</td>
<td>Problem: Excessive memory consumption when a very large list of IP addresses is entered for scanning. Resolution: Code fix.</td>
<td></td>
</tr>
<tr>
<td>QM001712384</td>
<td>15061</td>
<td>Problem: DDD removal option &quot;never&quot; should only be used under guidance from Customer Support. Resolution: Code fix.</td>
<td>ISS03773760</td>
</tr>
<tr>
<td>QM001714773</td>
<td>15062</td>
<td>Problem: The tw_supportability script should have timestamps. Resolution: Code fix.</td>
<td>ISS03812186</td>
</tr>
<tr>
<td>QM001718966</td>
<td>15064</td>
<td>Problem: An ssh timeout caused by &quot;PASSWORD&quot; instead of &quot;Password&quot;. Resolution: Code fix.</td>
<td>ISS03825411</td>
</tr>
<tr>
<td>QM001719228</td>
<td>15083</td>
<td>Problem: Typo in upgrade script. Resolution: Code fix.</td>
<td>ISS03826915</td>
</tr>
<tr>
<td>QM001719109</td>
<td>15100</td>
<td>Problem: Data store unnecessarily re-indexes unchanged attributes. Resolution: Code fix.</td>
<td></td>
</tr>
<tr>
<td>QM001721100</td>
<td>15131</td>
<td>Problem: Enhancement to add tw_option, DANGEROUS_HOST_ID_USING_ENDPOINT_HOSTNAME, so that hostname will be used as last resort to identify a host. Resolution: Code fix.</td>
<td></td>
</tr>
<tr>
<td>QM001719740</td>
<td></td>
<td></td>
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<tr>
<td>QM001659086</td>
<td>15184</td>
<td>Problem: Solaris processor speed conversion error, should set Speed to the higher when multiple speeds are found. Resolution: Code fix.</td>
<td>ISS03603147</td>
</tr>
</tbody>
</table>

Defects Resolved in BMC Atrium Discovery Version 8.2.03
<table>
<thead>
<tr>
<th>Defect Number</th>
<th>Details</th>
</tr>
</thead>
</table>
| 14608         | **Problem:** Discovery might fail on Solaris 10 when sudo requires password for PRIV_PS.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03749573 |
| 14679         | **Problem:** Changing the "Dark space suppression scheme" (in the Model Maintenance settings) from "Keep Most Recent" (the default) to "Remove All", causes the previously-discovered Dark Space DiscoveryAccess Nodes to not be removed from the model automatically.  
**Resolution:** Fixed in the code and in the documentation. A new utility, `hw_remove_darkspace`, has been provided to remove the previously-discovered Dark Space DiscoveryAccess nodes from the datastore.  
**Customer Case Number:** ISS03704879 |
| 14690         | **Problem:** Broadcom NIC cards are not detected on Windows environments during discovery.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03725542 |
| 14695         | **Problem:** Using an appliance as a general purpose operating system might cause problems with BMC Atrium Discovery.  
**Resolution:** Fixed in the code and in the user documentation. The Installing the Virtual Appliance page includes a warning regarding customizations made to the system.  
**Customer Case Number:** ISS03772783 |
| 14698         | **Problem:** The MIB dumper did not retrieve all community strings on Nortel devices because the vendor-specific code was not up to date with the Nortel discovery code. Therefore, the MIB dumps were not updated for the latest Nortel devices.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03732625 |
| 14721         | **Problem:** When running offline compaction, you cannot use the original database after performing the documented preparation steps.  
**Resolution:** Fixed in the code and in the user documentation. The `tw_ds_compact` page has been updated.  
**Customer Case Number:** ISS03700422 |
| 14722         | **Problem:** The `db_recover` command runs out of memory.  
**Resolution:** Fixed in the code. Settings were added to `DB_CONFIG` file so that `db_recover` does not run out of memory.  
**Customer Case Number:** ISS03777283 |
| 14725         | **Problem:** Mainframe EDM should support discovery from zOS agent versions 1.6.00 and later.  
**Resolution:** Fixed in the code. The mainframe EDM will support the discovery of agents from version 1.7.00 after its forthcoming release. However, the EDM will not gather the new dependency data provided by zOS agent version 1.7.00; it will use the version 1.6 data that the new release provides.  
**Customer Case Number:** ISS03770806 |
| 14774         | **Problem:** Processor sync mapping to CMDB (CMDB.Host_processor) does not support PowerPC 6 and 7.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03770806 |
| 14780         | **Problem:** `localToRemote` can result in inefficient searches and cause performance issues.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03762873 |
| 14811         | **Problem:** One datastore query (`findOrCreateNode`) is slow for certain datasets and can cause performance issues, particularly for large datastores.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03793019 |
Defects resolved in BMC Atrium Discovery version 8.2.02

<table>
<thead>
<tr>
<th>Defect Number</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>14338</td>
<td>Problem: OpenVMS discovery fails when loopback address is reported first. Resolution: Fixed in the code.</td>
</tr>
<tr>
<td>14186</td>
<td>Problem: Hourly memory usage statistics display an error message about loading data. Resolution: Fixed in the code.</td>
</tr>
<tr>
<td>14191</td>
<td>Problem: Weblogic 7-8 EDM logs are not getting created. Resolution: Fixed in the code. Customer Case Number: ISS03692485</td>
</tr>
<tr>
<td>14206</td>
<td>Problem: After editing the template_sql_asset_integration.tpl provided with BMC Atrium Discovery version 8.2, an error message displays when the user tries to activate the template. Resolution: Fixed in the code. Customer Case Number: ISS03705373</td>
</tr>
<tr>
<td>14246</td>
<td>Problem: BMC Atrium Discovery does not completely discover all IMS database information. Resolution: Fixed in the code. Customer Case Number: ISS03693787</td>
</tr>
<tr>
<td>14260</td>
<td>Problem: Windows process arguments are lost during discovery. Resolution: Fixed in the code. In unusual situations, the first argument to a process might not be displayed by BMC Atrium Discovery. This happens if a process is created with CreateProcess with the ApplicationName parameter specified, but without the module name used as the first argument passed in the CommandLine parameter.</td>
</tr>
<tr>
<td>14266</td>
<td>Problem: During recovery of consolidation information, if the run is cancelled and no actions are in progress, consolidation details are recorded but the consolidation never completes. Resolution: Fixed in the code.</td>
</tr>
<tr>
<td>14284</td>
<td>Problem: Upgrade scripts should check that there is available space in /var before the upgrade. Resolution: Fixed in the code. Customer Case Number: ISS03705361</td>
</tr>
<tr>
<td>14286</td>
<td>Problem: CMDB synchronization enters an infinite loop while attempting (and subsequently failing) to acquire a lock on a shared node. Resolution: Fixed in the code.</td>
</tr>
<tr>
<td>14295</td>
<td>Problem: Synchronization to BMC Atrium CMDB does not appear to repair destroyed relationships. Specifically, while the ComputerSystem CI is repaired, its relationships are not. Resolution: Fixed in the code.</td>
</tr>
<tr>
<td>14298</td>
<td>Problem: The HRD importer leaves behind old nodes. This can lead to various follow on issues, such as an inability to export data or create Host Profile reports. Resolution: Fixed in the code.</td>
</tr>
<tr>
<td>14316</td>
<td>Problem: The slave cannot run a command with spaces in its name and no arguments. Resolution: Fixed in the code.</td>
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</table>
## Defect Details

<table>
<thead>
<tr>
<th>Defect Number</th>
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</table>
| 14325         | **Problem:** When logging on to an appliance user interface with permissions to view reasoning status (but without system permissions), you cannot receive reasoning on-hold information.  
**Resolution:** Fixed in the code. |
| 14327         | **Problem:** Cancelled consolidation runs may not complete until all in-progress endpoint runs to completion.  
**Resolution:** Fixed in the code. |
| 14329         | **Problem:** To ensure discovery of IBMi/AS400, modifications are required to the IBMi firewall.  
**Resolution:** Fixed in the code. |
| 14331         | **Problem:** During discovery of mainframe computers, orphan MFPart and Sysplex nodes could be created.  
**Resolution:** Fixed in the code in the documentation. |
| 14334         | **Problem:** When building a BAI that contains SoftwareInstances from both distributed and Mainframe servers, the model in BMC Atrium CMDB is missing a dependency, and there is no visible connection between the mainframe components and the BAI.  
**Resolution:** Fixed in the code; a mapping tpl file has been created.  
**Customer Case Number:** ISS03722398 |
| 14346         | **Problem:** The documentation includes a link to Microsoft’s website that no longer resolves.  
**Resolution:** Fixed in the documentation.  
**Customer Case Number:** ISS03726173 |
| 14366         | **Problem:** The MarketVersion attribute must be mapped for version BMC Atrium CMDB 7.6.03 and later to support an improved Software License Management (SWLM) feature for managing licenses.  
**Resolution:** Fixed in the code; CDM mapping now includes the MarketVersion attribute that is populated for BMC_SoftwareServer, BMC_Product, BMC_OperatingSystem and BMC_Application classes. |
| 14369         | **Problem:** When you cancel a consolidation run, and that same run receives more data from the scanning appliance, the system may continue processing the run.  
**Resolution:** Fixed in the code; now, cancelling a consolidation also cancels the in-progress consolidation run and stops receiving data from the scanning appliance. |
| 14382         | **Problem:** If a BMC Atrium CMDB user sets the auditType attribute to any value, the BMC Atrium Discovery Mainframe extension overrides the change.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03700534 |
| 14396         | **Problem:** The mapping for the BMC_MFSoftwareServer class in BMC Atrium CMDB version 7.6.03 uses incorrect attribute names.  
**Resolution:** Fixed in the code. |
| 14407         | **Problem:** In Mainframe JVM Settings, increase the maximum memory limit to 1024MB.  
**Resolution:** Fixed in the code and the documentation. |
| 14409         | **Problem:** For a “Java heap space” error, the Mainframe DA page should explain to the user how to increase memory.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03712888 |
| 14412         | **Problem:** SNMP discovery can fail on Netware 5.70.05.  
**Resolution:** Fixed in the code.  
**Customer Case Number:** ISS03726115 |
| 14424         | **Problem:** A SQL level deadlock error displays when you update impact relationships between target hosts.  
**Resolution:** Fixed in the code. |
| 14425         | **Problem:** You cannot use the same variable as a parameter and return a value of user-defined functions.  
**Resolution:** Fixed in the code. |
<table>
<thead>
<tr>
<th>Defect Number</th>
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<tbody>
<tr>
<td>14435</td>
<td><strong>Problem:</strong> Both vendor and model are available in systeminfo output. They should be extracted to match WMI behavior. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14459, 14460</td>
<td><strong>Problem:</strong> Scanning Windows systems has poor performance and results in Discovery errors. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14462</td>
<td><strong>Problem:</strong> Using the processwith function communicating SIs in searches or TPL may fail. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14476</td>
<td><strong>Problem:</strong> A host with &quot;aix&quot; in the name causes AIX discovery scripts to be used for discovery. <strong>Resolution:</strong> Fixed in the code. <strong>Customer Case Number:</strong> ISS03745096</td>
</tr>
<tr>
<td>14478</td>
<td><strong>Problem:</strong> Running the Observed Communications report results in an error in the processwith function. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14485</td>
<td><strong>Problem:</strong> An upgrade can fail when the TKU has been applied using the Knowledge Update page. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14532</td>
<td><strong>Problem:</strong> Documentation is required regarding the implications for the BMC.ADM dataset when you use tw_model_init to reinitialize the datastore. <strong>Resolution:</strong> Fixed in the documentation.</td>
</tr>
<tr>
<td>14537</td>
<td><strong>Problem:</strong> Cascade Removal incorrectly removes SIs when its components are removed. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14556</td>
<td><strong>Problem:</strong> Files that accumulate in the /var/spool/clientmqueue directory prevent services from restarting if SEND_EMAIL is not enabled on the VA. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14579</td>
<td><strong>Problem:</strong> If multiple Mainframes are discovered from a particular DiscoveryAccess, then only one is inferred. Also, SYSPLEX relationships are not properly discovered when a sysplex is shared across mainframes. <strong>Resolution:</strong> Fixed in the code.</td>
</tr>
<tr>
<td>14595</td>
<td><strong>Problem:</strong> The documentation should explain the concept of root nodes and why new custom nodes are not automatically exported. <strong>Resolution:</strong> Fixed in the documentation.</td>
</tr>
</tbody>
</table>

**Defects resolved in BMC Atrium Discovery version 8.2.01**

<table>
<thead>
<tr>
<th>Defect No</th>
<th>Details</th>
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<tbody>
<tr>
<td>13911, 13912</td>
<td><strong>Problem:</strong> In the CMDB synchronization mapping, the version attribute of the BusinessApplicationInstance (BAI) nodes does not map to the VersionNumber attribute on the BMC_Application CI. <strong>Resolution:</strong> Code fix, this no longer occurs.</td>
</tr>
<tr>
<td>13682, 13909</td>
<td><strong>Problem:</strong> When you simultaneously scan more than one IP address for mainframe computers, one or more of the Discovery Accesses (DA) may fail with an end_state of NoAccess and reason &quot;Unknown&quot; error. <strong>Resolution:</strong> Code fix, this no longer occurs. <strong>Customer Case Number:</strong> ISS03733398</td>
</tr>
<tr>
<td>14107</td>
<td><strong>Problem:</strong></td>
</tr>
<tr>
<td>Defect No</td>
<td>Details</td>
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</tbody>
</table>
| **Problem:** When the z/OS Discovery Agent has upgrades or PTFs applied, any new views created are not seen until after a BMC Atrium Discovery service restart.  
**Resolution:** Code fix, this no longer occurs. |
| 14058     | **Problem:** Core dump during shutdown - Discovery.  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** 00021247, 00022334, 00022339 |
| 13992     | **Problem:** File system inference performs an inefficient search.  
**Resolution:** Code fix, this no longer occurs. |
| 12540     | **Problem:** Documentation need to refer to action menu  
**Resolution:** Documentation fix, erroneous references removed.  
**Customer Case Number:** 00022569 |
| 12545     | **Problem:** Mac OS CPU data missing Number of Processors information not catered for in discovery script.  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** 00022581 |
| 12762     | **Problem:** Disable default use of weak ciphers  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** ISS03539021 |
| 12692     | **Problem:** A leading space in the host field or username of a adapter prevents the adapter from working. You cannot test the adapter or use it to export data.  
**Resolution:** Code fix, this no longer occurs. |
| 13741     | **Problem:** Bad reporting of timeout of nmap.  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** ISS03590819 / QM001654697 |
| 13119     | **Problem:** Processor speed conversion error.  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** ISS03603147 |
| 13737     | **Problem:** Isol-i parsing is massively inefficient  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** ISS03615289 / QM001667255 |
| 13734     | **Problem:** XML API - export does not encode nonprintable characters as XML entities.  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** ISS03611510 / QM001660995 |
| 13926     | **Problem:** twInjectip --replace does not work.  
**Resolution:** Documentation fix giving examples of how to determine scan IDs.  
**Customer Case Number:** ISS03636264 / QM001667859 |
| 13697     | **Problem:** Solaris prtdiag parse failure results in wrong number of physical and logical processors  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** ISS03652666 |
| 13713     | **Problem:** Scan level description misleading.  
**Resolution:** Documentation and UI fix.  
**Customer Case Number:** ISS03660048 |
| 13703     | **Problem:** XSS vulnerability in "Edit Channels" page.  
**Resolution:** Code fix, this no longer occurs.  
**Customer Case Number:** ISS03662279 |
<table>
<thead>
<tr>
<th>Defect No</th>
<th>Details</th>
</tr>
</thead>
</table>
| 13704     | Problem: Security vulnerability in `returnURL` redirect parameter.  
Resolution: Code fix, this no longer occurs.  
Customer Case Number: ISS03662280 |
| 14013     | Problem: Add support for Cisco Catalyst 4510R-E.  
Resolution: Cisco Catalyst 4510R-E now identified.  
Customer Case Number: ISS03672076 / QM001678618 |
| 13981     | Problem: HBAs not detected on AIX, because of discovery parsing issue.  
Resolution: Code fix, this no longer occurs.  
Customer Case Number: ISS03672449 |
| 13854     | Problem: `getMFPart` method failure.  
Resolution: Code fix, this no longer occurs.  
Customer Case Number: ISS03676415 / QM001679896 |
| 13961     | Problem: OpenVMS show network parsing fails if no hostname.  
Resolution: Code fix, this no longer occurs.  
Customer Case Number: ISS03677985 |
| 14027     | Problem: Cisco Nexus Network switches show wrong serial number.  
Resolution: Code fix, this no longer occurs.  
Customer Case Number: ISS03680887 / QM001686251 |
| 14037     | Problem: RE job is causing duplicate records as Domain field is not populated  
Resolution: Code fix, this no longer occurs.  
Customer Case Number: ISS03683463 / QM0016885002 |
| 11611     | Problem: Bonded interfaces report nonsensical speed/duplex settings.  
Resolution: Code fix, this no longer occurs.  
Customer Case Number: QM001678691 |

**Defects resolved in BMC Atrium Discovery version 8.2**

<table>
<thead>
<tr>
<th>Defect No</th>
<th>Details</th>
</tr>
</thead>
</table>
| 13049     | Problem: BMC Atrium Discovery created BMC_Impact relationships to classes in the CMDB that were not SIM-enabled.  
When SIM encountered such relationships a `NullPointerException` was seen in SIM.  
Resolution: Code fix, this no longer occurs. |
| 13007     | Problem: Certain BMC_Dependency relationships in the CMDB are populated with the incorrect direction  
The following BMC_Dependency relationships were being populated with the Source and Destination classes the wrong way round:  
1. Name=HOSTEDVIRTUALSYSTEM  
2. Name=DEPLOYEDAPPLICATION  
3. Name=APPLICATIONSYSTEMPRODUCT  
4. Name=APPLICATIONSYSTEMHIERARCHY  
5. Name=MOUNTS  
6. Name=APPLICATIONSYSTEMCOMPUTER |

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**BMC Atrium Discovery 8.3**

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### Defects resolved in BMC Atrium Discovery version 8.1.1

<table>
<thead>
<tr>
<th>Defect No</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>12834</td>
<td><strong>Problem:</strong> Deleting a pattern package can slow down the system significantly for a long time after the deletion has apparently finished. <strong>Resolution:</strong> To make the user more aware of the issue, a warning message is displayed in the UI next to the delete control.</td>
</tr>
<tr>
<td>12812</td>
<td><strong>Problem:</strong> Custom taxonomy extensions that update the field order using BEFORE or AFTER were broken in 8.1.0. This can cause the upgrade to fail. <strong>Resolution:</strong> Code fix, these directives now work again.</td>
</tr>
<tr>
<td>12776</td>
<td><strong>Problem:</strong> prtDiag on Solaris can fail in such a way that the system does not correctly pick up the failure. <strong>Resolution:</strong> Code fix, this case is now handled.</td>
</tr>
<tr>
<td>12761</td>
<td></td>
</tr>
<tr>
<td>Defect No</td>
<td>Details</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| 11373     | **Problem:** In previous versions it was possible for NetworkInterface nodes to have non-unique keys. This is no longer the case. On upgrade, existing nodes are updated to have unique keys. Where an exporter is configured to use the NetworkInterface node key, export errors may occur due to the differing keys.  
**Resolution:** Existing mapping sets must be checked for use of the key field of the NetworkInterface node, and corrective action taken if required. The action will be dependent on how the export destination consumes the data; changes are not required on behalf of BMC Atrium Discovery. |
| 12183     | **Problem:** The default timeout for discovery credentials may be too short for discovery of ESX servers.  
**Resolution:** Code fix, this no longer occurs. |
| 12326     | **Problem:** The heading on a DiscoveryAccess page shows the discovery start time. However, the start time field shows the start time as the local time.  
**Resolution:** Code fix, this no longer occurs. |
| 12419     | **Problem:** The result set returned when searching for Location nodes using Parent Location -> Search was limited to 20 and unordered, making it difficult to use when there are many locations.  
**Resolution:** Code fix, this no longer occurs. |
| 12447     | **Problem:** Consolidated software instances do not age out of the model.  
**Resolution:** Code fix, this no longer occurs. |
| 12455     | **Problem:** Some reports erroneously use the deprecated "processor" attribute.  
**Resolution:** Code fix, this no longer occurs. |
| 12466     | **Problem:** Occasionally slave installations fail, or services fail to start, with "Side by Side" errors.  
**Resolution:** Code fix, this no longer occurs. |
| 12480     | **Problem:** The discovery script for Tru64 incorrectly used setld -l rather than setld -i.  
**Resolution:** Code fix, this no longer occurs. |
| 12482     | **Problem:** Packages on Tru64 with a blank value for "state" caused discovery errors.  
**Resolution:** Code fix, this no longer occurs. |
| 12492     | **Problem:** The CSV export of large data sets through the UI is unreliable.  
**Resolution:** Code fix, this no longer occurs. |
| 12497     | **Problem:** When you edit a scan with multiple IP addresses the report show erroneous information.  
**Resolution:** Code fix, this no longer occurs. |
| 12541     | **Problem:** When editing an existing scheduled weekly or monthly run, the day button is not highlighted. The highlighting can be restored by changing the frequency setting to something different, then back to the original value.  
**Resolution:** Code fix, this no longer occurs. |
| 12580     | **Problem:** If we fail to retrieve a serial number from a Windows machine, a critical error/traceback is produced.  
**Resolution:** Code fix, this no longer occurs. |
<table>
<thead>
<tr>
<th>Defect No</th>
<th>Details</th>
</tr>
</thead>
</table>
| 12598     | **Problem:** It was not previously possible to detect whether an ssh key or a password were used to establish a session.  
**Resolution:** Fixed by adding an attribute to the DeviceInfo node called `authentication_method` that is set to either "password" or "key" when we log in. For non-login access (e.g. slave or SNMP) this is not set. |
| 12603     | **Problem:** The Datastore Softlimit link on the Appliance Baseline page linked to the Miscellaneous Settings page. This should have linked to the model maintenance page.  
**Resolution:** Code fix, this no longer occurs. |
| 12682     | **Problem:** The Authorised Prompt did not work on telnet.  
**Resolution:** Code fix, this no longer occurs. |
Known defects in this version

The table below describes the defects in this version of BMC Atrium Discovery. It is ordered to show the most recent defects first.

<table>
<thead>
<tr>
<th>ID</th>
<th>Details</th>
<th>Customer Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDM</td>
<td><strong>Problem:</strong> Automatic grouping is run whenever a Discovery run completes. Where multiple runs complete close together, the automatic grouping process for the runs may overlap, possibly leading to performance problems. <strong>Workaround:</strong> If possible, combine multiple small discovery runs into fewer large runs. Alternatively, you may choose to disable the automatic grouping feature.</td>
<td></td>
</tr>
<tr>
<td>14904</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15667</td>
<td><strong>Problem:</strong> In some situations a Windows host may take many hours to discover. Where this occurs, view the corresponding DiscoveryAccess and select the Discovery Method Timings report from the Reports drop-down. You may see a series of Discovery Method Duration entries lasting 29 to 30 minutes and then some shorter ones of up to a few seconds in duration. Where this occurs, the worker process may have been discarded and a new one created. Consequently, a large number of defunct worker processes are visible in the Windows Task Manager. For each of these processes (when at DEBUG log level) the last entry in the log file is of the form: 2692: 2012-02-01 18:25:25,740: discovery.slave.worker.remquery.connection: DEBUG: Failed to find ADDM Remote Query on 192.168.1.53: (1060, 'OpenService', 'The specified service does not exist as an installed service.'). You will also see entries in the manager process log file of the form: <em>Exception checking worker alive: CORBA.TRANSIENT(omniORB.TRANSIENT_CallTimedout, CORBA.COMPLETED_MAYBE) 1784: 2012-01-30 21:49:26,351: discovery.slave.manager.workers: INFO: Dropping worker IOR:010000002f</em> <strong>Workaround:</strong> Rescan the host. If the number of defunct processes becomes excessive, you must reboot the host to remove them.</td>
<td></td>
</tr>
<tr>
<td>15490</td>
<td><strong>Problem:</strong> If you try and extract (running the upgrade script with the --upgrade option) the contents of the upgrade package on a host that does not have BMC Atrium Discovery installed, the script returns errors. <strong>Workaround:</strong> None.</td>
<td></td>
</tr>
<tr>
<td>15466</td>
<td><strong>Problem:</strong> When a CMDB sync connection is configured with a user with minimal permissions, you may not be able to connect if the user has open connections from other locations. <strong>Workaround:</strong> Use a user with at least the CMDB Demo user permissions.</td>
<td></td>
</tr>
<tr>
<td>15421</td>
<td><strong>Problem:</strong> The name server retries option that can be set the Administration &gt; Appliance Configuration &gt; Name Resolution page has no effect. It will always attempt 3 retries. <strong>Workaround:</strong> None.</td>
<td></td>
</tr>
<tr>
<td>15254</td>
<td><strong>Problem:</strong> In the Collaborative Application Mapping (CAM) user interface, using a named value that has a list in the results results in a traceback. <strong>Workaround:</strong> None.</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>Details</td>
<td>Customer Case</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>15247</td>
<td>Problem: The query builder &quot;show all/show fewer&quot; links are not always visible in Internet Explorer 6. Note that support for Internet Explorer 6 is deprecated from BMC Atrium Discovery 8.3 SP2 onwards. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>15231</td>
<td>Problem: The wiki markup in the CAM text editor does not render correctly in the PDFs. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>Problem: You cannot discover a vCenter or vSphere host if the credential contains commas. Workaround: None. This is fixed in BMC Atrium Discovery 9.0.</td>
<td>QM001767418</td>
</tr>
<tr>
<td>74110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15213</td>
<td>Problem: The query builder does not show any attributes if nodekind instances are not present in the datastore. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>15208</td>
<td>Problem: AD Proxy shows the confusing log reference of &lt;no username&gt; in logs. Workaround: None.</td>
<td>QM001720259</td>
</tr>
<tr>
<td>15207</td>
<td>Problem: TRANSIENT_CallTimedOut errors occur when SNMP discovery attempts to scan some very complex network devices. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>15169</td>
<td>Problem: Attempting to discover a host server running version 2.5 of the optional MainView for WebSphere Application Server product results in the script failure &quot;message View 49Z not available&quot;, and no WebSphere Discovered Application Components are created, preventing extended discovery. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>15158</td>
<td>Problem: Instrument the scanning appliance to capture unexpected exceptions while sending data to the consolidator. Workaround: None.</td>
<td>QM001718958</td>
</tr>
<tr>
<td>15106</td>
<td>Problem: When the IP list for a host changed dramatically, on the consolidator no Endpoint Identity was created. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>15077</td>
<td>Problem: The user interface displays a &quot;The appliance is having technical difficulties with this page&quot; error if you add a login credential that includes a control character ASCII 0-31. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>15003</td>
<td>Problem: Processor sync mapping to CMDB (CMDB.Host_processor) does not support PowerPC 6 and 7 for BMC_Processor.ProcessorFamily. Workaround: None.</td>
<td>ISS03780851</td>
</tr>
<tr>
<td>14968</td>
<td>Problem: In the query builder, a condition that matches a string containing a tab character results in messages such as Unknown string qualifier at 'u' on line 1. The same is true for defining functional components. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>14681</td>
<td>Problem: Cannot move proxy pools with spaces in their names using actions menu. Workaround: None.</td>
<td></td>
</tr>
<tr>
<td>14570</td>
<td>Problem: Person nodes do not have a key. As a result you get incorrect results updating Person in TPL. Workaround: Specify an explicit key in your pattern.</td>
<td>ISS03643235</td>
</tr>
<tr>
<td>14555</td>
<td>Problem: &quot;ksh[n]: tw_report: not found&quot; appended to the output of many Discovered results for Solaris 10. Workaround: Set force subshell = True for that login credential.</td>
<td>ISS03729494</td>
</tr>
<tr>
<td>ID</td>
<td>Details</td>
<td>Customer Case</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
</tbody>
</table>
| 14377   | Problem: Sometimes, an error message "page cannot be displayed" is displayed in the UI when trying to restore a snapshot.  
**Workaround:** Retry the operation.                                                                                                          | ISS03678094   |
| 14376   | Problem: When taking a snapshot, a popup error message may be displayed: "The feature is locked by your session at ..."  
**Workaround:** Retry the operation.                                                                                                         | ISS03678094   |
| 14365   | **Problem:** Discovery Starttime shown on consolidation server shows UTC time when discovery and consolidation servers are localized.  
**Workaround:** None.                                                                                                                     | ISS03708973   |
| 14245   | **Problem:** CMDB sync error on service start after `tw_model_init`.  
**Workaround:** Restart the services.                                                                                                     | ISS03704879   |
| 14227   | **Problem:** When millions of DAs nodes are generated from darkspaces scan, the VA can become so slow you cannot login.  
**Workaround:** Run the `tw_remove_darkspace` script.                                                                                   | ISS03704879   |
| 13963   | **Problem:** TCPvcon cannot be pushed to Windows 2000 hosts.  
**Workaround:** Deploy the utility manually.                                                                                               |               |
| 13881   | **Problem:** When saving queries in the Reports Builder, if you specify a name that already exists, the save button is disabled, though no reason for this is shown in the user interface.  
**Workaround:** None.                                                                                                                     |               |
| 13801   | **Problem:** Cannot generate a bar graph for a scan whose name contains an apostrophe.  
**Workaround:** None.                                                                                                                     | ISS03668576   |
| 13583   | **Problem:** On the Discovery Home page the Recent Runs tab does not show any discovery runs resulting from topology runs. These discovery runs are however shown in the Discovery Status panel on the Home page. BMC Atrium Discovery version 8.3 introduces Edge Connectivity discovery as a replacement for the network topology feature that was introduced in BMC Atrium Discovery 8.2. Note that Network topology discovery has been removed in BMC Atrium Discovery version 8.3 and replaced with **Edge connectivity** discovery.  
**Workaround:** None.                                                                                                                     |               |
| 12700   | **Problem:** The `PROCESSWITH` ordering in the search and reporting service is unreliable.  
**Workaround:** None.                                                                                                                     |               |
| 12647   | **Problem:** Consolidation stopped.  
**Workaround:** None.                                                                                                                             | 22943         |
| 12590   | **Problem:** Upgrades from BMC Atrium Discovery 7.3 to 7.3.1 produce errors about discovery running.  
**Workaround:** None.                                                                                                                     | 22622         |
| 12458   | **Problem:** Wrong RAM reported by WMI against Windows 2008 Server VMs on Hyper-V.  
**Workaround:** None.                                                                                                                     | ISS03812417   |
| 12445   | **Problem:** Upgrade highlights changes to Windows discovery scripts when the content is unchanged.  
**Workaround:** None.                                                                                                                     | 22254         |
| 12405   | **Problem:** Errors appear in ECA logs "Errors not related to a node".  
**Workaround:** None.                                                                                                                     | ISS03752142   |
| 12403   | **Problem:** Log rolling failure in Windows Proxy results in traceback.  
**Workaround:** None.                                                                                                                     | 21992         |
<table>
<thead>
<tr>
<th>ID</th>
<th>Details</th>
<th>Customer Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>12385</td>
<td>* <strong>Problem:</strong> The datastore can crash when compacting the datastore using the new online compaction tool. <strong>Workaround:</strong> Although the crash does not corrupt data and the online compaction can be re-run and it will continue where it left off, it is recommended that you continue to use the offline compaction utility.</td>
<td></td>
</tr>
<tr>
<td>12330</td>
<td>* <strong>Problem:</strong> When you have edited the graph-definition.txt file, you must restart the Tideway services to apply the changes. <strong>Workaround:</strong> None.</td>
<td></td>
</tr>
<tr>
<td>12297</td>
<td>* <strong>Problem:</strong> If the &quot;Only show working set in visualizations&quot; menu option is used while viewing a visualization, the visualization does not always redraw correctly to honor the new option state. <strong>Workaround:</strong> Manually refresh the browser page.</td>
<td></td>
</tr>
<tr>
<td>12296</td>
<td>* <strong>Problem:</strong> Hiding nodes in a visualization such that no nodes remain in the visualization can cause Internet Explorer 6 to crash with the message &quot;R6025 - pure virtual function call&quot;. Note that support for Internet Explorer 6 is deprecated in BMC Atrium Discovery 8.3 SP2. <strong>Workaround:</strong> Do not hide all nodes in a visualization.</td>
<td></td>
</tr>
<tr>
<td>12153</td>
<td><strong>Problem:</strong> TRANSIENT_CallTimedout should be modified slightly for user display. <strong>Workaround:</strong> None.</td>
<td>21758</td>
</tr>
<tr>
<td>12025</td>
<td><strong>Problem:</strong> Discovery runs older than the ten most recent are not displayed well. <strong>Workaround:</strong> None.</td>
<td>ISS03625937</td>
</tr>
<tr>
<td>11488</td>
<td><strong>Problem:</strong> Discovery of a service processor results in creation of a host node. <strong>Workaround:</strong> None.</td>
<td>16159</td>
</tr>
<tr>
<td>10738</td>
<td><strong>Problem:</strong> Search cannot match non-UK characters, for example an umlaut å. <strong>Workaround:</strong> None.</td>
<td>13640</td>
</tr>
<tr>
<td>10737</td>
<td><strong>Problem:</strong> TPL activation doesn't handle special characters well, for example a back tick. <strong>Workaround:</strong> None.</td>
<td>13639</td>
</tr>
<tr>
<td>10521</td>
<td><strong>Problem:</strong> When connecting to BMC Atrium Discovery via HTTPS using an alias hostname, you are prompted for verification. <strong>Workaround:</strong> None.</td>
<td></td>
</tr>
<tr>
<td>10277</td>
<td><strong>Problem:</strong> History comparison is unusable with more than a small number of entries. <strong>Workaround:</strong> None.</td>
<td>8444</td>
</tr>
<tr>
<td>9317</td>
<td><strong>Problem:</strong> Plain HTML shown after snapshot creation timeout. <strong>Workaround:</strong> None.</td>
<td>ISS03690829</td>
</tr>
</tbody>
</table>
| 9179  | * **Problem:** When doing an snmpGet in a pattern, it is possible that some SNMP agents for certain OIDs will return data for a different OID than the one requested. Because the OID for the data retrieved doesn't match the OID that the request was for, the corresponding attribute will not be set. **Workaround:** The mapping can be set to include the requested OID and the OID that will actually be returned. For example:  

```
| table oid_map 1.0
| "1.3.6.1.4.1.11.2.7.1.75.8.10.10.1.1" -> "wont_get_this";
| "1.3.6.1.4.1.11.2.7.1.0" -> "pingtime";
| end table;
```
<p>| | |
|               |               |
| 7848           |               |</p>
<table>
<thead>
<tr>
<th>ID</th>
<th>Details</th>
<th>Customer Case</th>
</tr>
</thead>
</table>
|     | **Problem:** On Windows hosts there is overlap between what is returned as packages and what is returned as patches. The WMI getPackageList code retrieves everything that is uninstallable which will include all the patches. The pstools version does the same, but filters out hot fixes.  
  • The data returned by getPackageList will be different depending on the access method used.  
  • Duplicate Patch and Package nodes will be created, with potential impact on performance and disk usage.  
  • Queries for patch/package information will have to be more complex or may return duplicate results.  
  **Workaround:** None.                                                                                                                                 |               |
| 353 | **Problem:** An Appscan Auto test revealed several XSS vulnerabilities in the RelationshipSearch and RelationshipMultisearch widgets.  
  **Workaround:** None, though these have now been identified as false positives.                                                                 |               |
| 3151, 4456. | **Problem:** When discovering Windows NT hosts with a Credential Windows proxy platform minimum specification, this Discovery fails although a valid credential is defined. The credential should be localhost\username.  
  **Workaround:** Ensure that the credentials for these hosts are entered as localhost\username. This is not required for Credential Slaves released with BMC Atrium Discovery 8.2 and later as the Credential Slave adds "localhost" to any unqualified username.  
  In these examples, replace user name with the correct user name for Discovery.  
  **Customer Case Number:** C5293.                                                                                                                                 |               |
| 16726 | **Problem:** When you attempt to view the details of a group node from the BMC Atrium Discovery UI, the details might not be displayed and the KeyError: "No such key '__pdf_detail_level'" error message might be reported.  
  The issue occurs because the following attribute is not available in the pattern for the corresponding group node:  
  ```python  
  __pdf_detail_level : int ['PDF Detail Level']  
  ```  
  where, 'PDF Detail Level' is the level of detail to be used in a PDF report for the corresponding group.  
  **Workaround:** In the pattern for the corresponding group node, you must add the following attribute:  
  ```python  
  __pdf_detail_level : int ['PDF Detail Level']  
  ```  
  This workaround is applicable to customized patterns as well as to patterns generated through Collaborative Application Mapping (CAM). For BMC Atrium Discovery versions 9.0 and later, this issue has been fixed in the code and no longer occurs. | QM001764951   |
Installing BMC Atrium Discovery

BMC Atrium Discovery is supplied as a virtual appliance and a kickstart DVD image. To install a virtual appliance, see Installing the Virtual Appliance.

Installing from the kickstart DVD

To install BMC Atrium Discovery from a kickstart DVD, first download the kickstart DVD image from the BMC Electronic Product Distribution (EPD) site. The image is large, so when writing the image to a physical DVD, ensure that you use a dual layer DVD and burner.

The kickstart DVD can be used to install BMC Atrium Discovery on certain customer supplied hardware. See prerequisites.

- **No additional software is supported on the appliance**

  BMC Atrium Discovery is built as an appliance that is not intended to have any additional software installed on it. The only exception to this is BMC PATROL. BMC Customer Support cannot provide support for any appliances on which additional software is installed.

- **No OS customizations are supported on the appliance**

  The BMC Atrium Discovery software is delivered as an appliance model (either virtual or physical), and includes the entire software stack from a Linux operating system to the BMC application software. The operating system must not be treated for general purpose use, but rather as a tightly integrated part of the BMC Atrium Discovery solution. As such, customizations to the operating system should only be made at the command line level if explicitly described in this online documentation, or explicitly instructed by BMC Customer Support. Any other changes will render the appliance unsupported. If you are unclear as to the impact of a potential customization, please contact BMC Customer Support for guidance.

- **Unsupported options**

  As part of the operating system installation you are presented with options that are not supported as part of BMC Atrium Discovery. For example:
  
  - Encrypt disks option in the partitioning screens
  - Advanced Storage options.
IPv6
These are not supported.

Prerequisites
Before installing BMC Atrium Discovery from the kickstart DVD, you should ensure that you satisfy the following prerequisites:

- You must be an experienced Linux system administrator
- You must be installing on one of the following platforms:
  - Dell PowerEdge R710
  - HP ProLiant DL380 G6
  - Other x86-64 based hardware that is supported by Red Hat Enterprise Linux 5.4 (64-bit only). Your hardware must equal or exceed the specification of the HP ProLiant DL380 G6 hardware previously shipped as a hardware appliance.

A facility for installation on a 32 bit machine is not available.

Supported physical platform minimum specification
The physical platform onto which you install BMC Atrium Discovery must be supported by 64-bit Red Hat Enterprise Linux version 5.4. It must also have the following types of components, their equivalents, or better. These are the components used in the Dell PowerEdge R710 system.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>2 x Intel Xeon E5620 Processor (2.40GHz, 4C, 12M Cache, 5.86 GT/s QPI, 80W TDP, Turbo, HT), DDR3-1066MHz</td>
</tr>
<tr>
<td>RAM</td>
<td>Dell 24GB Memory for 2CPU (6x4GB Dual Rank LV RDIMMs) 1333MHz</td>
</tr>
</tbody>
</table>

Links to the relevant support sites are provided below:

- Dell PowerEdge R710
- HP ProLiant DL380 G6
- VMware virtual machine

Appliance sizing guidelines
There are many factors to be taken into consideration when specifying the configuration of the appliance. Every environment is different and consequently the data published here is purely a guide as to how to configure your appliance.

The following guidelines are based on typical deployments in the field, and are intended to serve only as recommended configurations for your environment.
This section defines four "classes" of appliance deployment that broadly follow how BMC Atrium Discovery is deployed in the field. They are differentiated by how many Operating System Instances (OSIs) that are being scanned by BMC Atrium Discovery. The names given to these classes are of use only in this document and do not relate to the various editions that BMC Atrium Discovery is available in.

The classes are:

- **Proof of Concept**. Small, time-limited test deployments of BMC Atrium Discovery, scanning up to 150 OSIs.
- **Baseline**. A typical baseline as offered by BMC. Scanning up to 500 OSIs.
- **Datacentre**. A typical large scale deployment. Scanning up to 5000 OSIs.
- **Consolidated Enterprise**. Enterprise scale deployments, typically a Consolidation Appliance taking feeds from many Scanning Appliances. Typically scanning or consolidating up to 20000 OSIs, though at these levels, a weekly scanning or focused scanning strategy may need to be adopted.

### Proof of Concept

The Proof of Concept class has minimal storage allowance as they are only intended for a limited period of scanning such as a week long trial. For longer periods or a continuously used development or UAT system, the Baseline class is the minimum recommended.

### Memory and swap considerations

The recommended figures for memory provide a good level of performance in typical scenarios. The upper level should not be considered a limit, BMC Atrium Discovery will make use of available memory. You can determine whether additional memory is needed in your appliance by monitoring swap usage.

The recommended figures for swap can be exceeded, there is no harm in doing so. It may prove simpler to configure the higher quantity of swap than to extend an existing swap partition as this will allow the RAM demand to be derived as above. Note that all virtual appliances are initially configured with 8 GB swap.

A 32 bit appliance cannot be used in any deployments requiring more than 4GB RAM. In practice this means that any deployment beyond a proof of concept must use a 64 bit appliance. The memory limit for a 32 bit appliance can be lower than 4GB depending on your environment.
Memory and swap usage depends on the nature of the discovery being performed, with Mainframe and VMware (vCenter/vSphere) devices requiring more than basic UNIX and Windows devices.

**Impact of Appliance Snapshot**

The BMC Atrium Discovery Appliance Snapshot feature allows you to take a snapshot of the datastore and critical configuration files to facilitate moving the data between appliances.

The process by which the data is packaged means that a considerable overhead of empty disk space is needed to complete the task.

Therefore, when providing guidelines for how much disk space to give your Virtual Appliance for the database, you must first decide whether you intend to perform Appliance Snapshots. If so, then you will need to provision considerably larger disks.

Where the following tables refer to CPUs, full use of a logical CPU (core) is assumed. For example, if eight CPUs are required, then you may provide them in the following ways:

- Eight virtual CPUs in your virtualization platform, such as VMware Infrastructure.
- Four dual core physical CPUs.
- Two quad core physical CPUs.

### Appliance sizing guidelines

<table>
<thead>
<tr>
<th>Resource</th>
<th>POC</th>
<th>Baseline</th>
<th>Datacentre</th>
<th>Consolidated Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPUs</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4 to 8</td>
</tr>
<tr>
<td>RAM (GB)</td>
<td>2 to 4</td>
<td>4 to 8</td>
<td>8 to 16</td>
<td>16 to 32</td>
</tr>
<tr>
<td>Swap Space (GB)</td>
<td>2 to 4</td>
<td>4 to 8</td>
<td>8 to 16</td>
<td>16 to 32</td>
</tr>
<tr>
<td>DB Disk (GB)</td>
<td>37</td>
<td>100</td>
<td>200</td>
<td>200 to 660</td>
</tr>
<tr>
<td></td>
<td>With snapshot</td>
<td>37</td>
<td>200</td>
<td>500</td>
</tr>
</tbody>
</table>

**Memory requirements for POC class**

While 2GB RAM is sufficient for normal operation, but is insufficient to activate a new TKU. Attempting to activate a TKU with 2GB of RAM may take a few hours. You can increase the memory for activation and then reduce it for normal operation if required.
1. **VMware maximums**

The following are the maximum supported limits for the main deployment platforms.

- VMWare Server v2 - 2 CPUs & 8GB RAM
- VMWare Infrastructure 3.0.2 - 4 CPUs & 16GB RAM
- VMWare Infrastructure 3.5 - 4 CPUs & 65GB RAM
- VMWare Infrastructure 4 - 8 CPUs & 255GB RAM

Note that ESX version 4 can support up to 8 vCPUs, earlier versions have a maximum of 4.

2. **Supported physical platform minimum specification**

The physical platform onto which you install BMC Atrium Discovery must be supported by 64-bit Red Hat Enterprise Linux version 5.4. It must also have the following types of components, their equivalents, or better. These are the components used in the Dell PowerEdge R710 system.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>2 x Intel Xeon E5620 Processor (2.40GHz, 4C, 12M Cache, 5.86 GT/s QPI, 80W TDP, Turbo, HT), DDR3-1066MHz</td>
</tr>
<tr>
<td>RAM</td>
<td>Dell 24GB Memory for 2CPU (6x4GB Dual Rank LV RDIMMs) 1333MHz</td>
</tr>
</tbody>
</table>

For the installation on HP Proliant DL380 G6 systems, the disks must be presented to the OS as two logical disks. For installation on other systems, it is recommended for performance, that you use two logical disks. For single disk installations your sizing calculations should be based on the size of the database (see the table above) plus the size of the OS disk (146 GB).

3. **Installing BMC Atrium Discovery**

- **Partitioning destroys all data on disks**

  Installing BMC Atrium Discovery involves partitioning your disks. Partitioning disks destroys any data on those disks. You should understand partitioning before installing BMC Atrium Discovery.

To install BMC Atrium Discovery from a kickstart DVD:

1. Boot your host using the kickstart DVD. See the documentation supplied with the hardware platform for information on this.
   
   You are presented with a splash screen which enables you to select installer options. Press F2 to see the supported options. These are:
1. **dellr710** to install on a Dell PowerEdge R710 system configured as specified in Dell PowerEdge R710. This option performs an installation that completely overwrites any data on the system.

2. **hpdl380g6** to install on an HP Proliant DL380 G6 system configured as specified in HP Proliant DL380 G6 specification. This option performs an installation that completely overwrites any data on the system.

3. **custom** to customize the installation. This option enables you to set disk partitioning, and network configuration.

### Unsupported boot options

At this stage you may specify boot options if, for example, you want to customize the install. However, this is not supported. See the Red Hat Enterprise Linux documentation for information on boot options.

2. Enter one of the supported options at the `boot:` prompt and press enter. The Red Hat Enterprise Linux installer starts and you are prompted for partitioning information. If the disks have never been partitioned, a partitioning table cannot be read prompt is displayed. Click Yes to proceed.

   - If you use the **dellr710** or the **hpdl380g6** option to install on a Dell PowerEdge R710 system, or HP Proliant DL380 G6 system respectively, most of the installation is automated, though you do have to configure networking.

   - When the Networking screen is displayed, enter the required networking information and click next. The partitioning and installation of the operating system begins. This may take some time. When the installation has completed, remove the DVD and click the Reboot button. The BMC Atrium Discovery banner displays networking information.

   - If you use the **custom** option, continue with this procedure.

3. Select the **Remove all partitions on selected drives and create default layout option from the partitioning scheme selection drop-down list.**

4. Do not select the **Encrypt system option.**

5. Select the **Review and modify partitioning layout option.**

### Partitioning destroys all data on disks.

6. Click next. The Review Partitioning screen is displayed.

7. Delete `VolGroup00` or create the partitions in this volume using the sizes described in the table below as a guide.

8. If you have deleted `VolGroup00`, delete all remaining partitions on all disks and enter the following partition information for the first disk:
8. Where you have a large amount of RAM (16 GB or more) the amount of swap that you allocate should be the same as the amount of RAM.

<table>
<thead>
<tr>
<th>Mountpoint</th>
<th>Type</th>
<th>Size (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>swap</td>
<td></td>
<td>16384</td>
</tr>
</tbody>
</table>

9. Enter the following partition information for the second disk or volume (if used):

<table>
<thead>
<tr>
<th>Mountpoint</th>
<th>Type</th>
<th>Size (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>/mnt/disk2</td>
<td>ext3</td>
<td>1 (Fill to maximum allowable space.)</td>
</tr>
</tbody>
</table>

10. Click next. The Networking screen is displayed.

11. Enter the required networking information.

12. Click next. The partitioning and installation of the operating system begins. This may take some time. When the installation has completed, remove the DVD and click the Reboot button.

   When the system reboots, the default Linux login prompt displays.

   Log in as the root user with the tidewayroot password.

On a system running 8.3 SP2 or later, do the following:

1. Enter the following command:

   /usr/tideway/bin/tw_custom_dvd_config

   This creates the database location and confirms that post-kickstart configuration has been completed.

   You are prompted for the top-level location of the database (DATASTORE_ROOT). The default is /usr/tideway on a single disk installation.

2. For a twin disk installation, enter the mount point of your second disk. If the location does not exist, it is created with the correct permissions.

   - If the location exists and contains files or directories the script displays a warning and requests confirmation whether to continue or not.
   - If the location exists and is not writeable by the tideway user the script requests confirmation whether to change permissions or not.

3. You are asked whether networking has been configured. Confirm that it has.

4. Now you must reboot your system. Enter the following command:

   /sbin/reboot

   The tideway services may take a while to start while the patterns are being uploaded.
On a system running any version before 8.3 SP2, do the following:

1. For a twin disk installation, change the owner of the mountpoint for the second disk or volume to be the tideway user. For example, if the mountpoint is /mnt/disk2 enter this command:
   chown tideway:tideway /mnt/disk2

2. Enter the following command:
   su - tideway -c /usr/tideway/bin/tw_custom_dvd_config
   This creates the database.

3. You are prompted for the location. The default is /usr/tideway on a single disk installation. For a twin disk installation, enter the mountpoint of your second disk. You are asked for confirmation.

4. You are asked whether networking has been configured. Confirm that it has.

5. Now you must reboot your system. Enter the following command:
   /sbin/reboot
   The tideway services may take a while to start while the patterns are being uploaded.
Upgrading to version 8.3

The upgrade script upgrades the appliance to BMC Atrium Discovery version 8.3 from the following supported versions:

- 8.2
- 8.2.01
- 8.2.02
- 8.2.03

There is no upgrade path from BMC Atrium Discovery version 7.5 to version 8.3. Rather, you need to migrate your data to a new installation of BMC Atrium Discovery version 8.3.

⚠️ Note

If you are upgrading from an earlier 7.X or 8.X version you will first need to upgrade to one of the versions listed above.

What you need to proceed with this upgrade

1. You must be logged in as the root user with the root user environment.
2. The tideway services must be running when you run the upgrade.
3. The credentials of a UI user with sufficient permissions to re-import the taxonomy and compile patterns.
4. The upgrade script. Download the one appropriate to your architecture from the BMC Electronic Product Distribution (EPD) site. This is one of:
   - 32 bit: ADDM_Upgrade_32_Vn_nnnnnn_ga.sh.gz
   - 64 bit: ADDM_Upgrade_64_Vn_nnnnnn_ga.sh.gz
   Where <arch> with 32 or 64, and Vn_nnnnnn_ga is the version number. For example, ADDM_Upgrade_64_8.3_249314_ga.sh.gz.

Warnings

⚠️ Required appliance specification increased

The required appliance specification has been increased to support the greater discovery capabilities of BMC Atrium Discovery version 8.3. Before upgrading you must ensure that the appliance you are upgrading meets the specification. See the appliance sizing guidelines for more information.
### Changes to OS Configuration Files

If you have made changes to operating system configuration files on the appliance, these changes may be overwritten by the upgrade process. After the upgrade has completed, you must check any configuration files you have previously modified and reapply the changes as required.

### Database upgrade

This upgrade performs an upgrade of the BMC Atrium Discovery database. It is highly recommended that you do not skip running a snapshot. Where a snapshot is created, it can only be restored to an appliance running the pre-upgrade version.

### Upgrade considerations

When you run the upgrade, the timezone you have specified will be overwritten and returned to Europe/London unless you have updated the variable `ZONE` in `/etc/sysconfig/clock`. See [Localizing the appliance](#) for information on how to do this.

You may have a number of appliances, for example one or more appliances consolidating to a central consolidated appliance. When a system uses consolidation, the recommended approach is to stop discovery on scanning appliances, ensure that all consolidation operations are complete, and then upgrade all appliances before restarting discovery on the scanning appliances.

Consolidating appliances must always be upgraded first. An 8.3 consolidating appliance can accept data from an 8.2 scanning appliance. An 8.2 consolidating appliance cannot accept data from an 8.3 scanning appliance.

Where an upgrade makes changes to syncmapping files (see [Default CDM Mapping](#) and [Syncmapping block](#)), the initial CMDB syncs after upgrade may cause longer reconciliation times. Examples of such changes are key changes or attribute changes on a CMDB CI.

To allow you to better scale your Windows discovery capabilities, Windows Proxy Pools have been added. These allow you to group sets of Windows proxies together, across which the system will distribute discovery requests in order to load balance.

While the pools themselves can be ordered, the proxies in them cannot. Consequently it is not possible to preserve the ordering that has been configured in pre-version 8.3 systems. If you need to preserve certain aspects of the ordering of your existing proxies, you should make a note of what you want to preserve before starting the upgrade.

The following ordering and distribution of proxies occurs automatically during the upgrade.
1. All Workgroup proxies are put into their own pool.
2. AD proxies are grouped by domain and IP restriction list. AD proxies with the same domain and restriction lists are placed in the same pool.
3. Credential proxies are grouped by IP restriction list.

If a VMware ESX/ESXi host is discovered using ssh in the pre-upgrade version of BMC Atrium Discovery, its identity may change post upgrade. The discovery scripts now obtain more information which changes the os_class/os_type from UNIX/ESX Linux to Other/VMware ESX, and because the host's UUID and architecture is now discovered. However, the last_access_method remains ssh, so the new VMware ESX/ESXi discovery capabilities are not used. You can workaround this by following the following procedure:

1. Configure the new VMware ESX/ESXi discovery.
2. Cause the ssh discovery to fail and discover using the VMware ESX/ESXi discovery by:
   a. Changing the username of the ssh credential used.
   b. Scanning just those VMware ESX/ESXi hosts.
   c. Reverting the ssh credential username.

The following items are also affected by the upgrade:

- **Edge connectivity**: Edge connectivity replaces Topology mapping introduced in BMC Atrium Discovery 8.2. If you have used Topology mapping, you can decide whether to retain it or try Edge connectivity. This is described in [Edge connectivity in upgraded appliances](#).
- **Tomcat providers**: where Tomcat discovery using JMX has been configured, the Tomcat providers are disabled. [Tomcat discovery](#) now uses configuration files.
- **Sensitive data filters**: these have been updated and extended to retrieved files. If you have created custom filters for command line information then the upgrade makes no changes to these. If you have not created custom filters then the new defaults are installed.
- **SQL and JDBC credentials**: where SQL and JDBC credentials are in use, their existing properties files continue to be used and updated properties files are installed but not used. Where such credentials are unused, the old properties files are replaced with the latest.
- **tw_options**: where the values of BOGUS_SERIAL_FILTER and BOGUS_HOSTID_FILTER are the defaults, then they are upgraded to new defaults. If they are non-default, then they are not changed and a warning is written to the upgrade log.
- **Windows proxy configuration**: Windows proxy configuration information previously held in the discovery.conf file is now moved to the vault.
- **New Runtime Environment node**: the Runtime Environment Node replaces the Java SI. The upgrade attempts to find all patterns that trigger on the Java SI (their primary inference is on the Java SI) and writes them to the upgrade log. These patterns will no longer trigger as Java SIs are no longer created. You must modify these patterns to trigger on Runtime Environment Nodes.
# Upgrade script options

The upgrade script has the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>--no-snapshot</td>
<td>Do not create a database snapshot before upgrading the BMC Atrium Discovery application. If created, a snapshot takes place after the operating system is upgraded, but before the BMC Atrium Discovery application is upgraded.</td>
</tr>
<tr>
<td>--extract</td>
<td>Extract the files from the archive contained in the script. This does not perform the upgrade. A manual upgrade is not supported.</td>
</tr>
<tr>
<td>--tmpdir dirname</td>
<td>Specify a directory in which to store temporary files. The default is <code>/usr/tideway/tmp/twf.upgrade</code>. Note: This directory needs at least 2237MB.</td>
</tr>
<tr>
<td>--no-clean</td>
<td>Do not delete the temporary files extracted from the archive after the upgrade has been performed. The temporary files will be owned by the root user.</td>
</tr>
<tr>
<td>--auto</td>
<td>Automatic mode. Selecting this option means that all questions are automatically answered. Please note that invalid credentials provided will mean that a manual taxonomy import and pattern recompile will be necessary. Details and more information available in the log file on completion.</td>
</tr>
<tr>
<td>--upgrade-discovery-scripts</td>
<td>Upgrades the discovery scripts to their latest versions. Any local modifications will be lost. If this option is not specified, the scripts will not be modified, and must be updated manually using the Administration &gt; Discovery Platforms UI after the upgrade is complete. See Managing the discovery platform scripts for more information.</td>
</tr>
<tr>
<td>--username</td>
<td>BMC Atrium Discovery UI user. Only valid in automatic mode.</td>
</tr>
<tr>
<td>--password</td>
<td>BMC Atrium Discovery UI user password. Only valid in automatic mode. Note: If your password contains any special characters you must escape them with a backslash character, e.g. instead of $ use \$.</td>
</tr>
<tr>
<td>--verbose</td>
<td>Provide comprehensive messaging. This information is also logged in the file <code>/usr/tideway/log/upgrade_Vn.log</code>. See Messages in the Upgrade Log for notes on messages that may be logged.</td>
</tr>
<tr>
<td>--help</td>
<td>Displays a help message on the usage and options. The script then exits.</td>
</tr>
</tbody>
</table>

In the following procedure, the filename is referred to as `ADDM_Upgrade_<arch>_Vn_nnnnnn_ga.sh.gz`. Replace `<arch>` with 32 or 64, and `Vn_nnnnnn_ga` with the version number, in the commands as appropriate. For example, `ADDM_Upgrade_64_8.3_249314_ga.sh.gz`.

## The upgrade procedure

1. Delete the contents of the `/var/spool/clientmqueue` directory. Enter the following commands:

```bash
# Delete the contents of the /var/spool/clientmqueue directory.
rm -rf /var/spool/clientmqueue
```
1. # [root@localhost tmp]# cd /var/spool/clientmqueue
   # [root@localhost clientmqueue]# rm -f *
   # [root@localhost clientmqueue]# cd /tmp

2. Copy the `ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh.gz` file to a temporary directory, such as `/tmp`.

3. Unzip the archive file using the following command:

   ```bash
   [root@localhost tmp]# gunzip -v ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh.gz
   ```

4. As the root user, run the upgrade script. Enter:

   ```bash
   [root@localhost tmp]# sh ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh
   ```

   The following message is displayed:

   ```bash
   Welcome to the BMC Atrium Discovery and Dependency Mapping Appliance 8.3 upgrade
   
   The Release Notes for this version contain vital information for any user wishing to upgrade their appliance. Please ensure that you have read them prior to continuing.
   
   The Release Notes are available online:
   
   
   Points to note:
   - The Appliance sizing guidelines have been revised in this release
     http://discovery.bmc.com/docs/83/Sizing+guidelines
   - It is important that you perform the post-upgrade tasks listed in the Post Upgrade Task Summary.
   
   To complete the upgrade you will need:
   - To execute this script as the root user
   - ADDM credentials for a user with admin privileges
   - If enabled, the passphrase with which the vault is protected
   
   Have you read the Release Notes, and do you have everything you need to complete the upgrade (yes/no)?
5. Enter yes if you have all that you need to perform the upgrade. Answering no aborts the installation.
   The script checks that all system requirements are fulfilled.

   Performing upgrade requirements checks ...
   Stopping services ...
   Stopping httpd: [ OK ]

   Services stop complete.
   Starting services ...
   Starting httpd: [ OK ]

   Services start complete.
   Checks complete.

6. Then the upgrade itself is commenced, beginning with extracting the files from the archive.

   Starting Upgrade on Mon Oct 10 09:36:36 BST 2011
   -------------------------------
   STAGE 1: Archive Extraction.
   -------------------------------

   If the temporary directory does not exist you are asked whether it should be created. If it does exist you are asked whether you want to use it. Answering no aborts the installation.

   Temporary directory /usr/tideway/tmp/twf.upgrade does not exist, create it (yes/no)? yes
   Starting extraction ...
   Archive extracted.
   Unpacking Archive ...
   Archive unpacked.
   Unpacking Archive ...
   Archive unpacked.
   Renaming current dashboard to: /usr/tideway/etc/dashboards/297ab12da921ab324c1089485.dash.old
   The default dashboard has been replaced. The original dashboard was saved as /usr/tideway/etc/dashboards/297ab12da921ab324c1089485edb46c4.dash.old
   Extraction complete.

7. If the temporary directory does not exist you are asked whether it should be created. If it does exist you are asked whether you want to use it. Answering no aborts the installation.

   The upgrade then tests that the RPM will install correctly against the current system.

   -------------------------------
   STAGE 2: RPM Upgrade Tests.
   -------------------------------
Starting RPM upgrade test ... this may take a while, please be patient!
Tests complete.

9. The next part of the upgrade is configuring the system, for example applying patches.

STARTAGE 3: Configure System for Upgrade

Starting configuration ...
Stopping services ...
Stopping httpd: [ OK ]

Services stop complete.
Configuration complete.

10. The upgrade script now upgrades the operating system, BMC Atrium Discovery, and any dependencies.

STARTAGE 4: Upgrade Operating System, ADDM and dependencies

Upgrading the operating system and the BMC Atrium Discovery application may take a long time. If you are not running in verbose mode, you can monitor progress by checking the log file using the following command:

$ tail -f /usr/tideway/log/upgrade_V.n.log

During the operating system upgrade, some SELinux error messages are logged, these can be ignored. See Messages in the Upgrade Log for notes on messages that may be logged.
Part of this stage is to create a snapshot unless you specified otherwise.

Starting services ...
Starting httpd: [ OK ]
Services start complete.
Running snapshot ...
Snapshot complete.
Stopping services ...
Stopping httpd: [ OK ]
Services stop complete.
Performing DB checkpoint
11. The BMC Atrium Discovery application has now been upgraded, but a number of configuration steps need to take place, for example re-importing the taxonomy and recompiling patterns.

Starting services ...
Services start complete.

Starting Security service: [ OK ]
Starting Model service: [ OK ]

ADDM credentials are required for post installation.
Please enter ADDM user: system
Please enter password for system:
Credential test for user system successful.

Exporting existing taxonomy to /usr/tideway/var/previous_taxonomy.xml ...
Export taxonomy complete.

Importing the taxonomy ...
Import taxonomy complete.

Set Discovery record mode to 1

Moving Windows Proxy details to vault...
Starting Vault service: [OK]
Starting Discovery service: [OK]
Moved Windows Proxy details

Stopping Discovery service: [OK]
Stopping Vault service: [OK]
Stopping Model service: [OK]
Stopping Security service: [OK]
Stopping services ...
Services stop complete.

Starting services ...
Starting httpd: [OK]
Services start complete.

User changed BOGUS_SERIAL_FILTER; not updating to new default value.
New default value (?1)^(?i)^(0+|X+|DELL|0712345678907|.{1,3}|unknown|system\s*?serial\s?number|not\s?available|0x.{1,3}|-1|UNK|none|NEW_STRING|To be filled by OEM|See IPMI FRU|not\s?specified|undefined, but settable)$
You can update the value by running (as tideway user, with services running):
/usr/tideway/bin/tw_options --username=<username> BOGUS_SERIAL_FILTER="<default>
with appropriate credentials (you will be prompted for password).

User changed BOGUS_HOSTID_FILTER; not updating to new default value.
12. If you have asked to upgrade the discovery scripts, a back-up of the current scripts are first saved to

```
/usr/tideway/etc/discovery-scripts-backup.xml
```

If this fails for any reason, you are asked to confirm whether you still want to upgrade the scripts.

13. The software upgrade process is now complete. If any further steps are required, in this case rebooting the system after a kernel upgrade, you are informed now, before the script exits. The appliance is now running BMC Atrium Discovery version 8.3.

---

**STAGE 6: Post Upgrade Task Summary**

The Kernel has been upgraded. The system MUST be rebooted.

Tripwire requires re-baselining because the new policy file differs from the currently configured policy file. A copy of the policy file has been made to /usr/tideway/etc/twpol.txt.custom. Please reapply the customizations to the new default policy file, /usr/tideway/etc/twpol.txt, and re-baseline tripwire as per instructions outlined in the Configuration Guide.

User changed BOGUS_SERIAL_FILTER; not updating to new default value. New default value (?i)^(0+|X+|DELL|0?[1234567890?].{1,3}|unknown|{system\s*}?serial\s?number|not\s?available|0x.{1,3}|-1|UNK|none|NEW_STRING|To be filled by OEM|See IPMI FRU|not\s?specified|undefined, but settable)$ You can update the value by running (as tideway user, with services running):
```
/usr/tideway/bin/tw_options --username=<username> BOGUS_SERIAL_FILTER="<default>
```
with appropriate credentials (you will be prompted for password).

User changed BOGUS_HOSTID_FILTER; not updating to new default value. New default value (?i)^(0+|X+|DELL|0?[1234567890?].{1,3}|unknown|{system\s*}?serial\s?number|not\s?available|0x.{1,3}|-1|UNK|none|NEW_STRING|To be filled by OEM|See IPMI FRU|not\s?specified|undefined, but settable)$ You can update the value by running (as tideway user, with services running):
```
/usr/tideway/bin/tw_options --username=<username> BOGUS_HOSTID_FILTER="<default>
```
with appropriate credentials (you will be prompted for password).

Task summary can be found in /usr/tideway/log/postupgrade_8.3.0.90_TODO.log

---

Upgrade complete - Mon Oct 10 09:36:46 BST 2011
14. Reboot the appliance. Enter the following command:

```
{root@localhost tmp}# reboot
```

The software and operating system upgrade is now complete.

**Post upgrade steps**

After installation there are a number of additional steps required depending on the configuration of the pre-upgrade system. For example, if you have already used CMDB synchronization, you need to update the CMDB.

⚠️ As well as the notes on this page you should refer to the `postupgrade_8.3_TODO.log` written out by the upgrade script at STAGE 6 above. This contains tailored advice of the tasks that must be completed on that particular appliance and these must be completed for correct future behavior.

**Messages in the upgrade log**

During the upgrade the firewall (`iptables`) is restarted. When a kernel upgrade is part of the upgrade, the firewall is unable to restart as there is a mismatch between the running kernel's version and the kernel on disk. The firewall logs a `FATAL` message, but as this is entirely expected, the upgrade script wraps it in an information message:

```
```

This is expected behavior and does not indicate a problem with the upgrade.

**Check Windows proxy compatibility**

Check the Windows proxy compatibility matrix to determine whether you need to upgrade Windows proxies.

**Deactivate existing TKU and activate new TKU**

The upgrade installs a new TKU package (TKU-CORE-2011-09-1) but does not activate it. Any TKU Package that you have installed must be deactivated before activating the TKU-CORE-2011-09-1. Information on activating and deactivating TPL packages is available here.

⚠️ You must activate the new TKU package, unless a newer TKU package is already activated. To know about the latest available TKU, see the latest TKU documentation.
Package changes for CDM Mapping and Discovery Conditions

The CDM Mapping and Discovery Conditions packages have been amalgamated into a single package. Previously, the packages were called:

- TKU-CDM-Mapping-ADDM-8.2.2.90+.zip
- TKU-Discovery-Conditions-ADDM-8.2.2.90+.zip

The new package is called:

- TKU-System-2011-09-1-ADDM-8.3+.zip

Windows proxy configuration file baseline check

The Windows proxy configuration file baseline check now checks the configuration file of all attached Windows proxies, rather than just the local configuration file. As a result, after upgrade this check will display the error "FAILED: Expected results are missing" until it is re-baselined.

Clearing browser caches

After upgrading you should clear the cache of any client browsers or force a refresh (CTRL+F5 in most browsers).

Baseline changes

The baseline tool tracks changes to the system configuration from a known baseline. After an upgrade, the appliance configuration will have changed significantly. You should view the baseline page after an appliance upgrade and examine the changes made to the system. When you understand the changes that have been made, you can rebaseline the appliance so that the tool can check for changes from the configuration after upgrading to BMC Atrium Discovery version 8.3.

Maximum cache size

If you upgrade from a version that permits larger cache sizes than the current, the cache size label (see model maintenance settings) is displayed incorrectly.

Export mapping sets

While upgrading, the script will check to see if there is a newer version of each of the installed mapping sets. If a mapping set has changed since the last version, either by the user modifying it or BMC Software releasing a newer version, then a warning is displayed to the user. The original mapping is renamed by the script to append ".old" to the mapping set descriptor (the file ending with ".properties") and "_old" to the directory containing the mapping files. The user can either:

- Ignore the warning if the export framework is not being used.
- Compare the old mapping set to the new one and keep the new one (i.e. do nothing).
- Compare the old mapping set to the new one and decide to keep the old one, in which case the user needs to manually delete the newer mapping descriptor and directory and rename the old ones (removing the .old and _old postfixes).
• Compare the old mapping set to the new one and merge the changes. If the changes to the mapping set have been performed by BMC Software then these changes will be listed in the release notes and the user can apply these changes manually to their own copy of the mapping set.

Sizing guidelines

The following guidelines are based on typical deployments in the field, and are intended to serve only as recommended configurations for your environment.

This section defines four "classes" of appliance deployment that broadly follow how BMC Atrium Discovery is deployed in the field. They are differentiated by how many Operating System Instances (OSIs) that are being scanned by BMC Atrium Discovery. The names given to these classes are of use only in this document and do not relate to the various editions that BMC Atrium Discovery is available in.

The classes are:

• **Proof of Concept.** Small, time-limited test deployments of BMC Atrium Discovery, scanning up to 150 OSIs.
• **Baseline.** A typical baseline as offered by BMC. Scanning up to 500 OSIs.
• **Datacentre.** A typical large scale deployment. Scanning up to 5000 OSIs.
• **Consolidated Enterprise.** Enterprise scale deployments, typically a Consolidation Appliance taking feeds from many Scanning Appliances. Typically scanning or consolidating up to 20000 OSIs, though at these levels, a weekly scanning or focused scanning strategy may need to be adopted.

**Proof of Concept**

The Proof of Concept class has minimal storage allowance as they are only intended for a limited period of scanning such as a week long trial. For longer periods or a continuously used development or UAT system, the Baseline class is the minimum recommended.

Memory and swap considerations

The recommended figures for memory provide a good level of performance in typical scenarios. The upper level should not be considered a limit, BMC Atrium Discovery will make use of available memory. You can determine whether additional memory is needed in your appliance by monitoring swap usage.
The recommended figures for swap can be exceeded, there is no harm in doing so. It may prove simpler to configure the higher quantity of swap than to extend an existing swap partition as this will allow the RAM demand to be derived as above. Note that all virtual appliances are initially configured with 8 GB swap.

A 32 bit appliance cannot be used in any deployments requiring more than 4GB RAM. In practice this means that any deployment beyond a proof of concept must use a 64 bit appliance. The memory limit for a 32 bit appliance can be lower than 4GB depending on your environment.

### Memory and swap usage

Memory and swap usage depends on the nature of the discovery being performed, with Mainframe and VMware (vCenter/vSphere) devices requiring more than basic UNIX and Windows devices.

### Impact of Appliance Snapshot

The BMC Atrium Discovery Appliance Snapshot feature allows you take a snapshot of the datastore and critical configuration files to facilitate moving the data between appliances.

The process by which the data is packaged means that a considerable overhead of empty disk space is needed to complete the task.

Therefore, when providing guidelines for how much disk space to give your Virtual Appliance for the database, you must first decide whether you intend to perform Appliance Snapshots. If so, then you will need to provision considerably larger disks.

Where the following tables refer to CPUs, full use of a logical CPU (core) is assumed. For example, if eight CPUs are required, then you may provide them in the following ways:

- Eight virtual CPUs in your virtualization platform, such as VMware Infrastructure.
- Four dual core physical CPUs.
- Two quad core physical CPUs.

### Appliance sizing guidelines

<table>
<thead>
<tr>
<th>Resource</th>
<th>POC</th>
<th>Baseline</th>
<th>Datacentre</th>
<th>Consolidated Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPUs</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4 to 8</td>
</tr>
<tr>
<td>RAM (GB)</td>
<td>2 to 4</td>
<td>4 to 8</td>
<td>8 to 16</td>
<td>16 to 32</td>
</tr>
<tr>
<td>(see note below)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swap Space (GB)</td>
<td>2 to 4</td>
<td>4 to 8</td>
<td>8 to 16</td>
<td>16 to 32</td>
</tr>
<tr>
<td>DB Disk (GB)</td>
<td>37</td>
<td>100</td>
<td>200</td>
<td>200 to 660</td>
</tr>
<tr>
<td>No snapshot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource</td>
<td>POC</td>
<td>Baseline</td>
<td>Datacentre</td>
<td>Consolidated Enterprise</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----</td>
<td>----------</td>
<td>------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>DB Disk (GB)</td>
<td>37</td>
<td>200</td>
<td>500</td>
<td>660 to 1500</td>
</tr>
<tr>
<td>With snapshot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

⚠️ Memory requirements for POC class

While 2GB RAM is sufficient for normal operation, but is insufficient to activate a new TKU. Attempting to activate a TKU with 2GB of RAM may take a few hours. You can increase the memory for activation and then reduce it for normal operation if required.

ℹ️ VMware maximums

The following are the maximum supported limits for the main deployment platforms.

- VMWare Server v2 - 2 CPUs & 8GB RAM
- VMWare Infrastructure 3.0.2 - 4 CPUs & 16GB RAM
- VMWare Infrastructure 3.5 - 4 CPUs & 65GB RAM
- VMWare Infrastructure 4 - 8 CPUs & 255GB RAM

Note that ESX version 4 can support up to 8 vCPUs, earlier versions have a maximum of 4.
Upgrading to version 8.3 SP1

The upgrade script upgrades the appliance to BMC Atrium Discovery version 8.3 SP1 from the following supported versions:

- 8.2
- 8.2.01
- 8.2.02
- 8.2.03
- 8.2.04
- 8.3

There is no upgrade path from BMC Atrium Discovery version 7.5 to version 8.3 SP1. Rather, you need to migrate your data to a new installation of BMC Atrium Discovery version 8.3 SP1.

⚠️ Note

If you are upgrading from an earlier 7.X or 8.X version you will first need to upgrade to one of the versions listed above.

What you need to proceed with this upgrade

1. You must be logged in as the root user with the root user environment.
2. The tideway services must be running when you run the upgrade.
3. The credentials of a UI user with sufficient permissions to re-import the taxonomy and compile patterns.
4. The upgrade script. Download the one appropriate to your architecture from the BMC Electronic Product Distribution (EPD) site. This is one of:
   - 32 bit: ADDM_Upgrade_32_Vn_nnnnnn_ga.sh.gz
   - 64 bit: ADDM_Upgrade_64_Vn_nnnnnn_ga.sh.gz
   Where <arch> with 32 or 64, and Vn_nnnnnn_ga is the version number. For example, ADDM_Upgrade_64_8.3_249314_ga.sh.gz.

Warnings

⚠️ Required appliance specification increased
In BMC Atrium Discovery version 8.3 the required appliance specification was increased to support its greater discovery capabilities. Before upgrading you must ensure that the appliance you are upgrading meets the specification. See the appliance sizing guidelines for more information.

Changes to OS Configuration Files

If you have made changes to operating system configuration files on the appliance, these changes may be overwritten by the upgrade process. After the upgrade has completed, you must check any configuration files you have previously modified and reapply the changes as required.

Database upgrade

This upgrade performs an upgrade of the BMC Atrium Discovery database. It is highly recommended that you do not skip running a snapshot. Where a snapshot is created, it can only be restored to an appliance running the pre-upgrade version.

Upgrade considerations

The following headings are links which reveal information which may be pertinent to your upgrade:

When you run the upgrade, the timezone you have specified will be overwritten and returned to Europe/London unless you have updated the variable ZONE in /etc/sysconfig/clock. See Localizing the appliance for information on how to do this.

You may have a number of appliances, for example one or more appliances consolidating to a central consolidated appliance. When a system uses consolidation, the recommended approach is to stop discovery on scanning appliances, ensure that all consolidation operations are complete, and then upgrade all appliances before restarting discovery on the scanning appliances.

Consolidating appliances must always be upgraded first. An 8.3 SP2 consolidating appliance can accept data from an 8.2 scanning appliance. An 8.2 consolidating appliance cannot accept data from an 8.3 SP2 scanning appliance.

Where an upgrade makes changes to syncmapping files (see Default CDM Mapping and Syncmapping block), the initial CMDB syncs after upgrade may cause longer reconciliation times. Examples of such changes are key changes or attribute changes on a CMDB CI.
To allow you to better scale your Windows discovery capabilities, Windows Proxy Pools have been added. These allow you to group sets of Windows proxies together, across which the system will distribute discovery requests in order to load balance.

While the pools themselves can be ordered, the proxies in them cannot. Consequently it is not possible to preserve the ordering that has been configured in pre-version 8.3 systems. If you need to preserve certain aspects of the ordering of your existing proxies, you should make a note of what you want to preserve before starting the upgrade.

The following ordering and distribution of proxies occurs automatically during the upgrade:

1. All Workgroup proxies are put into their own pool.
2. AD proxies are grouped by domain and IP restriction list. AD proxies with the same domain and restriction lists are placed in the same pool.
3. Credential proxies are grouped by IP restriction list.

If a VMware ESX/ESXi host is discovered using ssh in the pre-upgrade version of BMC Atrium Discovery, its identity may change post upgrade. The discovery scripts now obtain more information which changes the os_class/os_type from UNIX/ESX Linux to Other/VMware ESX, and because the host's UUID and architecture is now discovered. However, the last_access_method remains ssh, so the new VMware ESX/ESXi discovery capabilities are not used. You can workaround this by following the following procedure:

1. Configure the new VMware ESX/ESXi discovery.
2. Cause the ssh discovery to fail and discover using the VMware ESX/ESXi discovery by:
   a. Changing the username of the ssh credential used.
   b. Scanning just those VMware ESX/ESXi hosts.
   c. Reverting the ssh credential username.

The following items are also affected by the upgrade:

- **Tomcat providers**: where Tomcat discovery using JMX has been configured, the Tomcat providers are disabled. Tomcat discovery now uses configuration files.
- **Sensitive data filters**: these have been updated and extended to retrieved files. If you have created custom filters for command line information then the upgrade makes no changes to these. If you have not created custom filters then the new defaults are installed.
- **SQL and JDBC credentials**: where SQL and JDBC credentials are in use, their existing properties files continue to be used and updated properties files are installed but not used. Where such credentials are unused, the old properties files are replaced with the latest.
- **tw_options**: where the values of BOGUS_SERIAL_FILTER and BOGUS_HOSTID_FILTER are the defaults, then they are upgraded to new defaults. If they are non-default, then they are not changed and a warning is written to the upgrade log.
- **Windows proxy configuration**: Windows proxy configuration information previously held in the discovery.conf file is now moved to the vault.
• **New Runtime Environment node:** the Runtime Environment Node replaces the Java SI. The upgrade attempts to find all patterns that trigger on the Java SI (their primary inference is on the Java SI) and writes them to the upgrade log. These patterns will no longer trigger as Java SIs are no longer created. You must modify these patterns to trigger on Runtime Environment Nodes.

# Upgrade script options

The upgrade script has the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>--no-snapshot</td>
<td>Do not create a database snapshot before upgrading the BMC Atrium Discovery application. If created, a snapshot takes place after the operating system is upgraded, but before the BMC Atrium Discovery application is upgraded.</td>
</tr>
<tr>
<td>--extract</td>
<td>Extract the files from the archive contained in the script. This does not perform the upgrade. A manual upgrade is not supported.</td>
</tr>
<tr>
<td>--tmpdir dir</td>
<td>Specify a directory in which to store temporary files. The default is <code>/usr/tideway/tmp/twf.upgrade</code>.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> This directory needs at least 2237MB.</td>
</tr>
<tr>
<td>--no-clean</td>
<td>Do not delete the temporary files extracted from the archive after the upgrade has been performed. The temporary files will be owned by the root user.</td>
</tr>
<tr>
<td>--auto</td>
<td>Automatic mode. Selecting this option means that all questions are automatically answered. Please note that invalid credentials provided will mean that a manual taxonomy import and pattern recompile will be necessary. Details and more information available in the log file on completion.</td>
</tr>
<tr>
<td>--upgrade-discovery-scripts</td>
<td>Upgrades the discovery scripts to their latest versions. Any local modifications will be lost. If this option is not specified, the scripts will not be modified, and must be updated manually using the Administration &gt; Discovery Platforms UI after the upgrade is complete. See Managing the discovery platform scripts for more information.</td>
</tr>
<tr>
<td>--username</td>
<td>BMC Atrium Discovery UI user. Only valid in automatic mode.</td>
</tr>
<tr>
<td>--password</td>
<td>BMC Atrium Discovery UI user password. Only valid in automatic mode. <strong>Note:</strong> If your password contains any special characters you must escape them with a backslash character, e.g. instead of $ use \$.</td>
</tr>
<tr>
<td>--verbose</td>
<td>Provide comprehensive messaging. This information is also logged in the file <code>/usr/tideway/log/upgrade_Vn.log</code>. See Messages in the Upgrade Log for notes on messages that may be logged.</td>
</tr>
<tr>
<td>--help</td>
<td>Displays a help message on the usage and options. The script then exits.</td>
</tr>
</tbody>
</table>

In the following procedure, the filename is referred to as `ADDM_Upgrade_<arch>_Vn_nnnnnn_ga.sh.gz`. Replace `<arch>` with 32 or 64, and `Vn_nnnnnn_ga` with the version number, in the commands as appropriate. For example, `ADDM_Upgrade_64_8.3_245678_ga.sh.gz`. 
The upgrade procedure

1. Delete the contents of the /var/spool/clientmqueue directory. Enter the following commands:

```bash
# [root@localhost tmp]# cd /var/spool/clientmqueue
# [root@localhost clientmqueue]# rm -f *
# [root@localhost clientmqueue]# cd /tmp
```

2. Copy the `ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh.gz` file to a temporary directory, such as `/tmp`.

3. Unzip the archive file using the following command:

```bash
[root@localhost tmp]# gunzip -v ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh.gz
```

4. As the root user, run the upgrade script. Enter:

```bash
[root@localhost tmp]# sh ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh
```

The following message is displayed:

```
Welcome to the BMC Atrium Discovery and Dependency Mapping Appliance 8.3.1 upgrade

The Release Notes for this version contain vital information for any user wishing to upgrade their appliance. Please ensure that you have read them prior to continuing. The Release Notes are available online:


Points to note:
- The Appliance sizing guidelines have been revised in this release
  http://discovery.bmc.com/docs/83/Sizing+guidelines
- It is important that you perform the post-upgrade tasks listed in the Post Upgrade Task Summary.

To complete the upgrade you will need:
- To execute this script as the root user
- ADDM credentials for a user with admin privileges
- If enabled, the passphrase with which the vault is protected
```
Have you read the Release Notes, and do you have everything you need to complete the upgrade (yes/no)?

5. Enter yes if you have all that you need to perform the upgrade. Answering no aborts the installation.
   The script checks that all system requirements are fulfilled, including UI credentials. Enter these when prompted.

   Performing upgrade requirements checks ...
   ADDM application (UI) credentials are required for upgrade.
   Please use an ADDM application user with sufficient privileges, for example the "system" user.
   Please enter ADDM user (Default: system):
   Please enter password for system:
   Credential test for user system successful.
   ADDM vault passphrase is required for upgrade.
   Please enter vault passphrase:
   Vault passphrase test successful.

6. If the temporary directory does not exist you are asked whether it should be created. If it does exist you are asked whether you want to use it. Answering no aborts the installation.

   Temporary directory /tmp/twf.upgrade does not exist, create it (yes/no)? yes
   Extract directory on the same disk as the datastore - need extra 1GB space.
   Stopping services ...
   Stopping httpd: [ OK ]

   Services stop complete.
   Starting services ...
   Starting httpd: [ OK ]

   Services start complete.
   Checks complete.

7. Then the upgrade itself is commenced, beginning with extracting the files from the archive.

   Starting Upgrade on Wed Nov 9 09:36:36 GMT 2011
   ------------------------------------------------------
   STAGE 1: Archive Extraction.
   ------------------------------------------------------
   Starting extraction ...
   Archive extracted.
   Unpacking Archive ...
Archive unpacked.
Unpacking Archive ...
Archive unpacked.
Devices package incompatible with new release - removing it
Stopping Discovery service: [  OK  ]
Starting Discovery service: [  OK  ]
The default dashboard has been replaced. The original dashboard was saved as /usr/tideway/etc/dashboards/8f5fa82ecc1c6bfc20c47f0000010bb7.dash.old
Extraction complete.

8. The upgrade then upgrades the operating system if required. Upgrading the operating system may take a long time. If you are not running in verbose mode, you can monitor progress by checking the log file using the following command:

```
$ tail -f /usr/tideway/log/upgrade_V.n.log
```

During the operating system upgrade, some SELinux error messages are logged, these can be ignored. See Messages in the Upgrade Log for notes on messages that may be logged.

```
STAGE 2: Upgrade Operating System
Running Operating System upgrade...
Operating System upgrade complete.
```

9. The upgrade then tests that the RPM will install correctly against the current system.

```
STAGE 3: RPM Upgrade Tests.
Starting RPM upgrade test ... this may take a while, please be patient!
Tests complete.
```

10. The next part of the upgrade is configuring the system, for example applying patches.

```
STAGE 4: Configure System for Upgrade
Starting configuration ...
```
Stopping services ...
Stopping httpd: [ OK ]

Services stop complete.
Configuration complete.

11. The upgrade script now upgrades the operating system, BMC Atrium Discovery, and any dependencies.

----------------------------------------
STAGE 5: Upgrade ADDM and dependencies
----------------------------------------

Upgrading the BMC Atrium Discovery application may take a long time. If you are not running in verbose mode, you can monitor progress by checking the log file using the following command:

$ tail -f /usr/tideway/log/upgrade_V.n.log

Part of this stage is to create a snapshot unless you specified otherwise.

Starting services ...
Starting httpd: [ OK ]
Services start complete.
Running snapshot ...
Snapshot complete.
Stopping services ...
Stopping httpd: [ OK ]
Services stop complete.
Performing DB checkpoint
DB has been checkpointed.
Starting RPM Upgrade ... this may take a while, please be patient!
Tripwire requires re-baselining because the new policy file differs from the currently configured policy file. A copy of the policy file has been made to /usr/tideway/etc/twpol.txt.custom. Please reapply the customisations to the new defa /usr/tideway/etc/twpol.txt, and re-baseline tripwire as per instructions outlined in Configuration Guide.
Packages successfully upgraded.

12. The BMC Atrium Discovery application has now been upgraded, but a number of configuration steps need to take place, for example re-importing the taxonomy and recompiling patterns.
-- STAGE 6: Post Installation Configuration. --

Starting services ...
Services start complete.
  Starting Security service: [  OK  ]
  Starting Model service: [  OK  ]
Exporting existing taxonomy to /usr/tideway/var/previous_taxonomy.xml ...
Export taxonomy complete.
Importing the taxonomy ...
Import taxonomy complete.
Set Discovery record mode to 1 {hidden-data}What's this?{hidden-data}
Moving Windows Proxy details to vault...
Starting Vault service: [OK]
Starting Discovery service: [OK]
Moved Windows Proxy details
Stopping Discovery service: [OK]
Stopping Vault service: [OK]
Stopping Model service: [OK]
Stopping Security service: [OK]
Stopping services ...
Services stop complete.
Starting services ...
Starting httpd: [OK]
Services start complete.
User changed BOGUS_SERIAL_FILTER; not updating to new default value.
  New default value (?i)^\(0+|X+|DELL|071234567890?\.\(1,3\)|unknown|\(system\s*\)|serial\s?number|not\s?available|0x\.|-1|UNK|none|NEW_STRING|To be filled by OEM|See IPMI FRU|not\s?specified|undefined, but settable)$
  You can update the value by running (as tideway user, with services running):
    /usr/tideway/bin/tw_options --username=<username> BOGUS_SERIAL_FILTER="<default>
    with appropriate credentials (you will be prompted for password).
User changed BOGUS_HOSTID_FILTER; not updating to new default value.
  New default value (?i)^\(0+|X+|DELL|071234567890?\.\(1,3\)|unknown|\(system\s*\)|serial\s?number|not\s?available|0x\.|-1|UNK|none|NEW_STRING|To be filled by OEM|See IPMI FRU|not\s?specified|undefined, but settable)$
  You can update the value by running (as tideway user, with services running):
    /usr/tideway/bin/tw_options --username=<username> BOGUS_HOSTID_FILTER="<default>
    with appropriate credentials (you will be prompted for password).
Recompiling patterns ...
  Recompile complete.
Old discovery scripts saved as /usr/tideway/etc/discovery-scripts-backup.xml.
Upgrade of discovery scripts complete.
Upgrade of discovery sensitive data filters complete.
Restarting the firewall to enable any changes.

13. If you have asked to upgrade the discovery scripts, a back-up of the current scripts are first saved to

    /usr/tideway/etc/discovery-scripts-backup.xml
If this fails for any reason, you are asked to confirm whether you still want to upgrade the
scripts.

14. The application software upgrade process is now complete. The script now informs you of
post upgrade steps that may be required.

STAGE 7: Post Upgrade Task Summary

The discovery scripts have not been upgraded. You must manually upgrade them
yourself using the Administration > Discovery Platforms UI. Please do this
before initiating any further scans.

Tripwire requires re-baselining because the new policy file differs from
the currently configured policy file. A copy of the policy file has been made to
/usr/tideway/etc/twpol.txt.custom. Please reapply the customizations to the new de
/usr/tideway/etc/twpol.txt, and re-baseline tripwire as per instructions outlined
Configuration Guide.

User changed BOGUS_SERIAL_FILTER; not updating to new default value.
New default value (?i)^0+|X+|DELL|0?1234567890?|.{1,3}|unknown|(systems*)?serials
You can update the value by running (as tideway user, with services running):
/usr/tideway/bin/tw_options --username=<username> BOGUS_SERIAL_FILTER="<default>"
with appropriate credentials (you will be prompted for password).

User changed BOGUS_HOSTID_FILTER; not updating to new default value.
New default value (?i)^0+|X+|DELL|0?1234567890?|.{1,3}|unknown|(systems*)?serials
You can update the value by running (as tideway user, with services running):
/usr/tideway/bin/tw_options --username=<username> BOGUS_HOSTID_FILTER="<default>"
with appropriate credentials (you will be prompted for password).

Task summary can be found in /usr/tideway/log/postupgrade_8.3.0.90_TODO.log

15. The script now informs you of any post operating system upgrade steps that may be
required, in this case rebooting the system after a kernel upgrade. The script now exits.

STAGE 8: Post Operating System Task Summary

The Kernel has been upgraded. The system MUST be rebooted.

Operating System task summary can be found in /usr/tideway/log/postosupgrade_5.11.11

Upgrade complete - Mon Nov 7 09:36:46 GMT 2011

16. Reboot the appliance. Enter the following command:
The software and operating system upgrade is now complete and the appliance is running BMC Atrium Discovery version 8.3 SP1.

Post upgrade steps

After installation there are a number of additional steps required depending on the configuration of the pre-upgrade system. For example, if you have already used CMDB synchronization, you need to update the CMDB.

⚠️ As well as the notes on this page you should refer to the postupgrade_8.3_TODO.log written out by the upgrade script at STAGE 6 above. This contains tailored advice of the tasks that must be completed on that particular appliance and these must be completed for correct future behavior.

Messages in the upgrade log

During the upgrade the firewall (iptables) is restarted. When a kernel upgrade is part of the upgrade, the firewall is unable to restart as there is a mismatch between the running kernel's version and the kernel on disk. The firewall logs a FATAL message, but as this is entirely expected, the upgrade script wraps it in an information message:


This is expected behavior and does not indicate a problem with the upgrade.

Check Windows proxy compatibility

Check the Windows proxy compatibility matrix to determine whether you need to upgrade Windows proxies.

Deactivate existing TKU and activate new TKU

The upgrade installs a new TKU package (TKU-CORE-2011-11-1) but does not activate it. Any TKU Package that you have installed must be deactivated before activating the TKU-CORE-2011-11-1. Information on activating and deactivating TPL packages is available here.

⚠️ You must activate the new TKU package, unless a newer TKU package is already activated. To know about the latest available TKU, see the latest TKU documentation.
Package changes for CDM Mapping and Discovery Conditions

The CDM Mapping and Discovery Conditions packages have been amalgamated into a single package. Previously, the packages were called:

- TKU-CDM-Mapping-ADDM-8.2.3+.zip
- TKU-Discovery-Conditions-ADDM-8.2.3+.zip

The new package is called:

- TKU-System-2011-11-1-ADDM-8.3+.zip

Windows proxy configuration file baseline check

The Windows proxy configuration file baseline check now checks the configuration file of all attached Windows proxies, rather than just the local configuration file. As a result, after upgrade this check will display the error "FAILED: Expected results are missing" until it is re-baselined.

Clearing browser caches

After upgrading you should clear the cache of any client browsers or force a refresh (CTRL+F5 in most browsers).

Baseline changes

The baseline tool tracks changes to the system configuration from a known baseline. After an upgrade, the appliance configuration will have changed significantly. You should view the baseline page after an appliance upgrade and examine the changes made to the system. When you understand the changes that have been made, you can rebaseline the appliance so that the tool can check for changes from the configuration after upgrading to BMC Atrium Discovery version 8.3.

Maximum cache size

If you upgrade from a version that permits larger cache sizes than the current, the cache size label (see model maintenance settings) is displayed incorrectly.

Export mapping sets

While upgrading, the script will check to see if there is a newer version of each of the installed mapping sets. If a mapping set has changed since the last version, either by the user modifying it or BMC Software releasing a newer version, then a warning is displayed to the user. The original mapping is renamed by the script to append ".old" to the mapping set descriptor (the file ending with ".properties") and ".old" to the directory containing the mapping files. The user can either:

- Ignore the warning if the export framework is not being used.
- Compare the old mapping set to the new one and keep the new one (i.e. do nothing).
- Compare the old mapping set to the new one and decide to keep the old one, in which case the user needs to manually delete the newer mapping descriptor and directory and rename the old ones (removing the .old and _old postfixes).
• Compare the old mapping set to the new one and merge the changes. If the changes to the mapping set have been performed by BMC Software then these changes will be listed in the release notes and the user can apply these changes manually to their own copy of the mapping set.
Upgrading to version 8.3 SP2

The upgrade script upgrades the appliance to BMC Atrium Discovery version 8.3 SP2 from the following supported versions:

- 8.2
- 8.2.01
- 8.2.02
- 8.2.03
- 8.2.04
- 8.3
- 8.3 SP1

There is no upgrade path from BMC Atrium Discovery version 7.5 to version 8.3 SP2. Rather, you need to migrate your data to a new installation of BMC Atrium Discovery version 8.3 SP2.

**BMC Atrium Discovery version 8.3 SP2 patch 2**

The version of BMC Atrium Discovery currently available on the BMC EPD site is version 8.3 SP2 patch 2. This replaces the original version 8.3 SP2 to correct an issue with PDF generation. You should ensure that the upgrade script is one of the following:

- ADDM_Upgrade_64_8.3.2.2_267291_ga.sh.gz
- ADDM_Upgrade_32_8.3.2.2_267291_ga.sh.gz

You should also ensure that after upgrading, the user interface refers to the version number as 8.3.2.2.

**Note**

If you are upgrading from an earlier 7.X or 8.X version you will first need to upgrade to one of the versions listed above.

This release introduces the ability to upgrade the operating system independently of BMC Atrium Discovery upgrades. See Operating system upgrades for more information.

What you need to proceed with this upgrade

1. You must be logged in as the root user with the root user environment.
2. The tideway services must be running when you run the upgrade.
3. The credentials of a UI user with sufficient permissions to re-import the taxonomy and compile patterns.

4. The upgrade script. Download the one appropriate to your architecture from the BMC Electronic Product Distribution (EPD) site. This is one of:
   - 32 bit: ADDM_Upgrade_32_Vn_nnnnna_ga.sh.gz
   - 64 bit: ADDM_Upgrade_64_Vn_nnnnnna_ga.sh.gz

   Where <arch> with 32 or 64, and Vn_nnnnnna_ga is the version number. For example, ADDM_Upgrade_64_8.3.2.2_267291_ga.sh.gz.

Warnings

⚠️ Before you start an upgrade in a system that uses consolidation, ensure that all runs are stopped on the scanning appliances and have run to completion on the consolidation appliance. Failure to do so may result in the upgrade failing on the consolidation appliance.

When a system uses consolidation, the recommended approach is to stop discovery on scanning appliances, ensure that all consolidation operations are complete, and then upgrade. See below for more information on upgrading multiple appliances.

⚠️ Required appliance specification increased

The required appliance specification has been increased to support the greater discovery capabilities of BMC Atrium Discovery version 8.3 SP2. Before upgrading you must ensure that the appliance you are upgrading meets the specification. See the appliance sizing guidelines for more information.

⚠️ Changes to OS Configuration Files

If you have made changes to operating system configuration files on the appliance, these changes may be overwritten by the upgrade process. After the upgrade has completed, you must check any configuration files you have previously modified and reapply the changes as required.

⚠️ Database upgrade
This upgrade performs an upgrade of the BMC Atrium Discovery database. It is highly recommended that you do not skip running a snapshot. Where a snapshot is created, it can only be restored to an appliance running the pre-upgrade version.

Topology removal

This upgrade removes the Topology mapping feature introduced in BMC Atrium Discovery 8.2. Topology mapping is replaced by Edge connectivity. All Topology related nodes are deleted from the datastore as part of this upgrade. You cannot proceed with this upgrade if you do not wish to delete all Topology related nodes.

Upgradable considerations

The following headings are links which reveal information which may be pertinent to your upgrade:

When you run the upgrade, the timezone you have specified will be overwritten and returned to Europe/London unless you have updated the variable ZONE in /etc/sysconfig/clock. See Localizing the appliance for information on how to do this.

You may have a number of appliances, for example one or more appliances consolidating to a central consolidated appliance. When a system uses consolidation, the recommended approach is to stop discovery on scanning appliances, ensure that all consolidation operations are complete, and then upgrade all appliances before restarting discovery on the scanning appliances.

Consolidating appliances must always be upgraded first. An 8.3 SP2 consolidating appliance can accept data from an 8.2 scanning appliance. An 8.2 consolidating appliance cannot accept data from an 8.3 SP2 scanning appliance.

Where an upgrade makes changes to syncmapping files (see Default CDM Mapping and Syncmapping block), the initial CMDB syncs after upgrade may cause longer reconciliation times. Examples of such changes are key changes or attribute changes on a CMDB CI.

To allow you to better scale your Windows discovery capabilities, Windows Proxy Pools have been added. These allow you to group sets of Windows proxies together, across which the system will distribute discovery requests in order to load balance.

While the pools themselves can be ordered, the proxies in them cannot. Consequently it is not possible to preserve the ordering that has been configured in pre-version 8.3 systems. If you need to preserve certain aspects of the ordering of your existing proxies, you should make a note of what you want to preserve before starting the upgrade.

The following ordering and distribution of proxies occurs automatically during the upgrade.

1. All Workgroup proxies are put into their own pool.
2. AD proxies are grouped by domain and IP restriction list. AD proxies with the same domain and restriction lists are placed in the same pool.
3. Credential proxies are grouped by IP restriction list.

If a VMware ESX/ESXi host is discovered using ssh in the pre-upgrade version of BMC Atrium Discovery, its identity may change post upgrade. The discovery scripts now obtain more information which changes the `os_class/os_type` from UNIX/ESX Linux to Other/VMware ESX, and because the host's UUID and architecture is now discovered. However, the `last_access_method` remains ssh, so the new VMware ESX/ESXi discovery capabilities are not used. You can workaround this by following the following procedure:

1. Configure the new VMware ESX/ESXi discovery.
2. Cause the ssh discovery to fail and discover using the VMware ESX/ESXi discovery by:
   a. Changing the username of the ssh credential used.
   b. Scanning just those VMware ESX/ESXi hosts.
   c. Reverting the ssh credential username.

The following items are also affected by the upgrade:

- **Tomcat providers**: where Tomcat discovery using JMX has been configured, the Tomcat providers are disabled. Tomcat discovery now uses configuration files.
- **Sensitive data filters**: these have been updated and extended to retrieved files. If you have created custom filters for command line information then the upgrade makes no changes to these. If you have not created custom filters then the new defaults are installed.
- **SQL and JDBC credentials**: where SQL and JDBC credentials are in use, their existing properties files continue to be used and updated properties files are installed but not used. Where such credentials are unused, the old properties files are replaced with the latest.
- **tw_options**: where the values of `BOGUS_SERIAL_FILTER` and `BOGUS HOSTID_FILTER` are the defaults, then they are upgraded to new defaults. If they are non-default, then they are not changed and a warning is written to the upgrade log.
- **Windows proxy configuration**: Windows proxy configuration information previously held in the `discovery.conf` file is now moved to the vault.
- **New Runtime Environment node**: the Runtime Environment Node replaces the Java SI. The upgrade attempts to find all patterns that trigger on the Java SI (their primary inference is on the Java SI) and writes them to the upgrade log. These patterns will no longer trigger as Java SIs are no longer created. You must modify these patterns to trigger on Runtime Environment Nodes.

### Upgrade script options

The upgrade script has the following options:
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>--no-snapshot</td>
<td>Do not create a database snapshot before upgrading the BMC Atrium Discovery application. If created, a snapshot takes place after the operating system is upgraded, but before the BMC Atrium Discovery application is upgraded.</td>
</tr>
<tr>
<td>--extract</td>
<td>Extract the files from the archive contained in the script. This does not perform the upgrade. A manual upgrade is not supported.</td>
</tr>
<tr>
<td>--tmpdir dirname</td>
<td>Specify a directory in which to store temporary files. The default is /usr/tideway/tmp/twf.upgrade</td>
</tr>
<tr>
<td></td>
<td>Note: This directory needs at least 2237MB.</td>
</tr>
<tr>
<td>--no-clean</td>
<td>Do not delete the temporary files extracted from the archive after the upgrade has been performed. The temporary files will be owned by the root user.</td>
</tr>
<tr>
<td>--auto</td>
<td>Automatic mode. Selecting this option means that all questions are automatically answered. Please note that invalid credentials provided will mean that a manual taxonomy import and pattern recompile will be necessary. Details and more information available in the log file on completion.</td>
</tr>
<tr>
<td>--upgrade-discovery-scripts</td>
<td>Upgrades the discovery scripts to their latest versions. Any local modifications will be lost. If this option is not specified, the scripts will not be modified, only the &quot;default scripts&quot; (see Managing the discovery platform scripts) will be upgraded. You can reset to upgraded &quot;default scripts&quot; later. See Managing the discovery platform scripts for more information.</td>
</tr>
<tr>
<td>--username</td>
<td>BMC Atrium Discovery UI user. Only valid in automatic mode.</td>
</tr>
<tr>
<td>--password</td>
<td>BMC Atrium Discovery UI user password. Only valid in automatic mode. Note: If your password contains any special characters you must escape them with a backslash character, e.g. instead of $ use $.</td>
</tr>
<tr>
<td>--verbose</td>
<td>Provide comprehensive messaging. This information is also logged in the file /usr/tideway/log/upgrade_Vn.log. See Messages in the Upgrade Log for notes on messages that may be logged.</td>
</tr>
<tr>
<td>--help</td>
<td>Displays a help message on the usage and options. The script then exits.</td>
</tr>
</tbody>
</table>

In the following procedure, the filename is referred to as ADDM_Upgrade_<arch>_Vn_nnnnnn_ga.sh.gz. Replace <arch> with 32 or 64, and Vn_nnnnnn_ga with the version number, in the commands as appropriate. For example, ADDM_Upgrade_64_8.3.2.2_267291_ga.sh.gz.

## The upgrade procedure

1. Delete the contents of the /var/spool/clientmqueue directory. Enter the following commands:

   ```bash
   # [root@localhost tmp]# cd /var/spool/clientmqueue
   # [root@localhost clientmqueue]# rm -f *
   # [root@localhost clientmqueue]# cd /tmp
   ```
2. Copy the ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh.gz file to a temporary directory, such as /tmp.

3. Unzip the archive file using the following command:

   [root@localhost tmp]# gunzip -v ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh.gz

4. As the root user, run the upgrade script. Enter:

   [root@localhost tmp]# sh ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh

The following message is displayed:

Welcome to the BMC Atrium Discovery and Dependency Mapping Appliance 8.3.2.2 upgrade

The Release Notes for this version contain vital information for any user wishing to upgrade their appliance. Please ensure that you have read them prior to continuing.

The Release Notes are available online:


Points to note:

- The Appliance sizing guidelines have been revised in this release
  http://discovery.bmc.com/docs/83/Sizing+guidelines
- It is important that you perform the post-upgrade tasks listed in the Post Upgrade Task Summary.

To complete the upgrade you will need:

- To execute this script as the root user
- ADDM credentials for a user with admin privileges
- If enabled, the passphrase with which the vault is protected

Have you read the Release Notes, and do you have everything you need to complete the upgrade (yes/no)?

5. Enter yes if you have all that you need to perform the upgrade. Answering no aborts the installation.

The script checks that all system requirements are fulfilled.

Performing upgrade requirements checks ...
Stopping services ...
Stopping httpd: [ OK ]
Services stop complete.
Starting services ...
Starting httpd: [ OK ]

Services start complete.
Checks complete.

6. Then the upgrade itself is commenced, beginning with extracting the files from the archive.

Starting Upgrade on Mon Mar 12 09:36:36 GMT 2012
------------------------------------------------------
STAGE 1: Archive Extraction.
------------------------------------------------------

7. If the temporary directory does not exist you are asked whether it should be created. If it
does exist you are asked whether you want to use it. Answering no aborts the installation.

Temporary directory /usr/tideway/tmp/twf.upgrade does not exist, create it (yes/no)?
Starting extraction ...
Archive extracted.
Unpacking Archive ...
Archive unpacked.
Unpacking Archive ...
Archive unpacked.
Unpacking Archive ...
Archive unpacked.
Device package incompatible with new release - removing it
Stopping Tideway application services
Starting Discovery service: [ OK ]
Renaming current dashboard to: /usr/tideway/etc/dashboards/297ab12da921ab324c1089485edb46c4.dash.old
The default dashboard has been replaced. The original dashboard
was saved as /usr/tideway/etc/dashboards/297ab12da921ab324c1089485edb46c4.dash.old
Extraction complete.

8. The upgrade then upgrades the operating system if required. Upgrading the operating
system may take a long time. If you are not running in verbose mode, you can monitor
progress by checking the log file using the following command:

$ tail -f /usr/tideway/log/upgrade_V.n.log
During the operating system upgrade, some SELinux error messages are logged, these can be ignored. See Messages in the Upgrade Log for notes on messages that may be logged.

9. The upgrade then tests that the RPM will install correctly against the current system.

10. The next part of the upgrade is configuring the system, for example applying patches.

11. The upgrade script now upgrades the operating system, BMC Atrium Discovery, and any dependencies.

Upgrading the BMC Atrium Discovery application may take a long time. If you are not running in verbose mode, you can monitor progress by checking the log file using the following command:
$ tail -f /usr/tideway/log/upgrade_V.n.log

Part of this stage is to create a snapshot unless you specified otherwise.

Starting services ...
Starting httpd: [ OK ]
Services start complete.
Running snapshot ...
Snapshot complete.
Stopping services ...
Stopping httpd: [ OK ]
Services stop complete.
Starting RPM Upgrade ... this may take a while, please be patient!
Packages successfully upgraded.

12. The BMC Atrium Discovery application has now been upgraded, but a number of configuration steps need to take place, for example re-importing the taxonomy and recompiling patterns.

---------------------------------------------------------------------
STAGE 6: Post Installation Configuration.
---------------------------------------------------------------------
Starting services ...
Services start complete.
Starting Tideway application services
  Starting Security service: [ OK ]
  Starting Model service: [ OK ]
Exporting existing taxonomy to /usr/tideway/var/previous_taxonomy.xml ...
  Export taxonomy complete.
Importing the taxonomy ...
  Import taxonomy complete.
Stopping Tideway application services
  Stopping Model service: [ OK ]
  Stopping Security service: [ OK ]
Stopping services ...
Services stop complete.
Starting services ...
Starting httpd: [ OK ]
Services start complete.
Recompiling patterns ...
Recompile complete.
Old discovery scripts saved as /usr/tideway/etc/discovery-scripts-backup.xml.
Upgrade of discovery scripts complete.
Restarting the firewall to enable any changes.
13. If you have asked to upgrade the discovery scripts, a back-up of the current scripts are first saved to

```
/usr/tideway/etc/discovery-scripts-backup.xml
```

If this fails for any reason, you are asked to confirm whether you still want to upgrade the scripts.

14. The application software upgrade process is now complete. The script now informs you of post upgrade steps that may be required.

```
---------------------------------------------------------------
STAGE 7: Post Upgrade Task Summary
---------------------------------------------------------------
The Kernel has been upgraded. The system MUST be rebooted.

Operating System task summary can be found in /usr/tideway/log/postosupgrade_5.12

---------------------------------------------------------------
STAGE 8: Post Operating System Task Summary
---------------------------------------------------------------
The Kernel has been upgraded. The system MUST be rebooted.

Upgrade complete - Mon Mar 12 09:36:46 GMT 2012
```

15. The script now informs you of any post operating system upgrade steps that may be required, in this case rebooting the system after a kernel upgrade. The script now exits.

```
STAGE 8: Post Operating System Task Summary
---------------------------------------------------------------
The Kernel has been upgraded. The system MUST be rebooted.

Upgrade complete - Mon Mar 12 09:36:46 GMT 2012
```

16. Reboot the appliance. Enter the following command:

```
{root@localhost tmp}# reboot
```

The software and operating system upgrade is now complete and the appliance is running BMC Atrium Discovery version 8.3 SP2.
Post upgrade steps

After installation there are a number of additional steps required depending on the configuration of the pre-upgrade system. For example, if you have already used CMDB synchronization, you need to update the CMDB.

⚠️ As well as the notes on this page you should refer to the `postupgrade_8.3_TODO.log` written out by the upgrade script at STAGE 6 above. This contains tailored advice of the tasks that must be completed on that particular appliance and these must be completed for correct future behavior.

Messages in the upgrade log

During the upgrade the firewall (`iptables`) is restarted. When a kernel upgrade is part of the upgrade, the firewall is unable to restart as there is a mismatch between the running kernel's version and the kernel on disk. The firewall logs a `FATAL` message, but as this is entirely expected, the upgrade script wraps it in an information message:

```
```

This is expected behavior and does not indicate a problem with the upgrade.

Check Windows proxy compatibility

Check the Windows proxy compatibility matrix to determine whether you need to upgrade Windows proxies.

Deactivate existing TKU and activate new TKU

The upgrade installs a new TKU package (TKU-Core-2012-02-1) but does not activate it. Any TKU Package that you have installed must be deactivated before activating the TKU-Core-2012-02-1. Information on activating and deactivating TPL packages is available here.

⚠️ You must activate the new TKU package, unless a newer TKU package is already activated. To know about the latest available TKU, see the latest TKU documentation.

Package changes for CDM Mapping and Discovery Conditions

The CDM Mapping and Discovery Conditions packages have been amalgamated into a single package. The new package is called:

- `TKU-System-2012-02-1-ADDM-8.3+.zip`
Windows proxy configuration file baseline check

The Windows proxy configuration file baseline check now checks the configuration file of all attached Windows proxies, rather than just the local configuration file. As a result, after upgrade this check will display the error "FAILED: Expected results are missing" until it is re-baselined.

Clearing browser caches

After upgrading you should clear the cache of any client browsers or force a refresh (CTRL+F5 in most browsers).

Baseline changes

The baseline tool tracks changes to the system configuration from a known baseline. After an upgrade, the appliance configuration will have changed significantly. You should view the baseline page after an appliance upgrade and examine the changes made to the system. When you understand the changes that have been made, you can re-baseline the appliance so that the tool can check for changes from the configuration after upgrading to BMC Atrium Discovery version 8.3.

Maximum cache size

If you upgrade from a version that permits larger cache sizes than the current, the cache size label (see model maintenance settings) is displayed incorrectly.

Export mapping sets

While upgrading, the script will check to see if there is a newer version of each of the installed mapping sets. If a mapping set has changed since the last version, either by the user modifying it or BMC Software releasing a newer version, then a warning is displayed to the user. The original mapping is renamed by the script to append ".old" to the mapping set descriptor (the file ending with ".properties") and "_old" to the directory containing the mapping files. The user can either:

- Ignore the warning if the export framework is not being used.
- Compare the old mapping set to the new one and keep the new one (i.e. do nothing).
- Compare the old mapping set to the new one and decide to keep the old one, in which case the user needs to manually delete the newer mapping descriptor and directory and rename the old ones (removing the .old and _old postfixes).
- Compare the old mapping set to the new one and merge the changes. If the changes to the mapping set have been performed by BMC Software then these changes will be listed in the release notes and the user can apply these changes manually to their own copy of the mapping set.
Upgrading to version 8.3 SP3

⚠️ Upgrade path from this release

There is no upgrade or migration path from BMC Atrium Discovery version 8.3 SP3 to BMC Atrium Discovery version 9.0. Consequently, we recommend that you only upgrade to this release if you particularly need any of the new features described here, or defects resolved in this version.

The upgrade script upgrades the appliance to BMC Atrium Discovery version 8.3 SP3 from the following supported versions:

- 8.2
- 8.2.01
- 8.2.02
- 8.2.03
- 8.2.04
- 8.3
- 8.3 SP1
- 8.3 SP2

There is no upgrade path from BMC Atrium Discovery version 7.5 to version 8.3 SP3. Rather, you need to migrate your data to a new installation of BMC Atrium Discovery version 8.3 SP3.

⚠️ Note

If you are upgrading from an earlier 7.X or 8.X version you will first need to upgrade to one of the versions listed above.

This release introduces the ability to upgrade the operating system independently of BMC Atrium Discovery upgrades. See Operating system upgrades for more information.

What you need to proceed with this upgrade

1. You must be logged in as the root user with the root user environment.
2. The tideway services must be running when you run the upgrade.
3. The credentials of a UI user with sufficient permissions to re-import the taxonomy and compile patterns.
4. The upgrade script. Download the one appropriate to your architecture from the BMC Electronic Product Distribution (EPD) site. This is one of:
   - 32 bit: ADDM_Upgrade_32_Vn_nnnnnn_ga.sh.gz
   - 64 bit: ADDM_Upgrade_64_Vn_nnnnnn_ga.sh.gz
   Where <arch> with 32 or 64, and Vn_nnnnnn_ga is the version number. For example, ADDM_Upgrade_64_8.3.3_267291_ga.sh.gz.

Warnings

⚠️ Before you start an upgrade in a system that uses consolidation, ensure that all runs are stopped on the scanning appliances and have run to completion on the consolidation appliance. Failure to do so may result in the upgrade failing on the consolidation appliance.

When a system uses consolidation, the recommended approach is to stop discovery on scanning appliances, ensure that all consolidation operations are complete, and then upgrade. See below for more information on upgrading multiple appliances.

⚠️ Required appliance specification increased

The required appliance specification was increased in BMC Atrium Discovery versions 8.3 SP2 and later to support the greater discovery capabilities. Before upgrading you must ensure that the appliance you are upgrading meets the specification. See the appliance sizing guidelines for more information.

⚠️ Changes to OS Configuration Files

If you have made changes to operating system configuration files on the appliance, these changes may be overwritten by the upgrade process. After the upgrade has completed, you must check any configuration files you have previously modified and reapply the changes as required.

⚠️ Database upgrade

This upgrade performs an upgrade of the BMC Atrium Discovery database. It is highly recommended that you do not skip running a snapshot. Where a snapshot is created, it can only be restored to an appliance running the pre-upgrade version.
## Topology removal

This upgrade removes the Topology mapping feature introduced in BMC Atrium Discovery 8.2. Topology mapping is replaced by Edge connectivity. All Topology related nodes are deleted from the datastore as part of this upgrade. You cannot proceed with this upgrade if you do not wish to delete all Topology related nodes.

## Upgrade considerations

The following headings are links which reveal information which may be pertinent to your upgrade:

### When you run the upgrade, the timezone you have specified will be overwritten and returned to Europe/London unless you have updated the variable ZONE in /etc/sysconfig/clock. See Localizing the appliance for information on how to do this.

### You may have a number of appliances, for example one or more appliances consolidating to a central consolidated appliance. When a system uses consolidation, the recommended approach is to stop discovery on scanning appliances, ensure that all consolidation operations are complete, and then upgrade all appliances before restarting discovery on the scanning appliances.

Consolidating appliances must always be upgraded first. An 8.3 SP3 consolidating appliance can accept data from an 8.2 scanning appliance. An 8.2 consolidating appliance cannot accept data from an 8.3 SP3 scanning appliance.

### Where an upgrade makes changes to syncmapping files (see Default CDM Mapping and Syncmapping block), the initial CMDB syncs after upgrade may cause longer reconciliation times. Examples of such changes are key changes or attribute changes on a CMDB CI.

### To allow you to better scale your Windows discovery capabilities, Windows Proxy Pools have been added. These allow you to group sets of Windows proxies together, across which the system will distribute discovery requests in order to load balance.

While the pools themselves can be ordered, the proxies in them cannot. Consequently it is not possible to preserve the ordering that has been configured in pre-version 8.3 systems. If you need to preserve certain aspects of the ordering of your existing proxies, you should make a note of what you want to preserve before starting the upgrade.

### The following ordering and distribution of proxies occurs automatically during the upgrade.

1. All Workgroup proxies are put into their own pool.
2. AD proxies are grouped by domain and IP restriction list. AD proxies with the same domain and restriction lists are placed in the same pool.
3. Credential proxies are grouped by IP restriction list.
If a VMware ESX/ESXi host is discovered using ssh in the pre-upgrade version of BMC Atrium Discovery, its identity may change post upgrade. The discovery scripts now obtain more information which changes the `os_class/os_type` from UNIX/ESX Linux to Other/VMware ESX, and because the host's UUID and architecture is now discovered. However, the `last_access_method` remains ssh, so the new VMware ESX/ESXi discovery capabilities are not used. You can workaround this by following the following procedure:

1. Configure the new VMware ESX/ESXi discovery.
2. Cause the ssh discovery to fail and discover using the VMware ESX/ESXi discovery by:
   a. Changing the username of the ssh credential used.
   b. Scanning just those VMware ESX/ESXi hosts.
   c. Reverting the ssh credential username.

The following items are also affected by the upgrade:

- **Tomcat providers**: where Tomcat discovery using JMX has been configured, the Tomcat providers are disabled. Tomcat discovery now uses configuration files.
- **Sensitive data filters**: these have been updated and extended to retrieved files. If you have created custom filters for command line information then the upgrade makes no changes to these. If you have not created custom filters then the new defaults are installed.
- **SQL and JDBC credentials**: where SQL and JDBC credentials are in use, their existing properties files continue to be used and updated properties files are installed but not used. Where such credentials are unused, the old properties files are replaced with the latest.
- **tw_options**: where the values of `BOGUS_SERIAL_FILTER` and `BOGUS_HOSTID_FILTER` are the defaults, then they are upgraded to new defaults. If they are non-default, then they are not changed and a warning is written to the upgrade log.
- **Windows proxy configuration**: Windows proxy configuration information previously held in the `discovery.conf` file is now moved to the vault.
- **New Runtime Environment node**: the Runtime Environment Node replaces the Java SI. The upgrade attempts to find all patterns that trigger on the Java SI (their primary inference is on the Java SI) and writes them to the upgrade log. These patterns will no longer trigger as Java SIs are no longer created. You must modify these patterns to trigger on Runtime Environment Nodes.

**Upgrade script options**

The upgrade script has the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>--no-snapshot</code></td>
<td>Do not create a database snapshot before upgrading the BMC Atrium Discovery application. If created, a snapshot takes place after the operating system is upgraded, but before the BMC Atrium Discovery application is upgraded.</td>
</tr>
<tr>
<td><code>--extract</code></td>
<td>Extract the files from the archive contained in the script. This does not perform the upgrade. A manual upgrade is not supported.</td>
</tr>
</tbody>
</table>
### Option Description

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>--tmpdir dirname</code></td>
<td>Specify a directory in which to store temporary files. The default is <code>/usr/tideway/tmp/twf upgrade</code>. <em>Note:</em> This directory needs at least 2237MB.</td>
</tr>
<tr>
<td><code>--no-clean</code></td>
<td>Do not delete the temporary files extracted from the archive after the upgrade has been performed. The temporary files will be owned by the root user.</td>
</tr>
<tr>
<td><code>--auto</code></td>
<td>Automatic mode. Selecting this option means that all questions are automatically answered. Please note that invalid credentials provided will mean that a manual taxonomy import and pattern recompile will be necessary. Details and more information available in the log file on completion.</td>
</tr>
<tr>
<td><code>--upgrade-discovery-scripts</code></td>
<td>Upgrades the discovery scripts to their latest versions. Any local modifications will be lost. If this option is not specified, the scripts will not be modified, only the &quot;default scripts&quot; (see Managing the discovery platform scripts) will be upgraded. You can reset to upgraded &quot;default scripts&quot; later. See Managing the discovery platform scripts for more information.</td>
</tr>
<tr>
<td><code>--username</code></td>
<td>BMC Atrium Discovery UI user. Only valid in automatic mode.</td>
</tr>
<tr>
<td><code>--password</code></td>
<td>BMC Atrium Discovery UI user password. Only valid in automatic mode. <em>Note:</em> If your password contains any special characters you must escape them with a backslash character, e.g. instead of $ use $.</td>
</tr>
<tr>
<td><code>--verbose</code></td>
<td>Provide comprehensive messaging. This information is also logged in the file <code>/usr/tideway/log/upgrade_Vn.log</code>. See Messages in the upgrade log for notes on messages that may be logged.</td>
</tr>
<tr>
<td><code>--help</code></td>
<td>Displays a help message on the usage and options. The script then exits.</td>
</tr>
</tbody>
</table>

In the following procedure, the filename is referred to as `ADDM_Upgrade_<arch>_Vn_nnnnnn_ga.sh.gz`. Replace `<arch>` with 32 or 64, and `Vn_nnnnnn_ga` with the version number, in the commands as appropriate. For example, `ADDM_Upgrade_64_8.3.2.2_267291_ga.sh.gz`.

### The upgrade procedure

1. Delete the contents of the `/var/spool/clientmqueue` directory. Enter the following commands:

   ```bash
   # [root@localhost tmp]# cd /var/spool/clientmqueue
   # [root@localhost clientmqueue]# rm -f *
   # [root@localhost clientmqueue]# cd /tmp
   ```

2. Copy the `ADDM_Upgrade_<arch>_Vn_nnnnnn_ga.sh.gz` file to a temporary directory, such as `/tmp`.

3. Unzip the archive file using the following command:
4. As the root user, run the upgrade script. Enter:

```
[root@localhost tmp]# gunzip -v ADDM_Upgrade_<arch>_Vn_nnnnn_ga.sh.gz
```

The following message is displayed:

```
Welcome to the BMC Atrium Discovery and Dependency Mapping Appliance 8.3.3 upgrade

The Release Notes for this version contain vital information for any user wishing to upgrade their appliance. Please ensure that you have read them prior to continuing.
The Release Notes are available online:

Points to note:
- The Appliance sizing guidelines have been revised in this release
  http://discovery.bmc.com/docs/83/Sizing+guidelines
- It is important that you perform the post-upgrade tasks listed in the Post Upgrade Task Summary.

To complete the upgrade you will need:
- To execute this script as the root user
- ADDM credentials for a user with admin privileges
- If enabled, the passphrase with which the vault is protected

Have you read the Release Notes, and do you have everything you need to complete the upgrade (yes/no)?
```

5. Enter yes if you have all that you need to perform the upgrade. Answering no aborts the installation.
The script checks that all system requirements are fulfilled.

```
Performing upgrade requirements checks ...
Stopping services ...
Stopping httpd: [ OK ]

Services stop complete.
Starting services ...
Starting httpd: [ OK ]
```
5. Services start complete.
   Checks complete.

6. Then the upgrade itself is commenced, beginning with extracting the files from the archive.

   Starting Upgrade on Mon Nov 12 09:36:36 GMT 2012
   ------------------------------------------------------
   STAGE 1: Archive Extraction.
   ------------------------------------------------------

   If the temporary directory does not exist you are asked whether it should be created. If it does exist you are asked whether you want to use it. Answering no aborts the installation.

   Starting extraction ...
   Archive extracted.
   Unpacking Archive ...
   Archive unpacked.
   Unpacking Archive ...
   Archive unpacked.
   Archive: /usr/tideway/tmp/twf.upgrade/Technology-Knowledge-Update-2012-10-2-ADDM-8_
   inflating: /usr/tideway/tmp/twf.upgrade/rpms/tideway-devices-3.0.2012.10.2-294672.ga.noarch.drpm
   Unpacking Archive ...
   Archive unpacked.
   Devices package incompatible with new release - removing it
   Stopping Tideway application services
   Starting Discovery service: [ OK ]
   Renaming current dashboard to: /usr/tideway/etc/dashboards/297ab12da921ab324c108946c4.dash.old
   The default dashboard has been replaced. The original dashboard was saved as /usr/tideway/etc/dashboards/297ab12da921ab324c1089485edc6e4.dash.old
   Extraction complete.

7. The upgrade then upgrades the operating system if required. Upgrading the operating system may take a long time. If you are not running in verbose mode, you can monitor progress by checking the log file using the following command:

   $ tail -f /usr/tideway/log/upgrade_V.n.log

   During the operating system upgrade, some SELinux error messages are logged, these can be ignored. See Messages in the upgrade log for notes on messages that may be logged.
STAGE 2: Upgrade Operating System

Running Operating System upgrade...
Operating System upgrade complete.

9. The upgrade then tests that the RPM will install correctly against the current system.

STAGE 3: RPM Upgrade Tests.

Starting RPM upgrade test ... this may take a while, please be patient!
Tests complete.

10. The next part of the upgrade is configuring the system, for example applying patches.

STAGE 4: Configure System for Upgrade

Starting configuration ...
Stopping services ...
Stopping httpd: [ OK ]

Services stop complete.
Configuration complete.

11. The upgrade script now upgrades the operating system, BMC Atrium Discovery, and any dependencies.

STAGE 5: Upgrade ADDM and dependencies

Upgrading the BMC Atrium Discovery application may take a long time. If you are not running in verbose mode, you can monitor progress by checking the log file using the following command:

$ tail -f /usr/tideway/log/upgrade_V.n.log
Part of this stage is to create a snapshot unless you specified otherwise.

Starting services ...
Starting httpd: [ OK ]
Services start complete.
Running snapshot ...
Snapshot complete.
Stopping services ...
Stopping httpd: [ OK ]
Services stop complete.
Starting RPM Upgrade ... this may take a while, please be patient!
Packages successfully upgraded.

12. The BMC Atrium Discovery application has now been upgraded, but a number of configuration steps need to take place, for example re-importing the taxonomy and recompiling patterns.

---------------------------------------------------------------
STAGE 6: Post Installation Configuration.
---------------------------------------------------------------
Starting services ...
Services start complete.
Starting Tideway application services
  Starting Security service: [ OK ]
  Starting Model service: [ OK ]
Exporting existing taxonomy to /usr/tideway/var/previous_taxonomy.xml ...
Export taxonomy complete.
Importing the taxonomy ...
Import taxonomy complete.
Stopping Tideway application services
  Stopping Model service: [ OK ]
  Stopping Security service: [ OK ]
Stopping services ...
Services stop complete.
Starting services ...
Starting httpd: [ OK ]
Services start complete.
Recompiling patterns ...
Recompile complete.
Old discovery scripts saved as /usr/tideway/etc/discovery-scripts-backup.xml.
Upgrade of discovery scripts complete.
Restarting the firewall to enable any changes.

13. If you have asked to upgrade the discovery scripts, a back-up of the current scripts are first saved to
13. `/usr/tideway/etc/discovery-scripts-backup.xml`.

If this fails for any reason, you are asked to confirm whether you still want to upgrade the scripts.

14. The application software upgrade process is now complete. The script now informs you of post upgrade steps that may be required.

```
STAGE 7: Post Upgrade Task Summary

Tripwire requires re-baselining because the new policy file differs from the currently configured policy file. A copy of the policy file has been made to `/usr/tideway/etc/twpol.txt.custom`. Please reapply the customizations to the new default policy file, `/usr/tideway/etc/twpol.txt`, and re-baseline tripwire as per instructions outlined in the Configuration Guide.

Task summary can be found in `/usr/tideway/log/postupgrade_8.3.3_TODO.log`
```

15. The script now informs you of any post operating system upgrade steps that may be required, in this case rebooting the system after a kernel upgrade. The script now exits.

```
STAGE 8: Post Operating System Task Summary

The Kernel has been upgraded. The system MUST be rebooted.

Changes have been made to turn IPv6 support off. The system MUST be rebooted.

Operating System task summary can be found in `/usr/tideway/log/postosupgrade_5.12.10.15-291388_TODO.log`
```

16. Reboot the appliance. Enter the following command:

```
{root@localhost tmp}# reboot
```

The software and operating system upgrade is now complete and the appliance is running BMC Atrium Discovery version 8.3 SP3.
Post upgrade steps

After installation there are a number of additional steps required depending on the configuration of the pre-upgrade system. For example, if you have already used CMDB synchronization, you need to update the CMDB.

⚠️ As well as the notes on this page you should refer to the postupgrade_8.3.3_TODO.log written out by the upgrade script at STAGE 7 above. This contains tailored advice of the tasks that must be completed on that particular appliance and these must be completed for correct future behavior.

Messages in the upgrade log

During the upgrade the firewall (iptables) is restarted. When a kernel upgrade is part of the upgrade, the firewall is unable to restart as there is a mismatch between the running kernel's version and the kernel on disk. The firewall logs a FATAL message, but as this is entirely expected, the upgrade script wraps it in an information message:


This is expected behavior and does not indicate a problem with the upgrade.

Check Windows proxy compatibility

Check the Windows proxy compatibility matrix to determine whether you need to upgrade Windows proxies.

Deactivate existing TKU and activate new TKU

The upgrade installs a new TKU package (TKU-Core-2012-10-2) but does not activate it. Any TKU Package that you have installed must be deactivated before activating the TKU-Core-2012-10-2. Information on activating and deactivating TPL packages is available here.

⚠️ You must activate the new TKU package, unless a newer TKU package is already activated. To know about the latest available TKU, see the latest TKU documentation.

Package changes for CDM Mapping and Discovery Conditions

The CDM Mapping and Discovery Conditions packages have been amalgamated into a single package. The new package is called:

- TKU-System-2012-10-2-ADDM-8.3+.zip
Windows proxy configuration file baseline check

The Windows proxy configuration file baseline check now checks the configuration file of all attached Windows proxies, rather than just the local configuration file. As a result, after upgrade this check will display the error "FAILED: Expected results are missing" until it is re-baselined.

Clearing browser caches

After upgrading you should clear the cache of any client browsers or force a refresh (CTRL+F5 in most browsers).

Baseline changes

The baseline tool tracks changes to the system configuration from a known baseline. After an upgrade, the appliance configuration will have changed significantly. You should view the baseline page after an appliance upgrade and examine the changes made to the system. When you understand the changes that have been made, you can rebaseline the appliance so that the tool can check for changes from the configuration after upgrading to BMC Atrium Discovery version 8.3.

Maximum cache size

If you upgrade from a version that permits larger cache sizes than the current, the cache size label (see model maintenance settings) is displayed incorrectly.

Export mapping sets

While upgrading, the script will check to see if there is a newer version of each of the installed mapping sets. If a mapping set has changed since the last version, either by the user modifying it or BMC Software releasing a newer version, then a warning is displayed to the user. The original mapping is renamed by the script to append ".old" to the mapping set descriptor (the file ending with ".properties") and "_old" to the directory containing the mapping files. The user can either:

- Ignore the warning if the export framework is not being used.
- Compare the old mapping set to the new one and keep the new one (i.e. do nothing).
- Compare the old mapping set to the new one and decide to keep the old one, in which case the user needs to manually delete the newer mapping descriptor and directory and rename the old ones (removing the .old and _old postfixes).
- Compare the old mapping set to the new one and merge the changes. If the changes to the mapping set have been performed by BMC Software then these changes will be listed in the release notes and the user can apply these changes manually to their own copy of the mapping set.
Migrating from version 7.5 to 8.3

Migration background

The BMC Topology Discovery and Foundation Discovery products (later renamed to BMC Atrium Discovery and Dependency Mapping, or BMC Atrium Discovery) were recently replaced by the Tideway Foundation product that BMC acquired in October 2009. Immediately upon acquisition, BMC started shipping the Tideway product as BMC Atrium Discovery version 8.0. Going forward, BMC recommends that all existing users migrate to the latest version 8.3 service pack from their installations of earlier versions of the product.

⚠️ For users of Tideway Foundation

If you are using a version of Tideway Foundation prior to version 8.0, you do not need to migrate your installation. You simply need to upgrade to the latest version of BMC Atrium Discovery. See Upgrading to version 8.3 for more information. Migration is only required from the BMC Discovery products released before the BMC Software acquisition of Tideway.

Clearly, versions 8 and later contain a different product architecture from versions 7.5 (and its predecessors). Data discovered by these products and synchronized to BMC Atrium CMDB is going to be very different as a result. Two illustrative examples include:

- Version 7.5 populates a list of products for a host based on the list of installed packages, whereas version 8.3 populates the list of products based on the products it finds running. As a result, the lists are very different, often with little overlap.
- Version 7.5 provides a number of CMDB extensions to create classes that it then populates (for example, for J2EE and SAP data). Version 8 uses the out-of-box CMDB model for these items, and therefore creates different CIs in the CMDB.

Based on these examples, reconciling these CIs in the CMDB with each other is essentially impossible: they have different structures, different sources, and often different contents. When migrating to version 8.3, a migration approach is needed to ensure that items are not duplicated in BMC Atrium CMDB and that any tools relying on the data in the CMDB can continue to function correctly.

For more detail on the differences between the two versions, and how the characteristics of each discovery methodology might impact your migration strategy, see Fundamental differences in discovering configuration data.
Considerations for migrating data

Discovery configuration

Your discovery configuration for BMC Atrium version 7.5 likely contains valuable information that you want to carry over to your version 8.3 implementation. The configured credentials, discovery jobs, and UAD signatures took time to build and should be taken advantage of in the new version. The following pages describe how to migrate these items to the latest version of BMC Atrium Discovery:

- Migrating credentials
- Migrating UAD signatures
- Migrating scheduled discovery tasks

Note

The supported migration path for BMC Atrium Discovery is from version 7.5.01.03 to the latest service pack of version 8.3. If you plan to migrate data from earlier versions of BMC Atrium Discovery (or BMC Topology Discovery and BMC Foundation Discovery), you must first upgrade to version 7.5.01.03. For users migrating their mainframe data using BMC Discovery for zOS version 1.5, you must first upgrade to version 1.6.

CMDB data and ITSM consuming applications

While many of the CMDB classes populated by these two product versions are not reconcilable, the BMC_ComputerSystem, BMC_LanEndpoint, and BMC_IPEndPoint classes will, in almost all cases, reconcile correctly. This enables a migration approach for BMC Atrium CMDB that retains all the history of computer system CIs, although any essential data attached to CIs that make up a computer systems will need to be handled specially.

The broad approach is that all CIs in BMC Atrium CMDB that will not be reconciled correctly (that is, the items that make up a computer system: software servers, CPU CIs, and so forth) and that are not involved in IT Service Management (ITSM) items such as incidents and changes, will be deleted. BMC Atrium CMDB will be repopulated by the BMC Atrium Discovery 8.3 migration utility, and these new items will continue to be used by BMC Atrium CMDB consumers to handle ITSM applications. See Migrating data to populate the CMDB for ITSM for more information.
Service impact models

BMC Atrium Discovery 8.3 exports impact relationships between all Service Impact Manager (SIM)-enabled classes in the same way that version 7.5 does. Any impact relationships that you manually create between CIs populated by version 7.5 must be rebuilt between the corresponding version 8.3 CIs. See Migrating impact models for more information.

Similar to the ITSM use case, all CIs in BMC Atrium CMDB that are not involved in creating service models will be deleted. BMC Atrium CMDB will be repopulated by the BMC Atrium Discovery 8.3 migration utility, and these new items will continue to be used by BMC Atrium CMDB consumers to build service models.

Impact on users

It is important to understand that users are going to see significant changes to the data that they work with. Some data will appear differently, and some items will show up in different CMDB classes.

BMC recommends that you first migrate your development CMDB environment, both to validate the migration approach in your organisation, and to familiarize yourself with the changes that happen to the data in your CMDB. It is important that you educate your users about the changes that they should expect in order to keep them productive immediately after the migration. The migration solutions detailed in the following sections follow this methodology: check the impact on your environment, test, migrate the data, and then validate.

![Best Practice]

After you have determined that you are ready to migrate the data, perform the migration promptly to avoid possible implications of introducing additional data into the CMDB. This will change your original test results, and the resultant inconsistency in the data might cause confusion.

Fundamental differences in discovering configuration data

Before you can migrate your discovery data from a BMC Atrium Discovery version 7.5 environment to version 8.3, you should understand the fundamental differences in how configuration data is discovered and processed in each version. The way that discovery works in each version is quite different, and this affects how migration of crucial data should be planned and executed.

![Note]
The supported migration path for BMC Atrium Discovery is from version 7.5.01.03 to version 8.3. If you plan to migrate data from earlier versions of BMC Atrium Discovery (or BMC Topology Discovery and BMC Foundation Discovery), you must first upgrade to version 7.5.01.03. For users migrating their mainframe data using BMC Discovery for zOS version 1.5, you must first upgrade to version 1.6.

Considerations for scanning data

A comparison of the configuration data specified in BMC Atrium Discovery version 7.5 and version 8.3 illustrates that two systems running each version use different approaches for specifying a discovery scan. Therefore, the migration of discovery data must account for those differences. The following table illustrates the approaches that each system uses based on the version of BMC Atrium Discovery that is deployed, by specifying the characteristics of each of the fundamental elements required to run scanned data.

<table>
<thead>
<tr>
<th>Version</th>
<th>BMC Atrium 7.5</th>
<th>BMC Atrium 8.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminology</td>
<td>Task. Users specify a discovery by creating a wizard-generated task that defines the scope, method, credentials, and schedule through a sequence of steps.</td>
<td>Scan. Users run a snapshot, a one off scan to discover the environment, or perform a scheduled scan that runs periodically. Neither concepts begin with creating a task.</td>
</tr>
<tr>
<td>What is Scanned</td>
<td>Users create Discovery Domains that group a collection of IP addresses, IP ranges and subnets on which the task is run. Users can also define what type of Discovery to perform, including the level (for example, Asset, Host), and the scope (for example, Databases, Enterprise Applications, Virtual Systems).</td>
<td>Users can define what level of Discovery to perform (Full Discovery or Sweep Scan). Regardless of the type of level used, what to scan for is dependent on what TKU patterns have been loaded.</td>
</tr>
<tr>
<td>Methods</td>
<td>Users define access methods (for example, SSH/Telnet, WMI) to define settings for Discovery types.</td>
<td>Users specify access methods against the credential (ssh, telnet, rlogin, Windows).</td>
</tr>
<tr>
<td>Credentials</td>
<td>Users can define a named set of login credentials. A Discovery Task attempts to use only the specified credentials.</td>
<td>Credentials are not specified for the Discovery Run; instead, they are specified for a particular IP Range (IP address, IP range, or IP address regex). When an IP address is scanned, the credentials that match the IP address are attempted in priority order.</td>
</tr>
<tr>
<td>Scheduling</td>
<td>Enables you to define a schedule for the task or to initiate it manually</td>
<td>Enables you to define a schedule for the run or perform the scan immediately</td>
</tr>
</tbody>
</table>

The table indicates that each version handles configuration data differently, meaning that the migration of that data will also be handled in a different way. For example, because of the difference between the Discovery types in version 7.5 and the scan level in version 8.3, it is difficult to preserve the types directly in the current version because all Discovery runs are run at a full Discovery level. As another example, because BMC Atrium Discovery does not contain named collections of IPs, so these named addresses, ranges, or subnets do not map one-to-one to scheduled runs. For more information about how BMC Atrium Discovery migrates scheduled tasks from version 7.5 to version 8.3, see Migrating scheduled discovery tasks.
Despite the circumstances predicated by different discovery approaches, BMC Atrium Discovery 8.3 provides functionality (through both the user interface and by a command line interface) that enables the product to translate the 7.5 data and to bring that data into version 8.3 with no loss of integrity.

Migrating credentials

Users of BMC Atrium Discovery 7.5 who have upgraded to version 8.3 can migrate their discovery credentials using the Credential Migration utility. This utility takes the credentials stored on version 7.5, encrypts them with a user provided passphrase, and saves the encrypted file to the version 7.5 file system. The encrypted file is manually uploaded to the 8.3 system, decrypted using the same passphrase, and imported into the Credential Vault.

⚠️ Note

The supported migration path for BMC Atrium Discovery is from version 7.5.01.03 to version 8.3. If you plan to migrate data from earlier versions of BMC Atrium Discovery (or BMC Topology Discovery and BMC Foundation Discovery), you must first upgrade to version 7.5.01.03. For users migrating their mainframe data using BMC Discovery for zOS version 1.5, you must first upgrade to version 1.6.

Downloading the Credential Migration utility

The Migration utility can be downloaded from the Credential Migration page in the BMC Atrium Discovery 8.3 UI.

To download the utility:

1. Select Credential Migration from the Discovery section of the Administration tab.
2. Click the Get utility to export 7.5 credentials link.

Installing the Credential Migration utility

To install the Credential Migration utility on a BMC Atrium Discovery 7.5 system:

1. Copy the zip file to the %TD_HOME%\install\deploy\tools directory.
2. Extract the contents of the zip file into this directory, ensuring that you preserve the directory structure. The resulting files should look like this:

```
%TD_HOME%\install\deploy\tools\credentials\impl_bootstrap.config
%TD_HOME%\install\deploy\tools\credentials\Migrate_Credentials.bat
%TD_HOME%\install\deploy\tools\credentials\lib\ExtractCredentials.jar
%TD_HOME%\install\deploy\tools\credentials\lib\log4j-1.2.14.jar
```
Exporting the Credentials from BMC Atrium Discovery 7.5

1. On the BMC Atrium Discovery server, navigate to the following location:
   \%TD_HOME\%\install\deploy\tools
2. Double-click the Migrate_Credentials.bat file to run the utility.
3. In the Passphrase for XML Encryption dialog, type a passphrase in the passphrase field.
4. Type the passphrase again when prompted in the confirmation field.
5. Click OK.
   The passphrase is used to encrypt the contents of the XML file.

The credentials are encrypted and saved as Encrypted_Credentials.xml in the same directory. This file is an encrypted XML file and cannot be read in a text editor.

⚠️ Migrating WebLogic credentials

If you are migrating discovery credentials for WebLogic, note that BMC Atrium Discovery version 8.3 requires host credentials for the WebLogic server. If available in version 7.5, the host credentials will be migrated. See Discovering WebLogic for information on the credentials required to discover WebLogic servers fully.

⚠️ Migrating Mainframe credentials

If you are migrating discovery credentials for mainframe, note that BMC Atrium Discovery version 8.3 only supports one port per credential and so will normalise the version 7.5 credentials to fit this requirement. This may result in more credentials being created than the number that was exported from version 7.5.

Importing the Credentials into BMC Atrium Discovery 8.3

When you import the encrypted credentials file, UNIX, SNMP, WebLogic, and mainframe credentials are handled automatically. Windows credentials are split into two categories (credentials identified as belonging to a domain and not belonging to a domain) and need user interaction to be migrated to version 8.3.

1. In the BMC Atrium Discovery version 8.3 UI, select Credential Migration from the Discovery section of the Administration tab.
2. Type the path and name of the Encrypted_Credentials.xml file in the Import Filename field. Alternatively, click the browse button and navigate to the file using the File Upload dialog.
3. In the File Passphrase field, enter the passphrase used to encrypt the file.
4. Select the credential type that you want to import. The supported types are:
   - UNIX
   - SNMP
   - Windows
   - WebLogic
   - Mainframe

   **Only select one credential type at a time**

   You can only select and import one credential type at a time otherwise the import will fail silently and simply refresh the Credential Migration page. This defect has been fixed in 8.3 SP2 and you can select all the credential types at the same time.

5. Enter a descriptive label to be applied to each imported credential. For example, "Migrated 7.5 Credentials".
6. Click Upload.

If you have previously used the Credential Migration page and imported Windows domain information and credentials, any that were not migrated or deleted in the last session are still displayed in the Credential Migration page. They are deleted when you import a new credential file. You are asked for confirmation for this step.

If the import is successful, a message is displayed informing you how many UNIX, SNMP, WebLogic, and mainframe credentials were successfully imported. The screen is refreshed to show any domains that have been imported, and any Windows login credentials. The following sections describe how to assign domains to Active Directory Windows proxies, and Windows login credentials to a Credential Windows proxy.

The imported Windows domain information and login credentials are held in the credential vault.

**Assigning domains to Windows proxies**

Domain information found in the imported data is listed in the ADDM 7.5 Windows Domains list. This is used in conjunction with the ADDM 8.3 Active Directory Windows proxies list.

This screen illustrates domain information in imported domain lists.
For each domain in the ADDM 7.5 Windows Domains list the following links are provided:

- **Register** – click this to register an Active Directory Windows proxy with the appliance. The Windows proxy must already be installed on a Windows host on the specified domain. When you click register, the Add Active Directory Windows proxy window is displayed. Enter the IP address of the Windows proxy and edit the name if required. Click Apply to apply the changes and return to the Credential Migration page.
- **Download** – click this to download an Active Directory Windows proxy installer. You need to be using a browser on the machine on which you want to install the Windows proxy. At the end of the Windows proxy installation procedure, select the Register Windows proxy with the Appliance you downloaded it from, and click Finish. The Add Active Directory Windows proxy page is displayed. Edit the name if required and add the domains which it will be used to scan.
- **Ignore** – click this to delete the imported domain.
- **Ungroup** – click this to remove this domain from the domains list and put the underlying credentials into the Windows login credentials list.

**Migrating Windows login credentials to a Credential Windows proxy**

Windows login credentials in BMC Atrium Discovery version 7.5 that did not have a discoverable domain (meaning that the username was not in the form `domain\username`) are listed in the Migrate Credentials section. This might be because the credential is still part of an implicit domain that 8.3 cannot detect but that the user knows. If this is the case, the credential(s) can be associated with a domain using the Add To Domain button. Any credentials that are not associated with a domain must be migrated across for use by an 8.3 Credential Windows proxy, as illustrated in the following screen.

![Migrate Credentials](image)

This screen illustrates an example of the two lists of 7.5 and migrated 8.3 credentials.

Each login credential in the ADDM 7.5 NT Login Credentials list is of the following form: `username for IP_regex`. The IP address or range of addresses is a regular expression.

To migrate a version 7.5 credential to version 8.3 for use by a credential Windows proxy, use the arrows between the two lists to migrate (or undo) the credential across to 8.3. In addition, the following buttons are also provided:
• **Test IP Access** – if the user is unsure of whether 8.3 can already access an endpoint then the user can click this button to determine whether the appliance can log into the endpoint. When clicked a popup window will be displayed. Enter the IP address and click the test button to test access to that address. See *Testing Credentials* for a full description of testing IP access.

• **Add To Domain** – if some 7.5 credentials have an implicit domain, then they can be assigned to that domain using this button. If that domain is already covered by an AD Windows proxy then the credentials will just be removed. Otherwise the new domain will be added to the list of domains to be migrated.

• **Ignore Credentials** – click this button to delete the selected credential or credentials.

• **Register Credential Windows proxy** – Individual credentials can only be migrated once a credential Windows proxy is registered with BMC Atrium Discovery 8.3. In order to do this click this button to register a Credential Windows proxy with the appliance. The Windows proxy must already be installed. When you click register, the *Add Credential Windows proxy* window is displayed. Enter the IP address of the Windows proxy and edit the name if required. Click Apply to apply the changes and return to the Credential Migration page.

⚠️ Where ten or fewer credentials of a particular type (UNIX, SNMP, WebLogic, and mainframe) are imported the IP range for them is set to . *

### Migrating UAD signatures

In BMC Atrium Discovery version 7.5, users can discover custom processes and applications, including in-house developed applications, by configuring Universal Application Discovery (UAD). Part of the process of migrating customized UAD data from BMC Atrium Discovery version 7.5 to version 8.3 involves copying information from version 7.5 to version 8.3 TPL files. There are two ways to do this, either copy information:

- directly from the UAD dialogs in the version 7.5 UI.
- from the UAD XML files.

⚠️ **Note**

The supported migration path for BMC Atrium Discovery is from version 7.5.01.03 to version 8.3. If you plan to migrate data from earlier versions of BMC Atrium Discovery (or BMC Topology Discovery and BMC Foundation Discovery), you must first upgrade to version 7.5.01.03. For users migrating their mainframe data using BMC Discovery for zOS version 1.5, you must first upgrade to version 1.6.
This section describes a simple approach to migrating a small number of UAD signatures. For more complex situations you should contact BMC Customer Support.

**UAD customizations from the UI**

To migrate UAD customizations, open the BMC Atrium Discovery version 7.5 UI. From the Discovery menu, select Manage Universal Application Discovery, and then Manage the Application Library. You can use the information displayed in the UI to populate parts of the pattern template described in the next section. In the pattern description, the UI fields from which you take values are noted.

**Entering information into the pattern template**

To complete the pattern, enter the values from the UAD dialogs into the pattern template. The pattern template is shown here.

**Module declaration**

The module declaration is mandatory and must be the first non-comment line of the pattern module. It specifies the language version tpl 1.5 and the name of the module that this pattern is part of. The convention used here for naming modules is "CompanyName.ProductSuite.ProductName".

```
tpl 1.5 module BMC.REMEDY.USER;
```

**Pattern name**

The pattern declaration provides the pattern name and version and a description of the pattern which is displayed when viewing the pattern in the BMC Atrium Discovery user interface. The version number is that of the pattern, not the product being identified.

```
pattern BMC_Remedy_Windows_Client 1.0
```

**Metadata**

The metadata section contains information on the software identified by the pattern. Enter the `products` string from the **Name** field of the Manage the Application Library dialog:

```
products := "BMC Remedy Windows Client";
```

Enter the `publisher` string from the **Vendor** field of the Manage the Application Library dialog.
Overview

The overview section contains additional information on the pattern. Commonly this is restricted to tags which are used to classify the pattern. The tags you enter can be viewed in the BMC Atrium Discovery user interface and can also be searched. Add a `UAD_MIGRATION` tag to ensure that nodes created from migrated UAD customization files can be tracked.

```
overview
  tags UAD_MIGRATION;
end overview;
```

Triggers

The triggers section of the pattern is the beginning of the active part of the pattern. It defines the conditions which causes the body of the pattern to be evaluated. The conditions which fire triggers are typically the creation or modification of data in the datastore.

In the version 7.5 UI, look for a process on which to trigger the pattern. From the Processes tab of the Manage the Application Library dialog, select the process with a checked Specifies an Instance checkbox.

Click the Edit Process button.

For a process to be suitable to trigger the pattern it must have the following Process Properties checked:

- I want to display applications and communications using this process (Is Interesting)
- The process can be executed by a unique application (Is Reliable)
This scene illustrates the Edit Process dialog populated with the selected process and enabled properties.

If the process has these properties checked, copy its name, without any file suffix, from the Name field or the Pattern field. Enter this name in the trigger section of the pattern. For example:

```plaintext
on process := DiscoveredProcess where cmd matches windows_cmd "aruser"
```

Here, a regular expression is specified to search the command used to start the BMC Remedy Windows Client. The regex is prefixed with `windows_cmd` which builds an expression suitable for identifying Windows commands, formed by prefixing the given string with `"(?i)b"` and suffixing it with `"\exe$s"`. Consequently you should not copy the suffix from the Name or Pattern field. For example, `windows_cmd "aruser"` creates the following regular expression;

```plaintext
'(?!\baruser\exe$s)'
```

A similar prefix is available for UNIX commands `unix_cmd` which prefixes the given string with `"b"` and suffixing it with `"s"`. Where an application runs on Windows and UNIX, you should create a separate pattern for each.

**Body**

The body section is where the main work of the pattern is undertaken, and the datastore is updated with the results of the pattern.
Here the process obtained from the triggers section is passed to the `model.host` function. This returns the host node on which that process is running.

```plaintext
host := model.host(process);
```

### Versioning

In BMC Atrium Discovery 7.5 versioning information is obtained through Windows APIs or on UNIX using deployed packages. This information is not recorded in UAD customization files, so you must choose a suitable versioning method for the discovered application.

This example shows the use of registry data to determine the version information and installation path.

```plaintext
registry_query := discovery.registryKey(host,
    'HKEY_LOCAL_MACHINE\SOFTWARE\Remedy\AR System User\Version');
```

Retrieving the registry entry may fail, so we must check that we received a value.

```plaintext
if registry_query and registry_query.value then
    version := registry_value.value;
end if;
```

The following example shows the use of package data to determine the version information.

```plaintext
// Find any packages that match the regular expressions defined in
// the constants.
packages := model.findPackages(host, package_regexes);

// If any packages were found, use the first one that has a version set
for package in packages do
    if package.version then
        version := package.version;
        break;
    end if;
end for;
```
Modeling SI (Software Instance):
The key is used to identify the SI. When converting UAD customizations, all keys should be key_group as the UAD files do not contain sufficient information to uniquely identify individual instances. For more information on SI keys, see Node Names Types and Keys in The Pattern Language TPL.

```plaintext
model.SoftwareInstance (type := products,
   name := "%type% version %product_version% on %host.name%",
   key_group := version,
   version := version,
   product_version := product_version);
```

UAD customizations from the UAD XML files
The UAD customizations are stored in two XML files:

- Processes - TD_Home\public_html\discovery\generic_discovery\product_catalog\process\Processes_User_1.xml
- Applications - TD_Home\public_html\discovery\generic_discovery\product_catalog\application\Applications_User_1.xml

TD_Home is the BMC Atrium Discovery version 7.5 server installation directory, which is C:\Program Files\BMC Software\Discovery by default.

All UAD customizations for processes and applications are stored in the XML files. No other information is required from the BMC Atrium Discovery version 7.5 instance. The format and content of the files are described in the following sections. Where appropriate, the attributes which are used in the TPL file that you write for the conversion are noted.

The processes file
The processes file (Processes_User_1.xml) contains all the UAD customizations for processes. When new customizations are made, they are appended to the original file.

The following code example shows a single entry from the processes file. It is detailed in the table that follows the code example.

```xml
<PROCESS PUID="UADInt:396">
   <NAME VALUE="aruser.exe" CASE_SENSITIVE="false"></NAME>
   <SIZE VALUE="0"></SIZE>
   <PORTS></PORTS>
   <PROPERTIES UNDEFINED="false" INTERESTING="true" RELIABLE="true"></PROPERTIES>
   <APPLICATIONS>
```
<APPLICATION UID="BMC Remedy Windows Client" MANDATORY="true"></APPLICATION>
</APPLICATIONS>
</PROCESS>

<table>
<thead>
<tr>
<th>Tag</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td>VALUE</td>
<td>The process name. This is used as the trigger in the TPL pattern.</td>
</tr>
<tr>
<td>CASE_SENSITIVE</td>
<td>VALUE</td>
<td>Is the process name case sensitive? True or False.</td>
</tr>
<tr>
<td>SIZE</td>
<td>VALUE</td>
<td>The size (in Bytes) of the process binary.</td>
</tr>
<tr>
<td>PORTS</td>
<td>VALUE</td>
<td>Comma separated list. Ports used by the process.</td>
</tr>
<tr>
<td>PROPERTIES</td>
<td>UNDEFINED</td>
<td>Are any properties defined for this process? True or False.</td>
</tr>
<tr>
<td>INTERESTING</td>
<td>VALUE</td>
<td>Is the process considered interesting? True or False. An interesting process is a process for which all the communications it generates are considered to identify and create relationships. If this is false, do not model this processes communications.</td>
</tr>
<tr>
<td>RELIABLE</td>
<td>VALUE</td>
<td>Is the process considered reliable? True or False. A reliable process is one that provides a positive indication that a specific application is active on a given host. If this is false, do not model or migrate this process.</td>
</tr>
<tr>
<td>APPLICATIONS</td>
<td>VALUE</td>
<td>A list of APPLICATION entries.</td>
</tr>
<tr>
<td>APPLICATION</td>
<td>UID</td>
<td>The name of the application that this process is a part of. This value is used to define the type of SI created to represent the application.</td>
</tr>
<tr>
<td>MANDATORY</td>
<td>VALUE</td>
<td>Is the process considered mandatory? True or False. If a process is mandatory, it should be used as the pattern trigger.</td>
</tr>
</tbody>
</table>

The applications file

The applications file (Applications_User_1.xml) contains all the UAD customizations for applications. When new customizations are made, they are appended to the original file.

The following code example shows a single entry from the applications file. It is detailed in the table that follows the code example.

```xml
<Application UID="BMC Remedy Windows Client" IS_INTERESTING="true" HAS_COMMUNICATION="true"
    <Label VALUE="BMC Remedy Windows Client"></Label>
    <App_Class VALUE="BMC_Application" TYPE="Unknown"></App_Class>
    <App_Type VALUE="CLIENT"></App_Type>
    <Listening_Port_Detection USE_LISTENING_PORT="false"
        USE_ALL_DETECTED_LISTENING_PORT="false">
    </Listening_Port_Detection>
    <Use_Listening_Ports_Configuration_for_Ports_Creation VALUE="true">
    </Use_Listening_Ports_Configuration_for_Ports_Creation>
    <Manufacturer VALUE="BMC Software, Inc."/>
    <Description VALUE="Remedy Windows Client"></Description>
</Application>
```
### Tag | Attribute | Description
--- | --- | ---
APPLICATION | UID | The application identifier.
IS_INTERESTING | | Is the application interesting? True or False. Interesting applications are those applications for which CIs are discovered and stored in the datastore.
HAS_COMMUNICATION | | Does this application communicate with other applications or processes? True or False.
LABEL | VALUE | A free text label for the application. This value is generally used to populate the name attribute of the Software Instance used to model the application in BMC Atrium Discovery 8.3.
APP_CLASS | VALUE | The class of application, for example BMC_Application.
APP_TYPE | TYPE | The application type, for example, ClusteredApplication.
LISTENING_PORT_DETECTION | USE_LISTENING_PORT | This information is not used in BMC Atrium Discovery 8.3. Ports are not used to trigger patterns.
USE_ALL_DETECTEDEXE_LISTENING_PORT | | This information is not used in BMC Atrium Discovery 8.3. Ports are not used to trigger patterns.
USE_LISTENING_PORTS_CONFIGURATION_FOR_PORTS_CREATION | | This information is not used in BMC Atrium Discovery 8.3. Ports are not used to trigger patterns.
MANUFACTURER | VALUE | The name of the manufacturer (for example, BMC Software, Inc.). This value is used in the publisher section of the TPL pattern.
DESCRIPTION | VALUE | A free text description of the application.

## UAD migration template

⚠️ **This template is only to be used for UAD migration**

This template is only to be used for UAD migration, it has been designed for that specific purpose. It is not an example of the best way of modeling a Software Instance. For information on patterns that are available from the BMC Atrium Discovery UI, see Template Patterns.

// This is a template pattern module containing a pattern for identifying a simple software instance which is considered for UAD Migration. It provides some guidelines for converting UAD customization to TKU pattern. You will need UAD customization files
// For using this template, Applications_User_1.xml and 'Processes_User_1.xml'

// Detailed documentation can be found in UAD Migration documentation.
//
// Location for corresponding entities in UAD customization files
// is provided in comments around.
//
// Names surrounded by double dollar signs like $$pattern_name$$
// should all be replaced with values suitable for the pattern.
//
// Text prefixed with // like these lines are comments that extend to
// the end of the line.
//
// Required module declaration. The first non-comment line of a
// pattern module must always have this form. 1.4 here is the version
// of TPL.

tpl 1.4 module $$module_name$$;

// Pattern declaration. 1.0 here is the version of the pattern (not
// the version of the product being identified). The version number
// should be updated if the pattern is modified.

pattern $$pattern_name$$ 1.0

***
This is a template pattern for a simple SoftwareInstance based on
identifying a process.

This required description block should be replaced with a
description of the pattern and the product it is identifying. The
description appears as an attribute on the Pattern node stored in
the data store.

You can get additional product description from UAD customization
'Applications_User_1.xml'::APPLICATIONS->APPLICATION->DESCRIPTION->VALUE

***

// Metadata section containing information about the
// product(s) identified by this pattern. Each entry should be a
// comma-separated list of strings. Without this information BMC_Product
// not be correctly created on CMDB Sync

metadata
  // Applications_User_1.xml::APPLICATIONS->APPLICATION->LABEL->VALUE
  products := $$products$$;

  // Applications_User_1.xml::APPLICATIONS->APPLICATION->MANUFACTURER->\n
  publishers := $$publishers$$;

end metadata;

// Required overview section. Some tags must be defined. Tags are
// comma-separated lists of identifiers, e.g.:
//
// overview
//   tags database, example_pattern;
// end overview;

overview
  tags UAD_MIGRATION, $$tags$$;
end overview;

// Constants section used here to declare the type of
// SoftwareInstance being created. You can use UID attribute
// from UAD customization files here

costants
  // Applications_User_1.xml::APPLICATIONS->APPLICATION->UID
  type := "$$type$$";
end constants;

// Required triggers section. The unix_cmd prefix builds a regular
// expression suitable for identifying Unix commands; windows_cmd
// builds a regular expression suitable for identifying Windows
// commands. For a general regular expression, use regex as the
// prefix.

triggers
  // Processes_User_1.xml::PROCESSES->PROCESS->NAME->VALUE
  // Also check for other attributes like, if process name is case sensi
// With use of logical operators and regular expressions you can write
// Logically correct trigger. For details on writing trigger with more
// Refer UAD Migration Document.

on process := DiscoveredProcess where cmd matches windows_cmd "$$command$$
end triggers;

// Required body section. Finds the Host node corresponding to the
// process so its name can be used, then creates or updates a group
// SoftwareInstance that counts the number of instances on the host.
body
  host := model.host(process);

// This section will guide you getting values for other attributes where
// UAD used to get it automatically from packages(Unix) or APIs(Windows)

// Version :
  // UAD gets version information from windows APIs in case of windows C
  // For Unix UAD uses information from deployed packages but in TKU
  // There are many ways to get this information like, Windows Registry
  // Configuration files, Packages discovered on machine and commands
  // By convention, if a pattern attempts to find version information
  // but fails, the version and product_version attributes of the
  // SoftwareInstance are set to empty strings.
  version := ""
  // Get the registry key
  registry_query := discovery.registryKey(host, "$registry_key$$");

  // Retrieving the registry entry may fail, so we must check that
  // we received a value. If we did, we have a
  // DiscoveredRegistryValue node, which has a value member.
  if registry_query and registry_query.value then
version := registry_query.value;
end if;

// Set the product_version. Here, we set it to extract Major and Minor
// components of the full version, but we could also use a mapping
// table to generate known marketing version values.
if version then
  // Attempt to extract a product_version
  product_version := regex.extract(version, regex'\d+(?:\d\d?\d?)', raw'\1');

  // If cannot extract product_version, make it equal full_version
  if not product_version then
    product_version := version;
  end if;
end if;

// Set the user-friendly name attribute
if product_version then
  name := "%type% %product_version% on %host.name%";
else
  name := "%type% on %host.name%";
end if;

// Create a grouped SoftwareInstance, setting the version
// attributes
model.SoftwareInstance(type := type,
  name := name,
  version := version,
  product_version := product_version);

// You can debug pattern progress and verify with debug statements like
// Log can be found here Administration -> Appliance ->  Logs ->  Log
log.debug( "$$StatementstoLog$$");
end body;
end pattern;
Migrating scheduled discovery tasks

As introduced in the Fundamental differences in discovering configuration data section, BMC Atrium Discovery 8.3 contains several fundamental differences from version 7.5 in the way it schedules scans. This in turn affects how you must approach and accomplish the migration of the data so that scheduled scans are available in the current version.

Considerations for migrating scheduling data

The primary factors that impact how version 7.5 schedule data is migrated include:

- BMC Atrium Discovery 8.3 does not contain named collections of IP Addresses, IP Ranges and IP Subnets such as version 7.5. These need to be migrated as lists of IP addresses, ranges, or subnets.
- The different scheduling periods for each version must be mapped to the nearest equivalent schedule period. For example, BMC Atrium Discovery 8.3 has no direct equivalent to Every x (>=60) minutes + Start Date/Time, and has no equivalent to Once + Start Date/Time.

> **Note**

The supported migration path for BMC Atrium Discovery is from version 7.5.01.03 to version 8.3. If you plan to migrate data from earlier versions of BMC Atrium Discovery (or BMC Topology Discovery and BMC Foundation Discovery), you must first upgrade to version 7.5.01.03. For users migrating their mainframe data using BMC Discovery for zOS version 1.5, you must first upgrade to version 1.6.

Process for migrating scheduled discovery tasks to a scheduled scan

The following steps provide an overview of how you migrate scheduled data from version 7.5.01.03 into BMC Atrium Discovery 8.3 to create a scheduled scan.

1. Install and run the M-Tools utility to store the discovery task settings as .xml files
2. Determine which tasks must be migrated
3. Examine each discovery task. The items that need to be copied across are:
   - Name
   - All IP addresses in the Scope section
   - Schedule information

Migrating scheduled discovery tasks to a scheduled scan

The following sections detail the steps in the process overview.
Determine which tasks must be migrated

In the BMC Atrium Discovery version 7.5 Discovery Tasks panel, all tasks which have scheduling information attached have a clock face icon next to their name. For example, in the following illustration, the Discovery_Asset_UNIX task is a scheduled task.

This screen illustrates a scheduled task in the BMC Atrium Discovery 7.5 Discovery Tasks panel.

For each discovery task with scheduling information attached, migrate the task according to the steps below.

Open the Add a New Run dialog

To open the Add a New Run dialog and begin creating a scheduled scan:

1. From the Discovery Status page, click the Add New Run ... link. The Add a New Run dialog is displayed.
   
   On a consolidation appliance the link name is Add New Local Run ...
2. Select the Scheduled radio button. The dialog is refreshed to show Frequency, Start Time, and Duration drop-down lists.
3. Enter the name of the discovery task into the Label field.

Enter IP information

To enter the IP information from the discovery task:

1. Fully expand the Discovery Domains section of the discovery task in the 7.5 UI. Each range or IP address must be entered into the 8.3 UI as part of a comma separated list.
   
   a. For Addresses, simple copy the IP addresses as a comma separated list into the Range field of the Add a New Run dialog.
b. For Ranges, the format must be converted from one that 7.5 understands to the format understood by 8.3. 7.5 uses the format a.b.c.d-e.f.g.h, which represents all IP addresses between a.b.c.d and e.f.g.h inclusive as though these were treated as 32 bit numbers. 8.3 supports ranges only on individual octets, for example a.b.c.d-e. Converting the 7.5 form into the 8.3 form is relatively straightforward if the range is small: for example 1.1.1.1-1.1.1.254 becomes 1.1.1.1-254. For larger ranges, you must include more IP addresses on 8.3 than you did on 7.5, or enter multiple ranges, each covering a different portion of the 7.5 task range. Multiple ranges can be entered by separating them by commas.

It is recommended that, rather than just doing a mechanical translation, you think about what each task is trying to achieve and translate that into how that would be accomplished in version 8.3.

The following screens illustrate an example of how to convert 7.5 discovery domains to range information in 8.3. The first screen shows the 7.5 Discovery domains fully expanded, and the second screen shows how the IP addresses and ranges in the 7.5 domains are entered as comma-separated values and 8.3-compliant format.

This screen illustrates the 7.5 Discovery domains expanded to determine what IPs and ranges must be converted to 8.3.
This screen illustrates the 8.3 New Run dialog with the IPs and ranges entered in the Range field.

Enter scheduling information

There are a number of choices for entering scheduling information. The options depend on the schedule that you selected in the BMC Atrium Discovery 7.5 discovery task. The following illustration shows the scheduling options available in the Discovery task wizard.

This screen illustrates the scheduling options available in the 7.5 Discovery task wizard.

Each option is described in the following table:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>No schedule</td>
<td>No equivalent in 8.3. You cannot migrate this option to 8.3, because there is no way of representing a named set of IP addresses that are scheduled only at a later date. Use a snapshot scan in BMC Atrium Discovery version 8.3.</td>
</tr>
<tr>
<td>Once</td>
<td>No equivalent in 8.3. Can be reproduced in the monthly scan entry by selecting a single day, start time, and duration. This can only be in the next month; there is no way to schedule a single scan more than one month in the future. The scheduled scan must be manually removed after the scan has occurred.</td>
</tr>
<tr>
<td>Every &lt; number of minutes &gt;</td>
<td>No equivalent in 8.3. BMC Software recommends that you replace this option with a daily scan.</td>
</tr>
</tbody>
</table>
The Add a New Run dialog

The Add a New Run dialog is described in the following table.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Details</th>
</tr>
</thead>
</table>
| Range      | Enter either a single IP address or a range in one of the following formats:  
• IP addresses, as a single address or a range, or a comma separated list (for example, 172.17.1.1 or 172.17.1.1-5 or 172.17.1.1, 172.17.1.2, 172.17.1.3)  
• A subnet (for example 172.17.2.0/24)  
• A * wildcard (for example 172.17.1.*)  
These may be combined (for example, 172.17.1.*, 172.17.2.0/24, 172.17.3.100-105, 172.17.4.1, 172.17.4.2, 172.17.4.3) |
| Level      | Select one of the following levels for the discovery run:  
• Sweep Scan: This will do a sweep scan, trying to determine what is at each endpoint in the scan range. It will attempt to login to a device to determine the device type.  
• Full Discovery: Retrieves all the default information for hosts, and completes full inference. |
| Label      | Enter a label for the discovery run. Where the discovery run is referred to in the UI, it is this label that is shown. |
| Frequency  | Select a frequency for the discovery run to be performed. For example, this can be Daily, Weekly, or Monthly.  
For a weekly discovery run, select the day or days that you want the run to take place by clicking the appropriate button.  
For a monthly discovery run, select the day or days that you want the run to take place by clicking the appropriate button. Alternatively, select the Scan on the radio button and choose one of the following options:  
• First  
• Second  
• Third  
• Fourth  
• Last  
Additionally, select the day that you want the scan to take place. In this way you can select the Second Tuesday of the month and so forth. |
<p>| Start Time | Select a time for the scan to start. Discovery must be running at the time specified. |</p>
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>Select a duration in hours. This is the length of the scan window and can be from 1 to 23 hours.</td>
</tr>
</tbody>
</table>

**Editing an existing scheduled run**

You can edit an existing scheduled run. If the run is currently in progress, it is automatically canceled when you edit it. To edit the run, perform the following steps from the Scheduled Runs tab of the Discovery Status page:

1. Click the Scheduled Run that you want to edit.
2. From the Existing Run dialog, edit the run information and click OK.

**Migrating configuration data for population into the CMDB**

**Considerations for migrating data for population into BMC Atrium CMDB**

As described in Migrating from version 7.5 to 8.3, it is not feasible to attempt to reconcile all of the CIs written to the BMC Atrium CMDB by BMC Atrium Discovery 7.5 with those written by BMC Atrium Discovery 8.3. The migration approach detailed in the following sections helps make it easier to delete the CIs of other classes that were populated by version 7.5 and permit version 8.3 to repopulate them.

⚠️ **Note**

The supported migration path for BMC Atrium Discovery is from version 7.5.01.03 to version 8.3. If you plan to migrate data from earlier versions of BMC Atrium Discovery (or BMC Topology Discovery and BMC Foundation Discovery), you must first upgrade to version 7.5.01.03. For users migrating their mainframe data using BMC Discovery for z/OS version 1.5, you must first upgrade to version 1.6.

**Process for migrating data to populate the CMDB**

The following steps provide an overview of how to use BMC Atrium Discovery 8.3 to migrate pertinent data from version 7.5 and populate it into BMC Atrium CMDB. After the necessary CIs have reconciled in the CMDB, consuming applications can utilize the data to optimize operations in the technical infrastructure.
This diagram illustrates the workflow for migrating version 7.5 data to version 8.3 using the migration utility.

A robust migration utility has been provided so that the migration process can be more seamless and effective: the utility runs through discovered data and identifies data that is necessary to your estate to ensure that your CMDB has only the information that you need to manage.

All that is different is the way you customize your data after reconciliation based on the type of consuming applications used. For ITSM applications, customization involves ensuring that hidden CIs are not used again in the future, ensuring that you maintain only the data that helps drive root cause analysis through your technical infrastructure models. For more information, see **Hide obsolete CIs** to prevent them from being used by other applications. For SIM, customization refers to updating your services models to ensure proactive operations. For more information, see **Rebuild your service model**.

The combination of the functionality in the migration utility and your own analysis and data customization can result in an effective strategy that ensures that your CMDB includes only reliable and necessary data.

**Using the migration utility**

The CMDB data migration utility, `tw_cmdb_addm75_migration`, identifies and excludes data that is not relevant to your application so that it does not get populated into BMC Atrium CMDB.

To use the utility, type the following command:

```
tw_cmdb_addm75_migration [options] <server> [topoDataset]
```

where **options** are any of the commands described in the following table.

<table>
<thead>
<tr>
<th>Command Line Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>Displays a plain text report that details the CI associations currently residing in BMC Atrium CMDB</td>
</tr>
<tr>
<td>-h, --help</td>
<td>Displays the required use of the utility and describes the available options</td>
</tr>
<tr>
<td>-N, --noeol</td>
<td>Specifies to not set the End-Of-Life flag</td>
</tr>
<tr>
<td>-A, --company</td>
<td>Specifies to not perform AUDIT checks</td>
</tr>
</tbody>
</table>
### Command Line Option

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-C, --noeol</td>
<td>Specifies to migrate only CIs that belong to a certain company</td>
</tr>
<tr>
<td>-F, --full</td>
<td>Specifies to run a report with full details for each CI</td>
</tr>
<tr>
<td>-M, --migrate</td>
<td>Performs the data migration in the BMC.IMPORT.TOPO according to the CI associations that the utility finds.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong> The <code>migrate</code> command does not make changes to BMC.ASSET.</td>
</tr>
<tr>
<td>-d, --delete</td>
<td>Specifies to mark SIM and AE related topology CIs as deleted</td>
</tr>
<tr>
<td>-i, --ignore</td>
<td>Specifies to ignore provider datasets (for example, MY.ASSET.SANDBOX)</td>
</tr>
<tr>
<td>-l, --logdir</td>
<td>Specifies to write the final report to a specific directory</td>
</tr>
<tr>
<td>-u, --username</td>
<td>Specifies the Atrium username (the default is “Demo”)</td>
</tr>
<tr>
<td>-p, --password</td>
<td>Specifies the Atrium password (the default is an empty string)</td>
</tr>
<tr>
<td>-P, --port</td>
<td>Specifies to connect to an alternative on the Atrium server</td>
</tr>
</tbody>
</table>

### User example

In the following example, you specify that the migration tool generates a full report on a CMDB located at the IP 10.2.3.4 using the default dataset BMC.IMPORT.TOPO, with a user named Demo and an empty password:

```
./tw_cmdb_addm75_migration -F 10.2.3.4
```

The utility returns a set of progress messages while it reports on CI associations. This enables you to follow along as the tool runs through the configuration. A set of information messages display, showing the progress of the process. For example:

```
INFO: Running in reporting mode
INFO: Report will include full CI details
INFO: Connecting to CMDB: 10.2.3.4 with primary dataset BMC.IMPORT.TOPO
INFO: Connecting to dataset BMC.IMPORT.TOPO
```
What information the utility reports to you

The `tw_cmdb_addm75_migration` utility obtains information from the specified CMDB and gathers current CI information from the incoming configuration dataset. The utility then reports on the CI data meeting specific criteria for the following applications, in order:

- Service Impact Manager (SIM)
- Service models generated with the Atrium Explorer (AE)
- IT Service Management (ITSM) associations (including incidents, known errors, costs, and so forth)
- Manual dependencies (if the model was extended manually)
- Other providers (if they reconciled with a CI)
- Audit associations

Finally, it returns a list of CIs that will be soft deleted in BMC.ASSET after the data is reconciled to BMC Atrium CMDB.

To display service models, the migration utility outputs a hierarchy of CIs, organized by top-level service CI, and marks BMC Atrium Discovery version 7.5 CIs so that you can identify which items you will want to use in place of older CIs. The report uses indentation to reflect the hierarchy of the components, where each line item includes the details to identify the CI in the user interface. For an example report, see Sample report.

The following table details what information is reported by the utility for each use case, and what CI attribute information is required for the utility to execute changes to the BMC.IMPORT.TOPO dataset (using the `--migrate` command):

<table>
<thead>
<tr>
<th>Use Case</th>
<th>CI and Attribute Information</th>
<th>CI and Attribute Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIM, AE</td>
<td>InstanceId, ReconID, Dataset, Is a Topo CI, ClassName, Name, ShortDescription</td>
<td>Set <code>AssetLifecycleStatus = EndOfLife</code> for all 7.5 CIs which are involved in a Service Model in BMC.ASSET.</td>
</tr>
<tr>
<td>ITSM, Audit, Cost</td>
<td>InstanceId, ReconID, Dataset, Is a Topo CI, ClassName, Name, ShortDescription, Type, CMDB Form, ITSM ReqID, ITSM Form</td>
<td>Set <code>AssetLifecycleStatus = EndOfLife</code> for all 7.5 CIs in BMC.ASSET which have ITSM, AUDIT or COST associations.</td>
</tr>
<tr>
<td>Other providers</td>
<td>InstanceId, ReconID, Dataset, Is a Topo CI, ClassName, Name, ShortDescription, All Providers, Other Provider</td>
<td>7.5 CIs which are reconciled by other providers will only be reported and not altered.</td>
</tr>
<tr>
<td>Manual dependencies</td>
<td>InstanceId, ReconID, Dataset, Is a Topo CI, ClassName, Name, ShortDescription</td>
<td>7.5 CIs which have manually created dependencies to non-7.5 CIs will also be reported (but not altered).</td>
</tr>
</tbody>
</table>
The information returned by the report enables you to view and understand the current CI associations affecting your migration scenario, and enables you to evaluate the impact on your environment before the data is altered in your BMC Atrium CMDB. Based on this information, you can then commit the reported changes to the CMDB by running an RE job to ensure that the CI data is reconciled in the BMC.ASSET dataset.

You can run the utility as many times as necessary, enabling you to analyze and commit changes in an iterative fashion until you are comfortable with the result of the migrated data.

**Migrating impact models**

**Goal for migrating data to populate the CMDB for SIM**

The main goal that you want to achieve with migrating data for Service Impact Manager (SIM) is to enable you to modify your service models so that you no longer use unnecessary version-7.5 CIs. To do this, you will use the migration utility to report on the data that is part of a service model, which enables you to add, modify, and delete CIs to complete the model.

BMC Atrium Discovery 8.3 exports impact relationships between all SIM-enabled classes in the same way that version 7.5 does. Any impact relationships that you manually create between CIs populated by version 7.5 must be rebuilt between the corresponding version 8.3 CIs.

The process you will follow is illustrated in Process for migrating data to populate the CMDB, and the specific steps outlined in the process are detailed in the following sections.

**Migrating data to populate the CMDB for building service models**

The following sections detail the specific steps outlined in the process overview to complete the migration process end-to-end.

**Scan your infrastructure using BMC Atrium Discovery 8.3**

The first step for migrating data from previous releases is to ensure that your current environment is up and running with BMC Atrium Discovery 8.3 to prepare for the migration. With discovery running, do the following:

1. Start a scan of your infrastructure to discover data in the Discovery dataset. See Performing an initial discovery scan for more information. This enables you to roll out the new version into the estate and have it discovering all the same data that BMC Atrium 7.5 was discovering, only using the tools and technology you will use moving forward.
2. Test the data in the Discovery dataset to ensure the new version is running on your estate as you expect.
Turn off synchronization between BMC Atrium Discovery 7.5 and the BMC.IMPORT.TOPO dataset

Before proceeding with the migration, the CI data from BMC Atrium Discovery 7.5 should no longer be synchronizing to the staging dataset. Disable synchronization so that CIs are no longer being pushed from version 7.5 to the CMDB. You cannot have the same CI being populated by both versions of the product at the same time.

Run and analyze a CI association report

With BMC Atrium Discovery working on your estate as you expect, you can now run the migration utility on the BMC.IMPORT.TOPO dataset with the \texttt{-F} option to generate a report that details the current CI associations in the incoming configuration data. This will help you analyze and understand how configuration data will ultimately get populated to your CMDB.

To run an analysis report:

1. Type the following command:

\texttt{tw_cmdb_addm75_migration \textasciitilde F <cmdb>}

A text file is generated that lists all CIs have active associations with SIM, AE, ITSM, and so forth. The report also contains the list of CIs that are not associated with any of these applications and, therefore, will be soft deleted.

2. Review the CIs that are not part of service models and planned for deletion, and start evaluating which CIs you will require to replace the deleted CIs to rebuild the service models.

For an example report, see Sample report.

Run the migration utility to change CIs in BMC.IMPORT.TOPO

You can run the migration utility with the \texttt{--migrate} option to make the necessary changes to the BMC.IMPORT.TOPO dataset and ensure that important CIs are ready to reconcile with version 8.3 data.

\begin{table}[h]
\centering
\begin{tabular}{|c|}
\hline
\textbf{Note} \\
\hline
Running the utility with the \texttt{--migration} option generates a report \textit{in addition to} executing the changes in the BMC.IMPORT.TOPO dataset. No changes are made to the BMC.ASSET dataset. \\
\hline
\end{tabular}
\end{table}

To execute CI changes in the BMC.IMPORT.TOPO dataset, type the following command:
The migration utility identifies BMC Atrium Discovery 7.5 data that is part of a service model and other unnecessary data, and marks those CIs that are not used in that model for deletion when they are populated to the CMDB.

Unnecessary items are CIs that match the following conditions:

- They were populated by BMC Atrium Discovery 7.5
- They are not associated to any ITSM item: incident, problem, change, or contract
- They do not have any audit history
- They have not been reconciled with any other data source (this ensures that BMC Atrium Discovery does not delete items that another data source has an interest in)
- They are not part of a service model
- They do not have any non-automatic relationships to non 7.5 CIs

Reconcile CIs in BMC Atrium CMDB

After running the utility, you must ensure that CIs are reconciled in the CMDB, because some of the version 7.5 data will co-exist with the version 8.3 data until the migration process is complete. Reconciliation ensures that the changes that the migration utility has made to the BMC.IMPORT.TOPO dataset are populated to BMC.ASSET.

To reconcile the data in the CMDB:

1. From the Atrium Core console, run a Reconciliation Engine Purge job on the BMC.ASSET dataset.
2. Turn off the reconciliation between the BMC.IMPORT.TOPO dataset and the BMC.ASSET dataset.
3. Turn on the reconciliation between the version 8.3 Discovery dataset and the BMC.ASSET dataset.

This approach ensures that only pertinent, version 8.3 CIs are populated in the CMDB, while retaining the history of obsolete version 7.5 CIs. For more information about working with reconciliation jobs, see the *BMC Atrium CMDB Normalization and Reconciliation Guide*.

Verify CIs have been soft deleted in BMC Atrium CMDB

Next, as a check on how well the migration process has completed, you can verify which CIs have been soft deleted in BMC Atrium CMDB. To perform this verification:

1. In the BMC Remedy Action Request System Server (AR System Server) User tool, open the BMC_BaseElement form.
2. Set the MarkAsDeleted attribute to Yes.
3. Click Search.
   This returns a list of all soft-deleted CIs in the BMC.ASSET dataset, which you can use to compare with the results of what the utility reported and changed.

Rebuild your service model

The final step in the migration process for impact models is to rebuild your service models based on the CI data discovered by the migration utility and populated to BMC Atrium CMDB. Typically, you will have many CIs that are connected into your service models. Because it is easier to recognize the higher level entities in the model hierarchies than the miscellaneous CIs that make them up, it is important to have a view of the overall structure of the service model and related CIs to understand the contextual relationships between CIs and be able more effectively modify the models as necessary.

To begin the process of rebuilding your service models, for each old CI, you must:

1. Identify the new CIs you want to use in place of the CIs marked for deletion and identified in the CI association report. For more information, see Run and analyze a CI association report.
2. Create the new impact relationships. Any impact relationships that you manually create between CIs populated by version 7.5 must be rebuilt between the corresponding version 8.3 CIs.
3. Delete the old CIs (which will subsequently remove the old impact relationships).
4. Regenerate the Service Model with new CIs in the BMC.ASSET dataset.

You can run the migration utility as many times as you want, enabling you to do iterative testing and to apply a phased approach to rebuilding models. As one approach, you can recreate the service models with the new CIs and test them while the old service model is still in production. When you are confident in the testing results, you can publish the new service model, deprecate the old service model and, finally, delete all remaining old CIs that are not relevant to your models.

Sample report

The following section of a report illustrates the CI details reported by the migration utility that are relevant to impact models.

```
96 Affected SIM Service Models

The following SIM Service Models use ADDM 7.5 CIs and need to be manually repaired

InstanceId : OI-3E608C0AB10543128362E28B2477CSB
ReconId : OI-1782B46513454F2494EA505ED65S26A
Dataset : BMC.IMPACT.PROD
Is a Topo CI : No
ClassName : BMC_ORGANIZATION
```
Migrating data to populate the CMDB for ITSM

Goal for migrating data to populate the CMDB for ITSM

Your primary goal for migrating data to populate the CMDB is to ensure that only essential information is reconciled in BMC Atrium CMDB. After the necessary CIs have reconciled in the CMDB, ITSM applications can consume the data for asset, incident, contract, change, problem management, and purchasing information. Just as importantly, you want to ensure that older, unnecessary data that does not have any association with your ITSM assets are not used in the future, enabling you to maintain an accurate, single source of truth in your CMDB. The migration approach in BMC Atrium 8.3 ensures that all CIs in BMC Atrium CMDB that are not reconciled involved with ITSM items (such as incidents and changes) will be deleted.

The process you will follow is illustrated in Process for migrating data to populate the CMDB, and the specific steps outlined in the process are detailed in the following sections.

Migrating data for population to the CMDB for ITSM applications

The following sections detail the specific steps outlined in the process overview to complete the migration process end-to-end.

Scan your infrastructure using BMC Atrium Discovery 8.3

The first step for migrating data from previous releases is to ensure that your current environment is up and running with BMC Atrium Discovery 8.3 to prepare for the migration. With discovery running, do the following:
1. Start a scan of your infrastructure to discover data in the Discovery dataset. See Performing an initial discovery scan for more information. This enables you to roll out the new version into the estate and have it discovering all the same data that BMC Atrium 7.5 was discovering, only using the tools and technology you will use moving forward.

2. Test the data in the Discovery dataset to ensure the new version is running on your estate as you expect.

Turn off synchronization between BMC Atrium Discovery 7.5 and the BMC.IMPORT.TOPO dataset

Before proceeding with the migration, the CI data from BMC Atrium Discovery 7.5 should no longer be synchronizing to the staging dataset. Disable synchronization so that CIs are no longer being pushed from version 7.5 to the CMDB. You cannot have the same CI being populated by both versions of the product at the same time.

Run and analyze a CI association report

With BMC Atrium Discovery working as expected, you can now run the migration utility on the command line with the -F option to generate a report that details the current CI associations in the incoming configuration data. This will help you analyze and understand how configuration data will ultimately get populated to your CMDB.

To run an analysis report:

1. Type the following command:

   ```
tw_cmdb_addm75_migration -F <cmdb>
   
   A text file is generated that lists all CIs have active associations with SIM, AE, ITSM, and so forth. The report also contains the list of CIs that are not associated with any of these applications and are therefore to be soft deleted.

2. Review the report to understand the impact on your ITSM applications when the data is migrated.

   All CIs that are not actively associated with other applications will be set for soft deletion, and all CIs that are, will be set for AssetLifecycleStatus = End of Life in the BMC.IMPORT.TOPO dataset.

   **Note**

   CIs are flagged as End of Life to enable migration of data in BMC Atrium Discovery, not because the asset itself is being retired.

   For an example report, see Sample report.
Turn off synchronization between BMC Atrium Discovery 7.5 and the BMC.IMPORT.TOPO dataset

Before proceeding with the migration, the CI data from BMC Atrium Discovery 7.5 can no longer be synchronizing to the staging dataset. Disable synchronization so that CIs are no longer being pushed from version 7.5 to version 8.3. You cannot have the same CI being populated by both versions of the product at the same time.

Run the migration utility to make the CI changes in BMC.IMPORT.TOPO

You can run the migration utility with the \(--migrate\) option to make the necessary changes to the BMC.IMPORT.TOPO dataset to ensure that it is ready to reconcile with version 8.3 data.

\[\text{Note}\]

Running the utility with the \(--migration\) option generates a report \textit{in addition to} executing the changes in the BMC.IMPORT.TOPO dataset. No changes are made to the BMC.ASSET dataset.

To make CI changes in the BMC.IMPORT.TOPO dataset:

1. Type the following command:

   \[\text{tw_cmdb_adm75_migration --migrate}\]

   A text file is generated that lists all CIs that are and are not actively associated with any other applications or services, and the utility performs the corresponding data changes in the BMC.IMPORT.TOPO dataset. This process involves marking unnecessary CIs for deletion so that they will not be used in the future.

   For ITSM, unnecessary items are CIs that match the following conditions:

   1. They were populated by BMC Atrium Discovery 7.5
   2. They are not associated to any ITSM item: incident, problem, change, or contract
   3. They do not have any audit history
   4. They have not been reconciled with any other data source (this ensures that BMC Atrium Discovery does not delete items that another data source has an interest in)

   For all CIs that have either audit history or that have at least one ITSM item associated to them, the migration utility sets the \texttt{AssetLifecycleStatus} attribute to End of Life. This prevents additional ITSM items from being associated with these CIs, thereby preventing them from being used to create new incidents in ITSM.
Reconcile CIs in BMC Atrium CMDB

After running the utility, you must ensure that CIs are reconciled in the CMDB, because some of the version 7.5 data will co-exist with the version 8.3 data until the migration process is complete. Reconciliation ensures that the changes that the migration utility has made to the BMC.IMPORT.TOPO dataset are populated to BMC.ASSET.

To reconcile the data in the CMDB:

1. From the Atrium Core console, run a Reconciliation Engine Purge job on the BMC.ASSET dataset.
2. Turn off the reconciliation between the BMC.IMPORT.TOPO dataset and the BMC.ASSET dataset.
3. Turn on the reconciliation between the version 8.3 Discovery dataset and the BMC.ASSET dataset.

This approach ensures that only pertinent, version 8.3 CIs are populated in the CMDB, while retaining the history of obsolete version 7.5 CIs. For more information about working with reconciliation jobs, see the *BMC Atrium CMDB Normalization and Reconciliation Guide*.

Verify CIs have been set to End of Life in BMC Atrium CMDB

Next, as a check on how well the migration process has completed, you can verify which CIs have been set to End of Life in BMC Atrium CMDB. To perform this verification:

1. In the BMC Remedy Action Request System Server (AR System Server) User tool, open the BMC_BaseElement form.
2. Set the AssetLifecycleStatus attribute to End of Life.
3. Click Search.

This returns a list of all End of Life CIs in the BMC.ASSET dataset, which you can use to compare with the results of what the utility reported and changed.

Hide obsolete CIs to prevent them from being used by other applications

The migration from BMC Atrium Discovery 7.5 to BMC Atrium Discovery 8.3 entails running a script which changes the status of all CIs that were discovered with BMC Atrium Discovery 7.5 to *End of Life*. New CIs discovered with BMC Atrium Discovery 8.3 are created corresponding to each CI discovered with BMC Atrium Discovery 7.5. Any old CIs that had not been related to any Incident, Contract, Change, or so forth are also Marked As Deleted. CIs that are "Marked As Deleted" do not show up in ITSM CI search dialogs, so cannot be related to an Incident.

However, old CIs already related to an Incident, Contract, Change, or so forth before the migration cannot simply be "Marked As Deleted", as they are associated with an active ticket. So their status is simply changed to "End of Life".

After migrating, we only want relationships to be made to the new CIs discovered by BMC Atrium Discovery 8.3. Typically and ITSM user would not choose to relate an Incident, Contract, Change, or so forth for an old CI, since the "CI Relationship Search" form used for this purpose would clearly show its CI Status of "End of Life". To ensure that this occurs you can modify the behavior of the "
CI Relationship Search" form (AST:CI Association Search) so that it does not display any CI that has been marked as "End Of Life" (AssetLifecycleStatus = "End of Life") and originates from an BMC Atrium Discovery 7.5 dataset (AttributeDataSourceList LIKE "% BMC.IMPORT.TOPO%").

To do this:

1. In the left pane of BMC Remedy Developer Studio, expand "All Objects" then double-click on "Forms".
2. Double click the AST:BaseElement entry. The Form is displayed in edit mode. Right click on the form and select Add Fields from BMC.CORE:BMC_BaseElement.

   ![Add Fields dialog](image)

   The "Add Fields" dialog displays all fields that can be added to the form.

3. Sort the fields by Name, find and select AttributeDataSourceList, and click OK.

   ![Field added](image)

   A new field displays at the top-left corner of the form.

4. Drag and drop the field into some free space (for example, under the "Status Reason" field), and then save the modified form.
5. In the left pane of BMC Remedy Developer Studio, expand "All Objects" and double-click on "Forms".

6. Double-click the **AST: CI Associations Search** entry. The Form is displayed in edit mode.

7. Scroll down to the **z2TH_ConfigurationItem** table (the only table on the form) and select it. The properties of the table are displayed in the right pane.

8. In the Properties pane, under Attributes, Tree/Table, click the "25 Column(s)" value, and then click the "..." button.
9. Modify the default qualification `EXTERNAL($z1D_Qualification$)` by appending it with the following:

```
AND ( NOT ('AttributeDataSourceList' LIKE "%BMC.IMPORT.TOPO") AND ('AssetLifecycleStatus' = "End of Life"))
```

10. Click OK and then save the modified form.

When you have completed this, BMC Atrium Discovery 7.5 CIs that were set to **End Of Life** are not displayed in the result set of the **AST: CI Associations Search form (CI Relationships Search)** which is used to relate a CI.

**Sample report**

The following section of a report illustrates the CI details reported by the migration utility that are relevant for ITSM applications.

```
############################################################
Active ITSM records
__________________________________________________________________
These Topo (ADDM 7.x) CIs will not be deleted as they are related to one or more ITSM records
__________________________________________________________________
InstanceId : OI-F2ADC2D11E1A434EAAD3479C7A199502
```
ReconId : OI-FE4E21C678394A208A2E17DEF161C855
Dataset : BMC.ASSET
Is a Topo CI : Yes
ClassName : J2EE:BMC_J2EEAPPLICATIONSERVER
  Name : medrec:10.128.88.20:7011:mgcbr1s07:MedRecServer
NameFormat : DomNm:AdmSrv.IP:AdmSrv.Port:NdNm:AppSrvNm
ShortDesc : MedRecServer
Associations :
  Type : Incident
  CMDB Form : AST:J2EEApplicationServer
  ITSM ReqId : INC000000000003
  ITSM Form : HPD:Help Desk

------------------------------------------------------------------
InstanceId : OI-06726C3D8A364E02866B008A0525B62A
ReconId : OI-53417A05E9814BC7B8345DE73ED91CEF
Dataset : BMC.ASSET
Is a Topo CI : Yes
ClassName : J2EE:BMC_J2EECLUSTER
  Name : medrec:10.128.88.20:7011:DefaultCluster
NameFormat : DomNm:AdmSrv.IP:AdmSrv.Port:ClstNm
ShortDesc : DefaultCluster
Associations :
  Type : Known Error
  CMDB Form : AST:J2EECluster
  ITSM ReqId : PKE000000000005
  ITSM Form : PBM:Known Error

------------------------------------------------------------------
Changes to Discovery Commands

The following sections show the discovery command changes between BMC Atrium Discovery versions.

The following changes are not shown:

- Entirely new discovery platforms
- Changes to comments only
- Commands which have been removed and not replaced
- Changes to echo only statements

Discovery command changes from 8.3 SP2 to 8.3 SP3

AIX

gethBAList

The following code:

```bash
adapter_type=`echo $i | cut -f3 -d:`
```

is replaced with:

```bash
adapter_type=`echo $i | cut -f3 -d: | sed -e 's/,/./'`
```

Mainframe

The `getTransactionProgram` method is added.

HP-UX

getInterfaceList

The following code:

```bash
netstat -inw > /tmp/addm.$$ 2>/dev/null
if [ $? -ne 0 ]; then
    netstat -in > /tmp/addm.$$ 2>/dev/null
```
is replaced with:

```bash
netstat -inw > /dev/null 2>&1
if [ $? -eq 0 ]; then
   interfaces=`netstat -inw 2>/dev/null | cut -d\  -f 1 | grep -Ev '\*|^Name|^lo0|^IP|^$' | sort -u`
else
   interfaces=`netstat -in 2>/dev/null | cut -d\  -f 1 | grep -Ev '\*|^Name|^lo0|^IP|^$' | sort -u`
fi
```

### Discovery command changes from 8.3 SP1 to 8.3 SP2

#### Solaris

**getHostinfo**

The following code is removed:

```bash
-cputype=""

# Physical Processor Count
physical="/usr/sbin/psrinfo -p 2>/dev/null"
if [ "$physical" = "" ]; then
   physical=`kstat cpu_info 2>/dev/null | grep chip_id | sort | uniq | wc -l`
   if [ $physical -eq 0 ]; then
      physical=""
   fi
fi
```

The following code is added:

```bash
# Run kstat cpu_info to get full CPU information, if possible
echo 'begin kstat_cpu_info:'
kstat cpu_info 2>/dev/null
echo 'end kstat_cpu_info:'
```

The following code is removed:

```bash
# Solaris X86
/usr/sbin/prtconf -v > /tmp/tideway.$$ 2>/dev/null
if [ "$physical" = "" -o "$physical" = "0" ]; then
    physical="grep -c "cpus, instance" /tmp/tideway.$$"
fi
if [ $physical -gt 0 ]; then
    cputype="awk 'BEGIN { s=0 } /brand-string/ { s=1 } /value=/ { if (s) { print $0; e
    fi
    rm -f /tmp/tideway.$$"
```

The following code is removed:

```bash
if [ -x $platdir/eeprom ]; then
    serial="/opt/SUNWsneep/bin/sneep 2>/dev/null | grep system-board-serial | cut -f2 -d= | grep -v 'data not available'
    if [ "$serial" != "" ]; then
        echo "serial: $serial"
    fi
    echo 'num_processors:' $physical
fi
```

The following code is added:

```bash
# Get serial number. We first try sneep as that knows how to collect the
# serial number on the vast majority of Sun/Fujitsu machines. If that is not
# available we try a few obvious fallbacks including any "Chassis Serial Number"
# from prtdiag
if [ -x /opt/SUNWsneep/bin/sneep ]; then
    serial="/opt/SUNWsneep/bin/sneep 2>/dev/null"
    if [ "$serial" = "unknown" ]; then
        echo "serial: $serial"
    fi
```

The following code is removed:
```bash
# Total Processor Core Count
cores=`kstat cpu_info 2>/dev/null | grep -w core_id | sort | uniq | wc -l`
if [ "$cores" -eq 0 ]; then
    echo "__discovery_errors: Unable to determine total processor core count"
else
    echo 'cores:' $cores
fi

# Processor Speed
speed=`kstat cpu_info 2>/dev/null | grep clock_MHz | awk '{print $2;}' | sort -n -r | head -n 1`
if [ "$speed" = "" ]; then
    echo "__discovery_errors: Unable to determine processor speed"
else
    echo 'processor_speed:' $speed
fi

# Processor Type
if [ "$cputype" = "" ]; then
    cputype=`kstat cpu_info 2>/dev/null | grep implementation | sort | uniq | awk '{print
    if [ "$cputype" = "" ]; then
        echo "__discovery_errors: Unable to determine processor type"
    else
        if [ "$speed" != "" ]; then
            cputype="$cputype ${speed}MHz"
        fi
fi

The following code is added:

```bash
# Sneep isn't available. Check for Fujitsu serialid command
if [ -x /opt/FJSVmadm/sbin/serialid ]; then
    /opt/FJSVmadm/sbin/serialid | sed -e 's/serialid/serial/'
fi
```

The following code is removed:

```bash
fi
if [ "$cputype" != "" ]; then
    echo 'processor_type:' $cputype
```

The following code:

```bash
echo 'end solaris_uptime_string'
```
Is replaced with:

```
    echo 'end solaris_uptime_string:'
```

initialise

The following code:

```
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```

getDeviceInfo

The following code:

```
    echo 'os:' `uname -sr 2>/dev/null`
    echo 'os_arch:' `uname -p 2>/dev/null`
```

Is replaced with:

```
if [ -f /etc/release ]; then
    echo 'os:' `head -1 /etc/release 2>/dev/null`
else
    echo 'os:' `uname -sr 2>/dev/null`
fi
    echo 'os_arch:' `isainfo -k 2>/dev/null`
```
AIX initialise

The following code:

```bash
# Clear any shell aliases on VIO
unalias uname
unalias hostname
unalias lsdev
unalias netstat

# Insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a
unalias -a
# Insulate against systems with -u set by default.
set +u
```

getDeviceInfo

The following code is added:

```bash
maintlevel=`oslevel -r 2>/dev/null`
if [ $? -ne 0 ]; then
    maintlevel=""
fi
if [ "$maintlevel" != "" ]; then
    echo 'os_level:' $maintlevel
fi
```

Mac OS X initialise

The following code:

```bash```
Is replaced with:

# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u

**IRIX**

 initialised

The following code:

# insulate against systems with -u set by default
set +u

Is replaced with:

# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u

**Tru64**

 initialise

The following code:

# insulate against systems with -u set by default
set +u
Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```

**VMware ESXi**

**getHostInfo**

The following code:

```bash
if [ -r /etc/slp.reg ]; then
    uuid=`grep hardwareUuid /etc/slp.reg | cut -f2 -d= | tr '[[:upper:]]' '[[:lower:]]'`
```

Is replaced with:

```bash
if [ -r /etc/slp.reg ]; then
    uuid=`grep hardwareUuid /etc/slp.reg | cut -f2 -d= | awk '{ print tolower($_); }'`
```

**initialise**

The following code:

```bash
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```
UnixWare

The following code:

initialise

```bash
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```

FreeBSD:

initialise

The following code:

```bash
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```
Linux
getNetworkConnectionList

The following code:

```
PRIV_NETSTAT netstat -aneep --tcp --udp 2>/dev/null
```

Is replaced with:

```
PRIV_NETSTAT netstat -aneep --tcp --udp -T 2>/dev/null
if [ $? -eq 4 ]; then
    # netstat failed due to invalid option, try -W
    PRIV_NETSTAT netstat -aneep --tcp --udp -W 2>/dev/null
    if [ $? -eq 4 ]; then
        # netstat still failed, try without any wide option
        PRIV_NETSTAT netstat -aneep --tcp --udp 2>/dev/null
    fi
fi
```

Linux
getHostInfo

The following code:

```
if [ `echo ${opteron_number} | cut -c1` -eq 4 ]; then
    if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
        # 41xx where xx is lower than 60 are 4 cores
        core_hint=4
        sibling=4
```

Is replaced with:

```
if [ `echo ${opteron_number} | cut -c1` -eq 4 ]; then
    if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
        # 41xx where xx is lower than 60 are 4 cores
        cores_hint=4
        siblings=4
```
The following code:

```bash
elif [ `echo ${opteron_number} | cut -c1` -eq 6 ]; then
  if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
    # 61xx where xx is lower than 60 are 8 cores
    core_hint=8
    sibling=8
  else
    # 61xx where xx is higher than 60 are 12 cores
    core_hint=12
    sibling=12
  fi
else
  # 61xx where xx is lower than 60 are 8 cores
  core_hint=8
  sibling=8
fi
```

Is replaced with:

```bash
elif [ `echo ${opteron_number} | cut -c1` -eq 6 ]; then
  if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
    # 61xx where xx is lower than 60 are 8 cores
    cores_hint=8
    siblings=8
  else
    # 61xx where xx is higher than 60 are 12 cores
    cores_hint=12
    siblings=12
  fi
else
  # 61xx where xx is lower than 60 are 8 cores
  cores_hint=8
  siblings=8
fi
```

**Linux**

initialise

The following code:

```bash
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a
```
# Insulate against systems with -u set by default.
set +u

getDeviceInfo

The following code:

```bash
getDeviceInfo

The following code:

```bash
echo 'domain:' `hostname -y 2>/dev/null | sed -e 's/(none)//'`

tmp_str=""
if [ "$tmp_str" = "" -a -x /usr/bin/lsb_release ]; then
    # We'd like to use -ds but that puts quotes in the output!
    tmp_str="/usr/bin/lsb_release -d | cut -f2 -d:"
fi
if [ "$tmp_str" = "" -a -f /etc/vmware-release ]; then
    tmp_str=`grep ESX /etc/vmware-release`
fi
if [ "$tmp_str" = "" -a -f /etc/redhat-release ]; then
    tmp_str=`cat /etc/redhat-release`
    # Check to see if its a variant of Red Hat
    rpm -q oracle-logos > /dev/null 2>&1
    if [ $? -eq 0 ]; then
        # Oracle variant
        os="Oracle $tmp_str"
    fi
fi
if [ "$tmp_str" = "" -a -f /etc/SuSE-release ]; then
    tmp_str=`head -n 1 /etc/SuSE-release`
Is replaced with:

```bash
nis_domain=`domainname 2>/dev/null`
if [ "$nis_domain" = "" ]; then
   nis_domain=`hostname -y 2>/dev/null`
fi
getDeviceInfo

echo 'domain: ' $nis_domain | sed -e 's/(none)//'`

tmp_str=""
if [ "$tmp_str" = "" -a -f /etc/redhat-release ]; then
    tmp_str=`cat /etc/redhat-release`
    # Check to see if its a variant of Red Hat
    rpm -q oracle-logos > /dev/null 2>&1
    if [ $? -eq 0 ]; then
        # Oracle variant
        os="Oracle $tmp_str"
    fi
fi
```
The following code:

```bash
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```

The following code:

```bash
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u

## HPUX

### initialise

The following code:

```
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```

## VMware ESX

### getNetworkConnectionList

The following code:

```
PRIV_NETSTAT netstat -aneep --tcp --udp 2>/dev/null
```

Is replaced with:

```
PRIV_NETSTAT netstat -aneep --tcp --udp -T 2>/dev/null
if [ $? -eq 4 ]; then
    # netstat failed due to invalid option, try -W
    PRIV_NETSTAT netstat -aneep --tcp --udp -W 2>/dev/null
if [ $? -eq 4 ]; then
```
VMware ESX

getHostInfo

The following code:

```bash
if [ `echo ${opteron_number} | cut -c1` -eq 4 ]; then
    if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
        # 41xx where xx is lower than 60 are 4 cores
        core_hint=4
        sibling=4
    else
        # 41xx where xx is higher than 60 are 6 cores
        cores_hint=6
    fi
fi

elif [ `echo ${opteron_number} | cut -c1` -eq 6 ]; then
    if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
        # 61xx where xx is lower than 60 are 8 cores
        core_hint=8
        sibling=8
    else
        # 61xx where xx is higher than 60 are 12 cores
        core_hint=12
        sibling=12
```
Is replaced with:

```bash
elif [ `echo ${opteron_number} | cut -c1` -eq 6 ]; then
  if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
    # 61xx where xx is lower than 60 are 8 cores
    cores_hint=8
    siblings=8
  else
    # 61xx where xx is higher than 60 are 12 cores
    cores_hint=12
    siblings=12
  fi

VMware ESX

initialise

The following code:

```bash
# insulate against systems with -u set by default
set +u
```

Is replaced with:

```bash
# Stop alias commands changing behaviour.
unalias -a

# Insulate against systems with -u set by default.
set +u
```

getDeviceInfo

The following code:

```bash
echo 'dns_domain: ' $dns_domain
echo 'domain:' `hostname -y 2>/dev/null | sed -e 's/(none)//'`

os=""
if [ "$os" = "" ] -a -x /usr/bin/lsb_release ]; then
  # We'd like to use -ds but that puts quotes in the output!
  os='`/usr/bin/lsb_release -d | cut -f2 -d:`'
```
fi
if [ "$os" = "" -a -f /etc/vmware-release ]; then
    os=`grep ESX /etc/vmware-release`
fi

if [ "$os" = "" -a -f /etc/redhat-release ]; then
    os=`cat /etc/redhat-release`

    # Check to see if its a variant of Red Hat
    rpm -q oracle-logos > /dev/null 2>&1
    if [ $? -eq 0 ]; then
        # Oracle variant
        os="Oracle $os"
    fi
fi

if [ "$os" = "" -a -f /etc/SuSE-release ]; then
    os=`head -n 1 /etc/SuSE-release`

Is replaced with:

```
echo 'dns_domain: ' $dns_domain

nis_domain=`domainname 2>/dev/null`
if [ "$nis_domain" == "" ]; then
    nis_domain=`hostname -y 2>/dev/null`
fi
echo 'domain: ' $nis_domain | sed -e 's/(none)//'

os=""
if [ "$os" = "" -a -f /etc/redhat-release ]; then
    os=`cat /etc/redhat-release`

    # Check to see if its a variant of Red Hat
    rpm -q oracle-logos > /dev/null 2>&1
    if [ $? -eq 0 ]; then
        # Oracle variant
        os="Oracle $os"
    fi
fi

if [ "$os" = "" -a -x /usr/bin/lsb_release ]; then
    # We'd like to use -ds but that puts quotes in the output!
    os=`/usr/bin/lsb_release -d | cut -f2 -d:`
fi
if [ "$os" = "" -a -f /etc/vmware-release ]; then
    os=`grep ESX /etc/vmware-release`
fi
if [ "$os" = "" -a -f /etc/SuSE-release ]; then
    os=`head -n 1 /etc/SuSE-release`
```
Discovery command changes from 8.3 to 8.3 SP1

There have been no discovery command changes between BMC Atrium Discovery 8.3 and 8.3 SP1

Discovery command changes from 8.2.03 to 8.3

Solaris

The PATH is changed.
The following code:

```
/bin:/usr/bin:/sbin:/usr/sbin
```

is replaced with:

```
/bin:/usr/bin:/sbin:/usr/sbin:/usr/local/bin
```

Changed method:

- `getHBAList` — enabled changed: was `hbainfo`, now `hba_lputil`

The following code is added:

```
echo 'arp:'
arp -a -n 2>/dev/null | awk '{ if ( $4 ~ /SP/ ) { print $2, $5 } }'
echo 'end arp'
```

The following code:

```
NDD=`which ndd`
TW_KSTAT=`which kstat 2>/dev/null`
if [ -x "$TW_KSTAT" ]
```
is replaced with:

```bash
NDD=`tw_which ndd`
KSTAT=`tw_which kstat`
if [ -x "$KSTAT" ]

The following code:

```bash
kstat -p -m $iface 2>/dev/null
```

is replaced with:

```bash
$KSTAT -p -m $iface 2>/dev/null
```

The following code:

```bash
instance=`PRIV_NDD $NDD -get /dev/$NIC_TYPE instance`
```

is replaced with:

```bash
instance=`PRIV_NDD $NDD -get /dev/$NIC_TYPE instance 2>/dev/null`
```

The following code:

```bash
if [ -d "$(P)" -a -r "$(P)" ]; then
  (cd "$(P)"; ls -al)
```

is replaced with:

```bash
PRIV_TEST -d "$P" -a -r "$P" > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
  (cd "$P"); PRIV_LS -al)
```
The following code is added:

```bash
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
    test "@$*
}

# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
    ls "@$*
}

tw_which() {
    SAVE=$IFS
    IFS=:
    for d in $PATH
    do
        if [ -x $d/$1 -a ! -d $d/$1 ]
        then
            echo $d/$1
            break
        fi
    done
    IFS=$SAVE
}
```

The following code is added:

```bash
# fcinfo requires superuser privileges to display any HBA information
PRIV_FCINFO() {
    "@$*
}
```

The following code:

```bash
if [ -f "$P" ]; then
    echo "ls:" `ls -ld "$P"
    if [ -x `which digest` ]; then
        echo "md5sum:" `digest -a md5 "$P" 2>/dev/null`
```

is replaced with:

```bash
```
The following code:

```
showrev -p 2>/dev/null | cut -c-16 | nawk '{print $2;}'
```

is replaced with:

```
showrev -p 2>/dev/null | grep -v "No patches are installed" | cut -c-16 | nawk '{print $2;}'
```

**AIX**

The following code is added:

```
um_logical_processors=`egrep '^Online Virtual CPUs' /tmp/tideway.$$ | cut -f2 -d:`
```

The following code:

```
echo 'model:' `egrep '^System Model:' /tmp/tideway.$$ | cut -f2 -d:`
```

is replaced with:

```
echo 'model:' `egrep '^System Model:' /tmp/tideway.$$ | cut -f2 -d: | sed -e 's/IBM,//'`
```

The following code:

```
um_logical_processors=`egrep '^Number Of Processors:' /tmp/tideway.$$ | cut -f2 -d:`
```
is replaced with:

```bash
# Use this processor value if lparstat failed
if [ "$num_logical_processors" = "" ]; then
    num_logical_processors=`egrep '^Number Of Processors:' /tmp/tideway.$$ | cut -f2 -d:`
fi
```

The following code:

```bash
num_logical_processors=`lscfg -lproc\* 2>/dev/null | wc -l`
```

is replaced with:

```bash
# Use this processor value if lparstat failed
if [ "$num_logical_processors" = "" ]; then
    num_logical_processors=`lscfg -lproc\* 2>/dev/null | wc -l`
fi
```

The following code:

```bash
echo "num_processors": $num_physical_processors
echo "num_logical_processors:" $num_logical_processors
echo "processor_type:" $cputype $cpuspeed
echo "processor_speed:" $cpuspeed
```

is replaced with:

```bash
fi
if [ "$num_physical_processors" != "" ]; then
    echo "num_processors": $num_physical_processors
fi
if [ "$num_logical_processors" != "" ]; then
    echo "num_logical_processors:" $num_logical_processors
fi
if [ "$cputype" != "" -a "$cpuspeed" != "" ]; then
```
The following code is added:

```
num_logical_processors=`egrep '^[^\^]Online Virtual CPUs' /tmp/tideway.$$ | cut -f2 -d:`
```

The following code:

```
num_logical_processors=`egrep '^[^\^]Number Of Processors:' /tmp/tideway.$$ | cut -f2 -d:`
```

is replaced with:

```
# Use this processor value if lparstat failed
if [ "${num_logical_processors}" = "" ]; then
    num_logical_processors=`egrep '^[^\^]Number Of Processors:' /tmp/tideway.$$ | cut -f2 -d:`
fi
```

The following code:

```
num_logical_processors=`lscfg -lproc\* 2>/dev/null | wc -l`
```

is replaced with:
# Use this processor value if lparstat failed
if [ "$num_logical_processors" = "" ]; then
    num_logical_processors=`lscfg -lproc\* 2>/dev/null | wc -l`
fi

The following code:

```bash
echo "num_processors": $num_physical_processors
echo "num_logical_processors:" $num_logical_processors
echo "processor_type:" $cputype $cpuspeed
echo "processor_speed:" $cpuspeed
```

is replaced with:

```bash
fi
if [ "$num_physical_processors" != "" ]; then
    echo "num_processors": $num_physical_processors
fi
if [ "$num_logical_processors" != "" ]; then
    echo "num_logical_processors:" $num_logical_processors
fi
if [ "$cputype" != "" -a "$cpuspeed" != "" ]; then
    echo "processor_type:" $cputype $cpuspeed
    echo "processor_speed:" $cpuspeed
fi
```

The following code:

```bash
if [ `uname -v` -ge 6 ]; then
    wparaddrs=`lswpar -Nqa address 2>/dev/null | xargs echo | sed -e 's/././g' -e 's/ /|/g'
fi
if [ "$wparaddrs" = "" ]; then
    ifconfig -a 2>/dev/null
else
    ifconfig -a 2>/dev/null | egrep -v "$wparaddrs"
```

is replaced with:

```bash
if [ `uname -v` -lt 5 ]; then
    for name in `netstat -i | cut -f 1 -d\` | grep -Ev "'^Name|^lo0|^$'" | sort -u`
```
The following code:

```bash
if [ `uname -v` -ge 6 ]; then
    wparaddrs=`lswpar -Nqa address 2>/dev/null | xargs echo | sed -e 's/\./\./g' -e 's/ /|/g'
    fi
else
    ifconfig -a 2>/dev/null
else
    ifconfig -a 2>/dev/null | egrep -v "$wparaddrs"
fi
```

is replaced with:

```bash
if [ `uname -v` -lt 5 ]; then
    for name in `netstat -i | cut -f 1 -d\ | grep -Ev "^Name|^lo0|^$" | sort -u` do
        ifconfig $name 2>/dev/null
done
else
    if [ `uname -v` -ge 6 ]; then
        wparaddrs=`lswpar -Nqa address 2>/dev/null | xargs echo | sed -e 's/\./\./g' -e 's/ /|/g'
        fi
    else
        ifconfig -a 2>/dev/null
    fi
else
    ifconfig -a 2>/dev/null | egrep -v "$wparaddrs"
fi
```

The following code:
entstat -d ${adapter} 2>/dev/null | egrep "(Media Speed)|(Hardware Address)" 2>/dev/null

is replaced with:

entstat -d ${adapter} 2>/dev/null | egrep "(ETHERNET STATISTICS)|(Device Type)|(Media Speed)|(Hardware Address)|(PVID)|(Port VLAN ID)" 2>/dev/null

The following code is added:

echo 'begin lsdev-lscfg:'
for i in `lsdev -Cc adapter -F name:status | grep ^en`
do
    adapter=`echo $i | cut -f1 -d:`
    status=`echo $i | cut -f2 -d:`
    if [ $status = "Available" ]; then
        echo Begin-interface: $adapter
        lscfg -vl $adapter 2>/dev/null
        echo End-interface: $adapter
    fi
done
echo 'end lsdev-lscfg:'

# VIO support
if [ -x /usr/iots/cli/ioscli ]; then
    echo begin ioscli-lsmap-all:
    /usr/iots/cli/ioscli lsmap -all -net -fmt ":"
    echo end ioscli-lsmap-all:
fi

The following code:

if [ -d %(path)s -a -r %(path)s ]; then
    (cd %(path)s; ls -al)
else
    echo 'DIRECTORY NOT FOUND'
fi

is replaced with:

PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd %(path)s; PRIV_LS -al)
else
  echo 'DIRECTORY NOT FOUND'
fi

The following code is added:

```bash
# Clear any shell aliases on VIO
unalias uname
unalias hostname
unalias lsdev
unalias netstat
```

The following code is added:

```bash
# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
  ls ""$@"
}
```

The following code:

```bash
osver=`oslevel 2>/dev/null`
if [ $? -ne 0 ]; then
  osver=""
fi
if [ "$osver" = "" -o "$osver" = "TYPERML" ]; then
  osmaj=`uname -v 2>/dev/null`
  osmin=`uname -r 2>/dev/null`
  osver="${osmaj}.${osmin}"
fi
echo 'os:' `uname -s 2>/dev/null` $osver
echo 'os_arch:' `uname -p 2>/dev/null`
```

is replaced with:

```bash
# VIO support
if [ -f /usr/ios/cli/ios.level ]; then
  viover=`cat /usr/ios/cli/ios.level`
  os="VIO $viover"
else
  osver=`oslevel 2>/dev/null`
```
```bash
if [ $? -ne 0 ]; then
    osver=""
fi
if [ "$osver" = "" -o "$osver" = "TYPERML" ]; then
    osmaj=`uname -v 2>/dev/null`
    osmin=`uname -r 2>/dev/null`
    osver="$osmaj.$osmin"
fi
os=`uname -s 2>/dev/null` $osver
fi
echo 'os:' $os
echo 'os_arch:' `uname -p 2>/dev/null`
```

The following code:

```bash
if [ ! -f %(path)s ]; then
    echo "ls:" `ls -ld %(path)s`
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
```

Mac OS-X

The following code:

```bash
grep "Memory: " /tmp/tideway-hw-$$ | sed 's/^.*: \([.\*]*/ram: \1/'
```

is replaced with:

```bash
grep "^[[:blank:]]*Memory: " /tmp/tideway-hw-$$ | sed 's/^.*: \([.\*]*/ram: \1/'
```

The following code:

```bash
if [ ! -d %(path)s -a ! -r %(path)s ]; then
    (cd %(path)s; ls -alT)
```
is replaced with:

```bash
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
  (cd %(path)s; PRIV_LS -alT)
```

The following code:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
  test "$@"
}
```

is replaced with:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
  test "$@"
}
```

```bash
# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
  ls "$@"
}
```

The following code:

```bash
if [ -f %(path)s ]; then
  echo "ls:" `ls -lTd %(path)s`
  echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'`
else
  echo "FILE NOT FOUND"
```

is replaced with:
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -lTd %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'`
else
    echo "FILE NOT FOUND"
fi

IRIX

The following code:

    if [ -d %(path)s -a -r %(path)s ]; then
        (cd %(path)s; ls -al)
    else
        echo 'DIRECTORY NOT FOUND'
    fi

is replaced with:

    PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
    if [ $? -eq 0 ]; then
        (cd %(path)s; PRIV_LS -al)
    else
        echo 'DIRECTORY NOT FOUND'
    fi

The following code:

    # This function supports privilege testing of attributes of files.
    # Used in conjunction with PRIV_CAT.
    PRIV_TEST() {
        test "$@
    }

is replaced with:

    # This function supports privilege testing of attributes of files.
    # Used in conjunction with PRIV_CAT and PRIV_LS
    PRIV_TEST() {
        test "$@
    }
# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
    ls "$@"
}

The following code:

```bash
if [ -f %(path)s ]; then
echo "ls:" `ls -ld %(path)s`
else
    echo "FILE NOT FOUND"
fi
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
else
    echo "FILE NOT FOUND"
fi
```

Tru64

The following code:

```bash
if [ -d %(path)s -a -r %(path)s ]; then
    (cd %(path)s; ls -al)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```bash
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd %(path)s; PRIV_LS -al)
else
    echo 'DIRECTORY NOT FOUND'
fi
```
The following code:

```
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "@$"
}
```

is replaced with:

```
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
    test "@$"
}
# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
    ls "@$"
}
```

The following code:

```
if [ -f %(path)s ]; then
    echo "ls:" `ls -ld %(path)s`
else
    echo "FILE NOT FOUND"
fi
```

is replaced with:

```
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
else
    echo "FILE NOT FOUND"
fi
```
Mainframe

New methods:

- getApplication
- getDependency

Changed methods:

- getDatabaseDetail – enabled changed: was False, now True.
- getTransaction – enabled changed: was False, now True.
- getMQDetail – enabled changed: was False, now True.

UnixWare

The following code:

```bash
if [ -d %(path)s -a -r %(path)s ]; then
    (cd %(path)s; ls -al)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```bash
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd %(path)s; PRIV_LS -al)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

The following code:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

is replaced with:

```bash
```
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
    test "$@"
}

# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
    ls "$@
}

The following code:

```bash
if [ -f %(path)s ]; then
    echo "ls:" `ls -ld %(path)s`
else
    echo "FILE NOT FOUND"
fi
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
else
    echo "FILE NOT FOUND"
fi
```

FreeBSD

The following code:

```bash
if [ -d %(path)s -a -r %(path)s ]; then
    (cd %(path)s; ls -alT)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```bash
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
else
    echo "DIRECTORY NOT FOUND"
fi
```
The following code:

```
PRIV_TEST -d %path% -a -r %path% > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd %path%; PRIV_LS -alT)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```
PRIV_TEST -f %path% > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -lTd %path%`
else
    echo "FILE NOT FOUND"
```

The following code:

```
PRIV_TEST -d %path% -a -r %path% > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd %path%; PRIV_LS -alT)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```
PRIV_TEST -f %path% > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" PRIV_LS -lTd %path%'
```

The following code:

```bash
if [ -f %path% ]; then
    echo "ls:" `ls -lt %path%` 
    echo "md5sum:" `md5 -q %path% 2>/dev/null`
else
    echo "FILE NOT FOUND"
```

is replaced with:

```bash
PRIV_TEST -f %path% > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -lTd %path%`'```
Linux

The following code:

```bash
if [ "${model}" != "" ]; then
    echo 'model:' ${model}
fi
```

is replaced with:

```bash
if [ "${model}" != "" ]; then
    echo 'candidate_model[]:' ${model}
fi
```

The following code:

```bash
echo 'serial:' ${serial}
fi
if [ "${model}" != "" ]; then
    echo 'model:' ${model}
fi
```

is replaced with:

```bash
echo 'candidate_serial[]:' ${serial}
fi
if [ "${model}" != "" ]; then
    echo 'candidate_model[]:' ${model}
fi
```

The following code:
# On a VMWare ESX controller, report the *real* hardware information

```
file=/tmp/tideway-hw-$$
PRIV_ESXCFG /usr/sbin/esxcfg-info --hardware > ${file} 2>/dev/null
if [ $? -eq 0 ]; then
    physical=`grep "Num Packages\." ${file} | sed -e "s/[Changes to Discovery Commands\]*//g"
    logical=`grep "Num Cores\." ${file} | head -n 1 | sed -e "s/[Changes to Discovery Commands\]*//g"
    tmp=`echo ${cputype} | sed 's/ @.*$//'`
    cputype="${tmp} ${cpuspeed}"
    ram=`grep "Physical Mem\." ${file} | sed 's/[Changes to Discovery Commands\]*//g'`
    uuid=`grep "BIOS UUID\." ${file} | sed 's/[Changes to Discovery Commands\]*//g'`
else
    print=0
    fi
    rm -f $(file)
fi
if [-f /opt/xensource/bin/xe ]; then
    print=0
}
```

is replaced with:

```
# On a VMWare ESX controller, report the *real* hardware information

```
file=/tmp/tideway-hw-$$
PRIV_ESXCFG /usr/sbin/esxcfg-info --hardware > ${file} 2>/dev/null
uuid=""
if [ $? -eq 0 ]; then
    physical=`grep "Num Packages\." ${file} | sed -e "s/[Changes to Discovery Commands\]*//g"
    logical=`grep "Num Cores\." ${file} | head -n 1 | sed -e "s/[Changes to Discovery Commands\]*//g"
    tmp=`echo ${cputype} | sed 's/ @.*$//'`
    cputype="${tmp} ${cpuspeed}"
    ram=`grep "Physical Mem\." ${file} | sed 's/[Changes to Discovery Commands\]*//g'`
    uuid=`grep "BIOS UUID\." ${file} | sed 's/[Changes to Discovery Commands\]*//g'`
else
    print=0
    fi
    rm -f $(file)

    # Get UUID as hostid if possible
    if [ "$uuid" != "" ]; then
        # Process horrid BIOS UUID format :
        echo "$uuid" | sed -e 's/\./ /g' | awk '{
            printf("hostid: ");
            for(i = 3 ; i < 19; i++)
            {
                printf("%02s", substr($1,3,2));
                if (i == 6 || i == 8 || i == 10 || i == 12) printf("-");
            }
            printf("\n");
        }'
    else
```

```
The following code:

```
if [ -r /etc/slp.reg ]; then
    uuid=`grep hardwareUuid /etc/slp.reg | cut -f2 -d=' | tr '[:upper:]' '[:lower:]'
    if [ "$(uuid)" != "" ]; then
        echo 'hostid:' ${uuid}
    fi
fi
fi
fi
fi
fi
fi
if [ -f /opt/xensource/bin/xe ]; then
    print=0
}
}
```

is replaced with:

```
# Can we get information from the BIOS?
if [ -f /usr/sbin/dmidecode ]; then
    PRIV_DMIDECODE /usr/sbin/dmidecode 2>/dev/null | sed -n '/DMI type 1,,/Handle 0x0/p'
    $1 ~ /Manufacturer:/ { sub(".*Manufacturer: *",""); printf( "vendor: %s
", $0); }
    $1 ~ /Vendor:/ { sub(".*Vendor: *",""); printf( "vendor: %s
", $0 ); }
    $1 ~ /Product/ && $2 ~ /Name:/ { sub(".*Product Name: *",""); printf( "model:  %s
", $0 ); }
    $1 ~ /Product:/ { sub(".*Product: *",""); printf( "model: %s
", $0 ); }
    $1 ~ /Serial/ && $2 ~ /Number:/ { sub(".*Serial Number: *",""); printf( "serial: %s
", $0 ); }
fi

if [ -f /usr/sbin/hwinfo ]; then
    PRIV_HWINFO /usr/sbin/hwinfo --bios 2>/dev/null | sed -n '/System Info:/,/^Info:/p'
    $1 ~ /Manufacturer:/ { sub(".*Manufacturer: *",""); printf( "vendor: %s
", $0 ); }
    $1 ~ /Product:/ { sub(".*Product: *",""); printf( "model: %s
", $0 ); }
    $1 ~ /Serial:/ { sub(".*Serial: *",""); printf( "serial: %s
", $0 ); }
fi

# PPC64 LPAR?
if [ -f /proc/ppc64/lparcfg ]; then
    sed -e 's/=/: /' /proc/ppc64/lparcfg | egrep '^[a-z]' | sed -e 's/serial_number/serial/' -e 's/partition_id/lpar_id/' -e 's/group/lpar_partition_group_id/' -e 's///'
fi

# zLinux?
if [ -f /proc/sysinfo -a -d /proc/dasd ]; then
    echo "vendor:" `egrep '^[Manufacturer: /proc/sysinfo | awk '{print $2;}'
    type=`egrep '^[Type: /proc/sysinfo | awk '{print $2;}'
    model=`egrep '^[Model: /proc/sysinfo | awk '{print $2;}'
    echo "model: $type-$model"
    echo "zlinux_sequence:" `egrep '^[Sequence Code: /proc/sysinfo | awk '{print $3;}'
    echo "zlinux_vm_name:" `egrep '^[VM00 Name: /proc/sysinfo | awk '{print $3;}'
    echo "zlinux_vm_software:" `egrep '^[VM00 Control Program: /proc/sysinfo | awk '{print 
```
### zLinux?

```bash
if [ -f /proc/sysinfo -a -d /proc/dasd ]; then
    echo "candidate_vendor[]: " `egrep '^Manufacturer:' /proc/sysinfo | awk '{print $2;}'`
    type='egrep '^Type:' /proc/sysinfo | awk '{print $2;}'
    model='egrep '^Model:' /proc/sysinfo | awk '{print $2;}'
    echo "candidate_model[]: $type-$model"
    echo "zlinux_sequence:" `egrep '^Sequence Code:' /proc/sysinfo | awk '{print $3;}'`
    echo "zlinux_vm_name:" `egrep '^VM00 Name:' /proc/sysinfo | awk '{print $3;}'`
    echo "zlinux_vm_software:" `egrep '^VM00 Control Program:' /proc/sysinfo | awk '{print $4, $5;}'`
fi
```

# Can we get information from the BIOS? We use lshal if available as that
# requires no superuser permissions but we attempt to run all tools as some
# can return invalid values in some cases. The system will select the "best"
# candidate from the values returned, where "best" is the first non-bogus value

```bash
if [ -x /usr/bin/lshal ]; then
    /usr/bin/lshal 2>/dev/null | sed -e 's/(string)$//g' -e "s/'//g" | awk '"
    $1 ~ /system.hardware.serial/ {
        sub(".*system.hardware.serial = *", "");
        printf("candidate_serial[]: %s
", $0);
    }

    $1 ~ /system.hardware.uuid/ {
        sub(".*system.hardware.uuid = *", "");
        printf("candidate_uuid[]: %s
", $0);
    }

    $1 ~ /system.hardware.product/ {
        sub(".*system.hardware.product = *", "");
        printf("candidate_model[]: %s
", $0);
    }

    $1 ~ /system.hardware.vendor/ {
        sub(".*system.hardware.vendor = *", "");
        printf("candidate_vendor[]: %s
", $0);
    }
fi

if [ -f /usr/sbin/dmidecode ]; then
    PRIV_DMIDECODE /usr/sbin/dmidecode 2>/dev/null | sed -n '/DMI type 1,/,/^Handle 0x0/p' | awk '"
    $1 ~ /Manufacturer:/ { sub(".*Manufacturer: *", ""); printf("candidate_vendor[]: %s
", $0); }

    $1 ~ /Vendor:/ { sub(".*Vendor: *", ""); printf("candidate_vendor[]: %s
", $0); }

    $1 ~ /Product/ && $2 ~ /Name:/ { sub(".*Product Name: *", "); printf("candidate_model[]: %s
", $0); }

    $1 ~ /Serial/ && $2 ~ /Number:/ { sub(".*Serial: *", ""); printf("candidate_serial[]: %s
", $0); }

    $1 ~ /UUID:/ { sub(".*UUID: *", ""); printf("candidate_uuid[]: %s
", $0); }' fi

if [ -f /usr/sbin/hwinfo ]; then
    PRIV_HWINFO /usr/sbin/hwinfo --bios 2>/dev/null | sed -n '/System Info:/,/Info:/p' | awk '"
    $1 ~ /Manufacturer:/ { sub(".*Manufacturer: *", "); gsub("\"", ""); printf("candidate_vendor[]: %s
", $0); }

    $1 ~ /Product:/ { sub(".*Product: *", "); gsub("\"", ""); printf("candidate_model[]: %s
", $0); }

    $1 ~ /Serial:/ { sub(".*Serial: *", "); gsub("\"", ""); printf("candidate_serial[]: %s
", $0); }

    $1 ~ /UUID:/ { sub(".*UUID: *", "); gsub("\"", ""); printf("candidate_uuid[]: %s
", $0); }'
```

BMC Atrium Discovery 8.3
# PPC64 LPAR?
if [-r /proc/ppc64/lparcfg ]; then
    echo begin lparcfg:
    cat /proc/ppc64/lparcfg 2>/dev/null
    echo end lparcfg
fi
# LPAR name?
if [-r /proc/device-tree/ibm,partition-name ]; then
    echo "lpar_partition_name:" `cat /proc/device-tree/ibm,partition-name`
fi

The following code:

```bash
if [-d $(path)s -a -r $(path)s ]; then
    (cd $(path)s; ls -a --full-time --color=never)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```bash
PRIV_TEST -d $(path)s -a -r $(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd $(path)s; PRIV_LS -a --full-time --color=never)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

The following code:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

is replaced with:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
    test "$@
```
# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
    ls "$@"
}

The following code is removed:

```bash
# emlxadm requires superuser privileges to display any HBA information
PRIV_EMLXADM() {
    "$@
}
```

The following code:

```bash
os=""
if [ "$os" = "" -a -e /proc/vmware/version ]; then
    os=`grep -m1 ESX /proc/vmware/version`
fi
if [ "$os" = "" -a -f /etc/SuSE-release ]; then
    os=`head -n 1 /etc/SuSE-release`
fi
if [ "$os" = "" -a -f /etc/lsb-release ]; then
    ostype=`grep DISTRIB_ID /etc/lsb-release | cut -f2 -d=`
    osver=`grep DISTRIB_RELEASE /etc/lsb-release | cut -f2 -d=`
    os="$ostype $osver"
fi
if [ "$os" = "" -a -f /etc/debian_version ]; then
    ver=`cat /etc/debian_version`
    os="Debian Linux $ver"
```

is replaced with:

```bash
os=""
if [ "$os" = "" -a -x /usr/bin/lsb_release ]; then
    # We'd like to use -ds but that puts quotes in the output!
    os="/usr/bin/lsb_release -d | cut -f2 -d:"
fi
if [ "$os" = "" -a -e /proc/vmware/version ]; then
```
The following code:

```bash
if [ "$os" = "" -a -f /etc/SuSE-release ]; then
    os=`head -n 1 /etc/SuSE-release`
fi

if [ "$os" = "" -a -f /etc/debian_version ]; then
    ver=`cat /etc/debian_version`
    os="Debian Linux $ver"
```

is replaced with:

```bash
os=`grep -m1 ESX /proc/vmware/version`

if [ "$os" = "" -a -f /etc/SuSE-release ]; then
    os=`head -n 1 /etc/SuSE-release`
fi

if [ "$os" = "" -a -f /etc/debian_version ]; then
    ver=`cat /etc/debian_version`
    os="Debian Linux $ver"
```

Changed method:

- getHBAList – enabled changed: was hbainfo, now hba_lputil

**OpenBSD**

The following code:

```bash
if [ -f %(path)s ]; then
    echo "ls:" `ls -ld %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'`
else
    echo "FILE NOT FOUND"
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'`
else
    echo "FILE NOT FOUND"
```

```bash
if [ -f %(path)s ]; then
    echo "ls:" `ls -ld %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'`
else
    echo "FILE NOT FOUND"
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'`
else
    echo "FILE NOT FOUND"
```
The following code:

```bash
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
  (cd %(path)s; PRIV_LS -alT)
else
  echo 'DIRECTORY NOT FOUND'
fi
```

The following code:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
  test "$@
}
```

is replaced with:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
  test "$@
}
```

```bash
# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
  ls "$@
}
```

The following code:

```bash
if [ -f %(path)s ]; then
  echo "ls:" `ls -lTd %(path)s`
  echo "md5sum:" `md5 -q %(path)s 2>/dev/null`
else
  echo "FILE NOT FOUND"
```

is replaced with:

```bash
```
NetBSD

The following code:

```bash
if [-d $(path)s -a -r $(path)s ]; then
    (cd $(path)s; ls -alT)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```bash
PRIV_TEST -d $(path)s -a -r $(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd $(path)s; PRIV_LS -alT)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

The following code:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@"
}
```

is replaced with:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
    test "$@"
}
```
Release Notes

BMC Software Confidential

# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
ls "$@"
}

The following code:

if [ -f %(path)s ]; then
echo "ls:" `ls -lTd %(path)s`
echo "md5sum:" `md5 -q %(path)s 2>/dev/null`
else
echo "FILE NOT FOUND"

is replaced with:

PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
echo "ls:" `PRIV_LS -lTd %(path)s`
echo "md5sum:" `md5 -q %(path)s 2>/dev/null`
else
echo "FILE NOT FOUND"

HP-UX
The following code:

par_id=`/usr/sbin/parstatus -w 2> /dev/null | grep "The local partition number is" | sed 's/.*The local part
if [ "$par_id" ]; then
echo par_id: $par_id
par_status=`/usr/sbin/parstatus -C -M | grep "$par_id"\$`
for i in `echo "$par_status" | sed 's/^[Changes to Discovery Commands^:]*:[Changes to Discovery Commands
cores=$((cores + i))
done
for i in `echo "$par_status" | sed 's/^[Changes to Discovery Commands^:]*:[Changes to Discovery Commands
ram=$((ram + i))
done
ram=`echo "$ram" '* 1048576 * 1024' | bc`
echo ram: $ram
fi

is replaced with:

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The following code:

```
par_id=`/usr/sbin/parstatus -w 2> /dev/null | grep "The local partition number is" | sed 's/.*The local partition number is \([0-9]*\).*/\1/'`
if [ "$par_id" ]; then
  echo par_id: $par_id
cpumem=`/usr/sbin/parstatus -C -M | awk -v PAR_ID=$par_id 'BEGIN{ FS="\"\" };{ if ($NF==8) cores=`echo "$cpumem" | awk '{print $1}'`
  ram=`echo "$cpumem" | awk '{print $2}'`
  ram=`echo "$ram" '*' 1048576 '*' 1024 | bc`
  echo ram: $ram
fi
```

is replaced with:

```
par_id=`/usr/sbin/parstatus -w 2> /dev/null | grep "The local partition number is" | sed 's/.*The local partition number is \([0-9]*\).*/\1/'`
if [ "$par_id" ]; then
  echo par_id: $par_id
cpumem=`/usr/sbin/parstatus -C -M | awk -v PAR_ID=$par_id 'BEGIN{ FS="\"\" };{ if ($NF==8) cores=`echo "$cpumem" | awk '{print $1}'`
  ram=`echo "$cpumem" | awk '{print $2}'`
  ram=`echo "$ram" '*' 1048576 '*' 1024 | bc`
  echo ram: $ram
fi
```

The following code:

```
interfaces=`netstat -in 2>/dev/null | cut -d\  -f 1 | grep -Ev '^Name|^lo0|^IP|^$' | sort -u`
for interface in $interfaces
do
  ifconfig $interface 2>/dev/null
```

is replaced with:

```
interfaces=`netstat -inw > /tmp/addm.$$ 2>/dev/null
if [ $? -ne 0 ]; then
  netstat -in > /tmp/addm.$$ 2>/dev/null
fi
interfaces=`cat /tmp/addm.$$ | cut -d\  -f 1 | grep -Ev '^Name|^lo0|^IP|^$' | sort -u`
rm /tmp/addm.$$`
for interface in $interfaces
do
  ifconfig $interface 2>/dev/null
```

The following code:

```
if [ -d %(path)s -a -r %(path)s ]; then
  (cd %(path)s; ls -al)
else
  echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
```

```
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
```
(cd %(path)s; PRIV_LS -al)
else
  echo 'DIRECTORY NOT FOUND'
fi

The following code:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
  test "$@
}
```

is replaced with:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
  test "$@
}
```

```bash
# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
  ls "$@
}
```

The following code:

```bash
if [ -f %(path)s ]; then
  echo "ls: " `ls -ld %(path)s`
  echo "md5sum: " `md5sum %(path)s 2>/dev/null | awk '{print $1;}'`
else
  echo "FILE NOT FOUND"
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
  echo "ls: " `PRIV_LS -ld %(path)s`
```
VMware ESXi

The following code is added:

```bash
# Get UUID as hostid if possible
uuid=`/sbin/smbiosDump | grep UUID | grep -v undefined`
if [ "$uuid" != "" ]; then
    # UUID from smbiosDump is not formatted and bytes are reversed :
    echo $uuid | awk '{
        sub(".*UUID: *","
        printf("hostid: %s%s%s-%s%s-%s%s-%s
            substr($0,31,2), substr($0,29,2), substr($0,27,2), substr($0,25,2),
            substr($0,23,2), substr($0,21,2), substr($0,19,2), substr($0,17,2),
            substr($0,15,2), substr($0,13,2), substr($0,11,2), substr($0,9,2),
            substr($0,7,2), substr($0,5,2), substr($0,3,2), substr($0,1,2));
    '}
else
    # Attempt to get UUID from slp.reg
    if [ -r /etc/slp.reg ]; then
        uuid=`grep hardwareUuid /etc/slp.reg | cut -f2 -d= | tr '[:upper:]' '[:lower:]' |
            if [ "$uuid" != "" ]; then
                echo 'hostid:' ${uuid}
            fi
    fi
fi
```

The following code:

```bash
if [ -d %(path)s -a -r %(path)s ]; then
    (cd %(path)s; ls -lae --color=never)
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```bash
PRIV_TEST -d %(path)s -a -r %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    (cd %(path)s; PRIV_LS -lae --color=never)
```
The following code:

```bash
else
    echo 'DIRECTORY NOT FOUND'
fi
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'
else
    echo "FILE NOT FOUND"
```

The following code:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@

# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
    test "$@

# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
    ls "$@"
```

is replaced with:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT and PRIV_LS
PRIV_TEST() {
    test "$@"

# This function supports privilege listing of files and directories
# Used in conjunction with PRIV_TEST
PRIV_LS() {
    ls "$@"
```

The following code:

```bash
if [ -f %(path)s ]; then
    echo "ls:" `ls -ld %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'
else
    echo "FILE NOT FOUND"
```

is replaced with:

```bash
PRIV_TEST -f %(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
    echo "ls:" `PRIV_LS -ld %(path)s`
    echo "md5sum:" `md5sum %(path)s 2>/dev/null | awk '{print $1;}'
else
    echo "FILE NOT FOUND"
```
The following code:

```bash
if [ -f $(path)s ]; then
echo "ls:" `ls -ld $(path)s`
echo "md5sum:" `md5sum $(path)s 2>/dev/null | awk '{print $1;}'`
else
echo "FILE NOT FOUND"
```

is replaced with:

```bash
PRIV_TEST -f $(path)s > /dev/null 2> /dev/null
if [ $? -eq 0 ]; then
  echo "ls:" `PRIV_LS -ld $(path)s`
  echo "md5sum:" `md5sum $(path)s 2>/dev/null | awk '{print $1;}'`
else
echo "FILE NOT FOUND"
```

The following code:

```bash
ihn=`hostname -s 2>/dev/null`
if [ "$ihn" = "localhost" ]; then
  ihn=`hostname 2>/dev/null`
fi
echo 'hostname:' $ihn
```

is replaced with:

```bash
ihn=`hostname -s 2>/dev/null`
if [ "$ihn" = "" -o "$ihn" = "localhost" ]; then
  ihn=`hostname 2>/dev/null`
fi
echo 'hostname:' $ihn
```
Discovery command changes from 8.2.02 to 8.2.03

There have been no discovery command changes between BMC Atrium Discovery 8.2.02 and 8.2.03.

Discovery command changes from 8.2.01 to 8.2.02

There have been no discovery command changes between BMC Atrium Discovery 8.2.01 and 8.2.02.

Discovery command changes from 8.2 to 8.2.01

Solaris

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

The following code:

```bash
if [ -f "$(P)" -a -r "$(P)" ]; then
```

is replaced with:

```bash
PRIV_TEST -f "$(P)" -a -r "$(P)"
if [ $? -eq 0 ]; then
```
echo "begin content:"
if [ -x /usr/xpg4/bin/sed ]; then
    PRIV_CAT "$(P)" | /usr/xpg4/bin/sed -e 's/[^[:print:][[:blank:]]//g'
fi

AIX

The following code is added:

```
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV.Test() {
    test "$@"
}
```

The following code:
```
if [ -f "$(P)" -a -r "$(P)" ]; then
```

is replaced with:
```
PRIV_Test -f "$(P)" -a -r "$(P)"
if [ $? -eq 0 ]; then
```

The following code:
```
ls1pp -L devices.pci.$adapter_type.* | grep devices.pci.$adapter_type
```

is replaced with:
```
ls1pp -L devices.*.$adapter_type.*
```
OS X

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
  test "$@
}
```

The following code:

```bash
cpucount=`grep "Number Of CPUs: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
if [ "$cpucount" = "" ]; then
  cpucount=`grep "Number Of Processors: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
cputype=`grep "Processor Name: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
cpuspeed=`grep "Processor Speed: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
cores=`grep "Number Of Cores: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
  if [ "$cores" != "" ]; then
    echo "num_logical_processors: $cores"
    echo "cores_per_processor: \`expr $cores / $cpucount\`"
  fi
else
  cputype=`grep "CPU Type: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
cpuspeed=`grep "CPU Speed: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
fi
echo "num_processors: $cpucount"
else
  cputype=`grep "Processor Name: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
cpuspeed=`grep "Processor Speed: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
fi
```

is replaced with:

```bash
cpucount=`grep "Number Of CPUs: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
if [ "$cpucount" = "" ]; then
  cpucount=`grep "Number Of Processors: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
  if [ "$cpucount" = "" ]; then
    # On some OS versions, system_profiler will not report the number of
    # processors unless it is > 1 so if we have no value reported, there is
    # only one CPU
    cpucount=1
  fi
  cputype=`grep "Processor Name: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
cpuspeed=`grep "Processor Speed: " /tmp/tideway-hw-$$ | sed 's/^.*: \(.*\)$/\1/'
else
```
The following code:

```bash
if [ -f "${P}" -a -r "${P}" ]; then
```

is replaced with:

```bash
PRIV_TEST -f "${P}" -a -r "${P}"
if [ $? -eq 0 ]; then
```

IRIX

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

The following code:

```bash
if [ -f "${P}" -a -r "${P}" ]; then
```

is replaced with:

```bash
```
PRIV_TEST -f "$(P)" -a -r "$(P)"
if [ $? -eq 0 ]; then

---

**Tru64**

The following code is added:

```
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@"
}
```

The following code is added:

```
echo 'model:' `hwmgr get attr -cat platform -a name 2>/dev/null | grep name | sed 's/name /'
```

The following code:

```
if [ -f "$(P)" -a -r "$(P)" ]; then
```

is replaced with:

```
PRIV_TEST -f "$(P)" -a -r "$(P)"
if [ $? -eq 0 ]; then
```

---

**OpenVMS**

The following code:

```
WRITE SYS$OUTPUT "hostname: ", F$LOGICAL("TCPIP$INET_HOST")
WRITE SYS$OUTPUT "dns_domain: ", F$LOGICAL("TCPIP$INET_DOMAIN")
```
WRITE SYS$OUTPUT "hostname: ", F$TRNLNM("TCPIP$INET_HOST")
WRITE SYS$OUTPUT "dns_domain: ", F$TRNLNM("TCPIP$INET_DOMAIN")

**UnixWare**

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

The following code:

```bash
if [ -f "${P}" -a -r "${P}" ]; then
```

is replaced with:

```bash
PRIV_TEST -f "${P}" -a -r "${P}"
if [ $? -eq 0 ]; then
```

**FreeBSD**

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```
The following code:

```
if [ -f "$(P)" -a -r "$(P)" ]; then
```

is replaced with:

```
PRIV_TEST -f "$(P)" -a -r "$(P)"
if [ $? -eq 0 ]; then
```

**Linux**

The following code is added:

```
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
  test "$@"
}
```

The following code:

```
if [ -f "$(P)" -a -r "$(P)" ]; then
```

is replaced with:

```
PRIV_TEST -f "$(P)" -a -r "$(P)"
if [ $? -eq 0 ]; then
```

The following code:

```
opteron_cores=`echo ${opteron_number} | cut -c2`
if [ ${opteron_cores} -eq 2 ]; then
```
cores_hint=2
siblings=2
elif [ ${opteron_cores} -eq 3 ]; then
    cores_hint=4
    siblings=4
elif [ ${opteron_cores} -eq 4 ]; then
    cores_hint=6
    siblings=6
fi

is replaced with:

# 4 digit processor code. The second digit is the most significant
opteron_cores=`echo ${opteron_number} | cut -c2`
if [ ${opteron_cores} -eq 1 ]; then
    if [ `echo ${opteron_number} | cut -c1` -eq 4 ]; then
        if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
            # 41xx where xx is lower than 60 are 4 cores
            core_hint=4
            sibling=4
        else
            # 41xx where xx is higher than 60 are 6 cores
            cores_hint=6
            siblings=6
        fi
    else
        # 41xx where xx is higher than 60 are 6 cores
        cores_hint=6
        siblings=6
    fi
    elif [ `echo ${opteron_number} | cut -c1` -eq 6 ]; then
        if [ `echo ${opteron_number} | cut -c3` -lt 6 ]; then
            # 61xx where xx is lower than 60 are 8 cores
            core_hint=8
            sibling=8
        else
            # 61xx where xx is higher than 60 are 12 cores
            core_hint=12
            sibling=12
        fi
    fi
    elif [ ${opteron_cores} -eq 2 ]; then
        # x2xx are all dual-core
        cores_hint=2
        siblings=2
    elif [ ${opteron_cores} -eq 3 ]; then
        # x3xx are all quad core
        cores_hint=4
        siblings=4
    elif [ ${opteron_cores} -eq 4 ]; then
        # x4xx are 6 cores.
        cores_hint=6
        siblings=6
    fi
OpenBSD

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

The following code:

```bash
if [ -f "$(P)" -a -r "$(P)" ]; then
```

is replaced with:

```bash
PRIV_TEST -f "$P" -a -r "$P"
if [ $? -eq 0 ]; then
```

NetBSD

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

The following code:

```bash
if [ -f "$(P)" -a -r "$(P)" ]; then
```
is replaced with:

```bash
PRIV_TEST -f "${P}" -a -r "${P}"
if [ $? -eq 0 ]; then
```

**HP-UX**

The following code is added:

```bash
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
    test "$@
}
```

The following code:

```bash
if [ -f "${P}" -a -r "${P}" ]; then
```

is replaced with:

```bash
PRIV_TEST -f "${P}" -a -r "${P}"
if [ $? -eq 0 ]; then
```

The following code:

```bash
if [ "`getconf SC_KERNEL_BITS`" == "64" ]; then
```

is replaced with:

```bash
if [ "`getconf SC_KERNEL_BITS`" = "64" ]; then
```
VMware ESXi

The following code is added:

```
# This function supports privilege testing of attributes of files.
# Used in conjunction with PRIV_CAT.
PRIV_TEST() {
  test "$@
}
```

The following code:

```
if [ -f "$(P)" -a -r "$(P)" ]; then
```

is replaced with:

```
PRIV_TEST -f "$(P)" -a -r "$(P)"
if [ $? -eq 0 ]; then
```

Discovery command changes from 8.1.1.1 to 8.2

UnixWare

The following code is added:

```
PRIV_CAT() {
  cat "$@
}
```

The following code is added:
echo 'os_arch:' `uname -p 2>/dev/null`

The following code:

```bash
if [ -f %path% -a -r %path% ]; then
    echo "begin content:"
    sed -e 's/#[^[:print:][[:blank:]]//g' %path%
fi
```

is replaced with:

```bash
P=%path%
if [ -f "${P}" -a -r "${P}" ]; then
    echo "begin content:"
    PRIV_CAT "${P}" | sed -e 's/#[^[:print:][[:blank:]]//g'
fi
```

The following code:

```bash
echo 'begin df:'
df -k 2>/dev/null
echo 'end df'
```

is replaced with:

```bash
echo begin df:
df -lk 2>/dev/null
echo end df:
```

```bash
echo begin mount:
echo begin xtab:
echo begin smbclient:
```
smbclient -N -L localhost
    echo end smbclient:
    echo begin smbconf:
        configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4;}'`
    if [ "$configfile" != "" ]; then
        if [ -f $configfile ]; then
            cat $configfile
        fi
    fi
    echo end smbconf:

**Tru64**

The following code is added:

```bash
PRIV_CAT() {
    cat "$@
}
```

The following code:

```bash
ihn=`hostname 2>/dev/null | cut -f1 -d.`
```

is replaced with:

```bash
ihn=`hostname 2>/dev/null`
```

The following code:

```bash
    echo 'os:' `uname -sr`
```

is replaced with:

```bash
    echo 'os:' `uname -sr 2>/dev/null`
```
The following code is added:

```bash
echo 'os_arch: ' `uname -p 2>/dev/null`
```

The following code:

```bash
if [ -f %%(path)s -a -r %%(path)s ]; then
  echo "begin content:"
  sed -e 's/[^[:print:][:blank:]]//g' %%(path)s
fi
```

is replaced with:

```bash
P=%(path)s
if [ -f "${P}" -a -r "${P}" ]; then
  echo "begin content:"
  PRIV_CAT "${P}" | sed -e 's/[^[:print:][:blank:]]//g'
fi
```

The following code:

```bash
echo 'begin df:'
df -k 2>/dev/null
echo 'end df'
```

is replaced with:

```bash
echo begin df:
df -k -t nonfs,nfsv3 2>/dev/null
echo end df:
echo begin mount:
mount 2>/dev/null
echo end mount:
echo begin xtab:
if [ -f /etc/xtab ]; then
cat /etc/xtab
```
The following code:

```
ifconfig -a
```

is replaced with:

```
ifconfig -av
```

**Solaris**

The following code is added:

```
PRIV_CAT() {
    cat "@@"
}
```

The following code:

```
ihn=`hostname 2>/dev/null | cut -f1 -d.`
```

is replaced with:

```
```
ihn=`hostname 2>/dev/null`

The following code:

```bash
 echo 'os:' `uname -sr`
```

is replaced with:

```bash
 echo 'os:' `uname -sr 2>/dev/null`
```

The following code is added:

```bash
 echo 'os_arch:' `uname -p 2>/dev/null`
```

The following code:

```bash
if [ -d %(path)s -a -r %(path)s ]; then
  (cd %(path)s; ls -al)
```

is replaced with:

```bash
P=%(path)s
if [ -d "${P}" -a -r "${P}" ]; then
  (cd "${P}"; ls -al)
```

The following code:

```bash
if [ -f %(path)s -a -r %(path)s ]; then
  echo "begin content:"
  if [ -x /usr/xpg4/bin/sed ]; then
    /usr/xpg4/bin/sed -e "s/^[[:print:]:[:blank:]]//g" % (path)s
  else
```
is replaced with:

```
P=%(path)s
if [ -f "$(P)" -a -r "$(P)" ]; then
    echo "begin content:"
    if [ -x /usr/xpg4/bin/sed ]; then
        PRIV_CAT "$(P)" | /usr/xpg4/bin/sed -e 's/^[[:print:]][[:blank:]]//g'
    else
        PRIV_CAT "$(P)"
    fi
fi
```

The following code:

```
if [ -f %(path)s ]; then
    echo "ls:" `ls -ld %(path)s`
    if [ -x `which digest` ]; then
        echo "md5sum:" `digest -a md5 %(path)s 2>/dev/null`
    fi
else
```

is replaced with:

```
P=%(path)s
if [ -f "$P" ]; then
    echo "ls:" `ls -ld "$P```
    if [ -x `which digest` ]; then
        echo "md5sum:" `digest -a md5 "$P" 2>/dev/null`
    fi
else
```

The following code:

```
/usr/sbin/smbios -i 1 2>/dev/null
```
is replaced with:

```
/usr/sbin/smbios -t SMB_TYPE_SYSTEM 2>/dev/null
```

The following code:

```
physical=""

[...]
physical=`grep -c "cpus, instance" /tmp/tideway.$$`

[...]
if [ "$physical" = "" -o "$physical" = "0" ]; then
    physical=`/usr/sbin/psrinfo -p 2>/dev/null`
    if [ "$physical" = "" ]; then
        physical=`kstat cpu_info 2>/dev/null | grep chip_id | sort | uniq | wc -l`
        if [ $physical -eq 0 ]; then
            echo "__discovery_errors: Unable to determine physical processor count"
            physical=""
        fi
    fi
fi
[...]
if [ "$physical" = "" -o "$physical" = "0" ]; then
    physical=`grep -c "cpus, instance" /tmp/tideway.$$`
fi
```

is replaced with:

```
physical=`/usr/sbin/psrinfo -p 2>/dev/null`
if [ "$physical" = "" ]; then
    physical=`kstat cpu_info 2>/dev/null | grep chip_id | sort | uniq | wc -l`
    if [ $physical -eq 0 ]; then
        physical=""
    fi
fi

[...]
if [ "$physical" = "" -o "$physical" = "0" ]; then
    physical=`grep -c "cpus, instance" /tmp/tideway.$$`
fi
```

The following code:

```
cores=`kstat cpu_info 2>/dev/null | grep core_id | sort | uniq | wc -l`
```
is replaced with:

```bash
cores=`kstat cpu_info 2>/dev/null | grep -w core_id | sort | uniq | wc -l`
```

The following code:

```bash
echo 'begin df:'
df -k -F ufs 2>/dev/null
df -k -F vxfs 2>/dev/null  | grep -v Filesystem
df -k -F zfs 2>/dev/null  | grep -v Filesystem
df -k -F pcfs 2>/dev/null  | grep -v Filesystem
df -k -F cachefs 2>/dev/null | grep -v Filesystem
echo 'end df'
```

is replaced with:

```bash
echo begin df:
df -lk 2>/dev/null
echo end df:
echo begin mount:
if [ -f /etc/mnttab ]; then
cat /etc/mnttab
fi
echo end mount:
echo begin xtab:
if [ -f /etc/xtab ]; then
cat /etc/xtab
fi
echo end xtab:
echo begin smbclient:
smbclient -N -L localhost
echo end smbclient:
echo begin smbconf:
if [ "$configfile" != "" ]; then
  if [ -f $configfile ]; then
cat $configfile
  fi
fi
echo end smbconf:
```

```bash
echo begin df:
df -lk 2>/dev/null
echo end df:
echo begin mount:
if [ -f /etc/mnttab ]; then
cat /etc/mnttab
fi
echo end mount:
echo begin xtab:
if [ -f /etc/xtab ]; then
cat /etc/xtab
fi
echo end xtab:
echo begin smbclient:
smbclient -N -L localhost
echo end smbclient:
echo begin smbconf:
if [ "$configfile" != "" ]; then
  if [ -f $configfile ]; then
cat $configfile
  fi
fi
echo end smbconf:
```
OpenBSD

The following code is added:

```bash
PRIV_CAT() {
    cat "$@
}
```

The following code:

```bash
ihn=`hostname 2>/dev/null | cut -f1 -d.`
```

is replaced with:

```bash
ihn=`hostname 2>/dev/null`
```

The following code is added:

```bash
echo 'os_arch: `uname -m 2>/dev/null`
```

The following code:

```bash
if [ -f %(path)s -a -r %(path)s ]; then
    echo "begin content:"
    sed -e 's/[^[:print:][:blank:]]/\&/g' %(path)s
    fi
```

is replaced with:

```bash
P=%(path)s
if [ -f "$P" -a -r "$P" ]; then
```
The following code:

```
  echo 'begin df:'
  df -k 2>/dev/null
  echo 'end df'
```

is replaced with:

```
  echo begin df:
  df -lk 2>/dev/null
  echo end df:
  echo begin mount:
  mount 2>/dev/null
  echo end mount:
  echo begin xtab:
  if [ -f /etc/xtab ]; then
    cat /etc/xtab
  fi
  echo end xtab:
  echo begin smbclient:
  smbclient -N -L localhost
  echo end smbclient:
  echo begin smbconf:
  configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4;}'`
  if [ "$configfile" != "" ]; then
    if [ -f $configfile ]; then
      cat $configfile
    fi
  fi
  echo end smbconf:
```

**NetBSD**

The following code is added:

```
PRIV_CAT() {
  cat "$@"
}
```
The following code:

```bash
ihn=`hostname 2>/dev/null | cut -f1 -d.`
```

is replaced with:

```bash
ihn=`hostname 2>/dev/null`
```

The following code is added:

```bash
echo 'os_arch:' `uname -m 2>/dev/null`
```

The following code:

```bash
if [ -f %(path)s -a -r %(path)s ]; then
    echo "begin content:"
    sed -e 's/[^[:print:][:blank:]]//g' %(path)s
fi
```

is replaced with:

```bash
P=%(path)s
if [ -f "$(P)" -a -r "$(P)" ]; then
    echo "begin content:"
    PRIV_CAT "$(P)" | sed -e 's/[^[:print:][:blank:]]//g' "$(P)"
fi
```

The following code:

```bash
echo 'begin df:'
df -k 2>/dev/null
echo 'end df'
```
is replaced with:

```bash
echo begin df:
df -lk 2>/dev/null
echo end df:
```

```bash
if [ -f /etc/xtab ]; then
cat /etc/xtab
fi
```

```bash
echo begin smbclient:
smbclient -N -L localhost
```

```bash
echo begin smbconf:
configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4;}'`
if [ "$configfile" != "" ]; then
   if [ -f $configfile ]; then
      cat $configfile
   fi
fi
```

**Mac OS X**

The following code is added:

```bash
PRIV_CAT() {
    cat "$@
}
```

The following code is added:

```bash
echo 'os_arch:' `uname -p 2>/dev/null`
```
if [ -f %(path)s -a -r %(path)s ]; then
    echo "begin content:"
    sed -e 's/[^[:print:][[:blank:]]//g' %(path)s
fi

is replaced with:

P=%(path)s
if [ -f "${P}" -a -r "${P}" ]; then
    echo "begin content:"
    PRIV_CAT "${P}" | sed -e 's/[^[:print:][[:blank:]]//g'
fi

The following code:

echo 'begin df:'
df -k 2>/dev/null
echo 'end df'

is replaced with:

echo begin df:
df -lk 2>/dev/null
echo end df:
echo begin mount:
mount 2>/dev/null
echo end mount:
echo begin xtab:
if [ -f /etc/xtab ]; then
    cat /etc/xtab
fi
echo end xtab:

echo begin smbclient:
smbclient -N -L localhost
echo end smbclient:

configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4;}'`
if [ "$configfile" != "" ]; then
    if [ -f $configfile ]; then
        cat $configfile
The following code is added:

```bash
PRIV_CAT() {
    cat "$@
}
```

The following code:

```bash
ihn=`hostname 2>/dev/null | cut -f1 -d.`
```

is replaced with:

```bash
ihn=`hostname 2>/dev/null`
```

The following code is removed:

```bash
if [ "$os" = "" -a /usr/bin/vmware ]; then
    os=`/usr/bin/vmware -v 2>/dev/null | grep ESX`
fi
```

The following code is added:

```bash
echo 'os_arch:' `uname -m 2>/dev/null`
```

The following code:
if [ -f %path -a -r %path ]; then
    echo "begin content:"
    sed -e 's/[^[:print:][:blank:]]//g' %path
fi

is replaced with:

P=%path
if [ -f "$P" -a -r "$P" ]; then
    echo "begin content:"
    PRIV_CAT "$P" | sed -e 's/[^[:print:][:blank:]]//g'
fi

The following code, and a number of similar instances:

if [ "$cputype:0:2" = "PA" ]; then
are replaced in this manner:

if [ `echo $cputype | cut -c-2` = "PA" ]; then

The following code:

PRIV_ESXCFG /usr/sbin/esxcfg-info > ${file} 2>/dev/null

is replaced with:

PRIV_ESXCFG /usr/sbin/esxcfg-info --hardware > ${file} 2>/dev/null

The following code, and a number of similar instances:

physical=`grep "Num Packages." ${file} | sed -e "s/[Changes to Discovery Commands]0-9]//g"
are replaced in this manner:

```
grep "Num Packages\." ${file} | sed -e "s/\[Changes to Discovery Commands\]0-9]/g"
```

The following code:

```
grep "Num Cores\." ${file} | sed -e "s/\[Changes to Discovery Commands\]0-9]/g"
```

is replaced with:

```
head -n 1 | sed -e "s/\[Changes to Discovery Commands\]0-9]/g"
```

The following code:

```
/usr/sbin/dmidecode 2>/dev/null | awk '/DMI type 1,/,^Handle 0x0*\[2-9] /
    { if( $1 ~ /Manufacturer:/ ) { sub(".*Manufacturer: *",""); printf("vendor: %s\n", $0 ); } 
       if( $1 ~ /Vendor:/ ) { sub(".*Vendor: *",""); printf("vendor: %s\n", $0 ); } 
       if( $1 ~ /Product/ && $2 ~ /Name:/ ) { sub(".*Product Name: *",""); printf("model: %s
", $0 ); } 
       if( $1 ~ /Product:/ ) { sub(".*Product: *",""); printf("model: %s
", $0 ); } 
       if( $1 ~ /Serial/ && $2 ~ /Number:/ ) { sub(".*Serial Number: *",""); printf("serial: %s
", $0 ); } }
'
```

is replaced with:

```
/usr/sbin/dmidecode 2>/dev/null | awk ' $1 ~ /Manufacturer:/ { sub(".*Manufacturer: *",""); printf("vendor: %s\n", $0 ); } $1 ~ /Vendor:/ { sub(".*Vendor: *",""); printf("vendor: %s\n", $0 ); } $1 ~ /Product/ && $2 ~ /Name:/ { sub(".*Product Name: *",""); printf("model: %s\n", $0 ); } $1 ~ /Product:/ { sub(".*Product: *",""); printf("model: %s\n", $0 ); } $1 ~ /Serial/ && $2 ~ /Number:/ { sub(".*Serial Number: *",""); printf("serial: %s\n", $0 ); }
'
```

The following code:
The following code is added:

```bash
if [ -f /proc/sysinfo -a -d /proc/dasd ]; then
    echo "vendor:" `egrep '^Manufacturer:' /proc/sysinfo | awk '{print $2;}'`
    type=`egrep '^Type:' /proc/sysinfo | awk '{print $2;}'`
    model=`egrep '^Model:' /proc/sysinfo | awk '{print $2;}'`
    echo "model: $type-$model"
    echo "zlinux_sequnce:" `egrep '^Sequence Code:' /proc/sysinfo | awk '{print $3;}'`
    echo "zlinux_vm_name:" `egrep '^VM00 Name:' /proc/sysinfo | awk '{print $3;}'`
    echo "zlinux_vm_software:" `egrep '^VM00 Control Program:' /proc/sysinfo | awk '{print $4, $5;}'`
fi
```

The following code:

```bash
echo 'begin df:'
df -k -x nfs 2>/dev/null
echo 'end df'
```

is replaced with:

```bash
echo begin df:
df -lk 2>/dev/null
echo end df:
```
```
echo end mount:
echo begin xtab:
if [ -s /var/lib/nfs/xtab ]; then
cat /var/lib/nfs/xtab
else
  if [ -s /var/lib/nfs/etab ]; then
    cat /var/lib/nfs/etab
  fi
fi
echo end xtab:
echo begin smbclient:
smbclient -N -L localhost
echo end smbclient:
echo begin smbconf:
configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4;}'`
if [ "$configfile" != "" ]; then
  if [ -f $configfile ]; then
    cat $configfile
  fi
fi
echo end smbconf:
```

**IRIX**

The following code is added:

```
PRIV_CAT() {
  cat "$@
}
```

The following code:

```
ihn=`hostname | cut -f1 -d.`
```

is replaced with:

```
ihn=`hostname 2>/dev/null`
```

The following code is added:
```bash
echo 'os_arch:' `uname -p` 2>/dev/null

The following code:
```
```bash
if [ -f %(path)s -a -r %(path)s ]; then
  echo "begin content:"
  sed -e 's/[^[:print:][:blank:]]//g' %(path)s
fi
```
```bash
is replaced with:

```bash
P=%(path)s
if [ -f "${P}" -a -r "${P}" ]; then
  echo "begin content:"
  PRIV_CAT "${P}" | sed -e 's/[^[:print:][:blank:]]//g'
fi
```

```
The following code:
```n
```bash
echo 'begin df:'
df -k 2>/dev/null
echo 'end df'
```
```bash
is replaced with:
```
```bash
echo begin df:
df -lk 2>/dev/null
echo end df:
echo begin mount:
mount 2>/dev/null
echo end mount:
echo begin xtab:
if [ -f /etc/xtab ]; then
cat /etc/xtab
fi
echo end xtab:
echo begin smbclient:
smbclient -N -L localhost
echo end smbclient:
echo begin smbconf:
configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4;}'`
if [ "$configfile" != "" ]; then
  if [ -f $configfile ]; then
    cat $configfile
  fi
fi
echo end smbconf:

HPUX

The following code is added:

PRIVATE_CAT() {
  cat "$@
}

The following code:

ihn=`hostname 2>/dev/null | cut -f1 -d.`

is replaced with:

ihn=`hostname 2>/dev/null`

The following code:

echo 'os:' `uname -sr`
 echo 'series:' `uname -m | cut -d/ -f2 | cut -c1`

is replaced with:

echo 'os:' `uname -sr 2>/dev/null`
 echo 'series:' `uname -m 2>/dev/null | cut -d/ -f2 | cut -c1`
The following code is added:

```bash
arch=""

if "uname -m 2>/dev/null" in
    ia64)
       arch="ia64" ;
    9000/31?)
       arch="m68000" ;
    9000/[34]??)
       arch="m68k" ;
    9000/[678][0-9][0-9])
    case "`getconf SC_CPU_VERSION`" in
        523)
            arch="pa-risc 1.0" ;
        528)
            arch="pa-risc 1.1" ;
        532)
            if [ "`getconf SC_KERNEL_BITS`" == "64" ]; then
                arch="pa-risc 2.0w"
            else
                arch="pa-risc 2.0n"
            fi
        esac ;
    esac
    if [ "$arch" != "" ]; then
        echo "os_arch: $arch"
    fi
```

The following code:

```
if [ -f %(path)s -a -r %(path)s ]; then
    echo "begin content:"
    sed -e 's/[\[:print:\]:\[:blank:\]]//g' %(path)s
fi
```

is replaced with:

```
P-%(path)s
if [ -f "$P" -a -r "$P" ]; then
```
FreeBSD

The following code is added:

```bash
PRIV_CAT() {
    cat "@"
}
```

The following code:

```
ihn=`hostname 2>/dev/null | cut -f1 -d.`
```

is replaced with:

```
ihn=`hostname 2>/dev/null`
```

The following code is added:

```
echo 'os_arch:' `uname -m 2>/dev/null`
```

The following code:

```
if [ -f %(path)s -a -r %(path)s ]; then
    echo "begin content:"
    sed -e 's/[^[:print:]][[:blank:]]/g' %(path)s
fi
```

is replaced with:

```
```
The following code:

```bash
P=${path}
if [ -f "${P}" -a -r "${P}" ]; then
    echo "begin content:"
    PRIV_CAT "${P}" | sed -e 's/[^[:print:][:blank:]]//g'
fi
```

is replaced with:

```bash
echo begin df:
df -lk 2>/dev/null
echo end df:
echo begin mount:
mount 2>/dev/null
echo end mount:
echo begin xtab:
if [ -f /etc/xtab ]; then
cat /etc/xtab
fi
echo end xtab:
echo begin smbclient:
smbclient -N -L localhost
echo end smbclient:
echo begin smbconf:
configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4}';
if [ "$configfile" != "" ]; then
    if [ -f $configfile ]; then
cat $configfile
    fi
fi
echo end smbconf:
```

The following code:
echo 'begin df:'
bdf 2>/dev/null
echo 'end df'
is replaced with:

echo begin df:
bdf -l 2>/dev/null
echo end df:
echo begin mount:
mount -p 2>/dev/null
echo end mount:
echo begin xtab:
if [ -f /etc/xtab ]; then
    cat /etc/xtab
fi
echo end xtab:
echo begin smbclient:
smbclient -N -L localhost
echo end smbclient:
echo begin smbconf:
configfile=`smbstatus -v 2>/dev/null | grep "using configfile" | awk '{print $4;}'`
if [ "$configfile" != "" ]; then
    if [ -f $configfile ]; then
        cat $configfile
    fi
fi
echo end smbconf:

The following code:

par_id=`/usr/sbin/parstatus -w 2> /dev/null | sed 's/.*/\([0-9]*\)/g'`

is replaced with:

par_id=`/usr/sbin/parstatus -w 2> /dev/null | grep "The local partition number is" | sed 's/.*/\1/g'`

The following code:
```

echo 'begin lanadmin:'
for interface in $interfaces
do
  echo Begin-interface: $interface
  PRIV_LANADMIN lanadmin -x $interface 2>/dev/null | grep -v 'NO LINK'
lanscan -ia 2>/dev/null | awk "\$2=="$interface\" \{printf("Hardware Address: %s\n\", \$1)\}
  echo End-interface: $interface
done
echo 'end lanadmin:'
```

is replaced with:

```

echo 'begin lanscan:'
lanscan -pia 2>/dev/null
echo 'end lanscan:'
```

```

echo 'begin lanadmin:'
for interface in `lanscan -p 2>/dev/null`
do
  echo begin-interface: $interface
  PRIV_LANADMIN lanadmin -x $interface 2>/dev/null | grep -v 'NO LINK'
  echo end-interface: $interface
done
echo 'end lanadmin:'
```

**AIX**

The following code is added:

```

PRIV_CAT() {
  cat "$@"
}
```

The following code:

```
ihn=`hostname 2>/dev/null | cut -f1 -d.`
```

is replaced with:

```
```
ihn=`hostname 2>/dev/null`

The following code is added:

```
echo 'os_arch:' `uname -p 2>/dev/null`
```

The following code:

```
if [ -f %(path)s -a -r %(path)s ]; then
  echo "begin content:"
  sed -e 's/[^[:print:][[:blank:]]//g' %(path)s
fi
```

is replaced with:

```
P=%(path)s
if [ -f ""$P"" -a -r "$P"" ]; then
  echo "begin content:"
  PRIV_CAT "$P" | sed -e 's/[^[:print:][[:blank:]]//g'
fi
```

The following code:

```
echo 'begin df:'
df -k 2>/dev/null
echo 'end df'
```

is replaced with:

```
echo begin df:
if [ -x /usr/sysv/bin/df ]; then
  /usr/sysv/bin/df -lg 2>/dev/null
fi
echo end df:
```
The following code is added:

```bash
for i in `lsdev -Cc adapter -F name:status:type | grep "^fcs"`
do
  adapter_name=`echo $i | cut -f1 -d:`
  adapter_status=`echo $i | cut -f2 -d:`
  adapter_type=`echo $i | cut -f3 -d:`
  if [ $adapter_status = "Available" ]; then
    echo begin lscfg-vl-$adapter_name:
    lscfg -vl $adapter_name
    echo end lscfg-vl-$adapter_name:
    echo begin lslpp-$adapter_name:
    lslpp -L devices.pci.$adapter_type.* | grep devices.pci.$adapter_type
    echo end lslpp-$adapter_name:
  fi
done
```

**Discovery command changes from 8.1.1 to 8.1.1.1**

There have been no discovery command changes from 8.1.1 to 8.1.1.1.
Discovery command changes from 8.1 to 8.1.1

There have been no discovery command changes from 8.1 to 8.1.1.
Windows proxy compatibility matrix

The following table provides information on compatibility between Windows proxy types and versions, and the operating systems that the Windows proxy runs on for BMC Atrium Discovery version 8.3.

<table>
<thead>
<tr>
<th>Windows Proxy Type</th>
<th>Earliest Windows Proxy Version Supported</th>
<th>Windows Proxy Available for Supported Operating System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credential Windows proxy</td>
<td>7.3</td>
<td>Windows 2003 SP2 (x86 and x86_64)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Windows 2008 - Service Pack 2 (x86 and x86_64)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Windows 2008 R2</td>
</tr>
<tr>
<td>Active Directory Windows proxy</td>
<td>7.3</td>
<td>Windows 2003 SP2 (x86 and x86_64)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Windows 2008 - Service Pack 2 (x86 and x86_64)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Windows 2008 R2</td>
</tr>
</tbody>
</table>

⚠️ **getServices**

The `getServices` discovery method was introduced with BMC Atrium Discovery version 8.1. Windows proxies before version 8.1 do not support this method although are supported in all other respects.

⚠️ **getFileSystems**

The `getFileSystems` discovery method was introduced with BMC Atrium Discovery version 8.2. Windows proxies before version 8.2 do not support this method although are supported in all other respects.

Workgroup Windows proxy deprecated

The Workgroup Windows proxy has not been supplied since before BMC Atrium Discovery version 8.2. All of its functionality has been moved into the Active Directory Windows proxy.

<table>
<thead>
<tr>
<th>Windows Proxy type</th>
<th>Earliest Windows Proxy Version Supported</th>
<th>Windows Proxy Available for Supported Operating System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workgroup Windows proxy</td>
<td>7.3</td>
<td>Windows Server 2008 (x86 - 32bit)</td>
</tr>
<tr>
<td>Not available with version 8.3.</td>
<td></td>
<td>Windows XP - Service Pack 2 (x86 - 32bit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Windows 2003 - Service Pack 2 (x86 - 32bit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refers to 8.1 version.</td>
</tr>
</tbody>
</table>
Minimum host specification

The following are the minimum recommended specifications for the Windows proxy host:

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>As stated in tables above</td>
</tr>
<tr>
<td>CPU</td>
<td>2GHz Intel Pentium® 4 CPU 512k Cache (or equivalent from other manufacturer)</td>
</tr>
<tr>
<td>Memory</td>
<td>2GB</td>
</tr>
<tr>
<td>Hard disk</td>
<td>60GB</td>
</tr>
</tbody>
</table>

To avoid any impact during resource-intensive periods of discovery, it is strongly recommended not to install the Windows proxy on any host supporting other business services. This is true even if the minimum Windows proxy specification is exceeded, since the Windows proxy will attempt to use what resources are available, in order to optimize scan throughput.

Windows discovery communications

You should also consider the ports that will need to be opened in any firewall between the appliance and the proxy or proxies, and the proxies and target hosts.

Windows discovery metadata

Discovery metadata covers Windows as well as UNIX. This provides information about why sessions failed to be established and why scripts failed to run, including information about what credential or Windows proxy was used.
Appliance specification summary

Default specifications of the virtual appliances supplied

- CPU: 1
- RAM: 2048MB
- Hard Disk: 1 x SCSI 54 GB (set to grow as necessary in 2 GB file increments)
- CD/DVD Drive: 1 (auto detect)
- Network Interface Cards: 1 (eth0) bridged, configured to use DHCP to obtain an IP address.

The Network Interface Card (eth0) is configured to use DHCP. However, this can be changed to use a static IP.

During the install process, the following network configuration is required:

- DHCP or static IP for eth0 interface
  If Static IP then provide the following:
  - Appliance IP Address
  - Gateway
  - Subnet Mask
  - DNS for address lookup

Defaults

For initial testing at a small scale, the default configuration is sufficient. For production use, or use at scale you must increase the RAM, CPU and disk configuration in accordance with the sizing guidelines. One size Virtual Appliance is supplied, because a single size simplifies delivery and does not require you to download various sized VMs for various applications such as scanning and consolidation appliances.

2GB RAM is insufficient to activate a TKU in an acceptable time. To use a TKU in testing, you must increase the amount of RAM in the system to 4GB or more.
Supported physical platform minimum specification

The physical platform onto which you install BMC Atrium Discovery must be supported by 64-bit Red Hat Enterprise Linux version 5.4. It must also have the following types of components, their equivalents, or better. These are the components used in the Dell PowerEdge R710 system.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>2 x Intel Xeon E5620 Processor (2.40GHz, 4C, 12M Cache, 5.86 GT/s QPI, 80W TDP, Turbo, HT), DDR3-1066MHz</td>
</tr>
<tr>
<td>RAM</td>
<td>Dell 24GB Memory for 2CPU (6x4GB Dual Rank LV RDIMMs) 1333MHz</td>
</tr>
</tbody>
</table>
Changes to third party software license terms

BMC Atrium Discovery uses some open source and freely distributable binary components. The terms of their licenses are available from Customer Support.

Changes to license terms in BMC Atrium Discovery version 8.3 SP3

- jdk: upgrade from 1.6.0-26 to 1.6.0-35

Changes to license terms in BMC Atrium Discovery version 8.3 SP2

The following products have been upgraded in BMC Atrium Discovery Version 8.3 and their licenses have been updated. For information on this, contact Customer Support.

- bsddb3: upgrade from 5.1.1 to 5.2.0
- db: upgrade from 5.1.25 to 5.2.36
- docutils: upgrade from 0.7 to 0.8.1
- omniORB: upgrade from 4.1.5 to 4.1.6
- omniORPy: upgrade from 3.5 to 3.6.2
- reportlab: upgrade from 2.5-1 to 2.5-3
- tomcat: upgrade from 6.0.32-1 to 6.0.33-2

New open source utilities in BMC Atrium Discovery version 8.3 SP2

- ipaddr-2.1.10: Apache License 2.0.

Changes to license terms in BMC Atrium Discovery version 8.3 SP1

No changes.
Changes to license terms in BMC Atrium Discovery version 8.3

The following products have been upgraded in BMC Atrium Discovery Version 8.3 and their licenses have been updated. For information on this, contact Customer Support.

- bsddb3: upgrade from 4.7.6 to 5.1.1
- db: upgrade from 4.7.25 to 5.1.25
- iozone: upgrade from 3-373 to 3-397
- jdk: upgrade from 1.6.0-20 to 1.6.0-26
- nmap: upgrade from 5.21 to 5.51
- omniORB: upgrade from 4.1.4 to 4.1.5
- omniORBpy: upgrade from 3.4 to 3.5
- pexpect: upgrade from 2.5 to 2.5.1
- ply: upgrade from 3.3 to 3.4
- pyOpenSSL: upgrade from 0.10 to 0.11
- pysnmp: removed
- python: upgrade from 2.6.5 to 2.7.1
- python-ldap: upgrade from 2.3.11 to 2.3.12
- pyasn1: removed
- reportlab: upgrade from 2.4 to 2.5
- tomcat: upgrade from 5.5.31 to 6.0.32

New open source utilities in BMC Atrium Discovery version 8.3

- docutils 0.7: GPL, Python, and public domain.

Changes to license terms in BMC Atrium Discovery version 8.2.01

The following products have been upgraded in BMC Atrium Discovery Version 8.2.01 and their licenses have been updated. For information on this, contact Customer Support.

- tomcat: upgrade from 5.5.29 to 5.5.31
Changes to license terms in BMC Atrium Discovery version 8.2

The following products have been upgraded in BMC Atrium Discovery Version 8.2 and their licenses have been updated. For information on this, contact Customer Support.

- egenix-mx-base: upgrade from 3.1.2 to 3.1.3
- python-ldap: upgrade from 2.3.9 to 2.3.11
- jsvc (apache commons): upgrade from 1.0.1 to 1.0.2
- ply: upgrade from 3.2.1 to 3.3
- Python: upgrade from 2.6.4 to 2.6.5
- testoob: upgrade from 1.13 to 1.15
- tomcat: upgrade from 5.5.27 to 5.5.29
- PIL: upgrade from 1.1.6 to 1.1.7
- ReportLab: upgrade from 2.3 to 2.4
- JDK: upgrade from 1.6.0-17 to 1.6.0-20
- nmap: upgrade from 5.0 to 5.21
- tripwire: upgrade from 2.4.1.2 to 2.4.2
- iozone: upgrade from 3-236 to 3-347

New open source utilities in BMC Atrium Discovery version 8.2

- jdom: Apache style open source.
- slf4j: MIT license.
- NVBAPI: BSD license.
- pyasn1: BSD license.
- pyOpenSSL: LGPL 2.1.

Changes to license terms in BMC Atrium Discovery version 8.1

The following products have been upgraded in BMC Atrium Discovery Version 8.1 and their licenses have been updated. For information on this, contact Customer Support.

- jdk 1.6.0: upgrade from u14 to u17
- jdk 1.5.0: upgrade from u19 to u22
New freeware utilities in BMC Atrium Discovery version 8.1

- Iozone: Freeware.
- Tigra Calendar: Freeware.

Windows discovery utilities no longer shipped in BMC Atrium Discovery

From version 8.1 the following utilities are no longer shipped with BMC Atrium Discovery. You can download them freely and install them where required.

- rcmd: see the Microsoft Download Center and search for the resource kit for the version of Windows that you are running.
- pulist: download this from the Microsoft Download Center.
- tlist: download this from the Microsoft Download Center.
## Package list - BMC Atrium Discovery 8.3

The following table provides a list of all OS and application packages contained in a default BMC Atrium Discovery 8.3 Enterprise Edition installation running on a virtual machine.

<table>
<thead>
<tr>
<th>Package Name</th>
<th>Package Name</th>
<th>Package Name</th>
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<tr>
<td>acl-2.2.39-6.el5</td>
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<td>bash-3.2-32.el5</td>
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<td>bind-utils-9.3.6-16.P1.el5</td>
<td>binutils-2.17.50.0.6-14.el5</td>
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<td>checkpolicy-1.33.1-6.el5</td>
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Package list - BMC Atrium Discovery 8.3 SP1

The following table provides a list of all OS and application packages contained in a default BMC Atrium Discovery 8.3 SP1 Enterprise Edition installation running on a virtual machine.

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# Package list - BMC Atrium Discovery 8.3 SP2

The following table provides a list of all OS and application packages contained in a default BMC Atrium Discovery 8.3 SP2 Enterprise Edition installation running on a virtual machine:

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## Package list - BMC Atrium Discovery 8.3 SP3

The following table provides a list of all OS and application packages contained in a default BMC Atrium Discovery 8.3 SP3 Enterprise Edition installation running on a virtual machine:

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Supported versions of BMC Atrium Discovery

This page details the support status of existing versions of BMC Atrium Discovery and Dependency Mapping (BMC Atrium Discovery). For complete definitions of release numbering, release terminology, and support levels, see the BMC Software Product Support Policy.

Fully supported products

The following table lists the fully supported product versions:

<table>
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<tr>
<th>Product</th>
<th>Release date</th>
<th>End of full support date</th>
<th>End of support date</th>
<th>Documentation</th>
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<tr>
<td>BMC Atrium Discovery 10.1</td>
<td>November 14, 2014</td>
<td>November 30, 2017</td>
<td>November 30, 2019</td>
<td>BMC Atrium Discovery 10.1 documentation</td>
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<td>BMC Atrium Discovery 9.0 SP3</td>
<td>July 2, 2014</td>
<td>November 30, 2015</td>
<td>November 30, 2017</td>
<td>BMC Atrium Discovery 9.0 documentation</td>
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<td>BMC Atrium Discovery 9.0 SP2</td>
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<td>March 14, 2013</td>
<td>November 30, 2015</td>
<td>November 30, 2017</td>
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</table>

Version naming convention change

The software support policy and versioning conventions used for BMC Enterprise Systems Management (ESM) software released as GA products after September 11, 2011. This date fell between the end of the 8.2 releases and the start of the 8.3 releases of BMC Atrium Discovery. Software products are now versioned as follows: \( VV.RR.SP \) where \( VV \) = major version, \( RR \) = minor release, and \( SP \) = Service Pack.

Limited support products

This section lists the products which are in the limited support status:
When a product enters limited support:

- New enhancements are not made to that version of the product. For reported issues, BMC Software Customer Support directs customers to existing fixes, patches and workarounds.
- New Technology Knowledge Update (TKU) releases are not available for that version of the product.

During the time of limited support, BMC Software strongly encourages users of the respective versions of the product to upgrade to the latest current version.

# Upgrading to newer product version and migration path

The following table lists the migration path to upgrade to BMC Atrium Discovery 10.1 from your current version and the corresponding documentation links:

<table>
<thead>
<tr>
<th>Current version</th>
<th>Upgrade path</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Atrium Discovery 10.0.x</td>
<td>You can directly upgrade to 10.1.</td>
</tr>
<tr>
<td>BMC Atrium Discovery 9.0.x on RHEL 6 (including 9.0 SP3)</td>
<td>You can directly upgrade to 10.1.</td>
</tr>
<tr>
<td>BMC Atrium Discovery 9.0.x on RHEL 5</td>
<td>You cannot directly upgrade to 10.1. Rather, you must do the following in the given order:</td>
</tr>
<tr>
<td></td>
<td>1. Back up your BMC Atrium Discovery data.</td>
</tr>
<tr>
<td></td>
<td>2. Restore the data on a 9.0.x on RHEL 6 appliance.</td>
</tr>
<tr>
<td></td>
<td>3. Upgrade to BMC Atrium Discovery version 10.1.</td>
</tr>
<tr>
<td>BMC Atrium Discovery 8.3.x</td>
<td>You cannot directly upgrade to 10.1. Rather, you must do the following in the given order:</td>
</tr>
<tr>
<td></td>
<td>1. Migrate your 8.3.x data to a new installation of BMC Atrium Discovery version 9.0 running on RHEL 6.</td>
</tr>
<tr>
<td></td>
<td>2. Upgrade to BMC Atrium Discovery version 10.1.</td>
</tr>
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</table>
Most recent unsupported versions

The following table lists the most recent unsupported versions of BMC Atrium Discovery, requirements to upgrade to version 10.1 from these earlier version, and the corresponding documentation links.

<table>
<thead>
<tr>
<th>Current version</th>
<th>Migration path</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Atrium Discovery 8.2.x</td>
<td>You cannot directly upgrade to 10.1. Rather, you must do the following in the given order:</td>
</tr>
<tr>
<td></td>
<td>1. Upgrade to version 8.3.</td>
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<tr>
<td></td>
<td>2. Migrate your 8.3 data to a new installation of version 9.0.</td>
</tr>
<tr>
<td></td>
<td>3. Upgrade from 9.0 to 10.1.</td>
</tr>
</tbody>
</table>
Licensing entitlement

BMC Atrium Discovery does not use a license management system. Our licensing model is simple, the customer pays an amount for a license to model up to a set number of OSIs (Operating System Instances), effectively this means hosts. A customer is entitled and licensed based on their agreement with BMC and a licensing compliance team at BMC helps customers ensure that their usage of BMC Atrium Discovery stays in line with their agreement.
Apache

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Version 2.0, January 2004
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3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

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9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

BMC ADDM

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END USER LICENSE AGREEMENT

BY OPENING THE PACKAGE, INSTALLING, PRESSING "AGREE" OR "YES" OR USING THE PRODUCT, THE ENTITY OR INDIVIDUAL ENTERING INTO THIS AGREEMENT AGREES TO BE BOUND BY THE FOLLOWING TERMS. IF YOU DO NOT AGREE WITH ANY OF THESE TERMS, DO NOT INSTALL OR USE THE PRODUCT, PROMPTLY RETURN THE PRODUCT TO BMC OR YOUR BMC RESELLER, AND IF YOU ACQUIRED THE LICENSE WITHIN 15 DAYS OF THE DATE OF YOUR ORDER CONTACT BMC OR YOUR BMC RESELLER FOR A REFUND OF LICENSE FEES PAID. IF YOU REJECT THIS AGREEMENT, YOU WILL NOT ACQUIRE ANY LICENSE TO USE THE PRODUCT.

This Agreement ("Agreement") is between the entity or individual entering into this Agreement ("Customer") and the BMC Entity for the applicable Territory as described in Section 19 ("BMC"). In addition to the restrictions imposed under this Agreement, any other usage restrictions contained in the Product installation instructions or release
notes shall apply to your use of the Product.

Territory: The country where Customer acquired the license.

1. GENERAL DEFINITIONS.
"Affiliate" is an entity that controls, is controlled by or shares common control with BMC or Customer, where such control arises from either (a) a direct or indirect ownership interest of more than 50% or (ii) the power to direct or cause the direction of the management and policies, whether through the ownership of voting stock by contract, or otherwise, equal to that provided by a direct or indirect ownership of more than 50%.
"Documentation" means the technical publications relating to the software, such as release notes, reference, user, installation, systems administrator and technical guidelines, included with the Product.
"Licensed Capacity" is the amount of each Product licensed as established in the Order.
"Order" is an agreed written or electronic document, subject to the terms of this Agreement that identifies the Products to be licensed and their Licensed Capacity and/or the Support to be purchased and the fees to be paid.
"Product" is the object code of the software and all accompanying Documentation delivered to Customer, including all items delivered by BMC to Customer under Support.
"Support" is the support services program as further specified in this Agreement.

2. SCOPE. Licenses are granted, and Support is obtained, solely by execution of Orders. Each Order is deemed to be a discrete contract, separate from each other Order, unless expressly stated otherwise therein, and in the event of a direct conflict between any Order and the terms of this Agreement, the terms of the Order will control only if the Order is executed by an authorized representative of each party. Orders may be entered under this Agreement by and between (a) BMC or an Affiliate of BMC and (b) the Customer or an Affiliate of Customer. With respect to an Order, the terms "BMC" and "Customer" as used in this Agreement will be deemed to refer to the entities that execute that Order, the Order will be considered a two party agreement between such entities, and BMC will separately invoice the Customer named in the Order for the associated License fees and Support fees. Neither execution of this Agreement, nor anything contained herein, shall obligate either party to enter into any Orders In the event an Order is proposed by BMC and is deemed to constitute an offer, then acceptance of such offer is limited to its terms. In the event Customer proposes an Order by submitting a purchase order, then regardless of whether BMC acknowledges, accepts or fully or partially performs under such purchase order, BMC OBJECTS to any additional or different terms in the purchase order, other than those that establish Product, price and Licensed Capacity in accordance with this Agreement,

3. LICENSE. Subject to the terms of this Agreement, BMC grants Customer a non-exclusive, non-transferable, non-sub-licensable perpetual (unless a non-perpetual license is provided on an Order) license, as specified in the relevant Order, to exercise the following
rights to the Product up to the Licensed Capacity: (a) copy the Product for the purpose of installing it on Customer's owned or leased hardware at a facility owned or controlled by Customer in the Territory; (b) operate solely for Customer's and its Affiliates own internal Customer's business operations, and (c) make one copy of the Product for archival purposes only (collectively a "License"). Affiliates may use and access the Products and Support under the terms of this Agreement, and Customer is responsible for its Affiliates compliance with the terms of this Agreement.

4. RESTRICTIONS. Customer will not: (a) copy, operate or use any Product in excess of the applicable Licensed Capacity, (b) modify, delete or remove any ownership, title, trademark, patent or copyright notices ("Identification") from any Product; (c) copy any Product or any portion of any Product without reproducing all Identification on each copy or partial copy; (d) disassemble, reverse engineer, decompile or otherwise attempt to derive any Product source code from object code, except to the extent expressly permitted by applicable law despite this limitation without possibility of contractual waiver; (e) distribute, rent, lease, sublicense or provide the Product to any third party or use it in a service bureau, outsourcing environment, or for the processing of third party data; (f) provide a third party with the results of any functional evaluation, or performance tests, without BMC's prior written approval; (g) attempt to disable or circumvent any of the licensing mechanisms within the Product; or (h) violate any other usage restrictions contained in the Documentation.

5. PRODUCT PERFORMANCE WARRANTY. BMC warrants that (a) the Product will perform in substantial accordance with its Documentation for a period of one year from the date of the first Order, (b) BMC has used commercially reasonable efforts consistent with industry standards to scan for and remove software viruses, and (c) other than passwords that may be required for the operation of the Product, BMC has not inserted any code that is not addressed in the Documentation and that is designed to delete, interfere with or disable the normal operation the Products in accordance with the License. This warranty will not apply to any problems caused by hardware, software other than the Product, or misuse of the Product use of the Product other than as provided by the applicable License, modification of the Product, or claims made either outside the warranty period or not in compliance with the notice and access requirements set forth below. No warranty is provided for additional Licensed Capacity, Product provided pursuant to Support or Product provided pursuant to Section 11.

6. LIMITED REMEDIES. BMC's entire liability, and Customer's exclusive remedy, for breach of the above warranty is limited to: BMC's use of commercially reasonable efforts to have the Product perform in substantial accordance with its Documentation, or replacement of the non-conforming Product within a reasonable period of time, or if BMC cannot have the Product perform in substantial accordance with its Documentation replace the Product within such time period, then BMC will refund the amount paid by Customer for the License for that Product. Customer's rights and BMC's obligations in this section are conditioned upon Customer's providing BMC during the
warranty period (a) full cooperation and access to the Product in resolving any claim, and (b) written notice addressed to the BMC Legal Department that includes notice of the claim, a complete description of the alleged defects sufficient to permit their reproduction in BMC's development or support environment, and a specific reference to the Documentation to which such alleged defects are contrary.

7. **DISCLAIMER OF WARRANTIES.** EXCEPT FOR THE EXPRESS WARRANTIES IN THIS AGREEMENT, THE PRODUCT IS PROVIDED WITH NO OTHER WARRANTIES WHATSOEVER, AND BMC, ITS AFFILIATES AND LICENSORS DISCLAIM ALL OTHER WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. BMC DOES NOT WARRANT THAT THE OPERATION OF THE PRODUCT WILL BE UNINTERRUPTED OR ERROR FREE, OR THAT ALL DEFECTS CAN BE CORRECTED.

8. **PAYMENTS AND DELIVERY.** Customer will pay each License fee and/or Support fee upon receipt of invoice. Customer will pay, or reimburse, BMC or when required by law the appropriate governmental agency for taxes of any kind, including sales, use, VAT, excise, customs duties, withholding, property, and other similar taxes (other than taxes based on BMC's net income) imposed in connection with the License and/or the Support fees which are exclusive of these taxes. For Products that are delivered electronically, upon request from BMC, Customer agrees to provide BMC with Documentation supporting that the designated Product was received electronically. If Customer accepts any Product in a non-electronic format, there may be an additional charge and it is the sole responsibility of Customer to bear any sales/use tax obligation, penalties, and interest. The unpaid balance of each late payment bears interest at a rate equal to the lesser of 1% per month or the maximum amount permitted by law. All Products are licensed FCA ("Free Carrier" as per Incoterms 2000) shipping point. The Products are accepted on the date BMC delivers the Product to the Customer either physically or by providing access codes for electronic download, whichever occurs first, however, such acceptance will not affect the Product Performance Warranty provided in this Agreement.

9. **PROPRIETARY RIGHTS AND CONFIDENTIALITY.** (a) BMC, its Affiliates or licensors retain all right, title and interest to the Product, Support and all related intellectual property and proprietary rights. The Product and all third party software provided with the Product are protected by applicable copyright, trade secret, industrial and other intellectual property laws. Customer may not remove any product identification, copyright, trademark or other notice from the Product. BMC reserves any rights not expressly granted to Customer in this Agreement. (b) "Confidential Information" means all proprietary or confidential information that is disclosed to the recipient ("Recipient") by the discloser ("Discloser"), and includes, among other things (i) any and all information relating Discloser financial information, customers, employees, products or services, including, without limitation, software code, flow charts, techniques, specifications, development and marketing plans, strategies, and forecasts; (ii) as to BMC, and its
licensors, the Product and any third party software provided with the
Product; and (iii) the terms of this Agreement, including without
limitation, Product pricing information. Confidential Information does
not include information that Recipient can show: (a) was rightfully in
Recipient's possession without any obligation of confidentiality before
receipt from the Discloser; (b) is or becomes a matter of public
knowledge through no fault of Recipient; (c) is rightfully received by
Recipient from a third party without violation of a duty of
confidentiality; or (d) is independently developed by or for Recipient.
Recipient may not disclose Confidential Information of Discloser to any
third party or use the Confidential Information in violation of this
Agreement. The Recipient (i) will exercise the same degree of care and
protection with respect to the Confidential Information of the Discloser
that it exercises with respect to its own Confidential Information and (ii)
will not, either directly or indirectly, disclose, copy, distribute,
republish, or allow any third party to have access to any Confidential
Information of the Discloser. Notwithstanding the foregoing, Recipient
may disclose Discloser's Confidential Information to Recipient's employees
and agents who have the need to know provided that such employees and
agents have legal obligations of confidentiality substantially the same
(and in no case less protective) as the provisions of this Agreement. (c)
Notification Obligation. If the Recipient becomes aware of any
unauthorized use or disclosure of Discloser's Confidential Information,
then Recipient will promptly and fully notify the Discloser of all facts
known to it concerning such unauthorized use or disclosure. In addition,
if the Recipient or any of its employees or agents are required (by oral
questions, interrogatories, requests for information, or documents in
legal proceedings, subpoena, civil investigative demand, or other similar
process) to disclose any of Discloser's Confidential Information, the
Recipient will not disclose the Discloser's Confidential Information
without providing the Discloser with commercially reasonable advance
prior written notice to allow Discloser to seek a protective order or other
appropriate remedy or to waive compliance with this provision. In any
event, the Recipient will exercise its commercially reasonable efforts to
preserve the confidentiality of the Discloser's Confidential Information,
including, without limitation, cooperating with Discloser to obtain an
appropriate protective order or other reliable assurance that confidential
treatment will be accorded to the Confidential Information.
Notwithstanding the foregoing, Customer agrees that BMC may include
Customer's name on customer lists.

10. DISCLAIRER OF DAMAGES; LIMITS ON LIABILITY.
EXCEPT FOR VIOLATIONS OF LICENSE (SECTION 3), LICENSE
RESTRICTIONS (SECTION 4), PROPRIETARY RIGHTS AND
CONFIDENTIALITY (SECTION 9) AND FOR INFRINGEMENT
CLAIMS (SECTION 12), NEITHER PARTY, ITS AFFILIATES OR
BMC'S LICENSORS ARE LIABLE FOR (A) ANY SPECIAL,
INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL
DAMAGES RELATING TO OR ARISING OUT OF THIS
AGREEMENT, SUPPORT, THE PRODUCT OR ANY THIRD
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(INCLUDING, WITHOUT LIMITATION, LOST PROFITS, LOST
COMPUTER USAGE TIME, AND DAMAGE TO, OR LOSS OF USE
OF DATA), EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES, AND IRRESPECTIVE OF NEGLIGENCE OF A PARTY
OR WHETHER SUCH DAMAGES RESULT FROM A CLAIM
ARISING UNDER TORT OR CONTRACT LAW, OR (B)
DAMAGES OF ANY KIND IN AN AMOUNT GREATER THAN
THE AMOUNT OF ACTUAL, DIRECT DAMAGES UP TO THE
CAP. THE TERM "CAP" MEANS (I) IF BMC IS THE PAYOR, THE
AMOUNT PAID BY CUSTOMER FOR THE LICENSE TO THE
PRODUCT GIVING RISE TO SUCH DAMAGES AND (II) IF
CUSTOMER IS THE PAYOR, THE GREATER OF THE AMOUNT
PAID OR PAYABLE, BY CUSTOMER FOR THE LICENSE TO THE
PRODUCT GIVING RISE TO SUCH DAMAGES.

11. TRIAL LICENSE. BMC may determine, in its sole discretion,
to make products available to Customer without an Order and without
charge. Such products are deemed to be "Products" pursuant to this
Agreement except that (a) they are provided to Customer solely so that
Customer may evaluate internally whether to acquire a license to the
products for a fee, (b) the license term for such products is thirty (30)
days; (c) the Products are provided "AS IS" and without any warranty or
support, and (d) the products cannot be put into productive use or
included as part of Customer's business processes in any manner, unless
or until they are expressly licensed and paid for under an Order. BMC
may terminate all of Customer's rights and licenses to these products for
BMC's convenience upon notice to Customer.

12. INFRINGEMENT CLAIMS. If a third party asserts a claim
against Customer asserting that Customer's use of a Product in
accordance with this Agreement violates that third-party's patent, trade
secret or copyright rights ("Infringement Claim"), then BMC will, at its
own expense: (a) defend or settle the Infringement Claim; and (b)
indemnify Customer for any damages finally awarded against Customer
based on infringement by the Product. BMC's obligations under this
Section will not apply if: (a) BMC's legal department does not receive
prompt, detailed written notice of the Infringement Claim from
Customer, (b) BMC is not able to retain sole control of the defense of
the Infringement Claim and all negotiations for its settlement or
compromise, (c) BMC does not receive all reasonable assistance, or (d)
the Infringement Claim is based on (i) the use of Product in combination
with products not supplied or approved by BMC in the Product's
Documentation, (ii) the failure of Customer to use any updates to such
Product within a reasonable time after such updates are made available
to Customer, or (iii) the failure of Customer to use the Product as
permitted by the Order and in accordance with the Documentation. BMC
will not bind Customer to a monetary obligation in a settlement or
compromise, or make an admission on behalf of Customer, without
obtaining Customer's prior consent. If BMC determines in BMC's
reasonable If Bdiscretion that use of the Product should be stopped
because of an Infringement Claim or potential Infringement Claim, if a
court of competent jurisdiction enjoins Customer from using a Product
as a result of an Infringement Claim and BMC is unable to have such
injunction stayed or overturned, or if BMC settles an Infringement
Claim on terms that would require Customer to stop using the Product,
then BMC will, at its expense and election: (a) modify or replace the
Product, (b) procure the right to continue using the Product, or (c) if in
BMC's reasonable judgment, neither (a) or (b) is commercially reasonable, terminate Customer's License to the Product and (i) for any perpetual licenses, issue a refund based upon the applicable license fees paid, prorated over 48 months from the date of the Order under which the Products were initially licensed; and (ii) for any non-perpetual licenses, release Customer from its obligation to make future payments for the Product or issue a pro rata refund for any fees paid in advance. This Section contains Customer's exclusive remedies and BMC's sole liability for Infringement Claims.

13. TERMINATION. Upon thirty days advance written notice, either party may terminate this Agreement for its convenience on a prospective basis; however, such termination will have no effect on Orders executed by the parties prior to its effective date and such Orders will remain in full force and effect under the terms of this Agreement.

BMC may: (i) terminate an Order and the Licenses to the Products on that Order if Customer fails to pay any applicable fees due under that Order within 30 days after receipt of written notice from BMC of non-payment; (ii) terminate any or all Orders, Licenses to the Products and/or this Agreement, without notice or cure period, if Customer violates the intellectual property rights of BMC, its Affiliates or licensors, or uses the Products outside of the scope of the applicable Licenses; or (iii) terminate all Licenses and this Agreement in whole or in part if Customer commits any other material breach of this Agreement and fails to correct the breach within 30 days after BMC notifies Customer in writing of the breach. Upon any termination of a License, Customer will immediately uninstall and stop using the relevant Product, and upon BMC's request, Customer will immediately return such Product to BMC, together with all related Documentation and copies, or certify its destruction in writing. Neither party is liable for its failure to perform any obligation under this Agreement, other than a payment obligation, during any period in which performance is delayed by circumstances beyond that party's reasonable control.

14. AUDIT. Upon BMC's request (such request not to be made more than once per year without good cause), Customer agrees to deliver to BMC written reports, generated manually or electronically, specifying Customer's use of the Product, and to allow BMC to perform an audit at Customer's facilities during normal business hours to ensure compliance with the terms of this Agreement. Customer agrees to cooperate during any audit and to provide reasonable access to information and systems. If an audit reveals that Customer has exceeded the Licensed Capacity for a Product, Customer agrees to pay the applicable fees for additional capacity. If the understated capacity exceeds 5% of the Licensed Capacity of the applicable Product, then Customer agrees to also pay BMC's reasonable costs of conducting the audit.

15. EXPORT CONTROLS. Customer will cooperate with BMC as reasonably necessary to ensure compliance with the laws and regulations of the United States and all the relevant countries, relating to exports (including "deemed" exports and "deemed" re-exports as defined by the Export Administration Regulations) and re-exports ("Export Laws"). Customer may not import, export, re-export or transfer, directly or
indirectly, including via remote access, any part of the BMC Products, or any other BMC information or technology in violation of any such laws and regulations, or without any written governmental authorization required under applicable laws. In particular, but without limitation, none of the Software or the underlying information or technology may be downloaded or otherwise exported or re-exported, directly or indirectly, (a) into (or to a national or resident of) any country to which the United States government has imposed trade sanctions denying the export of any products; (b) to anyone on the US Treasury Department's list of Specially Designated Nationals or Other Blocked Persons, the US Commerce Department's Denied Parties List, the US Commerce Department's Entity List, or the US Commerce Department's Unverified List; or (c) to or for any proliferation-related (nuclear weapons, missile technology, or chemical/biological weapons) end use.

16. GOVERNING LAW. This Agreement is governed by the substantive laws in force, without regard to conflict of laws principles: (a) in the State of Texas, if you acquired the License in the United States, Puerto Rico, or any country in Central or South America; (b) in the Province of Ontario, if you acquired the License in Canada (subsections (a) and (b) collectively referred to as the "Americas Region"); (c) in Singapore, if you acquired the License in Japan, South Korea, Peoples Republic of China, Special Administrative Regions of Hong Kong or Macau, Taiwan, Philippines, Indonesia, Malaysia, Myanmar, Singapore, Brunei, Vietnam, Cambodia, Laos, Thailand, India, Pakistan, Australia, New Zealand, Papua New Guinea or any of the pacific island states (collectively, "Asia Pacific Region"); or (d) in the Netherlands, if you acquired the License in any other country not described above. The United Nations Convention on Contracts for the International Sale of Goods is specifically disclaimed in its entirety.

INJUNCTIVE RELIEF FROM ANY COURT HAVING JURISDICTION OVER THE PARTIES AND THE SUBJECT MATTER OF THE DISPUTE AS NECESSARY TO PROTECT EITHER PARTY'S CONFIDENTIAL INFORMATION, OWNERSHIP, OR ANY OTHER PROPRIETARY RIGHTS. ALL ARBITRATION PROCEEDINGS SHALL BE CONDUCTED IN CONFIDENCE, AND THE PARTY PREVAILING IN ARBITRATION SHALL BE ENTITLED TO RECOVER ITS REASONABLE ATTORNEYS' FEES AND NECESSARY COSTS INCURRED RELATED THERETO FROM THE OTHER PARTY.

18. U.S. FEDERAL ACQUISITIONS. This Article applies to all acquisitions of the commercial Product subject to this Agreement by or on behalf of the federal government, or by any prime contractor or subcontractor (at any tier) under any contract, grant, cooperative agreement or other activity with the federal government. By accepting delivery of the Product, the government hereby agrees that the Product qualifies as "commercial" within the meaning of the acquisition regulation(s) applicable to this procurement. The terms and conditions of this Agreement shall pertain to the government's use and disclosure of the Product, and shall supersede any conflicting contractual terms and conditions. If the license granted by this Agreement fails to meet the government's needs or is inconsistent in any respect with Federal law, the government agrees to return the Product, unused, to BMC. The following additional statement applies only to acquisitions governed by DFARS Subpart 227.4 (October 1988): "Restricted Rights - Use, duplication and disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 (Oct. 1988)."

19. BMC ENTITIES. The following licensing entities apply to this Agreement:

<table>
<thead>
<tr>
<th>Territory</th>
<th>Licensing Entity</th>
<th>Address of Licensing Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States and Latin America</td>
<td>BMC Software, Inc.</td>
<td>2101 CityWest Boulevard, Houston, Texas 77042</td>
</tr>
<tr>
<td>South (not a specified Central or South America country below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>BMC Software Canada Inc.</td>
<td>50 Minthorn Boulevard, Suite 200 Markham, Ontario L3T 7X8 Canada</td>
</tr>
<tr>
<td>EMEA (Europe, Middle East and Africa)</td>
<td>BMC Software Distribution B.V.</td>
<td>Boeing Avenue 245, 1119 PE Schiphol Rijk,</td>
</tr>
</tbody>
</table>

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20. ASSIGNMENT AND TRANSFERS. Customer may not assign or transfer a Product separate from the applicable Agreement and License, and may not assign or transfer an Agreement or a License, except in the event of a merger with or into, or a transfer of all or substantially all of Customer's assets to, a third party who assumes all of Customer's liabilities and obligations under the Agreement and License, expressly agrees to be bound by and comply with all of the terms of the Agreement and License. Any attempt to assign or transfer and Agreement or License in violation of this provision will be null and void and be treated as a violation of BMC's intellectual property rights or use outside the scope of the License.

21. MISCELLANEOUS TERMS. A waiver by a party of any breach of any term of this Agreement will not be construed as a waiver of any continuing or succeeding breach. Should any term of this Agreement be invalid or unenforceable, the remaining terms will remain in effect. The parties acknowledge they have read this Agreement and agree that it is the complete and exclusive statement of the agreement and supersedes any prior or contemporaneous negotiations or agreements, between the parties relating to the subject matter of this Agreement. This Agreement may not be modified or rescinded except in
writing signed by both parties. The prevailing party in any litigation is entitled to recover its attorney's fees and costs from the other party. To the extent BMC Products include third party code; if (a) such third party code is provided for use with a Product, it may be used only with that Product unless otherwise provided for in the Documentation; and (b) the Documentation contains terms that pertain to such third party code, those terms govern the third party code in place of the terms of the applicable Order and this Agreement; except that the third party terms will not (i) negate or amend the rights granted by BMC to Customer or the obligations undertaken by BMC in the applicable Order or this Agreement with respect to a Product; or (ii) impose any additional restrictions on Customer's use of the Product. In some circumstances, usually either for the convenience of its customers or in order to comply with the obligation to make source code available under specific license terms, BMC distributes to customers, without charge, products that are not governed by an Order or this Agreement. Such products are distributed separately from the BMC Products, are governed by the license terms that and included with them, and are provided by BMC AS IS, WHERE IS AND WITHOUT WARRANTIES OF ANY KIND, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED, AND EXCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT AND TITLE. The parties have agreed that this Agreement and the documents related thereto be drawn up in the English language.

Les parties exigent que la présente convention ainsi que les documents qui s'y rattachent soient rédigés en anglais.

22. SUPPORT. Customer may acquire BMC support services ("Support") on an Order. Once Support is acquired for a Product, Customer is automatically enrolled in Support on an annual basis for all Licensed Capacity of that Product, unless either party terminates Support on all Licensed Capacity of a Product upon at least 30 days written notice prior to the next Support anniversary date. The annual fee for Support will be agreed upon at the time of each Order. For a description of Support go to www.bmc.com/support_overview. BMC may change its Support terms, to be effective upon Customer's support anniversary date. BMC reserves the right to discontinue Support for a Product where BMC generally discontinues such services to all licensees of that Product. If Customer terminates Support and then re-enrolls in Support, BMC may charge Customer a reinstatement fee.

23. ADDITIONAL TERMS. The following additional terms are incorporated into this Agreement.

a. definitions. Terms set forth below have the indicated meaning for the next four Sections of this Agreement, regardless of whether they are capitalized.

"Blade Server" is an all-inclusive computing system with a design optimized to minimize physical space and heat. Blade servers contain only the core computing components: processor and memory. They rely on a blade enclosure to provide the non-core computing components: power, storage, network switch, and basic I/O.

"Client" means a third party whose data is processed by Customer and is
only permitted if Customer is an authorized BMC service provider. "Client Endpoint" means a laptop, desktop or other non-Server Computer.

"Computer" or "Server" has the meaning generally given within the computer industry, which is a single machine, whether a central processing unit, such as a mainframe machine, or a distributed systems machine (excluding Control-M and Mainview products), such as a Unix or Intel based server. A mainframe machine would be an individual mainframe computer having single or multiple processors or engines. For purposes of distributed systems machines, a Computer or Server may be physical or virtual.

"CPU" means a physical processor or central unit in a designated Computer containing the logic circuitry that performs the instructions of a Computer's programs. A CPU may contain one or more processor cores.

"Device Endpoint" means a personal digital assistant or similar computing device.

"Endpoint" means a Client Endpoint, a Device Endpoint, a Server Endpoint, or Other Endpoint, as the case may be.

"Enterprise" is the environment consisting of all hardware owned or leased by Customer in the Territory.

"Network Device" means a standalone or chassis-based network device/card/processor.

"Node" means a network device (IP or non-IP) such as a router, switch or Computer.

"Other Endpoint" means a router, a switch, a hub, or other network device, peripheral or hardware instrument, as the case may be.

"Server Endpoint" means a Computer or other device that provides a service for other Computers or devices connected to it via the Internet, an extranet, an intranet, another network, or otherwise.

"Task" means an executable command containing the name of the JCL, CL, DCL, ECL, script or dummy processes that will execute as well as the scheduling criteria, flow control, resource usage.

b. UNITS OF MEASUREMENT. The following units of measurement apply to certain Products.

per adapter: A license is required for each installation of an adapter that interfaces with the Product.

per asset: A license is required for every physical or logical Server Endpoint, Client Endpoint, Device Endpoint or Other Endpoint monitored, managed or discovered by the Product.

per Cisco(TM) UCS Blade Server: A license is required for each Cisco Unified Computing System (UCS) Blade Server on which the Product is installed and/or manages regardless of whether the Product or one of its components is installed on that Server.

per Client Endpoint: A license is required for each Client Endpoint.

per component: A license is required for all objects that represent a physical or logical part of the service model.

per concurrent session: A license is required for the maximum number of simultaneous sessions accessing the Product.

per concurrent user: A license is required for the maximum number of individual employees or contractors of Customer to whom simultaneous access has been granted to the Product on a computer or multiple computers.
per CPU - Full Capacity: A license is required for the total number of CPUs in each Computer upon which the Product is installed or which the Product manages, either remotely or locally.

per CPU - Subcapacity: A license is required for all CPUs which the Product manages, either remotely or locally.

per Device Endpoint: A license is required for each Device Endpoint.

per deployed robot: A license is required for all PATROL End-to-End Response Timer robots deployed.

per engine: A license is required for each mainframe general purpose engine on the server upon which the Product is installed and/or manages regardless of whether the Product or one of its components is installed on that Server.

per enterprise: A license is required per Customer or Client, or both, for its internal use only, regardless of the number of times Customer installs the Product in its Enterprise or its Client's Enterprise.

per gigabyte range: A license is required for the total allocated database space per host ID or physical Computer which the Product is managing. The Product may not be moved to another Computer unless the current Computer is taken out of service. The total allocated database capacity cannot be segregated or aggregated into lower or higher ranges among different Computers. For example: if Customer licenses 26-50 gigabytes, the Customer is only licensed for a maximum of 50 gigabytes in total across all the databases of the licensed Product on one particular Computer.

per installed server: A license is required for each Server (with a Classification at the appropriate Tier level, if applicable) upon which the Product or any of its components is installed.

per instance: A license is required for all named occurrences of the Product created or installed in the Enterprise.

per Linux engine: A license is required for all engines of a mainframe Computer on which Customer is running Linux, when applicable classified by Linux Group using BMC's standard Computer classification.

per managed component: A license is required for all objects that represent a physical or logical part of the service model managed by the Product.

per managed network device: A license is required for each Network Device managed using a unique IP-address.

per managed server: A license is required for each Server managed by the Product or one of its components with either locally or remotely. When applicable, this license must be computed at the appropriate tier level based on the cumulative count of managed servers. To be clear, in the case of BMC Service and Impact management solutions, Network Devices are not counted as Servers.

per MIPS: A license is required for the total aggregate number of MIPS for each Computer, including all Computers coupled in a parallel Sysplex environment, upon which (i) each OS/390 or z/OS subsystem (e.g. IMS, DB2, CICS or VSAM) for which a Product Family is licensed to operate ("Subsystem") or (ii) each OS/390 or z/OS operating system for which a Product Family is licensed to operate ("Operating System"), has been installed, managed (Computer or data), monitored, or has operated during the term of the applicable Order. MIPS Rating is the aggregate computing power (expressed in millions of instructions per second) of a Computer, using the MIPS rating set forth in the then
current Gartner Group Rating Guide. Computer-specific passwords will be issued for the Product.

per monitored element: A license is required for all remotely monitored elements, such as a Server, database, operating system, URL, firewall, storage, or network device.

per monitored server: A license is required for each Server (with a Classification at the appropriate Tier level, if applicable) which the Product or one of its components is monitoring regardless of whether the Product is monitoring it locally or remotely.

per named user/Fixed License: A license (with a Classification at the appropriate Level, if applicable) is required for all individual employees or contractors or clients of Customer to whom access has been granted to the Product on a computer or multiple computers typically via the issuance of a unique ID regardless of whether the individual is actively using the Product at any given time.

per node: A license is required for the maximum number of Nodes which the Product manages and/or monitors.

per port: A license is required for the total port capacity of a managed storage networking device regardless of whether the port is in service.

Storage networking devices typically include HBAs (Host Bus Adapters), Storage Switches and Directors. The total port capacity cannot be segregated or aggregated into lower or higher ranges.

per project: A license is required for each specific project, facility or business unit, as the case may be specified at the time of order.

per Server Endpoint: A license is required for each Server Endpoint.

per site: A license is required for the physical site at which the Product is installed regardless of the number of times the Product is installed.

per task: A license is required for the maximum number of Tasks loaded into the daily CONTROL-M active environment in a 24-hour period excluding any tasks that are provided for by licenses under alternative Units of Measure (i.e. tier or MIPS). The numbers of steps or scripts executed within the named Task shall have no bearing upon the number of Tasks licensed - the sum total of the commands constitutes a single Task. For CONTROL-M: Licensed tasks equal the maximum number of tasks (as described above) loaded into the daily CONTROL-M active environment. For CONTROL-M/Assist: Licensed tasks equal the maximum number of tasks (as described above) that will interface a third party scheduler with the CONTROL-M active environment. Control-M/Assist may only be used to interface with the third party scheduler and may not be used to schedule or manage batch processes outside of the cross-scheduler dependencies. For Control-M/Tape, Control-M/Restart, Control-O: Licensed tasks equal the maximum number of tasks (as described above) licensed for or managed by Control-M for z/OS as defined in the Control-M active environment. For all other task based Products, the maximum number of tasks that the Product is priced against, is measured as the maximum number of CONTROL-M tasks.

per terabyte: A license is required for the total aggregate storage capacity in the Enterprise.

per third-party software: A license is required for each installation of the third-party software product that interfaces with the Product.

c. LICENSE ADDITIONS. Licenses to the following Products include the indicated rights:
Additional License for BMC Service Desk Express Products: Customer may make and operate 2 additional copies of the Product solely for internal pre-production configuration and testing purposes.

BMC Capacity Management for Mainframes. Any BMC Capacity Management for Mainframes Product and/or any BMC Performance Analyzer for Mainframes, BMC Performance Predictor for Mainframes, BMC Performance Perceiver for Mainframes Product and/or any related products that may be released as part of the BMC Capacity Management for Mainframes must be licensed for all Computer(s) within the mainframe environment for which the Product or one of its components will process data or execute functionality on behalf of, regardless of whether the Product or one of its components is specifically installed on that Computer. The Products may be installed on or moved to any Computer(s) included in the licensed environment.

d. LICENSE RESTRICTIONS. The following restrictions apply to certain Products.

Additional Restriction for BMC Service Desk Express Products: No terms in any Business Objects or Crystal license agreement embedded in the Product apply to the Product.

Additional Restriction for BMC Remedy Products: Customer may not bypass, in any way, the use of a concurrent or named user license to manage an update (including, without limitation, submitting a ticket to a parallel form and then using workflow to perform the update without a license).

BMC Capacity Management Products. Any BMC Capacity Management Product, BMC Performance Assurance Product and/or any other related Products that may be released as part of the BMC Capacity Management solutions for distributed systems environments are licensed to the Computer(s) for which the Products are initially assigned and may not be reassigned to another Computer(s) unless the original Computer(s) has been removed from service. "Removed from service" or "out of service" is defined as no longer providing support for a business application or workload. A license is required for all Computers for which the Product or one of its components executes functionality, either locally or remotely.

BMC Configuration Management Control Center Module Restriction for BMC Configuration Management Products: Each "BMC CM Control Center" License may only be used by Administrators for the project for which it was licensed. An Administrator is defined as an employee with access to or the right to use the administrative components of the Product.

BMC Configuration Management Developers Kit Definition and Restriction for BMC Configuration Management Products: A "BMC CM Developers Kit" license allows Customer to embed the "SDK Run Time Code" in unmodified object code form, into a single software application developed by Customer to create an "SDK Client." "SDK Run Time Code" means the unmodified object code files in the BMC CM Product that are designated as re-distributable. "SDK Client" means a software technology with a principal purpose and functionality substantially different than that of the SDK Run Time Code and that uses only a BMC Desktop/Mobile Management Product, a BMC Device Management Product and/or a BMC Server Management Product, as...
applicable, to invoke the update functionality of the SDK Run Time
Code. An SDK Client may only be used on, or distributed to, licensed
Endpoints that are licensed separately by Customer., which licensed
Endpoints may be within or outside of Customer's organization.

BMC Identity Products:
* Internal User: If a Product name includes the term "Internal User," that
Product can only be used by Customer's employees (full time and part
time) and contractors whose information is being managed using the
BMC IdM tools. Information on these users will typically be found in
the HR database.
* External User: If a Product name includes the term "External User,"
that Product can only be used by Customer's business partners and
customers/prospects whose information is being managed using the
BMC IdM tools or Customer's employees (full or part time)/contractors
who are licensed to use one or more of the following BMC Identity
Management Tools: (1) BMC Identity User Administration (2) BMC
Identity Password Management (3) BMC Identity Compliance Manager,
provided the users have no more than 2 logons (access points) being
managed by the IdM tools.
* Archive User: If a Product name includes the term "Archive User,"
that Product can only be used by users whose identity information is
stored within the IdM system but is not being actively managed; the
information could be stored for the purpose of audit/forensics etc.
* Developer User: If a Product name includes the term "Developer
User," that Product can only be used by users who create or modify
applications using the BMC Directory Management Studio.

BMC Service Desk Express Suite Restriction for BMC Service Desk
Express Products: When purchasing Concurrent User licenses for the
"Service Desk Express" Product, regardless of the number of such
licenses purchased and regardless of the number of purchases made
(including future purchases), Customer is restricted via license keys to a
total of (i) five Concurrent Users conducting a process in the report
environment of the Crystal Reports "Web Server" product which is
embedded in the "Service Desk Express" Product and (ii) two named
users accessing the "Crystal Reports Professional" product which is
bundled with the "Service Desk Express" Product.

CONTROL-M/Assist: Control-M/Assist may only be used to interface
with the third party scheduler and may not be used to schedule or
manage batch processes outside of the cross-scheduler dependencies.

Desktop/Mobile Management Product Restrictions for BMC
Configuration Management Products: Each "Desktop/Mobile
Management" License is limited for use with one Client Endpoint.
* Desktop/Mobile Patch Management Restriction: A "Desktop/Mobile
Patch Management" License may only be used to manage, deploy,
update and inventory anti-virus software and security patches on one
Client Endpoint.
* Desktop/Mobile Patch Management Pack Restriction: The
Desktop/Mobile Application Management Product and the
Desktop/Mobile Configuration Discovery Product that are shipped with
the Desktop/Mobile Patch Management Pack License may only be used
to manage, deploy, update and inventory anti-virus software and security
patches on one licensed Client Endpoint, unless Customer has separately
licensed the Desktop/Mobile Application Management Product and the
Desktop/Mobile Configuration Discovery Product. Customer may not
use the functionality of such Products for any other purpose.

* BMC Configuration Management Desktop OS Management

Restriction: A "BMC CM Desktop OS Management" License may only
be used to manage operating system migration activities on one Client
Endpoint. Each BMC CM Desktop OS Management License: (a) may
only be used on a licensed Client Endpoint that is licensed for use with
both a Desktop/Mobile Application Management License and a
Desktop/Mobile Configuration Discovery License; and (b) may not be
redeployed or harvested to a different Client Endpoint.

* Extranet Application Management Restriction: An "Extranet
Application Management" License may only be used on one Client
Endpoint. The parties must mutually agree on the name of each Single
Application and its primary function at the time of Order. Single
Application is defined as a Tuner channel containing one application
with one primary function, and Tuner is defined as is the client
component of the Product configured by Customer for deployment on
licensed Endpoints.

Development License Restriction for BMC Remedy Products: If a
Product name includes the term "Dev Lan", Customer will restrict
installation, access and use of such Product to a server dedicated to
development and testing only, and will not allow any production or
commercial activity on that server.

Device Management Product Restriction for BMC Configuration
Management Products: Each "Device Management" License is limited
for use with one Device Endpoint.

Hot Backup License Definition and Restriction for BMC Remedy
Products: A hot backup license is a replicate of the Remedy production
licenses on one backup server. Customer may access that backup server
only when the customary server on which the AR System is installed
fails or in preparation of that backup server for such situation.

Load Balanced System Restriction for BMC Remedy Products: If
Customer has multiple servers in a single logical environment pointing
to a single AR System database instance, only one Instance of Remedy
"per Instance" licenses is required for installation on these servers
(except for the AR System, which must be licensed for each server).

Server Management Product Restrictions for BMC Configuration
Management Products: Each "Server Management" License is limited
for use per CPU - Subcapacity.

* Server Patch Management Restriction: A "Server Patch Management"
License may only be used to manage, deploy, update and inventory anti-
virus software and security patches per CPU - Subcapacity.

* Server Patch Management Pack Restriction: The Desktop/Mobile
Application Management Product and the Desktop/Mobile
Configuration Discovery Product that are shipped with the Server Patch
Management Pack License may only be used to manage, deploy, update
and inventory anti-virus software and security patches on licensed
Server Endpoints, unless Customer has separately licensed the
Desktop/Mobile Application Management Product and the
Desktop/Mobile Configuration Discovery Product. Customer may not
use the functionality of such Products for any other purpose. With
respect to the above Server Management Licenses, Customer must
comply with any restrictions designated at the time of Order on the
maximum number of CPUs that may be included in each Server
Endpoint.
YOU AGREE THAT YOU HAVE READ THIS AGREEMENT AND INTEND TO BE BOUND, AS IF YOU HAD SIGNED THIS AGREEMENT IN WRITING. IF YOU ARE ACTING ON BEHALF OF AN ENTITY, YOU WARRANT THAT YOU HAVE THE AUTHORITY TO ACCEPT THE TERMS OF THIS AGREEMENT FOR SUCH ENTITY.

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PLY

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PLY (Python Lex-Yacc) Version 3.4

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Python

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We apply patches to the Python 2.7.1 source to accomplish the following:

- Stop building of the bsddb module as we use the additional module
  seperately
- Fix for http://bugs.python.org/issue1692335
- Replace calls from select to poll in the select module to
  overcome limitations on maximum file descriptor number
This is the official license for the Python 2.7 release:

A. HISTORY OF THE SOFTWARE
--------------------------

Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see http://www.cwi.nl) in the Netherlands as a successor of a language called ABC. Guido remains Python’s principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see http://www.cnri.reston.va.us) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see http://www.zope.com). In 2001, the Python Software Foundation (PSF, see http://www.python.org/psf/) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see http://www.opensource.org for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

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Footnotes:

(1) GPL-compatible doesn't mean that we're distributing Python under the GPL. All Python licenses, unlike the GPL, let you distribute a modified version without making your changes open source. The GPL-compatible licenses make it possible to combine Python with other software that is released under the GPL; the others don't.

(2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.

Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

B. TERMS AND CONDITIONS FOR ACCESSING OR OTHERWISE USING PYTHON

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