

# HP BSA Essentials

For the Red Hat Enterprise Linux operating system

Software Version: 9.10

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## User Guide

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# Chapter 1

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## Welcome to BSA Essentials

Welcome to BSA Essentials 9.10. This product provides both high level and detailed historical reporting on your data center's automation processes for Business Service Automation (BSA) Server and Network Automation products. BSA Essentials gives you insight into your environment through its rich reporting features. These reports provide information about the cost effectiveness and return on investments for the various automated processes in your data center and allow you to see the compliance state of your servers, devices, and business applications.

## BSA Essentials Clients

BSA Essentials supports two types of clients that allow you to communicate with the BSA Essentials Core Server. One is considered a thin client and is accessed by using a Web browser. The other client is a Java application that must be downloaded to your personal computer.

To avoid confusion, in this documentation, the client accessed through a browser is referred to as the BSA Essentials Web Client. The client that is a Java application, which is installed on your system is referred to as the BSA Essentials Java Client.

For more information about the BSA Essentials clients, see the following topics.

- ["The BSA Essentials Web Client" \(on page 8\)](#)
- ["The BSA Essentials Java Client" \(on page 10\)](#)

## The BSA Essentials Web Client

The BSA Essentials Web Client allows you to create and run BusinessObjects Web Intelligence reports and to perform some basic administrative tasks.

In order to use the BSA Essentials Web Client, you need to log in to the client using a supported Web browser. To view the list of supported Web browsers, see ["Supported Browsers" \(on page 9\)](#).

Before logging in, make sure you have the proper user name and password for the authentication system configured to work with BSA Essentials:

- If authenticating with Active Directory (AD) or LDAP, you need to enter your BSA Essentials username and AD or LDAP password.
- If authenticating with SA, you need to enter your SA username and SA password.
- If there is no external directory source, you must have a BSA Essentials account.

For instructions on how to log in to the BSA Essentials Web Client, see ["Logging In to the BSA Essentials Web Client" \(on page 8\)](#).

## Logging In to the BSA Essentials Web Client

To log in to the BSA Essentials Web Client, perform the following steps:



1. Enter the URL of the BSA Essentials Core Server in a browser. For example:

`https://<bsae-core-hostname>:8443`

where 8443 is the default port value. It can be configured during the installation process.

2. In the boxes presented, enter your username and password. For example:

- **Authentication Source:** Select an external authentication source, if configured.
- **Login Name:** Enter your BSA Essentials (or AD or LDAP or SA) user name.
- **Password:** Enter your BSA Essentials (or AD or LDAP or SA) password.

3. Click **Log In**.

**Note:** Users can log in with user name "guest" (no quotes, all lower case) and no password if the Guest user account has been enabled.

For more information on the Guest user and its permissions, see "Default Users and Groups" in the *BSA Essentials Administrator Guide*. For information on how to enable a user account, see "Activating or Suspending User Accounts" in the *BSA Essentials Administrator Guide*.

## Supported Browsers

For the list of supported browsers for the BSA Essentials Web Client, see the *Platform Support* document included on the distribution media and available for download on the Self-Solve site at <http://h20230.www2.hp.com/selfsolve/manuals>.

## JRE Versions and Report Authoring

For users who need to create reports in BSA Essentials using the Web Client, it is possible that the version of the JRE that is installed on your system may conflict with the JRE version required for the Web Intelligence Java-based report authoring feature.

### Internet Explorer Users

If you are using Internet Explorer while trying to author or modify a report, and the reporting panel displays an error message regarding JRE versions or in general fails to successfully load the Web Intelligence reporting panel, perform the following steps:

1. Close the report window without saving, close the Web browser and uninstall the incompatible version of JRE on your system.
2. After you uninstall JRE, launch the BSA Essentials Web Client, log in, return to the reporting features and try to edit the report as before.

Web Intelligence will prompt you to install the required version. Accept the installation. You should now be able to author reports without this error once the required JRE is installed.

### Firefox Users

If you are using Firefox and experiencing this problem, go to <http://java.sun.com/products/archive/j2se/6u3/index.html>, select your platform, then download and install the correct version of JRE.

For more information, follow the instructions found at the web sites listed below depending on your operating system platform:

### Windows

[http://www.java.com/en/download/help/firefox\\_online\\_install.xml](http://www.java.com/en/download/help/firefox_online_install.xml)

## Linux

[http://www.java.com/en/download/help/linux\\_install.xml](http://www.java.com/en/download/help/linux_install.xml)

## The BSA Essentials Java Client

You must use the BSA Essentials Java Client to set data access security boundaries on reporting objects; these boundaries once created, can be managed through the BSA Essentials Web Client. For information on how to create data access permission security boundaries, see "Setting Data Access Security Boundaries" in the *BSA Essentials Administrator Guide*.

The BSA Essentials Java Client also allows you to create and run BIRT reports. For more information on BIRT reporting, see ["About BIRT Reporting" \(on page 23\)](#).

Before you can log in to the BSA Essentials Java Client, you need to download the installer from the BSA Essentials Core Server. Procedures to install, log in to, and configure settings for the BSA Essentials Java Client are described in the following sections:

- ["Installing the BSA Essentials Java Client" \(on page 10\)](#)
- ["Logging In to the BSA Essentials Java Client" \(on page 12\)](#)
- ["Setting Advanced Options for the BSA Essentials Java Client" \(on page 13\)](#)

**Note:** The BSA Essentials Java Client Launcher only allows you to log in to a BSA Essentials Core Server. If you attempt to log into a pre-BSA Essentials SAR Core Server, you will get a 404 page not found Java Web Start error message and not be able to log in to the Core.

**Note:** If you are running the BSA Essentials Java Client Launcher on Windows 2000, you may see a missing DLL error message when you log in. This error will not affect the log in procedure. To prevent this error from appearing, install the [Microsoft update](#).

## Installing the BSA Essentials Java Client

In order to access the BSA Essentials Java Client you need to download and install the client launcher. You can find the link to download the client launcher on the BSA Essentials Web Client home page, just beneath the login fields. The BSA Essentials Java Client Launcher allows you to log in to a BSA Essentials Core Server. You must use the BSA Essentials Java Client to set data access security boundaries on reporting objects; these boundaries once created, can be managed through the BSA Essentials Web Client.

Installing the client requires that you perform the following tasks:

### Task 1: Learn About the BSA Essentials Java Client and Client Launcher

The client launcher is a self-contained Java application that allows you to access the BSA Essentials Java Client from any BSA Essentials Core Server. You can use the launcher to log in to and download the latest version of the client. If the client has been upgraded on a specific BSA Essentials Server, you can choose the server you want to use for downloading the client.

The client launcher also allows you to configure advanced settings, such as debug settings, locale settings, and access to the Java Web Start that runs the launcher and the BSA Essentials Java Client.

The BSA Essentials Java Client is a Java application that installs and runs with its own Java Runtime Environment (JRE). The client will not interfere with any other versions of JRE you may have installed on your system. The JRE will not be used (and is not usable) by any other Java application on the target computer, and it will not set itself as the default JRE on the target computer.

**Task 2: Understand BSA Essentials Java Client System Requirements**

For the list of supported operating systems for the BSA Essentials Java Client, see the *Platform Support* document included on the distribution media and available for download on the Self-Solve site at <http://h20230.www2.hp.com/selfsolve/manuals>.

The minimum systems requirements to run the client are the following:

- Minimum 1 GB of DRAM
- Minimum 100 MB of disk space

If you are using the BSA Essentials Java Client to connect to a Core Server over a residential DSL connection, a minimum 384 Kbps DSL connection is recommended.

You need to be logged in as a user that has sufficient permissions to install software on the computer. (You do not need to be an administrator user to install the launcher.)

To run the client, you must download and install the BSA Essentials Java Client Launcher as explained in the next task.

**Task 3: Install the BSA Client Launcher**

In order to run the BSA Essentials Java Client, you need to download and install the client launcher, which is a Java application that allows you to access the client from any BSA Essentials Server. In order to install the client launcher, you must be a Windows user that is able to install applications on your system. When you install the client launcher, it installs all the necessary Java applications (Java Web Start and JRE) you need to run the client.

If you plan to have multiple users install the client launcher on the same computer, we recommend that each user choose a unique path to install the application. For example, if one user has already installed the client launcher in the default location, C:\Program Files\HP BSA\Launcher, then if another user logs in to the same computer and attempts to install to that same default location, the second user will see an error and not be able to install. If this occurs, choose a new location.

To install the client launcher, perform the following steps:

1. Open a Web browser, and enter the URL to the BSA Essentials Web Client server. For example:  
  
`https://<bsae-servername>:8443`  
  
where 8443 is the default port value. It can be configured during the installation process.
2. On the BSA Essentials Web Client home page, under the log in fields, click the **Download BSA Launcher** link.
3. Download the HP BSA Essentials Client Launcher installation file and double-click to start the launcher installation.
4. In the Welcome window, click **Next**.

5. In the License Agreement window, select the “I accept the agreement” option, and then click **Next** to proceed with the installation.
6. In the Select Destination Directory window, accept the default installation directory, or click **Browse** to select a custom location. Click **Next**.
7. In the Select clients to install window, select HP BSA Essentials Client.
8. In the Select Start Menu Folder window, accept the default name and click **Next**.
9. In the Select Additional Tasks window, accept the default options or choose your own, and then click **Next** to install the client launcher.
10. When the installation has completed, click **Finish** to exit.

**Task 4: Uninstall the Client Launcher - Optional**

You can uninstall the client launcher using the Windows Add or Remove Programs utility located in the control panel on your system.

To uninstall the client launcher, perform the following steps:

1. From the Start menu, select Control Panel.
2. Double-click the Add or Remove Programs application.
3. In the Currently Installed Programs table, select the HP BSA Launcher application.
4. Click **Remove**.
5. Close the Add or Remove Programs application.

**Logging In to the BSA Essentials Java Client**

To launch the BSA Essentials Java Client, perform the following steps:

1. Start the Java Client Launcher by selecting **Start → All Programs → HP Business Service Automation → HP BSA Essentials Client**.
2. In the Log In to HP BSA Essentials Client window, enter your BSA Essentials user name, password, and the BSA Essentials Server you want to log in to.

**Note:** If you are using an external authentication system with BSA Essentials, such as AD, LDAP or Server Automation (SA), you need to append your username with that authentication system when you log in, using the following syntax:

```
username@$authsource_name
```

For example, if a user named `joe_user` wanted to log in and was using SA as an external authentication source, the username log in would look like this:

```
joe_user@sa
```

3. Enter the BSA Essentials Server's IP address or host name in the core server field, such as:  
`<bsae-2-0-servername>:<port>`.

where `<port>` is the port value for the BSA Essentials Core Server. If the server is listening at the default port value of 8443, it does not need to be specified.

If this is the first time you are logging into a specific BSA Essentials Server, the launcher will download the latest version of BSA Essentials when you log in. If you would like to differentiate between the BSA Essentials Core Server you log in to and the core from which you download the latest version of the BSA Essentials Java Client, you can change those options by clicking **More >>** in the log in window. See ["Setting Advanced Options for the BSA Essentials Java Client" \(on page 13\)](#).

4. Click **Log In**.
5. If you are asked to accept the certificate from the core server, click **Yes**. The BSA Essentials Client now appears.

## Setting Advanced Options for the BSA Essentials Java Client

You can configure the following advanced options for the BSA Essentials Java Client:

- **Debug Settings:** Gives you control over the level of detail, as well as the type of information included in BSA Essentials Client log file.
- **Client Download Server:** Allows you to change the host server from which you want to download the BSA Essentials Client.
- **Proxies:** Allows you to configure the BSA Essentials Client proxy server settings.
- **HP BSA Essentials Home:** Allows you to change the default location from which the BSA Essentials Client is downloaded and saved on your local computer, and to delete the BSA Essentials Client's cache, and to change the location of BSA Essentials Client log files.

To configure the BSA Essentials Java Client's advanced options, perform the following steps:

1. Start the Java Client Launcher by selecting **Start → All Programs → HP Business Service Automation → HP BSA Essentials Client**
2. Click **More >>**. In the expanded window, you can configure the following settings:
  - **Locale:** Select the version of the BSA Essentials client to match your system's locale. English (en) is the default, but you can also select either Japanese (ja) or Korean (ko).
  - **Debug Settings:** Set the debugging options for the log file located at `<user_home>\Application Data\HP BSA\deployment\log\javaws\*.log`.
    - **Enable Debug Logging (Fine):** Enables debugging and sends BSA Essentials Client operations and errors to the log file.
    - **Enable Server Method Call Logging:** Adds server method calls to the log file.
    - **Show Console:** Displays the Java Console window while the BSA Essentials Client runs.
3. Click **Advanced Settings**. In the Advanced Settings Window, you can configure the following settings:
  - **Client Download Server:** You can configure the BSA Essentials Client Launcher so the default core you log in to is different from the core you use to access the latest version of the BSA Essentials Client. This can be useful if you do not want to download a new version of the BSA Essentials Client each time you log in to a different core running the same version of BSA Essentials.

- **Use Core Server:** Select this option to download the BSA Essentials Client from the same server to which you want to log in.
  - **Use:** Enter a core server you want to use to download the BSA Essentials Client.
  - **Proxies:** By default, the BSA Essentials Client uses the proxy server settings configured for the default browser on your local system. For example, if your default browser has no proxy server settings configured, neither will the BSA Essentials Client. You can change those proxy server settings by configuring the following options:
    - **None:** Do not use a proxy server to connect to the BSA Essentials Client.
    - **Use Browser:** Use the proxy server settings specified in your default browser.
    - **Manual:** Enter the proxy server hostname and port.
    - **No Proxy Hosts:** If you want to add proxy server overrides, add them here, separated by commas. (This is only enabled when proxy server settings is set to Manual.)
  - **HP BSA Essentials Home:**
    - **Location:** The location where the BSA Essentials Client is downloaded and saved on your local computer, along with all log files generated when the BSA Essentials Client runs.

**Note:** The default home location is `<user_home>\Application Data\HP BSA`, which is private to each user. If you choose to change this location, be aware that other users may have access to the new directory. You are responsible for setting the permissions on the new directory if you want to prevent unwanted access to your BSA Essentials Client home.
    - **Delete Application Cache:** Clicking this completely removes all downloaded copies of the BSA Essentials Client. This ensures the launcher will download the latest BSA Essentials Client from the core the next time the user logs in.
    - **Delete Logs:** Delete all log files created by previous sessions of the BSA Essentials Client. All BSA Essentials Client log files are located at `<user_home>\Application Data\HP BSA\deployment\log\javaws\*.log`.
4. When you finish setting your options, click **OK**.
  5. Click **Log In** to log in to the BSA Essentials Java Client.

## Chapter 2

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### Reports

BSA Essentials provides two types of reporting, namely Web Intelligence reporting accessed through the BSA Essentials Web Client and Business Intelligence Reporting Toolkit (BIRT) reporting accessed through the BSA Essentials Java Client.

For more information on the types of reporting, see the following topics:

- ["About Web Intelligence Reporting" \(on page 15\)](#)
- ["About BIRT Reporting" \(on page 23\)](#)

**Note:** Web Intelligence reporting using the BSA Essentials Web Client is the recommended way to create reports. BIRT reporting is documented only for the benefit of those customers who need to maintain their legacy reports. All new reporting should be performed using Web Intelligence.

### About Web Intelligence Reporting

BSA Essentials Web Intelligence reporting provides the ability to report on data from both Server Automation (SA) and Network Automation (NA) products. You can select data from the SA and NA reporting universes to build Web Intelligence documents to define and display historical and trending information about your data center.

**Note:** Users who do not have data permissions to report data will be able to view report results that are stored in folders to which they have Read access. See "Folder Permissions" in the *BSA Essentials Administrator Guide*.

For other sources of data from other BSA product lines such as Operations Orchestration (OO), you can use custom SQL to write reports for those products.

For more information on Web Intelligence reporting, see the following topics:

- ["Reporting User Interface Document List" \(on page 16\)](#)
- ["Before Creating Reports" \(on page 17\)](#)
- ["Web Intelligence Documents" \(on page 17\)](#)
- ["Web Intelligence Document Interface" \(on page 18\)](#)
- ["Sample Reports" \(on page 19\)](#)
- ["Creating a Report" \(on page 20\)](#)
- ["Scheduling Reports" \(on page 22\)](#)
- ["BSA Essentials Reporting Universes" \(on page 26\)](#)

The BSA Essentials reporting interface utilizes SAP BusinessObjects InfoView. To provide you with additional information, the relevant BusinessObjects guides have been included in the `docs\BusinessObjects` directory on the BSA Essentials distribution media. The guides are

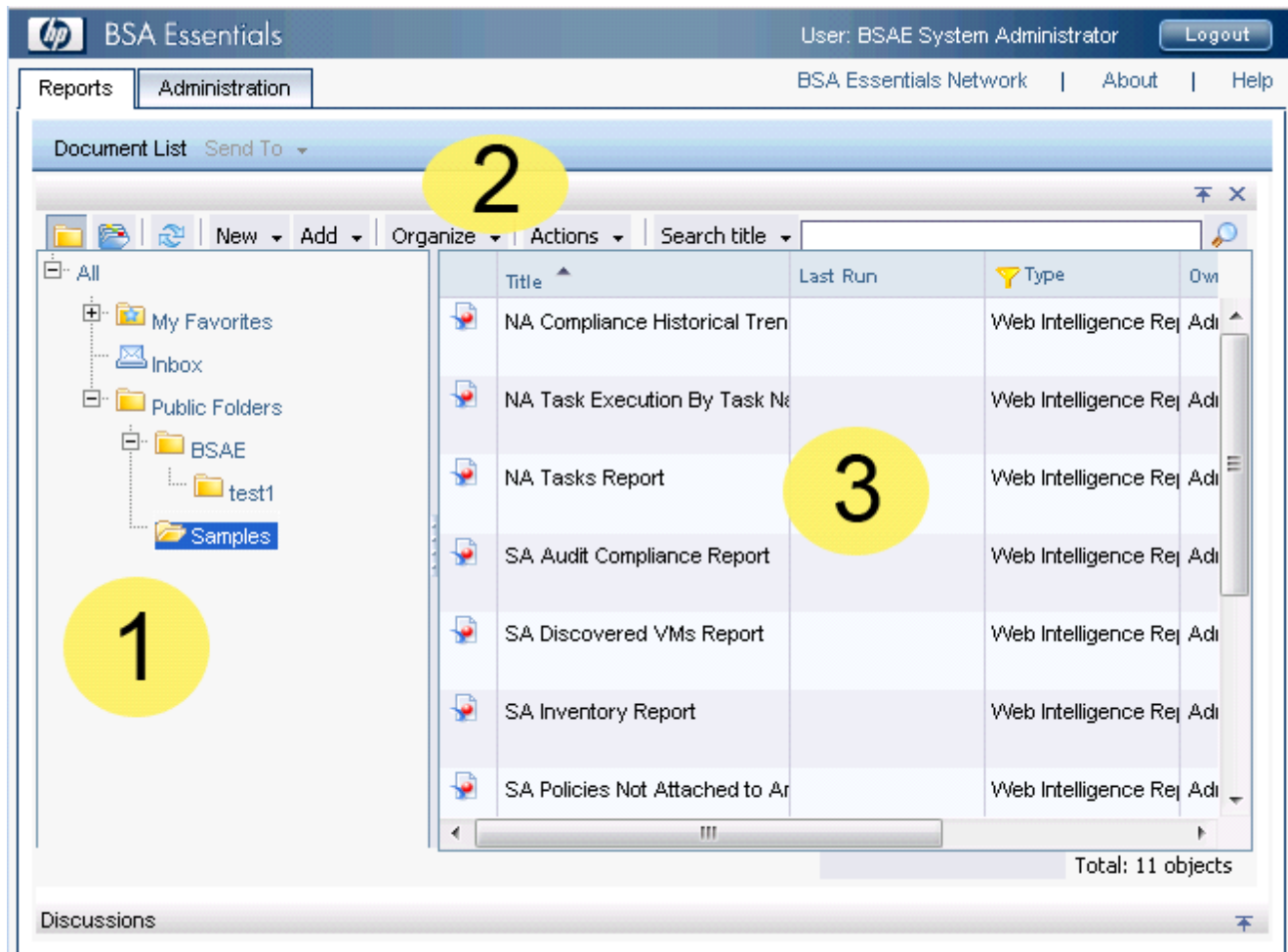
also provided in the `/opt/HP/BSAE/manuals/BusinessObjects` directory on the BSA Essentials Server.

For the latest updates for SAP documentation, visit the [http://help.sap.com/businessobject/product\\_guides/](http://help.sap.com/businessobject/product_guides/) web site.

## Reporting User Interface Document List

The BSA Essentials reporting interface utilizes SAP BusinessObjects InfoView, a web desktop that gives you access to a broad range of useful business information collected and stored by BSA Essentials about your organization. Each report that is created can be saved in the Public Folders or My Favorites folders on a per user basis depending on user permissions. Public reports are listed in this location for all users.

The following screen shot shows the reporting interface identifying its major features:



Feature	Description
1. Document List Folders	The Documents List folder hierarchy contains folders to store all of your Web Intelligence Documents. You can create folders to help organize your documents and reports.



Feature	Description
	<p>You can also operate on a folder or document in the list by right-clicking a folder in order to:</p> <ul style="list-style-type: none"><li>• Create a new Web Intelligence Document</li><li>• View a folder's or document's properties (including access permissions)</li><li>• Create a new folder</li></ul>
<b>2. Document List Toolbar</b>	<p>Allows you to perform several important operations, such as:</p> <ul style="list-style-type: none"><li>• <b>New:</b> Create a New Web Intelligence Document or Folder</li><li>• <b>Add:</b> Add local documents</li></ul>
<b>3. Document List Contents</b>	<p>Displays the contents of a Documents List folder.</p> <p>The Last Run column displays a date and time for scheduled reports. No date is displayed for reports that are run manually.</p>

## Before Creating Reports

Creating a report in BSA Essentials requires that the following tasks have already been performed:

- **Configure User Groups and Permissions**
- **Create Security Boundaries**
- **Create Cross Item Groups**

**Note:** These tasks are typically performed by an administrative user. See the *BSA Essentials Administrator Guide*.

For specific JRE requirements related to report authoring, see ["JRE Versions and Report Authoring" \(on page 9\)](#).

## Web Intelligence Documents

BSA Essentials utilizes Web Intelligence Documents that are part of SAP BusinessObjects InfoView to allow you to build reports based upon data selected from your universes, save the document, print it, and share it with other users in your organization.

### Designing Reports with Web Intelligence Documents

The Web Intelligence document is not just the report result itself, but rather defines, through queries, filters, and data objects, the exact kinds of data you want to retrieve from the Server Automation (SA) or Network Automation (NA) databases over a specified period of time (or, a specific snapshot in time). The document also contains all the necessary formatting and configuration details to enable your reports to display the information clearly.

### Sharing Web Intelligence Documents

Web Intelligence Documents allow you to share reporting information in the following ways:

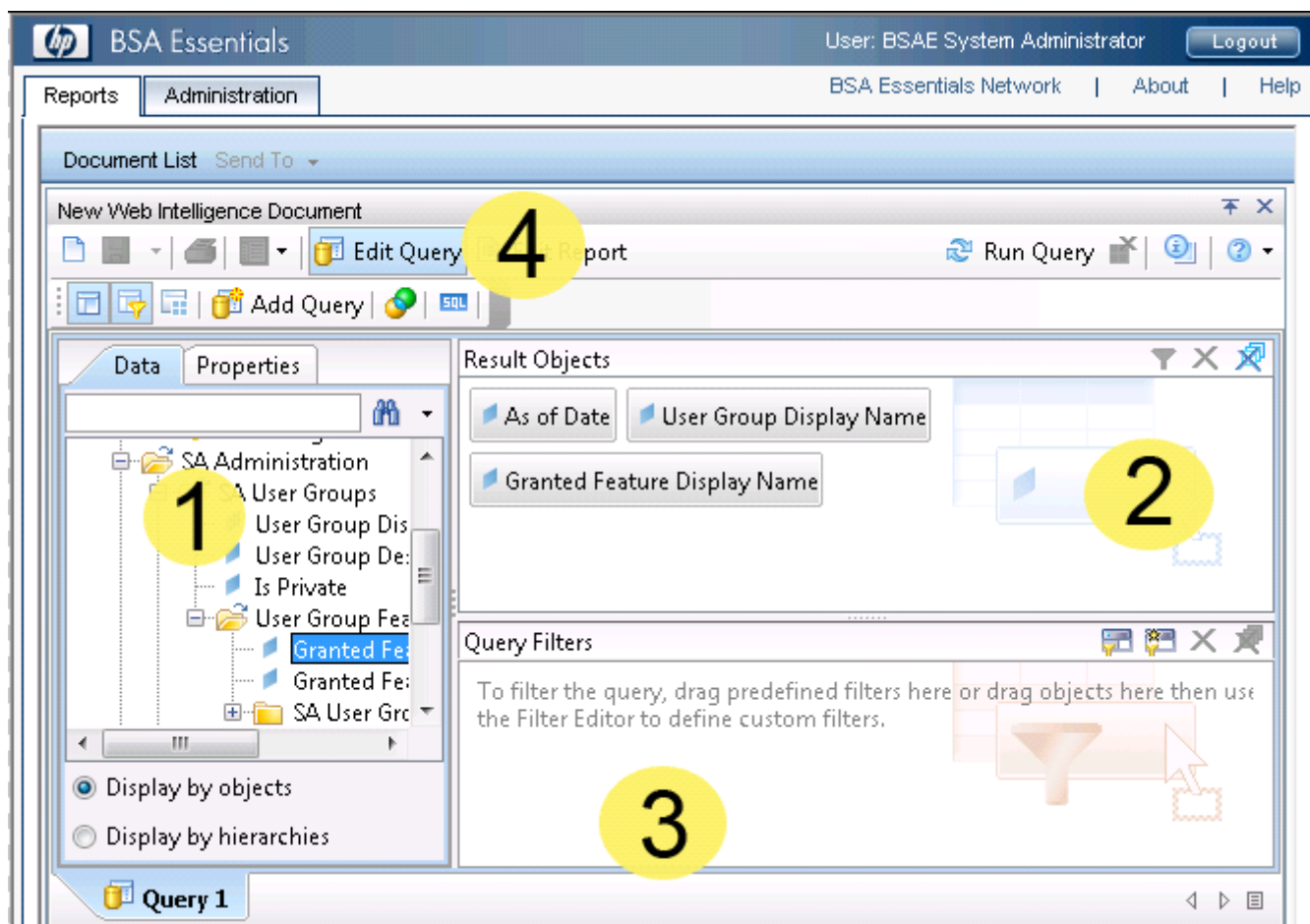
- You can save your report document to a public folder in InfoView. Another user can then log in and navigate to that public folder and view the report.
- You can send the report document as an email attachment from within InfoView through the BusinessObjects configured SMTP server. This is a BusinessObjects feature.
- You can share Web Intelligence documents with non-InfoView users by saving your reports in Microsoft Excel, Adobe PDF, and Web Intelligence documents. You can email them to your colleagues to view and print.

For more information, consult the Web Intelligence online help.

## Web Intelligence Document Interface

The Web Intelligence Document is the graphical user interface for creating and building report queries.

The following screen shot shows the interface identifying its major features:



Feature	Description
<b>1. Universe Browser</b>	This pane lists all of the classes and objects in the universe. To build the report query, drag and drop universe objects (or entire classes) to this pane to define

Feature	Description
	the elements of your report. A universe can contain more than one query by clicking <b>Add Query</b> .
<b>2. Results Objects</b>	This pane allows you to select objects from the universe browser Data tab and drag them to this pane.
<b>3. Query Filters</b>	This pane is where you can drag and drop query filters to limit the results of the report by setting run-time options, filtering on users, groups, machine types, and so on. Typically, this pane is used for setting a date range filter to set the time frame of the report results.
<b>4. Toolbar</b>	Contains toolbar functions for the Web Intelligence Document, such as: <ul style="list-style-type: none"><li>• <b>Add Query</b>: Add another query to the document. This allows you to select objects from another universe.</li><li>• <b>Edit Report</b>: Allows you to edit the visual display of the report results.</li><li>• <b>SQL</b>: Allows you to view and edit the SQL layer of the query.</li><li>• <b>Run Query</b>: Runs the document query and produces report results.</li></ul>

## Sample Reports

BSA Essentials provides several sample reports that illustrate the various types of data and historical information a BSA Essentials report can display.

Sample reports are located in the Reports tab in the main document list, under **Public Folders** → **Samples**.

### Network Automation (NA) Sample Reports

Network Automation Sample Reports	Description
NA Compliance Historical Trending Report	Displays the trend of network device non-compliance over time. A device is considered non-compliant when the device configuration does not match the configuration defined in the compliance policy attached to the device.
NA Task Execution by Task Name	Displays NA tasks executed over a specific range of time, run on an NA device group Inventory.
NA Tasks Report	Displays NA task status distribution.

### Server Automation (SA) Sample Reports

Server Automation Sample Reports	Description
SA Audit Compliance Report	Shows compliance statuses for servers in a device group with audits attached to them , plus a breakdown of each audit's details.
SA Discovered VMs Report	Displays all the virtual machines (VMs) discovered by SA through their respective hypervisors. VMs can include VMware VMs, Solaris local zones, and Microsoft Hyper-V VMs.
SA Inventory Report	Reports on servers under management and their inventory details within SA for a given time range.
SA Policies Not Attached To Any Server	Displays a list of SA policies that are not attached to any servers, but excluding audits. SA policies can include software policies, patch policies (Windows-only), and application configurations.
Servers Without Policies	Shows the managed servers that do not have any policies attached.
SA Trending of Unmanaged And Managed VMs Report	Shows the trend over time of managed and unmanaged virtual machines in SA. Server Automation discovers these VMs and their state through their respective hypervisors.
SA User Permissions Report	Lists feature permissions grouped by user name, including the total number of permissions for each user.
Server and Network Inventory Report	This report shows the servers and network devices under management and their inventory details within a Cross Device Group that includes devices managed by both Server Automation and Network Automation.

## Creating a Report

The basic workflow for creating a report consists of the following tasks. In this example, you learn how to create a Web Intelligence Document and build a basic report query to display all Server Automation (SA) private user group feature permissions.

### Task 1. Create a Web Intelligence Document

In order to create a report, you need to first create a Web Intelligence Document from the Reporting panel. The Web Intelligence document allows you to select a universe, build data queries using filters and universe objects, and all other formatting information to create a meaningful report.

To create a Web Intelligence Document, perform the following steps:

1. Select the Reports tab in the BSA Essentials Web Client. The Web Intelligence reporting panel is displayed.
2. From the **New** menu click **New Web Intelligence Document**.

### **Task 2. Select a Universe**

A BusinessObject Universe is the interfacing layer between a client and a database. In this case, it is the BSA Essentials Web Client and a Server Automation or Network Automation Database. BSA Essentials universes hide the typical database structure and make database objects intelligible and accessible, so you can build meaningful reports.

To select a universe, perform the following steps:

1. After you have created a Web Intelligence Document, in the **Web Intelligence Document** → **New Document** Window, you see a list of possible universes to choose from; SA General, SA Compliance, and NA General. To continue, select the SA General Universe. (For more information, see ["BSA Essentials Reporting Universes" \(on page 26\)](#).)
2. After you select the SA General Universe, the Web Intelligence Document interface appears, showing you all the objects available from the selected universe. (For more information about the Web Intelligence Document user interface, see [""Web Intelligence Document Interface" \(on page 18\)"](#).)

### **Task 3. Build the Report Query**

Building a report query enables you to specify the types of objects you want to report on from the universe. For example, you might want to create a report that displays all private SA user groups and their feature permissions.

In this task, you will choose objects from the SA General Universe.

To build the report query, perform the following steps:

1. From the universe browser on the left side of the Web Intelligence Document Window, select the objects on which you want to report.

For example, if you want to report on all of the SA user groups and their feature permissions, you would select the **SA Administration** → **SA User Groups** → **User Groups** → **User Group Display Name** object and drag it to the Results Object pane.

2. Select the **Is Private** object and drag it into the Query Filter pane.
3. Select the **Is Private** object you just dragged into the Query Filter pane, and using the In List drop-down, select **Equals**.
4. In the text field, type Y.
5. Expand the **User Group Features** and drag and drop the Granted Feature Display Name object to the Results Objects pane.
6. Expand the **SA User Group Features Advanced** folder, and select the **Granted Feature Name** object and drag it into the Results Objects pane.
7. At the root of the SA General Universe, expand the **General** folder and drag the **Single Date Filter** object to the Query Filters pane on the bottom of the window. This query filter object allows you to specify a single date in history on which you want to report.

For more information on universe object descriptions, see ["BSA Essentials Reporting Universes" \(on page 26\)](#).)

### **Task 4. Run the Report Query**

Next, to generate report results, you need to run the query.


To run the query, perform the following steps:

1. From the upper right of the Web Intelligence Document window, click the **Run Query** on the document toolbar.
2. Since you selected a Single Date filter, you need to specify a date on which you want to base the report. From the Prompts dialog, click the **Select a Custom Date** button to choose a date.
3. Click **Run Query**. When the query has finished running, the report results display in the Web Intelligence Document window.

#### **Task 5. Save the Web Intelligence Document**

Once you have built the query and run the report, you need to save the Web Intelligence Document. You can also save the document to your local computer as an Excel, PDF, or CSV file.

To save the Web Intelligence Document, perform the following steps:

1. From the Web intelligence Document toolbar, click **Save** . The Save Document dialog box appears.
2. To save the report on the BSA Essentials Server, select either My Favorites so only you can view it (private) or select a public folder so others on your team can access the report.
3. To save the report results to your local computer, from the Document menu, select Save to my computer as → Excel, PDF, or CSV with Options.

## **Scheduling Reports**

This topic shows you how to schedule a report. Scheduling is a process which allows you to run a report object automatically at specified times. When you schedule an object, you choose the recurrence pattern that you want and specify additional parameters to control exactly when and how often the object will be run.

#### **Scheduling Reports**

1. Select a report.
2. Click **Actions** → **Schedule**. The Schedule dialog box opens showing the default settings for the object.
3. Enter an appropriate instance title.
4. Click **Recurrence** and select the recurrence pattern you want. For example, select Weekly.
5. Specify the Run option and parameters that you want. For example, select Weekly and then specify Monday, Wednesday, and Friday.
6. Click **Formats and Destinations** and set Output Format and Destination Options (email recipients).

**Note:** You must configure the Reporting Mail Server for this option to work correctly. Refer to the "Central Management Admin Tasks" section in the *BSA Essentials Administrator Guide*.

7. Set any of the other schedule options and parameters as required.

8. Click **Schedule**. The system will create a scheduled instance and run it according to the schedule information you specified. You can view the scheduled instance on the "History" page for the object.

## About BIRT Reporting

The BSA Essentials Java Client allows you to run the Business Intelligence Reporting Toolkit (BIRT) reports.

**Note:** This is *not* the recommended method of reporting. These sections are included for customers that must maintain their legacy reports. All new reports should be created using Web Intelligence. See ["About Web Intelligence Reporting" \(on page 15\)](#).

For more information on BIRT reporting, see the following topics:

- ["Running BIRT Reports" \(on page 23\)](#)
- ["Modifying BIRT Report Parameters" \(on page 23\)](#)
- ["Setting the Use Relative Dates Parameter" \(on page 24\)](#)
- ["Scheduling BIRT Reports" \(on page 24\)](#)
- ["Setting Scheduled Report Options" \(on page 24\)](#)

## Running BIRT Reports

To run a report, perform the following steps:

1. From the Navigation pane, select **Reports**.
2. Expand the Reports folder and then expand Compliance History.
3. Select one of the reports listed in the folder.
4. If there are no report parameters in the Content pane, click **Run**.
5. If there are report parameters in the Content pane, you can either use the default parameters or change them:
  - To use the default report parameters, click **Run** to run the report.
  - To change the report parameters, see ["Modifying BIRT Report Parameters" \(on page 23\)](#).

## Modifying BIRT Report Parameters

You can modify the default parameters of a report. If you modify the parameters of a report, your changes become your default settings for that report. To modify the default parameters and run a report that includes certain servers, customers, hardware models, and so on, perform the following steps:

1. (Optional) Select the date.
2. (Optional) Select the interval.
3. (Optional) You can select Use Relative Dates to set the date and interval as relative to when the report is run in the future. See ["Setting the Use Relative Dates Parameter" \(on page 24\)](#).
4. In the drop-down list for (the Server, Customer, Model, and so on), select one of Contains,

Equals, Begins With, or Ends With.

5. (Optional) Click the ellipsis (...) button to the right of the [Any Value] fields to open the Select Values window.
6. In the Select Values window, select a value in the Available or Selected pane and then use the directional buttons to include it in or exclude it from your search criteria.
7. Click **OK** to save your changes.
8. Click **Run** to run the report.

**Note:** If data cannot be found to run the report, the “No records to display!” message appears.

## Setting the Use Relative Dates Parameter

The Use Relative Dates parameter sets the date and interval as relative to when the report is run in the future. Relative dates are calculated in absolute dates offset from the current date. For example, you run a report on October 23 of this year, and select the date and interval of the report to run from October 21 to October 22. Scheduling this report to run in the future without selecting Use Relative Dates will present the results for October 21 to October 22 of this year. Selecting Use Relative Dates causes the report to present the results of yesterday and the day before yesterday, relative to whenever the report is run.

## Scheduling BIRT Reports

You can schedule a report to run at a specified time, and to repeat at intervals. The report can be emailed to one or more recipients when it runs.

To schedule a report, perform the following steps:

1. From the report, click **Schedule** to open the Scheduled Report Options Window.
2. In the Schedule Name field, enter the name. The default value is the report type name.
3. Select the frequency, either Once, Daily, Weekly, or Monthly.
4. (Optional) Select the options available for Daily, Weekly, and Monthly, as appropriate.
5. Set the Start Time.
6. Set the Start Date.
7. (Optional) Select **End recurring schedule by**, and then set the end date.
8. In the Recipients field, enter one or more email addresses. If you are entering, multiple addresses, the addresses can be separated by a space, comma, semicolon, or a carriage return.
9. Select a format for the report output.
10. Click **OK**.

## Setting Scheduled Report Options

For scheduled reports, an administrator can set the following options:

- Maximum number of scheduled reports each user can enable
- Number of scheduled reports concurrently processed by server



The “Maximum number of scheduled reports each user can enable” option allows a user only to enable the number of reports as set by the administrator. This option does not prevent the user from creating an unlimited number of scheduled reports.

An administrator can lower the number of scheduled reports to below the number of scheduled reports a user currently has configured. The next time the user updates or creates a scheduled report, the user will need to disable some of his/her scheduled reports down to the current maximum number of scheduled reports. This option also will not allow the user to save changes to a scheduled report if the user has already matched the maximum number of scheduled reports.

The “Number of scheduled reports concurrently processed by server” option enables an administrator to monitor that the server that processes scheduled reports is running smoothly. This setting is designed to keep the server from crashing due to an excessive number of reports being scheduled at the same time.

In the event that there are more scheduled reports scheduled to run at a specific time than specified in this value, then the server will process the scheduled reports in batches of the size specified in this value. Therefore, sometimes reports may not run at the time as specified by the user. Running some reports may be delayed due to server load.

To set the options for scheduled reports, perform the following steps:

1. In the BSA Essentials Client, from the Navigation pane, select **Opware Administration** → **Scheduled Report Options**. The Scheduled Report Options options appears in the Content pane.
2. Enter the value for the maximum number of scheduled reports each user can enable.
3. Enter the value for the number of scheduled reports concurrently processed by server.
4. Click **Save** to save the Scheduled Report options.

## Chapter 3

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### BSA Essentials Reporting Universes

BSA Essentials leverages SAP BusinessObjects (BO) reporting technology to enable cross-product historical reporting. One essential component of utilizing BO technologies is the reporting *universes*, which determine the kinds of objects you can report upon from the different BSA products, namely, Server Automation (SA) and Network Automation (NA).

A reporting universe is the interfacing layer between a client and a database. The universe defines the relationship among the various database tables and visualizes how the tables in a database are connected. BSA Essentials uses information filtered through the universes to create an SQL query based on the objects you choose in your report designer when you create a Web intelligence document.

Each universe also contains generic report query filters such as date range filters, which help specify a time frame on which to base the report. Each universe contains access to any Cross Item Groups for Jobs, Policies, and Devices that have been created on your BSA Essentials Core Server. For example, you can select a Cross Device Group containing SA servers in order to add them to your report.

For more information on creating Cross Item Groups, see "Configuring Cross Item Groups" in the *BSA Essentials Administrator Guide*.

BSA Essentials provides three universes from which to create your reports:

- **"Server Automation General Universe" (on page 29):** Provides data items for all general areas of SA, such as information about servers (hostname, IP, name, OS), SA Library items such as Software Policies, Audits, APXs, software packages, OS installation profiles, SA Jobs, and more.
- **"Server Automation Compliance Universe" (on page 43):** Contains everything related to SA compliance policies for your reports, such as Audits, Audit Policies Software Policies, Application Configurations, and Windows Patch Policies, and how each of these relate to servers. For example, the SA Compliance universe allows you to select filters so you can create a report that shows over time, how many of the policies attached to the server are in compliance.
- **"Network Automation General Universe" (on page 60):** Enables you to create reports based on NA data, such as device types and detailed device attributes and metadata (asset details, configuration details, port details, and so on), device groups, compliance information, tasks, event, users, and diagnostics.

### About Universes

A BusinessObject Universe is the interfacing layer between the BSA Essentials Web Client and the Server Automation (SA) or Network Automation (NA) Database. The universe defines the relationship among the various tables in the database.

A universe is extremely useful for creating reports because it hides the typical database structure and makes database objects intelligible and accessible, so you can build meaningful reports.

The BSA Essentials universes - SA General, SA Compliance, and NA General - organize reporting objects extracted from the SA and NA database(s) into relevant and understandable categories. When you create a Web Intelligence document to design a report, you select a universe to query the SA or NA database where the data that interests you is stored.

A universe contains three basic elements, Class, Object, and Filter as described in the following sections:

### **Class**

A class is a logical grouping of related objects. Web Intelligence represents a class with a folder  icon.

Objects are grouped into folders called classes, each of which can also contain one or more subclasses. Subclasses contain objects that are a further subcategory of the objects in the upper level of the class.

When you create queries on a universe, classes help you to find the objects that represent the information that you want to use in a query.

For example, in the SA General Universe, you might want to create a report that displays all the feature permissions granted to a specific public user group.



The SA General Universe organizes this information in the following class hierarchy:

SA Administration → SA User Groups → User Group Features → SA User Group Features Advanced.


### **Object**

An object is an element in a universe that maps to a specific set of data in your SA or NA database. Each object in a universe is defined with a business term that your organization uses commonly, such as Server, Device, Customer, Compliance Policy, User or Device Group, and so on.

Key types of universe objects used in reporting include:

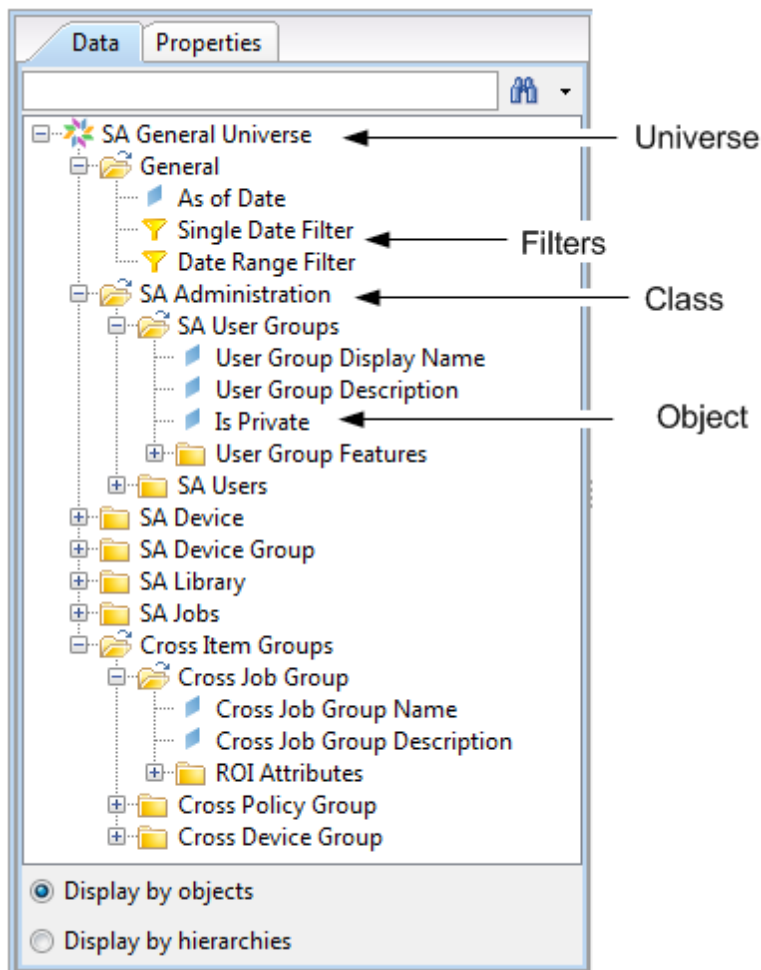
- **Dimension** : Retrieves the data that provides the basis for analysis in a report. Dimension objects typically retrieve character-type data. For example, for an SA Server, the SA General Universe contains dimensions such as Server Name, Host Name, OS name, server model, and so on.
- **Measure** : Retrieves numeric data that result from calculations on the data in the database. For example, the Cross Job Group "Cross Job Group Total ROI" measure allows the report to indicate the value you are getting from the jobs being run by the BSA software suite.

### **Query Filter**

A query filter is a type of object that allows you to restrict the data returned by an object in a query and is represented with a yellow funnel  icon. In the SA universe, for example, such common predefined query filters include Single Date Filter and Date Range Filter, so you can select the time frame for the report.

**Note:** Date filters carry a timestamp of 00:00:00. As a result, a report with a date filter of "Today" will not include items that were inserted in the database after midnight. To capture items inserted in the database since midnight, you must set the date filter to tomorrow's date.

The SA General Universe hierarchy is shown below.



## Server Automation Universes: Compliance and General

Before you start creating reports based on Server Automation (SA) Data, using either the SA General or Compliance Universes, consider the following:

- SA Compliance Universe must be used to build any BusinessObjects queries and reports that report on SA policy compliance - either current or historical - and policy attachment relationships to SA servers or SA device groups.
- SA General Universe is designed to handle all other SA reporting use cases - including inventory, virtualization, and return on investment (ROI).

**Note:** The objects under SA Device in the General Universe are device centric. This means for example, if you select the Customer Name dimension in the SA Device folder, only those customers actually associated with a server will be displayed.

**Note:** In the SA Compliance Universe, only those servers that actually have compliance data will be displayed.

**Note:** BSA Essentials updates SA Compliance Universe information through a nightly job and thus you may see unexpected latency in SA Compliance Universe information if your reporting frequency is more than the frequency at which the nightly job refreshes the SA Compliance Universe.

For information on how to change the nightly job run frequency, refer to the *BSA Essentials Administrator Guide*.

## Server Automation General Universe

The Server Automation (SA) General Universe defines a typical set of SA objects and their attributes and allows you to report on them. For example, the SA General Universe defines servers and all related information about servers, such as name, hostname, OS, primary IP address and so on.

Additionally, the SA General Universe contains generic query filters and Cross Item Group objects so you can limit your report results to specific device groups, job groups, and user groups from SA.

The following table sections describe the contents of the SA General Universe:

- ["General" \(on page 29\)](#)
- ["SA Administration" \(on page 30\)](#)
- ["SA Device" \(on page 31\)](#)
- ["SA Device Group" \(on page 37\)](#)
- ["SA Library" \(on page 37\)](#)
- ["SA Jobs" \(on page 41\)](#)
- ["Cross Item Groups" \(on page 42\)](#)

The version of the objects in the SA General Universe is 1.23 unless otherwise noted in the description field for the object in the universe table.

### General

Object	Description
As of Date	<p>Date associated with a row record, e.g. as of 4/10/2009, device r144 compliant state was Non-Compliant. Include this if you want the date corresponding to each row in the report. In any historical or trending report, you must include As Of Date in the Result Objects for your report or the data will not display properly.</p> <p><b>Note:</b> The As of Date universe object can only be used as a Result Object and cannot be used as a filter.</p>
Single Date Filter	<p>Use the Single Date Filter to specify a single date in history where you want to report on an object from the Device, Device Group, Administration and Library objects. Do not use this filter with the SA Jobs objects.</p>
Date Range Filter	<p>Use the Date Range Filter to specify the historical date range you want to report on for the Device, Device Group, Administration and Library objects. Do not use this filter with the SA Jobs objects. The Date Range Filter is most useful when you want to create trending reports. When using the Date Range Filter, it is recommended that you include the As Of Date element in the Result Objects panel.</p>

## SA Administration

Folder	Object	Description
<b>SA User Groups</b>		Folder that contains all User Group reporting objects.
	User Group Display Name	The name of the User Group.
	User Group Description	The description of the User Group.
	Is Private	Is Private refers to the Private User Group, which gets created automatically every time a user is created in HP SA. Use this to dimension to filter out private User Groups from your overall reports. In general, Private User Groups will not be of interest. The possible values are Y and N. Y means it is a Private User Group. N means it is not a Private User Group.
<b>User Group Features</b>		Folder that contains the User Group Features that allow you to report on what SA actions members of the user group can take.
	Granted Feature Display Name	This is the name of the Granted Feature. Note that these names will not be the same as the names presented in the SA Client.
	Granted Feature Category	This identifies where the Granted Features are found in the SA Client. There are several tabs of permissions in the SA UI and this object reports the specific tab this Granted Feature is found on.
<b>SA User Group Features Advanced</b>		Folder that contains objects that represent advanced aspects of Feature Permissions granted to User Groups.
	Granted Feature Name	This is the internal name for the Granted Feature. You should not typically need to use this object.
	Granted Feature Is Deprecated	This identifies those Granted Features which are now deprecated. Use this to identify which permissions you may want to remove after an upgrade.
	Granted Feature Description	This is the Granted Feature description which describes the feature. This field is not currently implemented in SA.
<b>SA Users</b>		Folder that contains all user reporting objects.
	User	The status of the user. This dimension has 3 possible values: active,

Folder	Object	Description
	Status	deleted and suspended.
	Username	The login name for this user.
	Full Name	The full name for this user.
	Email Address	The registered email address for this user.

## SA Device

Folder	Object	Description
	Server Name	The name of the server as displayed in the SA User Interface. <b>Note:</b> Updated in universe version 1.24
	Host Name	Server name as reported by the command uname or the computer name.
	Serial Number	The serial number of the server as displayed in the SA User Interface.
	Reported OS	The operating system for the server, as reported by the SA agent.
	OS Name	The attached OS role class. This is a less descriptive name than Reported OS.
	OS Platform Group	The family of the Operating System attached to the server, as reported by SA, e.g. Linux, Windows. <b>Note:</b> Added in universe version 1.24
	Server Disk Model	The model number of the server.
	Server Manufacturer	The name of the hardware vendor.
	Primary IP Address	The primary IP Address for this server.
	Primary Mac Address	The MAC address associated with the primary IP Address for this server.
	Server Type	The type of server. This dimension has 3 possible values: physical, virtual machine or hypervisor.
	Customer Name	The HP Server Automation Customer to which the server belongs.
	Facility	The HP Server Automation Facility to which the server belongs.

Folder	Object	Description
	Name	
	Custom Attribute Name	The HP SA Custom Attribute Name. This is most often paired with the Custom Attribute Value.
	Custom Attribute Value	The HP SA Custom Attribute Value. BSA Essentials only stores the first 4000 characters of the data.
	Last Agent Report	The date the SA Agent last made a report to the SA server.
	Agent Version	The version of the agent running on the server.
	Agent Status	The status of the agent running on the server. <b>Note:</b> Added in universe version 1.24
<b>Attached Application Configuration</b>		Folder that contains all reporting objects related to application configurations which are attached to servers. Objects in this folder must be paired with server or device group entities.
	AppConfig Name	The name of the Attached Application Configuration attached to the server, as seen in the SA Client. This element must be paired with a server or device group dimension when used in reports.
	AppConfig Description	The description of the Attached Application Configuration. This element must be paired with Application Configuration Name and a server or device group attribute when used in reports.
	AppConfig Version	The version of the Attached Application Configuration. This element must be paired with Application Configuration Name and a server or device group attribute when used in reports.
	AppConfig Modified By	The user who modified the Attached Application Configuration. This element must be paired with Application Configuration Name and a server or device group attribute when used in reports.
	AppConfig Modify Date	The date the Attached Application Configuration was modified. This element must be paired with Application Configuration Name and a server or device group attribute when used in reports.



Folder	Object	Description
<b>Attached Patch Policy</b>		Folder that contains all reporting objects related to patch policies which are attached to servers. Objects in this folder must be paired with server or device group elements. To report on server compliance with patch policies, use the SA Compliance Universe.
	Patch Policy Name	The Patch Policy name applied to the server. This element must be paired with a server or device group attribute when used in reports. To report on server compliance with this patch policy, use the SA Compliance Universe.
	Patch Policy Description	The description of the Patch policy. This element must be paired with a server or device group attribute when used in reports. To report on server compliance with this patch policy, use the SA Compliance Universe.
<b>Attached Software Policy</b>		Folder that contains Attributes of Software Policies attached to SA servers.
	Software Policy Name	The Attached Software Policy name applied to the server. This element must be paired with a server or device group dimension when used in reports. To report on server compliance with this software policy, use the SA Compliance Universe.
	Software Policy Description	The description of the Attached Software Policy. This element must be paired with Attached Software Policy Name and a server or device group attribute when used in reports. To report on server compliance with this software policy, use the SA Compliance Universe.
<b>Inventory</b>		Folder that contains Hardware and Software Packages attached to SA Servers.
<b>Disks</b>		Folder that contains all reporting objects related to the Disks as reported by servers. Elements in this folder must be paired with a server or device group dimension when used in reports.
	Model	The device model as reported by the server. This element must be paired with a server or device group attribute when used in reports.
	Media	The device media as reported by the server. Typical values are SCSI Disk, CDROM, etc. This element must be paired with a server or device group attribute when used in reports.
	Manufacturer	The manufacturer of the disk, such as SEAGATE. This element must be paired with a server or device group attribute when used in reports.
	Device	This is the disk "device" as reported by the server. Typical

Folder	Object	Description
		values are volumes, partitions and drives. This element must be paired with a server or device group attribute when used in reports.
	Capacity (MB)	The size of the disk, in MB. This element must be paired with a server or device group attribute when used in reports.
<b>Hardware</b>		Folder that contains all reporting objects related to the system hardware as reported by the server. Elements in this folder must be paired with a server or device group dimension when used in reports.
	Number of CPUs	The number of CPUs for the server. This element must be paired with a server or device group attribute when used in reports.
	Memory: RAM (MB)	The RAM for this server. This element must be paired with a server or device group attribute when used in reports.
	Memory: SWAP (MB)	The SWAP space for this server. This element must be paired with a server or device group attribute when used in reports.
	CPU Model	The model of the CPU. This element must be paired with a server or device group attribute when used in reports.
	CPU Speed (MHz)	The speed in MHz of the CPU. This element must be paired with a server or device group attribute when used in reports. <b>Note:</b> Added in universe version 1.24
	CPU Slot	The slot number of the CPU. This element must be paired with a server or device group attribute when used in reports. <b>Note:</b> Added in universe version 1.24
<b>Network</b>		Folder that contains all reporting objects related to the network interfaces as reported by the server. These will report on all network interfaces on the server. Elements in this folder must be paired with a server or device group dimension when used in reports.
	Interface Mac Address	The MAC Address of the specific interface. This element must be paired with a server attribute when used in reports.
	Interface IP Address	The IP Address of the specific interface. This element must be paired with a server attribute when used in reports.
	Interface	The name of the interface. This element must be paired with a server attribute when used in reports.

Folder	Object	Description
	Host Name	The hostname as reported by the interface. This element must be paired with a server attribute when used in reports.
	Connected Port Name	The port name of the network device this server is attached to. This element only works when Network Automation integration is enabled. This element must be paired with a server attribute when used in reports.
<b>Installed Packages</b>		Folder that contains all reporting objects related to the packages installed on the server. Objects in this folder must be paired with server or device group elements.
	File Name	The file name of the installed package. This element must be paired with a server or device group attribute when used in reports.
	Package Name	The name of the installed package. This element must be paired with a server or device group attribute when used in reports.
	Package Version	The file version of the installed package. This element must be paired with a server or device group attribute when used in reports.
	Package Type Name	The type of the installed package. Examples include Zip, Windows MSI, etc. This element must be paired with a server or device group attribute when used in reports.
	Package Platform Name	The platform for which this package is targeted.
<b>Virtualization</b>		Folder that contains all reporting objects related to virtualization.
	Hypervisor Attributes	All reporting objects related to managed Hypervisors.
	Hosting Hypervisor Reported OS	The operating system for the hypervisor, as reported by the SA agent.
	Hosting Hypervisor Primary IP	The primary IP Address of hosting hypervisor.
	Hosting Hypervisor Host Name	The Hosting Hypervisor hostname reported by the computer.

Folder	Object	Description
	Hosting Hypervisor Display Name	The name of the Hosting Hypervisor as displayed in the SA User Interface.
<b>Discovered Virtual Machine Attributes</b>		Folder that contains all reporting objects related to virtual machines discovered via their hypervisors.
	Virtual Server Description	This is the virtual machine description as discovered through its hypervisor
	Virtual Server Name	This is the virtual machine's name as discovered through its Hypervisor. This is typically the user supplied name.
	Virtual Server Status	This is the virtual machine's power state as discovered through its Hypervisor. Typical values are Powered On, Suspended, Powered Off.
	Virtualization Type	This is the virtualization type, such as VMware VM or Solaris 10 Container, as discovered through its Hypervisor.
<b>Hypervisor Measures</b>		Folder that contains counts of virtual devices hosted by a Hypervisor.
	Guests Not Under Management	The VMs discovered, but not managed by Server Automation.
	Managed Guests	The VMs discovered and managed by Server Automation.
	Total Guests	The total VMs discovered from the hypervisor.
<b>Server Advanced Attributes</b>		Folder that contains SA management information about the server.
	Server Identifier	Use this to filter query results based on the name of a server.
	Management IP Address	The IP address that HP Server Automation uses to communicate with the Server Agent on the managed server. This object thus is meaningful only when paired with a managed server.

## SA Device Group

Object	Description
SA Device Group	All reporting objects related to SA Device Groups.
Display Name	The device group name as displayed in the SA Client.
Group Owner	The owner of the device group.
Group Name	The internal device group name. <b>Note:</b> Updated in universe version 1.24
Device Group Single Date Filter	Use the Single Date Filter to specify a single date in history where you want to report on an object from the Device Group.
Device Group Date Range Filter	Use the Date Range Filter to specify the historical date range you want to report on for the Device Group. The Date Range Filter is most useful when you want to create trending reports. When using the Date Range Filter, it is recommended that you include the As Of Date element in the Result Objects panel.

## SA Library

Folder	Object	Description
<b>SA Library</b>		Folder that contains all reporting objects related to the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with any dimensions from the SA Device folder.
<b>Application Configuration</b>		Folder that contains all reporting objects related to the Application Configurations stored in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes.
	AppConfig Name	The name of the Application Configuration as displayed in the SA Client.
	AppConfig Description	The user who modified the Application Configuration.

Folder	Object	Description
	AppConfig Modified By User	The description of the Application Configuration as displayed in the SA Client.
	AppConfig Last Modified Date	The date the Application Configuration was modified.
<b>APXs</b>		Folder that contains all reporting objects related to the Application Extensions stored in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes.
	Extension Display Name	The APX display name as seen in the SA client.
	Extension Internal Name	This is the non-changeable, globally unique name for the APX.
	Extension Type	The APX type, such as Web or Program.
	Extension Modified By User	The user who modified the APX.
	Extension Modified On Date	The date the APX was modified.
<b>OS Platforms</b>		Folder that contains all reporting objects related to the OS Installation Profiles stored in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes.
	OS Platform Name	The name of the OS Installation Profile.
	OS Platform Version	The OS Installation Profile version.
	OS Platform Modified	The date the OS Installation Profile was modified.

Folder	Object	Description
	On Date	
<b>Library Packages</b>		Folder that contains all reporting objects related to the Packages stored in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes
	Package Name	The name of the package.
	Package Type	The type of package, e.g. Zip or MSI.
	Package OS Name	The OS that this package can be installed on. Some packages can be installed on multiple operating systems.
	Package File Size (Bytes)	The size of the package in MB.
	Package Modified On Date	The date on which the package was modified.
<b>Patch Policies</b>		Folder that contains all reporting objects related to the Patch Policies stored in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes.
	Patch Policy Name	The name of the Patch Policy.
	Patch Policy Description	The description of the Patch Policy.
<b>Library Patches</b>		Folder that contains all reporting objects related to the Patches stored in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes.
	Patch Name	The name of the patch.
	Patch Description	The description of the patch.
	Patch Type	The type of patch, such as Windows Service Pack or Hotfix.
	Patch	The platform for which this patch is targeted.

Folder	Object	Description
	Platform	
<b>SA Folders</b>		Folder that contains all reporting objects related to the Folders in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes.
	Folder Name	The folder name.
	Folder Modified By User	The user who modified the SA Folder.
	Modified On Date	The date the SA Folder was modified.
	Folder Created On Date	The date the SA Folder was created.
	Folder Created By User	The user who created the SA Folder.
<b>Software Policies</b>		Folder that contains all reporting objects related to the Software Policies stored in the SA Library. The Dimensions in this folder are meant to be used with other dimensions in the SA Library folder. You cannot use these dimensions with the device attributes.
	Software Policy Name	The software policy name.
	Software Policy Description	The software policy description.
	Software Policy Modified On Date	The date on which the software policy was modified.
	Software Policy Modified By User	The user who modified the software policy.



## SA Jobs

Folder	Object	Description
<b>SA Jobs</b>		Folder that contains all reporting objects related to jobs run on servers. Elements in this folder must be paired with a server or device group dimension when used in reports. Note that elements in this folder CANNOT be used with the Single Date Filter or Date Range Filters.
	Job ID	The internal SA job identification number. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Server Result Name	The job results for the given server. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Server Status	The job status. Typical examples include Scheduled, Succeeded, Failed, etc. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Description	The job description. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Run Date	The date the job ran. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Run by User	The user who ran this job. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Run Date On	Filter to a specific date the jobs ran. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Schedule Date On	Filter to a specific date the job was scheduled to run. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Run Date Between	Filter to a specific date range in which the jobs ran. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.
	Job Schedule Date Between	Filter to a specific date range when the jobs were scheduled to run. This element must be paired with a server or device group attribute when used in reports. This element CANNOT be used with the Single Date Filter or the Date Range Filter.

## Cross Item Groups

Folder	Object	Description
<b>Cross Item Groups</b>		Folder that contains all Cross Item Groups. Cross Item Groups are groups that contain Server Automation and Network Automation data. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
<b>Cross Job Group</b>		Folder that contains all Cross Job Groups. Cross Job Groups contain jobs and/or tasks from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Job Group Name	The name of the Cross Job Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Job Group Description	The description of the Cross Job Group. This object is configured in the Administration tab of BSA Essentials.
<b>ROI Attributes</b>		Folder that contains information for reporting Return on Investment associated with a Cross-Item Group
	Cross Job Group ROI Label	The Return on Investment (ROI) label assigned to this Job Group; for example: hours, dollars or euros. This object is configured in the Administration tab of BSA Essentials.
	Cross Job Group ROI Value	The Return on Investment (ROI) value assigned to this Job Group. This object is configured in the Administration tab of BSA Essentials.
	Sum of Cross Job Group ROI Value	Numerical sum of ROI values for all tasks in one Cross Job Group instance. This object is configured in the Administration tab of BSA Essentials.
<b>Cross Policy Group</b>		Folder that contains all Cross Policy Groups. Cross Policy Groups contain policies from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Policy Group Name	The name of the Cross Policy Group. This object is configured in the Administration tab of BSA Essentials.
	Cross	The description of the Cross Policy Group. This object is configured in

Folder	Object	Description
	Policy Group Description	the Administration tab of BSA Essentials.
<b>Cross Device Group</b>		Folder that contains all Cross Device Groups. Cross Device Groups contain devices and device groups from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Device Group Name	The name of the Cross Device Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Device Group Description	The description of the Cross Device Group. This object is configured in the Administration tab of BSA Essentials.

## Server Automation Compliance Universe

The Server Automation (SA) Compliance Universe defines a typical set of SA objects related to compliance and policies, allowing you to report on the various compliance levels for devices in your data center.

For example, you can report the compliance state of your servers or server groups over time, breaking down each policy by type, including SA audits, software policies, patch policies (Windows and Unix), and software policies. You can break down your server's compliance states to a more granular level by displaying such information as total number of policies for a server or groups of servers, exact number of non-compliant policies, and so on.

Additionally, the SA Compliance Universe contains generic query filters and Cross Group objects so you can limit your compliance report results to specific device groups, job groups, and user groups from SA.

The following table sections describe the contents of the SA Compliance Universe:

- ["General" \(on page 44\)](#)
- ["Cross Item Groups" \(on page 44\)](#)
- ["SA Device" \(on page 45\)](#)
- ["Virtualization" \(on page 48\)](#)
- ["Device Group" \(on page 49\)](#)
- ["Policy" \(on page 50\)](#)

The version of the objects in the SA Compliance Universe is 1.8 unless otherwise noted in the description field for the object in the universe table.

## General

Object	Description
As of Date	<p>Date associated with a row record; for example, such as of 4/10/2009, device r144 compliant state was Non-Compliant. Include this if you want the date corresponding to each row in the report. In any historical or trending report, you must include As Of Date in the Result Objects for your report or the data will not display properly.</p> <p><b>Note:</b> The As of Date object can only be used as a Result Object and cannot be used as a filter.</p>
Single Date Filter	Use the Single Date Filter to specify a single date in history where you want to report on an object from the Device, Device Group, Administration and Library objects. Do not use this filter with the SA Jobs objects.
Date Range Filter	Use the Date Range Filter to specify the historical date range you want to report on for the Device, Device Group, Administration and Library objects. Do not use this filter with the SA Jobs objects. The Date Range Filter is most useful when you want to create trending reports. When using the Date Range Filter, it is recommended that you include the As Of Date element in the Result Objects panel.

## Cross Item Groups

Folder	Object	Description
<b>Cross Item Groups</b>		Folder that contains all Cross Item Groups. Cross Item Groups are groups that contain Server Automation and Network Automation data. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
<b>Cross Job Group</b>		Folder that contains all Cross Job Groups. Cross Job Groups contain jobs and/or tasks from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Job Group Name	The name of the Cross Job Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Job Group Description	The description of the Cross Job Group. This object is configured in the Administration tab of BSA Essentials.
<b>ROI Attributes</b>		Folder that contains information for reporting Return on Investment associated with a Cross-Item Group
	Cross Job Group ROI Label	The Return on Investment (ROI) label assigned to this Job Group, e.g. hours, dollars or euros. This object is configured in the Administration tab of BSA Essentials.

Folder	Object	Description
	Cross Job Group ROI Value	The Return on Investment (ROI) value assigned to this Job Group. This object is configured in the Administration tab of BSA Essentials.
	Sum of Cross Job Group ROI Value	Numerical sum of ROI values for all tasks in one Cross Job Group instance. This object is configured in the Administration tab of BSA Essentials.
<b>Cross Policy Group</b>		Folder that contains all Cross Policy Groups. Cross Policy Groups contain policies from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Policy Group Name	The name of the Cross Policy Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Policy Group Description	The description of the Cross Policy Group. This object is configured in the Administration tab of BSA Essentials.
<b>Cross Device Group</b>		Folder that contains all Cross Device Groups. Cross Device Groups contain devices and device groups from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Device Group Name	The name of the Cross Device Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Device Group Description	The description of the Cross Device Group. This object is configured in the Administration tab of BSA Essentials.

## SA Device

Folder	Object	Description
	Server Name	The name of the server as displayed in the SA User Interface. <b>Note:</b> Updated in universe version 1.9
	Host Name	Server name as reported by the command uname or the computer

Folder	Object	Description
		name.
	Primary IP Address	The primary IP Address for this server.
	Reported OS	The operating system for the server, as reported by the SA agent.
	Server Model	The model number of the server.
	Server Manufacturer	The name of the hardware vendor.
	Server Type	The type of server. This dimension has 3 possible values: physical, virtual machine, or hypervisor.
	Customer Name	The HP Server Automation Customer to which the server belongs.
	Facility Name	The HP Server Automation Facility to which the server belongs.
	Custom Attribute Name	The HP SA Custom Attribute Name. This is most often paired with the Custom Attribute Value.
	Custom Attribute Value	The HP SA Custom Attribute Value. BSA Essentials only stores the first 4000 characters of the data.
	Server Compliance for Policies	This dimension object indicates the rolled up compliance state for this server across all policies. This object may be used as a Condition in a query to filter by compliance state. The precedence logic for determining the rollup state is the following: Scan Failed → Scan Needed → Non Compliant → Partial Compliant → Compliant. This object is meaningful only when paired with a server.
<b>Server Measures</b>		Folder that contains the policy roll up measures for server compliance
	Compliance State	<p>Compliance State for a server and policy combination. The compliance state rollup value that this object reports is keyed to the dimensions with which it is paired. Specifically:</p> <ul style="list-style-type: none"> <li>• Can be paired with a policy and a server to report the compliance state just for that combination.</li> <li>• Can be used with just a server to report the rolled up compliance state across all policies attached to that server.</li> <li>• Can be used with just a policy name to report the rolled up compliance state across all servers that to which this policy applies.</li> </ul>

Folder	Object	Description
		<ul style="list-style-type: none"> <li>Can be used with a device group name to report the rolled up compliance state for all member servers across all policies. Compliance state is initially rolled up to each server (across all policies), and then across all devices that are members of the device group.</li> <li>Can be used with a device group and a policy to report the same as above but just for a single specific policy. This object is a calculated value and so cannot be used as a Condition in a query. The precedence logic for determining the rollup state is the following: Scan Failed → Scan Needed → Non Compliant → Partial Compliant → Compliant.</li> </ul>
	Number of Compliant Policies	The number of policies that are compliant for the given server. This is an aggregate roll up across all types of policies if unfiltered. If you apply the policy type filter, it can be constrained to a specific type of policy. This is meaningful only when paired with a server.
	Number of Non-Compliant Policies	The number of policies that are not compliant for the given server. This is an aggregate roll up across all policies if unfiltered. If you apply the policy type filter, it can be constrained to a specific type of policy or to a group of policies. This is meaningful only when paired with a server.
	Number of Scan-Needed Policies	The number of policies where a scan is needed for the given server. This is an aggregate roll up across all policies if unfiltered. If you apply the policy type filter, it can be constrained to a specific type of policy or to a group of policies. This is meaningful only when paired with a server.
	Number of Scan-Failed Policies	The number of policies for which scan had failed for the given server. This is an aggregate roll up across all policies if unfiltered. If you apply the policy type filter, it can be constrained to a specific type of policy or to a group of policies. This object is meaningful only when paired with a server.
	Total Number of Policies	The total number of policies for the given server. This is an aggregate roll up across all policies if unfiltered. If you apply the policy type filter, it can be constrained to a specific type of policy or to a group of policies. This object is meaningful only when paired with a server.
	Compliant Ratio	The number of compliant policies over the total number of policies attached to a server, e.g. 4/12. This is an aggregate roll up across all policies if unfiltered. If you apply the policy type filter, it can be constrained to a specific type of policy or to a group of policies. This object is meaningful only when paired with a server.
	Non-Compliant Ratio	The number of non-compliant policies over the total number of policies attached to a server, e.g. 4/12. This is an aggregate roll up across all policies if unfiltered. If you apply the policy type filter, it

Folder	Object	Description
		can be constrained to a specific type of policy or to a group of policies. This object is meaningful only when paired with a server.
<b>Server Advanced Attributes</b>		Folder that contains objects related to advanced server attributes, mostly related to virtualization.
	Server Identifier	This object indicates the unique machine identifier that SA generates when the agent is installed on a server. This object is meaningful only when paired with a managed server.
	Management IP Address	The IP address that HP Server Automation uses to communicate with the Server Agent on the managed server. This object thus is meaningful only when paired with a managed server.
	Server Name Filter	Use this to filter query results based on the name of a server. <b>Note:</b> Updated in universe version 1.9
	Customer Filter	Use this to filter query results based on the name of a Customer.
	Facility Filter	Use this to filter query results based on the name of a Facility

## Virtualization

Folder	Object	Description
<b>Virtualization</b>		Folder that contains all reporting objects related to virtualization.
	Hypervisor Attributes	All reporting objects related to managed Hypervisors.
	Hosting Hypervisor Display Name	The name of the Hosting Hypervisor as displayed in the SA User Interface.
	Hosting Hypervisor Reported OS	The operating system for the hypervisor, as reported by the SA agent.
	Hosting Hypervisor Primary IP	The primary IP Address of hosting hypervisor.
	Hosting Hypervisor Host Name	Hosting Hypervisor hostname reported by the computer.



Folder	Object	Description
<b>Discovered VM Attributes</b>		Folder that contains all reporting objects related to virtual machines discovered via their hypervisors.
	Discovered VM Name	This is the virtual machine's name as discovered through its Hypervisor. This is typically the user supplied name.
	Discovered VM Description	This is the virtual machine description as discovered through its hypervisor.
	Discovered VM Status	This is the virtual machine's power state as discovered through its Hypervisor. Typical values are Powered On, Suspended, Powered Off.
	Discovered VM Type	This is the virtualization type, such as VMware VM or Solaris 10 Container, as discovered through its Hypervisor.

## Device Group

Folder	Object	Description
	Device Group	All reporting objects related to SA Device Groups.
	Device Group Name	The device group name as displayed in the SA Client. <b>Note:</b> Updated in universe version 1.9
	Device Group Owner	The owner of the device group.
	Device Group Root Parent	The parent device group, in the cases where a device group contains children device groups.
	Device Group Path	Absolute pathame of the device group.
<b>Device Group Measures</b>		Folder that contains the device group compliance policy rollup measures.
	Total Servers In Device Group	Total number of servers in the device group that have any type of policies attached to them. Note that this object does not count those servers in the device group that do not have attached policies. This object is meaningful only when paired with a device group.
	Total Servers in State	The number of servers that are in the selected state within the device group. State for a server is calculated based on the policies attached to it. Even though a server can be in different states with respect to different policies, this object indicates the aggregate state roll up

Folder	Object	Description
		across all policies attached to each server. This object is meaningful only when paired with a device group. This object automatically adds an embedded filter condition to the query. The embedded condition prompts for the specific state value keyed to the Total Servers In State object.
	Total Compliance Policies	Total number of compliance policies that are compliant and apply to servers within the device group. This is an aggregate roll up across all types of policies if unfiltered. You may optionally constrain the results by applying a specific policy type filter, or selecting a subset of policies as filters. This object is meaningful only when paired with a device group.
	Total Policies	Total number of policies that apply to servers within the device group. This is an aggregate roll up across all types of policies if unfiltered. You may optionally constrain the results by applying a specific policy type filter. This object is meaningful only when paired with a device group.
	Device Group Filter	Allows report results to be filtered by Device Groups.

## Policy

Folder	Object	Description
<b>Policy</b>		Folder that contains all policy objects and folders.
<b>Common Policy Attributes</b>		Folder that contains objects common to all types of policies in Server Automation, for example, across Audit, AppConfig, and so on.
	Policy Name	Name of the policy. This is a generic policy name object that can report the policy name for any policy type –app config, patch, software or audit.
	Policy Description	Description of the policy. This is a generic policy description object that can report the policy description for any policy type – app config, windows patch, software or audit. This object is meaningful only when paired with a policy.
	Policy Type	Type of the policy. This specifies the policy type - app config, windows patch, software or audit. This object is meaningful only when paired with a policy.
	Policy Server Last Scan Date	Last scan date for a server+policy combination. The value indicated by this object is meaningful only when paired with a specific server and a policy.
	Policy Compliance	This dimension object indicates the rolled up compliance state for

Folder	Object	Description
	for Servers	this policy across all servers This may be used as a Condition in a query. The precedence logic for determining the rollup state is the following: Scan Failed → Scan Needed → Non Compliant → Partial Compliant → Compliant. This object is meaningful only when paired with a policy.
	Policy Server Last Scan Date Range	User this filter to filter all records that have Policy Server Most Recent Scan Date values between the two user date inputs (inclusive of the two end dates).
<b>Common Policy Measures</b>		Folder that contains roll up measures common to all types of policies in Server Automation.
	Number of Compliant Servers	The number of servers that passed the compliance scan for the policy. This is an aggregate roll up across all servers that have the attached compliance policy if unfiltered. If you apply a server attribute or a device group filter, this object can be constrained to the corresponding subset of servers. This object is meaningful only when paired with a policy.
	Number of Partially Compliant Servers	The number of servers that are Partially Compliant to the policy. This is an aggregate roll up across all servers that have the attached compliance policy if unfiltered. If you apply a server attribute or a device group filter, this object can be constrained to the corresponding subset of servers. This object is meaningful only when paired with a policy.
	Number of Non-Compliant Servers	The number of servers that are "Non Compliant" to the policy. This is an aggregate roll up across all servers that have the attached compliance policy if unfiltered. If you apply a server attribute or a device group filter, this object can be constrained to the corresponding subset of servers. This object is meaningful only when paired with a policy.
	Number of Scan-Needed Servers	The number of servers that are "Scan Needed" for the policy. This is an aggregate roll up across all servers that have the attached compliance policy if unfiltered. If you apply a server attribute or a device group filter, this object can be constrained to the corresponding subset of servers. This object is meaningful only when paired with a policy.
	Number of Scan-Failed Servers	The number of servers that are "Scan Failed" for the policy. This is an aggregate roll up across all servers that have the attached compliance policy if unfiltered. If you apply the server or device group filter, it can be constrained to a specific server or a device group. This object is meaningful only when paired with a policy.
	Number of	The number of servers that are associated with the policy. This is

Folder	Object	Description
	Servers	an aggregate roll up across all servers that have the attached compliance policy if unfiltered. If you apply a server attribute or a device group filter, this object can be constrained to the corresponding subset of servers. This object is meaningful only when paired with a policy.
	Compliant Server Ratio	The number of compliant servers over the total number of servers for the given policy; for example, 4/12. This object is meaningful only when paired with a policy. This is an aggregate roll up across all devices if unfiltered. If you apply the server or device group filter, it can be constrained to a specific server or a device group.
	Compliance State	Compliance State for a server and policy combination.
<b>Server Audit/Audit Policy Compliance</b>		Folder that contains roll up measures and attributes specific to Audits and Audit Policies in Server Automation.
<b>Audit</b>		Folder that contains attributes specific to Audits in Server Automation.
	Audit Name	Name of an Audit in Server Automation.
	Audit Description	Description of the Audit in Server Automation.
	Audit Compliance State	Compliance state of the Audit. This indicates the status of the audit with respect to the server, and is meaningful only when paired with a server and an audit.
	Audit Server Last Scan Time	Last scan date for a server and audit combination. The date has a meaningful value only when paired with a server and audit.
	Audit Job ID	Job ID of the Audit Job. This is meaningful only when paired with a server and an audit. <b>Note:</b> Added in universe version 1.10
	Audit Server Last Scan Date Range	Date range for a server and audit combination. The date range has a meaningful value only when paired with a server and audit.
<b>Audit Rules</b>		Folder that contains details for Audit Rules attached to Audit Policies.

Folder	Object	Description
	Audit Rule Name	Name of an audit rule. This is meaningful only when paired with an audit. Description of the Audit Rule in Server Automation. This is meaningful only when paired with an audit and a rule.
	Audit Rule Type	Type of the Audit Rule. This is meaningful only when paired with an audit and a rule.
	Audit Rule Expected Value	Expected value from the Audit Rule. This is the expected return value or standard output associated with the audit rule. The expected value is tested against the actual audit value. This object is meaningful only when paired with an audit and a rule.
	Audit Rule Actual Value	Actual value from the audit rule run. This is the observed return value or standard output observed when the audit rule was run. This is meaningful only when paired with a server, an audit and a rule.
	Audit Rule Operator	Operator used in audit rule evaluation. This is meaningful only when paired with an audit and a rule.
	Audit Rule Compliance State	Compliance state of the audit rule. The state is meaningful only when paired with an audit, a rule and a server or device group that is a target of this audit rule.
<b>Audit Exceptions</b>		Folder that contains objects specific to Audit Exceptions for rules in Audits that were attached to and scanned for a server. Audit exception is specific to an audit, rule and a server.
	Audit Exception Reason	Reason for an Audit Exception. This is meaningful only when paired with an audit exception.
	Audit Exception Expiration Date	Expiration Date for an Audit Exception. This is meaningful only when paired with an audit exception.
	Audit Exception Created By	Creator of an Audit Exception. This shows the SA user who created the exception for the selected audit. This is meaningful only when paired with an audit exception.
	Audit Exception Ticket Date	Ticket ID for the Audit Exception. This is the ticket associated with an Audit Exception entry. This is meaningful only when paired with an audit exception.
	Audit Rule Exception Exist Filter	Use this to filter query results based on the existence of an audit exception.
	Audit Exception Expiration	Use this to filter query results based on the expiration date of an audit exception. Note that all Exceptions that never expire will be filtered out.

Folder	Object	Description
	Date Filter	
	Audit Exception Expiring in N Days	Use this to filter query results based on the an audit exception expiring in N Days from today. Note that all Exceptions that never expire will be filtered out.
<b>Jobs Info for Audit Scan</b>		Folder that contains objects related to SA Audit job runs.
	Audit Job Status	Status of Audit job completion. This indicates the audit job completion status as applicable to a specific server, so is meaningful only when paired with a server and an audit.
	Audit Schedule Date	Audit Schedule Date. This object indicates the date the job was scheduled to run on. This is meaningful only when paired with a server and an audit.
	Audit Job Run Date	Date on which the job was run. This object indicates the date the audit job actually ran on. This is meaningful only when paired with a server and an audit.
	Audit Job Run By	User who scheduled the audit job. This is meaningful only when paired with a server and an audit.
	Audit Job Run Date Range Filter	User this filter to filter all records that have Audit Job Run Date values Between the two user date inputs (inclusive of the two end dates).
	Audit Job Run Date Filter	User this filter to filter all records that have Audit Job Run Date Equal To user input.
<b>Server Audit Measures</b>		Folder that contains objects related to rollup measures related to SA Audits.
	Total Audit Non-Compliant Rules	Number of non-compliant audit rules. This object indicates the aggregate number of audit rules that are not in the "Compliant" state for the given server across all audits. This is meaningful only when paired with a server. If you apply the audit or audit policy filter or reported together with audit or audit policy dimensions, the measure can be constrained to a specific audit or audit policy attached to that server.
	Total Audit Compliant Rules	Number of compliant audit rules. This object indicates the aggregate number of audit rules that are in the "Compliant" state for the given server across all audits. This is meaningful only when paired with a server. If you apply the audit or audit policy filter or reported together with audit or audit policy dimensions, the measure can be constrained to a specific audit or audit policy

Folder	Object	Description
		attached to that server.
	Number of Audit Rules	Total number of audit rules. This object indicates the aggregate number of audit rules that apply to the given server across all audits. This is meaningful only when paired with a server. If you apply the audit or audit policy filter or reported together with audit or audit policy dimensions, the measure can be constrained to a specific audit or audit policy attached to that server.
	Compliant Audit Rules Ratio	The ratio of compliant audit rules over the total number of audit rules that apply to the server. This object indicates the aggregate ratio of compliant audit rules that apply to the given server across all audits. This is meaningful only when paired with a server. If you apply the audit or audit policy filter or reported together with audit or audit policy dimensions, the measure can be constrained to a specific audit or audit policy attached to that server.
	Non-Compliant Audit Rules Ratio	The ratio of non-compliant audit rules over the total number of audit rules that apply to the server. This object indicates the aggregate ratio of non-compliant audit rules that apply to the given server across all audits. This is meaningful only when paired with a server. If you apply the audit or audit policy filter or reported together with audit or audit policy dimensions, the measure can be constrained to a specific audit or audit policy attached to that server.
<b>Server Patch Compliance (Windows Only)</b>		Folder that contains patch compliance policy items in patch policies attached to a server with a successful last scan.
<b>Patch Policy Patches</b>		Folder that contains objects related to patches in patch policies specific to Windows servers in Server Automation.
	Patch Name	This object indicates the name of the Patch in the patch policy. This object is meaningful only when paired with a patch policy. <b>Note:</b> Updated in universe version 1.9
	Patch Type	This object indicates the type of the patch in the Patch Policy, e.g. hot fix, service pack. This object is meaningful only when paired with a patch policy and a patch in that patch policy.
	Patch Description	This object indicates the complete description of the patch in the patch policy. This object is meaningful only when paired with a patch policy and a patch in that patch policy.
	Patch Size in KB	This object indicates the patch size in KB for the patch in the Patch Policy. This object is meaningful only when paired with a patch policy and a patch in that patch policy.

Folder	Object	Description
	Patch Compliance State	This object indicates the compliance state for the patch associated with the patch policy attached to a server. This object is meaningful only when paired with a patch policy, a patch in that patch policy and a server.
	Patch Bulletin	This object indicates the Microsoft patch bulletin number associated with a patch in the patch policy. This object is meaningful only when paired with a patch policy and a patch in that patch policy.
	Patch Severity	This object indicates the Microsoft-recommended severity of the Windows patch associated with the patch in the patch policy. This object is meaningful only when paired with a patch policy and a patch in that patch policy.
<b>Patch Exceptions</b>		Folder that contains objects related to exceptions for patches in Patch Policies for Windows servers in Server Automation.
	Patch Exception Reason	This object indicates the reason for a granted exception to a patch in a patch policy. This object is meaningful only when paired with a patch, patch policy and an attached server.
	Patch Exception Rule	This object indicates the rule to be applied on a granted exception to a Patch Policy. This object is meaningful only when paired with a patch policy and an attached server.
	Patch Exception Created Dated	This object indicates the date on which a granted exception to a patch was created. This object is meaningful only when paired with a patch in a patch policy attached to a server.
	Patch Exception Exist Filter	Use this to filter query results based on the existence of an Patch exception.
<b>Server Patch Policy Measures</b>		Folder that contains the patch policy compliance measures.
	Number of Compliant Patches	This object indicates the aggregate number of compliant patches from all patch policies that apply to this server. This object is meaningful only when paired with a server. This object may be optionally filtered on a patch policy to return the compliant patch count just in that patch policy.
	Number of Non-Compliant Patches	This object indicates the aggregate number of non-compliant patches from all patch policies that apply to this server. This object is meaningful only when paired with a server. This object may be optionally filtered on a patch policy to return the non-compliant patch count just in that patch policy.



Folder	Object	Description
	Number of patches	This object indicates the aggregate number of patches from all patch policies that apply to this server. This object is meaningful only when paired with a server. This object may be optionally filtered on a patch policy to return the patch count just in that patch policy.
	Number of Exceptions	This object indicates the aggregate number of exceptions on all patch policies that apply to this server. This object is meaningful only when paired with a server.
	Compliance Patch Ratio	This object indicates the aggregate ratio of compliant patches over all the patches in the patch policy attached to this server. This object is meaningful only when paired with a patch policy and a server.
	Non-Compliant Patch Ratio	This object indicates the aggregate ratio of non-compliant patches over all the patches in the patch policy attached to this server. This object is meaningful only when paired with a patch policy and a server.
<b>Server App Configuration Compliance</b>		Folder that contains all objects related to Application Configuration policies in Server Automation.
<b>App Config Policy</b>		Folder that contains Application Configuration Policy related-objects, when the policies are attached to one or more servers and have been scanned once against attached servers.
	App Config Policy Item	This object identifies a specific App Config policy item related to this Policy. This object is meaningful only when paired with an App Config policy.
	App Config Policy Item Compliance	This object indicates the compliant state of the specific App Config policy item related to this policy attached to a server. This object is meaningful only when paired with an App Config policy, a policy item, and a server.
<b>App Config Compliance Jobs</b>		Folder that contains objects related to App Config compliance job runs.
	App Config Job Status	This object indicates the job status of an App Config compliance job run. This object is meaningful only when paired with an App Config policy and a server.
	App Config Job Type	This object indicates the job type of an App Config compliance job run. This object is meaningful only when paired with an App Config policy and a server.
	App Config Job	This object indicates the date an App Config compliance job is scheduled to run on. This object is meaningful only when paired

Folder	Object	Description
	Schedule Date	with an App Config policy and a server.
	App Config Job Run Date	This object indicates the job type of an App Config compliance job run. This object is meaningful only when paired with an App Config policy and a server.
	App Config Job Run By	User who scheduled the app config job. This is meaningful only when paired with a server and an app config.
	App Config Job Run Date Range	User this filter to filter all records that have App Config Job Run Date values between the two user date inputs (inclusive of the two end dates).
	App Config Job Run Date Filter	User this filter to filter all records that have App Config Job Run Date Equal To user input.
<b>Server App Config Policy Measures</b>		Folder that contains all the rollup measures related to App Config Policies from a server-centric perspective when the policies are attached to one or more servers and have had a successful last scan.
	Number of Config Files	This object indicates the aggregate number of config files checked for the application defined in the app config policy. If the application has multiple available instances, this object represents the aggregate number of config files across all such instances. This object may be filtered on or reported together with a subset of App Config policies. This object is meaningful only when paired with a server.
	Number of Compliant Config Files	Number of Compliant Config Files. This object indicates the number of compliant config files among the total number of config files checked for the application defined in the app config policy. If the application has multiple available instances, this object is based on the aggregate number of config files across all such instances. This object may be filtered on or reported together with a subset of App Config policies. This object is meaningful only when paired with a server.
	Compliant Config File Ratio	This object indicates the ratio of compliant config files over the total number of config files checked for the application defined in the app config policy. If the application has multiple available instances, this ratio is computed based on the aggregate number of config files across all such instances. This object may be filtered on or reported together with a subset of App Config policies. This object is meaningful only when paired with a server and an App Config policy.
	Non-Compliant	This object indicates the number of non-compliant config files

Folder	Object	Description
	Config File Ratio	among the total number of config files checked for the application defined in the app config policy. If the application has multiple available instances, this object is based on the aggregate number of config files across all such instances. This object may be filtered on or reported together with a subset of App Config policies. This object is meaningful only when paired with a server.

## Server Automation Compliance Universe Policy Considerations

The following is a list of considerations when building reports on Server Automation (SA) Policies from the SA Compliance Universe:

- All policies in SA can be reported on at the top-level always, independent of the attached and/or compliance status of a policy with respect to a server or a device group.
- For software policies, the contained item level information can be reported if the policy is directly or indirectly attached to a server and was scanned once, independent of the compliance status of the policy.
- For AppConfig and Patch policies, the contained item level information within a policy can be reported only if the following is true:
  - Policy must be attached (patch policies may also be indirectly attached) to a server.
  - Last scan of the policy for a server has to be successful. If the scan was successful at some point and then subsequently failed, the universe still cannot report on the policy details.
- Audits and Audit policies in general can report the rule level detail always, with some additional considerations:
  - Audits have to be attached to a server and have had a scan.
  - Known caveat: "Unknown error" audit status in some cases may prevent reporting on the rule level information.

### Policy Rule Counts in Report Results

The reported rule count for Policy objects and Audits in the SA Compliance Universe may be 0 any time if one of the following conditions occurs:

- Software policy - if the policy was never scanned against the attached target(s)
- Patch policy & AppConfig Policy - the policy object has not successfully scanned against their attached target(s) in the last scan on the reporting day - in other words, Compliance State = Scan Failed for the last scan of the policy
- Audits and/or Audit Policy: refer to the previous section on when rule-level detail is available
- The policy or audit object truly has 0 rules

This applies to the following types of SA Compliance Universe objects:

- SA Software Policy
- SA Patch Policy

- SA AppConfig Policy
- SA Audit Policy
- SA Audit (which has audit rules as direct members)

## Network Automation General Universe

The Network Automation (NA) General Universe defines a typical set of NA objects and their attributes and allows you to report on them. For example, the NA General Universe defines network devices and all significant related information about them such as asset, port, and configuration details; related device groups, advanced attributes, compliance and diagnostic information; task, user, and job information, and so on.

Additionally, the NA Compliance Universe contains generic query filters and Cross Item Group objects so you can limit your compliance report results to specific device groups, job groups, and user groups from NA.

The following tables describe the contents of the NA Compliance universe:

- ["General" \(on page 60\)](#)
- ["NA Devices" \(on page 61\)](#)
- ["NA Compliance" \(on page 66\)](#)
- ["NA Diagnostics" \(on page 69\)](#)
- ["NA Tasks" \(on page 69\)](#)
- ["NA Events" \(on page 71\)](#)
- ["NA Users" \(on page 71\)](#)
- ["Cross Item Groups" \(on page 73\)](#)

The version of the objects in the NA General Universe is 1.16 unless otherwise noted in the description field for the object in the universe table.

### General

Object	Description
As of Date	The As Of Date displays the date the specific record was captured in the BSA Essentials database. You include this dimension if you want to display the date corresponding to each output row in the report. In any historical or trending report, including the associated date for each record is especially useful. (Note: The As of Date object can only be used as a Result Object and cannot be used as a filter.)
Single Date Filter	Use the Single Date Filter to specify a single date in history where you want to report on. Do not use this filter with the NA Jobs objects.
Date Range Filter	Use the Date Range Filter to specify the historical date range you want to report on. Do not use this filter with the NA Jobs objects. The Date Range Filter is most useful when you want to create trending reports. When using the Date Range Filter, it is recommended that you include the As Of Date element in the Result Objects panel.

## NA Devices

Folder	Object	Description
<b>NA Devices</b>		Folder that contains report objects related to NA devices.
<b>Asset Details</b>		Folder that contains the asset information objects related to managed devices.
	Host Name	This object indicates the Host Name of the device as configured on the device.
	Primary IP	This object indicates the primary IP address that uniquely identifies the selected device. This object thus is meaningful only when paired with a device.
	Device Vendor	This object indicates the vendor who manufactured the device. This object thus is meaningful only when paired with a device.
	Device Model	This object indicates the manufacturer's model number for the device. This object thus is meaningful only when paired with a device.
	Device Name	Name of a device as displayed in NA.
	Driver Name	This object indicates the NA driver assigned to the device and thus is meaningful only when paired with a device.
	Access Methods	This object indicates the means of accessing a managed device. This object thus is meaningful only when paired with a device.
	Serial Number	This object indicates the manufacturer's serial number for the device. This object thus is meaningful only when paired with a device.
	Asset Tag	This object indicates the company's asset tag number for the device. This object thus is meaningful only when paired with a device.
	Device Software Version	This object indicates the version of operating system software running on the device. This object thus is meaningful only when paired with a device.
	Device Descriptions	This object indicates the user defined description of the device. This object thus is meaningful only when paired with a device.
	Device Comments	Descriptive comments associated with the NA device.

Folder	Object	Description
	System Memory (MB)	This object indicates the total amount of RAM (MB) on the device. This object thus is meaningful only when paired with a device.
<b>Port Details</b>		Folder that contains the objects related to port-specific attributes.
	Port Name	The unique device interface port name as defined by the device vendor such as Ethernet0 or Serial1. This object thus is meaningful only when paired with a port.
	Port IP	This object indicates the IP address of a port. When paired with a device, this object reports the Port IP address as configured on the device.
	Port Type	The network interface type of the port such as Ethernet, FastEthernet, and so on. This object thus is meaningful only when paired with a port.
	Port Status	This object indicates the configured port status of a network device interfaces. This object thus is meaningful only when paired with a port.
	Running Port State	This object indicates the line state of port (for example, if there is a link on the port). This object thus is meaningful only when paired with a port.
	Free Ports	This object indicates the total number of ports NOT configured up for a device. This object thus is meaningful only when paired with a device.
	Percentage Free Ports	This object indicates the percentage of ports NOT configured up for a device. This object thus is meaningful only when paired with a device.
	Total Ports	This object indicates the total number of ports on the device. This object thus is meaningful only when paired with a device.
	Ports in Use	This object indicates the total number of ports configured up for a device. This object thus is meaningful only when paired with a device.
	Percentage of Ports in Use	This object indicates the percentage of ports configured up for a device. This object thus is meaningful only when paired with a device.
	Port Description	This object indicates the port description as configured on the device. This object is meaningful only when paired with a port.

Folder	Object	Description
	MAC Address	This object indicates the MAC address found in MAC table of a device. When paired with a device, this shows the MAC addresses associated with that device.
	Configured Duplex	This object indicates Duplex configured within the interface configuration (for example, full, half, auto). This object is meaningful only when paired with a port.
	Configured Speed	This object indicates the speed in Mbps configured within the interface configuration (for example, 10, 100, 1000, 10000). This object is meaningful only when paired with a port.
	Negotiated Duplex	This object indicates Duplex negotiated by device and remote device via autoconfiguration of duplex within interface configuration. This object is meaningful only when paired with a port.
	Negotiated Speed	This object indicates the speed negotiated by device and remote device via autoconfiguration of speed within interface configuration. This object is meaningful only when paired with a port.
	VLAN Name	When paired with a device, this object reports the VLAN name as configured on the device. When paired with a port, this object indicates the VLAN name for the VLAN to which this port is a part.
	VLAN Description	This object reports the VLAN description as configured on the device. This object is meaningful only when paired with a device. When paired with a port, this object indicates the VLAN description for the VLAN to which this port is a part.
	Configuration Details	This Folder includes all configuration-related objects for managed devices.
	Configuration Text	This is the current configuration for each device. This field is typically used to search for devices that contain or do not contain a certain commands.
	Configuration Template Name	This object indicates the name of a configuration template. A configuration template may optionally be paired with configuration template fields such as vendor or driver to report on the fields of a template.
	ACL ID	The ACL ID is an number based on the device ACL list, while the ACL Handle is a descriptive name or value assigned by the user. By default, the ACL ID and ACL Handle are the same until the user defines the ACL Handle. This object thus is meaningful only when paired with a device.
	ACL Handle	This object indicates the descriptive name or value assigned by

Folder	Object	Description
		the user. By default, the ACL ID and ACL Handle are the same until the user defines the ACL Handle. This object thus is meaningful only when paired with a device.
	ACL Type	This object indicates the Access Control List Type defined by the device vendor. This object thus makes sense only when paired with a device or a driver.
	ACL Application	This object indicates the configuration text associated with how a specific ACL is being applied. ACLs are commonly applied to interfaces and other features in NA. This object can thus be paired with a number of NA Universe objects that an ACL Application may relate to in a Network Automation deployment.
	Service Type	This object indicates the type of service provided by a Device which typically indicates its purpose. An example is "VoIP". Note that this field is not automatically populated for each device. This object thus is meaningful only when paired with a device.
	Custom Service Type	This object reports on the Custom Service Type which is a free form text field that can contain information about a Device. New Custom Service Types for the NA deployment may be defined by the Admin interface.
	Partition	This object indicates the partition name that the device, interface, command scripts, policies, etc is associated with. This object can thus be paired with a number of NA Universe objects that a Partition may relate to in a Network Automation deployment.
	Device Group	Allows you to filter the report results by the Device Group.
	Partition	Allows you to filter the report results by the Partition.
<b>Module Details</b>		Folder that contains the report objects related to Module attributes.
	Module Slot	This object indicates the slot number of the module for the real or virtual location as identified by the device vendor. This object is thus meaningful only when paired with a module.
	Module Description	This object indicates the description of the module as identified by the device vendor. This object is thus meaningful only when paired with a module.
	Module Model	This object indicates the model name of the module as identified by the device vendor. This object is thus meaningful only when paired with a module.
	Module Serial	The object indicates the module's serial number. This object is meaningful when paired with a device.



Folder	Object	Description
	Module Memory	This object indicates the total amount of RAM (MB) on the module. This object is thus meaningful only when paired with a module.
	Module Firmware Version	This object indicates the version number of the firmware loaded on the module. This object is thus meaningful only when paired with a module.
	Module Hardware Revision	This object indicates the module's hardware revision designation by the manufacturer. This object is thus meaningful only when paired with a module.
	Module Comments	This object reports the free form text that can contain any user-input data about each module. This object is thus meaningful only when paired with a module.
<b>Operational Details</b>		Folder that contains objects related to the operational aspects of the managed devices.
	Device Management Status	This object indicates the current management status of the device such as active, inactive or pre-production. This object thus is meaningful when paired with a device.
	Password Rule	This object indicates the password rule name for the device which was set as the preferred password rule to try first. This object thus is meaningful when paired with a device.
	Compliance State	This measure object aggregates the compliance state for this device always across all the policies attached the device. Policy level compliance is rolled up across all the rules defined for the policy. The aggregate value of the object evaluates to "Y" or "N". This object is meaningful only when paired with a device.
	Different Startup/Running	This object reports "Y" when the startup configuration of a device does not match its running configuration, or reports "N" if the two do match. This object thus is meaningful when paired with a device.
	Changed Time	This object indicates the date and time the device's configuration was last changed. This object thus is meaningful when paired with a device.
	Changed By	This object indicates the login name of the person who changed the configuration of a device. This object thus is meaningful when paired with a device.

Folder	Object	Description
	Different Startup Running Config	Allows you to filter the report results by whether or not there is a difference between the device's startup and running configuration.
	Device Status	Allows you to filter by the Device Status. Device Status can be inactive, active or pre-production.
<b>Device Group</b>		Folder that contains the objects related to NA Device Group attributes.
	Parent Group Item ID	This object indicates the NA Item ID of the parent device group of the selected device or device group. This is meaningful only when paired with a device or device group.
	Device Group Name	This object indicates the name of the parent device group of the selected device or device group. This is meaningful only when paired with a device or device group.
	Description	This object indicates the description of the parent device group of the selected device or device group. This is meaningful only when paired with a device or device group.
<b>Advanced Attributes</b>		Folder that contains NA device group attributes.
	NA Device ID	This object indicates the unique ID within NA for the managed device. This object thus is meaningful when paired with a device.

## NA Compliance

Folder	Object	Description
	NA Compliance	Folder containing all compliance related objects for NA.
	Device Compliance Summary	This measure object aggregates the compliance state for this device always across all the policies attached the device. Policy level compliance is rolled up across all the rules defined for the policy. The aggregate value of the object evaluates to "Y" or "N".
<b>Policy</b>		Folder that contains objects related to NA configuration policies.
	Policy Name	This object indicates the name of a policy.
	Policy Description	This object indicates the description of a policy and thus is meaningful only when paired with a policy.
	Policy Tag	This object indicates the tag name a policy is grouped under. This object is meaningful only when paired with a policy.
	Policy	Date on which the policy was last modified.

Folder	Object	Description
	Modified Date	
	Policy Is Active	Status of the policy. This object indicates the current status of a policy - either active or inactive. This object is meaningful only when paired with a policy. (Currently reports Y or N, should report "Active" or "Inactive").
	CVE	Common Vulnerabilities and Exposures name for a vulnerability. This object reports the CVE out of a list of standardized names for vulnerabilities and other information on security exposures. This field is automatically populated when the policy is from the HP Security and Compliance.
	Disclosure Date	Disclosure date for a vulnerability. This object indicates the first date when a vulnerability was first flagged. This field is automatically populated when the policy is from the HP Security and Compliance Service. This object is meaningful only when paired with a policy.
	Solution	Solution text for a policy. This object indicates the first 4000 characters of the detailed solution text, if any, for a policy. This field is automatically populated when the policy is from the HP Security and Compliance Service. This object is meaningful only when paired with a policy.
	Vendor Advisory URL	Vendor Advisory for the vulnerability. This object indicates the Vendor Advisory external reference URL for advisory information on a vulnerability. This field is automatically populated when the policy is from the HP Security and Compliance Service. This object is meaningful only when paired with a policy.
	Vendor Solution URL	Vendor Solution for the vulnerability. This object indicates the Vendor Solution external reference URL where more information from the device vendor on possible solutions to the vulnerability may be found. This field is automatically populated when the policy is from the HP Security and Compliance Service. This object is meaningful only when paired with a policy.
	Partition	Name of the partition. This object indicates the name of the partition that a policy belongs to. Consequently, this object is meaningful only when paired with a policy.
<b>Rule</b>		Folder that contains objects related to NA configuration policies.
	Rule Name	Name of the rule. This object indicates the name of the rule in the policy, and thus is meaningful only when paired with a policy.

Folder	Object	Description
	Rule Importance	Importance of this rule. This object indicates the importance level of a rule as one of Informational, Low, Medium, High or Critical. This object is meaningful only when paired with a policy and a rule.
	Rule Type	Type of a rule. This object indicates if a rule is a configuration, or a diagnostic or a software rule. This object is meaningful only when paired with a policy and a rule.
	Rule Description	Description of a rule. This object indicates the description of a rule in a policy and thus is meaningful only when paired with a policy and a rule.
	Rule Compliance State	Compliance state for a rule. This object indicates the state of compliance of a device with respect to a specific rule in a policy. This object is meaningful only when paired with a device, a policy and a rule.
<b>Software Levels</b>		Folder that contains the objects related to software levels.
	Software Level Name	Name of the software level. This object indicates the name of the software level.
	Software Level Disclosure Date	Disclosure date for vulnerability for this software level. This object indicates the disclosure date for the security vulnerability information attached to this software level if this software level is of "Security Risk" compliance level. This object is meaningful only when paired with a software level.
	Software Level Active	Status of this software level. This object indicates the current active or inactive status of this software level. This object is meaningful only when paired with a software level. (This object should report "Active" or "Inactive" in stead of the current "Y" or "N".)
	Software Level Configuration Pattern	Configuration pattern for this software level. This object indicates the configuration pattern used to match against the current device configuration to determine if this software level compliance applies to a given device. This object is meaningful only when paired with a software level.
	Software Level Driver Name	Device Driver name used with this level. This object indicates the device driver name used to access the device as part of the matching criteria for this software level. This object is meaningful only when paired with a software level.
	Software Level Software Version	Version of software this level is matched against. This object indicates the version of the software running on the device as part of the matching criteria for this software level. This object is meaningful only when paired with a software level.

Folder	Object	Description
	Software Level Compliance Level Name	Compliance rating of the software level. This object indicates the compliance rating attached to this software level, such as "Security Risk", "Gold" etc. This object is meaningful only when paired with a software level.
<b>Policy Exceptions</b>		Folder that contains the objects related to policy exceptions.
	Policy Excluded Device	Device excluded from this policy. This object indicates the device that is exempted from this policy applicability. This object is meaningful only when paired with a policy.
<b>Rule Exceptions</b>		Folder that contains the objects related to rule exceptions.
	Rule Exception Expiration Date	Device excluded from this rule. This object indicates the device that is exempted from this rule applicability. This object is meaningful only when paired with a policy and a rule.
	Rules Excluded Device	Expiration Date for an exception. This object indicates the expiration for a specific exception granted to a device from this rule applicability. This object is meaningful only when paired with a policy, a rule and a device that is exempted from the rule.

## NA Diagnostics

Object	Description
NA Diagnostics	Folder containing objects related to device diagnostic information.
Diagnostic Create Date	This object indicates the date a diagnostic was created on. This object is meaningful when paired with a diagnostic.
Diagnostic Modified Date	This object indicates the date and time the diagnostic was last modified. This object thus is meaningful when paired with a diagnostic.
Diagnostic Text	This object indicates the logged text of the diagnostic event. This object thus is meaningful when paired with a device.
Diagnostic Type	This object indicates the type of the Diagnostic, such as Basic IP, Memory Troubleshooting, NA OSPF Neighbors, and so on.

## NA Tasks

Folder	Object	Description
<b>NA Task</b>		Folder that contains the objects related to NA task attributes.

Folder	Object	Description
	Task Name	This object reports the task name. This object thus is meaningful when paired with a task.
	Scheduled By	This object indicates the login name of the person who scheduled the task (or the last user to modify the task). This object thus is meaningful when paired with a task.
	Schedule Date	This object indicates the date and time when NA is scheduled to run the task. This object thus is meaningful when paired with a task.
	Task Status	This object indicates the status of the task such as Paused, Pending etc. This object thus is meaningful when paired with a task.
	Task Comments	This object indicates the comments entered by the user for the task. This object thus is meaningful when paired with a task.
	Task Result	This object indicates the result of the task that was run. This object thus is meaningful when paired with a task.
	Approval Date	This object indicates the date the task was created. This object thus is meaningful when paired with a task.
	Approval Status Name	This object indicates the approval status for the task such as Waiting Approval, Not Approved etc. This object thus is meaningful when paired with a task.
	Task Run Date	The date on which the task was run.
	Tasks By Run Date	When this filter is added, a date filter from the general class used in the query is applied to the tasks' run dates.
	Tasks By Schedule Date	When this filter is added, a date filter from the general class used in the query is applied to the tasks' schedule dates.
	Task Schedule Date Between	This filter prompts the user for a date range, which is used to filter tasks by

Folder	Object	Description
		their schedule dates.
	Task Schedule Date	This filter will prompt the user for a single date which will be used to filter tasks by their schedule date.
	Task Run Date Between	This filter will prompt the user for a date range which will be used to filter tasks by their run dates.
	Task Run Date	This filter will prompt the user for a single date, which will be used to filter tasks by their run dates.

## NA Events

Folder	Object	Description
<b>NA Events</b>		Folder that contains the objects related to events in NA.
	Event Date	This object indicates the date the event occurred on. This object thus is meaningful when paired with an event.
	Event Summary	This object shows the first 4000 characters of the description of the event. This object thus is meaningful when paired with an event.
	Event Added By	This object indicates the login name of the person who created the event. This object thus is meaningful when paired with an event.
	Event Description	This object shows the first 4000 characters of the description of the event. This object thus is meaningful when paired with an event.

## NA Users

Folder	Object	Description
<b>NA Users</b>		Folder that contains the objects related to NA Users.
<b>User Security</b>		Folder that contains the objects related to user security attributes.
	AAA User Name	This object indicates the AAA username that NA uses to log into devices and NA for this user. This object is thus meaningful when paired with an NA user.
	Permission	This object indicates the Permission that the user have due to the user group memberships and roles granted to the user. This object is thus meaningful when paired with an NA user.
	User Group	This object indicates the NA User Group that this user belongs to. This object is thus meaningful when paired with an NA user.

Folder	Object	Description
<b>User Information</b>		Folder that contains objects related to user account attributes.
	First Name	This object indicates the First Name associated with the user account. This object is thus meaningful when paired with an NA user.
	Last Name	This object indicates the Last Name associated with the user account. This object is thus meaningful when paired with an NA user.
	User Name	This object indicates the user name of an NA user account.
	Email Address	This object indicates the email address associated with the user account. This object is thus meaningful when paired with an NA user.
	User Comments	This object indicates the comments attached to the user account. This object is thus meaningful when paired with an NA user.



## Cross Item Groups

Folder	Object	Description
<b>Cross Item Groups</b>		Folder that contains all Cross Item Groups. Cross Item Groups are groups that contain Server Automation and Network Automation data. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
<b>Cross Job Group</b>		Folder that contains all Cross Job Groups. Cross Job Groups contain jobs and/or tasks from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Job Group Name	The name of the Cross Job Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Job Group Description	The description of the Cross Job Group. This object is configured in the Administration tab of BSA Essentials.
<b>ROI Attributes</b>		Folder that contains information for reporting Return on Investment associated with a Cross-Item Group.
	Cross Job Group ROI Label	The Return on Investment (ROI) label assigned to this Job Group; for example: hours, dollars or euros. This object is configured in the Administration tab of BSA Essentials.
	Cross Job Group ROI Value	The Return on Investment (ROI) value assigned to this Job Group. This object is configured in the Administration tab of BSA Essentials.
	Sum of Cross Job Group ROI Value	Numerical sum of ROI values for all tasks in one Cross Job Group instance. This object is configured in the Administration tab of BSA Essentials.
<b>Cross Policy Group</b>		Folder that contains all Cross Policy Groups. Cross Policy Groups contain policies from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Policy Group Name	The name of the Cross Policy Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Policy	The description of the Cross Policy Group. This object is configured in the Administration tab of BSA Essentials.

Folder	Object	Description
	Group Description	
<b>Cross Device Group</b>		Folder that contains all Cross Device Groups. Cross Device Groups contain devices and device groups from Server Automation and Network Automation. Use these objects as filters or as report output when you want to create cross-BSA reports. These objects are configured in the Administration tab of BSA Essentials.
	Cross Device Group Name	The name of the Cross Device Group. This object is configured in the Administration tab of BSA Essentials.
	Cross Device Group Description	The description of the Cross Device Group. This object is configured in the Administration tab of BSA Essentials.

