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Abstract

This book contains information and procedures relevant to Red Hat Enterprise Virtualization Reports Portal and Data Warehouse.
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CHAPTER 1. INSTALLING AND CONFIGURING DATA WAREHOUSE AND REPORTS

1.1. OVERVIEW OF CONFIGURING DATA WAREHOUSE AND REPORTS

The Red Hat Enterprise Virtualization Manager includes a comprehensive management history database, which can be utilized by any application to extract a range of information at the data center, cluster, and host levels. Installing Data Warehouse creates the ovirt_engine_history database, to which the Manager is configured to log information for reporting purposes. Red Hat Enterprise Virtualization Manager Reports functionality is also available as an optional component. Reports provides a customized implementation of JasperServer and JasperReports, an open source reporting tool capable of being embedded in Java-based applications. It produces reports that can be built and accessed via a web user interface, and then rendered to screen, printed, or exported to a variety of formats including PDF, Excel, CSV, Word, RTF, Flash, ODT and ODS. The Data Warehouse and Reports components are optional, and must be installed and configured in addition to the Manager setup.

Before proceeding with Data Warehouse and Reports installation you must first have installed and configured the Red Hat Enterprise Virtualization Manager. The Reports functionality depends on the presence of the Data Warehouse; Data Warehouse must be installed and configured before Reports.

It is recommended that you set the system time zone for all machines in your Data Warehouse/Reports deployment to UTC. This ensures that data collection is not interrupted by variations in your local time zone: for example, a change from summer time to winter time.

To calculate an estimate of the space and resources the ovirt_engine_history database will use, use the RHEV Manager History Database Size Calculator tool. The estimate is based on the number of entities and the length of time you have chosen to retain the history records.

1.2. DATA WAREHOUSE AND REPORTS CONFIGURATION NOTES

Behavior

The following behavior is expected in engine-setup:

Install the Data Warehouse package and the Reports package, run engine-setup, and answer No to configuring Data Warehouse and Reports:

Configure Data Warehouse on this host (Yes, No) [Yes]: No
Configure Reports on this host (Yes, No) [Yes]: No

Run engine-setup again; setup no longer presents the option to configure those services.

Workaround

To force engine-setup to present both options again, run engine-setup with the following options appended:
# engine-setup --otopi-environment='OVESETUP_REPORTS_CORE/enable=none:None
OVESETUP_DWH_CORE/enable=none:None'

To present only the Data Warehouse option, run:

# engine-setup --otopi-environment='OVESETUP_DWH_CORE/enable=none:None'

To present only the Reports option, run:

# engine-setup --otopi-environment='OVESETUP_REPORTS_CORE/enable=none:None'

**NOTE**

To configure only the currently installed Data Warehouse and Reports packages, and prevent setup from applying package updates found in enabled repositories, add the **--offline** option.

**1.3. DATA WAREHOUSE AND REPORTS INSTALLATION OPTIONS**

Data Warehouse and Reports installation requires between one and three machines, and can be configured in one of the following ways:

1. **Install and configure both Data Warehouse and Reports on the machine on which the Manager is installed.**

   This configuration hosts the Data Warehouse and Reports services on your Manager machine. This requires only a single registered machine, and is the simplest to configure; however, it also requires that the services share CPU and memory, and increases the demand on the host machine. Users who require access to the Data Warehouse service or the Reports service will require access to the Manager machine itself.

2. **Install and configure both Data Warehouse and Reports on one separate machine.**

   This configuration hosts Data Warehouse and Reports on a single, separate machine. This requires two registered machines; however, it reduces the load on the Manager machine, and avoids potential CPU and memory-sharing conflicts on that machine. Administrators can also allow user access to the Data Warehouse-Reports machine, without the need to grant access to the Manager machine. Note that the Data Warehouse and Reports services will still compete for resources on their single host.

3. **Install and configure Data Warehouse on a separate machine, then install and configure Reports on a separate machine.**

   This configuration separates each service onto its own dedicated host. This requires three registered machines; however, it reduces the load on each individual machine, and allows each service to avoid potential conflicts caused by sharing CPU and memory with other processes. Administrators can also allow user access to one particular machine, without the need to grant access to either of the two other machines.
4. **Install and configure Data Warehouse on the Manager machine, then install and configure Reports on a separate machine.**

   This configuration hosts Data Warehouse on the Manager machine, and Reports on a separate host. This requires two registered machines; however, it reduces the load on the Manager machine, and avoids some memory-sharing conflicts. Administrators can allow user access to the Reports machine, without the need to grant access to the Manager machine.

5. **Install and configure Data Warehouse on a separate machine, then install and configure Reports on the Manager machine.**

   This configuration hosts Data Warehouse on a separate machine, and Reports on the Manager machine. This requires two registered machines; however, it reduces the load on the Manager machine, and avoids some memory-sharing conflicts. Administrators can allow user access to the Data Warehouse machine, without the need to grant access to the Manager machine.

If you choose to host the Data Warehouse database on a machine that is separate from the machine on which the Data Warehouse service is installed, you will require an additional machine for that purpose. The same is true if you choose to host the Reports database remotely.

**NOTE**

Detailed user, administration, and installation guides for JasperReports are available in `/usr/share/jasperreports-server-pro/docs/`

### 1.3.1. Installing and Configuring Data Warehouse and Reports on the Red Hat Enterprise Virtualization Manager

**Overview**

Install and configure Data Warehouse and Red Hat Enterprise Virtualization Manager Reports on the same machine as the Red Hat Enterprise Virtualization Manager.

**Prerequisites**

Ensure that you have completed the following prerequisites:

1. You must have installed and configured the Manager on this machine.

2. If you choose to use a remote Data Warehouse database or Reports database, you must set up each database before installing the Data Warehouse and Reports services. You must have the following information about each database host:
   - The fully qualified domain name of the host
   - The port through which the database can be reached (5432 by default)
   - The database name
   - The database user
   - The database password

3. If you are using the self-hosted engine, you must move it to maintenance mode:
Procedure 1.1. Installing and Configuring Data Warehouse and Reports on the Red Hat Enterprise Virtualization Manager

1. Install the `rhevm-dwh` package and the `rhevm-reports` package on the system where the Red Hat Enterprise Virtualization Manager is installed:

```bash
# yum install rhevm-dwh rhevm-reports
```

2. Run the `engine-setup` command to begin configuration of Data Warehouse and Reports on the machine:

```bash
# engine-setup
```

3. Follow the prompts to configure Data Warehouse and Reports:

Configure Data Warehouse on this host (Yes, No) [Yes]:
Configure Reports on this host (Yes, No) [Yes]:

4. Press **Enter** to automatically configure the firewall, or type **No** and press **Enter** to maintain existing settings:

Setup can automatically configure the firewall on this system. Note: automatic configuration of the firewall may overwrite current settings.
Do you want Setup to configure the firewall? (Yes, No) [Yes]:

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press **Enter**. This applies even in cases where only one option is listed.

5. Answer the following questions about the Data Warehouse database and the Reports database:

Where is the DWH database located? (Local, Remote) [Local]:
Setup can configure the local postgresql server automatically for the DWH to run. This may conflict with existing applications.
Would you like Setup to automatically configure postgresql and create DWH database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:
Where is the Reports database located? (Local, Remote) [Local]:
Setup can configure the local postgresql server automatically for the Reports to run. This may conflict with existing applications.
Would you like Setup to automatically configure postgresql and create Reports database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

Press **Enter** to choose the highlighted defaults, or type your alternative preference and then press **Enter**. If you select **Remote**, you are prompted to provide details about each remote database host.
6. Set a password for the Reports administrative users (admin and superuser). Note that the reports system maintains its own set of credentials that are separate to those used for the Manager:

- Reports power users password:

You are prompted to enter the password a second time to confirm it.

7. For the configuration to take effect, the ovirt-engine service must be restarted. The engine-setup command prompts you:

- During execution engine service will be stopped (OK, Cancel) [OK]:

Press Enter to proceed. The ovirt-engine service restarts automatically later in the command.

8. Confirm your installation settings:

- Please confirm installation settings (OK, Cancel) [OK]:

Next Steps

Access the Reports Portal at http://demo.redhat.com/ovirt-engine-reports, replacing demo.redhat.com with the fully qualified domain name of the Manager. If during the Manager installation you selected a non-default HTTP port then append :port to the URL, replacing :port with the port that you chose.

Log in using the user name admin and the password you set during reports installation. Note that the first time you log in to Red Hat Enterprise Virtualization Manager Reports, a number of web pages are generated and, as a result, your initial attempt to log in may take some time to complete.

1.3.2. Installing and Configuring Data Warehouse and Reports Together on a Separate Machine

Overview

Install and configure Data Warehouse and Red Hat Enterprise Virtualization Manager Reports together on a separate host from that on which the Red Hat Enterprise Virtualization Manager is installed. Hosting the Data Warehouse service and the Reports service on a separate machine helps to reduce the load on the Manager machine. Note that hosting Data Warehouse and Reports on the same machine means that these processes will share CPU and memory.

Prerequisites

Ensure that you have completed the following prerequisites:

1. You must have installed and configured the Manager on a separate machine.

2. To set up the Data Warehouse and Reports machine, you must have the following:

- A virtual or physical machine with Red Hat Enterprise Linux 6.6 or later versions of Red Hat Enterprise Linux 6 installed.
- A subscription to the **Red Hat Enterprise Linux Server** and **Red Hat Enterprise Virtualization** subscription pools.

- The password from the Manager's `/etc/ovirt-engine/engine.conf.d/10-setup-database.conf` file.

- Allowed access from the Data Warehouse-Reports machine to the Manager database machine's TCP port 5432.

3. If you choose to use a remote Data Warehouse database or Reports database, you must set up each database before installing the Data Warehouse and Reports services. You must have the following information about each database host:

- The fully qualified domain name of the host

- The port through which the database can be reached (5432 by default)

- The database name

- The database user

- The database password

### Procedure 1.2. Installing and Configuring Data Warehouse and Reports Together on a Separate Machine

1. Register your system with the Content Delivery Network, entering your Customer Portal user name and password when prompted:

   ```bash
   # subscription-manager register
   ```

2. Find the **Red Hat Enterprise Linux Server** and **Red Hat Enterprise Virtualization** subscription pools and note down the pool IDs.

   ```bash
   # subscription-manager list --available
   ```

3. Use the pool IDs located in the previous step to attach the entitlements to the system:

   ```bash
   # subscription-manager attach --pool=pool_id
   ```

4. Disable all existing repositories:

   ```bash
   # subscription-manager repos --disable=* 
   ```

5. Enable the required repositories:

   ```bash
   # subscription-manager repos --enable=rhel-6-server-rpms
   # subscription-manager repos --enable=rhel-6-server-supplementary-rpms
   # subscription-manager repos --enable=rhel-6-server-rhevm-3.6-rpms
   # subscription-manager repos --enable=jb-eap-6-for-rhel-6-server-rpms
   ```
6. Ensure that all packages currently installed are up to date:

   # yum update

7. Install the rhevm-dwh-setup and rhevm-reports-setup packages:

   # yum install rhevm-dwh-setup rhevm-reports-setup

8. Run the `engine-setup` command to begin configuration of Data Warehouse and Reports on the machine:

   # engine-setup

9. Follow the prompts to configure Data Warehouse and Reports:

   Configure Data Warehouse on this host (Yes, No) [Yes]:
   Configure Reports on this host (Yes, No) [Yes]:

10. Press **Enter** to automatically configure the firewall, or type **No** and press **Enter** to maintain existing settings:

    Setup can automatically configure the firewall on this system. Note: automatic configuration of the firewall may overwrite current settings.
    Do you want Setup to configure the firewall? (Yes, No) [Yes]:

    If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press **Enter**. This applies even in cases where only one option is listed.

11. Press **Enter** to accept the automatically detected hostname, or enter an alternative hostname and press **Enter**:

    Host fully qualified DNS name of this server [autodetected hostname]:

12. Enter the fully qualified domain name of the Manager machine, and then press **Enter**:

    Host fully qualified DNS name of the engine server []:

13. Answer the following questions about the Data Warehouse database and the Reports database:

    Where is the DWH database located? (Local, Remote) [Local]:
    Setup can configure the local postgresql server automatically for the DWH to run. This may conflict with existing applications.
    Would you like Setup to automatically configure postgresql and create DWH database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:
    Where is the Reports database located? (Local, Remote) [Local]:
Setup can configure the local postgresql server automatically for the Reports to run. This may conflict with existing applications. Would you like Setup to automatically configure postgresql and create Reports database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

Press Enter to choose the highlighted defaults, or type your alternative preference and then press Enter. If you select Remote, you are prompted to provide details about each remote database host.

14. Enter the fully qualified domain name and password for the Manager database machine. Press Enter to accept the default values in each other field:

   Engine database host []: engine-db-fqdn
   Engine database port [5432]:
   Engine database secured connection (Yes, No) [No]:
   Engine database name [engine]:
   Engine database user [engine]:
   Engine database password: password

15. Press Enter to allow setup to sign the Reports certificate and Apache certificate on the Manager via SSH:

   Setup will need to do some actions on the remote engine server. Either automatically, using ssh as root to access it, or you will be prompted to manually perform each such action. Please choose one of the following:
   1 - Access remote engine server using ssh as root
   2 - Perform each action manually, use files to copy content around
   (1, 2) [1]:

16. Press Enter to accept the default SSH port, or enter an alternative port number and then press Enter:

   ssh port on remote engine server [22]:

17. Enter the root password for the Manager machine:

   root password on remote engine server manager-fqdn.com:

18. Press Enter to allow automatic configuration of SSL on Apache:

   Setup can configure apache to use SSL using a certificate issued from the internal CA. Do you wish Setup to configure that, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

19. Set a password for the Reports administrative users (admin and superuser). Note that the reports system maintains its own set of credentials that are separate to those used for the Manager:

   Reports power users password:
You are prompted to enter the password a second time to confirm it.

20. Confirm your installation settings:

Please confirm installation settings (OK, Cancel) [OK]:

Next Steps
Access the Reports Portal at http://demo.redhat.com/ovirt-engine-reports, replacing demo.redhat.com with the fully qualified domain name of the Manager. If during the Manager installation you selected a non-default HTTP port then append :port to the URL, replacing :port with the port that you chose.

Log in using the user name admin and the password you set during reports installation. Note that the first time you log in to Red Hat Enterprise Virtualization Manager Reports, a number of web pages are generated and, as a result, your initial attempt to log in may take some time to complete.

1.3.3. Installing and Configuring Data Warehouse and Reports on Separate Machines

Overview
Install and configure Data Warehouse on a separate host from that on which the Red Hat Enterprise Virtualization Manager is installed, then install and configure Red Hat Enterprise Virtualization Manager Reports on a third machine. Hosting the Data Warehouse and Reports services on separate machines helps to reduce the load on the Manager machine. Separating Data Warehouse and Reports onto individual machines further reduces the demand each service places on its host machine, and avoids any conflicts caused by sharing CPU and memory with other processes.

Installing this scenario involves two key steps:

1. Install and configure Data Warehouse on a separate machine.

2. Install and configure Reports on a separate machine.

Prerequisites
Ensure that you have completed the following prerequisites:

1. You must have installed and configured the Manager on a separate machine.

2. To set up the Data Warehouse machine, you must have the following:
   - A virtual or physical machine with Red Hat Enterprise Linux 6.6 or later versions of Red Hat Enterprise Linux 6 installed.
   - A subscription to the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization subscription pools.
   - The password from the Manager's /etc/ovirt-engine/engine.conf.d/10-setup-database.conf file.
   - Allowed access from the Data Warehouse machine to the Manager database machine's TCP port 5432.

3. To set up the Reports machine, you must have the following:
- A virtual or physical machine with Red Hat Enterprise Linux 6.6 or later versions of Red Hat Enterprise Linux 6 installed.

- A subscription to the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization subscription pools.


- Allowed access from the Reports machine to the Manager database machine's TCP port 5432.

4. If you choose to use a remote Data Warehouse database or Reports database, you must set up each database before installing the Data Warehouse and Reports services. You must have the following information about each database host:

- The fully qualified domain name of the host
- The port through which the database can be reached (5432 by default)
- The database name
- The database user
- The database password

**Procedure 1.3. Step 1: Installing and Configuring Data Warehouse on a Separate Machine**

1. Register your system with the Content Delivery Network, entering your Customer Portal user name and password when prompted:

```bash
# subscription-manager register
```

2. Find the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization subscription pools and note down the pool IDs.

```bash
# subscription-manager list --available
```

3. Use the pool IDs located in the previous step to attach the entitlements to the system:

```bash
# subscription-manager attach --pool=pool_id
```

4. Disable all existing repositories:

```bash
# subscription-manager repos --disable=* 
```

5. Enable the required repositories:

```bash
# subscription-manager repos --enable=rhel-6-server-rpms 
# subscription-manager repos --enable=rhel-6-server-supplementary-rpms
```
6. Ensure that all packages currently installed are up to date:

```
# yum update
```

7. Install the rhevm-dwh-setup package:

```
# yum install rhevm-dwh-setup
```

8. Run the `engine-setup` command to begin configuration of Data Warehouse on the machine:

```
# engine-setup
```

9. Press Enter to configure Data Warehouse:

```
Configure Data Warehouse on this host (Yes, No) [Yes]:
```

10. Press Enter to automatically configure the firewall, or type No and press Enter to maintain existing settings:

```
Setup can automatically configure the firewall on this system.
Note: automatic configuration of the firewall may overwrite current settings.
Do you want Setup to configure the firewall? (Yes, No) [Yes]:
```

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press Enter. This applies even in cases where only one option is listed.

11. Press Enter to accept the automatically detected hostname, or enter an alternative hostname and press Enter:

```
Host fully qualified DNS name of this server [autodetected host name]:
```

12. Answer the following questions about the Data Warehouse database:

```
Where is the DWH database located? (Local, Remote) [Local]:
Setup can configure the local postgresql server automatically for the DWH to run. This may conflict with existing applications.
Would you like Setup to automatically configure postgresql and create DWH database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:
```

Press Enter to choose the highlighted defaults, or type your alternative preference and then press Enter. If you select Remote, you are prompted to provide details about the remote database host.
13. Enter the fully qualified domain name and password for the Manager database machine. Press Enter to accept the default values in each other field:

   Engine database host [ ]: engine-db-fqdn
   Engine database port [5432]:
   Engine database secured connection (Yes, No) [No]:
   Engine database name [engine]:
   Engine database user [engine]:
   Engine database password: password

14. Confirm your installation settings:

   Please confirm installation settings (OK, Cancel) [OK]:

**Procedure 1.4. Step 2: Installing and Configuring Reports on a Separate Machine**

1. Register your system with the Content Delivery Network, entering your Customer Portal user name and password when prompted:

   # subscription-manager register

2. Find subscription pools containing the repositories required to install Reports:

   # subscription-manager list --available | grep -A8 "Red Hat Enterprise Linux Server"
   # subscription-manager list --available | grep -A8 "Red Hat Enterprise Virtualization"

3. Use the pool identifiers located in the previous step to attach the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization entitlements to the system:

   # subscription-manager attach --pool=pool_id

4. Disable all existing repositories:

   # subscription-manager repos --disable=* 

5. Enable the required repositories:

   # subscription-manager repos --enable=rhel-6-server-rpms
   # subscription-manager repos --enable=rhel-6-server-supplementary-rpms
   # subscription-manager repos --enable=rhev-6-server-rhevm-3.6-rpms
   # subscription-manager repos --enable=jb-eap-6-for-rhel-6-server-rpms

6. Ensure that all packages currently installed are up to date:

   # yum update

7. Install the rhevm-reports-setup package:
# yum install rhevm-reports-setup

8. Run the **engine-setup** command to begin configuration of Reports on the machine:

```
# engine-setup
```

9. Press **Enter** to configure Reports:

```
Configure Reports on this host (Yes, No) [Yes]:
```

10. Press **Enter** to automatically configure the firewall, or type **No** and press **Enter** to maintain existing settings:

```
Setup can automatically configure the firewall on this system. Note: automatic configuration of the firewall may overwrite current settings. Do you want Setup to configure the firewall? (Yes, No) [Yes]:
```

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press **Enter**. This applies even in cases where only one option is listed.

11. Press **Enter** to accept the automatically detected hostname, or enter an alternative hostname and press **Enter**:

```
Host fully qualified DNS name of this server [autodetected host name]:
```

12. Enter the fully qualified domain name of the Manager machine, and then press **Enter**:

```
Host fully qualified DNS name of the engine server []:
```

13. Answer the following questions about the Reports database:

```
Where is the Reports database located? (Local, Remote) [Local]: Setup can configure the local postgresql server automatically for the Reports to run. This may conflict with existing applications. Would you like Setup to automatically configure postgresql and create Reports database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:
```

Press **Enter** to choose the highlighted defaults, or type your alternative preference and then press **Enter**. If you select **Remote**, you are prompted to provide details about the remote database host.

14. Enter the fully qualified domain name and password for your Data Warehouse database host. Press **Enter** to accept the default values in each other field:

```
DWH database host []: dwh-db-fqdn
DWH database port [5432]:
```
**Next Steps**

Access the Reports Portal at http://demo.redhat.com/ovirt-engine-reports, replacing demo.redhat.com with the fully qualified domain name of the Manager. If during the Manager installation you selected a non-default HTTP port then append :port to the URL, replacing :port with the port that you chose.

Log in using the user name admin and the password you set during reports installation. Note that the first time you log in to Red Hat Enterprise Virtualization Manager Reports, a
number of web pages are generated and, as a result, your initial attempt to log in may take some time to complete.

1.3.4. Installing and Configuring Data Warehouse on the Red Hat Enterprise Virtualization Manager and Reports on a Separate Machine

Overview
Install and configure Data Warehouse on the same system as the Red Hat Enterprise Virtualization Manager, then install and configure Red Hat Enterprise Virtualization Manager Reports on a separate machine. Hosting the Reports service on a separate machine helps to reduce the load on the Manager machine.

Installing this scenario involves two key steps:

1. Install and configure Data Warehouse on the Manager machine.
2. Install and configure Reports on a separate machine.

Prerequisites
Ensure that you have completed the following prerequisites:

1. You must have installed and configured the Manager on one machine. This is the machine on which you are installing Data Warehouse.

2. To set up the Reports machine, you must have the following:
   - A virtual or physical machine with Red Hat Enterprise Linux 6.6 or later versions of Red Hat Enterprise Linux 6 installed.
   - A subscription to the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization entitlement pools.
   - Allowed access from the Reports machine to the Manager database machine's TCP port 5432.

3. If you choose to use a remote Data Warehouse database or Reports database, you must set up each database before installing the Data Warehouse and Reports services. You must have the following information about each database host:
   - The fully qualified domain name of the host
   - The port through which the database can be reached (5432 by default)
   - The database name
   - The database user
   - The database password

4. If you are using the self-hosted engine, you must move it to maintenance mode:

```
# hosted-engine --set-maintenance --mode=global
```
Procedure 1.5. Step 1: Installing and Configuring Data Warehouse on the Manager Machine

1. Install the `rhevm-dwh` package:

   # yum install rhevm-dwh

2. Run the `engine-setup` command to begin configuration of Data Warehouse on the machine:

   # engine-setup

3. Press Enter to configure Data Warehouse:

   Configure Data Warehouse on this host (Yes, No) [Yes]:

4. Press Enter to automatically configure the firewall, or type No and press Enter to maintain existing settings:

   Setup can automatically configure the firewall on this system.
   Note: automatic configuration of the firewall may overwrite current settings.
   Do you want Setup to configure the firewall? (Yes, No) [Yes]:

   If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press Enter. This applies even in cases where only one option is listed.

5. Answer the following questions about the Data Warehouse database:

   Where is the DWH database located? (Local, Remote) [Local]:
   Setup can configure the local postgresql server automatically for the DWH to run. This may conflict with existing applications.
   Would you like Setup to automatically configure postgresql and create DWH database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

   Press Enter to choose the highlighted defaults, or type your alternative preference and then press Enter. If you select Remote, you are prompted to provide details about the remote database host.

6. For the configuration to take effect, the `ovirt-engine` service must be restarted. The `engine-setup` command prompts you:

   During execution engine service will be stopped (OK, Cancel) [OK]:

   Press Enter to proceed. The `ovirt-engine` service restarts automatically later in the command.

7. Confirm your installation settings:
Please confirm installation settings (OK, Cancel) [OK]:

**Procedure 1.6. Step 2: Installing and Configuring Reports on a Separate Machine**

1. Register your system with the Content Delivery Network, entering your Customer Portal user name and password when prompted:

   ```bash
   # subscription-manager register
   ```

2. Find the **Red Hat Enterprise Linux Server** and **Red Hat Enterprise Virtualization** subscription pools and note down the pool IDs.

   ```bash
   # subscription-manager list --available
   ```

3. Use the pool IDs located in the previous step to attach the entitlements to the system:

   ```bash
   # subscription-manager attach --pool=pool_id
   ```

4. Disable all existing repositories:

   ```bash
   # subscription-manager repos --disable=* 
   ```

5. Enable the required channels:

   ```bash
   # subscription-manager repos --enable=rhel-6-server-rpms
   # subscription-manager repos --enable=rhel-6-server-supplementary-rpms
   # subscription-manager repos --enable=rhel-6-server-rhevm-3.6-rpms
   # subscription-manager repos --enable=jb-eap-6-for-rhel-6-server-rpms
   ```

6. Ensure that all packages currently installed are up to date:

   ```bash
   # yum update
   ```

7. Install the **rhevm-reports-setup** package:

   ```bash
   # yum install rhevm-reports-setup
   ```

8. Run the **engine-setup** command to begin configuration of Reports on the machine:

   ```bash
   # engine-setup
   ```

9. Press **Enter** to configure Reports:

   ```bash
   Configure Reports on this host (Yes, No) [Yes]:
   ```

10. Press **Enter** to automatically configure the firewall, or type **No** and press **Enter** to maintain existing settings:
Setup can automatically configure the firewall on this system. Note: automatic configuration of the firewall may overwrite current settings. Do you want Setup to configure the firewall? (Yes, No) [Yes]:

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press Enter. This applies even in cases where only one option is listed.

11. Press Enter to accept the automatically detected hostname, or enter an alternative hostname and press Enter:

   Host fully qualified DNS name of this server [autodetected host name]:

12. Enter the fully qualified domain name of the Manager machine, and then press Enter:

   Host fully qualified DNS name of the engine server []:

13. Answer the following questions about the Reports database:

   Where is the Reports database located? (Local, Remote) [Local]: Setup can configure the local postgresql server automatically for the Reports to run. This may conflict with existing applications. Would you like Setup to automatically configure postgresql and create Reports database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

   Press Enter to choose the highlighted defaults, or type your alternative preference and then press Enter. If you select Remote, you are prompted to provide details about the remote database host.

14. Enter the fully qualified domain name and password for your Data Warehouse database host. Press Enter to accept the default values in each other field:

   DWH database host []: dwh-db-fqdn
   DWH database port [5432]:
   DWH database secured connection (Yes, No) [No]:
   DWH database name [ovirt_engine_history]:
   DWH database user [ovirt_engine_history]:
   DWH database password: password

15. Press Enter to allow setup to sign the Reports certificate and Apache certificate on the Manager via SSH:

   Setup will need to do some actions on the remote engine server. Either automatically, using ssh as root to access it, or you will be prompted to manually perform each such action. Please choose one of the following:
   1 - Access remote engine server using ssh as root
   2 - Perform each action manually, use files to copy content around (1, 2) [1]:

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16. Press Enter to accept the default SSH port, or enter an alternative port number and then press Enter:

```
ssh port on remote engine server [22]:
```

17. Enter the root password for the Manager machine:

```
root password on remote engine server manager-fqdn.com:
```

18. Press Enter to allow automatic configuration of SSL on Apache:

```
Setup can configure apache to use SSL using a certificate issued from the internal CA.
Do you wish Setup to configure that, or prefer to perform that manually? (Automatic, Manual) [Automatic]:
```

19. Set a password for the Reports administrative users (admin and superuser). Note that the reports system maintains its own set of credentials that are separate to those used for the Manager:

```
Reports power users password:
```

You are prompted to enter the password a second time to confirm it.

20. Confirm your installation settings:

```
Please confirm installation settings (OK, Cancel) [OK]:
```

Next Steps
Access the Reports Portal at http://demo.redhat.com/ovirt-engine-reports, replacing demo.redhat.com with the fully qualified domain name of the Manager. If during the Manager installation you selected a non-default HTTP port then append :port to the URL, replacing :port with the port that you chose.

Log in using the user name admin and the password you set during reports installation. Note that the first time you log in to Red Hat Enterprise Virtualization Manager Reports, a number of web pages are generated and, as a result, your initial attempt to log in may take some time to complete.

1.3.5. Installing and Configuring Data Warehouse on a Separate Machine and Reports on the Red Hat Enterprise Virtualization Manager

Overview
Install and configure Data Warehouse on a separate host from that on which the Red Hat Enterprise Virtualization Manager is installed, then install and configure Red Hat Enterprise Virtualization Manager Reports on the Manager machine. Hosting the Data Warehouse service on a separate machine helps to reduce the load on the Manager machine. Note that hosting the Manager and Reports on the same machine means that these processes will share CPU and memory.
Installing this scenario involves two key steps:

1. Install and configure Data Warehouse on a separate machine.
2. Install and configure Reports on the Manager machine.

**Prerequisites**

Ensure that you have completed the following prerequisites:

1. You must have installed and configured the Manager on a separate machine.

2. To set up the Data Warehouse machine, you must have the following:
   - A virtual or physical machine with Red Hat Enterprise Linux 6.6 or later versions of Red Hat Enterprise Linux 6 installed.
   - A subscription to the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization entitlement pools.
   - The password from the Manager's `/etc/ovirt-engine/engine.conf.d/10-setup-database.conf` file.
   - Allowed access from the Data Warehouse machine to the Manager database machine's TCP port 5432.

3. To set up the Reports machine, you must have the following:

4. If you choose to use a remote Data Warehouse database or Reports database, you must set up each database before installing the Data Warehouse and Reports services. You must have the following information about each database host:
   - The fully qualified domain name of the host
   - The port through which the database can be reached (5432 by default)
   - The database name
   - The database user
   - The database password

5. If you are using the self-hosted engine, you must move it to maintenance mode:

   ```
   # hosted-engine --set-maintenance --mode=global
   ```

**Procedure 1.7. Step 1: Installing and Configuring Data Warehouse on a Separate Machine**

1. Register your system with the Content Delivery Network, entering your Customer Portal user name and password when prompted:

   ```
   # subscription-manager register
   ```
2. Find the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization subscription pools and note down the pool IDs.

```
# subscription-manager list --available
```

3. Use the pool IDs located in the previous step to attach the entitlements to the system:

```
# subscription-manager attach --pool=pool_id
```

4. Disable all existing repositories:

```
# subscription-manager repos --disable=* 
```

5. Enable the required channels:

```
# subscription-manager repos --enable=rhel-6-server-rpms
# subscription-manager repos --enable=rhel-6-server-supplementary-rpms
# subscription-manager repos --enable=rhel-6-server-rhevm-3.6-rpms
# subscription-manager repos --enable=jb-eap-6-for-rhel-6-server-rpms
```

6. Ensure that all packages currently installed are up to date:

```
# yum update
```

7. Install the rhevm-dwh-setup package:

```
# yum install rhevm-dwh-setup
```

8. Run the `engine-setup` command to begin configuration of Data Warehouse on the machine:

```
# engine-setup
```

9. Press `Enter` to configure Data Warehouse:

```
Configure Data Warehouse on this host (Yes, No) [Yes]:
```

10. Press `Enter` to automatically configure the firewall, or type `No` and press `Enter` to maintain existing settings:

```
Setup can automatically configure the firewall on this system. Note: automatic configuration of the firewall may overwrite current settings. Do you want Setup to configure the firewall? (Yes, No) [Yes]:
```

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press `Enter`. This
applies even in cases where only one option is listed.

11. Press **Enter** to accept the automatically detected hostname, or enter an alternative hostname and press **Enter**:

   Host fully qualified DNS name of this server *[autodetected host name]*:

12. Answer the following questions about the Data Warehouse database:

   Where is the DWH database located? (Local, Remote) [Local]:
   Setup can configure the local postgresql server automatically for the DWH to run. This may conflict with existing applications. Would you like Setup to automatically configure postgresql and create DWH database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

   Press **Enter** to choose the highlighted defaults, or type your alternative preference and then press **Enter**. If you select **Remote**, you are prompted to provide details about the remote database host.

13. Enter the fully qualified domain name and password for the Manager database machine. Press **Enter** to accept the default values in each other field:

   Engine database host []: *engine-db-fqdn*
   Engine database port [5432]:
   Engine database secured connection (Yes, No) [No]:
   Engine database name [engine]:
   Engine database user [engine]:
   Engine database password: *password*

14. Confirm your installation settings:

   Please confirm installation settings (OK, Cancel) [OK]:

**Procedure 1.8. Step 2: Installing and Configuring Reports on the Manager Machine**

1. Install the rhevm-reports package:

   # yum install rhevm-reports

2. Run the **engine-setup** command to begin configuration of Reports on the machine:

   # engine-setup

3. Press **Enter** to configure Reports:

   Configure Reports on this host (Yes, No) [Yes]:

4. Press **Enter** to automatically configure the firewall, or type **No** and press **Enter** to maintain existing settings:
Setup can automatically configure the firewall on this system. Note: automatic configuration of the firewall may overwrite current settings. Do you want Setup to configure the firewall? (Yes, No) [Yes]:

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press Enter. This applies even in cases where only one option is listed.

5. Answer the following questions about the Reports database:

Where is the Reports database located? (Local, Remote) [Local]: Setup can configure the local postgresql server automatically for the Reports to run. This may conflict with existing applications. Would you like Setup to automatically configure postgresql and create Reports database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

Press Enter to choose the highlighted defaults, or type your alternative preference and then press Enter. If you select Remote, you are prompted to provide details about the remote database host.

6. Enter the fully qualified domain name and password for your Data Warehouse database host. Press Enter to accept the default values in each other field:

DWH database host []: dwh-db-fqdn
DWH database port [5432]:
DWH database secured connection (Yes, No) [No]:
DWH database name [ovirt_engine_history]:
DWH database user [ovirt_engine_history]:
DWH database password: password

7. Set a password for the Reports administrative users (admin and superuser). Note that the reports system maintains its own set of credentials that are separate to those used for the Manager:

Reports power users password:

You are prompted to enter the password a second time to confirm it.

8. For the configuration to take effect, the ovirt-engine service must be restarted. The engine-setup command prompts you:

During execution engine service will be stopped (OK, Cancel) [OK]:

Press Enter to proceed. The ovirt-engine service restarts automatically later in the command.

9. Confirm your installation settings:

Please confirm installation settings (OK, Cancel) [OK]:

Next Steps
Access the Reports Portal at http://demo.redhat.com/ovirt-engine-reports, replacing demo.redhat.com with the fully qualified domain name of the Manager. If during the Manager installation you selected a non-default HTTP port then append :port to the URL, replacing :port with the port that you chose.

Log in using the user name admin and the password you set during reports installation. Note that the first time you log in to Red Hat Enterprise Virtualization Manager Reports, a number of web pages are generated and, as a result, your initial attempt to log in may take some time to complete.

1.4. MIGRATING DATA WAREHOUSE AND REPORTS TO SEPARATE MACHINES

Migrate the Data Warehouse service, the Reports service, or both from the Red Hat Enterprise Virtualization Manager to separate machines. Hosting the Data Warehouse service and the Reports service on separate machines reduces the load on each individual machine, and allows each service to avoid potential conflicts caused by sharing CPU and memory with other processes.

Migrate the Data Warehouse service and connect it with the existing ovirt_engine_history database, or optionally migrate the ovirt_engine_history database to a new database machine before migrating the Data Warehouse service. If the ovirt_engine_history database is hosted on the Manager, migrating the database in addition to the Data Warehouse service further reduces the competition for resources on the Manager machine. You can migrate the database to the same machine onto which you will migrate the Data Warehouse service, or to a machine that is separate from both the Manager machine and the new Data Warehouse service machine.

1.4.1. Migrating the Data Warehouse Database to a Separate Machine

Optionally migrate the ovirt_engine_history database before you migrate the Data Warehouse service. This procedure uses pg_dump to create a database backup, and psql to restore the backup on the new database machine. The pg_dump command provides flexible options for backing up and restoring databases; for more information on options that may be suitable for your system, see the pg_dump manual page.

The following procedure assumes that a PostgreSQL database has already been configured on the new machine. To migrate the Data Warehouse service only, see Section 1.4.2, “Migrating the Data Warehouse Service to a Separate Machine”.

IMPORTANT

If the existing Data Warehouse database is connected to an existing Reports service, you must reconfigure that service by running engine-setup and entering the details of the new Data Warehouse database when prompted. If you do not do this, the Reports service is still connected to the old database, and does not receive any new data.

Procedure 1.9. Migrating the Data Warehouse Database to a Separate Machine

1. On the existing database machine, dump the ovirt_engine_history database into a SQL script file:
2. Copy the script file from the existing database machine to the new database machine.

3. Restore the `ovirt_engine_history` database on the new database machine:

   ```
   # psql -d ovirt_engine_history -f ovirt_engine_history.sql
   
   The command above assumes that the database on the new machine is also named `ovirt_engine_history`.
   ```

### 1.4.2. Migrating the Data Warehouse Service to a Separate Machine

Migrate a Data Warehouse service that was installed and configured on the Red Hat Enterprise Virtualization Manager to a dedicated host machine. Hosting the Data Warehouse service on a separate machine helps to reduce the load on the Manager machine. Note that this procedure migrates the Data Warehouse service only; to migrate the Data Warehouse database (also known as the `ovirt_engine_history` database) prior to migrating the Data Warehouse service, see Section 1.4.1, "Migrating the Data Warehouse Database to a Separate Machine".

Installing this scenario involves four key steps:

1. Set up the new Data Warehouse machine.

2. Stop the Data Warehouse service on the Manager machine.

3. Configure the new Data Warehouse machine.

4. Remove the Data Warehouse package from the Manager machine.

**Prerequisites**

Ensure that you have completed the following prerequisites:

1. You must have installed and configured the Manager and Data Warehouse on the same machine.

2. To set up the new Data Warehouse machine, you must have the following:
   
   - A virtual or physical machine with Red Hat Enterprise Linux 6.6 or later versions of Red Hat Enterprise Linux 6 installed.

   - A subscription to the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization entitlement pools.

   - The password from the Manager's `/etc/ovirt-engine/engine.conf.d/10-setup-database.conf` file.

   - Allowed access from the Data Warehouse machine to the Manager database machine's TCP port 5432.

   - The `ovirt_engine_history` database credentials from the Manager's `/etc/ovirt-engine-dwh/ovirt-engine-dwhd.conf.d/10-setup-database.conf` file. If you migrated the `ovirt_engine_history` database using
Section 1.4.1, “Migrating the Data Warehouse Database to a Separate Machine”, retrieve the credentials you defined during the database setup on that machine.

**Procedure 1.10. Step 1: Setting up the New Data Warehouse Machine**

1. Register your system with the Content Delivery Network, entering your Customer Portal user name and password when prompted:

   ```bash
   # subscription-manager register
   ```

2. Find the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization subscription pools and note down the pool IDs.

   ```bash
   # subscription-manager list --available
   ```

3. Use the pool IDs located in the previous step to attach the entitlements to the system:

   ```bash
   # subscription-manager attach --pool=pool_id
   ```

4. Disable all existing repositories:

   ```bash
   # subscription-manager repos --disable=* 
   ```

5. Enable the required channels:

   ```bash
   # subscription-manager repos --enable=rhel-6-server-rpms
   # subscription-manager repos --enable=rhel-6-server-supplementary-rpms
   # subscription-manager repos --enable=rhel-6-server-rhevm-3.6-rpms
   # subscription-manager repos --enable=jb-eap-6-for-rhel-6-server-rpms
   ```

6. Ensure that all packages currently installed are up to date:

   ```bash
   # yum update
   ```

7. Install the rhevm-dwh-setup package:

   ```bash
   # yum install rhevm-dwh-setup
   ```

**Procedure 1.11. Step 2: Stopping the Data Warehouse Service on the Manager Machine**

1. Stop the Data Warehouse service:

   ```bash
   # service ovirt-engine-dwhd stop
   ```

2. If the `ovirt_engine_history` database, the Manager database, or both are hosted on the Manager machine and were configured by a previous version (Red Hat Enterprise Virtualization 3.4 or prior) that was then upgraded, you must allow the
new Data Warehouse machine to access them. Edit the /
/var/lib/pgsql/data/postgresql.conf file and modify the listen_addresses line so that it matches the following:

```
listen_addresses = '*'
```

If the line does not exist or has been commented out, add it manually.

If one or both databases are hosted on a remote machine, you must manually grant access by editing the postgres.conf file on each machine, and adding the listen_addresses line, as above. If both databases are hosted on the Manager machine and were configured during a clean setup of Red Hat Enterprise Virtualization Manager 3.5, access is granted by default.

3. Restart the postgresql service:

```
# service postgresql restart
```

**Procedure 1.12. Step 3: Configuring the New Data Warehouse Machine**

1. Run the `engine-setup` command to begin configuration of Data Warehouse on the machine:

```
# engine-setup
```

2. Press Enter to configure Data Warehouse:

```
Configure Data Warehouse on this host (Yes, No) [Yes]:
```

3. Press Enter to automatically configure the firewall, or type No and press Enter to maintain existing settings:

```
Setup can automatically configure the firewall on this system. Note: automatic configuration of the firewall may overwrite current settings.
Do you want Setup to configure the firewall? (Yes, No) [Yes]:
```

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of supported options. Type the name of the firewall manager and press Enter. This applies even in cases where only one option is listed.

4. Press Enter to accept the automatically detected hostname, or enter an alternative hostname and press Enter:

```
Host fully qualified DNS name of this server [autodetected host name]:
```

5. Answer the following question about the location of the ovirt_engine_history database:

```
Where is the DWH database located? (Local, Remote) [Local]: Remote
```
Type the alternative option as shown above and then press Enter.

6. Enter the fully qualified domain name and password for your ovirt_engine_history database host. Press Enter to accept the default values in each other field:

   DWH database host []: dwh-db-fqdn
   DWH database port [5432]:
   DWH database secured connection (Yes, No) [No]:
   DWH database name [ovirt_engine_history]:
   DWH database user [ovirt_engine_history]:
   DWH database password: password

7. Enter the fully qualified domain name and password for the Manager database machine. Press Enter to accept the default values in each other field:

   Engine database host []: engine-db-fqdn
   Engine database port [5432]:
   Engine database secured connection (Yes, No) [No]:
   Engine database name [engine]:
   Engine database user [engine]:
   Engine database password: password

8. Press Enter to create a backup of the existing Data Warehouse database:

   Would you like to backup the existing database before upgrading it? (Yes, No) [Yes]:

   The time and space required for the database backup depends on the size of the database. It may take several hours to complete. If you choose not to back up the database here, and engine-setup fails for any reason, you will not be able to restore the database or any of the data within it. The location of the backup file appears at the end of the setup script.

9. Confirm that you want to permanently disconnect the existing Data Warehouse service from the Manager:

   Do you want to permanently disconnect this DWH from the engine? (Yes, No) [No]:

10. Confirm your installation settings:

    Please confirm installation settings (OK, Cancel) [OK]:

**Procedure 1.13. Step 4: Removing the Data Warehouse Package from the Manager Machine**

1. Remove the Data Warehouse package:

   # yum remove rhevm-dwh

   This step prevents the Data Warehouse service from attempting to automatically restart after an hour.
2. Remove the Data Warehouse files:

```
# rm -rf /etc/ovirt-engine-dwh /var/lib/ovirt-engine-dwh
```

The Data Warehouse service is now hosted on a separate machine from that on which the Manager is hosted.

### 1.4.3. Migrating the Reports Service to a Separate Machine

Migrate a Reports service that was installed and configured on the Red Hat Enterprise Virtualization Manager to a dedicated host machine. Hosting the Reports service on a separate machine helps to reduce the load on the Manager machine. Note that this procedure migrates the Reports service only. The Reports database (also known as the `ovirt_engine_reports` database) cannot be migrated; you must create a new `ovirt_engine_reports` database when you configure Reports on the new machine. Saved ad hoc reports can be migrated from the Manager machine to the new Reports machine. Migrate the Reports service only after the Manager and Data Warehouse have been configured.

Installing this scenario involves three key steps:

1. Configure the new Reports machine.
2. Migrate any saved reports to the new Reports machine.
3. Remove the Reports service from the Manager machine.

### Prerequisites

Ensure that you have completed the following prerequisites:

1. You must have installed and configured the Manager and Reports on the same machine.
2. You must have installed and configured Data Warehouse, either on the Manager machine or on a separate machine.
3. To set up the new Reports machine, you must have the following:
   - A virtual or physical machine with Red Hat Enterprise Linux 6.6 or later versions of Red Hat Enterprise Linux 6 installed
   - A subscription to the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization entitlement pools
   - The password from the Data Warehouse machine's `/etc/ovirt-engine-dwh/ovirt-engine-dwhd.conf.d/10-setup-database.conf` file
   - Allowed access from the Reports machine to the Manager database machine's TCP port 5432

### Procedure 1.14. Step 1: Configuring the New Reports Machine

1. Register your system with the Content Delivery Network, entering your Customer Portal user name and password when prompted:
# subscription-manager register

2. Find the Red Hat Enterprise Linux Server and Red Hat Enterprise Virtualization subscription pools and note down the pool IDs.

```
# subscription-manager list --available
```

3. Use the pool IDs located in the previous step to attach the entitlements to the system:

```
# subscription-manager attach --pool=pool_id
```

4. Disable all existing repositories:

```
# subscription-manager repos --disable=* 
```

5. Enable the required channels:

```
# subscription-manager repos --enable=rhel-6-server-rpms
# subscription-manager repos --enable=rhel-6-server-supplementary-rpms
# subscription-manager repos --enable=rhel-6-server-rhevm-3.6-rpms
# subscription-manager repos --enable=jb-eap-6-for-rhel-6-server-rpms
```

6. Ensure that all packages currently installed are up to date:

```
# yum update
```

7. Install the rhevm-reports-setup package:

```
# yum install rhevm-reports-setup
```

8. Run the engine-setup command to begin configuration of Reports on the machine:

```
# engine-setup
```

9. Press Enter to configure Reports:

```
Configure Reports on this host (Yes, No) [Yes]:
```

10. Press Enter to automatically configure the firewall, or type No and press Enter to maintain existing settings:

```
Setup can automatically configure the firewall on this system. 
Note: automatic configuration of the firewall may overwrite current settings.
Do you want Setup to configure the firewall? (Yes, No) [Yes]:
```

If you choose to automatically configure the firewall, and no firewall managers are active, you are prompted to select your chosen firewall manager from a list of
supported options. Type the name of the firewall manager and press Enter. This applies even in cases where only one option is listed.

11. Press Enter to accept the automatically detected hostname, or enter an alternative hostname and press Enter:

Host fully qualified DNS name of this server [autodetected host name]:

12. Enter the fully qualified domain name of the Manager machine, and then press Enter:

Host fully qualified DNS name of the engine server []:

13. Answer the following questions about the ovirt_engine_reports database. Press Enter to allow setup to create and configure a local database:

Where is the Reports database located? (Local, Remote) [Local]:
Setup can configure the local postgresql server automatically for the Reports to run. This may conflict with existing applications. Would you like Setup to automatically configure postgresql and create Reports database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

14. Enter the fully qualified domain name and password for your ovirt_engine_history database host. Press Enter to accept the default values in each other field:

DWH database host []: dwh-db-fqdn
DWH database port [5432]:
DWH database secured connection (Yes, No) [No]:
DWH database name [ovirt_engine_history]:
DWH database user [ovirt_engine_history]:
DWH database password: password

15. Press Enter to allow setup to sign the Reports certificate and Apache certificate on the Manager via SSH:

Setup will need to do some actions on the remote engine server. Either automatically, using ssh as root to access it, or you will be prompted to manually perform each such action. Please choose one of the following:
1 - Access remote engine server using ssh as root
2 - Perform each action manually, use files to copy content around (1, 2) [1]:

16. Press Enter to accept the default SSH port, or enter an alternative port number and then press Enter:

ssh port on remote engine server [22]:

17. Enter the root password for the Manager machine:
root password on remote engine server *manager-fqdn.com*:

18. Press **Enter** to allow automatic configuration of SSL on Apache:

    Setup can configure apache to use SSL using a certificate issued from the internal CA.
    Do you wish Setup to configure that, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

19. Set a password for the Reports administrative users (**admin** and **superuser**). Note that the reports system maintains its own set of credentials that are separate to those used for the Manager:

    Reports power users password:

    You are prompted to enter the password a second time to confirm it.

20. Confirm your installation settings:

    Please confirm installation settings (OK, Cancel) [OK]:

**Procedure 1.15. Step 2: Migrating Saved Reports to the New Reports Machine**

1. On the Manager machine, run the **ovirt-engine-reports-tool** command:

    # ovirt-engine-reports-tool

2. Enter the number that corresponds to the export option, and press **Enter**:

    (2) Export Jasperreports saved reports to a zip file
    (1, 2, 3) []: 2

3. Enter the absolute path for the zip file to export saved reports to, and press **Enter**:

    Filename to export saved reports to: /tmp/saved-reports.zip

4. Copy the zip file to the new Reports machine:

    # scp /tmp/saved-reports.zip reports-machine-fqdn:/tmp/

5. On the new Reports machine, run the **ovirt-engine-reports-tool** command:

    # ovirt-engine-reports-tool

6. Enter the number that corresponds to the import option, and press **Enter**:

    (3) Import a saved reports zip file to Jasperreports
    (1, 2, 3) []: 3

7. Enter the absolute path of the zip file from which to import, and press **Enter**:
File name to import saved reports from: /tmp/saved-reports.zip

When the command completes, the saved reports are visible in the Reports Portal of the new Reports machine.

Procedure 1.16. Step 3: Removing the Reports Service from the Manager Machine

1. Stop the Reports service:
   ```bash
   # service ovirt-engine-reportsd stop
   ```

2. Remove the Reports package:
   ```bash
   # yum remove rhevm-reports
   ```

3. Remove the Reports files:
   ```bash
   # rm -rf /etc/ovirt-engine-reports /var/lib/ovirt-engine-reports
   ```

4. Remove the Reports database and user. The default name for both is `ovirt_engine_reports`:
   ```bash
   # su - postgres
   $ psql
   postgres=# drop database ovirt_engine_reports;
   postgres=# drop user ovirt_engine_reports;
   ```

**NOTE**

You can configure more than one working Reports instance, and continue to log in and view reports from an older instance; however, the Manager will directly connect to and have SSO with only the last Reports instance that was configured using `engine-setup`. This means that the Administration Portal includes dashboards from and direct links to only the most recent Reports installation.
CHAPTER 2. ABOUT HISTORY DATABASE, REPORTS, AND DASHBOARDS

2.1. INTRODUCTION

2.1.1. History Database Overview

Red Hat Enterprise Virtualization includes a comprehensive management history database, which can be used by reporting applications to generate reports at data center, cluster and host levels. This chapter provides information to enable you to set up queries against the history database and generate reports.

Red Hat Enterprise Virtualization Manager uses PostgreSQL 8.4.x as a database platform to store information about the state of the virtualization environment, its configuration and performance. At install time, Red Hat Enterprise Virtualization Manager creates a PostgreSQL database called engine.

Installing the rhevm-dwh package creates a second database called ovirt_engine_history, which contains historical configuration information and statistical metrics collected every minute over time from the engine operational database. Tracking the changes to the database provides information on the objects in the database, enabling the user to analyze activity, enhance performance, and resolve difficulties.

WARNING

The replication of data in the ovirt_engine_history database is performed by the Red Hat Enterprise Virtualization Manager Extract Transform Load Service, ovirt-engine-dwhd. The service is based on Talend Open Studio, a data integration tool. This service is configured to start automatically during the data warehouse package setup. It is a Java program responsible for extracting data from the engine database, transforming the data to the history database standard and loading it to the ovirt_engine_history database.

The ovirt-engine-dwhd service must not be stopped.

The ovirt_engine_history database schema changes over time. The database includes a set of database views to provide a supported, versioned API with a consistent structure. A view is a virtual table composed of the result set of a database query. The database stores the definition of a view as a SELECT statement. The result of the SELECT statement populates the virtual table that the view returns. A user references the view name in PL/PGSQL statements the same way a table is referenced.

2.1.2. JasperReports and JasperServer in Red Hat Enterprise Virtualization
Red Hat Enterprise Virtualization provides a customized implementation of JasperServer, which allows web-based access to a range of pre-configured reports and dashboards, plus the ability to create ad hoc reports.

JasperReports is an open source reporting tool, capable of being embedded in Java-based applications. It produces reports which can be rendered to screen, printed, or exported to a variety of formats including PDF, Excel, CSV, Word, RTF, Flash, ODT and ODS. JasperReports integrates with JasperServer, an open source reporting server for JasperReports. Using JasperServer, reports built in JasperReports can be accessed via a web interface.

2.2. HISTORY DATABASE

2.2.1. Red Hat Enterprise Virtualization History Database

Red Hat Enterprise Virtualization Reports uses data from the Red Hat Enterprise Virtualization History Database (called ovirt_engine_history) which tracks the engine database over time.

**IMPORTANT**

Sufficient data must exist in the history database to produce meaningful reports. Most reports use values aggregated on a daily basis. Meaningful reports can only be produced if data for at least several days is available. In particular, because trend reports are designed to highlight long term trends in the system, a sufficient history is required to highlight meaningful trends.

2.2.2. Tracking Configuration History

The ETL service, ovirt-engine-dwhd, tracks three types of changes:

- A new entity is added to the engine database - the ETL Service replicates the change to the ovirt_engine_history database as a new entry.

- An existing entity is updated - the ETL Service replicates the change to the ovirt_engine_history database as a new entry.

- An entity is removed from the engine database - A new entry in the ovirt_engine_history database flags the corresponding entity as removed. Removed entities are only flagged as removed. To maintain correctness of historical reports and representations, they are not physically removed.

The configuration tables in the ovirt_engine_history database differ from the corresponding tables in the engine database in several ways. The most apparent difference is they contain fewer configuration columns. This is because certain configuration items are less interesting to report than others and are not kept due to database size considerations. Also, columns from a few tables in the engine database appear in a single table in ovirt_engine_history and have different column names to make viewing data more convenient and comprehensible. All configuration tables contain:

- a history_id to indicate the configuration version of the entity;

- a create_date field to indicate when the entity was added to the system;

- an update_date field to indicate when the entity was changed; and
- a **delete_date** field to indicate the date the entity was removed from the system.

### 2.2.3. Recording Statistical History

The ETL service collects data into the statistical tables every minute. Data is stored for every minute of the past 24 hours, at a minimum, but can be stored for as long as 48 hours depending on the last time a deletion job was run. Minute-by-minute data more than two hours old is aggregated into hourly data and stored for two months. Hourly data more than two days old is aggregated into daily data and stored for five years.

Hourly data and daily data can be found in the hourly and daily tables.

Each statistical datum is kept in its respective aggregation level table: samples, hourly, and daily history. All history tables also contain a history_id column to uniquely identify rows. Tables reference the configuration version of a host in order to enable reports on statistics of an entity in relation to its past configuration.

### 2.2.4. Application Settings for the Data Warehouse service in ovirt-engine-dwhd.conf

The following is a list of options for configuring application settings for the Data Warehouse service. These options are available in the `/usr/share/ovirt-engine-dwh/services/ovirt-engine-dwhd/ovirt-engine-dwhd.conf` file. Configure any changes to the default values in an override file under `/etc/ovirt-engine-dwh/ovirt-engine-dwhd.conf.d/`. Restart the Data Warehouse service after saving the changes.

**Table 2.1. ovirt-engine-dwhd.conf application settings variables**

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Default Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWH_DELETE_JOB_HOUR</td>
<td>3</td>
<td>The time at which a deletion job is run. Specify a value between 0 and 23, where 0 is midnight.</td>
</tr>
<tr>
<td>DWH_SAMPLING</td>
<td>60</td>
<td>The interval, in seconds, at which data is collected into statistical tables.</td>
</tr>
<tr>
<td>DWH_TABLES_KEEP_SAMPLES</td>
<td>24</td>
<td>The number of hours that data from DWH_SAMPLING is stored. Data more than two hours old is aggregated into hourly data.</td>
</tr>
<tr>
<td>DWH_TABLES_KEEP_HOURLY</td>
<td>1440</td>
<td>The number of hours that hourly data is stored. The default is 60 days. Hourly data more than two days old is aggregated into daily data.</td>
</tr>
<tr>
<td>DWH_TABLES_KEEP_DAILY</td>
<td>43800</td>
<td>The number of hours that daily data is stored. The default is five years.</td>
</tr>
<tr>
<td>Variable name</td>
<td>Default Value</td>
<td>Remarks</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DWH_ERROR_EVENT_INTERVAL</td>
<td>300000</td>
<td>The minimum interval, in milliseconds, at which errors are pushed to the Manager's audit.log.</td>
</tr>
</tbody>
</table>

### 2.2.5. Tracking Tag History

The ETL Service collects tag information as displayed in the Administration Portal every minute and stores this data in the tags historical tables. The ETL Service tracks five types of changes:

- A tag is created in the Administration Portal - the ETL Service copies the tag details, position in the tag tree and relation to other objects in the tag tree.

- A entity is attached to the tag tree in the Administration Portal - the ETL Service replicates the addition to the `ovirt_engine_history` database as a new entry.

- A tag is updated - the ETL Service replicates the change of tag details to the `ovirt_engine_history` database as a new entry.

- An entity or tag branch is removed from the Administration Portal - the `ovirt_engine_history` database flags the corresponding tag and relations as removed in new entries. Removed tags and relations are only flagged as removed or detached. In order to maintain correctness of historical reports and representations, they are not physically removed.

- A tag branch is moved - the corresponding tag and relations are updated as new entries. Moved tags and relations are only flagged as updated. In order to maintain correctness of historical reports and representations, they are not physically updated.

### 2.2.6. Allowing Read-Only Access to the History Database

#### Summary

To allow access to the history database without allowing edits, you must create a read-only PostgreSQL user that can log in to and read from the `ovirt_engine_history` database. This procedure must be executed on the system on which the history database is installed.

#### Procedure 2.1. Allowing Read-Only Access to the History Database

1. Create the user to be granted read-only access to the history database:

   ```
   # psql -U postgres -c "CREATE ROLE [user name] WITH LOGIN ENCRYPTED PASSWORD '[password]';" -d ovirt_engine_history
   ```

2. Grant the newly created user permission to connect to the history database:

   ```
   # psql -U postgres -c "GRANT CONNECT ON DATABASE ovirt_engine_history TO [user name];"
   ```
3. Grant the newly created user usage of the `public` schema:

   ```
   # psql -U postgres -c "GRANT USAGE ON SCHEMA public TO [user name];"
   ovirt_engine_history
   ```

4. Generate the rest of the permissions that will be granted to the newly created user and save them to a file:

   ```
   # psql -U postgres -c "SELECT 'GRANT SELECT ON ' || relname || ' TO [user name];' FROM pg_class JOIN pg_namespace ON pg_namespace.oid = pg_class.relnamespace WHERE nspname = 'public' AND relkind IN ('r', 'v');" --pset=tuples_only=on ovirt_engine_history > grant.sql
   ```

5. Use the file you created in the previous step to grant permissions to the newly created user:

   ```
   # psql -U postgres -f grant.sql ovirt_engine_history
   ```

6. Remove the file you used to grant permissions to the newly created user:

   ```
   # rm grant.sql
   ```

**Result**

You can now access the `ovirt_engine_history` database with the newly created user using the following command:

```
# psql -U [user name] ovirt_engine_history
```  

SELECT statements against tables and views in the `ovirt_engine_history` database succeed, while modifications fail.

### 2.2.7. Reports Examples

The following examples provide an introduction to reports produced from queries to the `ovirt_engine_history` database. The database gives users access to a rich data set and enables a variety of complex reporting scenarios. These examples illustrate only basic reporting requirements.

#### Resource Utilization on a Single Host

This example produces a resource utilization report for a single host. The resource utilization report provides CPU- and memory-usage percentage information from readings taken at one-minute intervals. This kind of report is useful for gaining insight into the load factor of an individual host over a short period of time. The report is defined by the following SQL query. Ensure the values provided for the `host_name` and `history_datetime` components of the `where` clause are substituted with the appropriate values for your environment and that the latest configuration is in use.

**Example 2.1. Report query for resource utilization on a single host**

```sql
select history_datetime as DateTime, cpu_usage_percent as CPU, memory_usage_percent as Memory
```
This query returns a table of data with one row per minute:

```
from host_configuration, host_samples_history
where host_configuration.host_id = host_samples_history.host_id
and host_name = 'example.labname.abc.company.com'
and host_configuration.history_id in (select max(a.history_id)
    from host_configuration as a
    where host_configuration.host_id = a.host_id)
and history_datetime >= '2011-07-01 18:45'
and history_datetime <= '2011-07-31 21:45'
```

Table 2.2. Resource Utilization for a Single Host Example Data

<table>
<thead>
<tr>
<th>DateTime</th>
<th>CPU</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-07-01 18:45</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>2010-07-01 18:46</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>2010-07-01 18:47</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td>2010-07-01 18:48</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td>2010-07-01 18:49</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td>2010-07-01 18:50</td>
<td>25</td>
<td>1</td>
</tr>
</tbody>
</table>

Compose the data into a graph or chart using third-party data analysis and visualization tools such as OpenOffice.org Calc and Microsoft Excel. For this example, a line graph showing the utilization for a single host over time is a useful visualization. Figure 2.1, “Single host utilization line graph” was produced using the Chart Wizard tool in OpenOffice.org Calc.
Figure 2.1. Single host utilization line graph

Resource Utilization Across All Hosts

This example produces an aggregated resource utilization report across all hosts in the Red Hat Enterprise Virtualization Manager environment. Aggregated usage percentages for CPU and memory are shown with an hourly temporal resolution. This kind of report reveals utilization trends for the entire environment over a long period of time and is useful for capacity planning purposes. The following SQL query defines the report. Ensure the values provided for the `history_datetime` components of the `where` clause are substituted with appropriate values for your environment.

Example 2.2. Report query for resource utilization across all hosts

```sql
select extract(hour from history_datetime) as Hour,
    avg(cpu_usage_percent) as CPU,
    avg(memory_usage_percent) as Memory
from host_hourly_history
where history_datetime >= '2011-07-01' and history_datetime < '2011-07-31'
group by extract(hour from history_datetime)
order by extract(hour from history_datetime)
```

This query returns a table of data with one row per hour:

Table 2.3. Resource utilization across all hosts example data

<table>
<thead>
<tr>
<th>Hour</th>
<th>CPU</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Hour</td>
<td>CPU</td>
<td>Memory</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
<td>--------</td>
</tr>
<tr>
<td>1</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>2</td>
<td>37</td>
<td>32</td>
</tr>
<tr>
<td>3</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>35</td>
<td>37</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
<td>37</td>
</tr>
</tbody>
</table>

Compose the data into a graph or chart using third party data analysis and visualization tools such as OpenOffice.org Calc and Microsoft Excel. For this example, a line graph showing the total system utilization over time is a useful visualization. Figure 2.2, “Total system utilization line graph” was produced using the Chart Wizard tool in OpenOffice.org Calc.

![Total system utilization](image)

**Figure 2.2. Total system utilization line graph**

**Tag Filter of Latest Virtual Machine Configuration**

This example filters the latest virtual machine configuration list using the history tag tables. This kind of report demonstrates usage of the tags tree built in the Red Hat Enterprise Virtualization Manager to filter lists. The following SQL query defines this report. This query uses a predefined function that receives tag history IDs and returns the tag path with latest names of the tags in the Administration Portal. Ensure the values provided for the function result components of the `where` clause are substituted with appropriate values for your environment.

**Example 2.3**
This query returns a table of data with all virtual machine names that are attached to this tag:

### Table 2.4. Tag Filtering of Latest Virtual Machine Configuration

<table>
<thead>
<tr>
<th>vm_name</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHEL6-Pool-67</td>
</tr>
<tr>
<td>RHEL6-Pool-5</td>
</tr>
<tr>
<td>RHEL6-Pool-6</td>
</tr>
<tr>
<td>RHEL6-23</td>
</tr>
</tbody>
</table>

**List Current Virtual Machines’ Names, Types, and Operating Systems**

This example produces a list of all current virtual machines names, types and operating systems in the Red Hat Enterprise Virtualization Manager environment. This kind of report demonstrates the usage of the ENUM table. The following SQL query defines this report:

**Example 2.4.**

```sql
SELECT vm_name, vm_type, operating_system
FROM vm_configuration
inner join enum_translator as vm_type_value
    on (vm_type_value.enum_type = 'VM_TYPE' and vm_configuration.vm_type = vm_type_value.enum_key)
inner join enum_translator as os_value
    on (os_value.enum_type = 'OS_TYPE' and vm_configuration.operating_system = os_value.enum_key)
```

This query returns a table of virtual machines with operating system and virtual machine type data:

### Table 2.5. Current Virtual Machines’ Names, Types, and Operating Systems

<table>
<thead>
<tr>
<th>vm_name</th>
<th>vm_type</th>
<th>operating_system</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHEL6-Pool-2</td>
<td>Desktop</td>
<td>RHEL 6 x64</td>
</tr>
<tr>
<td>RHEL6-Pool-1</td>
<td>Desktop</td>
<td>RHEL 6 x64</td>
</tr>
</tbody>
</table>
2.2.8. Statistics History Views

2.2.8.1. Statistics History Views

This section describes the statistics history views available to the user for querying and generating reports.

2.2.8.2. Datacenter Statistics Views

Historical statistics for each data center in the system.

Table 2.6. Historical Statistics for Each Data Center in the System

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>bigint</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>history_datetime</td>
<td>timestamp with time zone</td>
<td>The timestamp of this history row</td>
</tr>
<tr>
<td>datatime (rounded to minute, hour, day as per the aggregation level).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>datacenter_id</td>
<td>uuid</td>
<td>The unique ID of the data center.</td>
</tr>
<tr>
<td>datacenter_status</td>
<td>smallint</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1 - Unknown Status (used only to indicate a problem with the ETL -- PLEASE NOTIFY SUPPORT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - Up</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 - Problematic</td>
</tr>
</tbody>
</table>
The total number of minutes that the data center was in the status shown in the datacenter_status column for the aggregation period. For example, if a data center was up for 55 minutes and in maintenance mode for 5 minutes during an hour, two rows will show for this hour. One will have a datacenter_status of **Up** and minutes_in_status of 55, the other will have a datacenter_status of **Maintenance** and a minutes_in_status of 5.

The data center configuration version at the time of sample.

### 2.2.8.3. Storage Domain Statistics Views

**Table 2.7. Historical Statistics for Each Storage Domain in the System**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>bigint</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>history_datetime</td>
<td>timestamp with time zone</td>
<td>The timestamp of this history row (rounded to minute, hour, day as per the aggregation level).</td>
</tr>
<tr>
<td>storage_domain_id</td>
<td>uuid</td>
<td>Unique ID of the storage domain in the system.</td>
</tr>
<tr>
<td>available_disk_size_gb</td>
<td>integer</td>
<td>The total available (unused) capacity on the disk, expressed in gigabytes (GB).</td>
</tr>
<tr>
<td>used_disk_size_gb</td>
<td>integer</td>
<td>The total used capacity on the disk, expressed in gigabytes (GB).</td>
</tr>
<tr>
<td>storage_configuration_version</td>
<td>integer</td>
<td>The storage domain configuration version at the time of sample.</td>
</tr>
<tr>
<td>storage_domain_status</td>
<td>smallint</td>
<td>The storage domain status.</td>
</tr>
</tbody>
</table>
The total number of minutes that the storage domain was in the status shown state as shown in the status column for the aggregation period. For example, if a storage domain was "Active" for 55 minutes and "Inactive" for 5 minutes within an hour, two rows will be reported in the table for the same hour. One row will have a status of Active with minutes_in_status of 55, the other will have a status of Inactive and minutes_in_status of 5.

2.2.8.4. Host Statistics Views

Table 2.8. Historical Statistics for Each Host in the System

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>minutes_in_status</td>
<td>decimal</td>
<td>The total number of minutes that the storage domain was in the status shown state as shown in the status column for the aggregation period. For example, if a storage domain was &quot;Active&quot; for 55 minutes and &quot;Inactive&quot; for 5 minutes within an hour, two rows will be reported in the table for the same hour. One row will have a status of Active with minutes_in_status of 55, the other will have a status of Inactive and minutes_in_status of 5.</td>
</tr>
<tr>
<td>history_id</td>
<td>bigint</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>history_datetime</td>
<td>timestamp with time zone</td>
<td>The timestamp of this history row (rounded to minute, hour, day as per the aggregation level).</td>
</tr>
<tr>
<td>host_id</td>
<td>uuid</td>
<td>Unique ID of the host in the system.</td>
</tr>
</tbody>
</table>
| host_status     | smallint              | -1 - \textit{Unknown Status} (used only to indicate a problem with the ETL -- PLEASE NOTIFY SUPPORT)  
|                 |                       | - 1 - \textit{Up}  
|                 |                       | - 2 - \textit{Maintenance}  
<p>|                 |                       | - 3 - \textit{Problematic}  |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>minutes_in_status</td>
<td>decimal</td>
<td>The total number of minutes that the host was in the status shown in the status column for the aggregation period. For example, if a host was up for 55 minutes and down for 5 minutes during an hour, two rows will show for this hour. One will have a status of Up and minutes_in_status of 55, the other will have a status of Down and a minutes_in_status of 5.</td>
</tr>
<tr>
<td>memory_usage_percent</td>
<td>smallint</td>
<td>Percentage of used memory on the host.</td>
</tr>
<tr>
<td>max_memory_usage</td>
<td>smallint</td>
<td>The maximum memory usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>cpu_usage_percent</td>
<td>smallint</td>
<td>Used CPU percentage on the host.</td>
</tr>
<tr>
<td>max_cpu_usage</td>
<td>smallint</td>
<td>The maximum CPU usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>ksm_cpu_percent</td>
<td>smallint</td>
<td>CPU percentage ksm on the host is using.</td>
</tr>
<tr>
<td>max_ksm_cpu_percent</td>
<td>smallint</td>
<td>The maximum KSM usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>active_vms</td>
<td>smallint</td>
<td>The average number of active virtual machines for this aggregation.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>max_active_vms</td>
<td>smallint</td>
<td>The maximum active number of virtual machines for the aggregation period. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>total_vms</td>
<td>smallint</td>
<td>The average number of all virtual machines on the host for this aggregation.</td>
</tr>
<tr>
<td>max_total_vms</td>
<td>smallint</td>
<td>The maximum total number of virtual machines for the aggregation period. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>total_vms_vcpus</td>
<td>smallint</td>
<td>Total number of VCPUs allocated to the host.</td>
</tr>
<tr>
<td>max_total_vms_vcpus</td>
<td>smallint</td>
<td>The maximum total virtual machine VCPU number for the aggregation period. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>cpu_load</td>
<td>smallint</td>
<td>The CPU load of the host.</td>
</tr>
<tr>
<td>max_cpu_load</td>
<td>smallint</td>
<td>The maximum CPU load for the aggregation period. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>system_cpu_usage_percent</td>
<td>smallint</td>
<td>Used CPU percentage on the host.</td>
</tr>
<tr>
<td>max_system_cpu_usage_percent</td>
<td>smallint</td>
<td>The maximum system CPU usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>user_cpu_usage_percent</td>
<td>smallint</td>
<td>Used user CPU percentage on the host.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>max_user_cpu_usage_percent</td>
<td>smallint</td>
<td>The maximum user CPU usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>swap_used_mb</td>
<td>integer</td>
<td>Used swap size usage of the host in megabytes (MB).</td>
</tr>
<tr>
<td>max_swap_used_mb</td>
<td>integer</td>
<td>The maximum user swap size usage of the host for the aggregation period in megabytes (MB), expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>host_configuration_version</td>
<td>integer</td>
<td>The host configuration version at the time of sample.</td>
</tr>
<tr>
<td>ksm_shared_memory_mb</td>
<td>bigint</td>
<td>The Kernel Shared Memory size in megabytes (MB) that the host is using.</td>
</tr>
<tr>
<td>max_ksm_shared_memory_mb</td>
<td>bigint</td>
<td>The maximum KSM memory usage for the aggregation period expressed in megabytes (MB). For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
</tbody>
</table>

### 2.2.8.5. Host Interface Statistics Views

Historical Statistics for Each Host Network Interface in the System

**Table 2.9. Historical Statistics for Each Host Network Interface in the System**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>bigint</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>history_datetime</td>
<td>timestamp with time zone</td>
<td>The timestamp of this history view (rounded to minute, hour, day as per the aggregation level).</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>host_interface_id</td>
<td>uuid</td>
<td>Unique identifier of the interface in the system.</td>
</tr>
<tr>
<td>receive_rate_percent</td>
<td>smallint</td>
<td>Used receive rate percentage on the host.</td>
</tr>
<tr>
<td>max_receive_rate_percent</td>
<td>smallint</td>
<td>The maximum receive rate for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>transmit_rate_percent</td>
<td>smallint</td>
<td>Used transmit rate percentage on the host.</td>
</tr>
<tr>
<td>max_transmit_rate_percent</td>
<td>smallint</td>
<td>The maximum transmit rate for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>host_interface_configuration_version</td>
<td>integer</td>
<td>The host interface configuration version at the time of sample.</td>
</tr>
</tbody>
</table>

**2.2.8.6. Virtual Machine Statistics Views**

**Table 2.10. Historical statistics for the virtual machines in the system**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>bigint</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>history_datetime</td>
<td>timestamp with time zone</td>
<td>The timestamp of this history row (rounded to minute, hour, day as per the aggregation level).</td>
</tr>
<tr>
<td>vm_id</td>
<td>uuid</td>
<td>Unique ID of the virtual machine in the system.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>vm_status</td>
<td>smallint</td>
<td>-1 - Unknown Status (used only to indicate problems with the ETL -- PLEASE NOTIFY SUPPORT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 - Down</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - Up</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Paused</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 - Problematic</td>
</tr>
<tr>
<td>minutes_in_status</td>
<td>decimal</td>
<td>The total number of minutes that the virtual machine was in the status shown in the status column for the aggregation period. For example, if a virtual machine was up for 55 minutes and down for 5 minutes during an hour, two rows will show for this hour. One will have a status of Up and minutes_in_status, the other will have a status of Down and a minutes_in_status of 5.</td>
</tr>
<tr>
<td>cpu_usage_percent</td>
<td>smallint</td>
<td>The percentage of the CPU in use by the virtual machine.</td>
</tr>
<tr>
<td>max_cpu_usage</td>
<td>smallint</td>
<td>The maximum CPU usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>memory_usage_percent</td>
<td>smallint</td>
<td>Percentage of used memory in the virtual machine. The guest tools must be installed on the virtual machine for memory usage to be recorded.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>max_memory_usage</td>
<td>smallint</td>
<td>The maximum memory usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value. The guest tools must be installed on the virtual machine for memory usage to be recorded.</td>
</tr>
<tr>
<td>user_cpu_usage_percent</td>
<td>smallint</td>
<td>Used user CPU percentage on the host.</td>
</tr>
<tr>
<td>max_user_cpu_usage_percent</td>
<td>smallint</td>
<td>The maximum user CPU usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregation, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>system_cpu_usage_percent</td>
<td>smallint</td>
<td>Used system CPU percentage on the host.</td>
</tr>
<tr>
<td>max_system_cpu_usage_percent</td>
<td>smallint</td>
<td>The maximum system CPU usage for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>vm_ip</td>
<td>varchar(255)</td>
<td>The IP address of the first NIC. Only shown if the guest agent is installed.</td>
</tr>
<tr>
<td>current_user_name</td>
<td>varchar(255)</td>
<td>Name of user logged into the virtual machine console, if a guest agent is installed.</td>
</tr>
<tr>
<td>currently_running_on_host</td>
<td>uuid</td>
<td>The unique ID of the host the virtual machine is running on.</td>
</tr>
<tr>
<td>vm_configuration_version</td>
<td>integer</td>
<td>The virtual machine configuration version at the time of sample.</td>
</tr>
<tr>
<td>current_host_configuration_version</td>
<td>integer</td>
<td>The current host the virtual machine is running on.</td>
</tr>
</tbody>
</table>
2.2.8.7. Virtual Machine Interface Statistics Views

Table 2.11. Historical Statistics for the Virtual Machine Network Interfaces in the System

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>current_user_id</td>
<td>uuid</td>
<td>The unique ID of the user in the system. This ID is generated by the Manager.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>bigint</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>history_datetime</td>
<td>timestamp with time zone</td>
<td>The timestamp of this history row (rounded to minute, hour, day as per the aggregation level).</td>
</tr>
<tr>
<td>vm_interface_id</td>
<td>uuid</td>
<td>Unique identifier of the interface in the system.</td>
</tr>
<tr>
<td>receive_rate_percent</td>
<td>smallint</td>
<td>Used receive rate percentage on the host.</td>
</tr>
<tr>
<td>max_receive_rate_percent</td>
<td>smallint</td>
<td>The maximum receive rate for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>transmit_rate_percent</td>
<td>smallint</td>
<td>Used transmit rate percentage on the host.</td>
</tr>
<tr>
<td>max_transmit_rate_percent</td>
<td>smallint</td>
<td>The maximum transmit rate for the aggregation period, expressed as a percentage. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average rate.</td>
</tr>
<tr>
<td>vm_interface_configuration_version</td>
<td>integer</td>
<td>The virtual machine interface configuration version at the time of sample.</td>
</tr>
</tbody>
</table>

2.2.8.8. Virtual Machine Disk Statistics Views
Table 2.12. Historical Statistics for the Virtual Disks in the System

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>bigint</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>history_datetime</td>
<td>timestamp with time zone</td>
<td>The timestamp of this history row (rounded to minute, hour, day as per the aggregation level).</td>
</tr>
<tr>
<td>vm_disk_id</td>
<td>uuid</td>
<td>Unique ID of the disk in the system.</td>
</tr>
</tbody>
</table>
| vm_disk_status     | integer            | 0 - Unassigned  
1 - OK  
2 - Locked  
3 - Invalid  
4 - Illegal                                                                                                 |
<p>| minutes_in_status  | decimal            | The total number of minutes that the virtual machine disk was in the status shown in the status column for the aggregation period. For example, if a virtual machine disk was locked for 55 minutes and OK for 5 minutes during an hour, two rows will show for this hour. One will have a status of Locked and minutes_in_status of 55, the other will have a status of OK and a minutes_in_status of 5. |
| vm_disk_actual_size_mb | integer         | The actual size allocated to the disk.                                                                                      |
| read_rate_bytes_per_second | integer           | Read rate to disk in bytes per second.                                                                                           |
| max_read_rate_bytes_per_second | integer          | The maximum read rate for the aggregation period. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value. |
| read_latency_seconds | decimal           | The virtual machine disk read latency measured in seconds.                                                                         |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>max_read_latency_seconds</td>
<td>decimal</td>
<td>The maximum read latency for the aggregation period, measured in seconds. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>write_rate_bytes_per_second</td>
<td>integer</td>
<td>Write rate to disk in bytes per second.</td>
</tr>
<tr>
<td>max_write_rate_bytes_per_second</td>
<td>integer</td>
<td>The maximum write rate for the aggregation period. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>write_latency_seconds</td>
<td>decimal</td>
<td>The virtual machine disk write latency measured in seconds.</td>
</tr>
<tr>
<td>max_write_latency_seconds</td>
<td>decimal</td>
<td>The maximum write latency for the aggregation period, measured in seconds. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>flush_latency_seconds</td>
<td>decimal</td>
<td>The virtual machine disk flush latency measured in seconds.</td>
</tr>
<tr>
<td>max_flush_latency_seconds</td>
<td>decimal</td>
<td>The maximum flush latency for the aggregation period, measured in seconds. For hourly aggregations, this is the maximum collected sample value. For daily aggregations, it is the maximum hourly average value.</td>
</tr>
<tr>
<td>vm_disk_configuration_version</td>
<td>integer</td>
<td>The virtual machine disk configuration version at the time of sample.</td>
</tr>
</tbody>
</table>

### 2.2.9. Configuration History Views

### 2.2.9.1. Configuration History Views
This section describes the configuration views available to the user for querying and generating reports.

**NOTE**

datacenter_id does not appear in latest views because these views provide the latest configuration of living entities, which, by definition, have not been deleted.

### 2.2.9.2. Data Center Configuration

The following table shows the configuration history parameters of the data centers in the system.

**Table 2.13. v3_5_configuration_history_datacenters**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>datacenter_id</td>
<td>uuid</td>
<td>The unique ID of the data center in the system.</td>
</tr>
<tr>
<td>datacenter_name</td>
<td>varchar(40)</td>
<td>Name of the data center, as displayed in the edit dialog.</td>
</tr>
<tr>
<td>datacenter_description</td>
<td>varchar(4000)</td>
<td>Description of the data center, as displayed in the edit dialog.</td>
</tr>
</tbody>
</table>
| storage_type           | smallint        | • 0 -Unknown  
                        | • 1 - NFS  
                        | • 2 - FCP  
                        | • 3 - iSCSI  
                        | • 4 - Local  
                        | • 6 - All    |
| create_date            | timestamp with time zone | The date this entity was added to the system. |
| update_date            | timestamp with time zone | The date this entity was changed in the system. |
| delete_date            | timestamp with time zone | The date this entity was deleted from the system. |
2.2.9.3. Datacenter Storage Domain Map

The following table shows the relationships between storage domains and data centers in the system.

Table 2.14. v3_5_map_history_datacenters_storage_domains

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>storage_domain_id</td>
<td>uuid</td>
<td>The unique ID of this storage domain in the system.</td>
</tr>
<tr>
<td>datacenter_id</td>
<td>uuid</td>
<td>The unique ID of the data center in the system.</td>
</tr>
<tr>
<td>attach_date</td>
<td>timestamp with time zone</td>
<td>The date the storage domain was attached to the data center.</td>
</tr>
<tr>
<td>detach_date</td>
<td>timestamp with time zone</td>
<td>The date the storage domain was detached from the data center.</td>
</tr>
</tbody>
</table>

2.2.9.4. Storage Domain Configuration

The following table shows the configuration history parameters of the storage domains in the system.

Table 2.15. v3_5_configuration_history_storage_domains

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>storage_domain_id</td>
<td>uuid</td>
<td>The unique ID of this storage domain in the system.</td>
</tr>
<tr>
<td>storage_domain_name</td>
<td>varchar(250)</td>
<td>Storage domain name.</td>
</tr>
</tbody>
</table>
| storage_domain_type   | smallint         | - 0 - Data (Master)  
- 1 - Data  
- 2 - ISO  
- 3 - Export |
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>storage_type</td>
<td>smallint</td>
<td>- 0 - Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 1 - NFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2 - FCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 3 - iSCSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 4 - Local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 6 - All</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was added to the system.</td>
</tr>
<tr>
<td>update_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was changed in the system.</td>
</tr>
<tr>
<td>delete_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was deleted from the system.</td>
</tr>
</tbody>
</table>

### 2.2.9.5. Cluster Configuration

The following table shows the configuration history parameters of the clusters in the system.

**Table 2.16. v3_5_configuration_history_clusters**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>cluster_id</td>
<td>uuid</td>
<td>The unique identifier of the datacenter this cluster resides in.</td>
</tr>
<tr>
<td>cluster_name</td>
<td>varchar(40)</td>
<td>Name of the cluster, as displayed in the edit dialog.</td>
</tr>
<tr>
<td>cluster_description</td>
<td>varchar(4000)</td>
<td>As defined in the edit dialog.</td>
</tr>
<tr>
<td>datacenter_id</td>
<td>uuid</td>
<td>The unique identifier of the datacenter this cluster resides in.</td>
</tr>
<tr>
<td>cpu_name</td>
<td>varchar(255)</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>compatibility_version</td>
<td>varchar(40)</td>
<td>As displayed in the edit dialog.</td>
</tr>
</tbody>
</table>
2.2.9.6. Host Configuration

The following table shows the configuration history parameters of the hosts in the system.

Table 2.17. v3_5_configuration_history_hosts

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>host_id</td>
<td>uuid</td>
<td>The unique ID of the host in the system.</td>
</tr>
<tr>
<td>host_unique_id</td>
<td>varchar(128)</td>
<td>This field is a combination of the host physical UUID and one of its MAC addresses, and is used to detect hosts already registered in the system.</td>
</tr>
<tr>
<td>host_name</td>
<td>varchar(255)</td>
<td>Name of the host (same as in the edit dialog).</td>
</tr>
<tr>
<td>cluster_id</td>
<td>uuid</td>
<td>The unique ID of the cluster that this host belongs to.</td>
</tr>
</tbody>
</table>
| host_type             | smallint      | • 0 - RHEL Host  
<pre><code>                    | • 2 - RHEV Hypervisor Node                                                 |
</code></pre>
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>fqdn_or_ip</td>
<td>varchar(255)</td>
<td>The host's DNS name or its IP address for Red Hat Enterprise Virtualization Manager to communicate with (as displayed in the edit dialog).</td>
</tr>
<tr>
<td>memory_size_mb</td>
<td>integer</td>
<td>The host's physical memory capacity, expressed in megabytes (MB).</td>
</tr>
<tr>
<td>swap_size_mb</td>
<td>integer</td>
<td>The host swap partition size.</td>
</tr>
<tr>
<td>cpu_model</td>
<td>varchar(255)</td>
<td>The host's CPU model.</td>
</tr>
<tr>
<td>number_of_cores</td>
<td>smallint</td>
<td>Total number of CPU cores in the host.</td>
</tr>
<tr>
<td>number_of.Sockets</td>
<td>smallint</td>
<td>Total number of CPU sockets.</td>
</tr>
<tr>
<td>cpu_speed_mh</td>
<td>decimal</td>
<td>The host's CPU speed, expressed in megahertz (MHz).</td>
</tr>
<tr>
<td>host_os</td>
<td>varchar(255)</td>
<td>The host's operating system version.</td>
</tr>
<tr>
<td>pm_ip_address</td>
<td>varchar(255)</td>
<td>Power Management server IP address.</td>
</tr>
<tr>
<td>kernel_version</td>
<td>varchar(255)</td>
<td>The host's kernel version.</td>
</tr>
<tr>
<td>kvm_version</td>
<td>varchar(255)</td>
<td>The host's KVM version.</td>
</tr>
<tr>
<td>vdsms_version</td>
<td>varchar(40)</td>
<td>The host's VDSM version.</td>
</tr>
<tr>
<td>vdsms_port</td>
<td>integer</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>cluster_configuration_version</td>
<td>integer</td>
<td>The cluster configuration version at the time of creation or update.</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was added to the system.</td>
</tr>
<tr>
<td>update_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was changed in the system.</td>
</tr>
<tr>
<td>delete_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was deleted from the system.</td>
</tr>
</tbody>
</table>
2.2.9.7. Host Interface Configuration

The following table shows the configuration history parameters of the host interfaces in the system.

Table 2.18. v3_5_configuration_history_hosts_interfaces

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>host_interface_id</td>
<td>uuid</td>
<td>The unique ID of this interface in the system.</td>
</tr>
<tr>
<td>host_interface_name</td>
<td>varchar(50)</td>
<td>The interface name as reported by the host.</td>
</tr>
<tr>
<td>host_id</td>
<td>uuid</td>
<td>Unique ID of the host this interface belongs to.</td>
</tr>
</tbody>
</table>
| host_interface_type       | smallint| - 0 - rt18139_pv  
                          - 1 - rt18139  
                          - 2 - e1000  
                          - 3 - pv                                                |
| host_interface_speed_bps  | integer | The interface speed in bits per second.                                      |
| mac_address               | varchar(20) | The interface MAC address.                                                  |
| logical_network_name      | varchar(50) | The logical network associated with the interface.                        |
| ip_address                | varchar(50) | As displayed in the edit dialog.                                           |
| gateway                   | varchar(20) | As displayed in the edit dialog.                                           |
| bond                      | Boolean | A flag to indicate if this interface is a bonded interface.                |
| bond_name                 | varchar(50) | The name of the bond this interface is part of (if it is part of a bond).  |
| vlan_id                   | integer | As displayed in the edit dialog.                                           |
### 2.2.9.8. Virtual Machine Configuration

The following table shows the configuration history parameters of the virtual machines in the system.

**Table 2.19. v3_5_configuration_history_vms**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>vm_id</td>
<td>uuid</td>
<td>The unique ID of this VM in the system.</td>
</tr>
<tr>
<td>vm_name</td>
<td>varchar(255)</td>
<td>The name of the VM.</td>
</tr>
<tr>
<td>vm_description</td>
<td>varchar(4000)</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>vm_type</td>
<td>smallint</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>♦ 0 - Desktop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>♦ 1 - Server</td>
</tr>
<tr>
<td>cluster_id</td>
<td>uuid</td>
<td>The unique ID of the cluster this VM belongs to.</td>
</tr>
<tr>
<td>template_id</td>
<td>uuid</td>
<td>The unique ID of the template this VM is derived from. The field is for future use, as the templates are not synchronized to the history database in this version.</td>
</tr>
<tr>
<td>template_name</td>
<td>varchar(40)</td>
<td>Name of the template from which this VM is derived.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>cpu_per_socket</td>
<td>smallint</td>
<td>Virtual CPUs per socket.</td>
</tr>
<tr>
<td>number_ofsockets</td>
<td>smallint</td>
<td>Total number of virtual CPU sockets.</td>
</tr>
<tr>
<td>memory_size_mb</td>
<td>integer</td>
<td>Total memory allocated to the VM, expressed in megabytes (MB).</td>
</tr>
</tbody>
</table>
| operating_system    | smallint | • 0 - Other OS  
• 1 - Windows XP  
• 3 - Windows 2003  
• 4 - Windows 2008  
• 5 - Linux  
• 7 - Red Hat Enterprise Linux 5.x  
• 8 - Red Hat Enterprise Linux 4.x  
• 9 - Red Hat Enterprise Linux 3.x  
• 10 - Windows 2003 x64  
• 11 - Windows 7  
• 12 - Windows 7 x64  
• 13 - Red Hat Enterprise Linux 5.x x64  
• 14 - Red Hat Enterprise Linux 4.x x64  
• 15 - Red Hat Enterprise Linux 3.x x64  
• 16 - Windows 2008 x64  
• 17 - Windows 2008 R2 x64  
• 18 - Red Hat Enterprise Linux 6.x  
• 19 - Red Hat Enterprise Linux 6.x x64  
• 20 - Windows 8  
• 21 - Windows 8 x64  
• 23 - Windows 2012 x64  
• 1001 - Other       |
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>default_host</td>
<td>uuid</td>
<td>As displayed in the edit dialog, the ID of the default host in the system.</td>
</tr>
<tr>
<td>high_availability</td>
<td>Boolean</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>initialized</td>
<td>Boolean</td>
<td>A flag to indicate if this VM was started at least once for Sysprep initialization purposes.</td>
</tr>
<tr>
<td>stateless</td>
<td>Boolean</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>fail_back</td>
<td>Boolean</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>usb_policy</td>
<td>smallint</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>time_zone</td>
<td>varchar(40)</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>cluster_configuration_version</td>
<td>integer</td>
<td>The cluster configuration version at the time of creation or update.</td>
</tr>
<tr>
<td>default_host_configuration_version</td>
<td>integer</td>
<td>The host configuration version at the time of creation or update.</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was added to the system.</td>
</tr>
<tr>
<td>update_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was changed in the system.</td>
</tr>
<tr>
<td>delete_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was deleted from the system.</td>
</tr>
</tbody>
</table>
### Name | Type | Description
--- | --- | ---
vm_pool_id | uuid | The virtual machine's pool unique ID.
vm_pool_name | varchar(255) | The name of the virtual machine's pool.

### 2.2.9.9. Virtual Machine Interface Configuration

The following table shows the configuration history parameters of the virtual interfaces in the system.

#### Table 2.20. v3_5_configuration_history_vms_interfaces

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>vm_interface_id</td>
<td>uuid</td>
<td>The unique ID of this interface in the system.</td>
</tr>
<tr>
<td>vm_interface_name</td>
<td>varchar(50)</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>vm_interface_type</td>
<td>smallint</td>
<td>The type of the virtual interface.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0 - rt18139_pv</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 1 - rt18139</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2 - e1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 3 - pv</td>
</tr>
<tr>
<td>vm_interface_speed_bps</td>
<td>integer</td>
<td>The average speed of the interface during the aggregation in bits per second.</td>
</tr>
<tr>
<td>mac_address</td>
<td>varchar(20)</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>logical_network_name</td>
<td>varchar(50)</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>vm_configuration_version</td>
<td>integer</td>
<td>The virtual machine configuration version at the time of creation or update.</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was added to the system.</td>
</tr>
</tbody>
</table>
### 2.2.9.10. Virtual Machine Device Configuration

The following table shows the relationships between virtual machines and their associated devices, including disks and virtual interfaces.

**Table 2.21. v3_5_configuration_history_vms_devices**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>vm_id</td>
<td>uuid</td>
<td>The unique ID of the virtual machine in the system.</td>
</tr>
<tr>
<td>type</td>
<td>varchar(30)</td>
<td>VM Device Type which can be &quot;disk&quot; or &quot;interface&quot;</td>
</tr>
<tr>
<td>address</td>
<td>varchar(255)</td>
<td>The virtual machine's device physical address</td>
</tr>
<tr>
<td>is_managed</td>
<td>Boolean</td>
<td>Flag that indicates if the device is managed by the Manager</td>
</tr>
<tr>
<td>is_plugged</td>
<td>Boolean</td>
<td>Flag that indicates if the device is plugged into the virtual machine.</td>
</tr>
<tr>
<td>is_readonly</td>
<td>Boolean</td>
<td>Flag that indicates if the device is read only.</td>
</tr>
<tr>
<td>vm_configuration_version</td>
<td>integer</td>
<td>The virtual machine configuration version at the time the sample was taken.</td>
</tr>
<tr>
<td>device_configuration_version</td>
<td>integer</td>
<td>The device configuration version at the time the sample was taken.</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was added to the system.</td>
</tr>
</tbody>
</table>
2.2.9.11. Virtual Machine Disk Configuration

The following table shows the configuration history parameters of the virtual disks in the system.

Table 2.22. v3_5_configuration_history_vms_disks

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>update_date</td>
<td>timestamp</td>
<td>The date this entity was added to the system.</td>
</tr>
<tr>
<td>delete_date</td>
<td>timestamp</td>
<td>The date this entity was added to the system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The ID of the configuration version in the history database.</td>
</tr>
<tr>
<td>vm_disk_id</td>
<td>uuid</td>
<td>The unique ID of this disk in the system.</td>
</tr>
<tr>
<td>vm_disk_description</td>
<td>varchar(4000)</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td>storage_domain_id</td>
<td>uuid</td>
<td>The ID of the storage domain this disk image belongs to.</td>
</tr>
<tr>
<td>vm_disk_size_mb</td>
<td>integer</td>
<td>The defined size of the disk in megabytes (MB).</td>
</tr>
<tr>
<td>vm_disk_type</td>
<td>integer</td>
<td>As displayed in the edit dialog. Only System and data are currently used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 0 - Unassigned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1 - System</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2 - Data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3 - Shared</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 4 - Swap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 5 - Temp</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>vm_disk_format</td>
<td>integer</td>
<td>As displayed in the edit dialog.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 3 - Unassigned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 4 - COW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 5 - RAW</td>
</tr>
<tr>
<td>vm_disk_interface</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0 - IDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 1 - SCSI (not supported)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 2 - VirtIO</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was added to the system.</td>
</tr>
<tr>
<td>update_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was changed in the system.</td>
</tr>
<tr>
<td>delete_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was deleted from the system.</td>
</tr>
<tr>
<td>is_shared</td>
<td>Boolean</td>
<td>Flag that indicates if the virtual machine's disk is shared.</td>
</tr>
<tr>
<td>image_id</td>
<td>uuid</td>
<td>The unique ID of the image in the system.</td>
</tr>
</tbody>
</table>

2.2.9.12. User Details History

The following table shows the configuration history parameters of the users in the system.

**Table 2.23. v3_6_users_details_history view**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>user_id</td>
<td>uuid</td>
<td>The unique ID of the user in the system as generated by Manager.</td>
</tr>
<tr>
<td>first_name</td>
<td>varchar(255)</td>
<td>The user's first name.</td>
</tr>
<tr>
<td>last_name</td>
<td>varchar(255)</td>
<td>The user's last name.</td>
</tr>
<tr>
<td>domain</td>
<td>varchar(255)</td>
<td>The name of the authorization extension.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>username</td>
<td>varchar(255)</td>
<td>The account name</td>
</tr>
<tr>
<td>department</td>
<td>varchar(255)</td>
<td>The organizational department the user belongs to.</td>
</tr>
<tr>
<td>user_role_title</td>
<td>varchar(255)</td>
<td>The title or role of the user within the organization.</td>
</tr>
<tr>
<td>email</td>
<td>varchar(255)</td>
<td>The email of the user in the organization.</td>
</tr>
<tr>
<td>external_id</td>
<td>text</td>
<td>The unique identifier of the user from the external system.</td>
</tr>
<tr>
<td>active</td>
<td>Boolean</td>
<td>If the user is active or not - this is being checked once in an hour, if the user can be found in the authorization extension then it will remain active. A user can be turned to active also on successful login.</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was added to the system.</td>
</tr>
<tr>
<td>update_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was changed in the system.</td>
</tr>
<tr>
<td>delete_date</td>
<td>timestamp with time zone</td>
<td>The date this entity was deleted from the system.</td>
</tr>
</tbody>
</table>

### 2.3. REPORTS

#### 2.3.1. Online Help for JasperReports

JasperServer provides extensive online help. Use the online help to find information on common administration tasks and the JasperServer product in general. This section provides information on the reports available for Red Hat Enterprise Virtualization and the customizations that integrate JasperServer with Red Hat Enterprise Virtualization. To navigate to the online help facility, click on Help in the top right hand corner of the browser.

![Figure 2.3. Red Hat Enterprise Virtualization Reports online help](image)
2.3.2. JasperReports System Requirements

The Red Hat Enterprise Virtualization Manager Reports tool supports the same browsers that are supported by the corresponding version of JasperReports Server. For an updated list, navigate to [http://community.jaspersoft.com/documentation/v55-v551-v550/jasperreports-server-supported-platform-datasheet](http://community.jaspersoft.com/documentation/v55-v551-v550/jasperreports-server-supported-platform-datasheet) and click Web Browsers in the table of contents.

2.3.3. Users in the Red Hat Enterprise Virtualization Reports Portal

The Red Hat Enterprise Virtualization Reports Portal does not use your directory server for authentication.

By default, there are two Reports Portal users: admin and superuser. The passwords for these users were set during the installation of Red Hat Enterprise Virtualization Reports. Generally, additional users must be added manually.

When a domain user accesses the Reports Portal from within the Administration Portal using right-click reporting, a corresponding user is automatically created in the Reports Portal using the user’s domain user name. This user cannot log in to the Reports Portal directly, but is able to view all the reports accessible from the Administration portal.

NOTE

Previously, the admin user name was rhevm-admin. If you are performing a clean installation, the user name is now admin. If you are performing an upgrade, the user name will remain rhevm-admin.

2.3.4. Resetting the Password for the Reports Administrative User

Change the password for the Red Hat Enterprise Virtualization Reports administrative user using the ovirt-engine-reports-tool utility. Note that changing the Reports administrative password requires you to restart the ovirt-engine-reportsd service, and access to Reports functionality will be interrupted.

Procedure 2.2. Resetting the Password for the Reports Administrative User

1. Log in to the machine on which Red Hat Enterprise Virtualization Reports is installed.

2. Run the ovirt-engine-reports-tool command:

```
# ovirt-engine-reports-tool
```

3. Enter the number that corresponds to the change the password option, and press Enter:

```
(1) Change the password of the internal Reports Admin
(1, 2, 3) []: 1
```
4. Enter a new password, and press Enter:

   Reports admin password: NEW_PASS
   Please confirm password: NEW_PASS

5. Restart the ovirt-engine-reportsd service to apply the change:

   # service ovirt-engine-reportsd restart

The ovirt-engine-reports-tool utility can also be used to export and import saved ad hoc reports. See Section 2.3.16, “Backing Up and Restoring Saved Ad Hoc Reports” for more information about the import and export functions.

### 2.3.5. Logging in to Access the Reports Portal

You were prompted to set a password for the superuser and admin accounts when you installed Red Hat Enterprise Virtualization Reports. Red Hat Enterprise Virtualization Reports does not provide default passwords.

To access reports, navigate to the reports portal at: https://YOUR.MANAGER.URL/ovirt-engine-reports/login.html. A login screen for Red Hat Enterprise Virtualization Reports is displayed.

**NOTE**

You can also access the reports portal from your Red Hat Enterprise Virtualization landing page.

![Red Hat Enterprise Virtualization Reports login screen](image)

Figure 2.4. Red Hat Enterprise Virtualization Reports login screen

Enter your login credentials. If this is the first time you are connecting to the reports portal, log in as ovirt-user. Click the Login button.
The Reports Portal does not use your directory service for authentication. By default, the Reports Portal includes two users: admin and superuser. Generally, additional users need to be created within the Reports Portal.

### 2.3.6. Accessing the Red Hat Enterprise Virtualization Reports User Management Menu

**Summary**

You can add additional reports users, giving them access to the reports portal. Complete this procedure as a user with sufficient permissions to manage other users, like admin.

1. In to Red Hat Enterprise Virtualization reports portal, hover over the Manage button on the top menu bar.

2. Click on Users in the drop-down menu that appears to access the Manage Users interface. It contains three panes:
   - Organizations
   - Users
   - Properties

3. Select a user in the Users pane by clicking on the name of the user. Information about the user displays in the Properties pane.

4. Click the Edit button at the bottom of the user's Properties pane.

   The Properties pane contains these fields:
   - User name,
- User ID,
- Email,
- Password (required),
- Confirm Password (required),
- A User is enabled check box,
- A The user is defined externally check box,
- A list of Roles Available to the user, and
- A list of Roles Assigned to the user.

5. Click the Save button.

**Result**

You have given more users permissions to access the reports portal.

### 2.3.7. Reports Portal User Roles

There are three roles, each of which provides a different level of permissions:

1. **ROLE_ADMINISTRATOR** - Can create/edit/delete reports, dashboards, ad hoc reports, and manage the server.

2. **ROLE_USER** - Can create/edit/delete ad hoc reports and view reports and dashboards.

3. **ROLE_ANONYMOUS** - Can log in and look at reports and dashboards.

Other roles can be created and assigned. For information on how to create and assign other roles, detailed information about user management, and other system functions, please refer to the JasperServer documentation.

![Figure 2.6. JasperReports user roles](image)

**Figure 2.6. JasperReports user roles**

### 2.3.8. Navigating Reports and Dashboards

Select the **Reports** button on the reports portal home page.

You can use the smaller **Home** (↑) button in the navigation bar at the top of the reports portal to return to this page.
Use the **Filter** pane on the left of the screen to select a subset of reports you would like to view.

![Filter pane](image)

**Figure 2.7. Red Hat Enterprise Virtualization Reports Filter pane**

You can use filters to select from the available reports.

**Table 2.24. Navigation Filters**
### 2.3.9. Report Parameters

Report parameters are user-defined at report run time. Report parameters define the scope and timeframe of the report. When running a report, you are prompted for the parameters applicable to the report you selected.

To view the required parameters for a report, click the report in the reports list.

---

**Figure 2.8. Red Hat Enterprise Virtualization Reports - Reports List**

Select a report from the list to display the Input Controls window. The Input Controls window consists of a number of drop-down menus allow you to define the report’s parameters.

**NOTE**

The dialog is contextual and differs from report to report. Parameters marked with an asterisk (*) are required.
Figure 2.9. Report Parameter Selection

Cascading parameters

Many report parameters are cascading input fields. This means the selection made for one parameter changes the options available for another parameter. The Data Center and Cluster parameters are cascading. Once a user selects a data center, only clusters within that data center are available for selection. Similarly, if a user selects a cluster, the Host Type field updates to show only host types that exist in the selected cluster. Cascading parameters filter out objects that do not contain child objects relevant to the report. For example, a report pertaining to virtual machines removes the selection of clusters that do not contain virtual machines. A report pertaining to both virtual machines and hosts only provides a selection from clusters containing both virtual machines and hosts.

Deleted objects

Objects deleted (removed) from the system are still recorded in the reporting history database. Select deleted objects, such as clusters, data centers and hosts, as values for report parameters if required. The bottom of the parameter options list shows deleted objects, which are suffixed with the date of removal from the system.

You can toggle whether deleted entries are shown in the report using the Show Deleted Entities? field in the Input Controls window.

2.3.10. Right-click Reporting Integration with the Red Hat Enterprise Virtualization Administration Portal
The Administration portal provides integrated access to reports on most resources.

To access a report on a given resource, select the resource in the Administration Portal. Right-click the resource to show a context sensitive menu, and select the Show Report option. This expands to show all of the available reports on the selected resource.

Alternatively, you can select a given resource in the Administration Portal. If there are reports on that resource, the Show Report action becomes available above the results list.

Figure 2.10. Right-click Reporting

Alternatively, you can select a given resource in the Administration Portal. If there are reports on that resource, the Show Report action becomes available above the results list.

2.3.11. Executive Reports

2.3.11.1. Executive reports: Active Virtual Machines by OS

The Active Virtual Machines by OS report shows a summary of the number of active virtual machines in a given time period, broken down by operating system. The following parameters are provided to run this report:
Table 2.25. Active Virtual Machines by OS Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <strong>Dates</strong> parameter. Yearly reports cover a year, beginning on the month specified in the <strong>Dates</strong> parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The report includes only virtual machines in the selected data center. The options list shows only data centers that contain virtual machines.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The report only includes virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If <strong>All</strong> is selected, the report includes all virtual machines in the selected data center.</td>
</tr>
<tr>
<td><strong>Virtual Machine Type</strong></td>
<td>The report only includes virtual machines of the selected type. Possible types are <strong>Server</strong> and <strong>Desktop</strong>. The options list shows only types that exist in the selected data center and cluster. If <strong>All</strong> is selected, the report includes all virtual machine types.</td>
</tr>
</tbody>
</table>

2.3.11.2. Executive Reports: Cluster Capacity Vs Usage

The **Cluster Capacity Vs Usage** report shows the relationship between system capacity and usage (workload) over a given time period. Capacity is expressed in terms of CPU cores and physical memory, while usage is expressed as vCPUs and virtual machine memory. The following parameters must be provided to run this report:

Table 2.26. Cluster Capacity Vs Usage Parameters
### Parameter | Description
--- | ---
**Show Deleted Entities?** | The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.  
**Period Range** | The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the **Dates** parameter. Yearly reports cover a year, beginning on the month specified in the **Dates** parameter.  
**Dates** | The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.  
**Data Center** | The list of options for the **Cluster** parameter includes only clusters in the selected data center. The options list contains only data centers that contain clusters.  
**Cluster** | The report only includes the selected cluster. The options list shows only clusters in the selected data center. If **All** is selected, the report includes all clusters in the selected data center.

### 2.3.11.3. Executive Reports: Host Operating System Break Down

The **Host OS Break Down** report indicates the number of hosts running each operating system version over a given time period. The following parameters must be provided to run this report:

#### Table 2.27. Host OS Break Down Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
</tbody>
</table>
Parameter | Description
--- | ---
**Period Range** | The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the **Dates** parameter. Yearly reports cover a year, beginning on the month specified in the **Dates** parameter.

**Dates** | The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.

**Data Center** | The list of options for the **Cluster** parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.

**Cluster** | The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If **All** is selected, the report includes all hosts in the selected data center.

### 2.3.11.4. Executive Reports: Summary of Host Usage Resources

The **Summary of Host Usage Resources** report shows a scatter plot of average host resource utilization for a given time period in terms of CPU and memory usage. The following parameters must be provided to run this report:

**Table 2.28. Summary of Host Usage Resources Parameters**

| Parameter | Description |
--- | ---
**Show Deleted Entities?** | The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment. |

**Period Range** | The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the **Dates** parameter. Yearly reports cover a year, beginning on the month specified in the **Dates** parameter. |
Dates

The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.

Data Center

The list of options for the *Cluster* parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.

Cluster

The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If *All* is selected, the report includes all hosts in the selected data center.

### 2.3.12. Inventory Reports

#### 2.3.12.1. Inventory Reports: Hosts Inventory

The *Hosts Inventory* report shows a list of all hosts in the selected data center and cluster. The following parameters must be provided to run this report:

**Table 2.29. Hosts Inventory Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the <em>Cluster</em> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If <em>All</em> is selected, the report includes all hosts in the selected data center.</td>
</tr>
</tbody>
</table>
The report includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If All is selected, the report includes all host types.

### 2.3.12.2. Inventory Reports: Storage Domain Over Time

The Storage Domain Size Over Time report shows a line graph contrasting the total available and total used space for a single storage domain over time for a given period. The following parameters must be provided to run this report:

#### Table 2.30. Storage Domain Size Over Time Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. The list of options for the Storage Domain name parameter includes only storage domains that were attached during the specified period.</td>
</tr>
<tr>
<td>Data Center</td>
<td>The options list for the Storage Domain Name parameter shows only storage domains in this selected data center.</td>
</tr>
<tr>
<td>Storage Domain Type</td>
<td>The options list for the Storage Domain Name parameter shows only storage domains of this selected type.</td>
</tr>
</tbody>
</table>
2.3.12.3. Inventory Reports: Virtual Machines Inventory

The **Virtual Machines Inventory** report shows a list of all virtual machines in the selected data center and cluster. The following parameters must be provided to run this report:

### Table 2.31. Virtual Machines Inventory Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the <em>Cluster</em> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The report includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If <em>All</em> is selected, the report includes all virtual machines in the selected data center.</td>
</tr>
<tr>
<td><strong>Virtual Machine Type</strong></td>
<td>The report includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If <em>All</em> is selected, the report includes all virtual machine types.</td>
</tr>
</tbody>
</table>

2.3.12.4. Inventory Reports: Cloud Provider Virtual Machine Inventory

The **Cloud Provider Virtual Machine Inventory** report shows a list of all virtual machines in the selected data center and cluster, and is required by cloud providers to bill customers. The following parameters must be provided to run this report:

### Table 2.32. Cloud Provider Virtual Machine Inventory Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
### Parameter Description

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <em>Dates</em> parameter. Yearly reports cover a year, beginning on the month specified in the <em>Dates</em> parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the <em>Cluster</em> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The report includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If <em>All</em> is selected, the report includes all virtual machines in the selected data center.</td>
</tr>
<tr>
<td><strong>Virtual Machine Type</strong></td>
<td>The report includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If <em>All</em> is selected, the report includes all virtual machine types.</td>
</tr>
</tbody>
</table>

#### 2.3.12.5. Inventory Reports: Storage Domains

The *Storage Domains Inventory* report shows a list of storage domains in the selected data center and of the selected type. The following parameters must be provided to run this report:

**Table 2.33. Storage Domain Inventory Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.

The options list for the *Storage Domain Name* parameter shows only storage domains in this selected data center.

The options list for the *Storage Domain Name* parameter shows only storage domains of this selected type.

### 2.3.13. Service Level Reports

#### 2.3.13.1. Service Level Reports: Cluster Host Uptime

The *Cluster Host Uptime* report shows the weighted average uptime of hosts within a cluster for a given period of time. This report also provides a table listing the total planned (maintenance) and unplanned down time for each host. The following parameters must be provided to run this report:

**Table 2.34. Cluster Host Uptime Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <em>Dates</em> parameter. Yearly reports cover a year, beginning on the month specified in the <em>Dates</em> parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
</tbody>
</table>
The list of options for the **Cluster** parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.

**Cluster**
The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If **All** is selected, the report includes all hosts in the selected data center.

**Host Type**
The report includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If **All** is selected, the report includes all host types.

### 2.3.13.2. Service Level Reports: Cluster Quality of Service - Hosts

The **Cluster Quality of Services - Hosts** report shows the amount of time hosts sustain load above a specified threshold for a given time period. Load is defined in terms of CPU usage percent and memory usage percent. The following parameters must be provided to run this report:

#### Table 2.35. Cluster Quality of Service - Hosts Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <strong>Dates</strong> parameter. Yearly reports cover a year, beginning on the month specified in the <strong>Dates</strong> parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
</tbody>
</table>
### Parameter Description

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the <em>Cluster</em> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If <em>All</em> is selected, the report includes all hosts in the selected data center.</td>
</tr>
<tr>
<td><strong>Host Type</strong></td>
<td>The report includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If <em>All</em> is selected, the report includes all host types.</td>
</tr>
<tr>
<td><strong>CPU Threshold</strong></td>
<td>The report measures the quality of service as the amount of time hosts sustain load above a given threshold. The <em>CPU Threshold</em> defines a load threshold as a percentage of total CPU usage on the host. The load is measured by one-minute samples, averaged over an hour. The report therefore shows sustained load, not short term peaks. A <em>CPU Threshold</em> of 60 per cent is a suggested starting point to produce a meaningful quality of service report.</td>
</tr>
<tr>
<td><strong>Memory Threshold</strong></td>
<td>The report measures the quality of service as the amount of time hosts sustain load above a given threshold. The <em>Memory Threshold</em> defines a load threshold as a percentage of total memory usage on the host. The load is measured by one-minute samples, averaged over an hour. The report therefore shows sustained load, not short term peaks. A <em>Memory Threshold</em> of 60 per cent is a suggested starting point to produce a meaningful quality of service report.</td>
</tr>
</tbody>
</table>

### 2.3.13.3. Service Level Reports: Cluster Quality of Service - Virtual Machines

The *Cluster Quality of Service - Virtual Machines* report shows the amount of time virtual machines sustain load above a specified threshold for a given time period. Load is defined in terms of CPU usage percent and memory usage percent. The following parameters must be provided to run this report:

Table 2.36. Cluster Quality of Service - Virtual Machines Parameters
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td>Data Center</td>
<td>The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td>Cluster</td>
<td>The report includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the report includes all virtual machines in the selected data center.</td>
</tr>
<tr>
<td>Virtual Machine Type</td>
<td>The report includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If All is selected, the report includes all virtual machine types.</td>
</tr>
<tr>
<td>CPU Threshold</td>
<td>The report measures quality of service as the amount of time virtual machines sustain load above a given threshold. The CPU Threshold defines a load threshold as a percentage of total CPU usage on the virtual machine. The load is measured by one-minute samples, averaged over an hour. The report therefore shows sustained load, not short term peaks. A CPU Threshold of 60 per cent is a suggested starting point to produce a meaningful quality of service report.</td>
</tr>
</tbody>
</table>
The reports measures quality of service as the amount of time virtual machines sustain load above a given threshold. The Memory Threshold defines a load threshold as a percentage of total memory usage on the virtual machine. The load is measured by one-minute samples, averaged over an hour. The report therefore shows sustained load, not short term peaks. A Memory Threshold of 60 per cent is a suggested starting point to produce a meaningful quality of service report.

### 2.3.13.4. Service Level Reports: Single Host Uptime

The **Single Host Uptime** report shows the total proportion of uptime, planned downtime and unplanned downtime for a single host. The following parameters must be provided to run this report:

#### Table 2.37. Single Host Uptime Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
</tbody>
</table>
### Parameter Description

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster</td>
<td>The list of options for the <em>Host Name</em> parameter includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If <em>All</em> is selected, the list of options for the <em>Host Name</em> parameter includes all hosts in the selected data center.</td>
</tr>
<tr>
<td>Host Type</td>
<td>The list of options for the <em>Host Name</em> parameter includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If <em>All</em> is selected, the list of options for the <em>Host Name</em> parameter includes all host types.</td>
</tr>
<tr>
<td>Host Name</td>
<td>The report refers to the host selected. A report is only for a single host and a user must select a host.</td>
</tr>
</tbody>
</table>

#### 2.3.13.5. Service Level Reports: Top 10 Downtime Hosts

The *Top 10 Downtime Hosts* report shows the total proportion of uptime, planned downtime and unplanned downtime for the 10 hosts with the greatest amount of downtime. The following parameters must be provided to run this report:

**Table 2.38. Top 10 Downtime Hosts Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <em>Dates</em> parameter. Yearly reports cover a year, beginning on the month specified in the <em>Dates</em> parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
</tbody>
</table>
### Data Center

The list of options for the `Cluster` parameter includes only clusters in the selected data center. The options list contains only data centers that contain clusters.

### Cluster

The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If `All` is selected, the report includes all hosts in the selected data center.

### Host Type

The report includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If `All` is selected, the report includes all host types.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Center</td>
<td>The list of options for the <code>Cluster</code> parameter includes only clusters in the selected data center. The options list contains only data centers that contain clusters.</td>
</tr>
<tr>
<td>Cluster</td>
<td>The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If <code>All</code> is selected, the report includes all hosts in the selected data center.</td>
</tr>
<tr>
<td>Host Type</td>
<td>The report includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If <code>All</code> is selected, the report includes all host types.</td>
</tr>
</tbody>
</table>

### 2.3.13.6. Service Level Reports: High Availability Virtual Servers Uptime

The High Availability Virtual Servers Uptime report shows the weighted average uptime of high availability virtual servers within a cluster for a given period of time. The report also provides a table listing the total uptime and unplanned down time for each virtual server. The following parameters must be provided to run this report:

<table>
<thead>
<tr>
<th>Table 2.39. High Availability Virtual Servers Uptime Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>Show Deleted Entities?</td>
</tr>
<tr>
<td>Period Range</td>
</tr>
<tr>
<td>Dates</td>
</tr>
</tbody>
</table>
The list of options for the **Cluster** parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.

The report includes only virtual servers in the selected cluster. The options list shows only clusters in the selected data center. If **All** is selected, the report includes all virtual servers in the selected data center.

### 2.3.14. Trend Reports

#### 2.3.14.1. Trend Reports: Five Least Utilized Hosts (Over Time)

The **Five Least Utilized Hosts (Over Time)** report shows the weighted average daily peak load, in terms of CPU and memory usage, for the five hosts with the lowest load factor for a given period of time. The following parameters must be provided to run this report:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <strong>Dates</strong> parameter. Yearly reports cover a year, beginning on the month specified in the <strong>Dates</strong> parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the <strong>Cluster</strong> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
</tbody>
</table>
Cluster

The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the report includes all hosts in the selected data center.

Host Type

The report includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If All is selected, the report includes all host types.

2.3.14.2. Trend Reports: Five Least Utilized Virtual Machines (Over Time)

The Five Least Utilized Virtual Machines (Over Time) report shows the weighted average daily peak load, in terms of CPU and memory usage, for the five virtual machines with the lowest load factor for a given period of time. The following parameters must be provided to run this report:

Table 2.41. Five Least Utilized Virtual Machines (Over Time) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td>Data Center</td>
<td>The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
</tbody>
</table>
Cluster

The report includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If **All** is selected, the report includes all virtual machines in the selected data center.

Virtual Machine Type

The report includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If **All** is selected, the report includes all virtual machine types.

### 2.3.14.3. Trend Reports: Five Most Utilized Hosts (Over Time)

The **Five Most Utilized Hosts (Over Time)** report shows the weighted average daily peak load, in terms of CPU and memory usage, for the five hosts with the highest load factor for a given period of time. The following parameters must be provided to run this report:

#### Table 2.42. Five Most Utilized Hosts (Over Time) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <strong>Dates</strong> parameter. Yearly reports cover a year, beginning on the month specified in the <strong>Dates</strong> parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td>Data Center</td>
<td>The list of options for the <strong>Cluster</strong> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
</tbody>
</table>
Cluster

The report includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the report includes all hosts in the selected data center.

Host Type

The report includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If All is selected, the report includes all host types.

2.3.14.4. Trend Reports: Five Most Utilized Virtual Machines (Over Time)

The Five Most Utilized Virtual Machines (Over Time) report shows the weighted average daily peak load, in terms of CPU and memory usage, for the five virtual machines with the highest load factor for a given period of time. The following parameters must be provided to run this report:

Table 2.43. Five Most Utilized Virtual Machines (Over Time) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td>Data Center</td>
<td>The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers which contain clusters.</td>
</tr>
</tbody>
</table>
Cluster

The report includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If **All** is selected, the report includes all virtual machines in the selected data center.

Virtual Machine Type

The report includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If **All** is selected, the report includes all virtual machine types.

---

### 2.3.14.5. Trend Reports: Multiple Hosts Resource Usage (Over Time)

The **Multiple Hosts Resource Usage (Over Time)** report shows the daily peak load, in terms of CPU and memory usage, for up to five selected hosts over a given period of time. The following parameters must be provided to run this report:

#### Table 2.44. Multiple Hosts Resource Usage (Over Time) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <strong>Dates</strong> parameter. Yearly reports cover a year, beginning on the month specified in the <strong>Dates</strong> parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td>Data Center</td>
<td>The list of options for the <strong>Cluster</strong> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
</tbody>
</table>
The list of options for the Hosts list parameter includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the list of options for the Hosts list parameter includes all hosts in the selected data center.

The list of options for the Hosts list parameter includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If All is selected, the list of options for the Hosts list parameter includes all host types.

The report includes all hosts selected in the host list. Select any number of hosts up to a maximum of five.

2.3.14.6. Trend Reports: Multiple Virtual Machines Resource Usage (Over Time)

The Multiple Virtual Machines Resource Usage (Over Time) report shows the daily peak load, in terms of CPU and memory usage, for up to five selected virtual machines over a given period of time. The following parameters must be provided to run this report:

Table 2.45. Multiple Virtual Machines Resource Usage (Over Time) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
</tbody>
</table>
### Data Center

The list of options for the *Cluster* parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.

### Cluster

The list of options for the *VM List* parameter include only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If *All* is selected, the list of options for the *VM List* parameter includes all virtual machines in the selected data center.

### Virtual Machine Type

The list of options for the *VM List* parameter includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If *All* is selected, the list of options for the *VM List* parameter includes all virtual machine types.

### Virtual Machine List

The report includes all virtual machines selected in the virtual machine list. Select any number of virtual machines up to a maximum of five.

### 2.3.14.7. Trend Reports: Single Host Resource Usage (Days of Week)

The **Single Host Resource Usage (Days of Week)** report shows various resource utilization metrics for a single host over a given period of time and broken down by day of the week. The metrics include CPU usage, memory usage, number of active virtual machines and network usage. The following parameters must be provided to run this report:

#### Table 2.46. Single Host Resource Usage (Days of Week) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
</tbody>
</table>
Period Range

The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.

Dates

The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.

Data Center

The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.

Cluster

The list of options for the Host Name parameter includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the list of options for the Host Name parameter includes all hosts in the selected data center.

Host Type

The list of options for the Host Name parameter includes only hosts of the selected type. The options list shows only host types present in the selected data center and cluster. If All is selected, the list of options for the Host Name parameter includes all host types.

Host Name

The report refers to the host selected. A report is only for a single host and the user must select a host.

2.3.14.8. Trend Reports: Single Host Resource Usage (Hour of Day)

The Single Host Resource Usage (Hour of Day) report shows a variety of resource utilization metrics for a single host over a given period of time, broken down by hour of the day (0-23). The metrics include CPU usage, memory usage, number of active virtual machines and network usage. The following parameters must be provided to run this report:

Table 2.47. Single Host Resource Usage (Hour of Day) Parameters
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td>Data Center</td>
<td>The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td>Cluster</td>
<td>The list of options for the Host Name parameter includes only hosts in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the list of options for the Host Name parameter includes all hosts in the selected data center.</td>
</tr>
<tr>
<td>Host Type</td>
<td>Only hosts of the selected type will be included in the list of options for the Host Name parameter. The options list shows only host types present in the selected data center and cluster. If All is selected, the list of options for the Host Name parameter includes all host types.</td>
</tr>
<tr>
<td>Host Name</td>
<td>The report refers to the host selected. A report is only for a single host and the user must select a host.</td>
</tr>
</tbody>
</table>

2.3.14.9. Trend Reports: Single Virtual Machine Resources (Days of Week)

The Single Virtual Machine Resources (Days of Week) report shows a variety of resource utilization metrics for a single virtual machine over a given period of time, broken down by day of the week. The metrics include CPU usage, memory usage, disk usage and
network usage. The following parameters must be provided to run this report:

### Table 2.48. Single Virtual Machine Resources (Days of Week) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The list of options for the VM Name parameter includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the list of options for the VM Name parameter includes all virtual machines in the selected data center.</td>
</tr>
<tr>
<td><strong>Virtual Machine Type</strong></td>
<td>The list of options for the VM Name parameter includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If All is selected, the list of options for the VM Name parameter includes all virtual machine types.</td>
</tr>
<tr>
<td><strong>Virtual Machine Name</strong></td>
<td>The report refers to the virtual machine selected. A report is only for a single virtual machine and the user must select a virtual machine.</td>
</tr>
</tbody>
</table>
2.3.14.10. Trend Reports: Single Virtual Machine Resources (Hour of Day)

The Single Virtual Machine Resources (Hour of Day) report shows a variety of resource utilization metrics for a single virtual machine over a given period of time, broken down by hour of the day (0-23). The metrics include CPU usage, memory usage, disk usage and network usage. The following parameters must be provided to run this report:

Table 2.49. Single Virtual Machine Resources (Hour of Day) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the Dates parameter. Yearly reports cover a year, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the Cluster parameter includes only clusters in the selected data center. The options list shows only data centers which contain clusters.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The list of options for the VM Name parameter includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If All is selected, the list of options for the VM Name parameter includes all virtual machines in the selected data center.</td>
</tr>
<tr>
<td><strong>Virtual Machine Type</strong></td>
<td>The list of options for the VM Name parameter includes only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If All is selected, the list of options for the VM Name parameter includes all virtual machine types.</td>
</tr>
</tbody>
</table>
Virtual Machine Name

The report refers to the virtual machine selected. A report is only for a single virtual machine and the user must select a virtual machine.

### 2.3.14.11. Trend Reports: Single Virtual Machine Resources (Over Time)

The **Single Virtual Machine Resources (Over Time)** report shows a variety of resource utilization metrics for a single virtual machine over a given period of time. The metrics include CPU usage, memory usage, disk usage and network usage. The following parameters must be provided to run this report:

#### Table 2.50. Single Virtual Machine Resources (Over Time) Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The report is for the period range selected. Daily reports cover a single day. Monthly reports cover a single month. Quarterly reports cover a three-month quarter, beginning on the month specified in the <strong>Dates</strong> parameter. Yearly reports cover a year, beginning on the month specified in the <strong>Dates</strong> parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The report covers the selected period range, beginning on this date. Daily period ranges pass in one day increments. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month. A yearly period range also starts on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The list of options for the <strong>Cluster</strong> parameter includes only clusters in the selected data center. The options list shows only data centers that contain clusters.</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td>The list of options for the <strong>VM Name</strong> parameter includes only virtual machines in the selected cluster. The options list shows only clusters in the selected data center. If <strong>All</strong> is selected, the list of options for the <strong>VM Name</strong> parameter includes all virtual machines in the selected data center.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Virtual Machine Type</td>
<td>The list of options for the VM Name parameter lists only virtual machines of the selected type. The options list shows only virtual machine types present in the selected data center and cluster. If All is selected, the list of options for the VM Name parameter includes all virtual machine types.</td>
</tr>
<tr>
<td>Virtual Machine Name</td>
<td>The report refers to the virtual machine selected. A report is only for a single virtual machine and the user must select a virtual machine.</td>
</tr>
</tbody>
</table>

### 2.3.15. Ad Hoc Reports

Red Hat Enterprise Virtualization Reports provides you with a tool to create customized ad hoc reports. This tool is a component of JasperServer. To create an Ad Hoc Report as an administrator, navigate to the Create drop-down menu on the top menu bar and select Ad Hoc View to open the Data Chooser: Source window.

![Create Ad Hoc Report - Administrator's View](image)

The Working with the Ad Hoc Editor section of the online help explains the ad hoc report interface in detail.

### 2.3.16. Backing Up and Restoring Saved Ad Hoc Reports

Export saved ad hoc reports from one Red Hat Enterprise Virtualization Reports machine and import them to another Reports machine of the same version using the `ovirt-engine-reports-tool` utility. You can also use the export option on its own to take regular backups of your saved reports. Saved ad hoc reports can only be imported on a Reports environment that is the same version as the Reports environment on which the reports were created.

**Procedure 2.3. Migrating Saved Reports to Another Machine**

1. On the Reports machine, run the `ovirt-engine-reports-tool` command:

   ```bash
   # ovirt-engine-reports-tool
   ```

2. Enter the number that corresponds to the export option, and press Enter:
(2) Export Jasperreports saved reports to a zip file

(1, 2, 3) []: 2

3. Enter the absolute path for the zip file to export saved reports to, and press Enter:

Filename to export saved reports to: /tmp/saved-reports.zip

4. Copy the zip file to another Reports machine:

```bash
# scp /tmp/saved-reports.zip reports-machine-fqdn:/tmp/
```

5. On the second Reports machine, run the `ovirt-engine-reports-tool` command:

```bash
# ovirt-engine-reports-tool
```

6. Enter the number that corresponds to the import option, and press Enter:

(3) Import a saved reports zip file to Jasperreports

(1, 2, 3) []: 3

7. Enter the absolute path of the zip file from which to import, and press Enter:

Filename to import saved reports from: /tmp/saved-reports.zip

When the command completes, the saved reports are visible in the Reports Portal of the second Reports machine.

### 2.3.17. Reports Schema: Tag History and ENUM Views

This section describes the tag history and ENUM views available to the user for querying and generating reports. Latest tag views show only living tags relations and the latest details version.

**NOTE**

`delete_date` and `detach_date` do not appear in latest views because these views provide the latest configuration of living entities, which, by definition, have not been deleted.

Tag relations and latest tag relations history views

**Table 2.51. Tag Relations History in the System**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>entity_id</td>
<td>UUID</td>
<td>Unique ID of the entity or tag in the system.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| entity_type        | smallint           | - 2 - VM  
|                    |                    | - 3 - Host  
|                    |                    | - 5 - VM pool  
|                    |                    | - 18 - Tag |
| parent_id          | UUID               | Unique ID of the entity or tag in the system.                               |
| attach_date        | timestamp with time zone | The date the entity or tag was attached to the entity or tag.               |
| detach_date        | timestamp with time zone | The date the entity or tag was detached from the entity or tag.            |

Tag details and latest tag details views

Tag details history in the system.

**Table 2.52. v3_5_tag_details_view\v3_5_latest_tag_details_view**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>history_id</td>
<td>integer</td>
<td>The unique ID of this row in the table.</td>
</tr>
<tr>
<td>tag_id</td>
<td>UUID</td>
<td>Unique ID of the tag in the system.</td>
</tr>
<tr>
<td>tag_name</td>
<td>varchar(50)</td>
<td>Name of the tag, as displayed in the tag tree.</td>
</tr>
<tr>
<td>tag_description</td>
<td>varchar(4000)</td>
<td>Description of the tag, as displayed in the edit dialog.</td>
</tr>
<tr>
<td>tag_path</td>
<td>varchar(4000)</td>
<td>The path to the tag in the tree.</td>
</tr>
<tr>
<td>tag_level</td>
<td>smallint</td>
<td>The tag level in the tree.</td>
</tr>
<tr>
<td>create_date</td>
<td>timestamp with time zone</td>
<td>The date this tag was added to the system.</td>
</tr>
<tr>
<td>update_date</td>
<td>timestamp with time zone</td>
<td>The date this tag was changed in the system.</td>
</tr>
</tbody>
</table>
### Enum translator view

The ENUM table is used to easily translate column numeric types to their meanings and lists ENUM values for columns in the history database.

**Table 2.53. v3_5_enum_translator_view**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enum_type</td>
<td>varchar(40)</td>
<td>The type of ENUM.</td>
</tr>
<tr>
<td>enum_key</td>
<td>smallint</td>
<td>The key of the ENUM.</td>
</tr>
<tr>
<td>value</td>
<td>varchar(40)</td>
<td>The value of the ENUM.</td>
</tr>
</tbody>
</table>

### 2.4. DASHBOARDS

#### 2.4.1. Dashboards

A dashboard is a collection of related reports that provide a summary of resource usage in the virtualized environment. Dashboards feature an active control panel, allowing quick adjustment of the parameters. Though a dashboard cannot be exported or printed, each of the reports in a dashboard can be opened separately to export, print, save, or adjust the data.

Dashboards can be created and configured using the Designer, in the Reports Portal. For more information on dashboards, consult the JasperReports documentation by clicking the Help in the top menu bar of the Reports Portal.

#### 2.4.2. Inventory Dashboard

The **Inventory Dashboard** provides an executive summary of the inventory of a data center over a given period of time. The dashboard includes average disk use, number of active virtual machines, and a breakdown of host operating systems. The following parameters can be modified for this dashboard:

**Table 2.54. Inventory Dashboard Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
</tbody>
</table>
The Trends Dashboard provides an executive summary of the trends in a data center over a given period of time. The dashboard includes graphs of CPU and memory usage over time for the most highly utilized hosts and virtual machines in the data center. The following parameters can be modified for this dashboard:

### Table 2.55. Trends Dashboard Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Deleted Entities?</td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td>Period Range</td>
<td>The dashboard shows data for the period range selected. Monthly dashboards cover a single month. Quarterly dashboards cover a three-month quarter, beginning on the month specified in the Dates parameter.</td>
</tr>
<tr>
<td>Dates</td>
<td>The dashboard covers the selected period range, beginning on this date. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month.</td>
</tr>
</tbody>
</table>

**Parameter**

The dashboard shows data for the period range selected. Monthly dashboards cover a single month. Quarterly dashboards cover a three-month quarter, beginning on the month specified in the Dates parameter.

**Dates**

The dashboard covers the selected period range, beginning on this date. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month.

**Data Center**

The report refers to the selected data center. The list of options shows only data centers containing either hosts, storage domains or virtual machines. The list of options for the Cluster parameter includes only clusters in the selected data center.
The report refers to the selected data center. The list of options shows only data centers containing either hosts, storage domains or virtual machines. The list of options for the **Cluster** parameter includes only clusters in the selected data center.

### 2.4.4. Uptime Dashboard

The **Uptime Dashboard** provides an executive summary of the service level and uptime for a data center over a given period of time. The dashboard includes details on total uptime for each cluster in the data center for the period. The following parameters can be modified for this dashboard:

#### Table 2.56. Uptime Dashboard Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show Deleted Entities?</strong></td>
<td>The report includes deleted objects, such as data centers, clusters, and hosts removed from the environment.</td>
</tr>
<tr>
<td><strong>Period Range</strong></td>
<td>The dashboard shows data for the period range selected. Monthly dashboards cover a single month. Quarterly dashboards cover a three-month quarter, beginning on the month specified in the <strong>Dates</strong> parameter.</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>The dashboard covers the selected period range, beginning on this date. For a Monthly period range, the selected month is used. For a Quarterly period range, the quarter is determined as beginning on the selected month.</td>
</tr>
<tr>
<td><strong>Data Center</strong></td>
<td>The report refers to the selected data center. The list of options shows only data centers containing either hosts, storage domains or virtual machines. The list of options for the <strong>Cluster</strong> parameter includes only clusters in the selected data center.</td>
</tr>
</tbody>
</table>

### 2.4.5. Integrated Reporting Dashboard in the Red Hat Enterprise Virtualization Administration Portal

The Administration Portal also features dashboards for data centers, clusters, and the overall environment. Select the appropriate resource in tree mode and click the **Dashboard** resource tab to display the dashboard information in the results list.
CHAPTER 2. ABOUT HISTORY DATABASE, REPORTS, AND DASHBOARDS

Figure 2.13. Reports Dashboard

The dashboards accessible in the Administration Portal are used for viewing data, as such they do not have an active control panel. Configure these dashboards in the Reports Portal by editing **Datacenter Dashboard**, **Cluster Dashboard**, and **System Dashboard**.
APPENDIX A. REVISION HISTORY

Revision 3.6-6  Wed 27 Jul 2016  Red Hat Enterprise Virtualization Documentation Team

BZ#1353824 - Updated the OS requirements to 6.6 or later versions of Red Hat Enterprise Linux 6.

Revision 3.6-5  Wed 20 Apr 2016  Red Hat Enterprise Virtualization Documentation Team

BZ#1309766 - Clarified a confusing section title.

Revision 3.6-4  Mon 22 Feb 2016  Red Hat Enterprise Virtualization Documentation Team

Initial revision for Red Hat Enterprise Virtualization 3.6 general availability.

Revision 3.6-3  Wed 18 Nov 2015  Red Hat Enterprise Virtualization Documentation Team

Final revision for Red Hat Enterprise Virtualization 3.6 beta.

Revision 3.6-2  Wed 11 Nov 2015  Red Hat Enterprise Virtualization Documentation Team

Structural edits for Red Hat Enterprise Virtualization 3.6 beta.

Revision 3.6-1  Tue 11 Aug 2015  Red Hat Enterprise Virtualization Documentation Team

Initial creation for the Red Hat Enterprise Virtualization 3.6 release.
BZ#1250780 - Created two new topics: Resetting the Password for the Reports Administrative User and Backing Up and Restoring Saved Ad Hoc Reports.