

APTARE IT Analytics Installation and Upgrade Guide for Linux

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VERITAS™

APTARE IT Analytics Installation and Upgrade Guide for Linux

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Veritas Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf

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Installing the Portal on a Linux Server

This chapter includes the following topics:

- [Introduction](#)
- [Portal Installation Memory Requirements](#)
- [Task 1: Portal and Database Deployment Strategies \(Linux\)](#)
- [Task 2: Pre-Installation Configuration \(Linux\)](#)
- [Task 3: Installing Oracle Database Application Binaries \(Linux\)](#)
- [Task 4: Installing the Portal Application Binaries \(Linux\)](#)
- [Task 5: Installing the Database Schema \(Linux\)](#)
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- [Task 7: Request the License Key File \(Linux\)](#)
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- [Task 9: Install the License Key File \(Linux\)](#)
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- [Recommended Database Backup Process](#)
- [Uninstalling the APTARE IT Analytics Portal](#)
- [Supported Third-Party and Open Source Products](#)

Introduction

Complete the steps to install the Portal on a Linux server.

Root privileges are required for installing all Portal Server components.

Note: Throughout this document, screen shots and command-line prompts and responses are used to provide a reasonable representation of the interaction you will be viewing. However, they may not display precisely the same text that you'll see during the installation.

Portal Installation Memory Requirements

For new Release Version 10.4.xx Portal installations, the minimum server memory requirement is 24 GB. Oracle database requires a minimum of 12 GB of memory. Portal installations will fail if sufficient memory resources are not available on the Portal server. Portal upgrades are not impacted by this requirement.

The Portal Installation software checks the following resources:

- Total physical memory (physical + virtual) must be greater than 12 GB, otherwise Oracle will fail to start. Add more physical memory to the Portal server. [Windows and Linux OS]
- Total temporary file system (tmpfs) memory must be greater than 12 GB, otherwise Oracle will fail to start. Increase the size of tmpfs, typically in `/etc/fstab`. [Linux OS only]
- Shared memory (kernel.shmmax parameter) must be greater than 12 GB. Oracle will fail to start. Increase the value of the shmmax parameter, typically in `/etc/sysctl.conf`. After increasing the value for the shmmax parameter, execute: `sysctl -p` [Linux OS only]

Task 1: Portal and Database Deployment Strategies (Linux)

These components should be installed on the same physical server, in which case task 2 and task 3 are performed on the same machine.

Note: The Portal and Database components should be installed on the same server.

Installing Oracle and Portal Binaries on the Same Server

For the typical Portal installation, the installation process consists of these main tasks:

1. Verify that you have the latest binaries for the version you are installing.
2. Install Oracle application binaries.
3. Install the APTARE IT Analytics Portal software components.
4. Create the APTARE IT Analytics Database and load the schema objects.

Task 2: Pre-Installation Configuration (Linux)

1. Choose a Portal Server. For performance reasons, the APTARE IT Analytics Portal software should not be installed on the same server as the APTARE IT Analytics Data Collectors. If, for some reason, you require both to be on the same server, be sure that both the Portal and Data Collector software do not reside in the same directory on the server. Root privileges are required for the Portal software installation tasks.

See [“Portal Installation Memory Requirements”](#) on page 7.

2. Verify the OS of the Portal Server. Check that the OS is one of the certified operating systems listed in the *Certified Configurations Guide*.

Verify that sufficient disk space exists on the designated Portal Server. For the database file systems, the amount specified is the minimum required to create the database. It is recommended that you allocate more than the minimum to accommodate growth.

File System/Directory	Recommended Minimum Disk Space	Notes
/opt	20 GiB	
/tmp	10 GiB	Both /tmp and /var/tmp must be writable by the user aptare
/data01	18 GiB	Required for database
/data02	25 GiB	Required for database
/data03	26 GiB	Required for database
/data04	35 GiB	Temporary table space
/data05	20 GiB	Temporary table space (undo log)

File System/Directory	Recommended Minimum Disk Space	Notes
/data06	5 GiB	Temporary table space (redo log)
Total	159 GiB	

- Review third-party software details.
See [“Supported Third-Party and Open Source Products”](#) on page 21.
- If you plan to export or email reports as PDF files, to ensure proper rendering of these output formats, a graphics manager such as X Virtual Frame Buffer (XVFB) is required. Contact your IT organization to configure this capability.
- Verify the rpm fontconfig is installed. Fontconfig is a library designed to provide system-wide font configuration, customization and application access. If the rpm fontconfig is not installed, exporting reports to XLS and PDF will fail.
- Ensure that the libaio package is installed if the Portal Server’s OS is Red Hat Linux. You can check for this package via the rpm -q command as follows. The package on your system should be the following version or greater.

```
rpm -q libaio
libaio-0.3.93-4
```

- Verify that the necessary libraries exist on your system, using the following:

```
rpm -q binutils glibc libstdc++ cpp make libaio elfutils-libelf
expat-devel
libsasl --qf '%{name} .%{arch}\n'|sort
```

The list of libraries should include:

```
binutils.x86_64
elfutils-libelf.x86_64
expat-devel
glibc.x86_64
libaio.x86_64
libstdc++.x86_64
make.x86_64
```

- Verify that the **bc** command is available, as it is required by the database installer.

9. Download the application binaries for both the Oracle Database Installer and the Portal Installer from the www.veritas.com. Use the instructions provided in the confirmation of your purchase agreement.
10. **Troubleshooting User Account Creation:** The Portal installation process will create user accounts for aptare and tomcat. If you are using non-local user management (such as LDAP or NIS) to manage the Linux user accounts, the **useradd** command may fail to execute successfully. Take the following steps to manually pre-create the required users:

- Using your normal process for creating user accounts in LDAP, pre-create the user accounts aptare and tomcat with home directories under **/home**.

User ID	Primary Group	Supplementary Groups
aptare	aptare	dba
tomcat	tomcat	aptare

- Some environments, particularly virtualized ones using **automount**, will fail to create the home directories when the **useradd** command is used. In this situation, manually create the **/home/aptare** and **/home/tomcat** directories and **chown** them to aptare and tomcat respectively.
 - If you need additional clarification, contact the Veritas Support for details.
11. **Troubleshooting script issues:** A known issue associated with Security Enhanced Linux (SELinux) may arise when executing scripts that require Java. This results in a permission denied error message. To resolve this issue, configure SELinux to allow the use of shared libraries with text relocation.

Task 3: Installing Oracle Database Application Binaries (Linux)

This section covers the installation of the Oracle Database application binaries. Typically, the Oracle Database application binaries are installed on the same server as the Portal binaries, although in some cases, a separate server may be designated.

See [“Task 1: Portal and Database Deployment Strategies \(Linux\)”](#) on page 7.

Note: The APTARE IT Analytics server cannot have any other Oracle database instances installed.

Note the instructions provided with the confirmation of your purchase agreement and consult Veritas Support, if you require additional assistance.

To Install the Oracle Database Binaries

- 1 Verify that you have the current version of the Oracle 12c Installer binaries.
- 2 Login as **root** on the server where the APTARE IT Analytics Database will be installed. Typically, this is also the Portal server.
- 3 Place the ISO image into the **/mnt** directory.
- 4 Mount the ISO image that you downloaded.

```
mkdir /mnt/diskd
```

```
mount -o loop <sc_dbinstaller_XXXXX_XXX_linux.iso> /mnt/diskd
```

where you substitute the relevant name of the ISO file that you downloaded.

- 5 Enter the following commands to start the installer:

```
cd /  
/mnt/diskd/install_oracle.sh
```

The command copies the ORACLE binaries into **/opt/aptare/oracle** and sets up the Oracle startup and shutdown scripts.

- 6 Press **Enter** to read the entire EULA license agreement and then the installation process will begin.

This takes 3-5 minutes to complete, as it installs files into **/opt/aptare/oracle**.

```
Creating group aptare...Done.  
Creating user aptare...with default Group aptare... Done.  
Creating group dba...Done.  
Adding user aptare to group dba...Done.  
Creating ORACLE_HOME directory in /opt/aptare/oracle ... Done.  
Setting up database directories /data01 /data02 /data03 /data04  
/data05 /data06... Done.  
Installing ORACLE binaries in /opt/aptare/oracle ...  
Extracting files... Please wait, this process will take 3-5  
minutes to complete... Done.  
Setting permissions for oracle files ... Done.  
Done.
```

Task 4: Installing the Portal Application Binaries (Linux)

This section covers the installation of the Portal application binaries. Typically, the Portal binaries are installed on the same server as the Oracle Database binaries, although in some cases, a separate server may be designated.

System: Portal Server

Note the instructions provided with your purchase agreement confirmation and consult Veritas Support, if you require additional assistance.

To Install the Portal Binaries

- 1 Login as **root** on the server where APTARE IT Analytics Portal will be installed. Typically, this is the same server where you installed the Oracle binaries.
- 2 Go to the downloads section under Support at www.veritas.com and click the relevant download link.
- 3 Mount the ISO image that you downloaded.

```
mkdir /mnt/diska  
  
mount -o loop <sc_??>  
/mnt/diska
```

- 4 Enter the following commands to start the installer:

```
cd /  
/mnt/diska/aptareInstaller.sh
```

- 5 Determine what Portal server configuration you are deploying.

```
*****  
* APTARE IT Analytics Vers 10.4 Installer  
*****  
APTARE IT Analytics requires a Web Server and a Database server.  
You might want those to be separate machines or the same machine.  
This script will only install the Web Server components.  
Will this machine be the Web Server (y/n)?
```

Enter **y** if the machine is going to be the Portal web server. Otherwise, enter **n** to cancel the installation.

- 6 Enter **y** if you have the mounted ISO image. Otherwise, enter **n** to cancel the installation.

7 Press <enter> to continue the installation. The End User License Agreement (EULA) is displayed.

8 Read the EULA. At the end of the EULA, the following output is displayed:

```
Please type 'accept' to accept these Terms and Conditions:
```

9 Type **accept** (all lowercase) and press <enter>. Otherwise, type any other key and <enter> to cancel the installation.

The installer will now copy and unzip the files. This may take several minutes depending on the performance of your system. The overall duration of the Portal installation is typically between 15 - 25 minutes.

10 Enter your domain name.

```
We need to configure machine names and IP addresses for the  
APTARE IT Analytics Portal, Agent and database server.
```

```
The portal and agent machines will be called  
aptareportal.yourdomain and  
aptareagent.yourdomain
```

```
Please enter your domain name: (yourdomain.com)
```

If the domain name displayed in parentheses is correct, press <enter>. Otherwise, enter the correct domain name and press <enter>.

Note: The domain name value you enter here determines the URL that will be used to login to the APTARE IT Analytics Web GUI. For example, if you enter companyabc.com, the URL will be **http://aptareportal.companyabc.com**. You should make a note of the domain value since you will be asked for this value during the installation of the Data Collection components that collect data from the servers in your enterprise.

11 Validate the system's IP address for the Portal.

```
Please enter IP Address for aptareportal.yourdomain: (N.N.N.N)
```

If the IP Address displayed in parentheses is correct, press <enter>. Otherwise, enter the correct IP Address and press <enter>.

Note: Throughout these steps, yourdomain refers to the full domain, including the suffix, such as .com or .net. (Example: MyNetworkCompany.net).

12 Validate the IP address of the database server.

Please enter IP Address for your database server: (N.N.N.N)

Note: If your database server is using an IPv6 address, enter that within square brackets. For example: [fe80::250:56FF:febc:1F]

If the IP Address displayed in parentheses is correct, press <enter>. Otherwise, enter the correct IP Address and press <enter>.

Note: If you installed the Database component on a separate server, please be sure to supply the correct IP address of that server.

13 If you are installing the Database on the same server, use **localhost** for the IP address or **localhost6** for an IPv6 environment.

14 Confirm the entered IP addresses

```
You have entered:
      Hostname                IP Address
aptareportal.yourdomain 127.0.0.1
aptareagent.yourdomain 127.0.0.1
      database server      127.0.0.1
Is this correct (y/n)?
```

If the Hostnames and IP Addresses listed are correct, enter **y** and press <enter>. Otherwise, enter **n** and press <enter>.

15 Confirm changes to be automatically made to /etc/hosts

```
These names will be set up in /etc/hosts. You can remove the
entries
and add them to your local DNS later.
Would you like to add them to /etc/hosts (y/n)?
```

If you would like to set up the names in **/etc/hosts**, enter **y** and press <enter>. Otherwise, enter **n** and press <enter>.

16 Press <enter> to continue the installation.

17 Java and Apache software components are installed.

You will now be prompted to accept the license terms for Java. Enter **yes** to accept this license agreement.

18 Tomcat Java Servlet Engine is installed.

```
==== Installing tomcat...  
Extracting files...this process may take 1-2 minutes to  
execute...Done.  
linking /opt/tomcat to apache-tomcat-7.0.42...  
Done.
```

19 Installation of the Portal components is now complete.

Now the Portal Installation is complete, continue to the next section to create the database and load the schema objects.

Task 5: Installing the Database Schema (Linux)

System: Database Server

This section covers the creation of the APTARE IT Analytics database. Follow these steps on the same server you installed the Oracle application binaries.

1. Log in as **aptare** to your APTARE IT Analytics Database server.

You must be logged in as a database user. If you already are logged in as root: **su - aptare**

2. Run the APTARE IT Analytics database installation script to install the APTARE IT Analytics database objects and schema:

```
/mnt/diska>/create_aptare_database.sh
```

3. Note: The following dialog will only appear if you are re-installing the APTARE IT Analytics database (e.g., after a failed attempt):

4. The installer launches and prompts you to select the products:

```
Welcome to the APTARE IT Analytics Database Installation  
WizardCopyright 2003-2020 All Rights Reserved.  
Please select the appropriate product(s) you will be using with  
APTARE IT Analytics. Enter each product on a separate line and
```

```

select 0 when complete:
    1) Capacity Manager
    2) Virtualization Manager
    3) Replication Manager
    4) Fabric Manager
    5) File Analytics
    6) Veritas NetBackup
    7) Veritas Backup Exec
    8) IBM Tivoli Storage Manager
    9) EMC NetWorker
    10) EMC Avamar
    11) HP Data Protector
    12) CommVault Simpana
    0) Selection Complete - verify/change selection4

6
8
0
You selected:
    Veritas NetBackup
    IBM Tivoli Storage Manager
Do you wish to continue with this selection (y/n)? y

```

Enter the products you want to use with APTARE IT Analytics. Enter each product on a separate line and enter **0** when complete.

5. The installer launches and prompts you to enter the domain name:

```

Please enter your APTARE IT Analytics Portal Domain Name:
(mycompany.com)
You entered the following for your APTARE IT Analytics domain
name:
yourcompany.com
Your APTARE IT Analytics Super User Login Account will be
admin@yourcompany.com
Is this the correct domain name (y/n)? y

```

6. The installer will check to see if Oracle services are running and shut them down if required:

```

The Oracle database TNS listener does not appear to be running,
continuing ...
Oracle is not currently running, continuing ...

```


If you are prompted for a password, enter the aptare user password.

7. Database files will be extracted and the database schema will be created (this step will take between 5 - 10 minutes to complete.):

```
Extracting APTARE IT Analytics database files into
/opt/aptare/database ... Done.
Changing ownership of all APTARE IT Analytics database release
files to 'aptare' ...
Starting the APTARE IT Analytics Oracle Database instance ...
ORACLE instance started.
Total System Global Area  696254464 bytes
Fixed Size                  1981256 bytes
Variable Size              293602488 bytes
Database Buffers          398458880 bytes
Redo Buffers                2211840 bytes
Creating APTARE IT Analytics Database ...
Successfully created the APTARE IT Analytics Database
Creating the APTARE IT Analytics tablespaces and related
datafiles, please wait ...
Creating tablespace aptare_tbs_data_1m tablespace, size 256 MBytes
...
Creating tablespace aptare_tbs_idx_1m, size 256 MBytes ...
Creating tablespace aptare_tbs_data_20m, size 1.0 GBytes ...
Creating tablespace aptare_tbs_idx_10m, size 1.0 GBytes ...
Creating tablespace aptare_tbs_data_200m, size 1.5 GBytes ...
Creating tablespace aptare_tbs_idx_100m, size 1.5 GBytes ...
Successfully created APTARE IT Analytics tablespaces and related
datafiles
```

8. The installer will next load the database with Oracle packages (this step will take between 15 - 45 minutes to complete, depending on your system performance):

```
Loading Oracle catalog package and related internal Oracle
packages ...
The step can take between 5 and 15 minutes to complete depending
on system performance
Completed loading Oracle catalog package into APTARE IT Analytics
database schema at Sep 8 18:18:00 PDT 2015
Loading Oracle catproc package and related internal Oracle
packages ...
```

```
The step can take between 10 and 30 minutes to complete depending
on system performance
Completed loading Oracle catproc package into APTARE IT Analytics
database schema at Sep 8 18:28:53 PDT 2015
Loading publd package ...
```

9. The Portal user and the database schema are now created. During this step Oracle may produce messages similar to the following:

```
mv: cannot stat
`/opt/aptare/oracle/lib/EVENT_PACKAGE__PORTAL__2.so': No such
file or directory
```

Note: These messages can be ignored. Any other exceptions or errors however indicate a potential issue with the installation.

```
Creating APTARE IT Analytics Portal user ...
Completed creation of the APTARE IT Analytics Portal database
user
Creating APTARE IT Analytics database schema tables ...
...
... (EACH STEP LOGS TO THE CONSOLE...)
...
Completed creation of the APTARE IT Analytics base schema tables
Creating APTARE IT Analytics <backup product> schema tables ...
```

10. The Packages are now validated:

If you do not see the message “Successfully validated ALL Packages” at the end of this step, there is a possible problem with the install and you should save a copy of the installer log and contact the Veritas Support.

```
Validating APTARE IT Analytics Packages...
Validating PACKAGE ADAPTOR_PACKAGE
Validating PACKAGE ADMINREP_PACKAGE
Validating PACKAGE ALL_ERROR_PKG
...
... (EACH PACKAGE IS LOGGED TO THE CONSOLE...)
...
Validating PACKAGE XML_REPORT_PKG
Package specifications have successfully been validated
```

```
...  
Successfully validated ALL Packages.
```

11. The database creation is now complete. Check the log for errors:
`/tmp/aptare_installer.log`

```
Creation of APTARE IT Analytics Database completed at Nov 11  
18:31:46 PDT 2019  
A complete log of this session can be found in the file:  
/tmp/aptare_installer.log
```

Note: If the installer reports errors during the install and you are unable to resolve the problem, you should save a copy of the installer log and contact the Veritas Support.

12. Installation of the Database components is now complete.
Now the Database Installation is complete. Continue to the next section for the final step--License Key file installation.

Task 6: Start the Portal Services (Linux)

Prior to installing the license key, you must start the Portal services to ensure that the installation was successful. You will not be able to log into the Portal yet, because you haven't installed the license key.

As user root, at the command line, enter this command: **`/opt/aptare/bin/aptare start`**

Task 7: Request the License Key File (Linux)

A valid license key file is required to run the APTARE IT Analytics application. Refer to the Licensing Guide for information.

Task 8: Log into the Portal

Log into the Portal (<http://aptareportal.yourcompany.com>) with your username as `<admin@yourcompany.com>`. The Portal has an initial default password **P@ssw0rd**. You must change this password after your first login.

Note: The default password contains a zero, not an uppercase O.

Task 9: Install the License Key File (Linux)

A valid license key file is required to run the APTARE IT Analytics application. Refer to the Licensing Guide for information.

Task 10: Performing a Cold Backup of the Database (Linux)

Prior to deploying the Portal for operational use, perform a cold backup of the Oracle database. This offline, cold backup simply means that you'll physically copy or backup the files to another location. This cold backup will simplify the restore process, in the event of unanticipated data loss. With a cold backup, you simply have to restore the files and then import the most recent database export. In addition to this initial cold backup, you may consider performing a cold backup periodically--for example, after a significant software upgrade--to re-capture the database schema.

Recommended Database Backup Process

1. Cold Backup
2. Daily Exports of the database
3. In the event of data loss, restore the database and then import the most recent database export.

Uninstalling the APTARE IT Analytics Portal

Caution: The following uninstall script will completely erase the APTARE IT Analytics application and database.

1. Login as **root** to the APTARE IT Analytics server
2. From the root directory (/) stop the Portal services and run the uninstall script:

```
/opt/aptare/bin/aptare stop  
/opt/aptare/utlils/uninstall_portal.sh
```

3. Follow the prompts as required to confirm deletion of the APTARE IT Analytics components.

Supported Third-Party and Open Source Products

When you install the Portal and Reporting Database software, you install a compilation of software, which includes open source and third-party software.

Open Source Software

For a list of open source components and licenses, see the LICENSE, NOTICE, and license.txt files on the Portal server.

Portal: Supported Software

Table 1-1

Software Product	LINUX	Windows
Oracle 12c Standard Edition 2	<p>Upgrading to 10.4.xx</p> <ul style="list-style-type: none"> 12.1.02 <p>New Installation 10.4.xx</p> <ul style="list-style-type: none"> 12.2.01 	<p>Upgrading to 10.4.xx</p> <ul style="list-style-type: none"> 12.1.02 <p>New Installation 10.4.xx</p> <ul style="list-style-type: none"> 12.2.01
Java	Amazon Corretto 11.0.6.10.1 64-bit	Amazon Corretto 11.0.6.10.1 64-bit
VMware Web Services SDK	5.5, 64-bit	5.5, 64-bit
Apache HTTP Web Server	<p>Upgrading to 10.4.xx</p> <ul style="list-style-type: none"> Manual upgrade to 2.4.41 is supported. <p>New Installation 10.4.xx</p> <ul style="list-style-type: none"> 2.4.41. Apache 2.4.41 includes SafeLogic SSL for Linux environments. 	<p>Upgrading to 10.4.xx</p> <ul style="list-style-type: none"> Manual upgrade to 2.4.41 is supported. <p>New Installation 10.4.xx</p> <ul style="list-style-type: none"> 2.4.41. Verify that the C++ Redistributable for Visual Studio 2015 is installed.* Apache 2.4.41 includes OpenSSL for Windows environments.

Table 1-1 (continued)

Software Product	LINUX	Windows
Apache Tomcat Java Servlet Engine	<p>Upgrading to 10.4.xx</p> <ul style="list-style-type: none"> ■ 8.5.50*. If you have an older version of Tomcat installed, contact Veritas Support for assistance. <p>New Installation 10.4.xx</p> <ul style="list-style-type: none"> ■ 8.5.50* 	<p>Upgrading to 10.4.xx</p> <ul style="list-style-type: none"> ■ 8.5.50*. If you have an older version of Tomcat installed, contact Veritas Support for assistance. <p>New Installation 10.4.xx</p> <ul style="list-style-type: none"> ■ 8.5.50*

If other versions of the above components are already running on the designated APTARE IT Analytics system, or other components are utilizing resources (such as specific ports) typically used by APTARE IT Analytics, the product usually can be reconfigured to work around these conflicts; however, this cannot be guaranteed.

*Refer to Support for updated binaries as they become available.

Upgrading a Portal and Data Collectors (Linux)

This chapter includes the following topics:

- [Overview](#)
- [Upgrade Path](#)
- [Before Upgrading](#)
- [Data Collector Upgrades](#)
- [Troubleshooting - Manual Data Collector Upgrades](#)
- [Collector Updates from the APTARE IT Analytics Portal](#)
- [Upgrading Methods to Incorporate Enterprise Objects](#)
- [Attribute Merging During the Portal Upgrade](#)
- [Upgrading a Shared Services Environment](#)
- [Running the Upgrade Utility Installer](#)
- [Known Issues](#)
- [Installation from a Single File Specific to an OS](#)
- [Running the Upgrade Utility](#)
- [After the Upgrade](#)
- [Upgrading the Portal with Additional Licensed Modules](#)
- [Upgrade Scenarios](#)

- [Database Table Creation Scripts](#)
- [Adding Additional Products](#)
- [Enabling New Features and Report Templates Using the Portal](#)

Overview

For complete details about system requirements and upgrading, refer to the *Certified Configurations Guide*. Separate upgrade instructions are provided for Windows and Linux with the assumption that the Portal and database components are installed on the same server.

Upgrade Path

The Portal must be running a minimum of APTARE IT Analytics version 10.2.01 to upgrade to Release Version 10.4.xx.

Before Upgrading

- Ensure that you have a valid system backup. For additional information refer to the *System Administrator Guide*. Prior to executing the upgrade utility:
 - A cold backup of the Portal / Database server(s) file systems.
 - A backup of the file systems containing the Oracle database (typically /data01-06 on Linux) is only valid if it was taken while Oracle was completely shut down.
 - An export of the database.
- If you have installed any patches on your present APTARE IT Analytics version, check the Release Notes to verify that they are included in this release. If you are uncertain, check with the Veritas Support. In most cases, previously installed patches are included in this release.
- Verify that the libXtst.so.6 libraries are installed.
- Verify the rpm fontconfig is installed. Fontconfig is a library designed to provide system-wide font configuration, customization and application access. If the rpm fontconfig is not installed, the installer will not be able to load in the console or silent mode. This is a prerequisite for a Linux Portal upgrade and a Data Collector installation.
- In the Portal, verify that the Data Collectors are set for automatic updates. This setting triggers the automatic download of updated application logic to the Data

Collectors in your enterprise. This download is required to ensure the Data Collectors are running with the latest compatible version. Refer to the vendor-specific Data Collector Installation Guide for additional information about Data Collectors.

See [“Data Collector Upgrades”](#) on page 25.

- The Portal and Database components should be installed on the same server.
- Identify the Java Version on the Data Collector Server and ensure that a 64-bit server is used for the Data Collector Server.
- Beginning with Release Version 10, Portal upgrades will automatically enable privileges for newly added reports and certain features/functions, for all Administrators. This does not impact previously configured privileges. The Super User can manually revoke any Administrator privileges that have been automatically enabled.

Data Collector Upgrades

For performance reasons, do not install Data Collectors on the same server as the APTARE IT Analytics Portal. However, if you must have both on the same server, verify that the Portal and Data Collector software do not reside in the same directory.

Mandatory Prerequisites

- Do not use `downloadlib.[sh|bat]` to upgrade the binaries on the Data Collector. Initiate the Data Collector upgrade from the APTARE IT Analytics Portal.

Troubleshooting - Manual Data Collector Upgrades

If the Data Collector fails after completing the previous requirements and prerequisites, perform the following:

On the Collector Server:

1. Kill all running APTARE-related Java processes.
2. Start the Agent Service
 - If it starts and continues to run:
See [“Collector Updates from the APTARE IT Analytics Portal”](#) on page 26.
3. If the APTARE Agent Service does not continue to run, verify no APTARE-related Java processes are running. If required, kill all running APTARE-related Java processes.

- Restart the Collector Server, if the Java processes cannot be killed manually. Prior to restarting the server, disable the automatic start of the APTARE Agent Service.
- 4. Rename <APTARE_HOME>/jre to jre.old.
- 5. Copy <APTARE_HOME>/upgrade/staging/snapshot/jre to <APTARE_HOME>/
- 6. Enable the automatic start of Agent service, if you previously disabled the service.
- 7. Start the Agent Service.

See [“Collector Updates from the APTARE IT Analytics Portal”](#) on page 26.

Collector Updates from the APTARE IT Analytics Portal

1. Log in to the APTARE IT Analytics portal, and navigate to **Admin>Data Collection>Collector Updates**.
2. Select the Data Collector that failed to upgrade.
3. Verify if either aptare.jar or Upgrade Manager failed to upgrade.
4. Click **Upgrade Both**, **Upgrade aptare.jar**, or **Update Upgrade Manager**, depending on what failed to upgrade. Allow up to an hour for completion, depending on the size of your system.
5. Contact Veritas Support for additional issues.

Upgrading Methods to Incorporate Enterprise Objects

During a Portal upgrade to Release Version 10.x.xx, all Dynamic Template Designer Methods will be modified to associate a method with an enterprise object (such as an array or host), rather than the method being associated with a APTARE IT Analytics product (such as Capacity Manager).

The upgrader automatically makes the necessary changes, which may result in the following considerations:

- If the upgrader encounters a method that could apply to multiple enterprise objects (for example, a backup method that is relevant for both a Data Domain and a Job enterprise object), the upgrader makes a copy of the method with an Upgrade label append to the method name. This new version of the method has a populated enterprise object field so that your reports won't fail. Note that

the WITH clause alias in this new version will still reference the old name, but this will not cause reports to fail. You can modify this to make the method accurate, however, this modification is not required.

- Once upgraded, some methods may have a null value for the enterprise object. For example, a method that was created for Virtualization Manager does not have a corresponding supported enterprise object (Data Domain, Host, Job, or Storage Array). If such a method is found by the upgrader and the method is in use by a Dynamic Template, the upgrader implicitly assumes the enterprise object for the template is relevant and populates the enterprise object field accordingly. However, if the method currently is not in use, the enterprise object field remains null.
- Upgraded methods that result in null enterprise object values can be identified by viewing the list of methods: Tools > Templates > Method Designer.
- To use a method in a Dynamic Template, the enterprise object field must be populated. Therefore, when you modify and save a method (Save/Save as), you will be prompted to select an enterprise object.

Attribute Merging During the Portal Upgrade

Version 10.x.xx introduced several enhancements to attribute management.

- A new attribute type, a multi-object attribute, replaces the way that attributes functioned in previous releases. This multi-object attribute enables creation of a single attribute that will be available for all objects, such as hosts, arrays, and switches.
- Prior to Version 10.x.xx, object-specific attributes were required. For example, if you wanted a Location attribute for both host and array objects, you needed to create a separate Location attribute for each object. Now, with multi-object attributes, a single attribute can be used for all objects (for example, arrays, hosts, LUNs and switches).
- System Attributes are new to Version 10.x.xx. System attributes provide a set of popular attributes that you can populate with your own enterprise-specific values. These new system attributes are multi-object attributes with the following names: Application, Business_Unit, Data_Center, Department, Environment, Location, Organization, Owner, and Region. These system attributes cannot be deleted.
- The naming convention for attributes also has been changed in Version 10.x.xx. Attribute names must begin with an alpha character. Use only alpha, numeric, or underscore characters in the name. Spaces and special characters are not allowed. This may mean that you will need to modify attribute names after you upgrade so that you can modify and save the list of values.

Attribute Management During the Portal Upgrade

Because you may already have attributes in your database that have names that duplicate the system names introduced in Version 10.x.xx, the upgrade process must apply logic to prevent duplicate attribute names. During the Portal upgrade, the following logic is used:

- In the top-level domain, if the upgrader finds an existing attribute that has a name that is the same as a new system attribute (for example, Location) it creates the system attribute and populates it with the list of values from the existing attribute.
- For multi-tenancy environments where there are multiple domains, if an attribute is found in both a parent and child domain, the child domain will not inherit the values but instead, the values of the attribute in the child domain will remain intact. See also, Attribute Inheritance Overrides in the online technical documentation.
- If multiple attributes with the same name are encountered in the same domain (for example, a host Location attribute and an array Location attribute), the values from all the attributes with the same name (for all objects) are merged into the system attribute.
- The upgrader will list the attributes with the list of values that will be merged into the new System Attributes. You can choose to let the upgrader merge the attributes or you can stop the upgrade and use the steps provided to rename existing attributes.
See [“Steps to Rename Duplicate Attributes”](#) on page 29.
- Merging of values ensures that all objects that have been assigned the attribute will retain this attribute with its values and therefore, reports that use the attributes will continue to work as expected.

Example of a Merge of Attribute Values

Before the upgrade:

- Location attribute exists for Hosts, with a list of values: San Diego, New York, Seattle.
- Location attribute exists for Arrays, with a list of values: Paris, London, Singapore.

After the upgrade:

- Location system attribute has been created to replace the object-specific attributes. This system attribute will contain a merged list of values (LOV): San Diego, New York, Seattle, Paris, London, Singapore.
- This list of values applies to all objects.

- Once the upgrade is successful, you may want to modify the merged list of values via the Portal: Select **Admin**> Advanced > **Attributes**.

Steps to Rename Duplicate Attributes

1. Log in to the Portal server.
2. At the command line:

```
su - aptare
```

3. At the command line, launch sqlplus:

```
sqlplus <pwd>/<pwd>
```

- Example: **sqlplus portal/portal**

4. To rename an attribute, execute the following SQL statements, substituting <variables> with values listed in the upgrade messages:

```
UPDATE apt_attribute  
SET attribute_name = <attributeName>  
WHERE attribute_id = <AttributeID>;  
Commit;
```

Example:

This example renames the Location attribute so that it is not merged with the system attribute named Location.

```
UPDATE apt_attribute  
SET attribute_name = 'Location1'  
WHERE attribute_id = 100001;  
Commit;
```

Best Practice for Attributes in Multi-Tenancy Environments

- Maintain attributes at the top-level domain so that the attributes are available to all client/child domains.
- During the Portal upgrade to Version 10.x.xx, newly introduced System Attributes will be added to the top-level domain.

Upgrading a Shared Services Environment

In a shared services environment, where the connect as sysdba privilege is not present, you must provide a CREATE SYNONYM privilege to the APTARE_RO user before upgrading. APTARE_RO is a read-only user for the Portal.

Note: Unless this privilege has been deliberately revoked, this step is mandatory for an upgrade. If this privilege is not granted, errors in the upgrade script will occur and functionality within the SQL Template Designer will be impacted.

1. Log in with root access.
2. Stop the portal and data receiver Tomcat services.
3. At the command line, execute the following commands:

```
su - aptare
```

```
sqlplus / as sysdba
```

```
SQL >GRANT CREATE SYNONYM TO APTARE_RO;
```

Running the Upgrade Utility Installer

The following instructions assume you have the specific upgrade installer file for just your platform.

Known Issues

- A known issue associated with Security Enhanced Linux (SELinux) may arise when executing scripts that require Java. This results in a permission denied error message. To resolve this issue, configure SELinux to enable Java processes to run. Consult the operating system documentation.
- When upgrading to Release Version 10.x.xx, the date format defaults to the Portal operating system locale, and ignores any previous configuration in the portal.properties file.

Installation from a Single File Specific to an OS

Note: Perform the installation as user root for Linux systems.

If you downloaded just the single installer file specifically for your OS, simply copy that file to the server you are upgrading and then proceed running the upgrade utility installer.

See [“Running the Upgrade Utility Installer”](#) on page 30.

Running the Upgrade Utility Installer

Note: Perform the upgrade as user root for Linux systems.

1. Run the upgrade utility installer file:

```
sh ./sc_upgrader_<releaseversion>_linux_<date>.bin
```

2. Follow the installer prompts to extract the upgrade files and utilities.
3. To complete the upgrade process, you must now run the upgrade utility:

```
/opt/aptare/upgrade/upgrade.sh
```

Running the Upgrade Utility

The following instructions assume that the Portal and Database components reside on the same server.

1. Verify your current APTARE IT Analytics version. You must be currently running APTARE IT Analytics version 10.2.01 or greater.
2. Verify that the libXtst.so.6 libraries are installed.
3. Ensure that all APTARE IT Analytics application services are up and running. Next, as user **root** run the following command and respond to the prompts accordingly.

```
sh /opt/aptare/upgrade/upgrade.sh
```

- If there are errors during the upgrade, the following banner is displayed:

```
#####  
# WARNING WARNING WARNING WARNING WARNING #  
# Possible problems were encountered during the upgrade. #  
# Please check the log file /opt/aptare/upgrade/logs/upgrade.log #  
# for errors and contact Customer Support if necessary. #  
#####
```

4. If the upgrade process encountered any errors, save a copy of the log file for any correspondence with the Veritas Support. You can find the upgrade log file in the following location:

```
/opt/aptare/upgrade/logs/upgrade.log
```

Note: If you have installed any patches on your present APTARE IT Analytics version, please check the Release Notes to verify that they are included in this release. If you are uncertain, please check with the Veritas Support. In most cases, previously installed patches are included in the current release.

Note: If your upgrade fails because of an Apache version conflict, contact Veritas Support for instructions and a link to download a new version.

After the Upgrade

Clear the Portal's browser cache after upgrading. This helps avoid browser display issues after the upgrade.

Upgrading the Portal with Additional Licensed Modules

If you have purchased licenses for additional modules, the following procedures provide the steps to create the necessary database tables.

Upgrade Scenarios

- Adding File Analytics, Capacity Manager, Fabric Manager, and Virtualization Manager
- Adding Backup Manager
- Adding new subsystems to existing Capacity Manager
- Adding new subsystems to an existing Backup Manager

Most APTARE IT Analytics licensed modules use the same set of instructions to upgrade the Portal with new licensed modules, upgrade existing licensed modules, and add subsystem support.

Database Table Creation Scripts

Table 2-1 Database Table Creation Script Names

Product and Subsystem	Name
Backup Manager	base
Capacity Manager	srm
Commvault Simpana	cmv
EMC Avamar	avm
EMC Networker	leg
Fabric Manager	swi
File Analytics	afa
Generic Backup	gen
HP Data Protector	hpd
IBM Tivoli Storage Manager	tsm
Veritas Backup Exec	bue
Veritas NetBackup	nbu
Virtualization Manager	vmm

Adding Additional Products

Once you upgrade the APTARE IT Analytics platform, to add new products use the following procedures to set up the database tables.

These instructions apply to:

- Adding File Analytics, Capacity Manager, Fabric Manager, and Virtualization Manager
- Adding new subsystems to an existing Backup Manager

Please note these are generic instructions and you must replace the variable entries with those that correspond with your subsystem.

See [Table 2-1](#) on page 33.

Prerequisites

Capacity Manager must be installed prior to installing Fabric Manager and File Analytics.

To add database tables

- 1 Log in as **aptare** to your APTARE IT Analytics Database server.

You must be logged in as a database user. If you already are logged in as root:

```
su - aptare
```

- 2 Prepare the database for the new tables.

```
cd /opt/aptare/database/setup
```

- 3 Run the SQL scripts.

```
sqlplus portal/portal @setup_<name>.plb
```

EXAMPLE:

```
sqlplus portal/portal @setup_avm.plb  
cd /opt/aptare/database/ora_scripts  
sqlplus / as sysdba @create_aptare_ro_user_<name>_views.sql
```

EXAMPLE: **sqlplus / as sysdba @create_aptare_ro_user_avm_views.sql**

- 4 Validate the database.

```
cd /opt/aptare/database/tools  
sqlplus portal/portal @validate_sp.sql
```

Note: Run the `validate_sp.sql` script when the Portal and Data Collector Services are down. Performance is degraded when the services are running.

If the release introduces new features and reports, you must enable them in the Portal after you upgrade.

Enabling New Features and Report Templates Using the Portal

When a release introduces new features and report templates, you must enable access for your users in the Portal by modifying administrative settings in the Portal after you upgrade.

Upgrading and Migrating to a New Server

This chapter includes the following topics:

- [Upgrading and Migrating to a New Server](#)
- [Install the latest release of APTARE IT Analytics on the new server](#)
- [Perform an export of the database on the existing server](#)
- [Stop Portal and Agent Services on the new server](#)
- [Drop and re-create the existing portal user on the new server](#)
- [Import the database onto the new server](#)
- [Start Portal and Agent Services on the new server](#)
- [Download, install, and execute to upgrade the database schema](#)
- [Testing](#)
- [Update Data Collector binaries \(if necessary\)](#)

Upgrading and Migrating to a New Server

If you are upgrading from an 8.4.02 Portal to a 9.x Portal and then to 10.x.xx, you may need to migrate your Linux server. This section covers migrating to a Linux Portal server and then migrating the APTARE IT Analytics database to this new server.

Users must be running a minimum of version 10.2.01 to upgrade to 10.4.xx.

Install the latest release of APTARE IT Analytics on the new server

1. Download the latest release and installation instructions from the Support Portal.
2. Perform a fresh install of the database and portal on the new server.
3. Request a new license key for the server from license-aptare@veritas.com. See “[Task 7: Request the License Key File \(Linux\)](#)” on page 19.
4. Install the new license, once you receive it.

Perform an export of the database on the existing server

1. Follow the instructions for your platform in the *System Administrator Guide* to create a database export.
2. Copy/Transfer the export file to your new server.

Stop Portal and Agent Services on the new server

1. On Linux (as root):

```
Execute /opt/aptare/bin/tomcat-agent stop  
Execute /opt/aptare/bin/tomcat-portal stop
```

Drop and re-create the existing portal user on the new server

1. On Linux (as "aptare" user):
 - sqlplus / as sysdba
 - drop user portal cascade;
[@/opt/aptare/database/ora_scripts/create_portal_user.plb](#);

Import the database onto the new server

1. Follow the instructions for your platform in the Importing the Oracle Database section in the *System Administrator Guide*.

Start Portal and Agent Services on the new server

1. On Linux (as root):

```
Execute /opt/aptare/bin/tomcat-agent start
```

```
Execute /opt/aptare/bin/tomcat-portal start
```

Download, install, and execute to upgrade the database schema

1. Download the upgrade installer and documentation from the Customer Portal.
2. Run the upgrade installer.
See [“Running the Upgrade Utility Installer”](#) on page 30.
This installs the upgrade executable, but does not execute them.
3. Verify that all APTARE IT Analytics application services are up and running.
4. As user root, run the following relevant command and respond to the prompts accordingly:
 - On Linux:

```
sh /opt/aptare/upgrade/upgrade.sh
```

You will receive warnings that your current version is already up to date, proceed.

Choose component two (2) for both

Once the script has completed, review the log file indicated to check for any errors

Testing

If desired, you can use the local host file method of IP address resolution to test the functionality of the new portal prior to any DNS cut-over from the existing server.

Update Data Collector binaries (if necessary)

Do not install on the same machine as the new portal/database server.

1. Download the Data Collector installer and documentation from the Customer Portal.
2. Follow the instructions in the documentation for your Data Collector to uninstall.
3. Re-install the Data Collector to the latest version, giving the correct URL for the new server.

Portal Upgrades (Linux): Tomcat and Apache

This chapter includes the following topics:

- [Overview](#)
- [Upgrading from Tomcat 7 to Tomcat 8 \(Linux\)](#)
- [Upgrading the Apache Web Server to 2.4.xx \(Linux\)](#)

Overview

If your environment requires the latest versions of Tomcat and Apache to comply with security standards, use the following instructions. These upgrades are required only if you must satisfy security audit requirements. The Tomcat and Apache upgrades are independent—that is, you can do one without the other.

To simplify the upgrade process, these third-party component upgrades should be done after the portal upgrade.

Note: These upgrade instructions apply to the standard, default Portal environments. If you have a multi-tenancy environment (for example, services providers) or if there are multiple tomcat instances for the Data Receiver, you may have to contact Veritas Support to assist in customizing the instructions.

Note: If your upgrade fails because of an Apache version conflict, contact the Veritas Support for instructions and a link to download a new version.

Upgrading from Tomcat 7 to Tomcat 8 (Linux)

1. Log into Veritas Support to retrieve the distribution files that are used in these instructions.
2. Copy the latest Tomcat binary distribution to your Linux Portal server.
3. As user root, untar the Tomcat binary distribution into: /opt

```
cd /opt  
gtar -zxvf <path to file>/apache-tomcat-8.5.xx.tar.gz
```

4. Run the switchtomcat.sh shell script.

```
sh /opt/apache-tomcat-8.5.xx/bin/switchtomcat.sh
```

5. Verify you can login to the Portal.

Upgrading the Apache Web Server to 2.4.xx (Linux)

1. Log into Veritas Support to retrieve the distribution files that are used in these instructions.
2. Copy the Apache binary distribution (httpd-2.4.xx.tar.gz) to your Linux Portal server.
3. Verify that the necessary libraries exist on your system, using the following:

```
rpm -q binutils glibc libstdc++ cpp make libaio elfutils-libelf  
expat-devel --qf '%{name} %{arch}\n' | sort
```

The list of libraries should include:

```
binutils.x86_64  
elfutils-libelf.x86_64  
expat-devel  
glibc.i686  
glibc.x86_64  
libaio.i686  
libaio.x86_64  
libstdc++.i686  
libstdc++.x86_64  
make.x86_64
```

As user root, execute the following steps.

4. Stop Apache:

```
/opt/aptare/bin/apache stop
```

5. Untar the distribution into **/opt** on the Portal server.

```
cd /opt  
gtar -zxvf <path to file>/httpd-2.4.xx.tar.gz
```

6. A new folder is created named: httpd-2.4.xx.

7. Copy the current Apache configuration files:

```
cd /opt/apache/conf  
cp -p httpd.conf workers.properties /opt/httpd-2.4.xx/conf  
cp -p extra/httpd-ssl.conf /opt/httpd-2.4.xx/conf/extra
```

8. If SSL is enabled

```
vi /opt/apache/conf/extra/httpd-ssl.conf
```

9. Note where the certificate and key files are located. If the certificate and key files are located under **/opt/apache/** copy them to equivalent directories **/opt/httpd-2.4.xx**

10. Remove and recreate the symbolic link to the new directory

```
rm /opt/apache  
ln -s /opt/httpd-2.4.xx  
/opt/apache
```

11. Start Apache:

```
/opt/aptare/bin/apache start
```

Troubleshooting: Apache Not Starting After Upgrade (Linux)

Perform the following manual steps to start the Apache service if the following conditions are met:

- You have upgraded to APTARE IT Analytics 10.4.00
- You have upgraded Apache from 2.2.20 to 2.4.41
- The Apache service will not start

To start the Apache Service

- 1 Ensure the following entries are present in the file `/opt/apache/conf/httpd.conf`:

```
LoadModule jk_module modules/mod_jk.so

LoadModule unixd_module modules/mod_unixd.so

LoadModule access_compat_module modules/mod_access_compat.so

LoadModule dir_module modules/mod_dir.so

LoadModule filter_module modules/mod_filter.so

LoadModule log_config_module modules/mod_log_config.so

LoadModule alias_module modules/mod_alias.so

LoadModule authn_core_module modules/mod_authn_core.so

LoadModule authz_core_module modules/mod_authz_core.so

LoadModule headers_module modules/mod_headers.so

LoadModule expires_module modules/mod_expires.so

LoadModule rewrite_module modules/mod_rewrite.so

LoadModule mime_module modules/mod_mime.so
```

- 2 From `<Directory/>` directive comment the line:

```
#Deny from all
```

- 3 Add the following lines before `<VirtualHost *>` directive if not already present:

```
JkWorkersFile /opt/apache/conf/workers.properties

JkLogLevel error

JkLogFile /opt/apache/logs/jk.log
```

- 4 Verify the Apache service has restarted.