Enterprise Manager for Oracle® Tuxedo

Getting Started Guide

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Enterprise Manager for Oracle Tuxedo Getting Started Guide, 12*c* Release 1 (12.1.1.1)

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Enterprise Manager for Oracle Tuxedo Getting Started Guide

This guide covers the following topics:

- Overview
- Prerequisites
- Setting Up Software Library
- Importing Enterprise Manager for Oracle Tuxedo to Enterprise Manager
- Deploying Enterprise Manager for Oracle Tuxedo on Enterprise Manager
- Synchronizing Timezones (Optional)
- Starting the tlisten Process
- Configuring and Starting Oracle SNMP Agent (Optional)
- Configuring the UBBCONFIG File
- Loading UBBCONFIG and Booting up Oracle Tuxedo
- Discovering Tuxedo Targets
- Configuring Receive Port for SNMP Agent (Optional)
- Enterprise Manager for Oracle Tuxedo Basics

Overview

This document provides:

- instruction for Enterprise Manager for Oracle Tuxedo deployment on the Enterprise Manager system.
- initial configuration and operation steps that make Enterprise Manager for Oracle Tuxedo ready for use.
- specific configuration steps that enable Enterprise Manager for Oracle Tuxedo to monitor the Oracle Tuxedo domain containing Tuxedo Batch System targets. See Optional steps in the following sections.
- some basic target monitoring information.

Prerequisites

The following prerequisites must be met before deploying the Enterprise Manager for Oracle Tuxedo.

- Oracle Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2) or higher is installed and necessary post-installation steps are performed.
- Oracle Enterprise Manager Cloud Control 12c Management Agent is installed.

For more information, see Enterprise Manager Cloud Control Documentation.

Setting Up Software Library

To set up a software library on Enterprise Manager console, do the following:

1. Create a folder on the machine where Enterprise Manager is installed. For example, `/net/<hostname>/scratch/aime/swlib1`.
2. Log in to Enterprise Manager Cloud Control.
3. From the home page, go to **Setup > Provisioning and Patching > Software Library.**
4. Click **Add**.
5. In the dialog box that appears, enter a name (for example, swlib1), and the path where the folder created in **step 1** resides: `/net/<hostname>/scratch/aime/swlib1`.

For more information, see Configuring a Software Library in Oracle Enterprise Manager Cloud Control Administrator's Guide

Importing Enterprise Manager for Oracle Tuxedo to Enterprise Manager

There are two ways to import Enterprise Manager for Oracle Tuxedo to Enterprise Manager:

- import manually using the `emcli` tool, or
- download Enterprise Manager for Oracle Tuxedo from Enterprise Manager console.

Note: The import process will not be successful if any problems arise in the software library setup process.

Importing Manually

To manually import Enterprise Manager for Oracle Tuxedo to Enterprise Manager, do the following steps:

1. Set up the `emcli` tool. For more information, see https://<Enterprise Manager console hostname>:<port>/em/console/emcli/download.
2. Run the following command:

   ```
   emcli import_update -file=<Enterprise Manager for Oracle Tuxedo installation absolute path> -omslocal
   ```

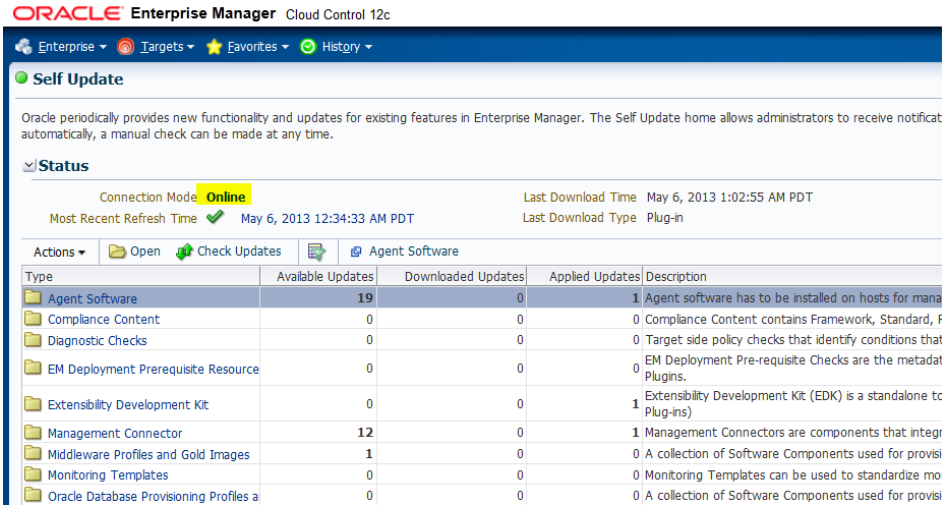
   By default, the Enterprise Manager for Oracle Tuxedo package is located in `<TSAM Plus installation directory>/em/12.1.0.2.0_oracle.fmw.txdo_2000_0.opar`.

Downloading from Enterprise Manager Console

To download Enterprise Manager for Oracle Tuxedo, do the following steps:

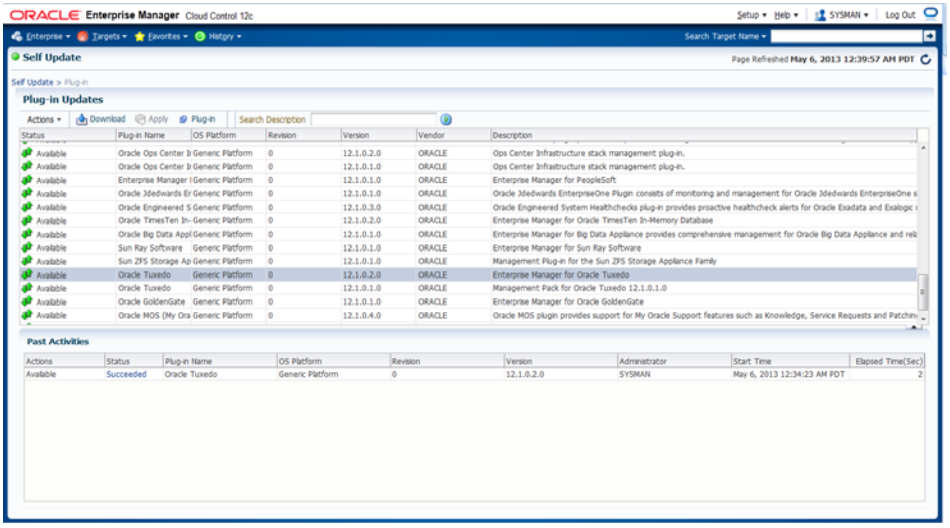
1. From Enterprise Manager console, click **Setup** > **Extensibility** > **Self Update** in the upper right.
2. In the Self Update page, check if **Connection Mode** is **Online**; if not, click Connection Mode status to set online mode.

Figure 1 Self Update Page



3. In the **Type** column, click **Plug-in**, and then select **Oracle Tuxedo**.

Figure 2 Plug-in Updates List



4. Click **Download**.

Deploying Enterprise Manager for Oracle Tuxedo on Enterprise Manager

Deploying Enterprise Manager for Oracle Tuxedo on Management Servers

To deploy Enterprise Manager for Oracle Tuxedo on management servers, do the following steps:

1. Log in to Enterprise Manager Cloud Control.
2. From the home page, navigate to **Setup > Extensibility > Plug-ins**.
3. Click the **Middleware** folder to expand the list.
4. Highlight Enterprise Manager for Oracle Tuxedo from the list and click **Deploy on > Management Servers**.

Deploying Enterprise Manager for Oracle Tuxedo on Management Agents

Before Enterprise Manager Cloud Control can discover Oracle Tuxedo Domain targets, you must deploy Enterprise Manager for Oracle Tuxedo on management agents. Do the following steps:

1. Log in to Enterprise Manager Cloud Control.
2. From the home page, navigate to **Setup > Extensibility > Plug-ins**.
3. Click the **Middleware** folder to expand the list.
4. Highlight Enterprise Manager for Oracle Tuxedo from the list and click **Deploy on > Management Agents**.

Note: For more information, see the Plug-in Manager chapter in Oracle Enterprise Manager Cloud Control Administrator's Guide.

Synchronizing Timezones (Optional)

This step is required only if you are planning to manage and monitor Oracle Tuxedo Batch System.

Make sure the timezone of Enterprise Manager OMS, Enterprise Manager Agent, DB instance, and the Oracle Tuxedo domain located OS are synchronized.

You can refer to the following SQL script example to select and modify the DB instance timezone:

```
SQL> select dbtimezone from dual;

SQL> select sessiontimezone from dual;

SQL> alter database set time_zone='<new time zone>';

SQL> alter session set time_zone='<new time zone>';
```

After you change the timezone, restart DB instance for the changes to take effect.

Starting the tlisten Process

Before you can use Enterprise Manager for Oracle Tuxedo to monitor the Tuxedo domain targets, you must start the `tlisten` process before starting the Tuxedo domain so that Tuxedo Domain MBeans can register with the JMX agent embedded in the tlisten process. For MP domains in particular, you should start `tlisten` for every machine.

Note: If Enterprise Manager for Oracle Tuxedo is used in conjunction with Oracle TSAM Plus 12c, either JRE 1.6 or one of the following JDK 1.6 versions is required to start the embedded JMX agent:

- 1.6.0 to 1.6.0_38 for SUN JRE/JDK
- SR2 to SR9 for Linux on System z
- 1.6.0.00 to 1.6.0.17 for HP platform

It is also recommended you use the JRE shipped under TSAM Plus install directory.

Before starting tlisten, you must set the `tlisten` environment variable `SHLIB_PATH/LIBPATH/LD_LIBRARY_PATH` and include the `libjvm` library path. For windows platforms, you only need to set `JAVA_HOME`. For HP platforms, you need to set `LD_PRELOAD` to include the `libjvm.so` directory.

Listing 1 shows examples of environment variable settings on different platforms:

Listing 1 Environment Variable Setting on Different Platforms

For Linux 64-bit platforms:

```
LD_LIBRARY_PATH=$TUXDIR/lib:$JAVA_HOME/jre/lib/amd64/server:$LD_LIBRARY_PA
TH;
```

```
export LD_LIBRARY_PATH;
```

For AIX 32-bit platforms:

```
LIBPATH=$TUXDIR/lib:$JAVA_HOME/jre/lib/ppc:${JAVA_HOME}/jre/lib/ppc/classi
c:$LIBPATH;

export LIBPATH;
```

For AIX 64-bit platforms:

```
LIBPATH=$TUXDIR/lib:$JAVA_HOME/jre/lib/ppc64:${JAVA_HOME}/jre/lib/ppc64/de
fault:$LIBPATH;;

export LIBPATH;
```

For HP 64-bit platforms:

```
LD_LIBRARY_PATH=$TUXDIR/lib:$JAVA_HOME/jre/lib/IA64W/server:$LD_LIBRARY_PA
TH;

export LD_LIBRARY_PATH;

LD_PRELOAD=$JAVA_HOME/jre/lib/IA64W/server/libjvm.so;

export LD_PRELOAD;
```

Note: `LD_PRELOAD` is only used for tlisten to start embedded JMX agent. It should not be set when building Tuxedo applications.

To start `tlisten`, use the following command:

```
tlisten -j rmi://<host>:<rmiport> -l //<host>:<tlistenport>
```

For example:

```
tlisten -j rmi://bej301163.cn.oracle.com:26999 -l
//bej301163.cn.oracle.com:16998
```

Note: Make sure that the host and port specified by the `-l` option are the same as the `NLSADDR` value specified in the `UBBCONFIG` file.

When the `tlisten` process is started correctly, you can view the message **RMI connector server successfully started** and **Started the embedded JMX agent successfully** in ULOG.

Configuring and Starting Oracle SNMP Agent (Optional)

This step is required only if you are planning to manage and monitor Oracle Tuxedo Batch System.

To configure and start the Oracle SNMP Agent, do the following steps:

1. In `beamgr.conf`, configure the following:
   - `TRAP_HOST`, which format is:

     ```
     TRAP_HOST <host_name> <trap_port> <trap_community>
     ```

     Where the `host_name` is the Enterprise Manager agent host, and the `trap_port` is the Enterprise Manager agent listening port to be configured as monitoring property of Batch System target. Make sure the port number is not occupied by any process in the Enterprise Manager Agent located OS.
   - `TMAGENT`, which format is:

     ```
     TMAGENT <logical_agent_name> <TUXDIR> <TUXCONFIG>
     ```

     Following is an example:

     ```
     TRAP_HOST 10.182.54.215 1061 public

     SNMP_ENABLE_AUTH_TRAP 1

     TMAGENT tuxedo_agent_1 /testarea/tux/oracle/tuxedo12.1.1.0
     /testarea/tux/test/servers/tuxconfig
     ```

   For more information, see Oracle SNMP Agent Configuration File: beamgr.conf.
2. Set the `BEA_SM_SNMP_MIBFILE` and `BEA_SM_BEAMGR_CONF` environment variables.

   Following is an example on UNIX:

   ```
   exportBEA_SM_SNMP_MIBFILE=${TUXDIR}/udataobj/snmp/etc/mib.txt

   export BEA_SM_BEAMGR_CONF=${APPDIR}/beamgr.conf
   ```
3. Start up Oracle SNMP Agent.

   Note: If you are using Oracle Tuxedo 11g Release 1 (11.1.1.3.0) or Release 1 (11.1.1.2), set the environment: `SNMP_USER_EVENT=y` before starting Oracle SNMP Agent.

   Following is an example:

   ```
   tux_snmpd -l tuxedo_agent_1 -p 5400 -s
   ```

   For more information, see Starting Oracle SNMP Agent in Oracle Tuxedo SNMP Agent Administration Guide.

Note: If your Enterprise Manager agent is located at the same machine as your Oracle Tuxedo domain, make sure the port number followed by the `-p` option is not equal to the port number configured in `TRAP_HOST` in `beamgr.conf`.

After Oracle SNMP Agent is booted successfully, there should be two processes, `tux_snmpd` and `<logical_agent_name>_trapd`, running on the Oracle Tuxedo machine.

Configuring the UBBCONFIG File

Adding the NETWORK Section

To monitor and manage the Tuxedo domain monitoring targets, you must register the targets in the `tlisten` process by adding the `NETWORK` section and configuring the `NLSADDR` parameters in the `UBBCONFIG` file for the Tuxedo domain in SHM mode.

Adding EXT_MON in the RESOUCES Section

Collection and calculation of certain metrics (such as Service Metrics and IPC Queue Metrics in MIB), consumes CPU time and potentially impacts Oracle Tuxedo performance. Oracle Tuxedo uses the `EXT_MON OPTIONS` parameter in the `UBBCONFIG` file `RESOURCES` sectionto to allow MIB performance sensitive metrics collection.

If the indicator is specified, all metrics listed in the Tuxedo Targets section are collected in MIB; otherwise, if the indicator is not specified, the following metrics are not collected by Oracle Tuxedo:

- Tuxedo Server Service metrics
- Tuxedo Server IPC Queue metrics
- Tuxedo Bridge IPC Queue metrics

The metrics collection policy changes immediately once you modify this parameter setting.

Listing 2 shows an SHM mode `UBBCONFIG` file example supporting Enterprise Manager monitoring.

Listing 2 An SHM UBBCONFIG Sample Supporting Enterprise Manager Monitoring

```
*RESOURCES
```

```
IPCKEY    65831
DOMAINID   shm
MASTER    L1
MODEL     SHM
MAXACCESSERS 100
MAXSERVERS  100
OPTIONS    EXT_MON
*MACHINES
"bej301163" LMID     = L1
     APPDIR   = "/testarea/tux/test/jmx/servers"
    TUXCONFIG = "/testarea/tux/test/jmx/servers/tuxconfig"
     TUXDIR   = "/testarea/tux/oracle/tuxedo12.1.1.0"
*GROUPS
ATMIGRP1   LMID     = L1
       GRPNO     = 10
*SERVERS
SvrUpdate  SRVGRP    = ATMIGRP1
       SRVID     = 100
*SERVICES

*NETWORK
"L1"
NLSADDR="//bej301163.cn.oracle.com:16998"
```

Adding TMSYSEVT and TMUSREVT Servers (Optional)

This step is required only if you are planning to manage and monitor Oracle Tuxedo Batch System.

Configure TMSYSEVT and TMUSREVT in the UBBCONFIG file.

Following is an example:

```
...
*SERVERS
TMSYSEVT     SRVGRP=EVTGRP        SRVID=20
TMUSREVT   SRVGRP=EVTGRP    SRVID=30
...
```

Loading UBBCONFIG and Booting up Oracle Tuxedo

After the tlisten process is successfully started, refer to online Oracle Tuxedo Documentation to load UBBCONFIG and boot up Oracle Tuxedo.

If you are planning to manage and monitor Oracle Tuxedo Batch System, set the environment variable JESMONITOR=yes before starting the Tuxedo domain.

Discovering Tuxedo Targets

In order to manage and monitor Oracle Tuxedo applications, you must first discover the Tuxedo targets using Enterprise Manager Cloud Control.

To discover all Tuxedo domains on a JMX agent, do the following steps:

1. Log in to Enterprise Manager Cloud Control.
2. From the home page, go to **Targets >Middleware**.
3. Click **Middleware Features** >**Tuxedo Summary**.
4. In the Tuxedo Summary page, click **Add** > **Tuxedo Domain Discovery**.
5. If only one domain exists in the JMX agent, specify the following options on the page that appears:
   - **Hostname**: Mandatory parameter. Specifies the host where the Tuxedo domain master machine is running.
   - **Port**: Mandatory parameter. The port number specified by tlisten -j option.
   - **Application Password**: Optional parameter. Specifies the Tuxedo application password Enterprise Manager agent uses to connect to the Tuxedo domain. You must input this

parameter if the SECURITY value of the Tuxedo domain is one of following: APP_PW, USER_AUTH, ACL, or MANDATORY_ACL; otherwise, leave the field blank.

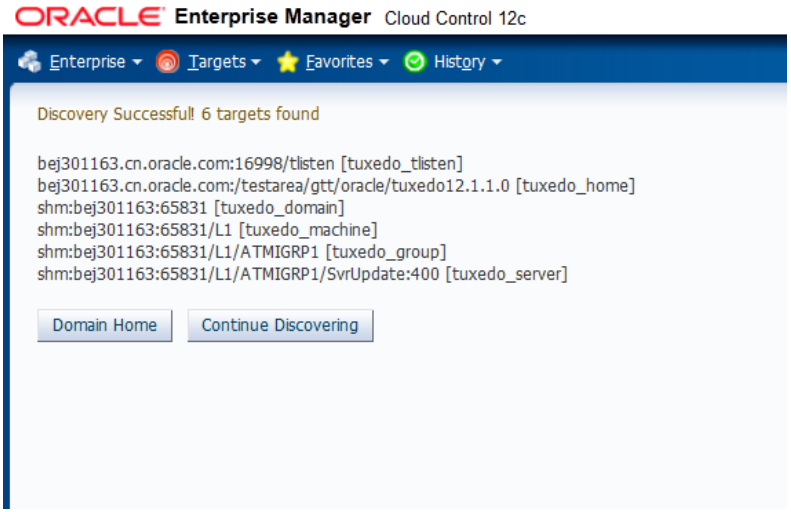
- **User name**: Optional parameter. Specifies the Tuxedo user name Enterprise Manager agent uses to connect to the Tuxedo domain. You must input this parameter if the Tuxedo domain SECURITY value is one of following: USER_AUTH, ACL, or MANDATORY_ACL; otherwise, leave the field blank.
- **User Password**: Optional parameter. Specifies the Tuxedo user password Enterprise Manager agent uses to connect to the the Tuxedo domain. You must input this parameter if the Tuxedo domain SECURITY value is one of following: USER_AUTH, ACL, or MANDATORY_ACL; otherwise, leave the field blank.
- **Use SSL**: Optional. This option refers to SSL mechanism between Enterprise Manager and JMX agent in the tlisten process.
- **With Tuxedo Authentication**: If this box is unchecked, Tuxedo security related information is ignored and only tlisten and the Tuxedo Home targets are discovered. Leave this box checked if you want to discover the Tuxedo domains monitored by the tlisten process.
- **Monitoring Agent**: Mandatory option. It is recommended you select the one residing on the same physical machine with tlisten.

Figure 3 Domain Discovery Page

6. Click **Discover Now**.

If only one domain is being monitored by `tlisten`, you will get a list of discovered targets; otherwise, select the domain on the page that appears and enter the parameters specific to the domain, then click **Discover Now** again.

Figure 4 Successful Discovery



Configuring Receive Port for SNMP Agent (Optional)

This step is required only if you are planning to manage and monitor Oracle Tuxedo Batch System.

In conjunction with the step Configuring and Starting Oracle SNMP Agent (Optional), specify the port number set in `beamgr.conf` as Receive Port for SNMP Agent in the Monitoring Configuration page of Tuxedo Batch System target. Do the following steps:

1. In the Tuxedo Batch System target page, click the target menu.
2. Click **Target Setup** > **Monitoring Configuration** to enter the Monitoring Configuration page.
3. In the **Receive Port for SNMP Agent** field, enter the port number set in `beamgr.conf`.
4. Click **OK**.

After the configuration settings are pushed to agent side, there should be a thread listening on this port at the monitoring Enterprise Manager agent side. If not, check the Oracle Management Agent metadata log file (`gcagent.log`) located in `$EMSTATE/sysman/log`.

Enterprise Manager for Oracle Tuxedo Basics

Target Home page

Click the **Domain Home** button on the page shown in Figure 4, the Tuxedo domain target home page is displayed, which allows you to view general information and perform administrative functions. From the left Target Navigation panel, you can easily navigate to other target home pages by expanding the list and selecting the desired target.

Metrics

The All Metrics page provides a comprehensive list of all the metrics available for a particular target. For example, if you display the All Metrics page for a host target, you can view all the metrics defined for the host target. To enter the All Metric page, do the following steps:

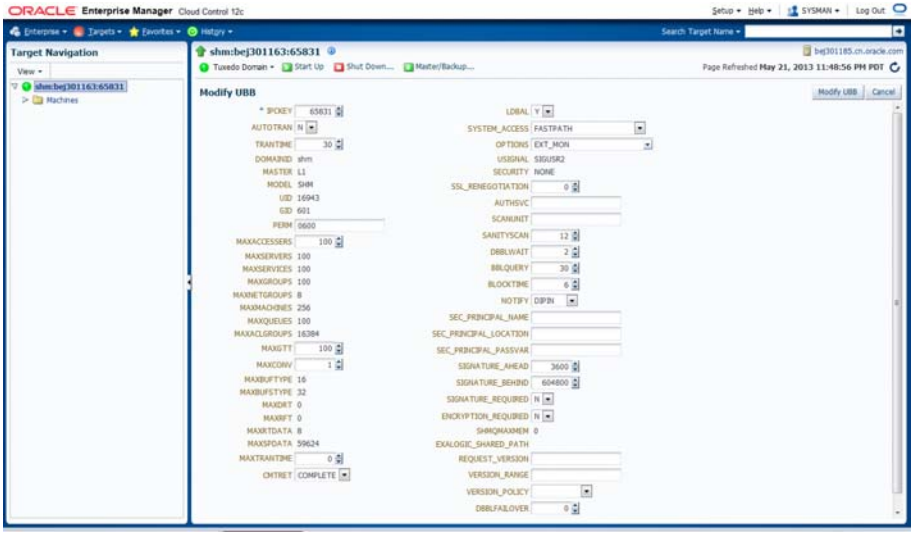
1. Log in to Enterprise Manager Cloud Control.
2. From the home page, in the left Target Navigation panel, right click the target that you want to view.
3. Click **Monitoring** > **All Metrics**.

Administrative Functions for Tuxedo Targets

Enterprise Manager for Oracle Tuxedo allows you to perform administrative functions for Tuxedo Targets, such as starting up the target, configuring UBB parameters, shutting down the target, and so on. The administrative functions are listed in the target control menu.

For example, you can modify the UBB parameters for a Tuxedo domain target by right-clicking the domain target name in the Target Navigation panel and then clicking **Control** > **Modify UBB**.

Figure 5 Modify UBB Page



Dynamic Resource Broker

The Dynamic Resource Broker is a major Enterprise Manager for Oracle Tuxedo feature. It enables manual and policy-driven deployment of Tuxedo servers, groups, and machines on a running Oracle Tuxedo domain for flexible resource allocation towards certain Enterprise Manager targets.

For more information, see Dynamic Resource Broker in Enterprise Manager for Oracle Tuxedo User Guide.

See Also

- Enterprise Manager for Oracle Tuxedo Overview
- Enterprise Manager for Oracle Tuxedo User Guide
- Enterprise Manager for Oracle Tuxedo Administration Guide
- Enterprise Manager for Oracle Tuxedo Reference Guide