

# **Oracle® Tuxedo System and Applications Monitor Plus**

Getting Started Guide

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# Getting Started with Oracle TSAM Plus Manager

This chapter contains the following topics:

- [Installing Oracle TSAM Plus](#)
- [Deploying Oracle TSAM Plus Agent](#)
- [Deploying Oracle TSAM Plus Manager](#)
- [Viewing Your Oracle Tuxedo Configuration](#)
- [Configuring Monitoring Policy](#)
- [Starting to Monitor Oracle Tuxedo](#)

## Installing Oracle TSAM Plus

Install the Oracle TSAM Plus Agent and the Oracle TSAM Plus Manager. For more information, see [Oracle TSAM Plus Installation Guide](#).

## Deploying Oracle TSAM Plus Agent

To properly deploy the Oracle TSAM Plus Agent, you must add the LMS to each Oracle Tuxedo machine section of the UBBCONFIG file. [Listing 1](#) shows an example of how to add the LMS to the UBBCONFIG file.

**Listing 1 LMS Added to UBBCONFIG File**

---

```
...
*MACHINES
MACHINEA
...
*GROUPS
...
LMSGRP LMID=MACHINEA
...
*SERVERS
LMS SRVGRP=LMSGRP SRVID=1 CLOPT="-A -- -l tsamweb.abc.com:7001/tsam"
...
```

---

The “-l” option specifies the Oracle TSAM Plus Data Server address which is configured in the Oracle TSAM Plus Manager. For more information, see the [Oracle TSAM Plus Reference Guide](#). The Oracle TSAM Plus Data Server uses the same port number as the Oracle TSAM Plus Manager Console.

LMS can also be added to a running Oracle Tuxedo application using TMIB.

## Deploying Oracle TSAM Plus Manager

The Oracle TSAM Plus Manager functions as a Web application in a Servlet/JSP container. It uses the DBMS (Database Management System) to store persistent Oracle Tuxedo performance and monitoring data. Before using Oracle TSAM Plus Manager, it must be deployed to a database server and a WebLogic server.

If you input the LDAP configuration file during installation, the LDAP deployment is done automatically; otherwise, you must do the LDAP deployment using the "LDAP Deployment Utility" if you want to enable the LDAP authentication.

If you select "Create a new schema of existing Oracle Database", "Use existing schema of Oracle Database", "Use bundled Derby database" or "Use existing Derby database" during installation, Oracle TSAM Plus Manager is deployed on the specified database server automatically; otherwise, you must deploy Oracle TSAM Plus Manager to a database server using the "Database Deployment Utility".



If you select "Existing WebLogic Server" or "Bundled WebLogic server" during installation, Oracle TSAM Plus Manager is deployed on the specified WebLogic server automatically; otherwise you must deploy Oracle TSAM Plus Manager to an WebLogic server using the "Application Server Deployment Utility" or manually.

For more information, see the [Oracle TSAM Plus Deployment Guide](#).

## Viewing Your Oracle Tuxedo Configuration

Login to the Oracle TSAM Plus Manager Console (for example: <http://localhost:7001/tsam/faces>).

Your Oracle Tuxedo configuration can be found in the Oracle Tuxedo component tree panel. For more information, see the [Oracle TSAM Plus User Guide](#).

## Configuring Monitoring Policy

Monitoring policy defines what and how you want to monitor. TSAM Plus Manager does not collect any metrics if no monitoring policy is defined.

- Typical Monitoring Policy

Go to **Policy > Monitoring** Policy page, click **Add** to enter the **Create Policy** page. Input `tsampolicy` in the **Name:** input field.

- Monitor call path initiated from a particular client

- In the left panel **Tuxedo Component**, select **Domain** in the drop down lists
- In the right panel **Call Path** tab, select **Enable**
- Select the **Filter** check box with **Workstation Client**
- Input a client name in the **Client Name** input box
- Click **Add & Enable**

- Monitor services of a particular server

Similar steps as call path monitoring policy, except you must select options at the "Service" tab. In the "Filter", you can select service from a list or input it manually.

Other monitoring policy sets have similar steps. You can group several monitoring categories in one policy.

For more information, see [Policy Management](#) in Oracle TSAM Plus [User Guide](#).

## Starting to Monitor Oracle Tuxedo

Login to TSAM Plus Console, and start to monitor Tuxedo system and application.

For example:

Go to **Metrics > Call Path** to monitor call path.

Go to **Metrics > Service** to monitor service.

Go to **Metrics > Domain Gateway** to monitor GWTDOMAIN.

For more information, see [Oracle TSAM Plus User Guide](#).

# Getting Started with Enterprise Manager for Oracle Tuxedo

This chapter contains the following topics:

- [Overview](#)
- [Prerequisites](#)
- [Importing Enterprise Manager for Oracle Tuxedo to Enterprise Manager](#)
- [Deploying Enterprise Manager for Oracle Tuxedo on Enterprise Manager](#)
- [Synchronizing Time Zones \(Optional\)](#)
- [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 chapter 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.
- Basic target monitoring information.

## Prerequisites

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

- Oracle Enterprise Manager Cloud Control Management Service is installed and necessary post-installation steps are performed.
- Oracle Enterprise Manager Cloud Control Management Agent is installed.

For more information, see [Enterprise Manager Cloud Control Documentation](#).

## Importing Enterprise Manager for Oracle Tuxedo to Enterprise Manager

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

- One is to import the .opar file manually using the `emcli` tool after installing TSAM Plus using the TSAM Plus installer;
- The other is to download Enterprise Manager for Oracle Tuxedo from Enterprise Manager console.

### 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/12.1.0.3.0\_oracle.fmw.txdo\_2000\_0.opar.

## Downloading from Enterprise Manager Console

Skip this section if you have imported the .opar file manually as described above.

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 2-1 Self Update Page

The screenshot shows the Oracle Enterprise Manager Self Update page. The page title is "ORACLE Enterprise Manager Cloud Control 12c". The page content includes a "Status" section with the following information:

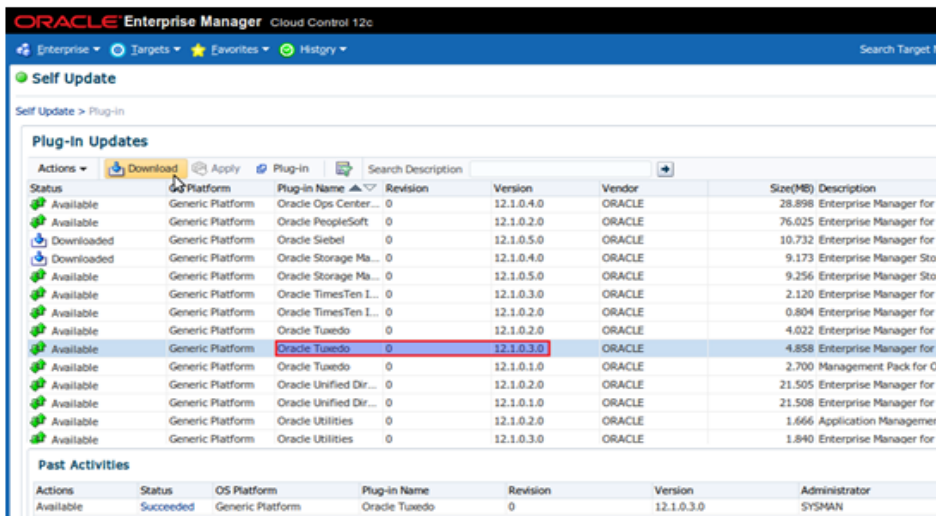
- Connection Mode: **Online**
- Most Recent Refresh Time: **Apr 30, 2015 2:35:59 PM CST**
- Last Download Time: **Nov 5, 2014 6:22:26 PM CST**
- Last Download Type: **Plug-in**

Below the status section is a table of updates. The table has the following columns: Type, Available Updates, Downloaded Updates, Applied Updates, and Description. The "Plug-in" update is highlighted in yellow.

Type	Available Updates	Downloaded Updates	Applied Updates	Description
Enterprise Configuration Search	0	0	0	Configuration search definitions can be used at the enterprise level targets such as hosts and databases.
Extensibility Development Kit	0	0	1	Extensibility Development Kit (EDK) is a standalone tool designed to extend Enterprise Manager (EM) with custom plug-ins (For example: Plug-ins)
Management Connector	19	0	1	Management Connectors are components that integrate different EM consoles
Metric Extensions	0	0	0	Metric Extensions enhance Enterprise Manager's monitoring capabilities with custom metrics and conditions specific to your environment.
Middleware Profiles and Gold Images	1	0	0	A collection of Software Components used for provisioning of Oracle targets.
Monitoring Templates	0	0	0	Monitoring Templates can be used to standardize monitoring across different targets.
Oracle Database Provisioning Profiles	0	0	0	A collection of Software Components used for provisioning of Oracle targets.
Plug-in	50	24	10	Plug-in extends Enterprise Manager to manage newer target types and provides additional functionality.
Provisioning Bundle	0	0	0	Provisioning bundle is a collection of deployment procedures, software components, and templates used to provision and patch Oracle and non-Oracle targets.
Test Data Management templates	7	0	0	Templates for Data Masking, Application data modeling and Subsets

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

Figure 2-2 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 Time Zones (Optional)

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

Make sure the Time zone 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 Time zone:

```
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:** The following JDK versions are required to start the embedded JMX agent: JDK 7u85 or later, or 8u60 or later.

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 2-1](#) shows examples of environment variable settings on different platforms:

### Listing 2-1 Environment Variable Setting on Different Platforms

---

For Linux 64-bit platforms:

```
LD_LIBRARY_PATH=$TUXDIR/lib:$(JAVA_HOME)/jre/lib/amd64/server:$LD_LIBRARY_PATH;
export LD_LIBRARY_PATH;
```

For AIX 32-bit platforms:

```
LIBPATH=$TUXDIR/lib:$(JAVA_HOME)/jre/lib/ppc:${JAVA_HOME}/jre/lib/ppc/classic:$LIBPATH;
export LIBPATH;
```

For AIX 64-bit platforms:

```
LIBPATH=$TUXDIR/lib:$(JAVA_HOME)/jre/lib/ppc64:${JAVA_HOME}/jre/lib/ppc64/default:$LIBPATH;
export LIBPATH;
```

For HP 64-bit platforms:

```
LD_LIBRARY_PATH=$TUXDIR/lib:$(JAVA_HOME)/jre/lib/IA64W/server:$LD_LIBRARY_PATH;
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://tuxdemo.demobox:55555 -l //tuxdemo.demobox:55556
```

**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 ART for 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/tuxedo12.2.2.0.0  
/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:

```
export BEA_SM_SNMP_MIBFILE=${TUXDIR}/udataobj/snmp/etc/mib.txt
export BEA_SM_BEAMGR_CONF=${APPDIR}/beamgr.conf
```

3. Start up 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 RESOURCES 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` section 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 2-2](#) shows an SHM mode UBBCONFIG file example supporting Enterprise Manager monitoring.

### Listing 2-2 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
"<hostname>" LMID      = L1
      APPDIR    = "/testarea/tux/test/jmx/servers"
      TUXCONFIG = "/testarea/tux/test/jmx/servers/tuxconfig"
      TUXDIR    = "/testarea/tux/oracle/tuxedo12c"

*GROUPS
ATMIGRP1    LMID      = L1
      GRPNO     = 10

*SERVERS
SvrUpdate   SRVGRP    = ATMIGRP1
      SRVID     = 100

*SERVICES
```

```
*NETWORK  
  
"L1 "  
  
NLSADDR="//<hostname>:55556"
```

---

## 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.

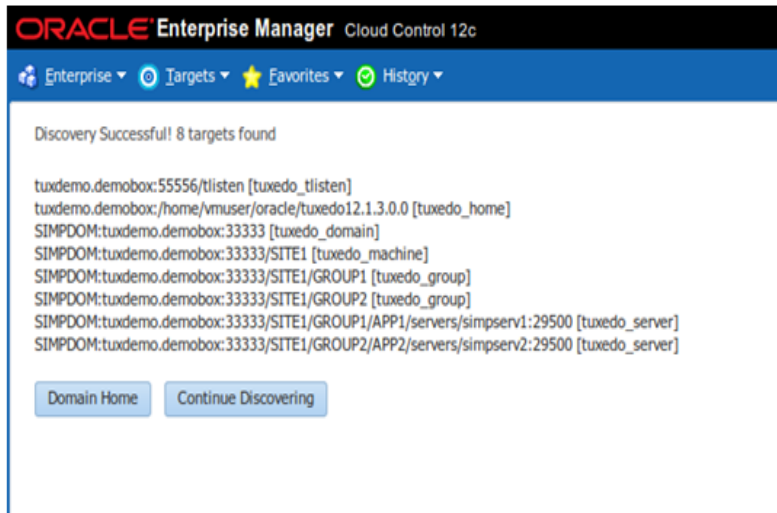
To discover all Tuxedo domains on a JMX agent, do the following steps:

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.
    - **Find Oracle Tuxedo Domains:** 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`.
- Note:** If the Tuxedo domain `SECURITY` value is one of following: `USER_AUTH`, `ACL`, or `MANDATORY_ACL`, the client name of Tuxedo users used by Enterprise Manager must be `tpsysadm`; otherwise, the discovery will fail. You can use `tpusradd -c tpsysadm <username>` to add the user with a client name of `tpsysadm`.
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 2-3 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 2-3](#), 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:

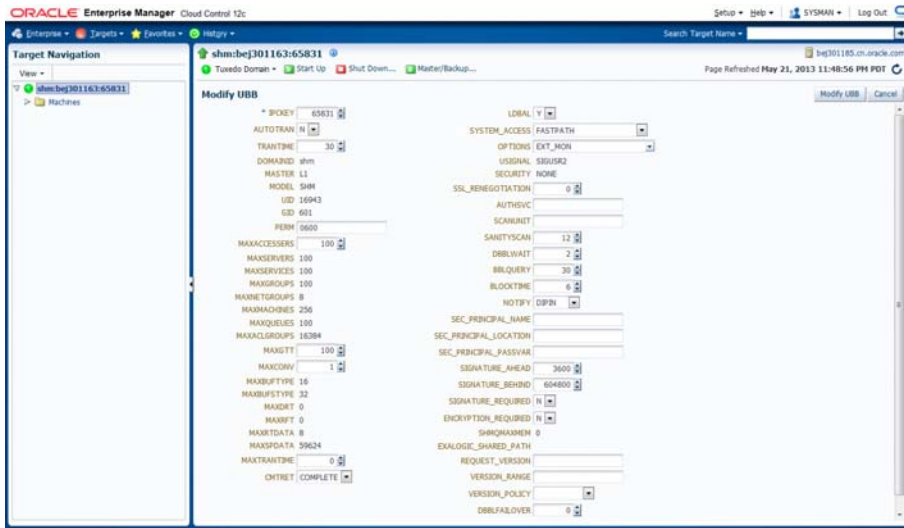
1. Log in to Enterprise Manager Cloud Control.
2. From the home page, in the left Target Navigation panel, right click the target that you want to view.
3. Click **Monitoring > All Metrics**.

### 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 2-4 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 [Oracle TSAM Plus User Guide](#).

## See Also

- [Deploying Enterprise Manager for Oracle Tuxedo](#)
- [Configuring Enterprise Manager for Oracle Tuxedo](#)
- [Using the Enterprise Manager for Oracle Tuxedo](#)
- [Enterprise Manager for Oracle Tuxedo Target Reference](#)