

Symantec Enterprise Security Manager™ Modules for Oracle Databases (UNIX) User's Guide

Release 4.0 for Symantec ESM 6.5.x and 9.0

For Solaris, AIX, HP-UX, and RHEL

Symantec Enterprise Security Manager™ Oracle Databases (UNIX) Release 4.0

Release 4.0

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Chapter 12 Oracle tablespace

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Introducing Symantec ESM modules for Oracle Databases (UNIX)

This chapter includes the following topics:

- [Installing ESM modules for Oracle Databases](#)
- [About using alternate account](#)
- [About registering agents](#)
- [About customizing checks](#)
- [Uninstalling ESM modules for Oracle Databases](#)

Installing ESM modules for Oracle Databases

You can install the following Symantec Enterprise Security Manager (ESM) modules for Oracle on Solaris, HP-UX, and AIX platforms:

- [Oracle SID Discovery](#)
- [Oracle accounts](#)
- [Oracle auditing](#)
- [Oracle configuration](#)
- [Oracle networks](#)
- [Oracle objects](#)
- [Oracle passwords](#)
- [Oracle patches](#)

- [Oracle profiles](#)
- [Oracle roles](#)
- [Oracle tablespace](#)

Before you install

To install the modules, you need the following:

- **CD-ROM access**
At least one computer on your network must have a CD-ROM drive.
- **Account privileges**
You must have access to an account with superuser privileges on each computer where you plan to install the modules.
- **Connection to the manager**
Verify that the Symantec ESM enterprise console can connect to the Symantec ESM manager.
- **Agent and manager**
The Symantec ESM agent must be running and registered to at least one Symantec ESM manager.

Minimum account privileges

The following privileges are assigned to the ESMDBA account if the database instance is configured by using “/ as sysdba”.

Table 1-1 Minimum account privileges if the ESMDBA account is configured by using “/ as sysdba”

| Oracle version | System privileges | Object privileges |
|----------------|--|---|
| 9.0.x | <ul style="list-style-type: none"> ■ Alter User ■ Create session | <ul style="list-style-type: none"> ■ sys.dba_data_files ■ sys.dba_indexes ■ sys.dba_obj_audit_opts ■ sys.dba_priv_audit_opts ■ sys.product_component_version ■ sys.dba_profiles ■ sys.dba_role_privs ■ sys.dba_roles ■ sys.dba_stmt_audit_opts ■ sys.dba_sys_privs ■ sys.dba_tab_privs ■ sys.dba_tables ■ sys.dba_tablespaces ■ sys.dba_ts_quotas ■ sys.dba_users ■ sys.dba_temp_files ■ sys.registry\$history ■ sys.user\$ ■ v\$controlfile ■ v\$instance ■ v\$logfile ■ v\$parameter ■ v\$version ■ v\$database |

Table 1-1 Minimum account privileges if the ESMDBA account is configured by using “/ as sysdba”

| Oracle version | System privileges | Object privileges |
|-----------------------------------|-------------------|---|
| 9.1.x, 9.2.x, 10.x and 11.1.0.6.0 | Create session | <ul style="list-style-type: none"> ■ sys.dba_data_files ■ sys.dba_indexes ■ sys.dba_obj_audit_opts ■ sys.dba_priv_audit_opts ■ sys.product_component_version ■ sys.dba_profiles ■ sys.dba_role_privs ■ sys.dba_roles ■ sys.dba_stmt_audit_opts ■ sys.dba_sys_privs ■ sys.dba_tab_privs ■ sys.dba_tables ■ sys.dba tablespaces ■ sys.dba_ts_quotas ■ sys.dba_users ■ sys.dba_temp_files ■ sys.registry\$history ■ sys.user\$ ■ v\$controlfile ■ v\$instance ■ v\$logfile ■ v\$parameter ■ v\$version ■ v\$database |

The following privileges are assigned to the ESMDBA account if the database instance is configured by using “SYSTEM”:

Table 1-2 Minimum account privileges if the ESMDBA account is configured by using “SYSTEM”

| Oracle version | System privileges | Object privileges |
|-----------------------------------|---|-------------------|
| 9.0.x | <ul style="list-style-type: none"> ■ Alter User ■ Create session ■ Select any Dictionary | N/A |
| 9.1.x, 9.2.x, 10.x and 11.1.0.6.0 | <ul style="list-style-type: none"> ■ Create session ■ Select any Dictionary | N/A |

System requirements

Table 1-3 lists the operating systems that support the ESM Application modules for Oracle, and the installation file required for the Oracle versions.

Note: As per Symantec's End of Life product support policy, the ESM Modules for Oracle Databases are not supported on ESM 6.0.

Table 1-3 Supported operating systems for ESM modules on Oracle

| Supported operating systems | Architecture | Supported OS versions | Supported Oracle versions |
|-----------------------------------|--------------|-----------------------|--|
| AIX (32-bit, 64-bit) | RS6K, PPC64 | 5.2 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x |
| AIX (64-bit) | PPC64 | 5.3 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x, 11.1.0.6.0 |
| HP-UX | PARISC | 11.11 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x |
| HP-UX | PARISC | 11.23 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x, 11.1.0.6.0 |
| HP-UX | IA64 | 11.23 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x, 11.1.0.6.0 |
| HP-UX | PARISC | 11.31 | 11.1.0.6.0 |
| HP-UX | IA64 | 11.31 | 11.1.0.6.0 |
| Solaris | SPARC | 2.8 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x |
| Solaris | SPARC | 2.9 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x, 11.1.0.6.0 |
| Solaris | SPARC | 2.10 | 10.1.0.x, 10.2.0.x, 11.1.0.6.0 |
| Red Hat Enterprise Linux (32-bit) | x86 | ES 3 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x |

Table 1-3 Supported operating systems for ESM modules on Oracle

| Supported operating systems | Architecture | Supported OS versions | Supported Oracle versions |
|-----------------------------------|--------------|-----------------------|--|
| Red Hat Enterprise Linux (32-bit) | x86 | ES 4 | 9.0.1, 9.2.0.x, 10.1.0.x, 10.2.0.x, 11.1.0.6.0 |

Note: For AIX 5.2 (32-bit and 64-bit), install the RS6K agent, and then use the RS6K tpi.

To install Symantec ESM modules for Oracle Databases, you must have the following free disk space:

Table 1-4 Disk space requirements

| Agent operating system | Disk space |
|------------------------|------------|
| AIX (RS6K) | 215 MB |
| AIX (PPC64) | 165 MB |
| HP-UX (PARISC) | 140 MB |
| HP-UX (IA64) | 145 MB |
| Solaris (SPARC) | 110 MB |
| Linux (x86) | 90 MB |

Installing the modules

The modules are stored in an installation package named `esmora.tpi`.

See [Table 1-3, “Supported operating systems for ESM modules on Oracle,”](#) on page 23.

For all UNIX platforms, the installation package name is `esmora.tpi`.

The package does the following:

- Extracts and installs module executables, configuration (.m) files, and template files.
- Registers the .m and template files using your agent’s registration program.
- Creates the ESMDBA account or uses a pre-created account when the `esmorasetup` is run to configure a SID. The password of ESMDBA account is 12 characters long and is generated randomly. The password is encrypted

by using OpenSSL's 256-bit AES encryption algorithm and is stored in the following file:

`/esm/config/oracle.dat`

- Changes the ESMDBA account password according to the period that is specified by the parameter "PassChangedPeriod" in the `/esm/config/oraenv.dat` file. The default days of "PassChangedPeriod" is 35 days. In ESM modules for Oracle, the password must contain at least one upper-case, one lower-case, one number (0-9), and one special character. The default special characters are:
`_+ -= <> ? () * % # !`
 This is the character set that is used if the config PassSpecString entry is not defined in the `/esm/config/oraenv.dat` file.
 To use another set of special characters, you must add a "config PassSpecString \$#_" entry into the `/esm/config/oraenv.dat` file before running the `tpi` or `esmorasetup` program.
 For more information on the `oraenv.dat` file, see [Using the oraenv.dat file](#).
- Grants the privileges specified in [Table 1-2](#).

[Table 1-2](#) lists the privileges that `esmora.tpi` grants.

During the policy runs, the ESMDBA account does not create any object in the database.

Using the oraenv.dat file

The `oraenv.dat` file is a configuration file that stores the configuration parameters, which control certain functions of the ESM modules for Oracle.

To specify the parameters, create the `oraenv.dat` file in the `/esm/config` directory.

You can specify the following parameters in the `oraenv.dat` file:

| | |
|-------|--|
| SHELL | Set an environment variable during an ESM Oracle module policy run. For example, to set the SHELL environment variable to <code>/bin/bash</code> , add the following entry to the <code>oraenv.dat</code> file: set SHELL /bin/bash |
|-------|--|

| | |
|------------------|--|
| ORA_LANG | <p>Unset an environment variable during an ESM Oracle module policy run.</p> <p>For example, to unset the ORA_LANG environment variable, add the following entry to the oraenv.dat file:</p> <p>unset ORA_LANG</p> |
| DebugFlag | <p>Configure debug level.</p> <p>To configure the debug level, add the following entry to the oraenv.dat file:</p> <p>config DebugFlag 1</p> <p>The default debug level is 0.</p> |
| PassCreationLog | <p>Configure the logging level for password creation.</p> <p>To configure the logging level for password creation, add the following entry to the oraenv.dat file:</p> <p>config PassCreationLog 1</p> <p>The default logging level is 0.</p> |
| PassSpecString | <p>Configure the special characters for password.</p> <p>For example, to configure the different set of special characters for the password, add the following entry to the oraenv.dat file:</p> <p>config PassSpecString \$#_</p> <p>The default special characters are as follows:</p> <pre>_+--=<>()*%#!</pre> |
| PassChangePeriod | <p>Configure the period to change the password .</p> <p>For example, to change the password change period value to 60, add the following entry to the oraenv.dat file:</p> <p>config PassChangePeriod 60</p> <p>The default value is 35.</p> |

MinPrivilege

Assign minimum privileges to the ES MDBA user. This parameter is used only if SID is configured by using the ‘/’ as sysdba’ method.

If MinPrivilege is set to ‘No’, then the privileges that are mentioned in [Table 1-2](#) are assigned to the ES MDBA user. If MinPrivilege is set to ‘Yes’, then the privileges that are mentioned in [Table 1-1](#).

For example, to assign granular level permissions to ES MDBA account, add the following entry to the oraenv.dat file:

set MinPrivilege YES

The default value is ‘Yes’.

To run the installation program and register the files

- 1 At the command prompt, type **su** or **logon** to access the root directory.
- 2 Type **cd <path>** to open the directory that corresponds to your vendor/operating system/architecture, where <path> is one of the following:
 - /hp/hpux/parisc/esmora
 - /hp/hpux/ia64/esmora
 - /sun/solaris/sparc/esmora
 - /ibm/aix/rs6k/esmora
 - /ibm/aix/ppc64/esmora
 - /linux/intel/esmora
- 3 Type **./esmora.tpi**.
 See [Table 1-3, “Supported operating systems for ESM modules on Oracle,”](#) on page 23.
- 4 Type a **1** or a **2** to select an option:
 - Option 1 Displays the contents of the package. To install the module, rerun the tpi and select option 2.
 - Option 2 Displays a list of files that will be installed and the modules or templates that they belong to. Register template and .m files only once for agents that use the same manager on the same operating system.
- 5 Do one of the following:
 - If the template files are not registered with the manager, type **Y**.
 - If the template files have already been registered, type **N**.

- 6 Type the name or IP address of the manager to which the agent is registered.
- 7 Type the logon name for the manager.
- 8 Type the agent name as it is registered to the manager.
- 9 Type the password to log on to the manager.
- 10 Type the port number that the manager uses.
- 11 Do one of the following:
 - If the displayed information is correct, type **Y**.
File names are displayed as they are extracted.
 - If the information is not correct, type **N**.
The command line is returned.
- 12 When the extraction is complete, the installation program asks if you want to add configuration records to enable security checking for the oracle database. Do one of the following:
 - To continue the installation and connect to the current SID, type **Y**.
 - To end the installation without adding the security checks, type **N**.
- 13 Do one of the following:
 - Type **A** to connect using "SYSTEM" account.
 - Type **B** to connect using "/as sysdba" method.
- 14 If you chose option A, see [To add security checking using the default SYSTEM account](#). If you chose option B, see [To add security checking by using the "/as sysdba" method](#).

To add security checking using the default SYSTEM account

- 1 Type the Oracle Home path, or press **Enter** to accept the default path.
- 2 Type the SYSTEM account password.
- 3 Retype the password.
- 4 Type the name of the temporary tablespace for the ESMDBA user or press **Enter** to accept the default name.
- 5 Type the name of the default tablespace for the ESMDBA user, or press **Enter** to accept the default name.
- 6 Type the name of the profile for the ESMDBA user or press **Enter** to accept the default name.
- 7 Review the summary information that the installation program displays. Type **Y** to begin the installation.

Symantec ESM does the following:

- Verifies the password
- Connects you to the database as a SYSTEM user
- Creates an ESMDBA user account in your Oracle database with privileges to perform security checks
 The SYSTEM account password is not stored. The ESMDBA user account is used to perform security checks.
 If an ESMDBA account already exists, Symantec ESM drops it, then recreates it.
- Finds the next SID in the oratab file and prompts you to continue

8 Do one of the following:

- To add security checking for the next SID, type **Y**.
- To continue without adding security checks to the next SID, type **N**.

9 Repeat steps 1 through 8 until you have installed the security checks or skipped the installation on every SID in your oratab file.

Do not change the privileges or password of the ESMDBA account. Drop this account only if you uninstall the agent from the computer.

Any time after installation, you may add or update a SID by using a pre-created Oracle account, instead of the default SYSTEM account, from the command line, to perform the ESM security checks.

To add security checking by using the `"/as sysdba"` method

- 1 Type the Oracle Home path, or press **Enter** to accept the default path.
- 2 Type **Y** to add security checking for the designated SID.
- 3 Type the name of the temporary tablespace for the ESMDBA user or press **Enter** to accept the default name.
- 4 Type the name of the default tablespace for the ESMDBA user, or press **Enter** to accept the default name.
- 5 Type the name of the profile for the ESMDBA user or press **Enter** to accept the default name.
- 6 Do one of the following:
 - To configure the next SID, type **Y**.
 - To continue without configuring the next SID, type **N**.
- 7 Repeat steps 1 through 6 until you have installed the security checks or skipped the installation on every SID in your oratab file.
 Do not change the privileges or password of the ESMDBA account. Drop this account only if you uninstall the agent from the computer.

If a database is moved to the restricted mode after you create an ESMDBA account, then you must grant the Restricted Session privilege to the ESMDBA account. If you have used a pre-created account to configure a database in the restricted mode, then grant the Restricted Session privilege to the pre-created account.

Note: The `"/as sysdba"` method for configuring the SIDs is available in ESM modules for Oracle databases version 2.7 onwards.

Note: The configuration of the Oracle SIDs that uses the `"/as sysdba"` method to add security checkings uses the `srvctl` utility from the `<ORACLE_HOME>/bin` directory. For successful configuration of the Oracle SIDs, the `srvctl` utility should produce correct output.

You must have a pre-created oracle account to run the ESM security checks in RAC mode. ESMDBA user accounts are not created for RAC. RAC mode does not support the `/as sysdba` method of configuring the SIDs. Use the procedure given below to support RAC.

To add security checking using a pre-created account

- 1 When the extraction is complete, the installation program asks if you want to add configuration records to enable security checking for the oracle database.
 - To continue the installation and connect to the current SID, type **Y**.
 - To end the installation without adding the security checks, type **N**.
- 2 Type **Y** to configure the designated SID for security checking.
- 3 Type **A** to configure the SID by using the Oracle database account.
- 4 Type the Oracle Home path, or press **Enter** to accept the default path.
- 5 Type the pre-created Oracle account name.

A pre-created Oracle account, used to perform the security checks, will be checked for `CONNECT` and `SELECT` privileges instead of the default `SYSTEM` account.
- 6 Type the pre-created Oracle account password.
- 7 Retype the password.
- 8 The installation program asks if you want to add security checking for SID ESM. Type **Y** or **N**.

Repeat steps 4 through 7 until you have installed the security checks or skipped the installation on every SID in your `oratab` file.

If you configure an instance that is mounted in RAC cluster database mode, you must use a pre-created account. Otherwise, the esmorasetup program displays the following message:

```
The <SID> instance is mounted in cluster database mode.
To prevent conflicting password for the ESMDBA account,
You need to provide a pre-created logon account to be used
by the ESM Modules for Oracle Database security checks.
Failed to configure Oracle SID <SID>.
```

To add or update configuration record for a pre-created Oracle account

◆ At the command prompt, type the following:

```
esmorasetup -a {SID} [-A{ACCOUNT}] [-P{PASSWORD}] [-H{ORAHOME}]
```

| | |
|---------------|---|
| -A {Account} | Predefined Oracle database logon account |
| -P {Password} | Predefined Oracle database logon account password |
| -H {OraHome} | Oracle home directory |

To add or update configuration record for a SID created in RAC environment

At the command prompt, type the following:

```
esmorasetup -a {SID} -A (Pre-create account) -P {PASSWORD} [-T {TEMP}] [-S {USERS}] [-W {DEFAULT}]
```

| | |
|---------------|---|
| -A {Account} | Predefined Oracle database logon account |
| -P {Password} | Predefined Oracle database logon account password |
| -T {TblSpace} | Oracle TEMPORARY table space for ESMDBA user |
| -S {TblSpace} | Oracle DEFAULT table space for ESMDBA user |
| -W {Profile} | Oracle PROFILE for ESMDBA user |

Note: You can configure Oracle SIDs in RAC environment only by using pre-created accounts.

Installing the modules silently

You can install the ESM Modules for Oracle and configure the SIDs in a single step by doing a silent install. The modules can be silently installed using `esmora.tpi`.

You can use the following options while silently installing the ESM modules for Oracle:

- d Display the description and contents of this Tune-up/third-party installation package
- i Install this Tune-up/third-party installation package
- U Specify ESM access record name
- P Specify ESM access record password
- p Specify the TCP Port to use
- m Specify the ESM manager name
- t Connect to the ESM manager using TCP
- x Connect to the ESM manager using IPX (for Windows only)
- g Specify the ESM agent name to use for reregistration
- N Do not update the report content file on the ESM manager
- Y Update the report content file on the ESM manager
- K Do not prompt for and do the re-registration of agents
- A Specify the Oracle SYSTEM user
- C Specify the password for Oracle SYSTEM user
- T Specify the temporary tablespace.
 This option is used by the ESMDBA users. The default value is TEMP.
- S Specify the default tablespace.
 This option is used by the ESMDBA users. The default value is USERS.
- W Specify the user's profile.
 This option is used by the ESMDBA users. The default value is DEFAULT.
- h Display help on the usage of options that can be used for silent installation.
- e Install the module without configuring the SIDs.

To install the ESM modules for Oracle silently

- ◆ At the command prompt, type the following:
./esmora.tpi {-it} {-m} {-U} {-p} {-P} {-g} {Y} {-e}

The above command only installs the ESM modules for Oracle. To configure the SIDs for security checking, run `esmorasetup`, which is located in the `/esm/bin/<platform>` directory.

To install the ESM modules for Oracle and configure all SIDs silently

- ◆ At the command prompt, type the following:
`./esmora.tpi -it {-m} {-U} {-p} {-P} {-g} {Y} {-A} {-C} [-T] [-S] [-W]`

To silently install and configure the ESM modules for Oracle without providing the password string at the command prompt

- 1 You can use the shell parameters instead of the actual password strings. For example, type the following at the command prompt:
`#export ESMPASS = <esm-password>`
`#export ESMORAPASS = <oracle-account-password>`
- 2 If you use the shell parameters during install and configuration, you do not have to provide the password options. For example, type the following at the command prompt:
`#!/esmorasetup -a {SID} -A Pre-created account`
`#!/esmora.tpi -it -{-m} {-U} {-p} {-g} {-Y} {-A}`

Note: The configuration log file, `EsmOraConfig.log` is created in the `/esm/system/<system name>` folder.

About using alternate account

Initially, to install the ESM modules for Oracle and configure the SIDs on the databases, a user was required to log on to the computer as SYSTEM.

An alternate method `"/as sysdba"` has been introduced in the ESM modules for Oracle version 2.7 onwards. Using the `"/as sysdba"` method, a user can log on to the Oracle server without providing a user name and password, and configure all SIDs.

The superuser needs to change the ownership of the `tpi` to enable the other users to do the installation.

To use the alternate account

- 1 Log on to the computer as the superuser.
- 2 Copy `esmora.tpi`.
- 3 Change the ownership of `esmora.tpi` by typing the following command:

chown root: oinstall esmora.tpi

The users of the oinstall group get the superuser privileges to use esmora.tpi.

- 4 Apply sticky bit to esmora.tpi by typing the following command:
chmod 4750 esmora.tpi
- 5 Log on to the Oracle server as an Oracle account.
- 6 Run the tpi and configure the SIDs.
See “[Installing the modules](#)” on page 24.
See “[Installing the modules silently](#)” on page 31.

About registering agents

Each agent must reregister with a manager. The esm3rd.tpi program prompts you for the required information when the agent is installed with new modules.

To manually reregister an agent to additional managers, use the esmsetup program. See your *Symantec ESM Installation Guide* for information about accessing and running the esmsetup program.

If connection errors are reported while running security checks, examine the /esm/config/manager.dat file on the agent. You can add the manager’s fully-qualified name to the file or if the file is missing, manually reregister the agent to the manager.

About customizing checks

After installation, you can change the configuration of SIDs and security checks in the .m files.

Customizing SIDs

You can change the Oracle instances that are included in security checks by using the esmorasetup program that is installed in the /esm/bin/<platform> directory.

Table 1-5 SID customization options

| To do this | Type |
|---------------------|--------------------------------------|
| Display Help | esmorasetup |
| Configure a new SID | esmorasetup -a <sid_name> |
| Configure all SIDs | esmorasetup - a all [-f <file_name>] |

Table 1-5 SID customization options

| To do this | Type |
|--|--|
| Configure a new SID using a specified oratab file | esmorasetup -a <sid_name> -f <file name> |
| Register an Oracle Home into Symantec ESM modules for Oracle Databases | esmorasetup -H <OraHome> |
| Remove (delete) a SID | esmorasetup -d <SID_name> |
| Remove (delete) all SIDs (both using the SYSTEM account and “/as sysdba” method) | esmorasetup -d all |
| Remove a registered Oracle Home from Symantec ESM modules for Oracle Databases | esmorasetup -R <OraHome> |
| Specify an Oracle database SYSTEM password | esmorasetup -a <SID_name> [-f file name>] -A SYSTEM -P <password> [-H <OraHome>] |
| Update Oracle home for all registered SIDs | esmorasetup -U all [-f <file name>] |
| Update Oracle home for one registered SID | esmorasetup -U <SID_name> [-f <file name>] [-H <OraHome>] |
| List all registered SIDs | esmorasetup -l |

For example, to specify an oratab on a SID, with a password, and using the interactive mode, type the following:

```
./esmorasetup <-a|-d> <sid_name|all> [-P <SYS_PASSWORD>]
[-f <file_name>]
```

You can silently change the Oracle instances that are included in security checks by using the esmorasetup program that is installed in the /esm directory.

Table 1-6 Silent SID customization options

| To do this | Type |
|--|--|
| Configure a SID created in RAC environment into Symantec ESM modules for Oracle Databases silently using a pre-created account | esmorasetup -a {SID} -A Pre-created account -P {PASSWORD} [-T {TEMP}] [-S {USERS}][[-W {DEFAULT}]] -Q |
| Configure a SID silently by connecting to the database as SYSTEM account | esmorasetup -a <SID_name> [-f <file_name>] -A <account_name> -P <password> [-H <OraHome>] [-T <Temp>] [-S <Users>] [-W <Default>] -Q |

Table 1-6 Silent SID customization options

| To do this | Type |
|--|---|
| Configure a SID silently by connecting to the database by using the “/as sysdba” method | <code>esmorasetup -a <SID_name> [-f <file_name>] -A oracle_owner [-H <OraHome>] [-T <Temp>] [-S <Users>] [-W <Default>] -Q</code> |
| Configure all SIDs silently by connecting to the database as SYSTEM account | <code>esmorasetup -a ALL -A SYSTEM -P <password> [-T <Temp>] [-S <Users>] [-W <Default>] -Q</code> |
| Configure all SIDs silently by connecting to the database by using the “/as sysdba” method | <code>esmorasetup -a ALL -A oracle_owner [-T <Temp>] [-S <Users>] [-W <Default>] -Q</code> |

Note: You cannot use pre-created accounts when you perform a silent configuration of the module with the -a ALL option.

Customizing .m files

Module configuration (.m) files contain the messages that report security check results.

The .m files reside in the agent’s /esm/register/<os> directory.

The .m files consist of ASCII text that you can edit with a text editor. Individual lines of text should not exceed 128 characters. Some lines of text in a .m file start with directives. Directives classify information and are:

- Preceded by a dot or period character (.)
- Followed by data or descriptive text
- Not case-sensitive

To edit a .m file

- 1 Select an agent with an operating system of the type that reports the security messages you want to edit.
 Use a text editor to modify the security messages.
- 2 Verify that the customized directive in each modified message has been changed to .customized 1. Otherwise, whenever you update an agent, the .m file changes will be overwritten.
 Changes to the messages are saved in the manager database.

- 3 Register the agent that contains the customized .m files to all the managers that run policies on the agent.
- 4 Verify that the modified messages appear on the manager systems in the default location that is shown in Table 1.2. You can relocate this file.

Table 1-7 Default message.dat file location

| System | Directory |
|--------|---|
| UNIX | Symantec ESM creates a symbolic link: /esm/system/<system name>/db/message.dat |

For more information about .m file directives, see the *Symantec ESM Security Update User's Guide for UNIX Modules*.

Uninstalling ESM modules for Oracle Databases

Uninstalling the ESM modules for Oracle databases includes the following:

- Deleting the logon account
- Uninstalling the ESM agent on which the module is installed

To delete the logon account and the configuration records from orace.dat

- 1 Change to the /esm/bin/<platform> directory.
 The pre-created logon account is not deleted if you configure the SID by using a pre-created account. Only the configuration record for the SID is deleted.
- 2 Run the esmorasetup utility as follows:
./esmorasetup -d all
- 3 If you have not configured the SID by using a pre-created account, then do one of the following:
 - Type **1** to connect as SYSTEM.
 - Type **2** to connect using “/as sysdba”.
 If you configured the SID by using a pre-created account, then the above options are not displayed. Only the configuration record for the SID is deleted. The pre-created logon account, which is used for configuration does not get deleted.
- 4 Type **Y** to confirm the deletion of the security checking for the specified SID.
- 5 Type the password for the SYSTEM account if you chose option 1 in step 3.

- 6 Type **Y** to continue deleting the security checking for the SID.
- 7 Repeat steps 3 through 6 to delete the security checking for other SIDs that are configured.

To uninstall the ESM agent on which the module is installed

- 1 Change to the /esm directory.
- 2 Run the esmdeinstall utility as follows:
./esmdeinstall
- 3 Type **Y** to continue.

Note: Uninstalling the ESM agent on which the ESM module for Oracle Databases is installed also uninstalls the module.

Oracle SID Discovery

This chapter includes the following topics:

- [About Oracle SID Discovery](#)
- [Configuring the Oracle database instances by using the Discovery module](#)
- [Editing default settings](#)
- [Reporting SID Discovery](#)

About Oracle SID Discovery

Checks in this module reports the following information:

- Detects new Oracle database instances.
- Reports deleted Oracle database instances.
- Provides an option to automatically configure the newly discovered Oracle database instances.
- Provides an option to automatically remove the deleted Oracle database instances that are still configured.

Note: The Oracle SID Discovery is a host-based module.

Configuring the Oracle database instances by using the Discovery module

The ESM Oracle Discovery module is a host-based module that automates the process of detection and configuration of new database instances that are not yet configured on the local ESM agent computers. The ESM Oracle Discovery module also detects the deleted database instances that are still configured on

the ESM agent computers. The ESM Oracle Discovery module lets you delete the uninstalled database instances from the ESM agent computers.

Configuring a new Oracle database instance

To report on the Oracle database instance, you should first configure the Oracle database instance on an ESM agent computer.

To configure a new Oracle database instance

- 1 Run the Discovery module on the ESM agent computers that have Oracle database installed.
The module lists all the new database instances that were not previously configured.
- 2 Select multiple database instances and do one of the following:
 - ◆ Right-click and select Correction option.
The Correction option configures the database instances with SYSTEM account credentials or pre-created account credentials.
 - ◆ Right-click and select Snapshot Update option.
The Snapshot Update option configures the database instance with / as SYSDBA method.

Note: The / as SYSDBA method does not work in case of Oracle Real Application Cluster (RAC). You must use the correct option and specify pre-created account credentials.

Removing deleted instances

Although, you may have deleted an Oracle database instance, the configuration information still exists in the ESM module. As a result, when you execute the module, it reports the deleted Oracle database instances as deleted database instances.

To remove deleted instances

- 1 Run the Discovery module on the target ESM agent computers. The module lists all the deleted database instances that were configured earlier.
- 2 Select multiple database instances, right-click and select the Snapshot Update option.

The Snapshot Update option deletes the configuration information of such instances

Editing default settings

The Symantec ESM module for Oracle SID Discovery includes three options that you can use to edit default settings for all security checks in the module.

Temporary Tablespace

You can use this option to enter the temporary tablespace name in the Temporary Tablespace text box. If the tablespace that you specify does not exist in the database, then the module uses the default temporary tablespace to create the ESMDBA account.

Default Tablespace

You can use this option to enter the default tablespace name in the Default Tablespace text box. The module reports an error if the tablespace that you specify does not exist in the database. However, the module continues with the configuration of the rest of the SIDs.

Profile

You can use the name list in this check to provide the profile name and the password parameters. If the profile that you specify exists in the database, then the module uses the existing profile. If the profile that you specify does not exist in the database, then the module creates a new profile with the parameters that you specify in the name list.

Following are the default values of the profile name and the password parameters:

- PROFILE=DEFAULT
- FAILED_LOGIN_ATTEMPTS=DEFAULT
- PASSWORD_GRACE_TIME=DEFAULT
- PASSWORD_LIFE_TIME=DEFAULT
- PASSWORD_LOCK_TIME=DEFAULT
- PASSWORD_REUSE_MAX=DEFAULT
- PASSWORD_REUSE_TIME=DEFAULT
- PASSWORD_VERIFY_FUNCTION=DEFAULT

Reporting SID Discovery

The Symantec ESM module for Oracle SID Discovery includes four checks that let you automate the detection and the configuration of the oracle database instances on the host computer.

You can use the Symantec ESM module for Oracle SID Discovery to detect and configure newly detected database instances and the database instances that have been uninstalled.

Detect New Instance

This check reports the database instances that are newly discovered on the ESM agent computers and which were not configured earlier. Use the namelist to include or exclude the Oracle SIDs from the configuration.

The Detect New Instance check lets you use the Correct and the Update snapshot options from the console.

With the Correct option, you can configure the database instance by using the SYSTEM account or a pre-created account. With the Update snapshot option, you can configure the database instance by using “/ as sysdba.”

See [“Minimum account privileges”](#) on page 21.

The snapshot update or correction operation for an Oracle instance function only if the corresponding entries for the Oracle instances are present in the oratab file.

You can check the EsmOraConfig.log file for details.

Table 2-1 Detect New Instance messages

| Message name | Title | Severity |
|----------------------------------|----------------------------|------------|
| ESM_ORACLE_NEW_INSTANCE_DETECTED | New Instance | Yellow (1) |
| ESM_ORACLE_NEW_INSTANCE_ADDED | Added New Instance | Yellow (1) |
| ESM_ORACLE_ADD_INSTANCE_FAILED | Failed to Add New Instance | Yellow (1) |

Detect Retired Instance

This check reports all the database instances that are uninstalled but are still configured on the ESM agent computers. Use namelist to include or exclude the Oracle SIDs from deletion. This check lets you use the Update Snapshot options

from the console, which remove the entry of database instance from the oracle.dat file.

Table 2-2 Detect Retired Instance messages

| Message name | Title | Severity |
|----------------------------------|--------------------------|------------|
| ESM_ORACLE_DEL_INSTANCE_DETECTED | Retired Instance | Yellow (1) |
| ESM_ORACLE_INSTANCE_DELETE | Deleted Retired Instance | Yellow (1) |

Automatically Add New Instance

This check automatically configures all the newly detected instances. This check works in conjunction with the Detect New Instance check. You can use this check to automate the module to connect to each newly detected database instance by using the “/ as sysdba” method. In case of a successful connection, the module configures the instance by adding entry in the oracle.dat file.

An error message displays if the module fails to connect to the newly detected database instance by using the “/ as sysdba” method. You can right-click the message and click Correct to connect to the newly detected database instance. You have to use the SYSTEM or pre-created account credentials to connect to the newly detected database instance.

Note: This check does not work in case of Oracle Real Application Cluster (RAC). You must use the correct option and specify pre-created account credentials.

Automatically Delete Retired Instance

This check automatically deletes the corresponding server records from the configuration file. This check works in conjunction with the Detect Retired Instance check. You can use this check to automate the module to detect the uninstalled database instances and then to delete the corresponding entries from the oracle.dat file.

Oracle accounts

This chapter includes the following topics:

- [Establishing a baseline snapshot](#)
- [Editing default settings](#)
- [Reporting operating system access](#)
- [Reporting user roles](#)
- [Reporting user privileges](#)
- [Reporting user accounts](#)
- [Reporting account changes](#)
- [Reporting account defaults](#)

Establishing a baseline snapshot

To establish a baseline snapshot file, run the Symantec ESM module for Oracle accounts once. Periodically rerun the module to detect changes and update the snapshot when appropriate.

Automatically update snapshots

Enable this option to update snapshots automatically with current information.

Editing default settings

The module for Oracle accounts includes one option, that you can use to edit default settings for all security checks in the module.

Use the name lists in the Oracle system identifiers (SIDS) option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By

default, the module examines all SIDs that are specified when you configure Symantec ESM modules for Oracle Databases. The configuration file for Symantec ESM modules for Oracle Databases is stored in `/esm/config/oracle.dat`.

Reporting operating system access

Users who can access the database as OS administrators have exceptional privileges. Users who can access the database directly from the operating system do so without the protection of Oracle authentication. Both groups of users should be monitored to ensure your systems are protected. The following checks monitor for these users.

Users to skip in OS DBA groups

You can use the name lists in this option to specify users who are to be excluded for Users in OS DBA groups. By default, all users in each group are included.

Users in OS DBA groups

This check reports users who can connect to a database as INTERNAL, SYSDBA, or SYSOPER. The check also reports users who connect as members of DBA, OPER, OSDBA, and OSOPER groups.

You can use the Users to skip in OS DBA groups check to specify which users are to be excluded for the check (usually administrators). You can also use the check's name list to specify OS database administrator groups and users to be included for the check.

Table 3-1 User in OS DBA groups message

| Message name | Title | Severity |
|-----------------------|----------------------|----------|
| UNAUTHORIZED_INTERNAL | User in OS DBA group | Red (4) |

To protect your computers

- ◆ Drop unauthorized users from OS DBA groups.

OS authenticated users

This check reports users who are authenticated only by the operating system, without Oracle authentication.

The user can log in to Oracle without providing a user name and password. This method of authentication may be appropriate for development or testing environments, but it should not be permitted in production environments.

Table 3-2 OS authenticated user message

| Message name | Title | Severity |
|--------------------------|-------------------------------|------------|
| USER_AUTHORIZED_EXTERNAL | User authenticated by OS only | Yellow (1) |

You can use the check's name list to specify users who are to be excluded for the check.

To protect your computers

- ◆ Do the following
 - Change the user's password authentication from external to local.
 - Require Oracle authentication to add another level of security.

Reporting user roles

These checks report roles that have been directly granted to users or revoked from users and the associated user names. Nested roles are not reported.

For checks that report role definitions, see [“Oracle roles”](#) on page 119.

Roles

Use the name lists in this option to specify roles that are to be included or excluded for the Directly-granted roles and Grantable roles checks.

Grantable roles

This check reports usernames with permissions to grant roles to other users.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-3 Grantable role message

| Message name | Title | Severity |
|----------------|----------------|------------|
| GRANTABLE_ROLE | Grantable role | Yellow (1) |

To protect your computers

- ◆ Do the following:
 - Revoke the grantable roles from any user who is not authorized to grant it.
 - Periodically review all users with grantable roles to ensure that they are currently authorized to grant their grantable roles.

Directly-granted roles

This check reports roles that have been directly granted to users. Roles that were nested in directly-granted roles were also deleted, but they are not reported.

Use the check’s name list to specify users who are to be excluded for the check.

Table 3-4 Role directly-granted to user message

| Message name | Title | Severity |
|----------------------|-------------------------------|-----------|
| PRIVILEGE_LIST_ROLES | Role directly-granted to user | Green (0) |

To protect your computers

- ◆ Periodically review this check to ensure that users with directly-granted roles are authorized, and then revoke inappropriately directly-granted roles.

New directly-granted roles

This check reports user names with roles that were directly granted to them after the last snapshot update. Roles that are nested in directly-granted roles are not reported.

Use the check’s name list to specify users who are to be excluded for the check.

Table 3-5 New directly-granted role message

| Message name | Title | Severity |
|-----------------|--------------------------|------------|
| USER_ROLE_ADDED | New role granted to user | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the user is authorized for this role, update the snapshot.
 - If the user is not authorized for this role, revoke it from the user.

Deleted directly-granted roles

This check reports user names with directly-granted roles that were revoked or dropped after the last snapshot update. Roles that are nested within the directly-granted role are also deleted or revoked, but are not reported.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-6 Deleted directly-granted role

| Message name | Title | Severity |
|-------------------|------------------------|------------|
| USER_ROLE_DELETED | Role deleted from user | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is authorized, restore the role to the user.

Reporting user privileges

These checks report users with grantable privileges and privileges that have been directly granted to users or revoked from users.

Privileges

Use the name lists in this option to specify system privileges that are to be included or excluded for grantable and directly-granted privileges checks.

Grantable privileges

This check reports users with the privileges that they can directly grant.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-7 Grantable privilege message

| Message name | Title | Severity |
|----------------|---------------------|-----------|
| GRANTABLE_PRIV | Grantable privilege | Green (0) |

To protect your computers

- ◆ Do the following:
 - Revoke the privilege from any user who is not authorized to grant it.
 - Periodically review grantable privileges to ensure that users are currently authorized to grant their grantable privileges.

Directly-granted privileges

This check reports users with system privileges that have been directly granted to them. To simplify maintenance, privileges are usually granted in roles.

Use the check’s name list to specify users (SIDs) that are to be excluded for the check.

Table 3-8 Directly-granted privilege

| Message name | Title | Severity |
|-----------------------|----------------------------|-----------|
| PRIVILEGE_LIST_DIRECT | Privilege directly-granted | Green (0) |

To protect your computers

- ◆ Revoke the privilege from any user who is not authorized for it.

New directly-granted privileges

This check reports users with privileges that were directly granted to them after the last snapshot update. To simplify maintenance, privileges are usually granted in roles.

Use the check’s name list to specify users who are to be excluded for the check.

Table 3-9 New granted privilege message

| Message name | Title | Severity |
|-----------------|-------------------------------|------------|
| USER_PRIV_ADDED | New privilege granted to user | Yellow (1) |

To protect your computers

- If the user is authorized for this privilege, update the snapshot.
- If the user is not authorized for this privilege, revoke the privilege.

Deleted directly-granted privileges

This check reports users with directly-granted privileges that were revoked or dropped after the last snapshot update.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-10 Directly-granted privilege deleted message

| Message name | Title | Severity |
|-------------------|-----------------------------|------------|
| USER_PRIV_DELETED | Privilege deleted from user | Yellow (1) |

To protect your computers

- 1 If the deletion is authorized, update the snapshot.
- 2 If the deletion is not authorized, restore the privilege.

Reporting user accounts

These checks report current, new, active, inactive, and deleted database accounts.

Database accounts

This check reports user accounts, their tablespaces, and account creation dates.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-11 Database account message

| Message name | Title | Severity |
|--------------|------------------|-----------|
| USER_ACCT | Database account | Green (0) |

To protect your computers

- ◆ Do the following:
 - Delete unauthorized or out-of-date accounts.
 - Periodically review database accounts to ensure that they and their tablespaces are currently authorized.

New database accounts

This check reports user accounts that were added to the database after the last snapshot update.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-12 New database account message

| Message name | Title | Severity |
|-----------------|----------------------|------------|
| USER_ACCT_ADDED | New database account | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the new account is authorized, update the snapshot.
 - If the new account is not authorized, delete it.

Active database accounts

This check reports active user accounts with their tablespaces, profile, and account creation date. You should review user accounts periodically to verify that they are current and authorized.

Table 3-13 Active database accounts message

| Message name | Title | Severity |
|------------------|-------------------------|-----------|
| ACTIVE_USER_ACCT | Active database account | Green (0) |

Inactive database accounts

This check reports inactive user accounts with their inactive status, date, and account creation date. You should review user accounts periodically to verify that they are current and authorized.

Table 3-14 Inactive database accounts message

| Message name | Title | Severity |
|--------------------|---------------------------|-----------|
| INACTIVE_USER_ACCT | Inactive database account | Green (0) |

Deleted database accounts

This check reports user accounts that were deleted after the last snapshot update.

Use the check's name list to specify user accounts that are to be excluded for the check.

Table 3-15 Deleted database account message

| Message name | Title | Severity |
|-------------------|--------------------------|------------|
| USER_ACCT_DELETED | Deleted database account | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion not is authorized, restore the account.

Reporting account changes

These checks report changes to tablespace assignments and creation dates.

Database account tablespace changed

This check reports database accounts that changed after the last snapshot update. The user account has been deleted and recreated. When a user account is deleted, all data associated with it can also be deleted.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-16 Changed tablespace message

| Message name | Title | Severity |
|----------------------|-------------------------------------|------------|
| USER_ACCT_TABLESPACE | Database account tablespace changed | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the change is authorized, update the snapshot.
 - If the change is not authorized, restore the tablespace.

Database account creation date changed

This check reports database accounts with creation dates that changed after the last snapshot update. This indicates that the user account has been deleted and recreated. When a user account is deleted, all data that is associated with it can also be deleted.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-17 Changed creation date message

| Message name | Title | Severity |
|--------------------|--|-----------|
| USER_ACCT_CREATION | Database account creation date changed | Green (0) |

To protect your computers

- ◆ Do one of the following:
 - If the change is authorized, update the snapshot.
 - If the recreated account is not authorized, drop the account.

Reporting account defaults

These checks report password-protected roles that are used as default roles and default accounts with default passwords.

Password-protected default role

This check reports users who have been granted password-protected roles as default roles.

Default roles do not require passwords. Password-protected roles typically include privileges or roles that require authorization. Users who have password-protected default roles do not have to use passwords to use those roles.

Use the check's name list to specify users who are to be excluded for the check.

Table 3-18 Password protected role as default message

| Message name | Title | Severity |
|----------------------------|---------------------------------------|------------|
| DEFAULT_ROLE_WITH_PASSWORD | Default role with password protection | Yellow (1) |

To protect your computers

- ◆ If the user is not authorized to use this role without typing a password, do one of the following:

- Assign a different default role to the user.
- Remove password protection from the role.
Users who have the role will not be required to type passwords to use it.

Active default accounts

This check reports default accounts that are available on your system.

The check's name list should include all Oracle default accounts. Intruders can use default accounts to access your database.

Table 3-19 Active default account message

| Message name | Title | Severity |
|---------------------|------------------------|------------|
| ACTIVE_DEFAULT_ACCT | Active default account | Yellow (1) |

To protect your computers

- ◆ Remove, lock, or disable the account to prevent intruders from using it to access your database.

Users to check

You can use the name lists in this option to specify which users are to be included or excluded for Granted prohibited roles.

Granted prohibited roles

This check reports users who have been granted prohibited roles.

Use the check's name list to specify the prohibited roles that are to be included or excluded for the check.

Note: A few default Oracle roles the DBA (database administrator) role and the connect role should never be directly granted to users.

Table 3-20 Prohibited role granted message

| Message name | Title | Severity |
|--------------|-------------------------|------------|
| ROLE_GRANTED | Prohibited role granted | Yellow (1) |

To protect your computers

- ◆ Drop the prohibited role.

Oracle auditing

This chapter includes the following topics:

- [Establishing a baseline snapshot](#)
- [Editing default settings](#)
- [Reporting audit status and access](#)
- [Audit reporting methods](#)
- [Reporting statement audits](#)
- [Reporting object audits](#)
- [Reporting privilege audits](#)

Establishing a baseline snapshot

To establish a baseline, run the Symantec ESM module for auditing Oracle databases. This creates a snapshot of current audit information that you can update when you run checks for new, deleted, or changed information.

Automatically update snapshots

Enable this option to update snapshots automatically with current information.

Editing default settings

The Auditing module for Oracle databases includes one option that you can use to edit default settings for all security checks in the module.

You can use the name lists in this option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules

for Oracle Databases. The configuration file? for Symantec ESM modules for Oracle Databases is stored in /esm/config/oracle.dat.

Reporting audit status and access

These checks report whether auditing is enabled and who has access to the audit trail database.

Audit trail enabled

This check reports whether an audit trail is available for the SID.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-1 Auditing not enabled message

| Message name | Title | Severity |
|---------------|----------------------------------|----------|
| AUDIT_DISABLE | Auditing not enabled for the SID | Red (4) |

To protect your computers

- ◆ In a production environment, ensure that the audit trail is enabled by setting the AUDIT-TRAIL parameter to DB or OS.

Audit trail protection

This check reports users and roles that have privileges that allow them to make changes or deletions to the audit trail database.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-2 Audit trail protection message

| Message name | Title | Severity |
|------------------|------------------------|------------|
| AUDIT_PROTECTION | Audit trail protection | Yellow (2) |

To protect your computers

- ◆ Do the following
 - Grant access to the audit trail database only to administrators or users with administrator roles.
 - If the user is not authorized to access the audit trail database, drop the role from the user.

- Drop the privilege of an inappropriately defined role.
- Ensure that the auditing options of DEL, INS, and UPD for SYS.AUD\$ are set properly to A/A in dba_obj_audit_opts.

Audit reporting methods

The success or failure of an audited operation is identified by the following codes, separated by the forward slash (/) character:

- A indicates reporting is BY ACCESS.
- S indicates reporting is BY SESSION.

Table 4-3 Reporting methods

| Method | Description of report |
|--------|--|
| A/A | Every successful and failed operation |
| A/S | Every successful operation, but only sessions in which failed operations occur |
| S/S | Every session in which successful and failed operations occur |
| S/A | Every session in which an operation was successful and every failed operation |

Reporting statement audits

The Auditing module for Oracle databases reports SQL statements that are audited. Security checks report statements that were set or removed for auditing and statements with success or failure reporting methods that changed after the last snapshot update.

Audits at the statement level can require considerable resources. BY ACCESS (A) reporting consumes more resources than BY SESSION (S) reporting.

Auditing options

You can use the name lists in this option to specify options to be included or excluded for Statement auditing and New/Deleted/Changed statement auditing checks.

Statement auditing

This check reports user SQL statements that are audited and the Success/Failure reporting methods that are used.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-4 Statement auditing message

| Message name | Title | Severity |
|---------------|--------------------|-----------|
| STMT_AUDITING | Statement auditing | Green (0) |

To protect your computers

- ◆ Do the following:
 - Remove unauthorized or out-of-date statements.
 - Ensure that reporting methods are appropriate for the available resources and perceived risks.

New statement auditing

This check reports SQL statements that were set for auditing after the last snapshot update, and the Success/Failure reporting methods that are used.

Use the check's name list to specify the users who are to be excluded for the check.

Table 4-5 New statement auditing message

| Message name | Title | Severity |
|-------------------|------------------------|------------|
| NEW_STMT_AUDITING | New statement auditing | Yellow (1) |

To protect your computers

- ◆ Do the following:
 - Remove unauthorized or out-of-date statements.
 - If auditing of the statement is authorized and the reporting methods are correct, update the snapshot.
 - If auditing of the statement is not authorized, deactivate the audit.
 - If the reporting methods are not appropriate for available resources and perceived risks, change the reporting methods.

Deleted statement auditing

This check reports user statements that were removed from auditing after the last snapshot update.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-6 Deleted statement auditing message

| Message name | Title | Severity |
|-----------------------|----------------------------|------------|
| DELETED_STMT_AUDITING | Deleted statement auditing | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the statement deletion is authorized, update the snapshot.
 - If the statement deletion is not authorized, restore the audit setting.

Changed statement auditing

This check reports audited user statements with Success/Failure reporting methods that changed after the last snapshot update.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-7 Changed statement auditing message

| Message name | Title | Severity |
|-----------------------|----------------------------|------------|
| CHANGED_STMT_AUDITING | Statement auditing changed | Yellow (1) |

- ◆ Do the following:
 - If the change is authorized, update the snapshot.
 - If the change is not authorized, restore the previous statement settings.

Reporting object audits

The first check of this group reports objects that are audited. The second and third checks report objects that were set for auditing and removed from auditing after the last snapshot update. The fourth check reports objects with reporting methods that were changed after the last snapshot update.

There are 16 options for audited objects.

Table 4-8 Audited object options

| | Option | Description |
|----|--------|-------------|
| 1 | ALT | ALTER |
| 2 | AUD | AUDIT |
| 3 | COM | COMMENT |
| 4 | DEL | DELETE |
| 5 | GRA | GRANT |
| 6 | IND | INDEX |
| 7 | INS | INSERT |
| 8 | LOC | LOCK |
| 9 | REN | RENAME |
| 10 | SEL | SELECT |
| 11 | UPD | UPDATE |
| 12 | REF | REFER |
| 13 | EXE | EXECUTE |
| 14 | CRE | CREATE |
| 15 | REA | READ |
| 16 | WRI | WRITE |

Unavailable and unaudited options appear as -/-.

For example, with A/A in the fourth position, every auditable DEL operation is recorded as successful or failed. A/S reports every auditable DEL operation that is successful, but only sessions that contain one or more failed operations.

Auditing objects

You can use the name lists in this option to specify tables and views that are to be included or excluded for object auditing checks.

Object auditing

This check reports user objects that are audited and the Success/Failure reporting methods that are used.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-9 Object auditing message

| Message name | Title | Severity |
|--------------|-----------------|-----------|
| OBJ_AUDITING | Object auditing | Green (0) |

To protect your computers

- ◆ Do the following:
 - Remove unauthorized or out-of-date statements from auditing.
 - Periodically review audited objects to ensure that the audit is currently authorized and that reporting methods are appropriate for available resources and perceived risks.

New object auditing

This check reports user objects that were set for auditing after the last snapshot update, and the Success/Failure reporting methods that are used.

See [“Audited object options”](#) on page 62 for options that can be reported for audited objects.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-10 New object auditing message

| Message name | Title | Severity |
|------------------|---------------------|------------|
| NEW_OBJ_AUDITING | New object auditing | Yellow (1) |

To protect your computers

- ◆ Do the following:
 - If auditing of the object is authorized, update the snapshot.
 - If the reporting methods are not correct, correct them.
 - If auditing of the object is not authorized, remove the object from auditing.

Deleted object auditing

This check reports user objects and object options that were removed from auditing after the last snapshot update.

See [“Audited object options”](#) on page 62 for object options available for auditing.

You can use the check’s name list to specify the users who are to be excluded for the check.

Table 4-11 Deleted object auditing message

| Message name | Title | Severity |
|----------------------|-------------------------|------------|
| DELETED_OBJ_AUDITING | Deleted object auditing | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore audit of the object.

Changed object auditing

This check reports changes to the reporting methods of audited objects after the last snapshot update.

See [“Audited object options”](#) on page 62 for object options that are available for auditing.

You can use the check’s name list to specify the users who are to be excluded for the check.

Table 4-12 Changed object auditing message

| Message name | Title | Severity |
|----------------------|-------------------------|------------|
| CHANGED_OBJ_AUDITING | Object auditing changed | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the change is authorized, update the snapshot.
 - If the change is not authorized, restore the previous settings.

Reporting privilege audits

The first of these checks reports privileges that are audited. The second and third checks report privileges that were set for auditing and removed from auditing after the last snapshot update. The fifth check reports privileges with reporting methods that were changed after the last snapshot update.

Auditing privileges

You can use the name lists in this option to specify privileges that are to be included or excluded for privilege option checks.

Privilege auditing

This check reports user privileges that are audited, and the Success/Failure reporting methods that are used.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-13 Privilege auditing message

| Message name | Title | Severity |
|---------------|--------------------|-----------|
| PRIV_AUDITING | Privilege auditing | Green (0) |

To protect your computers

- ◆ Do the following:
 - Periodically review privilege auditing to ensure that the audits are currently authorized and that the reporting methods are appropriate for available resources and perceived risks.

New privilege auditing

This check reports user privileges that were set for auditing after the last snapshot update and the Success/Failure reporting methods that are used.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-14 New privilege auditing message

| Message name | Title | Severity |
|-------------------|------------------------|-----------|
| NEW_PRIV_AUDITING | New privilege auditing | Green (0) |

To protect your computers

- ◆ Do the following:
 - If the new privilege and its reporting methods are authorized, update the snapshot
 - If the new privilege is authorized, but its reporting methods are not correct, change them.
 - If the user is not authorized for the privilege, drop it from the user.

Deleted privilege auditing

This check reports user privileges that were removed from auditing after the last snapshot update.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-15 Deleted privilege auditing message

| Message name | Title | Severity |
|-----------------------|----------------------------|------------|
| DELETED_PRIV_AUDITING | Deleted privilege auditing | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the user privilege to auditing.

Changed privilege auditing

This check reports audited user privileges with Success/Failure reporting methods that changed after the last snapshot update.

You can use the check's name list to specify the users who are to be excluded for the check.

Table 4-16 Changed privilege auditing message

| Message name | Title | Severity |
|-----------------------|----------------------------|------------|
| CHANGED_PRIV_AUDITING | Privilege auditing changed | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the change is authorized, update the snapshot.
 - If the change is not authorized, restore the previous audit settings.

Oracle configuration

This chapter includes the following topics:

- [Editing default settings](#)
- [Reporting Oracle version information](#)
- [Reporting link password encryption](#)
- [Reporting operating system account prefixes](#)
- [Reporting parameter values](#)

Editing default settings

The Oracle Configuration module includes two options that you can use to edit default settings for all security checks in the module.

Automatically update snapshots

Enable this option to update snapshots automatically with current information.

Oracle system identifiers (SIDs)

You can use the name lists in this option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules for Oracle Databases. The configuration for Symantec ESM modules for Oracle Databases is stored in `/esm/config/oracle.dat`.

Reporting Oracle version information

These checks report Oracle version, status, trace, and alert log file information. For the location of `USER_DUMP_DEST` files, use Trace file.

For the maximum size of trace files, specified by `MAX_DUMP_FILE_SIZE`, use Trace file size.

Oracle server

This check reports the version number and status of the Oracle server.

Table 5-1 Oracle server version and status message

| Message name | Title | Severity |
|----------------|-----------------------|-----------|
| SERVER_VERSION | Oracle server version | Green (0) |

Oracle components

This check reports the version number and status of all Oracle components, including the version and status of the Oracle server.

Table 5-2 Oracle component version and status message

| Message name | Title | Severity |
|---------------------------|----------------------------------|-----------|
| PRODUCT_COMPONENT_VERSION | Oracle product component version | Green (0) |

Trace files

This check reports the location of the trace files that are specified by `USER_DUMP_DEST`.

Table 5-3 Trace file location message

| Message name | Title | Severity |
|-----------------|-------------------------|-----------|
| TRACE_FILE_DEST | Location of trace files | Green (0) |

Trace file size

This check reports the maximum sizes of trace files that are specified by `MAX_DUMP_FILE_SIZE`.

Table 5-4 Trace file size message

| Message name | Title | Severity |
|--------------------|------------------------------|-----------|
| MAX_DUMP_FILE_SIZE | Maximum size for trace files | Green (0) |

Alert file

This check reports the location of debugging trace files for background processes such as LGWR and DBWR. The Alert_[SID].log file at this location contains information for global and instance operations.

Table 5-5 Alert file path message

| Message name | Title | Severity |
|-----------------|--------------------------------|-----------|
| ALERT_FILE_DEST | Directory path for alert files | Green (0) |

List SID:HOME (oracle.dat)

This check reports all the SIDs and their Oracle homes from the oracle.dat file. The configuration information of the Symantec ESM modules for Oracle is stored in oracle.dat, which is located in the /esm/config directory.

Table 5-6 List SID:HOME (oracle.dat) message

| Message name | Title | Severity |
|------------------|-----------------------------|-----------|
| SID_HOME_DATFILE | Oracle.dat file information | Green (0) |

List SID:HOME (oratab)

This check reports all the SIDs and their Oracle homes from the oratab file. The oratab file is created during the installation of Oracle server.

Table 5-7 List SID:HOME (oratab) message

| Message name | Title | Severity |
|------------------|-------------------------|-----------|
| SID_HOME_DATFILE | Oratab file information | Green (0) |

Reporting link password encryption

The DB link encrypted password check reports whether encryption is required for database link passwords.

DB link encrypted password

This check reports whether encrypted passwords are required to connect to other Oracle servers through database links. The check examines the DBLINK_ENCRYPT_LOGIN setting.

The first attempt to connect to another Oracle server always sends encrypted passwords. If the reported setting is TRUE, a failed connection will not be retried. If FALSE, Oracle reattempts the connection with an unencrypted version of the password. TRUE settings provide the best protection for your database.

Table 5-8 Password encrypting for links message

| Message name | Title | Severity |
|----------------|---|-----------|
| DBLINK_ENCRYPT | Connect to database with encrypted password | Green (0) |

Reporting operating system account prefixes

These checks report prefixes for operating system accounts and whether SELECT and SYSTEM privileges are required to change table column values.

Prefix for OS account

This check reports the characters that are attached to the beginning of account names that operating systems authenticate.

The default OPS\$ prefix gives you access to a database from the operating system by typing a slash (/) instead of the username/password string.

Table 5-9 OS account prefix message

| Message name | Title | Severity |
|-------------------|-----------------------|-----------|
| OS_AUTHENT_PREFIX | Prefix for OS account | Green (0) |

Table-level SELECT privileges

This check reports whether SELECT privileges are required to update or delete table column values.

If TRUE is reported in the Info field, table-level SELECT privileges are required to update or delete table column values. If FALSE, SELECT privileges are not required. SQL92_SECURITY specifies the setting.

Table 5-10 SELECT privileges at the table level message

| Message name | Title | Severity |
|----------------|-------------------------------|-----------|
| SQL92_SECURITY | Table-level SELECT privileges | Green (0) |

Restrictions on system privileges

This check, which is used for migration from Oracle7 to any later version of Oracle, reports whether access to objects in the SYS schema is allowed (Oracle7 behavior).

If FALSE is reported in the Info field, system privileges that allow access to objects in any schema do not allow access to objects in the SYS schema. If TRUE, access to objects in the SYS schema is allowed (Oracle7 behavior).

7_DICTIONARY_ACCESSIBILITY specifies the setting.

Table 5-11 Restrictions on system privileges message

| Message name | Title | Severity |
|-----------------------------|-----------------------------------|-----------|
| O7_DICTIONARY_ACCESSIBILITY | Restrictions on system privileges | Green (0) |

Reporting parameter values

Remote login password file

This check reports whether the value of REMOTE_LOGIN_PASSWORDFILE conforms to the conditions that you specify in the check's Parameter Value field.

You can specify values that are to be accepted or not accepted for the check in the check's list name.

The default value is None.

Table 5-12 Remote login password file

| Message name | Title | Severity |
|---------------------------|----------------------------|------------|
| REMOTE_LOGIN_PASSWORDFILE | Remote login password file | Yellow (3) |

To protect your computers

- ◆ Change the value of the REMOTE_LOGIN_PASSWORDFILE parameter to conform to your security policy.

UTL_FILE accessible directories

This check reports whether the value of UTL_FILE_DIR complies with the conditions that you specify in the check's Parameter Value field.

You can use UTL_FILE_DIR to specify one or more directories that Oracle can use for PL/SQL file I/O. The exclude tag of the parameter value specifies acceptable values and the include tag specifies unacceptable values.

Table 5-13 UTL_FILE accessible directories

| Message name | Title | Severity |
|--------------|---------------------------------|------------|
| UTL_FILE_DIR | UTL_FILE accessible directories | Yellow (3) |

To protect your computers

- ◆ Do one of the following:
 - If the location of the UTL_FILE_DIR is not authorized, change the configuration of the SID's UTL_FILE_DIR parameter to specify an authorized location.
 - If the location is correct, update the template.

Oracle configuration watch

This check lets you enable or disable templates that specify initialization and configuration parameters that should be watched.

Table 5-14 Oracle configuration watch messages

| Message name | Title | Severity |
|-------------------------|-------------------------------------|----------|
| ORC_RUNTIME_RED | Red level condition | Red -4 |
| ORC_RUNTIME_YELLOW | Yellow level condition | Yellow-1 |
| ORC_RUNTIME_GREEN | Green level condition | Green-0 |
| ORC_INITFILE_RED | Red level condition | Red-4 |
| ORC_INITFILE_YELLOW | Yellow level condition | Yellow-1 |
| ORC_INITFILE_GREEN | Green level condition | Green-0 |
| ORC_PARAMETER_NOT_FOUND | Required Oracle parameter not found | Green-0 |

Oracle configuration watch template

You should not edit the Oracle Configuration Watch template that is installed with the modules. Instead, you can create a new template by copying and renaming the Oracle Configuration Watch template, and then specifying the required parameters and new parameter values.

To add a new Oracle Configuration Watch template

- 1 In the console tree, right-click **Templates**, and then click **New**.
- 2 In the Create New Template dialog box, select **Oracle Configuration Watch - all**.
- 3 Type a new template name of no more than eight characters without an extension.
- 4 Press **Enter**.
Symantec ESM automatically adds the .ocw extension.

To specify parameters for the New Oracle Configuration Watch template

- 1 In the Template Editor, click **Add Row**.
- 2 In the Description and Parameter fields, replace <NEW> with the appropriate information. Parameters are case sensitive.
- 3 Do one of the following:
 - To examine runtime values, leave the Runtime Value check box checked.
 - To exclude runtime values, uncheck the check box.
- 4 Click **Init File Value** (initially Optional), and then select one of the following:
 - **Optional**
Report parameter values that violate the value that is defined in init<SID>.ora.
 - **Required**
Report a violation if the parameter is not defined in init<SID>.ora.
 - **Skipped**
Ignore the parameter value that is defined in init<SID>.ora.
- 5 Specify parameter values.
See [“To specify parameter values”](#) on page 76.
- 6 Click **Severity** (initially Green), and then select one of the following severity levels to be reported when the parameter value is violated:
 - Green
 - Yellow
 - Red
- 7 In the Oracle Version field, replace <NEW> with the version that the parameter applies to. The following values are valid:
 - [Empty]

All version numbers

- 9.0 for 9.0.x
- -9.2 for 9.2.x and earlier
- +9 for 9.2.x and later
- +10 for 10.2.x and later
- +11 for 11.1.x

- 8 Click **Save**.
- 9 To add another parameter, repeat steps 1-8.
- 10 Click **Close**.

To specify parameter values

- 1 In the Template Editor, click the Parameters Values field (initially 0).
- 2 In the Template Sublist Editor, click **Add Row**.
- 3 Do one of the following:
 - To designate the value as prohibited, leave the Prohibited Value check box checked.
 - To designate the value as acceptable, uncheck the check box.
- 4 In the Value field, replace <NEW> with a parameter value expressed as a regular expression or as a numeric comparison.
The following special cases can also be used:

| | |
|--------------|---------------|
| + | '+' character |
| NULL or null | empty string |

If the value begins with one of the following numeric comparison operators, a numeric comparison is performed:

| | |
|----|--------------------------|
| = | equal to |
| < | less than |
| > | greater than |
| != | not equal to |
| <= | less than or equal to |
| >= | greater than or equal to |

- 5 Click **Apply**.

- 6 To add another parameter value, repeat steps 2-5.
- 7 Click **Close**.

Redo log files

The check reports the locations of its SID's, violation of redo log files permissions, discrepancies in redo log file ownership and the file status.

If you specify 0 in the Check's Permission field, the check reports the location and status of the SID redo log file in the Info field.

If you specify a Permission value that is more restrictive than the SID's redo log file permission a problem is reported.

If the SID redo log file ownership (UID/GID) does not match the ownership that is specified in the Oracle database, a problem is reported.

Specify Permission values as three-digit octal numbers.

Use the name list to specify the status of the files that are to be included or excluded for the check. The possible file status values are INVALID, STALE, DELETED, and INUSED.

Table 5-15 Redo log files message

| Message name | Title | Severity |
|------------------|--------------------------|------------|
| REDOLOGFILE | Redo log file | Green (0) |
| REDOLOGFILE_PERM | Redo log file permission | Yellow (2) |
| ASM_REDOLOGFILE | Redo log file | Green (0) |

To protect your computers

- ◆ Do the following:
 - Periodically review the redo log file location to ensure that it is in a secure, authorized location.
 - If the file's permissions are excessive, reset the redo log file's permission to conform to your security policy.
 - If the owner of the redo log file is not authorized for the file, immediately take ownership of the file and review it for possible tampering.

New redo log files

This check reports redo log files that were added after the last snapshot update, their locations, and the status of the files.

You can use the check's name list to exclude redo log file status reporting by the check.

Table 5-16 New redo log files message

| Message name | Title | Severity |
|-------------------|-------------------|------------|
| ADDED_REDOLOGFILE | New redo log file | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the addition is authorized, update the snapshot.
 - If the addition is not authorized, delete the new redo log file.

Deleted redo log files

This check reports redo log files that were deleted after the last snapshot update.

Table 5-17 Deleted redo log files message

| Message name | Title | Severity |
|---------------------|-----------------------|------------|
| DELETED_REDOLOGFILE | Deleted redo log file | Yellow (1) |

To protect your computers

- ◆ Do one of the following
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the file.

Control files

This check reports the locations of the SID's control files, violations of control file permissions, discrepancies in control file ownership, and file status.

If you specify 0 in the Permission field of the check, the check reports the location and status of the SID's control files.

If you specify a Permission value more restrictive than the SID's control file permission, the check reports a violation.

You can specify the Permission values as three-digit octal numbers.

Specify permission values as three-digit octal numbers.

Table 5-18 Control files message

| Message name | Title | Severity |
|------------------|-------------------------|------------|
| CONTROLFILE | Control file | Green (0) |
| CONTROLFILE_PERM | Control file permission | Yellow (2) |
| ASM_CONTROLFILE | Control file | Green (0) |

To protect your computers

- ◆ Do the following:
 - Periodically review control file locations to ensure that they are in secure, authorized locations.
 - If the file's permissions are excessive, reset the control file's permission to conform to your security policy.

New control files

This check reports control files that were added after the last snapshot update.

Table 5-19 New control files message

| Message name | Title | Severity |
|-------------------|------------------|------------|
| ADDED_CONTROLFILE | New control file | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the addition is authorized, update the snapshot.
 - If the addition is not authorized, delete the new control file.

Deleted control files

This check reports control files that were deleted after the last snapshot update.

Table 5-20 Deleted control files message

| Message name | Title | Severity |
|---------------------|----------------------|------------|
| DELETED_CONTROLFILE | Deleted control file | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the control file.

Oracle networks

This chapter includes the following topics:

- [Editing default settings](#)
- [SID configuration](#)
- [Reporting net configuration violations](#)

Editing default settings

The Symantec ESM module for Oracle networks includes one option that you can use to edit default settings for all security checks in the module.

Oracle system identifiers (SIDs)

You can use the name lists in this option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules for Oracle Databases. The configuration for Symantec ESM modules for Oracle Databases is stored in `/esm/config/oracle.dat`.

Reporting SID configuration status

SID configuration

This check reports SIDs that are not configured for Symantec ESM modules for Oracle Databases. If an oratab file resides in a different location than /etc/oratab or /var/opt/oracle/oratab, change the value in the oratab file field to specify the full path.

The check returns the following message:

Table 6-1 SID configuration message

| Message name | Title | Severity |
|--------------|--------------------------------|------------|
| UNCONFIG_SID | SID not configured for modules | Yellow (3) |

Reporting net configuration violations

Oracle net configuration watch

This check reports Oracle Listener, Sqlnet, and Names configuration parameter values that violate conditions of the corresponding Oracle Net Watch template parameters.

You can use the check's name lists to enable and disable template files for the check.

The check returns the following messages:

Table 6-2 Net configuration messages

| Message name | Title | Severity |
|----------------------------|------------------------------|------------|
| ORC_NETCONFIG_RED | Red level condition | Red (4) |
| ORC_NETCONFIG_YELLOW | Yellow level condition | Yellow (1) |
| ORC_NETCONFIG_GREEN | Green level condition | Green (0) |
| ORC_NETCONFIG_PARA_MISSING | Required parameter not found | Yellow (3) |

Creating a new Oracle Net Watch template

You should not edit the Oracle Net Watch template that is installed with the modules. Instead, create your own template by copying and renaming the Oracle Net Watch template, and then specifying the required parameters and new parameter values in the new template.

To add a new Oracle Net Watch template

- 1 In the console tree, right-click **Templates**, and then click **New**.
- 2 In the Create New Template dialog box, click **Oracle Net Watch - all**.
- 3 Type a new template name of no more than eight characters without an extension.
- 4 Press **Enter**.
Symantec ESM automatically adds the .onw extension.

To specify parameters for the Oracle Net Watch template

- 1 In the Template Editor, click **Add Row**.
- 2 In the Description field, replace <NEW> with explanatory or descriptive information.

3 In the Parameter field, replace <NEW> with the name of a configuration value. Examples of valid entries include the following:

Table 6-3 Examples of valid configuration parameters

| Parameter type | Oracle file | Examples of valid parameters |
|----------------------------|--------------|---|
| Listener Control Parameter | listener.ora | ADMIN_RESTRICTIONS LOG_FILE PASSWORDS SAVE_CONFIG_ON_STOP STARTUP_WAIT_TIME TRACE_DIRECTORY, TRACE_FILE ADMIN_RESTRICTIONS_LISTENER INBOUND_CONNECT_TIMEOUT_LISTENER LOGGING_LISTENER LOG_DIRECTORYV LOG_FILE_LISTENER PASSWORDS_LISTENER SAVE_CONFIG_ON_STO_LISTENER P SSL_CLIENT_AUTHENTICATION_LISTENER STARTUP_WAIT_TIME_LISTENER TRACE_DIRECTORY_LISTENER TRACE_FILE_LISTENER TRACE_FILELEN_LISTENER TRACE_FILENO_LISTENER TRACE_LEVEL_LISTENER TRACE_TIMESTAMP_LISTENER USE_CKPFIL LOCAL_OS_AUTHENTICATION SUBSCRIBE_FOR_NODE_DOWN_EVENT |

Table 6-3 Examples of valid configuration parameters

| Parameter type | Oracle file | Examples of valid parameters |
|--------------------------|-------------|---|
| Sqlnet Profile Parameter | sqlnet.ora | BEQUEATH_DETACH DAEMON.TRACE_DIRECTORY DISABLE_OOB LOG_DIRECTORY_CLIENT LOG_DIRECTORY_SERVER NAMES.CONNECT_TIMEOUT |
| Oracle Names Parameter | names.ora | NAMES.ADDRESSES NAMES.ADMIN_REGION NAMES.AUTHORITY_REQUIRED NAMES.CONFIG_CHECKPOINT_FILE NAMES.DOMAIN_HINTS NAMES.LOG_FILE |

See your Oracle documentation for detailed descriptions of listener.ora, sqlnet.ora, and names.ora configuration parameters.

- 4 Click **Parameter Type** (initially Listener Address), and then select one of the following:
 - Listener Control Parameter (listener.ora)
 - Sqlnet Profile Parameter (sqlnet.ora)
 - Oracle Names Parameter (names.ora)
- 5 Do one of the following:
 - If the parameter is required, leave the Required Parameter check box checked.
Symantec ESM reports if this parameter is not found and if the parameter is found but fails the comparison with template values.
 - If the parameter is not required, uncheck the check box.
Symantec ESM reports only if this parameter is found and fails the template comparison.
- 6 Specify parameter values.
See [“To specify parameter values”](#) on page 86.
- 7 Click **Severity** (initially Green), and then select one of the following severity levels to be reported when the parameter value is violated:
 - Green

- Yellow
 - Red
- 8 In the Oracle Version field, replace <NEW> with the version to which the parameter applies.
 - 9.0 for 9.0.x
 - -9.2 for 9.2.x and earlier
 - +9 for 9.2.x and later
 - +10 for 10.2.x and later
 - +11 for 11.1.x
 - 9 Click **Save**.
 - 10 To add another parameter, repeat steps 1-9.
 - 11 Click **Close**.

To specify parameter values

- 1 In the Template Editor, click **Parameter Values** (initially 0).
- 2 In the Template Sublist Editor, click **Add Row**.
- 3 Do one of the following:
 - To designate the value as prohibited, leave the Prohibited Value check box checked.
 - To designate the value as allowed, uncheck the check box.
- 4 In the Value field, replace <NEW> with a parameter value that is expressed as a regular expression or as a numeric comparison.
The following special cases can also be used:

+ '+' character

NULL or empty string
null

If the value begins with one of the following numeric comparison operators, a numeric comparison is performed:

= equal to

< less than

> greater than

!= not equal to

<= less than or equal to
>= greater than or equal to

- 5 Click **Apply**.
- 6 To add another parameter value, repeat steps 2-5.
- 7 Click **Close**.

Example: Editing the Oracle Net Watch template

Your company might have the following password security policy:

Every defined listener in the \$ORACLE_HOME/network/admin/listener.ora file must have a password of at least seven characters in a combination of a-z A-Z, 0-9, and _ characters.

The following example shows how to add configuration parameters to the Oracle Net Watch template to implement this security policy.

To implement a password security policy

- 1 Add a new Oracle Net Watch template.
See [“To add a new Oracle Net Watch template”](#) on page 83.
- 2 In the Description field, replace <NEW> with a description of your security policy.
For example, type Password security for listeners.
- 3 In the Parameter field, replace <NEW> with **PASSWORDS**.
The PASSWORDS parameter of the listener.ora file stores passwords for listeners.
- 4 In the Parameter Type field, click **Listener Control Parameter**.
When you select Listener Control Parameter, Symantec ESM compares the values in the Oracle Net Watch template with the parameter values in the listener.ora file.
- 5 In the Required Parameter field, leave the check box checked.
Symantec ESM reports listeners with passwords that fail to match the values of this template entry and reports listeners that have no configured PASSWORDS parameter.
- 6 In the Prohibited Value field of the Parameter Values template sublist editor, uncheck the check box.
Symantec ESM reports passwords that do not match the entry of the Value field of the Parameter Values template sublist editor.
- 7 In the Value field of the Parameter Values template sublist editor, type the following:
[a-zA-Z0-9_]{6}[a-zA-Z0-9_]+
Parameter values must be expressed as a regular expression or as a numeric comparison.
See [“To specify parameter values”](#) on page 86.
- 8 In the Severity field, select the severity level that you want reported when the parameter value is violated.

- 9 In the Oracle Version field, replace <NEW> with the version to which the parameter applies.

Oracle objects

This chapter includes the following topics:

- [Editing default settings](#)
- [Reporting table privileges](#)
- [Oracle Object Privileges template](#)

Editing default settings

The Symantec ESM modules for Oracle Databases includes one option that you can use to edit default settings for all security checks in the module.

Oracle system identifiers (SIDs)

You can use the name lists in this option to specify the Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules for Oracle Databases. The configuration for Symantec ESM modules for Oracle Databases is stored in `/esm/config/oracle.dat`.

Reporting table privileges

The following checks report entities that can:

- Access SYS.ALL_SOURCE
- Grant privileges to Oracle objects such as tables, indexes, and views
- Have directly granted table privileges to Oracle objects

Access to SYS.ALL_SOURCE

This check reports roles, accounts, and synonyms that have access privileges to the SYS.ALL_SOURCE system table. The ALL_SOURCE table contains the source code for user-defined objects in all schemas of the SID. Verify that the entity's direct access to SYS.ALL_SOURCE is authorized.

Table 7-1 Access to SYS.ALL_SOURCE

| Message name | Title | Severity |
|-------------------|--------------------------|------------|
| ACCESS_ALL_SOURCE | Access to SYS.ALL_SOURCE | Yellow (3) |

Table privileges

You can use this option to specify table privileges that are to be included or excluded for grantable and directly granted privilege checks.

Object name

You can use this option to specify object names that are to be included or excluded for grantable and directly granted privilege checks.

Grantors

You can use this option to specify grantors that are to be included or excluded for grantable and directly granted privilege checks.

Grantable privilege

This check reports roles, accounts, or synonyms that have grantable table privileges to Oracle objects.

You can use the name list to specify grantees that are to be included or excluded for the check.

Table 7-2 Grantable privilege message

| Message name | Title | Severity |
|--------------|---------------------------|------------|
| GRANTABLE | Grantable table privilege | Yellow (3) |

Directly granted privilege

This check reports roles, accounts, or synonyms that have directly granted table privileges to Oracle objects.

You can use the check's name list to specify entities that are to be included or excluded for the check.

Table 7-3 Directly granted privilege message

| Message name | Title | Severity |
|----------------|----------------------------------|------------|
| DIRECT_GRANTED | Directly granted table privilege | Yellow (3) |

Critical objects

The Critical objects check works if the Grantable privilege check or the Directly granted privilege check is enabled. This check iterates through all objects and reports critical objects in Red on ESM console when an object matches a word in the template. For example, sys.kupw\$wor, sys.dbms_ddl, and so on.

Table 7-4 Critical objects messages

| Message name | Title | Severity |
|--------------------|----------------------------------|----------|
| GRANTABLE_RED | Grantable table privilege | Red (4) |
| DIRECT_GRANTED_RED | Directly granted table privilege | Red (4) |

Object Privileges

This check uses the specified template to report on the object privileges.

Use the name list to enable or disable the template file.

Table 7-5 Object privileges messages

| Message name | Title | Severity |
|---------------|-------------------------------|------------|
| OBJ_PRIV_G | Unauthorized object privilege | Green (0) |
| OBJ_PRIV_Y | Unauthorized object privilege | Yellow (1) |
| OBJ_PRIV_R | Unauthorized object privilege | Red (4) |
| OBJ_NOT_FOUND | Object not found | Red (4) |

Oracle Object Privileges template

You can create your own template and specify the database objects and privileges with grantees and grantors in the new template.

To add a new Oracle Object Privileges template

- 1 In the console tree, right-click **Templates**, and then click **New**.
- 2 In the Create New Template dialog box, click **Oracle Object Privileges – all**.
- 3 Type a new template name of no more than eight characters without an extension.
- 4 Press Enter.
Symantec ESM automatically adds the .oop extension.

To specify parameters for the Object Privileges template

- 1 In the Template Editor, click **Add Row**.
- 2 In the Object Name field, replace <NEW> with the object name that you want the check to report on.
- 3 In the Owner field, replace <NEW> with the owner name of the object that you specify in Step 2.
- 4 In the Comment field, replace <NEW> with explanatory or descriptive information about the objects and the privileges that you will specify.
- 5 Click **Severity** (initially Green), and then select one of the following severity levels to be reported when the parameter value is violated:
 - Green
 - Yellow
 - Red
- 6 In the Oracle Version field, replace <NEW> with the version to which the parameter applies.
 - 9.0 for 9.0.x
 - -9.2 for 9.2.x and earlier
 - +9 for 9.2.x and later
 - +10 for 10.2.x and later
 - +11 for 11.1.x
- 7 To add another parameter, repeat steps 1 - 6.

To specify privileges for the Object Privileges template

- 1 In the Template Editor, click **Privilege List** (initially 0)

- 2 In the Template Sublist Editor, click **Add Row**.
- 3 In the Description fields, enter explanatory or descriptive information.
- 4 Do one of the following:
 - To designate the value for object and object privileges as prohibited click **Prohibited** from the Required drop-down list.
 - To designate the value for object and object privileges as mandatory click **Mandatory** from the Required drop-down list.
 - To designate the value for object and object privileges as allowed click **Allowed** from the Required drop-down list.
- 5 In the Object Privilege field, enter the access privileges based on the database objects that you have specified in Step 2.
See [“To specify parameters for the Object Privileges template”](#) on page 94.
- 6 In the Grantor field, enter the name of the grantor based on the object name and object privileges as specified in the following two steps:
 - For step 2
See [“To specify parameters for the Object Privileges template”](#) on page 94.
 - For step 5
See [“To specify privileges for the Object Privileges template”](#) on page 94.
- 7 In the Grantee field, enter the name of the grantee based on the object name and object privileges as specified in the following two steps:
 - For step 2
See [“To specify parameters for the Object Privileges template”](#) on page 94.
 - For step 5
See [“To specify privileges for the Object Privileges template”](#) on page 94.
- 8 To check whether the privilege that you have specified in Step 5 is grantable, select the **With Grant Option** check box.
- 9 Click **Apply**.
- 10 To add another parameter value, repeat steps 2-9.
- 11 Click **Close**.

Oracle passwords

This chapter includes the following topics:

- [Editing default settings](#)
- [Specifying check variations](#)
- [Comparing passwords to word lists](#)
- [Detecting well-known passwords](#)

For password restrictions such as failed login attempts, lock time, grace time, and so forth, see [Reporting password violations](#).

Editing default settings

The Symantec ESM module for Oracle passwords includes four options that you can use to edit default settings for all security checks in the module.

Oracle system identifiers (SIDs)

Use the name lists in this option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules for Oracle Databases. The configuration for Symantec ESM modules for Oracle Databases is stored in `/esm/config/oracle.dat`.

Users to check

This check lets you specify the users or the roles that you can include or exclude.

Account status

Use this option to specify statuses that are to be included or excluded for the checks.

Password display

Enable this option to display passwords that are matched in Password = checks in the format: User <name>: Password is <first character>*<last character>.
Disable the option to display matched passwords in the format: User <name>: <password>.

Specifying check variations

This module contains three checks: Password = wordlist word, Password = username, and Password = any username.

You can also compare passwords to word list words spelled backward or doubled, in plural form, or with prefixes or suffixes.

You can display the results with or without the first and last characters of the password.

Reverse order

Enable this option to have Password = checks report passwords that match the backward spelling of user names or common words. For example, in Password = wordlist word, password flog matches the word golf.

Double occurrences

Enable this option to have Password = checks report passwords are user names or common words spelled twice. For example, in Password = wordlist word, password golfgolf matches the word golf.

Plural

This option directs Password = checks to compare the plural forms of user names, role names, or common words with the password. For example, in "Password = user name," the password "golfs" matches the user name "golf."

Prefix

Enable the password so that Password = checks reports the passwords that begin with a prefix in the user names, role names, or common words. For example, if "pro" is a prefix and "golf" is a user name, then the Password = user name check reports "progolf" as a weak password.

Suffix

Enable the password so that Password = checks reports the passwords that end with a suffix in the user names, role names, or common words. For example, if “pro” is a suffix and “golf” is a user name, then the Password = user name check reports “golfpro” as a weak password.

Comparing passwords to word lists

Three checks compare passwords to words that are found in word lists and/or user names. Any matched word is a weak password and should be changed immediately.

Password = wordlist word

This check compares the encrypted version of the user and role password with the encrypted version of the words that are included in the common words and names file. The check then reports the matches. You can specify the word and name files that you want to check. Do not use common words or names as passwords.

You can use the check’s name list to specify word files that are to be used for the check.

The reported password matches a word or a variation of a word in a selected word file. It is a weak password.

Table 8-1 Password / word list messages

| Message name | Title | Severity |
|--------------|-------------------------|----------|
| PASS_GUESSED | Weak user password | Red (4) |
| NO_WORDS | No word files specified | Red (4) |

To protect your computers

- ◆ Do the following:
 - Do not use common words or names as passwords.
 - Assign a more secure password immediately. Instruct the user to log in with the more secure password and change the password again.
A secure password has six to eight characters, including at least one non-alphabetic character, is not be found in any dictionary, and does not match an account name.

Password = username

This check reports users and roles that use their own user names or role names as passwords. The check is not as comprehensive as the Password = any username check. However, if the Password = any user name check takes longer or consumes more CPU usage, then use the Password = user name check daily and the Password = any user name check on weekends.

The reported password matches the user account name or a variation of that name. Passwords that closely resemble account names are easily guessed.

Table 8-2 Password / user name message

| Message name | Title | Severity |
|--------------|--------------------|----------|
| PASS_GUESSED | Weak user password | Red (4) |

To protect your computers

- ◆ Assign a more secure password immediately. Instruct the user to log in with the more secure password and change the password again.
A secure password has six to eight characters, including at least one non-alphabetic character, is not be found in any dictionary, and does not match an account name.

Password = any username

This check reports the users and the roles whose passwords already exist as user names in the database. The reported passwords are weak and must be changed.

The reported password matches a user account name or a variation of that name. Passwords that closely resemble account names are easily guessed.

Table 8-3 Password / any user name message

| Message name | Title | Severity |
|--------------|--------------------|----------|
| PASS_GUESSED | Weak user password | Red (4) |

To protect your computers

- ◆ Assign a more secure password immediately. Then instruct the user to log in with the more secure password and change the password again.
A secure password has six to eight characters, including at least one non-alphabetic character, is not be found in any dictionary, and does not match an account name.

Detecting well-known passwords

Oracle products ship with default, or sample, accounts and passwords that are widely known. These passwords should be changed as soon as they are installed. Otherwise, unauthorized users can log in as SYS or SYSTEM with administrator privileges.

Well-known passwords

This check reports well known account/password combinations that you specify in the name list and default Oracle account/password combinations such as scott/tiger. You should not allow well known account/password combinations.

You can use the check's name list to specify account and password combinations that are to be included for the check.

Table 8-4 Well known password message

| Message name | Title | Severity |
|------------------|-----------------------------------|----------|
| DEFAULT_PASSWORD | Well known account/password found | Red (4) |

To protect your computers

- ◆ Do the following:
 - Do not use common words or names as passwords.
 - Assign a more secure password immediately. Instruct the user to log in with the more secure password and change the password again.

A secure password has six to eight characters, including at least one non-alphabetic character, is not be found in any dictionary, and does not match an account name.

Oracle patches

This chapter includes the following topics:

- [Editing default settings](#)
- [Oracle patches](#)

Editing default settings

The Symantec ESM module for Oracle Patches includes two options that you can use to edit default settings for all security checks in the module.

Oracle Home Paths

Use this option to specify the Oracle home paths that need to be examined for module checks. By default, the module examines all Home paths that are specified to be examined when you configure the Symantec ESM Modules for Oracle Databases. The configuration for Symantec ESM Modules for Oracle Databases is stored in the `oracle.dat` file that is located in the `/esm/config/` folder.

Template files

You can use this option to specify template files that are to be included for the checks.

Oracle Patch template files are identified by `.orp` file extensions.

Oracle patches

Patch information

This check reports information about patches that have been released within the number of days that you specify in the check. The information includes patch type and number, ID number, patch release date, and description.

You can use the check's name list to specify template files that are to be included for the check.

You should verify that all current patches are installed on your Oracle clients and servers.

Table 9-1 Patch information messages

| Message name | Title | Severity |
|--------------------|--------------------|------------|
| PATCH_AVAILABLE | Patch available | Yellow (1) |
| PATCHSET_AVAILABLE | Patchset available | Yellow (1) |

To protect your computers

- ◆ Verify that your Oracle server and components have the current applicable patches.

You can download patch updates by using LiveUpdate.

Opatch Tool

This check enables ESM to use the opatch tool and reports the opatch tool version information. Opatch is the Oracle patch tool, which is a set of PERL scripts that run with PERL 5.005_03 and later. You have JRE and JDK installed in the Oracle Home to run the Opatch tool. The commands such as jar, java, ar, cp, and make (depending on platforms) available should be present in the Opatch path. By default, the Opatch tools check searches for the Opatch directory that contains the opatch tool in ORACLE_HOME. If the check fails to find the tool in ORACLE_HOME, then it takes the path of the opatch tool that mentioned in the check. This application can be downloaded from the following URL:

<http://www.oracle.com>.

Table 9-2 Opatch Tool messages

| Message name | Title | Severity |
|--------------|--------------------|-----------|
| OPATCH_INFO | Opatch Information | Green (0) |

Installed Patches

This check reports patches that are currently installed on your computers.

Table 9-3 Patch information messages

| Message name | Title | Severity |
|-----------------|-------------------|-----------|
| INSTALLED_PATCH | Installed patches | Green (0) |

Creating a new Patch template

You can create a new Oracle Patch template by copying and renaming the old one, then adding the parameters and parameter values that are required.

To add a new patch template

- 1 In the Templates branch of the console tree, right-click **Oracle Patch - all (orapatch.orp)**.
- 2 Click **Add Patch**.
- 3 Scroll to the bottom of the table.
- 4 In the Version field, replace <NEW> with the patch version number.
- 5 Click **Platform** (initially ALL), and then select one of the following platforms:
 - ALL for all platforms
 - aix-rs6k
 - aix-ppc64
 - hpux-hppa
 - hpux-hppa/HP-UX 10.20
 - HPUX-ia64
 - solaris-sparc
 - redhat-x86
 - windows 2003
 - windows 2000
- 6 In the Product, ID, Patch ID, and Date fields, replace <NEW> with the appropriate information.
- 7 Click **Architecture** (initially ALL), and then select one of the following options:
 - ALL
 - 32 bits

- 64 bits
- 8 In the Description field, type a description of the patch.
- 9 Click **Patch Set** (initially Yes), and then select Yes or No.
- 10 Add merged patch entries if applicable. See [“To add a merged patch entry”](#) on page 106.
- 11 Click **Save**.
- 12 Click **Close**.

To add a merged patch entry

- 1 In the Patches Template Editor, click **Merged Patches**.
- 2 Click **Add New Row**.
- 3 In the Patch ID field, replace <NEW> with the ID of the patch that you want to merge.
- 4 To add another row, click **Apply**, and then repeat steps 2 and 3.
- 5 Click **Close**.

Oracle profiles

This chapter includes the following topics:

- [Establishing a baseline snapshot](#)
- [Editing default settings](#)
- [Reporting profiles and their limits](#)
- [Reporting CPU limit violations](#)
- [Reporting password violations](#)

Establishing a baseline snapshot

To establish a baseline, run the Profiles module. This creates a snapshot of current account information that you can update when you run checks that report new, deleted, or changed information.

Automatically update snapshots

Enable this option to update snapshots automatically with current information.

Editing default settings

The Profiles module includes one option that you can use to edit default settings for all security checks in the module.

Oracle system identifiers (SIDs)

You can use the name lists in this option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules

for Oracle Databases. The configuration for Symantec ESM modules for Oracle Databases is stored in /esm/config/oracle.dat.

Reporting profiles and their limits

These checks report existing, new, and deleted profiles and their resource limits.

Profile enforcement

This check reports SIDs that do not enforce profiles.

Table 1-1 Profiles not enabled message

| Message name | Title | Severity |
|---------------------|--------------------------|----------|
| PROFILE_NOT_ENABLED | Profiles are not enabled | Red (4) |

To protect your computers

- ◆ In the database's parameter file, change the value of the RESOURCE_LIMIT parameter from FALSE to TRUE so that profiles are enforced.

Profiles

This check reports all profiles that are defined in the database.

You Can use the check's name list to specify profiles that are to be excluded for the check.

Table 1-2 Existing profiles message

| Message name | Title | Severity |
|--------------|-------------------|-----------|
| PROFILE_LIST | Existing profiles | Green (0) |

New profiles

This check reports all profiles that were defined in the database after the last snapshot update.

You can use the check's name list to specify profiles that are to be excluded for the check.

Table 1-3 New profile message

| Message name | Title | Severity |
|---------------|-------------|------------|
| PROFILE_ADDED | New profile | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the addition is authorized, update the snapshot.
 - If the addition is not authorized, delete the profile.

Deleted profiles

This check reports all profiles that were deleted from the database after the last snapshot update.

You can use the check's name list to specify profiles that are to be excluded for the check.

Table 1-4 Deleted profile message

| Message name | Title | Severity |
|-----------------|-----------------|-----------|
| PROFILE_DELETED | Deleted profile | Green (0) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the profile.

Profile resources

This check reports profile resource limits.

You can use the check's name list to specify profiles that are to be excluded for the check.

Table 1-5 Profile resource message

| Message name | Title | Severity |
|--------------------|-------------------------|-----------|
| PROFILE_LIMIT_LIST | Profile resource limits | Green (0) |

To protect your computers

- ◆ Ensure that the profile resource limits conform to company security policies.

Changed resource limits

This check reports profile resource limits that changed after the last snapshot update.

You can use the check's name list to specify profiles that are to be excluded for the check.

Table 1-6 Changed profile resource limit message

| Message name | Title | Severity |
|-----------------------|---------------------------------|------------|
| PROFILE_LIMIT_CHANGED | Changed profile resource limits | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the change is authorized, update the snapshot.
 - If the change is not authorized, restore the previous limit.

Reporting CPU limit violations

These checks report the CPU resource limits.

Oracle profiles

You can use this option to specify Oracle profiles that are to be included or excluded for the following resource checks.

Sessions per user

This check reports profiles that allow more concurrent sessions per user than the number that you specify in the check.

Specify the maximum number of simultaneous sessions per user in resource parameter SESSIONS_PER_USER.

Table 1-7 Simultaneous sessions per user message

| Message name | Title | Severity |
|---------------------------|----------------------------|------------|
| PROFILE_SESSIONS_PER_USER | Sessions per user too high | Yellow (1) |

To protect your computers

- ◆ Specify a maximum number of simultaneous sessions per user to prevent a small number of users from denying access to other users by using an excessive number of connections simultaneously.

CPU time per session

This check reports profiles that allow more CPU time per session than the amount that you specify in the check.

Specify the maximum amount of time that is allowed per session in hundredths of a second.

Table 1-8 CPU time per session message

| Message name | Title | Severity |
|-------------------------|------------------------------------|------------|
| PROFILE_CPU_PER_SESSION | CPU time per session exceeds limit | Yellow (1) |

To protect your computers

- ◆ Specify a maximum CPU time per session limit that lets users perform their duties without frequent logging in and out and prevents a small number of users from denying service to others by using excessive CPU resources.

CPU time per call

This check reports profiles that allow more CPU time for each call, such as fetch, execute, and parse, than the amount of time that you specify in the check.

Specify the maximum amount of time that is allowed per call in hundredths of a second.

Table 1-9 Time per call message

| Message name | Title | Severity |
|----------------------|---------------------------------|------------|
| PROFILE_CPU_PER_CALL | CPU time per call exceeds limit | Yellow (1) |

To protect your computers

- ◆ Specify a maximum CUP time per call limit that lets users perform their duties and that prevents a small number of users from denying service to others by using excessive CPU resources.

Connection time

This check reports profiles that allow more elapsed connection time for an account than the number of minutes that you specify in the check.

Table 1-10 Connection time message

| Message name | Title | Severity |
|----------------------|----------------------------|------------|
| PROFILE_CONNECT_TIME | Connect time exceeds limit | Yellow (1) |

To protect your computers

- ◆ Specify a realistic limit that allows users to perform their duties and that prevents a few connections from denying service to others by using excessive CPU resources.

Idle time

This check reports profiles that allow more idle time before a process is disconnected than the number of minutes that you specify in the check.

Connections that are idle for a long period may indicate that the machine is unattended.

Table 1-11 Idle time message

| Message name | Title | Severity |
|-------------------|-------------------------|------------|
| PROFILE_IDLE_TIME | Idle time exceeds limit | Yellow (1) |

To protect your computers

- ◆ Specify a realistic amount of time before an inactive process is disconnected.

Reporting password violations

These checks report profiles with settings for the number of failed login attempts, password grace time, password duration, password lock time, and password reuse requirements that violate your security policy.

Password strength checks, which compare passwords to common words and user names, are documented in chapter 7.

Failed logins

This check reports profiles that allow more failed login attempts than the number that you specify in the check.

Table 1-12 Failed logins message

| Message name | Title | Severity |
|-------------------------------|------------------------------------|----------|
| PROFILE_FAILED_LOGIN_ATTEMPTS | Failed login attempts exceed limit | Red (4) |

To protect your computers

- ◆ Restrict the number of permitted failed login attempts to minimize the likelihood of break-ins by intruders who attempt to guess user names and passwords.

Password grace time

This check reports profiles that have more than or fewer than the number of password grace days that you specify in the check. This number specifies the number of days that a warning may be issued before a password expires.

Table 1-13 Different password grace time message

| Message name | Title | Severity |
|-------------------------|--|------------|
| PROFILE_PASS_GRACE_TIME | Password grace time differs from limit | Yellow (1) |

To protect your computers

- ◆ Specify a realistic number of days for a user to change a password after being warned that it is about to expire.

Password duration

This check reports profiles that permit a password to be used for more days than the number that you specify in the check,

Table 1-14 Password duration message

| Message name | Title | Severity |
|------------------------|----------------------------|----------|
| PROFILE_PASS_LIFE_TIME | Password duration too high | Red (4) |

To protect your computers

- ◆ Require password changes often enough to minimize the possibility that an intruder will discover passwords but not so often that users have difficulty remembering their passwords.

Password lock time

This check reports profiles that lock accounts for fewer days than the number that you specify in the check. Accounts are locked after the number of failed login attempts that you specify in the `FAILED_LOGIN_ATTEMPTS` parameter of the profile. `PASSWORD_LOCK_TIME` specifies the number of days that an account is locked.

Table 1-15 Password lock time message

| Message name | Title | Severity |
|------------------------|----------------------------|------------|
| PROFILE_PASS_LOCK_TIME | Password lock time too low | Yellow (1) |

To protect your computers

- ◆ Change the resource parameter `PASSWORD_LOCK_TIME` setting to conform to your security policy.

Password reuse max

This check reports profiles that require fewer password changes before a password can be reused than the number that you specify in the check.

Note: If you set a `PASSWORD_REUSE_MAX` value, `PASSWORD_REUSE_TIME` must be `UNLIMITED`.

Table 1-16 Password reuse message

| Message name | Title | Severity |
|------------------------|-----------------------------|------------|
| PROFILE_PASS_REUSE_MAX | Password reuse time too low | Yellow (1) |

To protect your computers

- ◆ Change the resource parameter `PASSWORD_REUSE_TIME` to require a realistic number of times that a password must be changed before it can be reused.

Password reuse time

This check reports profiles that require fewer days before a password can be reused than the number that you specify in the check.

Note: If this setting has a value, `PASSWORD_REUSE_TIME` must be `UNLIMITED`. If you set a `PASSWORD_REUSE_TIME` value, `PASSWORD_REUSE_MAX` must be `UNLIMITED`.

Table 1-17 Password reuse message

| Message name | Title | Severity |
|--------------------------------------|-----------------------------|------------|
| <code>PROFILE_PASS_REUSE_TIME</code> | Password reuse time too low | Yellow (1) |

To protect your computers

- ◆ Change the resource parameter `PASSWORD_REUSE_TIME` to require a realistic amount of time that must pass before it can be reused.

Password verify function

This check reports profiles that do not use one or more of the password complexity functions that you specify in the name list.

Note: Password complexity functions are specified in the resource parameter `PASSWORD_VERIFY_FUNCTION`.

You can use the check's name list to specify functions that are to be included for the check.

Table 1-18 Password verification function message

| Message name | Title | Severity |
|---|--------------------------|------------|
| <code>PROFILE_PASS_VERIFY_FUNCTION</code> | Password verify function | Yellow (1) |

To protect your computers

- ◆ Immediately assign a more secure password, and then instruct the user to log in with the more secure password and change the password again.

Invalid profiles

This check reports users that are assigned to profiles that fail one or more of the enabled resource limitation checks.

You can use the check's name list to specify users that are to be excluded for the check.

Table 1-19 Invalid profile message

| Message name | Title | Severity |
|--------------------------|--------------------------|------------|
| INVALID_PROFILE_ASSIGNED | Invalid profile assigned | Yellow (3) |

Oracle roles

This chapter includes the following topics:

- [Establishing a baseline snapshot](#)
- [Editing default settings](#)
- [Reporting roles](#)
- [Reporting role privileges](#)
- [Reporting nested roles](#)
- [Reporting role access](#)

Establishing a baseline snapshot

To establish a baseline, run the Roles module. This creates a snapshot of current role information that you can update when you run checks for new, deleted, or changed information.

Automatically update snapshots

Enable this option to update snapshots automatically with current information.

Editing default settings

The Roles module includes one option that you can use to edit default settings for all security checks in the module.

Oracle system identifiers (SIDs)

You can use the name lists in this option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules

for Oracle Databases. The configuration for Symantec ESM modules for Oracle Databases is stored in `/esm/config/oracle.dat`.

Reporting roles

These checks report existing roles and roles that have been added or deleted since the last snapshot update.

Roles

This check reports roles that are defined in the database.

You can use the check's name list to specify roles that are to be excluded for the check.

Table 2-1 Roles message

| Message name | Title | Severity |
|----------------|--------------|-----------|
| EXISTING_ROLES | Defined role | Green (0) |

To protect your computers:

- ◆ Do the following:
 - Drop any roles that are not authorized or are out of date.
 - Periodically review roles to ensure that they are currently authorized.

New roles

This check reports roles that were added to the database after the last snapshot update.

You can use the check's name list to specify roles that are to be excluded for the check.

Table 2-2 New role message

| Message name | Title | Severity |
|--------------|----------|------------|
| ADDED_ROLES | New role | Yellow (1) |

To protect your computers

- ◆ Do the following:
 - If the new role is authorized, update the snapshot.
 - If the new role is not authorized, drop the role.

Deleted roles

This check reports roles that have been deleted from the database since the last snapshot update.

You can use the check's name list to specify roles that are to be excluded for the check.

Table 2-3 Deleted role message

| Message name | Title | Severity |
|---------------|--------------|------------|
| DELETED_ROLES | Deleted role | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the role.

Reporting role privileges

These checks report role privileges, privileges that were granted to or dropped from roles after the last snapshot update, and grantable role privileges.

Privileges

This check reports privileges that have been granted to roles.

You can use the check's name list to specify roles that are to be excluded for the check, and add or revoke privileges as appropriate.

Table 2-4 Role privilege message

| Message name | Title | Severity |
|----------------|----------------|-----------|
| ROLE_PRIVILEGE | Role privilege | Green (0) |

- ◆ Do the following:
 - Add or drop privileges for roles as appropriate.
 - Periodically review roles to ensure that the privileges granted to them are consistent with current user duties.

New privileges

This check reports privileges that were directly granted to roles after the last snapshot update.

You can use the check's name list to specify roles that are to be excluded for the check.

Table 2-5 New privilege message

| Message name | Title | Severity |
|----------------------|--------------------|------------|
| ADDED_ROLE_PRIVILEGE | New role privilege | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the new privilege is authorized for the role, update the snapshot.
 - If the new privilege is not authorized for the role, drop the privilege from the role.

Deleted privileges

This check reports privileges that were dropped from listed roles after the last snapshot update.

You can use the check's name list to specify roles that are to be excluded for the check.

Table 2-6 Deleted privilege message

| Message name | Title | Severity |
|------------------------|------------------------|------------|
| DELETED_ROLE_PRIVILEGE | Deleted role privilege | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized for the role, update the snapshot.
 - If the deletion is not authorized for the role, restore the privilege.

Grantable privileges

This check reports role privileges that can be granted to other users by users who are assigned the role.

You can use the check's name list to specify roles that are to be excluded for the check.

Table 2-7 Grantable privilege

| Message name | Title | Severity |
|--------------------------|--------------------------|-----------|
| GRANTABLE_ROLE_PRIVILEGE | Grantable role privilege | Green (0) |

To protect your computers

- ◆ Do the following:
 - Periodically review all grantable role privileges to ensure that the grantable privilege is appropriate for the role.
 - Revoke grantable role privileges from users who are not authorized to grant them.

Reporting nested roles

These checks report existing nested roles and nested roles that have been added to or dropped from their parent roles since the last snapshot update.

Nested roles

This check reports roles and the nested roles that they contain.

You can use the check's name list to specify roles that are to be included or excluded for the check.

Table 2-8 Nested role message

| Message name | Title | Severity |
|--------------|-------------|-----------|
| ROLE_ROLE | Nested role | Green (0) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the nested role.

New nested roles

This check reports roles that were directly granted to other roles after the last snapshot update.

You can use the check's name list to specify roles that are to be included or excluded for the check.

Table 2-9 New nested role message

| Message name | Title | Severity |
|-----------------|-----------------|------------|
| ADDED_ROLE_ROLE | New nested role | Yellow (1) |

To protect your computers

- If the change is authorized, update the snapshot.
- If the change is not authorized, drop the nested role.

Deleted nested role

This check reports nested roles that were removed from parent roles since the last snapshot update.

You can use the check's name list to specify roles that are to be included or excluded for the check.

Table 2-10 Deleted nested role message

| Message name | Title | Severity |
|-------------------|---------------------|------------|
| DELETED_ROLE_ROLE | Nested role deleted | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the nested role.

Grantable nested role

This check reports nested roles that can be granted to other roles or users.

You can use the check's name list to specify roles that are to be excluded for the check.

Table 2-11 Grantable nested role message

| Message name | Title | Severity |
|---------------------|-----------------------|-----------|
| GRANTABLE_ROLE_ROLE | Grantable nested role | Green (0) |

To protect your computers

- ◆ Periodically review grantable nested roles to ensure that they are currently authorized for the roles where they reside and that the roles are currently authorized to grant the nested roles.

Reporting role access

These checks report password-protected roles that are used as default roles, directly granted DBA roles, roles without password protection, and tables accessed by the public role.

Password-protected default role

This check reports password-protected roles that are assigned to users as default roles.

Default roles do not require passwords. Password-protected roles normally contain privileges and/or roles that require authorization. Users who have password-protected default roles are not required to type passwords to use the roles.

Table 2-12 Password protected default role message

| Message name | Title | Severity |
|----------------------------|--------------------------------|------------|
| DEFAULT_ROLE_PASS_REQUIRED | Default role requires password | Yellow (1) |

To protect your computers

- ◆ If the user is not authorized to use this role without typing a password, do one of the following:
 - Assign a different default role to the user.
 - Remove password protection from the role.
 Users who have the role will not be required to type passwords to use it.

DBA equivalent roles

You can use this option to specify roles that are to be examined for the Granted Oracle DBA role.

Granted Oracle DBA role

This check reports users and roles that have been directly granted to an Oracle database administrator (DBA) role or equivalent.

You can use the check's name list to specify users that are to be excluded for the check.

Table 2-13 Oracle DBA role message

| Message name | Title | Severity |
|----------------|------------------------------|------------|
| DBA_ROLE_USERS | User granted Oracle DBA role | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - Revoke DBA roles from unauthorized users.
 - Tightly control database administrator rights.

Roles without passwords

This check reports the roles that do not require passwords. The roles that are authenticated as External or Global are skipped.

Table 2-14 Role without passwords message

| Message name | Title | Severity |
|---------------|--------------------------------|------------|
| ROLE_PASSWORD | Password not required for role | Yellow (1) |

To protect your computers

- ◆ Do the following:
 - If the role could be exploited to give users access to security-related information, require a password for the role.
 - Control permissions that are granted to roles that do not require passwords.

PUBLIC role access

This check reports tables that users can access with a PUBLIC role and the privileges that are used.

Table 2-15 Publicly accessible table message

| Message name | Title | Severity |
|---------------|----------------------------|-----------|
| PUBLIC_ACCESS | Table accessible to PUBLIC | Green (0) |

To protect your computers

- ◆ Control permissions that are granted to the PUBLIC role.
The preferred method of granting access is to give EXECUTE to the procedures.

Oracle tablespace

- [Creating a baseline snapshot](#)
- [Editing default settings](#)
- [Reporting tablespaces](#)
- [Reporting tablespace datafiles](#)
- [Reporting SYSTEM tablespace information](#)
- [Reporting DBA tablespace quotas](#)

Creating a baseline snapshot

To establish a baseline, run the Tablespace module. This creates a snapshot of current account information that you can update when you run checks that report new, deleted, or changed information.

Automatically update snapshots

Enable this option to update snapshots automatically with current information.

Editing default settings

The Symantec ESM module for Oracle tablespaces includes one option that you can use to edit default settings for all security checks in the module.

Oracle system identifiers (SIDs)

You can use the name lists in this option to specify Oracle system identifiers (SIDs) that are to be examined by module checks. By default, the module examines all SIDs that are specified when you configure Symantec ESM modules

for Oracle Databases. The configuration for Symantec ESM modules for Oracle Databases is stored in `/esm/config/oracle.dat`.

Reporting tablespaces

These checks report existing tablespaces and tablespaces that have been added or deleted since the last snapshot update.

Tablespaces

This check reports all tablespaces that have been created in the Oracle database.

You can use the check's name list to specify authorized tablespaces that are to be excluded for the check.

Table 3-1 Tablespaces message

| Message name | Title | Severity |
|--------------|-------------------|-----------|
| TABLESPACE | Oracle tablespace | Green (0) |

To protect your computers

- ◆ Periodically review tablespaces to ensure that they are all authorized.

New tablespaces

This check reports tablespaces that were created in the Oracle database after the last snapshot update.

You can use the check's name list to specify authorized tablespaces that are to be excluded for the check.

Table 3-2 New tablespace message

| Message name | Title | Severity |
|------------------|-----------------------|------------|
| ADDED_TABLESPACE | New Oracle tablespace | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the addition is authorized, update the snapshot.
 - If the addition is not authorized, delete the new tablespace.

Deleted tablespaces

This check reports tablespaces that were deleted from the Oracle database after the last snapshot update.

You can use the check's name list to specify tablespaces that are to be excluded for the check.

Table 3-3 Deleted tablespace message

| Message name | Title | Severity |
|--------------------|---------------------------|------------|
| DELETED_TABLESPACE | Deleted Oracle tablespace | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the deletion is authorized, update the snapshot.
 - If the deletion is not authorized, restore the tablespace.

Reporting tablespace datafiles

These checks report existing datafiles and datafiles that were added to or dropped from the database after the last snapshot update.

Tablespace datafiles

This check reports the locations of all tablespace datafiles if the Permission setting is 0. Otherwise, the check reports either tablespace datafiles that have file permissions which are less restrictive than you specify in the Permission field, or tablespace datafiles that have UID/GIDs which do not match the corresponding UID/GIDs in the Oracle database.

In the check's Tablespaces to Skip field, specify tablespaces that are to be excluded for the check.

In the check's Permission field, specify a permission value as a three-digit octal number.

Table 3-4 Tablespace datafile messages

| Message name | Title | Severity |
|---------------|----------------------------|------------|
| DATAFILE | Tablespace file | Green (0) |
| DATAFILE_PERM | Tablespace file permission | Yellow (2) |
| ASM_DATAFILE | Tablespace file | Green (0) |

To protect your computers

- ◆ Do the following:
 - If the file permissions are less restrictive than your security policy, specify a permission value for the datafile that conforms to your security policy.
 - Periodically review tablespace datafiles to ensure that they are authorized, and that their file permissions conform to your security policy.

New tablespace datafiles

This check reports datafiles that were added to tablespaces after the last snapshot update.

You can use the check’s name list to specify tablespaces that are to be excluded for the check.

Table 3-5 New tablespace datafile message

| Message name | Title | Severity |
|----------------|-------------------------|------------|
| ADDED_DATAFILE | New tablespace datafile | Yellow (1) |

To protect your computers

- ◆ Do one of the following:
 - If the addition is authorized, update the snapshot.
 - If the addition is not authorized, drop the datafile from the tablespace.

Deleted tablespace datafiles

This check reports datafiles that were deleted after the last snapshot update.

You can use the check’s name list to specify tablespaces that are to be excluded for the check.

Table 3-6 Deleted tablespace datafile message

| Message name | Title | Severity |
|------------------|-----------------------------|------------|
| DELETED_DATAFILE | Deleted tablespace datafile | Yellow (1) |

To protect your computers

- If the deletion is authorized, update the snapshot.
- If the deletion is not authorized, restore the datafile.

Note: The Deleted tablespace datafiles check reports messages only if the New tablespace datafiles check is enabled.

Reporting SYSTEM tablespace information

These checks report objects in the SYSTEM tablespace and users whose default or temporary tablespace is the SYSTEM tablespace.

Objects in SYSTEM tablespace

This check reports tables and indexes that are in the SYSTEM tablespace.

You can use the check's name list to specify users (owners) that are to be excluded for the check.

Table 3-7 SYSTEM tablespace objects message

| Message name | Title | Severity |
|-----------------------|-------------------------------------|-----------|
| TAB_IN_SYS_TABLESPACE | Object defined in SYSTEM tablespace | Green (0) |

To protect your computers

- ◆ Ensure that only authorized objects reside in the SYSTEM tablespace.

SYSTEM tablespace assigned to user

This check reports users whose default and/or temporary tablespaces are the SYSTEM tablespace.

You can use the check's name list to specify users that are to be excluded for the check.

Table 3-8 SYSTEM tablespace user message

| Message name | Title | Severity |
|---------------------------|------------------------|-----------|
| USER_USING_SYS_TABLESPACE | SYSTEM tablespace user | Green (0) |

To protect your computers

- ◆ Ensure that only authorized users have access to the SYSTEM tablespace.

Reporting DBA tablespace quotas

These checks report violations of MAX_BYTES and MAX_BLOCKS tablespace quotas.

Oracle tablespaces

You can use this option to specify tables that are to be included or excluded for MAX_BYTES in DBA_TS_QUOTAS and MAX_BLOCKS in DBA_TS_QUOTAS.

MAX_BYTES in DBA_TS_QUOTAS

This check reports users with resource rights to tablespaces whose MAX_BYTES values exceed the value that you specify in the check. For an unlimited number of bytes, specify -1 in the MAX_BYTES field.

You can use the check's name list to specify authorized users that are to be excluded for the check.

Table 3-9 MAX_BYTES message

| Message name | Title | Severity |
|-----------------|-----------------------------------|------------|
| MAX_BYTES_QUOTA | MAX_BYTES per tablespace exceeded | Yellow (1) |

To protect your computers

- ◆ Drop the user or change the user's MAX_BYTES setting for the tablespace.

MAX_BLOCKS in DBA_TS_QUOTAS

This check reports users with resource rights to tablespaces whose MAX_BLOCKS values exceed the value that you specify in the check. For an unlimited number of bytes, specify -1 in the MAX_BLOCKS field.

You can use the check's name list to specify authorized users that are to be excluded for the check.

Table 3-10 MAX_BLOCKS message

| Message name | Title | Severity |
|------------------|------------------------------------|------------|
| MAX_BLOCKS_QUOTA | MAX_BLOCKS per tablespace exceeded | Yellow (1) |

To protect your computers

- ◆ Drop the user or change the user's MAX_BLOCKS setting for the tablespace.

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