# HP Service Manager

Software Version: 9.41

For the supported Windows® and UNIX® operating systems

## SM Doctor User's Guide

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# Contents

# Introduction

Service Manager Doctor enables support engineers to collect configuration and diagnosis data from Service Manager. This tool eliminates the need of excessive exchanges of emails between support engineers and customers before engineers can have all needed information to analyze a reported incident.

## Target audiences

- Service Manager customers

- Service Manager support engineers

## Supported platforms

This tool supports platforms that are allowed in the Service Manager server compatibility matrix. For details, see HP Support matrices on the Software Support Online site.

## Supported Service Manager versions

7.1x and 9.x

## Modes

The Service Manager Doctor Tool can run in two modes:

- Command-line

- Graphic user interface (only on Windows)

# Running Service Manager Doctor

Run the following command in the smdoctor folder directly under the server installation directory to start the tool in GUI mode (only for Windows):

`smdoctor_gui.bat`

Run one of the following commands in the smdoctor folder directly under the server installation directory to start the tool in command-line mode:

`smdoctor.bat` (for Windows)

`smdoctor.sh` (for UNIX/Linux)

When running Service Manager Doctor commands with logging enabled, the tool generates a `SMDoctor_Report_<hostname>.html` and `SMDoctor_Report_<hostname>.txt` logs in the current directory, where `<hostname>` is the host name of the Service Manager server. For example: `run -all -dlog` or `run -all -zip`.

> **Note:** If the SQL Server database is used, go to https://www.microsoft.com/en-us/download/details.aspx?id=11774 and download the Microsoft JDBC Driver for SQL Server 4.1. Follow the install instructions to install the driver. The file sqljdbc41.jar must be in the installation folder of the driver.
>
> Check whether the system environment variable "CLASSPATH" exists. If not, create it and set the value to the absolute path of the sqljdbc41jar file; otherwise, add the absolute path of the file to the value of "CLASSPATH".

# Product Overview

This section describes the usage of the Service Manager Doctor Tool.

## Information collected

This tool collects thefollowing types of information:

- SM server configurations and reports

- Operating system configurations

- Database configurations on the database server

- Service Manager server logs

- List of files in the `%SM_HOME%RUN`, `%SM_HOME%RUN/lib/endorsed`, and `%SM_HOME%RUN/lib` folders

- Additional configurable data collected by third-party tools, such as `supportTool.sh` and `generateSchema.sql`.

## GUI mode

Follow these instructions when running the Service Manager Doctor Tool in GUI mode.

### Service Manager Doctor Main window

The GUI mode of the Service Manager Doctor Tool allows you to easily perform a full health check with a simple click and then it displays a detailed health report in a new window. Additionally, you can use the Actions menu item to save certain files from the Service Manager server, including these options:

- `sm.ini`

- `sm.cfg`

- Service Manager logs

- List of files in the %SM_HOME%RUN folder

- List of files in the %SM_HOME%RUN/lib folder

- List of files in the %SM_HOME%RUN/lib/endorsed folder

- Iwssofmconf.xml

- SM client configuration

- licfile.txt

- udp.xml

- udpcluster.xml

- All these types of information (available with a "Save all above items" option)

In a complex, vertically-scaled configuration, the Service Manager Doctor Tool parses the sm.ini and sm.cfg files to locate all possible logs that are scattered on the server and packages them into a zip file.

You can click **Health Check** to perform health check multiple times. The latest report overwrites previously generated reports. However, the right pane of the main console window displays all check history.

The Service Manager Doctor Main window is shown in the screenshot below:
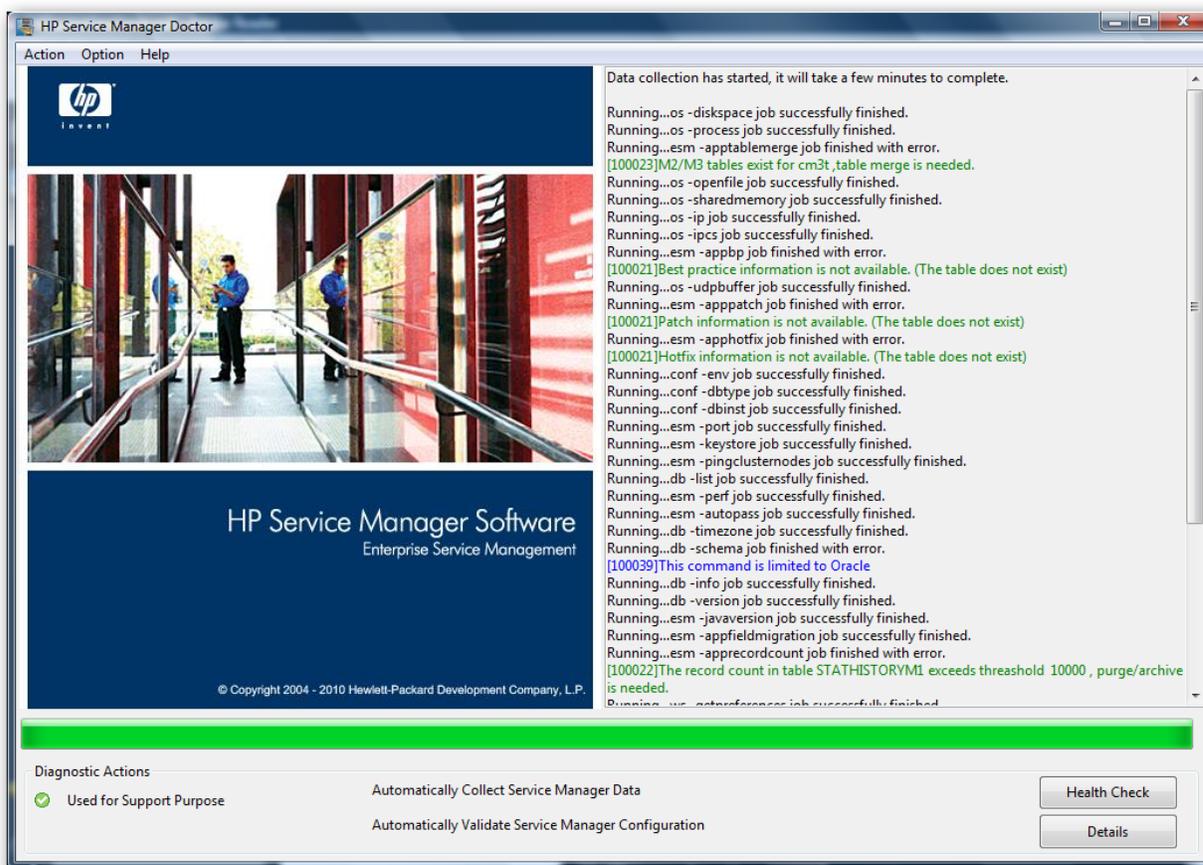
# Report window

The GUI mode shows the report in the Report window:
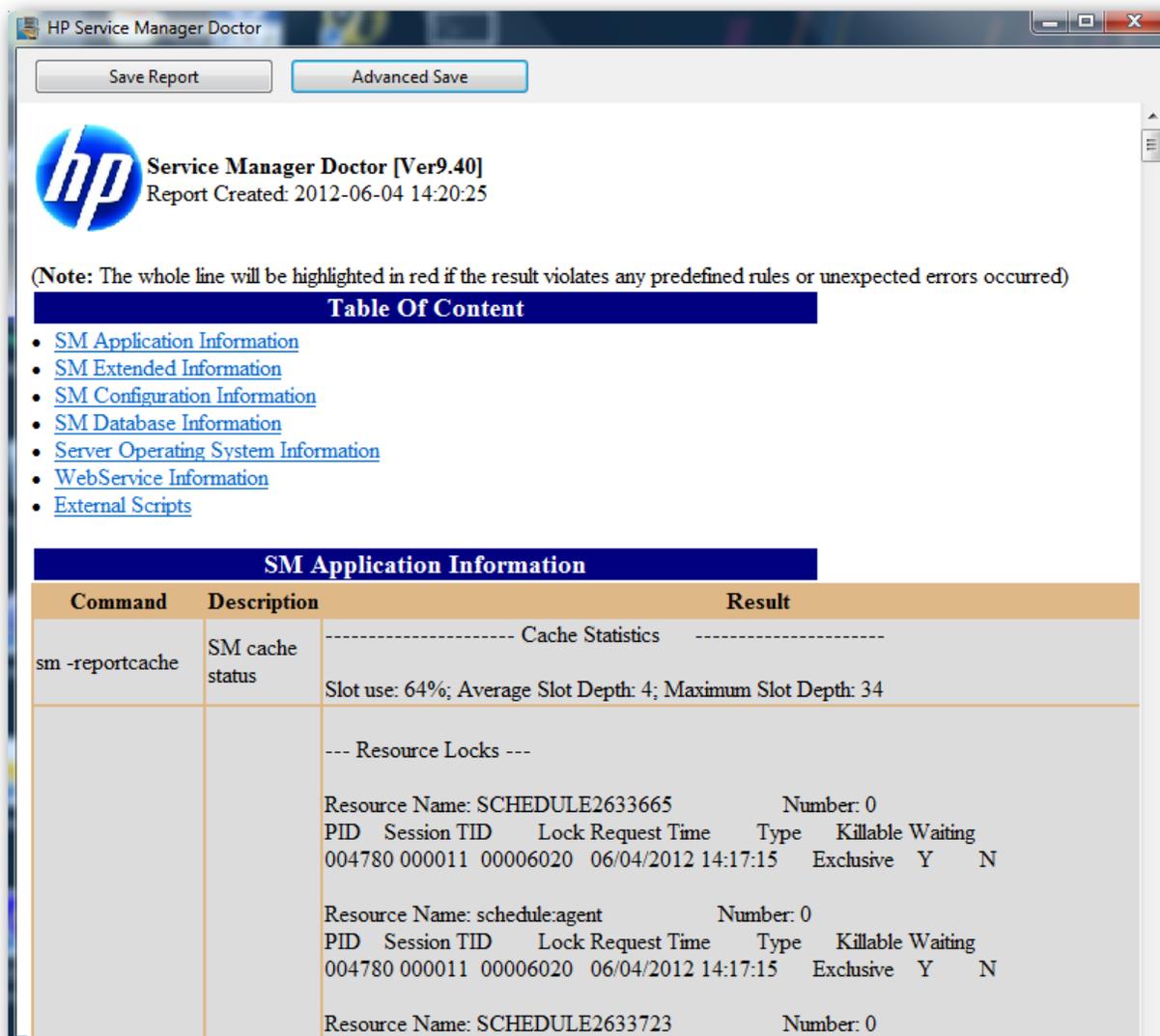
## Advanced Save window

Advanced Save allows you to select specific data that you want to save. By default, all the items are selected. You can select the **select all** check box on the **Advanced Save** dialog box to select or clear all the items.

The Advanced Save option is available only after you run a health check. Additionally, the **report** and **sm doctor logs** save items are available only on the **Advanced Save** dialog box.

> **Note:** If the total size of the server logs is too large for shipping, you can check a few items each time and save the log files in several small zip packages.

The Advanced Save window is shown in the screenshot below:
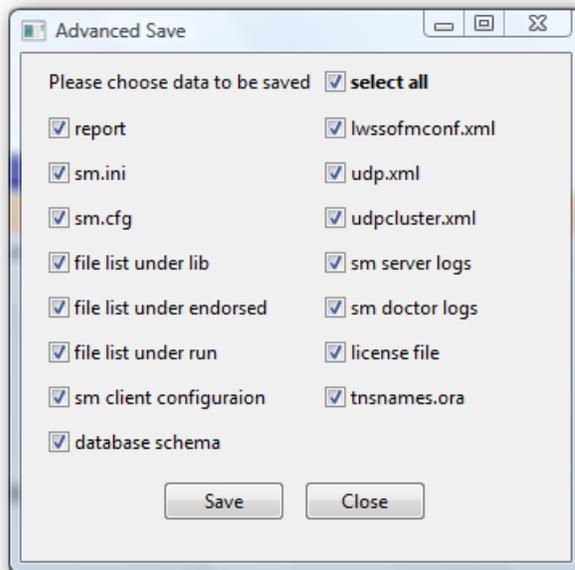


# Preference dialog box

The `esm -appgloballistblobcount` and `db -schema` commands are disabled by default because they may take a long time to respond. Each of these commands could take more than 10 minutes, depending on the actual environment. You can enable these commands by selecting the corresponding check boxes in the **Preference** dialog box.

The Preference dialog box is shown in the screenshot below:
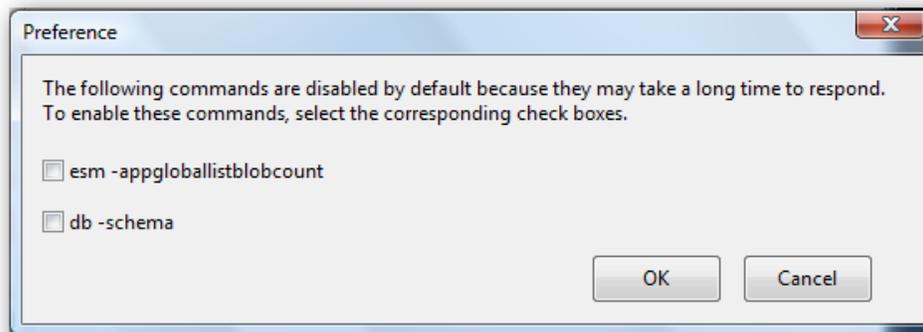


**Note:** In command-line mode, you can run `set -globallistcheck 1` and `set -schemacheck 1` to enable these commands.

# Connect to database dialog box

Based on the database that Service Manager uses and whether the `sqllogin` parameter is encrypted in the `sm.ini` file, Service Manager Doctor displays different fields in the Connect to database dialog box to prompt you for the log-in information of the Service Manager database.

- If SQL Server is used and the `sqllogin` parameter is encrypted, Service Manager Doctor prompts you for the listening TCP port, user name, and password, as shown below:
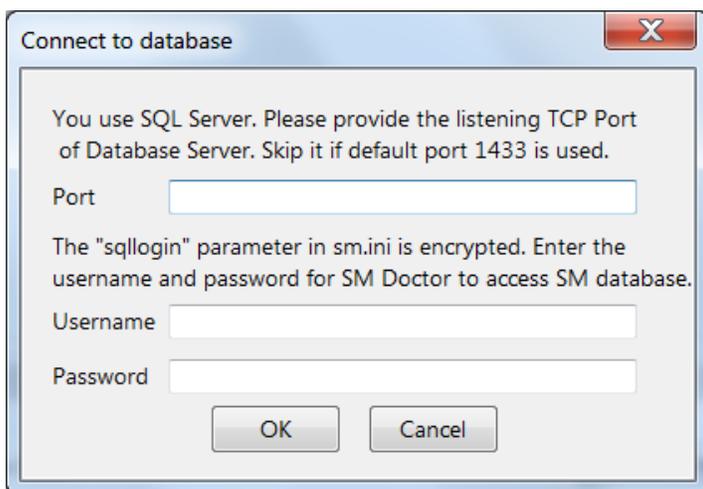


- If SQL Server is used but the `sqllogin` parameter is not encrypted, Service Manager Doctor prompts you for the listening TCP port, as shown below:
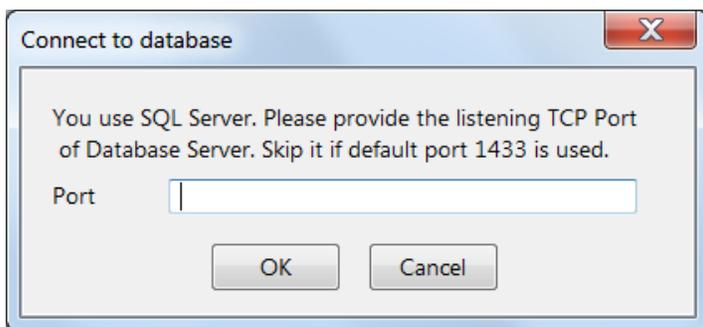


- If a database other than SQL Server is used and the `sqllogin` parameter is encrypted, Service

Manager Doctor prompts you for the user name and password, as shown below:



# Connect to SM Server dialog box

Service Manager Doctor prompts you for the username and password of the Service Manager server if the `esm -appgloballistblobcount` command is enabled.

The Connect to SM Server dialog box is shown in the screenshot below:
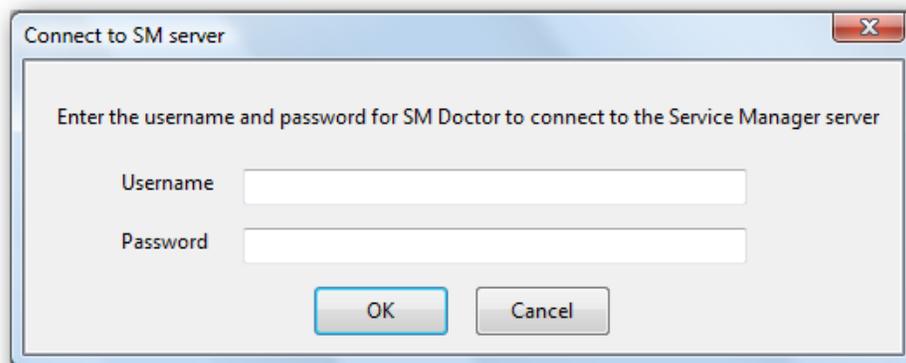


# Command-line mode

The command-line mode of the Service Manager Doctor Tool allows you to run the tool more flexibly. You can run specific commands or command groups to collect certain types of information. You can also choose to type "run -all -zip" to package all data that is collected in the current directory. Eventually, the command-line mode generates `SMDoctor_Report_<hostname>.html` and `SMDoctor_Report_`

*<hostname>*.txt logs in the current directory, where *<hostname>* is the host name of the Service Manager server.

The Command-line mode is shown in the screenshot below:

```
******** Welcome to Service Manager Doctor ********
******            Version 9.40            ******
****                                         ****
****      run -all : run all commands        ****
****         help : show all commands        ****
****         exit : close SM Doctor          ****
****                                         ****
******    Copyright (c) 2011 HP Corporation  ******
********        All rights reserved        ********
>help
*** Note: "run -all -zip" collects and zips all data to sm_doctor_saved.zip to current directory ***

Usage: db [command option] [command option] [...]
  Options:
    -all       Run all db commands
    -dlog      Log the command running results, please use this option with other options when results are returned
    -help      Help information for db commands
    -info      Database server information
    -list      Database list
    -schema    Database table/index schema
    -timezone  Database server timezone
    -version   Database server version

Usage: esm [command option] [command option] [...]
  Options:
    -all                         Run all SM extended commands
    -appbp                       SM app best practice information
    -appfieldmigration(-appfm)   SM app table field check
    -appgloballistblobcount(-appgl)  SM app globallists valuelist length
    -apphotfix                   SM app hotfix information
    -apppatch                    SM app patch information
    -apprecordcount(-apprc)      SM app table record count
    -apptablemerge(-apptm)       SM app table merge check
    -autopass                    SM server autopass version
    -dlog                        Log the command running results, please use this option with other options when
    -help                        Help information for SM extended commands
    -javaversion                 SM server java version
    -keystore                    SM certificate check
    -perf                        SM process CPU and memory information
    -pingclusternodes(-ping)     Ping other sm nodes in current cluster
    -port                        SM server port status

Usage: conf [command option] [command option] [...]
  Options:
    -all       Run all conf commands
    -cfg       sm.cfg content
    -dbinst    SM database server instance
    -dbtype    SM database server type
    -dlog      Log the command running results, please use this option with other options when results are returned
    -env       System environment settings
    -help      Help information for conf commands
    -ini       sm.ini content
```

> **Note:** If the sm_doctor_saved.zip file generated in command-line mode is too large for shipping, you can unzip the package and repackage them into smaller zip packages.

The sm_doctor_saved.zip file has the following folder structure:
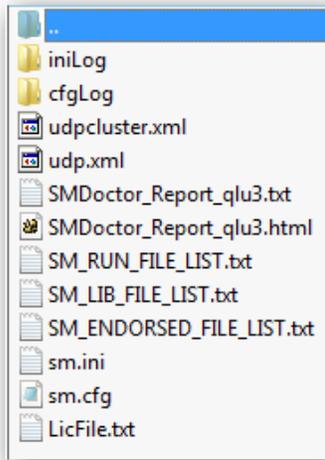
# Command References

This section describes the usage of commands when you are running the Service Manager Doctor Tool in command-line mode. The command-line mode of Service Manager Doctor provides 10 groups of commands. When you try to run an invalid Service Manager Doctor command, the command-line mode returns an error message. For more information, see "Error References" on page 38.

## Service Manager Runtime commands (sm)

Service Manager Runtime commands allow you to run regular Service Manager commands in the Service Manager Doctor Tool. Therefore, you can use this command-line mode as a command-line console, except that it provides tool-specific commands. For example, you can run `sm -reportcache -reportlocks` to check both the cache and locks in one single command.

We do not recommend that you run commands that require options or that return no command results, such as `sm -version -log:version.txt` and `sm -httpport:XXX`.

The timeout for Service Manager Runtime commands is 50 seconds.

| Option | Description | Usage |
|---|---|---|
| -reportstatus | Retrieves the Service Manager status. | sm -reportstatus |
| -reportlbstatus | Retrieves the Service Manager load balancer status. | sm -reportlbstatus |
| -reportcache | Retrieves the Service Manager cache data. | sm -reportcache |
| -reportipc | Retrieves the semaphore data. | sm -reportipc |
| -reportlocks | Retrieves the lock status. | sm -reportlocks |
| -reportlic | Retrieves the Service Manager license status. | sm -reportlic |
| -version | Retrieves the Service Manager version.<br><br>**Note:**<br>• Always available regardless of whether the Service Manager service is running or not.<br><br>• Currently supports the reporting of versions 7.1x and 9.30 | sm -version |

| Option | Description | Usage |
|---|---|---|
| -appversion | Retrieves the Service Manager application version. | sm -appversion |
| -sqlverifyconnection | Verifies the database connection. | sm -sqlverifyconnection |
| -reportshm | Retrieves the Service Manager shared memory. | sm -reportshm |
| -reportsem | Retrieves the Service Manager semaphore. | sm -reportsem |
| -all | Runs all Service Manager Runtime commands at one time and returns the results in the output. | sm -all |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | sm -help |
| -dlog | Outputs the command result to html and txt files. | sm -all -dlog |

**Note:** The `sm` commands listed in the table above, except the `-all`, `-help`, and `-dlog` options, are enabled by default and will be run when you run the `sm -all` or run `-sm` command. These `sm` commands are defined in the `CmdOnDemand.xml` file. You can edit this file to enable additional commands to be run. The `CmdOnDemand.xml` file can even include commands to launch external diagnostic tools. For example, the Service Manager Doctor tool is shipped with a shell script tool (`supportTool.sh`), which collects diagnostic information, such as stack traces of core system files, logs, and configuration files, and saves it in a `$HOSTNAME_smsupport.tar` file. See "CmdOnDemand.xml" on page 33 for more information.

# Extended Service Manager commands (esm)

Extended Service Manager commands return Service Manager specific information that the current Service Manager Runtime commands may not return but is helpful for diagnosis.

The timeout for Extended Service Manager commands is 60 seconds.

| Option | Description | Usage |
|---|---|---|
| -javaversion | Retrieves the Java runtime environment version of the Service Manager server (the JRE version in the | esm -javaversion |

| Option | Description | Usage |
|---|---|---|
| | Service Manager RUN directory) | |
| -apppatch | Retrieves Service Manager application patch information (in the `patchrelversioninfo` table). | esm -apppatch |
| -apphotfix | Retrieves Service Manager application hotfix information (in the `patchrelversioninfo` table). | esm -apphotfix |
| -appbp | Retrieves Service Manager Best Practice information (in the `bpreleaseinfo` table). | esm -appbp |
| -port | Retrieves Service Manager server ports (as returned by the 'netstat' command). | esm -port |
| -perf | Retrieves Service Manager process CPU and memory information (as returned by the following system-specific commands).<br><br>• Windows: tasklist<br><br>• Linux: top -p<br><br>• Unix: ps -p) | esm -perf |
| -autopass | Retrieves the Service Manager autopass version.<br><br>Pre-9.20:<br><br>…\Hewlett-Packard \HPOvLIC\About.txt<br><br>9.20 and later:<br><br>The `AutoPassJ*.jar` version | esm -autopass |
| -apprecordcount | Retrieves the record count for Service Manager tables:<br><br>• syslog<br><br>• stathistory<br><br>• eventin<br><br>• systemperform<br><br>• systemtotals<br><br>• clocks | esm -apprecordcount |

| Option | Description | Usage |
|---|---|---|
| | • activity<br><br>**Note:** The threshold for validation is 10 KB. | |
| -apptablemerge | Retrieves Service Manager table merge information, such as whether M2 or M3 tables exist for the cm3r, cm3rpage, cm3t, and incidents tables. | esm -apptablemerge |
| -appfieldmigration | Retrieves information about certain fields:<br><br>• The "approval" and "members" fields in the cm3groups table.<br><br>• The "related_cis" field in the cirelations table. | esm -appfieldmigration |
| -appgloballistblobcount | Retrieves the length of the Service Manager application globallists value list.<br><br>**Note:** The threshold for validation is 1 KB. | esm -appgloballistblobcount |
| -keystore | Checks the Service Manager certificate, including these files:<br><br>• Server.keystore<br><br>• Trustedclients.keystore<br><br>• cacerts<br><br>**Note:** When running this command, if the server certificate passwords (keystorePass, truststorePass and ssl_trustedClientsPwd) are encrypted in the sm.ini file, SM Doctor prompts the user to enter the passwords in the command line (command line mode) or enter them in a dialog (GUI mode). | esm -keystore |
| -pingclusternodes | Sends "ping" and "traceroute" messages to other Service Manager nodes in the current cluster.<br><br>Maximum ping times: 4 | esm -pingclusternodes |

| Option | Description | Usage |
|--------|-------------|-------|
| | Maximum hops: 10 | |
| -all | Runs all Extended Service Manager commands at one time and returns the results in the output. | esm -all |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | esm -help |
| -dlog | Outputs the command result to html and txt files. | esm -all -dlog |

# Configuration commands (conf)

Configuration commands extract configuration items from the sm.cfg and sm.ini files, which will be used to diagnose server configuration issues against certain predefined validation rules.

| Option | Description | Usage |
|--------|-------------|-------|
| -dbtype | Retrieves database server type. | conf -dbtype |
| -dbinst | Retrieves the database server instance. | conf -dbinst |
| -ini | Retrieves the sm.ini content.<br><br>**Note:** The `sm.ini` content can also be captured in GUI mode, where the validation result is included in the command output. | conf -ini |
| -cfg | Retrieves the sm.cfg content.<br><br>**Note:** The `sm.cfg` content can also be captured in GUI mode, where the validation result is included in the command output. | conf -cfg |
| -env | Retrieves system environment settings (returned by the `env` operating system command) | conf -env |
| -all | Runs all Configuration commands at one time and returns the results in the output. | conf -all |

| Option | Description | Usage |
|---|---|---|
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | conf -help |
| -dlog | Outputs the command result to html and txt files. | conf -all -dlog |

# Database commands (db)

Database commands collect information about the database that Service Manager uses.

The timeout for Database commands is 60 seconds.

**Note:** If you are running these commands with an Oracle database, you must create an OJDBC_LIB environment variable on the system and set its value to the Oracle driver path for the driver to be loaded successfully.

| Option | Description | Usage |
|---|---|---|
| -version | Retrieves the database server version. | db -version |
| -info | Retrieves the server information:<br><br>**SQL Server:** collation<br><br>**Oracle:** characterset information; case-sensitivity information<br><br>**DB2:** DB configuration | db -info |
| -list | Retrieves the database (tablespace) list. | db -list |
| -timezone | Retrieves the database time zone and returns the time offset from the UTC/GMT time in hours. | db -timezone |
| -schema | Retrieves the table and index schema of the Service Manager database and outputs the information into an `SM_schema.sql` file.<br><br>**Note:** This command works only with Oracle databases and requires that the sqlplus utility is installed on the system. | db -schema |

| Option | Description | Usage |
|--------|-------------|-------|
| -all | Runs all Database commands at one time and returns the results in the output. | db -all |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | db -help |
| -dlog | Outputs the command result to html and txt files. | db -all -dlog |

# Operating System commands (os)

Operating System commands collect basic information about the current operating system.

The timeout for Operating System commands is 180 seconds.

| Option | Description | Usage |
|--------|-------------|-------|
| -ip | Retrieves the server IP addresses. | os -ip |
| -diskspace | Retrieves the disk space on the server, including the total space and free space. | os -diskspace |
| -sys | Retrieves server system information.<br><br>• Windows: systeminfo<br><br>• AIX: prtconf<br><br>• HPUX PA-RISC: model<br><br>• HPUX ITATIUM: machinfo<br><br>• Solaris: isainfo -kv<br><br>• Linux: uname -a | os -sys |
| -openfile | Retrieves the open file limit as returned by the `ulimit -n` command.<br><br>**Note:** Only for UNIX. | os -openfile |

| Option | Description | Usage |
|---|---|---|
| process | Retrieves all processes that are currently running.<br><br>• Unix: ps -ef<br><br>• Windows: wmic process get executablepath | os -process |
| -ipcs | Retrieves the status of inter-process communication | os -ipcs |
| -sharedmemory | Retrieves the maximum size of shared memory and the count of shared memory segments.<br><br>• Solaris: sysdef<br><br>• Linux: sysctl -n<br><br>• HPUX: kctune -v<br><br>• AIX: Not available | os -sharedmemory |
| -udpbuffer | Retrieves the UDP buffer size.<br><br>• Solais: ndd -get<br><br>• Linux: sysctl -n<br><br>• AIX: no -o<br><br>• HPUX: ndd -get | os -udpbuffer |
| -all | Runs all Operating System commands at one time and returns the result in the output. | os -all |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | os -help |
| -dlog | Outputs the command result to html and txt files. | os -all -dlog |

**Note:** For Windows platforms, x86 represents the 32-bit version and x64 represents the 64-bit version.

# Web Service commands (ws)

Web Service commands determine the Service Manager status by sending a simple SOAP request to the http://localhost:13080/SM/ui endpoint (when run on the local server) and checking the response.

The timeout for Web Service commands is 60 seconds.

| Option | Description | Usage |
|---|---|---|
| -getpreferences | Returns the preference operation response.<br><br>**Note:** Returns responses through HTTP server ports. | ws -getpreferences |
| -all | Runs all Web Service commands at one time and returns the result in the output.<br><br>**Note:** Only one option is defined for the Web service command group now. | ws -all |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | ws -help |
| -dlog | Outputs the command result to html and txt files. | ws -all -dlog |

# Save commands (save)

Save commands save required files on the Service Manager server. Service Manager Doctor can save up to 10 Service Manager Doctor logs, and each log can have a maximum of 1 megabyte in size.

The timeout for Save commands is 50 seconds.

| Option | Description | Usage |
|---|---|---|
| -report | Saves html and txt reports in the current directory. | save -report |
| -ini | Saves the ini file in the current directory. | save -ini |
| -cfg | Saves the cfg file in the current directory. | save -cfg |

| Option | Description | Usage |
|---|---|---|
| -lib | Saves the list of files in the lib folder in the current directory. | save -lib |
| -endorsed | Saves the list of files in the endorsed folder in the current directory. | save -endorsed |
| -run | Saves the list of files in the RUN folder in the current directory. | save -run |
| -ssoconfig | Saves the SSO configuration file in the RUN folder in the current directory.<br><br>**Note:** This file does not always exist. | save -ssoconfig |
| -logs | Saves all logs generated for Service Manager | save -logs |
| -smdlog | Saves all Service Manager Doctor logs.<br><br>**Note:** Service Manager Doctor logs are not collected by the `run -all` command. | save -smdlog |
| -udp | Saves the `udp.xml` file. | save -udp |
| -udpcluster | Saves the `udpcluster.xml` file. | save -udpcluster |
| -licfile | Saves the `LicFile.txt` file. | save -licfile |
| -clientcfg | Saves Windows client configurations if a Windows client is installed on this machine. | save -clientcfg |
| -tnsnames | Saves the `tnsname.ora` file for the Oracle database. | save -tnsnames |
| -dbschema | Saves the output file (`SM_schema.sql`) of the `db -schema` command for the Oracle database. | save -dbschema |
| -all | Runs all Save commands at one time and returns the result in the output. | save -all |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | save -help |

# Set commands (set)

The Set command group now includes only one command that sets the `-dlog` parameter.

| Option | Description | Usage |
|---|---|---|
| -dlog | Enables or disables the -dlog option for all commands. However, the -dlog option specified in each command overrides this setting. | set -dlog true<br><br>set -dlog 1<br><br>set -dlog false<br><br>set -dlog 0 |
| -schemacheck | Enables or disables database schema check for the `run -all` or `esm -all` commands. | set -schemacheck 1<br><br>set -schemacheck true<br><br>set -schemacheck 0<br><br>set -schemacheck false |
| -globallistcheck | Enables or disables globallist blob field check for the `run -all` or `esm -all` commands. | set -globallistcheck 1<br><br>set -globallistcheck true<br><br>set -globallistcheck 0<br><br>set -globallistcheck false |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | set -help |

# Run commands (run)

Run commands execute multiple commands or multiple command groups.

| Option | Description | Usage |
|---|---|---|
| -sm | Runs all Service Manager Runtime commands in a sequence and returns the results in the output. <br><br> **Note:** Equivalent to `sm -all`. | run -sm -db -os |
| -esm | Runs all Extended Service Manager commands in a sequence and returns the results in the output. <br><br> **Note:** Equivalent to `sm -all`. | run -esm -db |
| -db | Runs all Database commands at one time and returns the results in the output. <br><br> **Note:** Equivalent to `db -all`. | run -db |
| -conf | Runs all Configuration commands at one time and returns the results in the output. <br><br> **Note:** Equivalent to `conf -all`. | run -conf -dlog |
| -os | Runs all Operating System commands at one time and returns the results in the output. <br><br> **Note:** Equivalent to `os -all`. <br> . | run -os |
| -ws | Runs all Web Service commands at one time and returns the results in the output. <br><br> **Note:** Equivalent to `ws -all`. | run -ws |
| -all | Runs all commands at one time and returns the results in the output. <br><br> **Note:** Peforms a full health check. | run -all |

| Option | Description | Usage |
|--------|-------------|-------|
| -zip | Packages all data to an sm_doctor_saved.zip file, which include the SM log files, endorsed file list, lib file list, html report, txt report, sm.cfg and sm.ini. | run -all -zip |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | run -help |

## Clear commands (clear)

The Clear command group deletes log files Service Manager Doctor generated, and clears the content of the current log file if the tool is still running.

| Option | Description | Usage |
|--------|-------------|-------|
| -dlog | Clears Service Manager Doctor logs. | clear -dlog |
| -help | Displays Help information.<br><br>**Note:** If the -help option is used together with other options, only Help information is returned. | clear -help |

## Help command (help)

The Help command displays help information.

## '-dlog' parameter

The `-dlog` parameter is available for all commands except the "help" command. Adding this parameter to a command is equivalent to running `set -dlog true` or `set -dlog 1` except that the parameter included in the command overrides the global setting configured by `set -dlog false` and `set -dlog 0`.

**Note:** The reason why you may use the `-dlog` parameter instead of `-log` is that the `-log`

parameter itself is a valid parameter of Service Manager.

# Configuration Validation Rules

This section describes the usage of validation rules in the Service Manager Doctor Tool.

## Configuration rule file

> **Caution:** It is not recommended that you edit the configuration rule file manually in this version of the tool.

The configuration rule file is an XML file with predefined rules that are used to validate Service Manager server configurations. All configuration information is based on the `sm.ini` and `sm.cfg` files, where `sm.cfg` is prioritized higher than `sm.ini`.

The elements of the configuration rule file include source, domain, rule, condition, conditonrule, operation, and output. Configuration rules for all configurations should be defined within the configuration source. Configuration rules used for specific validation should be defined within a specific domain. There can be multiple domains within each source, and multiple rules within each domain. See "Rule Configuration File Snippets" on page 36.

## Considerations for updating the rule file

- This tool includes an `SM_Configuration_Rule.xsd` file to maintain the integrity of the rule file. Detailed messages are displayed in the validation results, including information about the row, column, and other violation specifics.

- If one rule serves as a condition for another rule, the first rule cannot have conditions of its own. Or, a `TWO_LEVEL_CONDITION_FOUND` error is returned.

- For operation elements within a rule element, the "param" and "action" attributes are required. The "target" and "type" attributes are optional, but they are mutually dependent. If one parameter is defined, you must define the other one too.

- For condition elements, if "operator" and "target" are not defined, they default to `and` and `true` respectively.

- In addition to customized rules, you can use the generic rules directly: is32OS, is64OS, isUnix, and isWindows.

- An error 100018 is returned if the XML content cannot be parsed.

- In the current version of the tool, only the configuration data source is editable, which includes both the `sm.ini` and `sm.cfg` files.

# Validation results

Validation results are included as part of the command output for the `conf -ini` and `conf -cfg` commands in command-line mode. In GUI mode, a separate column is displayed next to the command results if a rule failure is detected.

# CmdOnDemand.xml

A typical `CmdOnDemand.xml` file resembles the following codes:

```
<?xml version="1.0" encoding="UTF-8"?>

<commands>

<command name="sm" description="sm server commands" provider="hp">

    <param name="-reportstatus" description="SM runtime status"/>

    <param name="-reportcache" description="SM cache status"/>

    <param name="-reportipc" description="SM semaphore use"/>

    <param name="-reportlocks" description="SM lock information"/>

    <param name="-reportlic" description="SM licence information"/>

    <param name="-version" description="SM version"/>

    <param name="-verifylic" description="SM verify license"/>

    <param name="-appversion" description="SM application version"/>

    <param name="-reportshm" description="SM shared memory"/>

    <param name="-reportsem" description="SM semaphore"/>

    <param name="-sqlverifyconnection" description="SM verify DB connection"/>

</command>

<!--

Any command or script should be under RUN directory to be run with SM doctor;
more entries could be added like below.

<command name="supportTool.sh" description="Integration with existing support
tool to trace system information" />

-->

</commands>
```

To add a new command to the `CmdOnDemand.xml` file, follow these steps:

1. Open the `CmdOnDemand.xml` file in a text editor.

2. Add more entries similar to **<param name="-version" description="SM version"/>**.

3. Add the required Service Manager command parameters in the "name" attribute.

4.  Add the command description in the "description" attribute, which will be used for HTML/TEXT report generation.

> **Note:** To run external commands, make sure that the target scripts or executables reside in the RUN directory. Do not add "param" elements for additional command arguments. Instead, include command arguments in the "name" attribute of the "command" element.
>
> We do not recommend that you run external commands that work with background processes or I/O streams, such as `uname -a &` and `ls -lrt > 1.txt`.

# HTML Log Snippets

The Extended Service Manager report sample is shown in the screenshot below:

| | SM Extended Information | | |
|---|---|---|---|
| **Time** | **Command** | **Description** | **Result** |
| 2012-01-15 11:52:41 | esm -javaversion | SM server java version <br> more> | 1.6.0_21 |
| 2012-01-15 11:52:41 | esm -perf | SM process CPU and memory information <br> more> | PID   RUSER %CPU VSZ     TIME COMMAND <br> 10754 fpeSandy 0.0 601880    01:28 /home/fpeSandy/sm921p4/RUN/smserver <br> 10822 fpeSandy 0.0 670224    07:38 /home/fpeSandy/sm921p4/RUN/smserver system.start |
| 2012-01-15 11:52:43 | esm -port | SM server port status | *.13091     *.*     0   0 49152   0 LISTEN |
| 2012-01-15 11:52:43 | esm -apppatch | SM app patch information | [100021]Patch information is not available. (The table does not exist) |
| 2012-01-15 11:52:43 | esm -apphotfix | SM app hotfix information | [100021]Hotfix information is not available. (The table does not exist) |
| 2012-01-15 11:52:43 | esm -apptablemerge | SM app table merge check <br> more> | **Primary Table Name** / **Sub Table Exists** <br> cm3r — NO <br> cm3rpage — NO <br> cm3t — NO <br> incidents — NO |
| 2012-01-15 11:52:43 | esm -appbp | SM app best practice information | [100021]Best practice information is not available. (The table does not exist) |
| 2012-01-15 11:52:43 | esm -appfieldmigration | SM app table field check <br> more> | No unexpected field is found in this table CM3GROUPSM1 <br> No unexpected field is found in this table CIRELATIONSM1 |
| 2012-01-15 11:52:44 | esm -keystore | SM certificate check <br> more> | [100042]Keyfile cacerts does not exist <br> [100042]Keyfile server.keystore does not exist <br> [100042]Keyfile trustedclients.keystore does not exist |
| 2012-01-15 11:52:44 | esm -apprecordcount | SM app table record count <br> more> | SYSLOGM1 : 126 <br> STATHISTORYM1 : 478 <br> EVENTINM1 : 0 <br> SYSTEMPERFORMM1 : 0 <br> SYSTEMTOTALSM1 : 0 <br> CLOCKSM1 : 210 <br> ACTIVITYM1 : 305 |

The Database report sample is shown in the screenshot below:

| | SM Database Information | |
|---|---|---|
| **Command** | **Description** | **Result** |
| db -version | Database server version | Microsoft SQL Server 2008 (RTM) - 10.0.1600.22 (Intel X86) <br> Jul 9 2008 14:43:34 <br> Copyright (c) 1988-2008 Microsoft Corporation <br> Enterprise Edition on Windows NT 6.0 (Build 6002: Service Pack 2) |
| db -timezone | Database server timezone | Offset from UTC/GMT time(h) in database server : <br> 8 <br><br> Current Timezone : West Australian Standard Time and USSR Zone 7 [WAST][+08 (east)] <br> Asia/Brunei Asia/Choibalsan Asia/Chongqing Asia/Chungking Asia/Harbin Asia/Hong_Kong Asia/Irkutsk Asia/Kashgar Asia/Kuala_Lumpur Asia/Makassar Asia/Manila Asia/Shanghai Asia/Singapore Asia/Taipei Asia/Ujung_Pandang Asia/Ulaanbaatar Asia/Ulan_Bator Asia/Urumqi Etc/GMT-8 Hongkong PRC Singapore |
| db -info | Database server information <br> more> | SQL Server Name:QLU3 <br> SQL Driver Name:C:\Windows\system32\SQLSRV32.dll <br> Database Name:SM9 <br> Last User:SM9ADMIN <br> SQL Server Collation: <br> SQL_Latin1_General_CP1_CI_AS |
| db -list | Databse List <br> more> | name / db_size / owner <br> SM9 / 26574.13 MB / sa |

# Rule Configuration File Snippets

**SM_Configuration_Rule.xml snippet**

```xml
<?xml version="1.0" encoding="UTF-8"?>

<xml xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

      xsi:noNamespaceSchemaLocation="SM_Configuration_Rule.xsd" version="1.0">

<source id="configuration" description="service mangaer configuration validation
rules">

…

<domain id="StartUp" description="validate sm startup configuration" >

          <rule id="sync" description="validate synch parameter" >

                <operation param="sync" action="ValidateIsNotNull" />

          </rule>

          <rule id="systemstart" description="validate system.start" >

              <operation param="system.start" action="ValidateIsNotNull" />

          </rule>

          <rule id="startuprule" description="validate startup by combination of
sync and system.start" >

                <condition operator="and" target="false">

                      <conditionrule id="sync" />

                      <conditionrule id="systemstart" />

                </condition>

                <output type="failed" message="failed: sync and system.start
processes should not
be started at the same, the recommendation is to remove sync from configuration.
For further information,
please refer to "Configuring a horizontal scaling environment" on help server." />

                <output type="success" message="success: sync and system.start
are not set both" />

          </rule>

    </domain>

……
```

**SM_Configuration_Rule.xsd snippet**

```
<xs:complexType name="rule_type">

    <xs:sequence>

        <xs:element name="condition" minOccurs="0" type="condition-type">

            <xs:unique name="NoRepeatConditionRule">

<xs:selector xpath="conditionrule"/>

<xs:field xpath="@id"/>

</xs:unique>

            </xs:element>

            <xs:element name="operation" minOccurs="0" type="operation_type">

            </xs:element>

            <xs:element name="output" minOccurs="0" maxOccurs="unbounded"
type="output_type">

            </xs:element>

        </xs:sequence>

        <xs:attribute name="id" type="xs:string" use="required" />

        <xs:attribute name="description" type="xs:string" use="optional" />

        <xs:attribute name="mode" use="optional" >

        <xs:simpleType>

                <xs:restriction base="xs:string">

                    <xs:enumeration value="multiple" />

                    <xs:enumeration value="single" />

                </xs:restriction>

            </xs:simpleType>

        </xs:attribute>

</xs:complexType>
```

# Error References

The following table lists the possible errors that the Service Manager Doctor commands may return.

| Error Code | Description | Category | Error Message (partial) |
|---|---|---|---|
| 100000 | SYS_ERROR | SYSERROR | System error, please reach support team... |
| 100001 | UNKNOWN_ERROR | SYSERROR | Unknown error, please try again later or reach SM Doctor admin for a solution. |
| 100002 | COMMAND_NOT_EXIT | PARSEERROR | This command *<command>* is not recognizable, please enter again. |
| 100003 | NO_SUCH_OPTION | PARSEERROR | This option *<option>* is not recognizable for this command, please enter again |
| 100004 | NO_SUCH_PARAMETER | PARSEERROR | *Xxx* is not passed to any parameter, please enter again. |
| 100005 | ARGU_NOT_EXIT | PARSEERROR | This argument *<argument>* is not recognizable, please enter again. |
| 100006 | ONLY_LOG_ERROR | PARSEERROR | Log option *<option>* is only valid with another command line option, please enter again. |
| 100007 | HELP_LOG_ERROR | PARSEERROR | Log option is not valid with help option, please enter again. |
| 100008 | HELP_ERROR | PARSEERROR | Help option is valid by *<command>* -help without other options. Please enter again. |
| 100009 | DUPLICATE_ERROR | PARSEERROR | Duplicate options are found, please remove the same ones and keep each unique. |
| 100010 | LOG_PARAM_ERROR | PARSEERROR | Only true(1) or false(0) is allowed for this option. |
| 100011 | NODATA | NODATA | No data is available for this command. |
| 100012 | DB_DRIVER_ERROR | DBERROR | Database driver can not be loaded. |
| 100013 | SQL_EXCEPTION | DBERROR | SQLException is caught ... |
| 100014 | TABLE_DOES_NOT_EXIT | DBERROR | This table *<table_name>* does not exit. |

| Error Code | Description | Category | Error Message (partial) |
|---|---|---|---|
| 100015 | SM_NOT_FOUND | SYSERROR | Service Manager is not found, please check. |
| 100016 | SM_NOT_RUNNING | SYSERROR | Service Manager is not running, please check. |
| 100017 | COMMAND_TIMEOUT | SYSERROR | Command execution timeout. |
| 100018 | UNSATISFIED_LINK_ERROR | DBERROR | Unsatisfied link error. |
| 100019 | RULE_PARSING_ERROR | SYSERROR | Exception happened when parsing XML rule configuration file. |
| 100020 | OTHER_PARSE_ERROR | PARSEERROR | Invalid input *<input>*. |
| 100021 | INFO_NOT_AVAILABLE | SYSERROR | *Xxx* information is not available. |
| 100022 | RECORD_COUNT_EXCEED_THRESHOLD | DBERROR | The record count in table *<table_name>* exceeds threshold *<threshold_value>*, purge/ archive is needed. |
| 100023 | TABLE_MERGE_NEEDED | DBERROR | M2/M3 tables exist for *xxx*, table merge is needed. |
| 100024 | FIELD_NOT_EXPECTED | DBERROR | This field *xxx* is not expected in table... |
| 100025 | ORACLE_DRIVER_NOT_FOUND | DBERROR | Oracle driver could not be loaded, please make sure driver's jar exists under *xxx*. |
| 100026 | GLOBALLISTS_VALUELIST_LENGTH_EXCEED_THRSHOLD | DBERROR | Valuelist length of *xxx* keys in globallists table exceeds threshold. |
| 100027 | DATABASE_AUTH_FAILED | DBERROR | Username or password is invalid, database could not be connected. |
| 100028 | FILE_NOT_SAVED | FILEERROR | File could not be saved. |
| 100029 | FILES_NOT_FULLY_SAVED | FILEERROR | Files could not be (fully) saved. |
| 100030 | FILE_NOT_EXISTS | FILEERROR | *xxx* does not exist. |
| 100031 | FILES_NOT_EXIST | FILEERROR | *xxx* do not exist. |
| 100032 | NO_NEED_TO_SAVE_TNSNAMES | FILEERROR | No need to save tnsnames.ora for *xxx*. |
| 100033 | NO_CLIENT_CONF_SAVED | FILEERROR | No running sm client is detected, no |

| Error Code | Description | Category | Error Message (partial) |
|---|---|---|---|
| | | | configuration files could be saved. |
| 100034 | WEBSERVICE_AUTH_FAILED | WEBSERVICE ERROR | Username or password is invalid, server could not be connected. |
| 100035 | WEBSERVICE_TIMEOUT | WEBSERVICE ERROR | Timeout for this soap request. |
| 100036 | UNSUPPORTED_OS | SYSERROR | SM Doctor does not support this operating system *<system_name>*. |
| 100037 | SSL_ENABLED | WEBSERVICE ERROR | Web service call is not done because SSL is enabled, you can start a SSL disabled process to run this command. |
| 100038 | UNSUPPORTED_DB | DBERROR | SM Doctor does not support this database. |
| 100039 | CMD_LIMITED_TO | SYSERROR | This command is limited to *xxx*. |
| 100040 | KEYTOOL_ERROR | FILEERROR | Keytool error happened by checking *xxx*. |
| 100041 | NO_LOCAL_PING | SYSERROR | Only vertical scaling setting is found, local host ping/ tracert is skipped. |
| 100042 | KEYFILE_NOT_EXIST | SYSERROR | Keyfile *<filename>* does not exist. |
| 100043 | PARAMETER_NOT_EXIST | SYSERROR | Parameter *<parameter>* is not configured. |
| 100044 | SQLPLUS_NOT_FOUND | DBERROR | Sql plus is not found, please set its path in *<variable>*. |

# Troubleshooting

**Issue 1: Environment setting issues leading to coredump**

**Symtoms**

The coredump happens with the following error messages:

```
/usr/lib/dld.sl: Bad magic number for shared library: <library>
```

```
/usr/lib/dld.sl: Exec format error
```

**Resolution**

Verify that the database driver path is set correctly in the corresponding library path environment variable and that the driver exists in the specified path.

**Issue 2: 'db -version' command returns wrong results on DB2**

**Symtoms**

The following database connection error message is displayed when database connection fails for 'db -version' on DB2:

```
[100012]Database driver cannot be loaded,
```

```
please double check LIBPATH, and make sure 32 bit lib exists and is ahead of 64
bit.
```

**Resolution**

Run db2level under db2 command shell directly to get database information if necessary. This is to be fixed in next release, since db2 version information could be returned when connection fails.

# Send Documentation Feedback

If you have comments about this document, you can contact the documentation team by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on SM Doctor User's Guide (Service Manager 9.41)**

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to ovdoc-ITSM@hp.com.

We appreciate your feedback!