Management Settings

This chapter provides instructions for configuring Object Request Broker Element Management (ORBEM) and Simple Network Management Protocol (SNMP) options.

This chapter includes the following sections:

ORBEM

Important In StarOS release 21.2 and higher, ORBEM is not supported.

The system can be managed by a Common Object Broker Request Architecture (CORBA)-based, Element Management System (EMS).

Important Commands used in the configuration samples in this section provide base functionality. The most common commands and keyword options are presented. In many cases, other optional commands and keyword options are available. Refer to the *Command Line Interface Reference* for detailed information about all commands.

To configure the system to communicate with an EMS:

Procedure

Step 1 Set client ID parameters and configure the STOP/TCP port settings by applying the example configuration in Configuring ORBEM Client and Port Parameters, on page 2

Step 2 Configure Internet Inter-ORB Protocol (IIOP) transport parameters by applying the example configuration in Configuring IIOP Transport Parameters, on page 2

Step 3 View your new ORBEM configuration by following the steps in Verifying ORBEM Parameters, on page 3

Step 4 Save the configuration as described in *Verifying and Saving Your Configuration*.

Configuring ORBEM Client and Port Parameters

Use the following example to set client ID parameters and configure the SIOP/TCP port settings:

```
configure
   orbem
      client id encrypted password password
      max-attempt number
      session-timeout time
      siop-port port_number
      event-notif-siop-port siop_notif_port
      event-notif-service
      end
```

Notes:

- You can issue the client id command multiple times to configure multiple clients.
- If a client ID is de-activated due to reaching the configured maximum number of attempts, use the **activate client id** command to reactivate it.
- If a firewall exists between the system and the EMS, open the SIOP port number and the TCP port number 15011.
- If the ORB Notification Service is enabled via the **event-notif-service** command, you can set filters to determine which events are to be sent. By default, the Service sends all error and higher level events, "info" level events for the ORBS facility, CLI command logs, and license change logs. Optionally, configure a filter by including the **event-notif-service filter** command. Enter this command for each filter you need to configure.

Configuring IIOP Transport Parameters

Use the following example to configure Internet Inter-ORB Protocol (IIOP) transport parameters that enable ORB-based management to be performed over the network:

```
configure
   orbem
      iiop-transport
      iiop-port iiop_port_number
      event-notif-iiop-port iiop_notif_port
      end
```

Notes:

- If you are using the Secure Sockets Layer (SSL) option, do not enable the IIOP transport parameter.
- You configure the ORBEM interface to use SSL by specifying a certificate and private key.

Verifying ORBEM Parameters

Procedure

Step 1 Run the **show orbem client table** command to verify that the client was configured properly. This command lists the configured ORBEM clients and displays their state and privileges.

Step 2 Run the **show orbem status** command to verify the ORBEM parameter configuration. The following displays a sample of this command's output.

```
Service State                    : On
Management Functions             : FCAPS
IOP Address                      : 192.168.1.150
SSL Port                         : 14131
TCP Port                         : 14132
Notification SSL Port            : 7777
Notification TCP Port            : 7778
Session Timeout                  : 86400 secs
Max Login Attempts               : 5
IIOP Transport                   : On
Notification                     : On
Debug Level                      : Off
IDL Version Check                : On
Number of Current Sessions       : 1
Number of Event Channels Open    : 0
Number of Operations Completed   : 2895
Number of Events Processed       : 0
Avg Operation Processing time    : 87214 usecs
                  (last 1000)    : 87950 usecs
```

SNMP MIB Browser

This section provides instructions to access the latest Cisco Starent MIB files using a MIB Browser. An updated MIB file accompanies every StarOS release. For assistance to set up an account and access files, please contact your Cisco sales or service representative for additional information.

A MIB Browser allows the user to pull out data from SNMP enabled devices. You can load standard and propriety MIBs. The tool allows the user to see the MIB data in a readable format and also offers the ability to search for a specific OID. The Browser displays all of the MIBs in a MIB tree which makes it easy to find and identify all Objects, Traps or Conformances.

Use the following procedure to view the SNMP MIBs for a specific StarOS build :

Procedure

Step 1 Contact Cisco sales or a service representative, to obtain access to the MIB files for a specific StarOS release.

Step 2 Download the compressed companion file to a folder on your desktop. The file name follows the convention: **companion_**xx.x.x**.tgz**

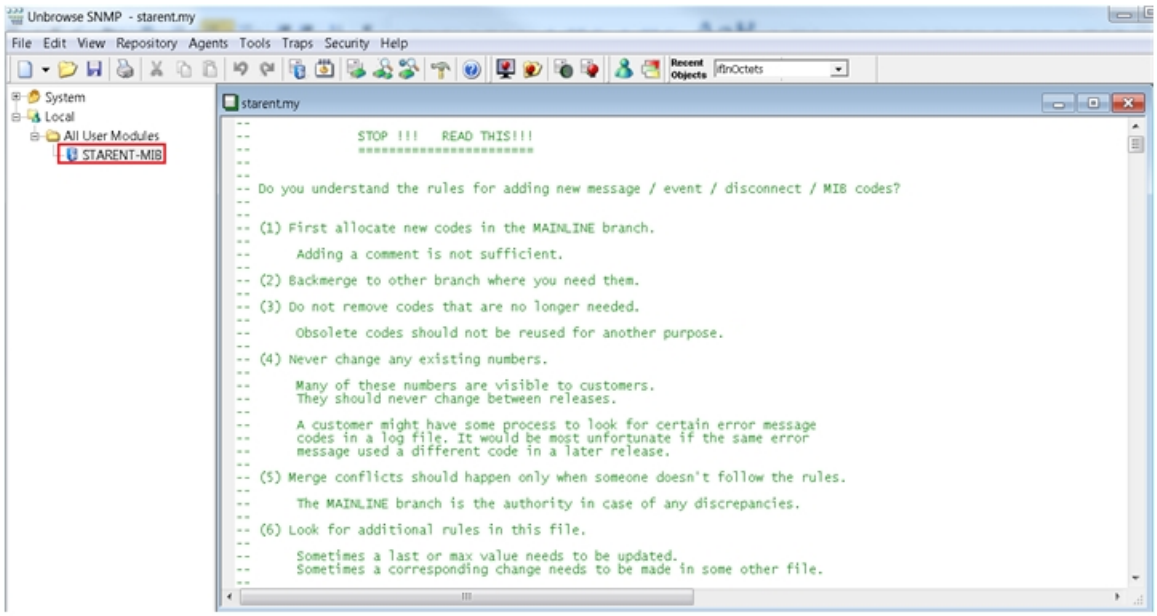
Step 3 Open the companion file, unzip it and extract it to the same folder.

Step 4 Double click on the new **companion-**xx.x.x.xxxxx file folder.

Step 5 Unzip and extract the **companion-**xx.x.x.xxxxx**.tar** file.

Step 6 From your MIB browser, search for and open the **starent.my** file within the .tar file. You can use any SNMP MIB Browser that allows you to compile a MIB **.my** file before viewing it.

Step 7 To compile the MIB file, click on the STARENT-MIB file and select **File** > **Open**.



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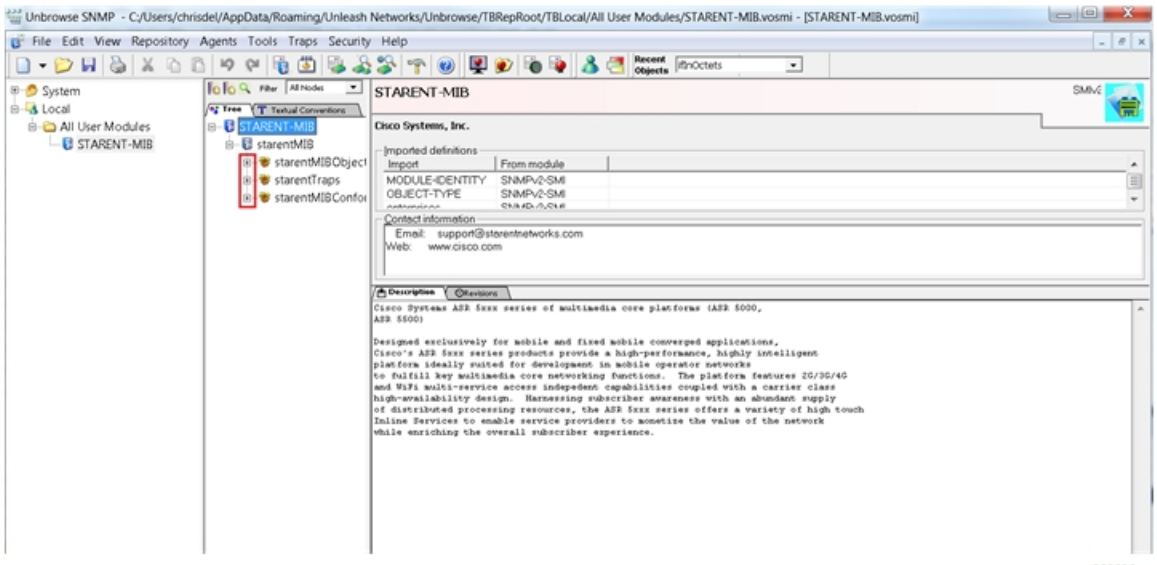
The STARENT-MIB.vosmi file opens.



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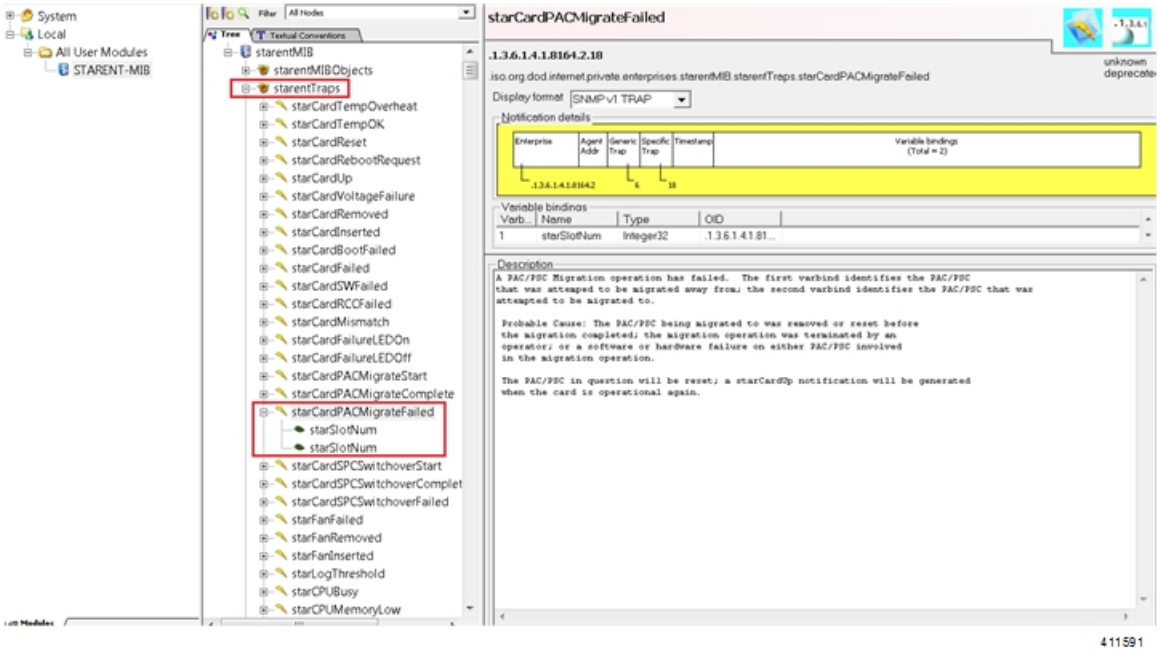
In the example below the MIB Browser presents a tree diagram that allows you to display details for each Object, Trap and Conformance. The example below includes the OID number and trap details for the starCardPACMigrateFailed trap.



The SNMP MIB browser allows you to search for specific MIBs. You can search for a specific OID (object identifier) to find a specific MIB entry.

Important For information on SNMP MIBs changes for a specific release, refer to the *SNMP MIB Changes in Release xx* chapter of the appropriate version of the to the *Release Change Reference*.

SNMP Support

The system uses the SNMP to send traps or events to the EMS server or an alarm server on the network. You must configure SNMP settings to communicate with those devices.

Important Commands used in the configuration samples in this section provide base functionality. The most common commands and keyword options are presented. In many cases, other optional commands and keyword options are available. Refer to the *Command Line Interface Reference* for complete information.

The *SNMP MIB Reference* describes the MIBs and SNMP traps supported by the StarOS.

To configure the system to communicate with the EMS server or an alarm server:

Procedure

Step 1 Set SNMP parameters such as UDP port, and alarm server target by applying the example configuration in Configuring SNMP and Alarm Server Parameters, on page 6

Step 2 To view your new SNMP configuration, follow the steps in Verifying SNMP Parameters, on page 7

Step 3 Save the configuration as described in *Verifying and Saving Your Configuration*.

Configuring SNMP and Alarm Server Parameters

Use the following example to set SNMP and alarm server parameters:

```
configure
   system contact contact_name
   system location location_name
   snmp authentication-failure-trap
   snmp community community_string
   snmp server port port_number
   snmp target name ip_address
   snmp engine-id local id_string
   snmp notif-threshold value low low_value period time_period
   snmp user user_name
   snmp mib mib_name
   snmp runtime-debug [ debug-tokens token_id token_id token_id...token_id
   end
```

Notes:

- The **system contact** is the name of the person to contact when traps are generated that indicate an error condition.
- An **snmp community** string is a password that allows access to system management information bases (MIBs).
- The system can send SNMPv1, SNMPv2c, or SNMPv3 traps to numerous target devices. However, an EMS may only process SNMP version 1 (SNMPv1) and SNMP version 2c (SNMPv2c) traps. If the SNMP target you are configuring is the EMS application, use the **snmp target** command to configure use of version 1 or version 2c. Issue this command as many times as you need to configure multiple targets. If you configure multiple targets, generated alarms are sent to every configured target.
- The **snmp notif-threshold** command configures the number of SNMP notifications that need to be generated for a given event and the number of seconds in the monitoring window size (default = 300), before the notification is propagated to the SNMP users (default = 300).
- The **snmp engine-id local** command is optional. It is only required if your network requires SNMP v3 support. The engine ID uniquely identifies the SNMP engine and associated SNMP entities, thus providing a security association between the two for the sending and receiving of data.
- The **snmp user** name is for SNMP v3 and is optional. There are numerous keyword options associated with this command.
- Use the **snmp mib** command to enable other industry standard and Cisco MIBs. By default only the STARENT-MIB is enabled.
- By default SNMP runtime debugging always runs and consumes CPU cycles for event logging. To control CPU usage you can set **no snmp runtime-debug** to disable runtime debugging. An option to this command allows you to specify SNMP token values that will locate and parse specified MIBs.

Important SNMPv3 traps may not be supported by some EMS applications.

Verifying SNMP Parameters

Procedure

Step 1 Run the **show snmp server** command to verify that the SNMP server information is correctly configured. The following displays a sample output of this command.

```
SNMP Server Configuration:
    Server State             : enabled
    SNMP Port                : 161
    sysLocation              : chicago
    sysContact               : admin
    authenticationFail traps : Enabled
    EngineID                 : 123456789
    Alert Threshold          : 100 alerts in 300 seconds
    Alert Low Threshold      : 20 alerts in 300 seconds
SNMP Agent Mib Configuration:
                           STARENT-MIB : Enabled
                                IF-MIB : Disabled
                            ENTITY-MIB : Disabled
                      ENTITY-STATE-MIB : Disabled
                     ENTITY-SENSORE-MIB : Disabled
                     HOST-RESOURCES-MIB : Disabled
     CISCO-MOBILE-WIRELESS-SERVICE-MIB : Disabled
               CISCO-ENTITY-DISPLAY-MIB : Disabled
                     CISCO-PROCESS-MIB : Disabled
          CISCO-ENTITY-FRU-CONTROL-MIB : Disabled
```

Step 2 Verify that the SNMP community(ies) were configured properly by entering the following command:

show snmp communities

The output of this command lists the configured SNMP communities and their corresponding access levels.

Step 3 Verify that the SNMP transports are configured properly by entering the following command:

show snmp transports

The following displays a sample output:

```
Target Name:   rms1
IP Address:    192.168.1.200
Port:          162
Default:       Default
Security Name: public
Version:       1
Security:
View:
Notif Type:    traps
```

Controlling SNMP Trap Generation

The system uses SNMP traps (notifications) to indicate that certain events have occurred. By default, the system enables the generation of all traps. However, you can disable individual traps to allow only traps of a certain type or alarm level to be generated. This section provides instructions for disabling/enabling SNMP traps.

Important Commands used in the configuration samples in this section provide base functionality. The most common commands and keyword options are presented. In many cases, other optional commands and keyword options are available. Refer to the *Command Line Interface Reference* for complete information regarding all commands.

To configure SNMP trap generation:

Procedure

Step 1 Set parameters by applying the following example configuration:

```
configure
   snmp trap suppress
   snmp trap suppress trap_name1 trap_name2 ... trap_nameN
```

If at a later time you wish to re-enable a trap that was previously suppressed, use the **snmp trap enable** command.

Step 2 Save the configuration as described in *Verifying and Saving Your Configuration*.