

System Management

DESCRIPTION

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1 Introduction

This document provides an overview of the management model and concepts associated with the System Management managed area.

A managed area is represented by a group of Managed Object Classes (MOCs) within the Managed Object Model (MOM).





2 Functions and Concepts

System Management provides a management interface to identify the Managed Element (ME), access some overall system attributes and manage time. It provides the root Managed Object (MO) of the complete Management Information Base (MIB) and is as such the base for addressing all MOs in the ME.

The complete MOM is realized by a set of XML model files. Each XML model file realizes a model that defines parts of the ME functionality, represented by MOCs, attributes, and actions. A model is identified by its name and version, and is represented by a *Schema* MO.

The XML model files can be used by an external management system, for example, a domain manager or a local craft terminal, to learn the ME capabilities and provide a graphical user interface.

2.1 Types of Operation

System Management supports the following operations:

Address Managed Element

The ME identity or node name has been given a network-unique value at installation or commissioning time. It usually follows this convention:

<node type in 3-5 letters><number of the node within this type in 2 digits><city or other geographical identification in 2 letters>

For example, CSCF05NY and HSS08LA.

To address any MO from the root MO in the MIB through the Northbound Interface (NBI), the corresponding Distinguished Name (DN) must always begin with the correct node name. For example, `ManagedElement=NODE06ST, SystemFunctions=1`. This is relevant especially for NETCONF operations and Ericsson Command-Line Interface (ECLI) scripts. In ECLI interactive sessions, the user can navigate in the MIB using Relative DNs (RDNs) and perform operations and changes without specifying the node name.

The procedure in *Check General System Attributes* provides details on how to identify the ME identity or node name.

Note: The ME identity or node name is configurable. However, the user must not change it under normal circumstances since it has impact on the integration to NBI clients like management systems.



Identify DN Prefix

The DN prefix can be used by management systems as a naming context to partition the MOs from different MEs into logical domains. It is usually set at installation or commissioning time. The DN prefix value is prepended to DNs (*<DN_prefix>*, *<local_DN>*) but only affects Performance Management measurement files exposed by the ME.

The procedure in *Check General System Attributes* provides details on how to identify the DN prefix.

Note: The DN prefix or node name is configurable. However, the user must not change it under normal circumstances since it has impact on the integration to NBI clients like management systems.

Identify Managed Element

An NBI client or a user identifies the ME at runtime by the identification of the product realizing the ME. The following information is used for the ME identification:

- The ME type identifies the type of product being managed, for example, Home Subscriber Server (HSS) or Call Session Control Function (CSCF).
- The ME release identifies the release of the product specified by the ME type, for example, 11.0.

The procedure in *Check General System Attributes* provides details on how to identify the ME.

Identify Managed Element Location

The site location describes the geographic location of the ME. The procedure in *Check General System Attributes* provides details on how to identify the ME location.

View Managed Element Time

The ME provides its local date and time, offset from UTC and time zone.

Handle NTP Clock Synchronization Server Associations

NTP Server associations are used by the ME to identify which NTP servers to retrieve network time from. An NTP association can be locked as part of a maintenance activity so the ME no longer synchronizes its time with the corresponding time server. NTP associations can be removed, added, or modified as part of network configuration change activities. See *Change NTP Server Address*.



Identify Supported XML Model Files

The XML model files can be used by an external management system, for example, a domain manager or a local craft terminal, to learn the managed element capabilities and provide a graphical user interface. The procedure in *List Supported XML Model Files* provides further details on how to list the supported XML model files.

Push of XML Model Files to External System

The XML model files supported by the ME are exposed over the NBI and can be pushed one by one to an external system through the standard SSH File Transfer Protocol (SFTP). The operation can be triggered over NETCONF by a management system to discover the ME capabilities. The procedure in *Push XML Model File to Remote File Location* provides further details on how to perform this operation.

Note: The XML model files are exposed without relying on functions provided by *File Management*.



3 Managed Object Model

The System Management managed area is represented in the *Managed Object Model (MOM)* as follows:

```
ManagedElement
+-SystemFunctions
  +-SysM
    +-NetconfSsh
    +-NetconfTls
    +-Schema
  +-<managed_function>
```

For general information about the MOM, MOCs, MOs, cardinality, and related concepts, refer to *Managed Object Model User Guide*.

The System Management MOCs are described in Table 1.

Table 1 System Management Managed Object Class Descriptions

Managed Object Class	Description
<i>ManagedElement</i>	The root MO class under which the MOM is contained. Provides overall system attributes.
<i>NetconfSsh</i>	Represents the NETCONF configuration management service over a Secure Shell (SSH).
<i>NetconfTls</i>	Represents the NETCONF configuration management service over Transport Layer Security (TLS).
<i>Schema</i>	Describes the supported XML model files.
<i>TimeM</i>	Represents time-related configuration.
<i><managed_function></i>	A traffic function that the ME performs and that must be managed. One or more functions like CSCF-Application are visible in the ME. What managed functions are available directly depends on the ME type.





4 Configuration Management

System Management is accessed using NETCONF or ECLI to manipulate the MIB.

The following operations can be performed by the user and are described in Operating Instructions using the ECLI:

Manage System Attributes

- *Check General System Attributes*

Manage NTP Server Associations

- *Change NTP Server Address*

Manage XML Model Files

- *List Supported XML Model Files*
- *Push XML Model File to Remote File Location*