

eOMC910 V100R0050B0 System Overview



Foreword

- This document introduced the eOMC910 comprehensive network management system to implement the unified management of base stations, core network, CPE, TAU、 eAPP610, eMRS620,eUDC660,eAFE310 and other net elements.
- This training course introduces the eOMC910 structures and functions.



Objectives

- Upon completion of this course, you will be able to
 - Learn about the eOMC910 network position, physical structure, and software structure.
 - Know technical specifications of the eOMC910.
 - Learn about the service and functions of eOMC910.

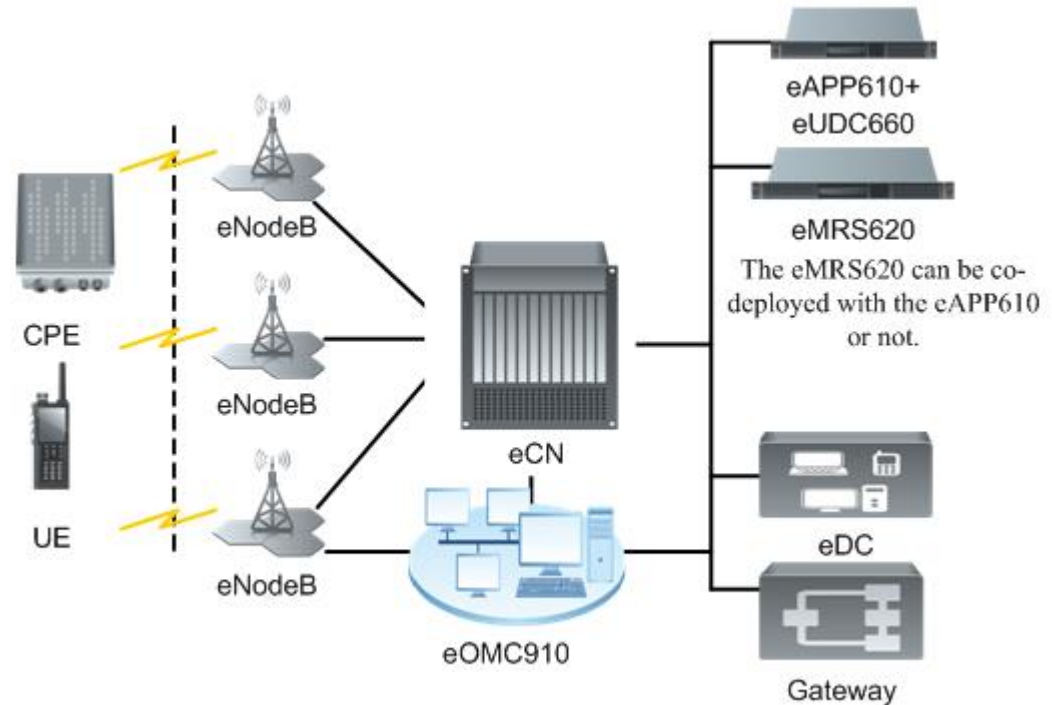


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- 1. eOMC910 Introduction**
2. eOMC910 Service Functions

eOMC910 Introduction - Positioning

The eOMC910 is an integrated platform for managing NEs and broadband access terminals on enterprise networks. Residing on the network layer, the eOMC910 manages DBS3900, eMB535, DBS3900_230M, eCNs (eCNS210, eSCN230, eSCN231, and eCNS280), broadband access terminals include the CPE(EG860, eA360, eA660 and eA680) and TAU(TAU600,TAU610,TAU610-C71),the eAPP devices include the eAPP610,eMRS620,eUDC660 and gateways including the eGW650,eGW651,and eUPG670,and eSSC690(Enterprise Signalling SIP Core), ASU,the E2E encryption proxy server is the eAFE310 and hardware of Huawei RH2288H V3 server,and hardware of Huawei 2288H V5 server.



eOMC910 Introduction - Highlights

- **Integrated and Unified Management Platform**

- The eOMC910 provides centralized management for broadband access terminals, eNodeBs, eCNs, eMDCs, eUEs, device management platforms, eMRSs, and end-to-end encryption service agents on enterprise networks. It also supports logical management for other or third-party equipment to form a unified network view.

- **Powerful Equipment Management**

- The eOMC910 provides professional NE management, including topology management, configuration management, performance management, fault management, software management, license management, security management, system management, broadband access terminal management, log management, and preventive maintenance.

eOMC910 Introduction - Highlights

- **Diverse service functions**

- Besides the traditional system functions and equipment management function, eOMC910 provides broadband access terminal management and operation and registration management, to support the management and use of the enterprise networks and equipment.

- **Easy Operation and Maintenance**

- The eOMC910 features a user-friendly GUI for interaction between users and the eOMC910, eliminating the use of complicated command lines and therefore enhancing user experience during the operation and maintenance of radio communication systems.

eOMC910 Introduction - Highlights

- **High Reliability**

- The eOMC910 provides high reliability through professional analysis and design pertaining to data security, operation security, software reliability, and hardware reliability.

- **Flexible Networking**

- The eOMC910 supports management for networks with various scales.

- **Openness and Integration**

- eOMC910 reports information, such as equipment resources, alarms, performance files of NEs, configuration files of NEs and CPE, and to the connected third-party network management system through the northbound SNMP interface.

eOMC910 Introduction - Highlights

- **Flexible deployment**

- The eOMC910 supports deployment on FusionSphere, satisfying various customer demands.

eOMC910 Introduction

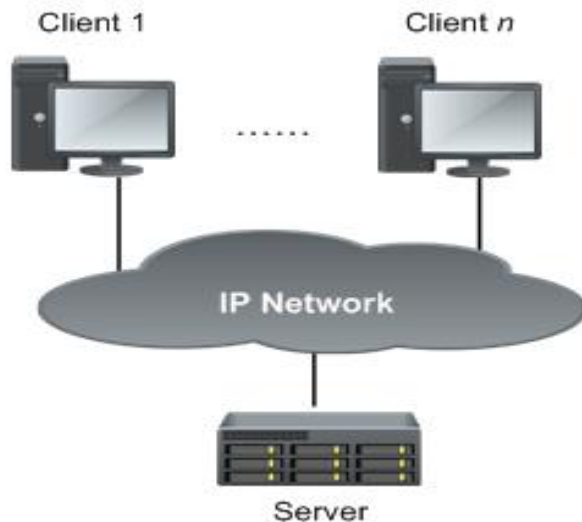
Typical Application Scenarios

- **Independent Deployment Scenario**
 - The eOMC910 is installed in the server individually.
- **Geographic Redundancy Scenario**
 - Active/standby redundancy applies to scenarios that require high reliability and geographic redundancy.

Note: TTR5.3 does not allow the eOMC910 to be co-deployed with other Nes.

Physical Structure

- A typical eOMC910 comprises a server, clients (OM Client, Control Panel, and Broad Access Terminal Management Client).

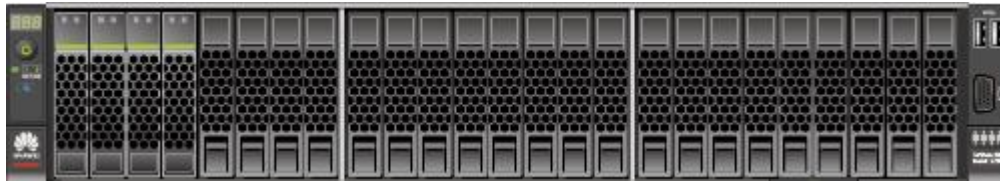


Note:

Generally, the three clients are deployed on the same PC.

Physical Structure

- The eOMC910 uses Huawei TaiShan 2280 V2 server as the server hardware device.
- In terms of the network scale, networks can be classified into medium-sized network. Different servers are recommended for different networks.
- [Figure 1](#) shows the appearance of the TaiShan 2280 V2 (medium-sized) server.
- Figure 1 Appearance of the TaiShan 2280 V2 (medium-sized) server



[Figure 2](#) shows the appearance of the **TaiShan 2280 V2** (large-sized) server.

Figure 2 Appearance of the TaiShan 2280 V2 (large-sized) server



NOTE

- Four 600 GB hard disks are equipped for a **TaiShan 2280 V2** (medium-sized) server.
- Five 1200 GB hard disks are equipped for a **TaiShan 2280 V2** (large-sized) server.

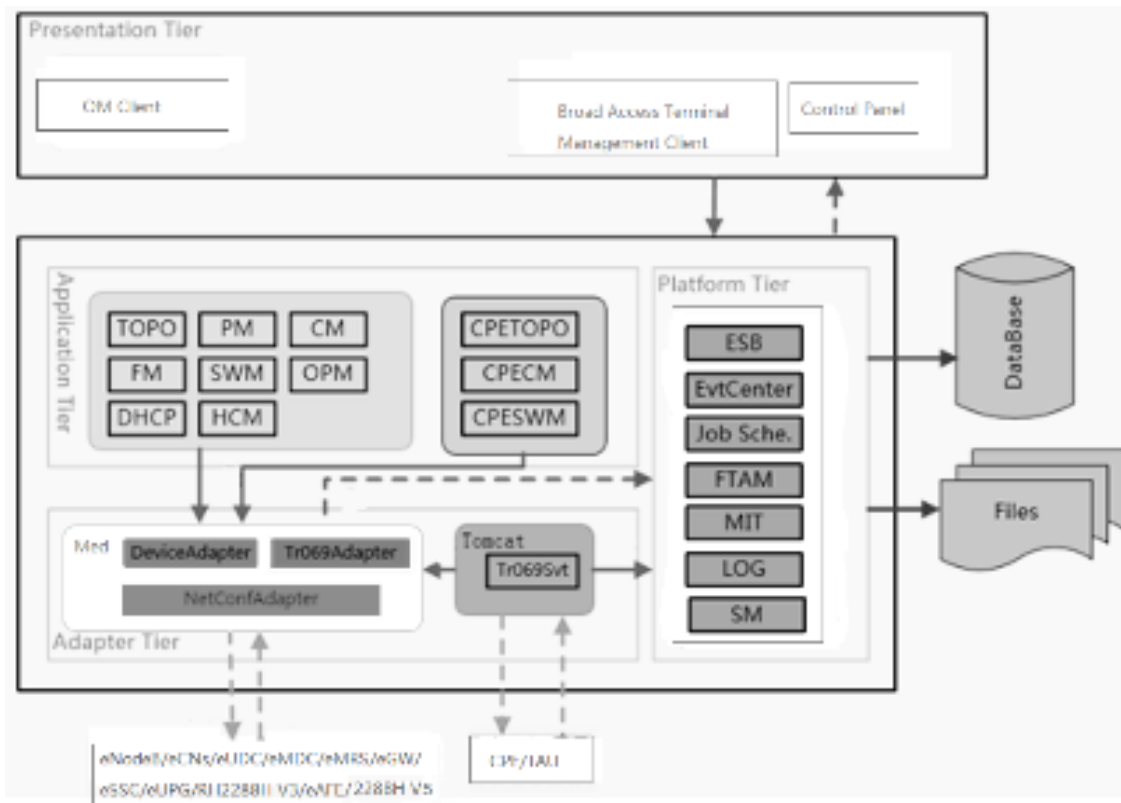
Physical Structure - Client Hardware

- When an ordinary PC is used as the eOMC910 client, the minimum configurations listed in table are recommended.
- Products with configurations higher than the minimum configurations are required.
- Lenovo ThinkCentre M710t is recommended.

Item	Recommended Configuration
CPU	Pentium 4 2.4 GHZ or above
Memory	2 GB or larger
Hard disk	100 GB or larger available capacity
Accessories	DVDRW/network adapter/audio adapter/sound box/LCD display with a resolution of 1024x768x65K
OS	•Microsoft Windows 7 (32bit/64bit) •Microsoft Windows 8 (32bit/64bit) •Microsoft Windows 10 (32bit/64bit)
Application software	Application software of eOMC910 client

Logical Structure

- The following figure shows the eOMC910 system software architecture based on the function services and subsystems.



Client

Based on different functions, software on the server is divided into:

- Business subsystem
- Platform subsystem
- Mediation subsystem

Logical Structure - Server Subsystem

- The server subsystem is classified into a business subsystem, a platform subsystem, and a mediation subsystem.
 - The business subsystem has a modular structure that provides logic processing for specific services, such as NMS services.
 - The platform subsystem provides public services that are irrelevant to specific services.
 - The mediation subsystem provides the interface for NE mediation. It encapsulates the communication protocol between NEs and the upper-layer NMS as an interface protocol, so that NEs can communicate with the NMS through the mediation.

Logical Structure - Client Subsystem

- The client consists of an OM Client, Broad Access Terminal Management Client, and Control Panel. They perform different functions.
 - OM Client: operates and maintains network equipment, including the DBS3900, eMB535, DBS3900_230M, eCNS210, eSCN230, eMDC, eMRS620, eUDC660, eAFE310, ASU, eCNS280 (vCGP, logic NEs vTSN, vUGW, vUSN), eUPG670, eSSC690, eGW650, eGW651.
 - Broad Access Terminal Management Client: operates and maintains broadband access terminals.
 - Control Panel: supports security management and user operation authentication.



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eOMC910 Service Functions

- The functions of eOMC910 are implemented on clients.

Client	Functions	Management Window	ID/PASSWORD
O&M Client	The OM client is a traditional centralized NMS workbench and provides NMS operations. It applies to managing NE alarms, configurations, software, files, performance, licenses, health checks and parameter inspection.	Client	admin/eLTE@com123
Broad Access Terminal Management Client	The Broad Access Terminal Management Client manages broadband access terminals.	Client	admin/eLTE@com123
Control Panel	The control panel is used to manage eOMC910 system security and enable authentication for user operations.	Client	admin/eLTE@com123

O&M Client Window



eOMC-[Operation and Maintenance Client]-[Topology View]

System Maintenance Fault Performance Deployment Software Window Help

4 97 13 0

Topology View

NE Tree

- root
 - eOMC
 - TrunkNetwork

Please input the NE name.

The main area displays a network topology diagram overlaid on a world map. The diagram shows several network elements (NEs) connected by lines. The elements are: 105 (with a red '1C' label and a red 'x' icon), 15 (with a yellow '11M' label and a green lock icon), 105_eCNS (with a red '3G' label and a red 'x' icon), eNodeB19 (with a yellow '10M' label and a green lock icon), eSCN23 (with a yellow '1M' label and a green lock icon), and eNodeB10 (with a yellow '11M' label and a green lock icon). A line labeled 'DOT/LTE' connects element 15 to element 105_eCNS.

[Message Center] 2018-12-21 11:27:56 -- Loading finished

Connected Server:10.148.128.101 User:admin Current Model:Professional model 2018-12-21 11:29:50

Functions of O&M Client (1)

- System Management
 - On the client, system management allows a user to maintain the eOMC910 system and its data.
- Configuration Management
 - Configuration management allows a user to configure auto deployment, data synchronization, data exporting, asset data exporting for an NE, and configure NEs in batches.
- Alarm Management
 - Alarm management allows a user to handle NE alarms in a centralized manner.
- Software Management
 - Software management allows a user to upgrade NE software.

Functions of O&M Client (2)

- File Management
 - File management allows a user to obtain the eOMC910 system files and various NE log files on the client
- License Management
 - License management allows a user to control the number of resources for the eOMC910 and NEs.
- Performance Management
 - Performance management allows a user to query and browse managed NE performance data and displays the data by period and technical specifications. You can also specify a threshold for the performance data, and inform the user of the performance data change.
- Network Health Check
 - By checking the operating status of NEs and the network, engineers can take the initiative in checking and maintaining the network, ensuring the normal operation of the network.

Functions of O&M Client (3)

- Tracing Management
 - The eOMC910 supports the interface tracing function, enabling rapid troubleshooting.
- Video Multicast Management
 - The eOMC910 provides functions such as enabling/disabling video multicast, and configuring video multicast information to manage the station and on-board display terminals.
- QoS Policy Configuration
 - The eOMC910 can deliver the QoS policy configuration file to an NE.
- Urgent Mode Switch
 - The eOMC910 supports the DBS3900 to switch between the normal mode and urgent mode to meet different requirements.

Functions of O&M Client (4)

- **Northbound Interface Connection Management**
 - The eOMC910 provides a Northbound interface for connecting to a third-party NMS so that the eOMC910 can manage Northbound alarms and resources.
- **Parameter Inspection Evaluation**
 - The eOMC provides the function of inspection evaluation of NE parameters. According to the inspection standards, the eOMC provides the inspection results and handling suggestions. In addition, the overall score, score deduction items, and a separate and detailed inspection report can be formulated.

Broad Access Terminal Management Client



The screenshot displays the "eOMC-[Broad Access Terminal Management Client]-[Workbench]" application window. The interface includes a menu bar (System, Deployment, Maintenance, Fault, Upgrade, Window, Help) and a toolbar with icons for lock, key, alarm, laptop, wrench, and help. On the right, there are status indicators: "0" for a red icon, "0" for a blue icon, "0" for a red icon with a white 'X', "2" for a yellow icon, "0" for a yellow icon, and "0" for a blue icon. The main area is divided into five panels: "Deployment" (Engineering Parameter, Config File Management, Config File Download), "Maintenance" (Topology View, Batch Diagnosis, Task Management, NE Batch Configuration), "Fault" (Alarm Monitor), "Upgrade" (Software Upgrade), and "System" (eOMC License, eOMC File Management). The bottom status bar shows "Connected", "Server:10.148.192.163", "User:admin", and the timestamp "2017-12-22 15:40:44".

Functions of the Terminal Management Client

- The Broadband Access Terminal Management Client manages broadband access terminals.

Function	Description	Terminal Type
Automatic Discovery	Supports automatic discovery and access of broadband access terminals.	TAU600, TAU610, CPE(EG860, eA360, eA660, and eA680)
Engineering Parameter Management	Includes exporting and modifying engineering parameters.	EG860, TAU610, TAU610-C71, and TAU600
Configuration File Management	Includes importing, deleting, and querying configuration information of broadband access terminals.	CPE(EG860, eA680), TAU610, TAU610-C71 and TAU600. The configuration files of the CPE(eA680) cannot be delivered manually.
Software Management	Supports batch software upgrades of broadband access terminals.	CPE(EG860, eA360, eA660, eA680), TAU610, TAU610-C71 and TAU600

Functions of the Terminal Management Client

- The Broadband Access Terminal Management Client manages broadband access terminals.

Function	Description	Terminal Type
Topology Management	Supports managing broadband access terminals, including logging in to the WebUI, restarting broadband access terminals, restoring factory defaults of broadband access terminals, and other functions.	<ul style="list-style-type: none">•Logging in to the WebUI: CPE(eA360, eA660, eA680, EG860), TAU610,TAU610-C71, and TAU600•Restarting broadband access terminals: eA680, EG860, TAU610, TAU610-C71 and TAU600•restoring factory defaults of broadband access: EG860, TAU610, TAU610-C71 and TAU600
Task Management	Includes configuration file uploading, log uploading, and performance data uploading tasks for broadband access terminals.	<ul style="list-style-type: none">•Configuring uploading applies eA680,TAU610,TAU610-C71, EG860s in V200R002C00 and the later versions•Log uploading applies TAU610,TAU610-C71,CPE(eA360,eA660,eA680 and EG860s in V200R002C00 and the later versions)•Performance data uploading applies TAU610,TAU610-C71 and EG860s in V200R002C00 and the later versions

Functions of the Terminal Management Client

- The Broadband Access Terminal Management Client manages broadband access terminals.

Function	Description	Terminal Type
eOMC File management	Supports exporting the configuration files and log files of broadband access terminal, and the terminal performance data.	<ul style="list-style-type: none">•TAU610,TAU610-C71,CPE(eA360,eA660,eA680 and EG860s in V200R002C00 and the later versions•Exporting terminal Performance data applies TAU610,TAU610-C71 and EG860s in V200R002C00 and the later versions
Batch Diagnosis	Supports diagnosing broadband access terminals in batches using Ping and Traceroute.	<ul style="list-style-type: none">•TAU610,TAU610-C71, eA680 and EG860 in V200R002C00 and the later versions•eA680 Supports diagnosing broadband access terminals in batches using Ping
Batch Configuration	Supports using MML commands to configure broadband access terminals of the same software version in batches.	CPE(EG860s in V200R002C00 and the later versions, eA360, eA660, eA680), TAU610,TAU610-C71

Functions of the Terminal Management Client

- The Broadband Access Terminal Management Client manages broadband access terminals.

Function	Description	Terminal Type
Account Management	Supports managing the bidirectional authentication password between the eOMC910 and a CPE.	CPE(EG860, eA360, eA660, eA680), TAU610,TAU610-C71
Network Health Check	Supports detecting the operating status of terminals, and checking the signal strength the broadband access terminal.	TAU610,TAU610-C71,EG860 in V200R003C00 and later
Fault Management	Supports monitoring and handling alarms reported by broadband access terminals.	CPE(EG860, eA360, eA660 and eA680), TAU610, TAU610-C71

Functions of the Terminal Management Client

- The Broadband Access Terminal Management Client manages broadband access terminals.
- System management includes:
 - Log management:
 - supports querying, deleting, and exporting system logs and operation logs, as well as retrospectively some operations to the system based on the logs.
 - License management
 - supports viewing license items or uploading new licenses. An eOMC910 license controls the number of manageable eNodeBs and whether to enable the network health check.



Control Panel Window

eMMC-[Control Panel]-[Security Management]

System Log Tools Window Help

Security Management

- Security Management
 - User
 - User Group
 - Operation Set
 - Domain
 - Client
 - Session

Sub Module	Description
User	Add user, Modify user, Delete user, or view a user information.
User Group	Add user group, Modify user group, Delete user group, or view a user group information.
Operation Set	Add operation set, Modify operation set, Delete operation set, or view an operation set information.
Domain	Add domain, Modify domain, Delete domain or view a domain information.
Client	Add client, Modify client, Delete client or view a client information.
Session	View session information or kickout a session.

[Message Center] 2017-12-22 15:45:33 -- Creating Client Module: Configuration Module
[Message Center] 2017-12-22 15:45:33 -- All Client Modules is init for display now...
[Message Center] 2017-12-22 15:45:33 -- Loading default window now...
[Message Center] 2017-12-22 15:45:33 -- Loading auto lock manager now...
[Message Center] 2017-12-22 15:45:33 -- Loading finished

Connected | Server:10.148.192.163 | User:admin | 2017-12-22 15:46:02

Control Panel

The control panel is used to manage eOMC910 system security and enable authentication for user operations.

- **System Settings**

- Setting the system includes setting the time, number format, SMTP server, security policy, system monitoring alarm thresholds, SNTP time synchronization for network elements (NE), SNTP time synchronization, setting the Banner information.

- **Security Management**

- Security management allows a user to manage the information and rights of users that need to access the system, preventing unauthorized operations and ensuring system security.

Control Panel - System Settings

- Setting the system includes:
 - **Setting the Time Format and Number Format,**
 - **Setting the SMTP Server,**
 - **Setting a Security Policy,**
 - Security policy,
 - **Setting the System Monitoring Alarm Thresholds,**
 - **Setting NE SNTP Time Synchronization,**
 - **Setting NTP Time Synchronization,**
 - **Setting the Banner Information.**

Control Panel - Security Management

- Security management allows a user to manage the information and rights of users that need to access the system, preventing unauthorized operations and ensuring system security.
 - Users and User Groups
 - User Rights Management
 - User Monitoring
 - Client Locking
 - **Security Policy Setting.**
 - Log Management
 - System Monitoring

Northbound Interface Connection Management

The eOMC910 provides a Northbound interface for connecting to a third-party NMS so that the eOMC910 can manage Northbound alarms and resources :

- ❑ Northbound alarm management, including operations of confirming, cancelling confirmation, clearing, querying and filtering alarms.
- ❑ Northbound resource management, including real-time querying of NE information and automatically reporting change of NE data.
- ❑ Northbound performance management: Reporting NE performance files.
- ❑ Northbound configuration management: Reporting NE (DBS3900DBS3900 PL, eSCN230, eCNS210, eCNS280, ASU)configuration files and CPE (EG860) configuration file.
- ❑ Northbound software management: Reporting software upgrade information of NE.

The Northbound interface of the eOMC910 complies with SNMPv2c and SNMPv3.



Summary

- Describe the functions of the eOMC910.

Thank You

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