

Engineering Rules

This section provides engineering rules or guidelines that must be considered prior to configuring the system for your network deployment.

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Service Engineering Rules

The engineering rules listed here apply to the services configurations for the MME system.

- A maximum combined total of 256 services (regardless of type) can be configured per system.

Important Maintaining a large number of services increases the complexity of management and may impact overall system performance (i.e., resulting from such things as system handoffs). Therefore, we recommend that you limit the number of services that you configure and that you talk to your Cisco Service Representative for optimization suggestions and additional information on service limits.

- The total number of entries per table and per chassis is limited to 256.
- Of the 256 possible services, the MME supports a maximum total combination of eight (8) MME-specific services, of the types MME + eMBMS + SGs+ SBc + SLs -service, be configured per chassis.
- The maximum number of HSS Peer Services that can be created and configured is 96 HSS Peer Services per MME chassis.

Important In some cases, two diameter endpoints (S6a and S13) can be configured for a single HSS Peer Service. To ensure peak system performance, we recommend that the total of all Diameter endpoints should be taken into consideration and limited to 64 endpoints.

- When a roaming subscriber uses dynamic destination Host length equal or greater than 64 bytes, it results in initial request intended to that HSS peer that leads to ATTACH REJECTS. To avoid rejection of roaming subscribers, use the length of the dynamic hostname to not more than 64 characters.
- *We strongly recommend that service names be unique across the chassis/system configuration.* Even though service names can be identical to those configured in different contexts on the same system, this is not a good practice. Having services with the same name can lead to confusion, difficulty troubleshooting problems, and make it difficult to understand the outputs of show commands.

Node Engineering Rules

The following engineering rules apply regarding the number of nodes supported on the system.

eNodeBs:

- In Release 18 .0 and higher, the MME supports a maximum of 64,000 eNodeB connections on the ASR 5500 DPC platform, with a fully loaded system (chassis).
- In Release 19.2, the MME supports a maximum of 64,000 eNodeB connections on the ASR 5500 DPC2 platform with a fully loaded system (chassis).
- In Release 20.0, the MME supports a maximum of 128, 000 eNodeB connections on the ASR 5500 DPC2 platform with a fully loaded system (chassis).

Release 17.0 and higher:

- The MME supports a maximum of 64,000 eNodeB connections on the ASR 5500 platform with a fully loaded system (chassis).

MME Managers

- In Release 17.0, The maximum number of MME Managers has been increased to 16 in order to support the increase in eNodeB connections.
- In Release 18.0, the maximum number of MME Managers is increased to 24 on the ASR 5500 DPC platform in order to support the increase in eNodeB connections.
- In Release 19.2, the maximum number of MME Managers is increased to 36 on the ASR 5500 DPC2 platform in order to support the increase in eNodeB connections.
- In Release 21.1, the maximum number of MME Managers is increased to 36 on the ASR 5500 DPC1 platform in order to support the increase in eNodeB connections.

MME Task Instance Limit

This section describes the task instance limit for MME managers and IMSI managers.

Table 1: Task Instance Limit for MME Managers

Platform	Default number of MME Managers per Chassis			Maximum number of MME Managers per Chassis		
StarOS Release	**v19.2**	**v20.0**	**v21.0**	**v19.2**	**v20.0**	**v21.0**
ASR 5500 with DPC	24	24	24	24	24	36
ASR 5500 with DPC2	36	36	48	36	36	48
VPC-SI MEDIUM/LARGE	2	2	2	2	2	2
VPC-SI SMALL, VPC-SI FORGE	1	1	1	1	1	1
VPC-DI MEDIUM/LARGE	24	48	48	24	48	48
ASR 5700	24	24	24	24	24	24

Table 2: Task Instance Limit for IMSI Managers

Platform	Default number of IMSI Managers per Chassis			Maximum number of IMSI Managers per Chassis		
Release	**v19.2**	**v20.0**	**v21.0**	**v19.2**	**v20.0**	**v21.0**
ASR 5500 with DPC	4	4	4	4	4	4
ASR 5500 with DPC2	4	4	8	4	4	8
VPC-SI MEDIUM/LARGE	1	1	1	1	1	1
VPC-SI SMALL, VPC-SI FORGE	1	1	1	1	1	1
VPC-DI MEDIUM/LARGE	4	4	4	4	4	4
ASR 5700	4	4	4	4	4	4

APN Engineering Rules

The following engineering rules apply to APN configuration on the MME:

- APNs must be configured within the context used for authentication.
- A maximum of 1,024 APNs can be configured per system.
- A maximum of 300 entries can be defined for an APN Remap Table.