Configuring Massive IoT

OPERATION DIRECTIONS

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Contents

1 Introduction

This document describes the configuration of Massive IoT features in the SGSN-MME for GSM and LTE systems, including the NB-IoT subset of LTE.

1.1 Scope

This document covers the following issues:

— Prerequisites for the configuration

— Configuration processes for Massive IoT features

— Configuration processes for checking the consistency of the configuration, activating and checkpointing

1.2 Target Groups

This document is intended for personnel configuring Massive IoT features in the SGSN-MME.

2 Prerequisites

This section outlines prerequisites to consider before configuring the features listed in this document.

2.1 Planning

Consider the following issues when planning the configuration:

— Ensure that license-key files for the features to configure are loaded. For more information about license-keys configuration, see Installing Node-Based Licenses. If network-based licenses are used, see Activation of NeLS Client Licenses.

— The feature must be enabled before proceeding with the configuration steps. For more information about enabling features, see, Features and Functions Management.

— The necessary parameters for CLI commands outlined in this document and listed in Parameter Description.

— If the default values of the corresponding parameters must be modified.

For more information about licenses for Massive IoT features, see Massive IoT.

3 Configuring Massive IoT Features for GSM

This section contains instructions on how to configure Massive IoT features supported for GSM RAT type.

3.1 Configuring Extended Coverage GSM IoT Support

This section describes how to configure the Extended Coverage for GSM (EC-GSM) IoT Support.

Instructions

1. Verify that the feature is enabled by analyzing the measurement results of the following gauge and counters:

   — VS.M2M.NbrAttachedEcUe.G

   — VS.M2M.PagingEcUeAtt.G

   — VS.M2M.PagingEcUeSucc.G

   No additional configuration steps are needed.

For more information on this feature, see Massive IoT.

For more information about enabling this feature, see Features and Functions Management

3.2 Configuring Power Saving Mode

This section describes how to configure the Power Saving Mode (PSM) for GSM feature.

Instructions

1. Verify that the feature is enabled by analyzing the measurement results of the following gauge and counters:

   — VS.MM.NbrAttachedPsm.G

   — bssgpDownlinkPacketsBuffLlcSuspendedPsm

   — bssgpDownlinkPacketsDiscardLlcSuspendedPsm

   No additional configuration steps are needed.

For more information on this feature, see Massive IoT.

For more information about enabling this feature, see Features and Functions Management

3.3 Configuring Extended Idle Mode Discontinuous Reception

This section describes how to configure the Extended Idle Mode Discontinuous Reception (eDRX) feature for GSM.

Instructions

1. Display the attributes of extended DRX parameters such as, eDRX value, eDRX cycle, and the time of next Paging Occasion (PO), using the get_subscriber CLI command.

   Example

   ```
   gsh get_subscriber -imsi 12345600144 -dl 2
   ```

2. Configure the `PagingTimingAdvance` parameter to specify the time that the SGSN needs to send a `Paging PS` message to the BSC before the Time Until Next Paging Occasion (TUNPO), by using the modify_gb CLI command. The default value of `PagingTimingAdvance` is 6 seconds.

   Example

   ```
   gsh modify_gb -pta 6
   ```

3. Trace the `ATTACH`, `RAU`, and `ISRAU` EBM events, using the `modify_event_job` CLI command.

4. Filter out the cause code `UE_IS_TEMPORARILY_NOT_REACHABLE_DUE_TO_POWER_SAVING` and sub-cause code `REJECT_FROM_SGSN_DUE_TO_UE_IN_EDRX`, analyze them to verify this function.

5. Verify that the feature is enabled by analyzing the measurement results of the following gauge and counters:

   - VS.M2M.NbrAttachedEdrxUe.G
   - VS.M2M.PagingEdrxUeAtt.G
   - VS.M2M.PagingEdrxUeSucc.G
   - VS.M2M.PagingEdrxUeRej.G
   - bssgpDownlinkPacketsBuffLlcSuspendedEdrx
   - bssgpDownlinkPacketsDiscardLlcSuspendedEdrx

For more information about parameters, see Parameter Description.

For more information on this feature, see Massive IoT.

4 Configuring Massive IoT Features for LTE

This section contains instructions on how to configure Massive IoT features supported for LTE RAT type. Coverage Extension Support, Data over NAS, Power Saving Mode, and eDRX are also supported for NB-IoT RAT type.

4.1 Configuring Low Complexity UE Support

This section describes how to configure the Low Complexity UE Support feature.

Instructions

1. Enable the Low Complexity UE Support feature. For more information about enabling this feature, see Features and Functions Management.
2. Verify that the feature is enabled by analyzing the measurement results of the following gauges and counters:
   - VS.M2M.NbrAttachedLowComplexityUe.E
   - VS.M2M.PagingLowComplexityUeAtt.E
   - VS.M2M.PagingLowComplexityUeSucc.E

   No additional configuration steps are needed.

For more information on this feature, see Massive IoT.

4.2 Configuring Coverage Extension Support

This section describes how to configure the Coverage Extension Support, LTE (CE-LTE) feature.

To use the Coverage Extension Support feature, the Low Complexity UE Support feature must be enabled.

Instructions

1. Enable the Coverage Extension Support feature. For more information about enabling this feature, see Features and Functions Management.
2. Extend the paging timer for Cat-M1 UEs that support CE Mode B operating in either CE Mode A or CE Mode B, by configuring the `S1T3413WbCeModeBPagingTimer` parameter using the create_s1_mme CLI command.

   Example

```
gsh create_s1_mme -twcmbpt 15
```

By default, the `S1T3413WbCeModeBPagingTimer` value is set to `15`.

3. Verify that the feature is enabled by analyzing the measurement results of the following gauges and counters:
   - VS.M2M.NbrAttachedCeModeUe.E
   - VS.M2M.PagingCeModeUeAtt.E
   - VS.M2M.PagingCeModeUeSucc.E

No additional configuration steps are needed.

For more information on this feature, see Massive IoT.

4.3 Activating Extended Idle Mode Discontinuous Reception

The Extended Idle Mode Discontinuous Reception (eDRX) feature supports LTE and NB-IoT RAT types.

The following parameters are used when configuring eDRX for LTE and NB-IoT:

- A name for the eDRX object, configured with the EdrxName parameter.
- A synchronization time, specifying when to start the hyper frame sequence cycle, configured with the SyncTime parameter, given in International Atomic Time, and set by default to `1980-01-06T00:00:19`.
- A Paging Preparation Time, specifying the time before the paging window begins, when MME sends a paging request. The Paging Preparation Time is configured with the PagingPreparationTime parameter and has a default value of 4 seconds.

The following subscriber data is available for a UE using eDRX mode, in LTE or NB-IoT RAT type, upon using the get_subscriber CLI command:

- The `eDRX Cycle Parameter, TeDRX` value negotiated between the UE and MME
- The `eDRX Paging Time Window` value negotiated between the UE and MME.
- The `eDRX Next Paging Time Window` date, indicating the next occasion when the MME attempts a paging procedure to the UE, given in UTC time format.

Instructions

1. Enable the eDRX feature. For more information about enabling this feature, see Features and Functions Management.

2. Modify the configuration of the MME parameters for eDRX by using the modify_mme CLI command.

   Example

   ```
   gsh modify_mme -edrxname EdrxName
   ```

3. (Optional for MT-SMS) Configure the SGs cause code to be sent to the MSC/VLR when the UE is unreachable because of eDRX, through the SGsCauseForMtSmsUnderEdrx parameter by using the modify_sgs_ap CLI command.

   Example

   ```
   gsh modify_sgs_ap -cmue 14
   ```

4. Display eDRX subscriber data using the get_subscriber CLI command.

   Example

   ```
   gsh get_subscriber -imsi 12345600374 -dl 2
   ```

5. Verify that the feature is enabled by analyzing the measurement results of the following gauges and counters:

   — VS.M2M.NbrAttachedEdrxUe.E

   — VS.M2M.NbrPendingPagingEdrxUe.E

   — VS.M2M.PagingEdrxUeAtt.E

   — VS.M2M.PagingEdrxUeSucc.E

   — VS.M2M.PagingEdrxUeDelayed.E

   — VS.M2M.PagingEdrxUePtwClosed.E

For more information on this feature, see Massive IoT.

4.4 Configuring Power Saving Mode

This section describes how to configure the Power Saving Mode (PSM) for LTE feature.

Instructions

1. Enable the PSM for LTE feature. For more information about enabling this feature, see Features and Functions Management.

2. (Optional for MT-SMS) Configure the SGs cause code to be sent to the MSC/VLR when the UE is unreachable because of PSM, through the

SGsCauseForMtSmsUnderPsm parameter by using the modify_sgs_ap CLI command.

Example

```
gsh modify_sgs_ap -cmup 6
```

3. Verify that the feature is enabled by analyzing the measurement results of the following gauges and counters:
   - VS.MM.NbrAttachedPsm.E
   - VS.MM.PagingAvoidedDueToUeInPsm.E
4. (Optional) Enable or disable the addition of a random value to the Periodic TAU timer value for PSM devices, through the node function psm_add_random_value_to_ptau_timer by using the modify_node_function CLI command. The node function is enabled by default .

   Example

   ```
   gsh modify_node_function -name psm_add_random_value_to_ptau_tim
   er -state off
   ```

   Note: This parameter must be enabled to avoid signaling storms.

No additional configuration steps are needed.

For more information on this feature, see Massive IoT.

4.5 Configuring Configurable Battery Saving

The Configurable Battery Saving (CBS) feature supports the LTE and NB-IoT RAT types. With CBS, an operator can control the allocated device battery saving parameters for PSM and eDRX, and control if PSM, eDRX, or both functionalities are allowed or blocked.

The following parameters can be configured for PSM:

- For LTE, the Active Time is configured with the ActiveTimeLte parameter.
- For LTE, when PSM is interworking with DRX, the MME selects the minimum allowed Active Timer based on the configuration of the MinActiveTimeBasedOnDrxLte parameter if the Active Timer value is greater than zero and less than two DRX cycles + 10 s.
- For LTE, allowing or blocking PSM is configured with the AllowPsmLte parameter.
- For LTE, the lower bound for the Periodic TAU timer is configured with the PeriodicTauMinTimerLte parameter.

— For LTE, the extended buffering in the SGW is configured with the DlBufferingSuggestedPacketCountLte parameter.

— For NB-IoT, the Active Time is configured with the ActiveTimeNb parameter.

— For NB-IoT, when PSM is interworking with DRX, the MME selects the minimum allowed Active Timer based on the configuration of the MinActiveTimeBasedOnDrxNb parameter if the Active Timer value is greater than zero and less than two DRX cycles + 10 s.

— For NB-IoT, allowing or blocking PSM is configured with the AllowPsmNb parameter.

— For NB-IoT, the lower bound for the Periodic TAU timer is configured with the PeriodicTauMinTimerNb parameter.

— For NB-IoT, the extended buffering in the SGW is configured with the DlBufferingSuggestedPacketCountNb parameter.

The following parameters can be configured for eDRX:

— For LTE, the Paging Time Window length is configured with the PagingTimeWindowLengthLte parameter.

— For LTE, the eDRX cycle length duration is configured with the EdrxCycleLengthDurationLte parameter.

— For LTE, allowing or blocking eDRX is configured with the AllowEdrxLte parameter.

— For LTE, the extended buffering in the SGW is configured with the DlBufferingSuggestedPacketCountLte parameter.

— For NB-IoT, the Paging Time Window length is configured with the PagingTimeWindowLengthNb parameter.

— For NB-IoT, the eDRX cycle length duration is configured with the EdrxCycleLengthDurationNb parameter.

— For NB-IoT, allowing or blocking eDRX is configured with the AllowEdrxNb parameter.

— For NB-IoT, the extended buffering in the SGW is configured with the DlBufferingSuggestedPacketCountNb parameter.

Note: CBS parameters are configured in the battery saving profile. To configure the appropriate battery saving profile to be used with a device battery saving selection, an IMSINS and a battery saving selection list are used. In IMSINS, it is possible to configure the battery saving selection list to be used for devices that belong to that specific IMSINS. For IMSINS with no battery saving selection list configured, the default battery saving selection list is used, if it exists.

For more information on this feature, see Massive IoT.

4.5.1 Configuring Default Values on Node Level

This configuration ensures that a device gets the default profile, if there is no specific configuration for a certain IMSINS and APN combination.

Instructions

1. Create a default battery saving selection list using the create_battery_saving_selection_list CLI command.

   Example

   ```
   gsh create_battery_saving_selection_list -bssl defaultselection
   -ds true
   ```

2. Create a default battery saving profile using the create_battery_saving_profile CLI command.

   Example

   ```
   gsh create_battery_saving_profile -bspn defaultprofile -dp true
   -ptwl 1.28
   ```

4.5.2 Configuring on IMSINS

It is possible to configure on IMSINS level only without including APN-NI. All devices with a certain IMSINS get the same profile regardless of APN.

Instructions

1. Modify an existing IMSINS using the modify_imsins CLI command.

   Example

   ```
   gsh modify_imsins -imsi 1234567 -bssl group1
   ```

2. Create a battery saving selection list using the create_battery_saving_selection_list CLI command.

   Example

   ```
   gsh create_battery_saving_selection_list -bssl group1
   ```

3. Create a battery saving selection using the create_battery_saving_selection CLI command.

   Example

   ```
   gsh create_battery_saving_selection -apn '*' -bssl group1 -bspn
   gold
   ```

4. Create a battery saving profile using the create_battery_saving_profile CLI command.

   Example

   ```
   gsh create_battery_saving_profile -bspn gold -atl 1020
   ```

4.5.3 Configuring on APN-NI

It is possible to configure on APN-NI level without including IMSINS. All devices with a certain default APN-NI get the same profile regardless of IMSI.

Instructions

1. Create a default battery saving selection list using the create_battery_saving_selection_list CLI command.

   Example

   ```
   gsh create_battery_saving_selection_list -bssl default -ds true
   ```

2. Create a default battery saving selection using the create_battery_saving_selection CLI command.

   Example

   ```
   gsh create_battery_saving_selection -apn iot -bssl default
   -bspn gold
   ```

3. Create a default battery saving selection using the create_battery_saving_selection CLI command.

   Example

   ```
   gsh create_battery_saving_selection -apn '*' -bssl default
   -bspn bronze
   ```

4. Create a battery saving profile using the create_battery_saving_profile CLI command.

   Example

   ```
   gsh create_battery_saving_profile -bspn gold -atl 1020
   ```

5. Create a battery saving profile using the create_battery_saving_profile CLI command.

   Example

   ```
   create_battery_saving_profile -bspn bronze -atl 10080
   ```

4.5.4 Configuring on IMSINS and APN-NI Combined

Instructions

1. Modify an existing IMSINS using the modify_imsins CLI command.

   Example

   ```
   gsh modify_imsins -imsi 123456789 -bssl operatorName
   ```

2. Create a battery saving selection list using the create_battery_saving_selection_list CLI command.

   Example

   ```
   gsh create_battery_saving_selection_list -bssl operatorName
   ```

3. Create a battery saving selection using the create_battery_saving_selection CLI command.

   Example

   ```
   gsh create_battery_saving_selection -apn iot -bssl operatorName
   -bspn silver
   ```

4. Create a battery saving profile using the create_battery_saving_profile CLI command.

   Example

   ```
   gsh create_battery_saving_profile -bspn silver -ptwl 1.28
   ```

4.6 Configuring Data over NAS

This section describes how to configure the Data over NAS (DoNAS) feature.

Procedural Prerequisites

Before enabling DoNAS, an IP service with a unique IP address for S11-GTP-U must be created. For details about how to create an IP service, see Configuring IP-Based Interfaces.

Instructions

1. Optionally, disable the S11USupportInGW parameter if the SGW does not support the S11-U interface, using the modify_s11 CLI command.

   Example

   ```
   gsh modify_s11 -s11 s11 -s11sg off
   ```

2. Enable the DoNAS feature by configuring the data_over_nas parameter, using the modify_feature_state CLI command.

   Example

   ```
   gsh modify_feature_state -fsi data_over_nas -fs ACTIVATED
   ```

3. (Optional) To implement Serving PLMN Rate Control, configure the parameters UplinkRateControlLimit and DownlinkRateControlLimit on the PLMN level, IMSINS level, or both levels.

   Note: If a UE belongs to an IMSINS configured with Serving PLMN Rate Control and the Serving PLMN of the UE is also configured with Serving PLMN Rate Control, the IMSINS-level configurations apply for the UE.

   Example

   ```
   gsh modify_plmn -mcc 123 -mnc 45 -urcl 20 -drcl 20

   gsh modify_imsins -imsi 123456 -urcl 10 -drcl 10
   ```

4. Verify that the feature is enabled by analyzing the measurement results of the following gauges and counters:

   — VS.MM.NbrActAttachedSubDoNas.E

   — VS.MM.AttachDoNasAtt.E

   — VS.MM.AttachDoNasSucc.E

   — VS.MM.NBPagingAtt.E

   — VS.MM.NBPagingSucc.E

For more information on this feature, see Massive IoT.

4.6.1 Configuring DoNAS Support for SMS Service over SGs Interface

This section describes how to configure SMS transport over NAS for UEs that use the NB-IoT RAT type.

Instructions

1. Enable the DoNAS feature by configuring the data_over_nas parameter, using the modify_feature_state CLI command.

   Example

   ```
   gsh modify_feature_state -fsi data_over_nas -fs ACTIVATED
   ```

2. Enable the SMS over SGs feature by configuring the sms_over_sgs parameter, using the modify_feature_state CLI command.

   Example

   ```
   gsh modify_feature_state -fsi sms_over_sgs -fs ACTIVATED
   ```

3. (Optional for MT-SMS) Configure the SGs cause code to be sent to the MSC/VLR when the UE is unreachable because of eDRX, through the SGsCauseForMtSmsUnderEdrx parameter by using the modify_sgs_ap CLI command.

   Example

   ```
   gsh modify_sgs_ap -cmue 14
   ```

4. (Optional for MT-SMS) Configure the SGs cause code to be sent to the MSC/VLR when the UE is unreachable because of PSM, through the SGsCauseForMtSmsUnderPsm parameter by using the modify_sgs_ap CLI command.

   Example

   ```
   gsh modify_sgs_ap -cmup 6
   ```

5. Verify that the function is enabled by analyzing the measurement results of the VS.IoT.MM.NbrCsAttachedSub.NB gauge.

It is recommended that all TAs with NB-IoT be mapped to the same LA to reduce signaling with the MSC/VLR. With this configuration, SGs location update is not required for Intra-MME TAU.

For more information about how to configure the SMS over SGs feature, see Configuring EPS Support for CS Services.

4.7 Configuring RAT Type NB-IoT

This section describes how to configure the NB-IoT RAT type. It is mandatory to enable the DoNAS and the CE-LTE features to use RAT type NB-IoT.

The following applies when configuring the MME for UEs using RAT type NB-IoT:

— Indicate either RAT type `EUTRAN-NB-IoT` or RAT type `E-UTRAN` to the HSS and to the SGW.

  Note: This configuration can be used if the HSS or the SGW does not support receiving RAT type NB-IoT.

— Specify the time interval between two successive UE paging attempts, by extending the paging timer.

Instructions

1. Configure the MME to indicate RAT type `E-UTRAN` to the HSS by disabling the s6aNBIoTSupportInHSS parameter using the modify_s6a CLI command.

   Example

   ```
   gsh modify_s6a -nbsih off
   ```

2. Configure the MME to indicate RAT type `E-UTRAN` to the SGW by disabling the NBIoTSupportInGW parameter using the modify_gtp_v2 CLI command.

   Example

   ```
   gsh modify_gtp_v2 -nbsig off
   ```

By default, the parameters are enabled. If the parameters are enabled, the MME indicates RAT type `EUTRAN-NB-IoT` to the HSS and the SGW respectively.

3. Extend the paging timer for NB-IoT UEs by configuring the S1NBT3413PagingTimer parameter using the create_s1_mme CLI command.

   Example

   ```
   gsh create_s1_mme -nbpt 50
   ```

By default, the `S1NBT3413PagingTimer` value is set to `30`.

4.8 Configuring DoNAS with ROHC

This section describes how to configure the DoNAS with Robust Header Compression (ROHC) feature.

For information about the DoNAS with ROHC feature, see Massive IoT.

Procedural Prerequisites

The DoNAS feature must be enabled before the DoNAS with ROHC feature can be enabled.

Instructions

1. Create an ROHC object by using the create_rohc or modify_rohc CLI command.

   Example

   ```
   gsh create_rohc -rohcname RoHC1 -rf ip_0004 -rmc 10
   ```

2. Connect an ROHC object to the MME by using the modify_mme CLI command.

   Example

```
gsh modify_mme -rohcname RoHC1
```

3. Enable the DoNAS with ROHC feature by configuring the donas_rohc parameter, using the modify_feature_state CLI command.

   Example

   ```
   gsh modify_feature_state -fsi donas_rohc -fs ACTIVATED
   ```

4. Display subscriber data of DoNAS with ROHC, using the get_subscriber CLI command.

   Example

   ```
   gsh get_subscriber -imsi 240990666135271 -dl 2
   ```

5. Verify that the feature takes effect by tracing the `L_ATTACH`, using the `modify_event_job` CLI command.

4.9 Configuring DoNAS, PDN Type Non-IP

The DoNAS, PDN type Non-IP feature includes the following two modes:

— Non-IP Data Delivery over SGi, which is controlled by the `donas_non_ip_over_sgi` feature parameter.

  For information about Non-IP Data Delivery over SGi, see Massive IoT.

— Non-IP Data Delivery over SCEF, which is controlled by the `donas_non_ip_over_scef` feature parameter.

  For information about Non-IP Data Delivery over SCEF, see Non-IP Data Delivery over SCEF.

This section describes how to configure the Non-IP Data Delivery over SGi function.

For information about how to configure the Non-IP Data Delivery over SCEF function, see Configuring Non-IP Data Delivery over SCEF.

Procedural Prerequisites

The DoNAS feature must be enabled before the DoNAS, PDN type Non-IP feature can be enabled.

Instructions

1. Enable the DoNAS, PDN type Non-IP feature using the modify_feature_state CLI command. For more information about enabling this feature, see Features and Functions Management.

   Example

```
gsh modify_feature_state -fsi donas_non_ip_over_sgi -fs
ACTIVATED
```

2. Enable the IMSINS parameter NonIpAccess using the modify_imsins CLI command.

   Example

   ```
   gsh modify_imsins -imsi <IMSI> -nia allowed
   ```

   To use the feature with an HSS without Non-IP support:

   Example

   ```
   gsh modify_imsins -imsi <IMSI> -nia allowed_hss_workaround
   ```

3. Verify that the feature is enabled by analyzing the measurement results of the following gauge and counters:

   — VS.IoT.SM.AttActDefaultBearerNonIp.NB

   — VS.IoT.SM.SuccActDefaultBearerNonIp.NB

   — VS.IoT.SM.NbrActDefaultBearerNonIp.NB

No additional configuration steps are needed.

For more information on this feature, see Massive IoT.

4.10 Configuring eDRX Leap Seconds

This section describes how to configure manual adjustments to leap seconds in the MME for the eDRX (LTE) feature.

The default value for the leap seconds is 37 seconds.

Warning!

Once a manual adjustment is done, it is the responsibility of the customer to keep the leap seconds parameter updated. This is because future updates to the default value do not override the value used by the customer.

Procedural Prerequisites

Consider whether or not it is necessary to adjust for leap seconds.

Instructions

1. Adjust the parameter LeapSeconds using the modify_mme CLI command.

   Example

   ```
   gsh modify_mme -lps 38
   ```

4.11 Configuring Control Plane and User Plane Data Transport Switch

This section describes how to configure the Control Plane and User Plane Data Transport Switch function.

For information about the control plane and user plane data transport switching, see Massive IoT.

Procedural Prerequisites

The DoNAS feature must be enabled before the Control Plane and User Plane Data Transport Switch function can be used.

Instructions

1. If the S1-U and S11-U IP address is different in the operator network but the SGWs does not support S1-U and S11-U separation, it is recommended to use the create_s11 CLI command to configure the `CpUpSwitchSupportInGw` parameter to off, this is to avoid the failure of switching from Control Plane (CP) to User Plane (UP).

   Example

   ```
   gsh create_s11 -s11 s11 -cussig off
   ```

2. Verify that the feature is enabled by analyzing the measurement results of the following gauge and counters:

   — VS.IoT.SM.UeInitiatedPdnTransferCpToUpSwitchAtt.NB

   — VS.IoT.SM.UeInitiatedPdnTransferCpToUpSwitchSucc.NB

5 Consistency Checking, Activating, and Checkpointing

This section describes the procedures for checking the consistency of the configuration, and for activating and checkpointing it.

5.1 Checking the Consistency of the Configuration

A consistency check must be performed before activating the pending configuration.

The consistency check is performed to guarantee that an inconsistent configuration is not activated. A consistency check is performed on the configuration that becomes active after an activation, that is, on the active configuration combined with the changes in the pending configuration.

Run a consistency check on the active configurations with pending configurations by using the check_config CLI command.

To list the pending configuration, use the list_config_pending CLI command.

To cancel the pending configuration, use the undo_config_pending CLI command.

5.2 Activating the Configuration

The pending configuration must be activated for the configuration to take effect.

Instructions

1. Activate the pending configuration by using the activate_config_pending CLI command.

5.3 Checkpointing the SC

To store the Software Configuration (SC) persistently in the SGSN-MME, a checkpoint must be performed.

Instructions

1. Checkpoint the SC, by using the checkpoint CLI command.

Reference List

Network License Server (NeLS) CPI Library References

[1] Activation of NeLS Client Licenses
USER GUIDE, 6/1553-AVA 901 45/1