

# MTAS Carrier Select and Carrier Pre-Select Management Guide

MTAS

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USER GUIDE

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# 1 Introduction

This document describes the carrier selection-related services in the MTAS and how to configure these services.

## 1.1 Prerequisites

It is assumed that the user of this document is familiar with the Operation and Maintenance (O&M) area, in general.

### 1.1.1 Licenses

To enable the CS, CSRn, CPS, and CPSRn services, the MMTel AS Voice Base license must be installed.

For more information about the MMTel AS Voice Base license, refer to *MTAS Licenses*.

### 1.1.2 Documents

Before starting this procedure, ensure that the following documents are available:

- *Ericsson Command-Line Interface User Guide*
- *Managed Object Model (MOM)*

### 1.1.3 Conditions

The following conditions must apply:

- An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.
- The CS and CPS services have other Common Component configuration data that must be configured. For more information about this configuration, refer to *Managed Object Model (MOM)*.





## 2 Overview

For carrier selection-related services, the MTAS offers the following:

- Carrier Select (CS) and Carrier Pre-Select (CPS) services

or

- Carrier Select Rn (CSRn) and Carrier Pre-Select Rn (CPSRn) services

The CS and CPS services are not compatible with the CSRn and CPSRn services and therefore cannot be enabled both on the same node. The CS service solution is based on the Carrier Identity Code (CIC) and Dial Around Indicator (DAI) parameters, while the CSRn service solution is based on the Rn parameter.

The CS services allow an end user to choose which carrier to use for a particular call by dialing a Carrier Code prefix. The CPS services give the end-user preselected Carriers.

The CS service overrides the CPS service. The CS and CPS services are collocated with other simulation services in the MTAS, for example, the Communication Diversion (CDIV), Communication Barring, and Ad-hoc conference.

This section covers the following topics:

- The carrier selection-related services described in separate sections
- Subfunctions
- The relationship between the services and other simulated services

For more information about the Carrier Select and Number Analysis Common Component Managed Objects (MOs), refer to *Managed Object Model (MOM)*.

### 2.1 Carrier Select

The CS service allows an end user to choose which carrier to use for a particular call. The CS service overrides the CPS service. The CS function is responsible for validating Carrier Identification Codes that appear in a CIC parameter of the Request URI. The CS function is not directly responsible for analyzing dialed string Carrier Select Codes (CSCs), but depends on the function in the Common Component to do this. The function analyzes the dialed digits for CSCs and translates them into a CIC parameter on the Request URI. The CIC parameter is accompanied by a DAI parameter, which is added at the same time as the CIC.



The CS service includes the following main functions:

- Checking that a user is allowed to use a Carrier identified either from a dialed CSC prefixed to the dialed B-Number; or a CIC parameter added directly to the Request URI.
- Checking the Carrier type and take the appropriate action.

The MTAS checks that the destination number is allowed to receive calls using a carrier other than the default carrier. If the destination number is not allowed to receive calls, the MTAS takes one of the following three actions depending on the destination number:

- Rejecting the call without announcement
- Rejecting the call with announcement
- Continuing with default carrier routing

The MTAS checks if the call type is local and takes one of the following four actions depending on network operator policy:

- Releasing the call without announcement
- Releasing the call with announcement
- Continuing with default carrier routing
- Continuing with the chosen carrier

The operator can specify local areas by setting Common Component configuration data. For more information, refer to *Managed Object Model (MOM)*.

The MTAS also checks the type of carrier. If the carrier type is virtual, the call is routed using the default carrier.

## **2.1.1 Subfunctions**

This section describes the subfunctions included in the CS service.

### **2.1.1.1 Carrier Select**

This subfunction provides the CS service, which allows an end user to choose which carrier to be used for a particular call.

### **2.1.1.2 Check Local**

This subfunction determines whether a call type is local, non-local, or indeterminate. This is used by all carrier selection-related services. The check-local subfunction is a generic function, designed to be used by other





MTAS services, such as the CPS service and Outgoing Communication Barring (OCB) service.

#### **2.1.1.3 Configure Service**

This subfunction allows the CS service to be configured on the node level. For service configuration, see Section 3.4.1 Operator Subscription Level Service Configuration on page 17.

#### **2.1.1.4 Destination Validation**

This subfunction checks if calls to the destination address are allowed to be carried by another carrier than the default one.

#### **2.1.1.5 Manage Carrier Select**

This subfunction allows the carrier selection-related services to be managed through the XML Document Management Server (XDMS), which provides the CAI3G interface to the operator. The XDMS uses the Sh (Diameter) interface to update the HSS.

For more information about the CAI3G protocol, refer to *MTAS CAI3G Interface*.

### **2.1.2 Carrier Select Interaction with Other Services**

This section describes the CS interaction with other services.

#### **2.1.2.1 Abbreviated Dialing**

If the target address indicated by the Abbreviated Dialing service contains a phone number, the `INVITE` to the target is subject to the same carrier selection logic as if the served user originated the call to the target.

For more information about the Abbreviated Dialing service, refer to *MTAS Abbreviated Dialing Management Guide*.

#### **2.1.2.2 Carrier Pre-Select**

If the end user starts the CS service on a normal call, the CPS service is started only to update the content of the DAI parameter. The CIC parameter is not modified by the CPS service for a CS call.

If the end user starts the CS service on an operator call, the CPS service removes the CIC and dial parameters and treats the call as an operator call, see Section 2.3.1.1 Carrier Pre-Select on page 9.



### **2.1.2.3 Carrier Select Rn and Carrier Pre-Select Rn**

The CS cannot be unlocked if CSRn or CPSRn are unlocked. Similarly, the CSRn and the CPSRn cannot be unlocked if the CS is unlocked.

### **2.1.2.4 Communication Diversion**

If the target address of a diversion contains a CSC, the `INVITE` to the target is subject to the same CS logic as if the served user originated the call to the target. This also applies to SIP 302 redirect messages.

For more information about the Communication Diversion service, refer to *MTAS Communication Diversion Management Guide*.

### **2.1.2.5 Conference**

For the conference service, the carrier selection-related services apply to each initiated dial out leg.

For more information about the conference service, refer to *MTAS Ad-hoc Conference Management Guide*.

### **2.1.2.6 Flexible Communication Distribution**

The Flexible Communication Distribution (FCD) service allows the Related User identity to include a Carrier Select (CS) code.

For more information about the FCD service, refer to *MTAS Flexible Communication Distribution Management Guide*.

### **2.1.2.7 Identity Presentation**

The MTAS starts the Dynamic Identity Presentation service before the carrier selection-related services on an originating call.

The MTAS starts Dynamic Identity Presentation before the carrier selection-related services on a diverting call, if the Dynamic Identity Presentation SSC is prefixed to the diverted-to party number.

For more information about the Identity Presentation service, refer to *MTAS Identity Presentation Management Guide*.

### **2.1.2.8 Supplementary Service Codes**

For the Supplementary Service Codes (SSCs) that affect an individual call, for example, Activate Dynamic Ad-hoc Identification Presentation, if the initial `INVITE` contains a CSC, the SSC service provided by this MTAS is provided to this call as normal. When an SSC and CSC are dialed by the user, the following order must be used; SSC, CSC, and B-Number.



For SSCs that change the end-user subscriber data, for example, Enable Call Forward Unconditional (CFU), no call is established across the network and a CSC can appear in the Request URI as a prefix to a B-Number to be stored or retrieved. The SSC service removes an embedded SSC and uses the Dialed String Analysis function to remove any CSC and normalize the B-Number for validation purposes. In cases where analysis of the called number results in a Carrier Id, the corresponding Carrier Id is validated. Validated B-Numbers are stored in the original dialed format, with any embedded call-related SSC or CSC, or both, still present. Any embedded SSC or CSC is analyzed again when the stored target is retrieved again.

For more information about the SSC service, refer to *MTAS Supplementary Service Codes Management Guide*.

## 2.2 Carrier Select Rn

The CSRn service allows an end user to choose which carrier to select for a particular call. CSRn overrides CPSRn.

The CSRn service includes the following main functions:

- Check that a user is allowed to use a carrier identified from a dialed CSC prefixed to the dialed number.
- Take the appropriate action, which includes the addition of the rn parameter.

When the CSRn service is enabled, call-by-call block (also known as call-by-call lock) prevents a subscriber from using call-by-call CSRn. In this case, a subscriber has not been provisioned with the CSRn function, which is realized in the MTAS.

### 2.2.1 Subfunctions

This section describes the subfunctions included in the CSRn service.

#### 2.2.1.1 Carrier Select Rn

This subfunction provides the CSRn service, which allows an end user to choose which carrier to be used for a particular call.

#### 2.2.1.2 Configure Service

This subfunction allows the CSRn service to be configured on the node level. For service configuration, see Section 4.4.1 Operator Subscription Level Service Configuration on page 23.



### **2.2.1.3 Destination Validation**

See Section 2.1.1.4 Destination Validation on page 5.

### **2.2.1.4 Manage Carrier Select Rn**

See Section 2.1.1.5 Manage Carrier Select on page 5.

## **2.2.2 Carrier Select Rn Interaction with Other Services**

This section describes the CSRn interaction with other services.

### **2.2.2.1 Abbreviated Dialing**

See Section 2.1.2.1 Abbreviated Dialing on page 5.

### **2.2.2.2 Carrier Pre-Select Rn**

The CSRn service has precedence over the CPSRn service except where the CPS test numbers are called, for example, if a user provisioned with both the CSRn and CPSRn starts call-by-call CS, the call is routed using the CSRn service.

### **2.2.2.3 Carrier Select and Carrier Pre-Select**

The CSRn cannot be unlocked if the CS or CPS is unlocked. Similarly, the CS and the CPS cannot be unlocked if the CSRn is unlocked.

### **2.2.2.4 Communication Diversion**

See Section 2.1.2.4 Communication Diversion on page 6.

### **2.2.2.5 Conference**

See Section 2.1.2.5 Conference on page 6.

### **2.2.2.6 Flexible Communication Distribution**

See Section 2.1.2.6 Flexible Communication Distribution on page 6.

### **2.2.2.7 Identity Presentation**

See Section 2.1.2.7 Identity Presentation on page 6.



### **2.2.2.8 Outgoing Communication Barring**

The original domain name in the incoming request is only overwritten with the domain name of the carrier, after OCB interaction has been done.

### **2.2.2.9 Supplementary Service Codes**

See Section 2.1.2.8 Supplementary Service Codes on page 6.

## **2.3 Carrier Pre-Select**

The CPS service allows calls from each served user to be handled by a carrier other than the default carrier, depending on the call type. The operator can also specify local areas, by setting Common Component configuration data. For more information, refer to *Managed Object Model (MOM)*.

The operator can specify which sets of contiguous phone numbers constitute each non-local call type by setting configuration data.

### **2.3.1 Subfunctions**

This section describes the subfunctions included in the CPS service.

#### **2.3.1.1 Carrier Pre-Select**

This subfunction provides the CPS service, which allows the operator to choose, for each end user, which carrier is used for all calls made to groups of phone numbers.

The subfunction provides special treatment of two numbers, defined in MO attributes `mtasCpsLocalOperatorCall` number and `mtasCpsCarrierOperatorCallNumber`. If the called number matches `mtasCpsLocalOperatorCallNumber`, the CPS service finds which carrier is pre-selected for the end user for calls of type `mtasCPSLocalOperatorCallCall` and adds the appropriate CIC and DAI parameters. If the called number matches `mtasCpsCarrierOperatorCallnumber`, the CPS service finds which carrier is pre-selected for the end user for calls of type `mtasCpsCarrierOperatorCallCall` and adds the appropriate CIC and DAI parameters.

#### **2.3.1.2 Check Local**

See Section 2.1.1.2 Check Local on page 4.



### **2.3.1.3 Configure Service**

This subfunction allows the CPS service to be configured on the node level. For service configuration, see Section 5.3 Configure Operator Calls on page 28.

### **2.3.1.4 Carrier Pre-Select Call Type**

This subfunction determines the type of call relevant for the CPS. It checks only for valid call types that have been provisioned in an end subscriber data of the user.

### **2.3.1.5 Manage Carrier Pre-Select**

See Section 2.1.1.5 Manage Carrier Select on page 5.

## **2.3.2 Carrier Pre-Select Interaction with Other Services**

This section describes the CPS interaction with other services.

### **2.3.2.1 Abbreviated Dialing**

See Section 2.1.2.1 Abbreviated Dialing on page 5.

### **2.3.2.2 Carrier Select**

If the end user starts the CS service on a normal call, the CPS service is started only to update the content of the DAI parameter. The CIC is not modified by the CPS service for a CS call.

If the end user starts the CS service on an operator call, the CPS service removes the CIC and dial parameters and treats the call as an operator call, seeSection 2.3.1.1 Carrier Pre-Select on page 9.

### **2.3.2.3 Carrier Select Rn and Carrier Pre-Select Rn**

CPS cannot be unlocked if CSRn or CPSRn are unlocked. Similarly, the CSRn and the CPSRn cannot be unlocked if the CPS is unlocked.

### **2.3.2.4 Communication Diversion**

See Section 2.1.2.4 Communication Diversion on page 6.

### **2.3.2.5 Conference**

See Section 2.1.2.5 Conference on page 6.



### **2.3.2.6 Flexible Communication Distribution**

Initial `INVITE` requests sent by the FCD service to the non-IMS Primary User and Related Users are subject to the CPS service.

For more information about the FCD service, refer to *MTAS Flexible Communication Distribution Management Guide*.

See Section 2.1.2.6 Flexible Communication Distribution on page 6.

### **2.3.2.7 Identity Presentation**

See Section 2.1.2.7 Identity Presentation on page 6.

### **2.3.2.8 Supplementary Service Codes**

For the SSCs that change end-user subscriber data, for example, Enable CFU, and for SSCs that interrogate the values in end-user subscriber data, for example, Interrogate OCB, no call is established across the network resulting in no interaction with the CPS or CPSRn.

For the SSCs that affect an individual call, for example, Activate Dynamic Ad-hoc Identification Presentation, the SSC service provided by this MTAS is provided to this call as normal, even if the initial `INVITE` is subject to CPS or CPSRn.

For more information about the SSC service, refer to *MTAS Supplementary Service Codes Management Guide*.

## **2.4 Carrier Pre-Select Rn**

The CPSRn service allows calls from each served user to be handled by a carrier other than the default carrier, depending on whether the call is local or remote. Congestion control is applied to CPSRn communication on receipt of a congestion error message. This is known as Crank back.

### **2.4.1 Subfunctions**

This section describes the subfunctions included in the CPSRn service.

#### **2.4.1.1 Carrier Pre-Select Rn**

This subfunction provides the CPSRn service, which allows the operator to choose, for each end user, which carrier is used for all calls made to local and remote phone numbers.



#### **2.4.1.2 Check Local Rn**

This subfunction determines whether a call type is local or remote. It uses the Country Code (CC) and Area Code (AC) stored in the subscriber data to determine if the Called Party Numbers are local or remote.

If a match is found for the CC and AC in both the caller and Called Party Numbers, the call is considered local, otherwise it is considered remote.

#### **2.4.1.3 Configure Service**

This subfunction allows the CPSRn service to be configured on the node level. For service configuration, see Section 6.4 Service Data Configuration on page 32.

#### **2.4.1.4 Manage Carrier Pre-Select Rn**

See Section 2.1.1.5 Manage Carrier Select on page 5.

### **2.4.2 Carrier Pre-Select Rn Interaction with Other Services**

This section describes the CPSRn interaction with other services.

#### **2.4.2.1 Abbreviated Dialing**

See Section 2.1.2.1 Abbreviated Dialing on page 5.

#### **2.4.2.2 Carrier Select Rn**

The CSRn service has precedence over the CPSRn service except where the CPS test numbers are called, for example, if a user provisioned with both the CSRn and CPSRn starts call-by-call CS, the call is routed using the CSRn service.

#### **2.4.2.3 Carrier Select and Carrier Pre-Select**

The CPSRn cannot be unlocked if the CS or CPS is unlocked. Similarly, the CS and the CPS cannot be unlocked if the CPSRn is unlocked.

#### **2.4.2.4 Communication Diversion**

See Section 2.1.2.4 Communication Diversion on page 6.

#### **2.4.2.5 Conference**

See Section 2.1.2.5 Conference on page 6.





#### **2.4.2.6 Flexible Communication Distribution**

See Section 2.3.2.6 Flexible Communication Distribution on page 11.

#### **2.4.2.7 Identity Presentation**

See Section 2.1.2.7 Identity Presentation on page 6.

#### **2.4.2.8 Outgoing Communication Barring**

The original domain name in the incoming request is only overwritten with the domain name of the carrier, after OCB interaction has been done.

#### **2.4.2.9 Supplementary Service Codes**

See Section 2.3.2.8 Supplementary Service Codes on page 11.





## 3 Carrier Select Service Configuration

The Carrier Select service is controlled by the *MtasCs*, *NumberAnalysis*, and *CarrierSelect* Managed Object Classes (MOCs) and their children. The MO structure of the CS service is shown in Figure 1. For the *NumberAnalysis* and *CarrierSelect* MOs and their children are implemented in the Common Component, see Section 3.1 Carrier Select Common Component Data on page 15.

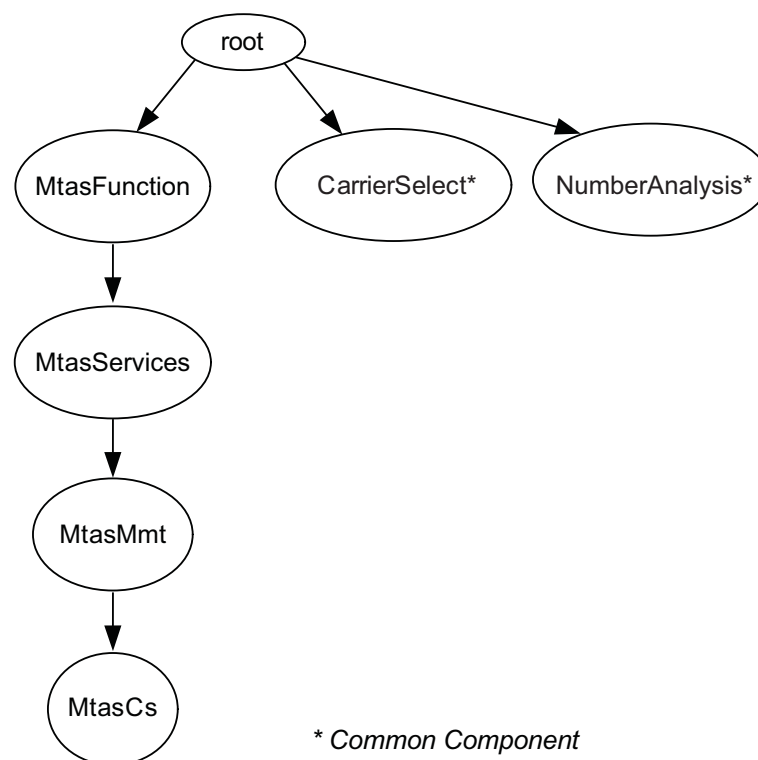


Figure 1 Carrier Select MO Structure

For information on configurable MOs and attributes related to the CS service, refer to *Managed Object Model (MOM)*.

### 3.1 Carrier Select Common Component Data

The following Common Component MOs and attributes must be configured for the CS service on the MTAS:

- `CarrierSelect`
- `CarSelDialedStringAnalysisTable`
- `CarSelCarrierSelectionCode`



- CarSelCarrierTable
- CarSelCarrierContext
- CarSelConfiguration
- CarSelIneligibleNumbers
- NumberAnalysis
- NumAnaLocalCallTable
- NumAnaCountryCallType
- NumAnaLata
- NumAnaNpa
- NumAnaNxx
- NumAnaRatingCenter
- NumAnaLocalCallType

For more information about the Common Component MOs and attributes, refer to *Managed Object Model (MOM)*.

## 3.2 Announcement Configuration

For announcement handling and CS announcement attributes, refer to *MTAS Announcement Management Guide*.

## 3.3 Carrier Select Administrative State Configuration

The CS service is enabled by setting the `mtasCsAdministrativeState` attribute in the `MtasCs` MO to 1 (Unlocked). If the `mtasCsAdministrativeState` is set to 0 (Locked), no CS service is provided by the MTAS.

**Note:** The CS service and the CS Rn/CPS Rn services are mutually exclusive. The `mtasCsAdministrativeState` attribute in the `MtasCs` MO which governs the CS service, cannot be set to 1 (Unlocked) if either the `mtasCsRnAdministrativeState` attribute in the `MtasCsRn` MO or the `mtasCpsRnAdministrativeState` attribute in `MtasCpsRn` MO is set to 1 (Unlocked).

## 3.4 Service Data Configuration

This section describes how to configure the service data.



### **3.4.1 Operator Subscription Level Service Configuration**

The operator can activate or deactivate the carrier selection-related services subscription for the subscriber by setting the user data using the CAI3G protocol. If a valid CS or CPS license is not available, an activation of the carrier selection-related services subscription is rejected.

For more information about the CAI3G protocol, refer to *MTAS CAI3G Interface*.

#### **3.4.1.1 Ut/CAI3G**

A CSC can be set as a prefix to a B-Number in any CDIV, Abbreviated Dialing, FCD, or Short Number Dialing target entered over the Ut/CAI3G interfaces. The MTAS checks that the B-Number can be normalized after the removal of the CSC. Targets that can be successfully normalized is stored in the original dialed format with the CSC still present. The CSC prefix is analyzed when the stored target is retrieved.

### **3.4.2 Subscriber Subscription Level Service Configuration**

There is no user subscription level service configuration for the CS service.





## 4 Carrier Select Rn Service Configuration

The CSRn service of the MTAS is controlled by the `MtasCsCpsRn` MO and its children. The MO structure of CSRn service is shown in Figure 2.

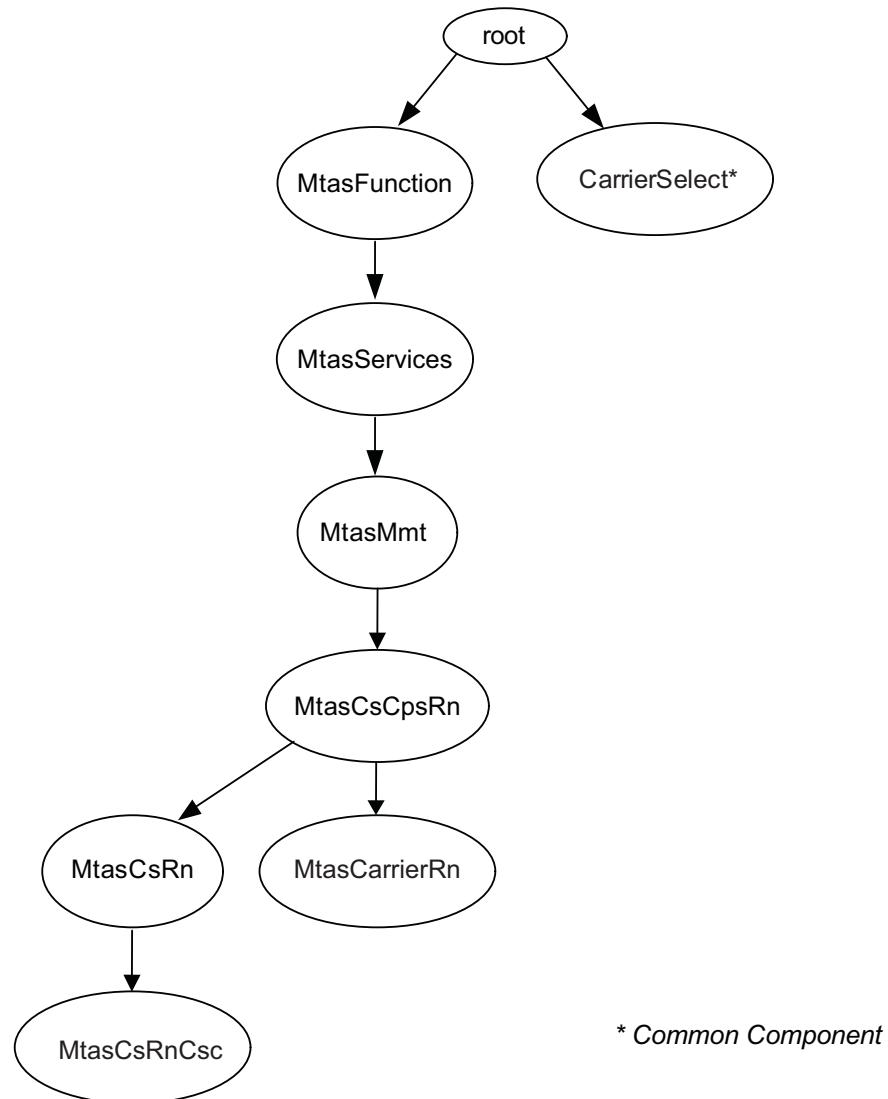


Figure 2 Carrier Select Rn MO Structure

For configurable MOs and attributes related to the CSRn service, refer to *Managed Object Model (MOM)*.

The CSRn service uses the Dialed String Analysis function in the Common Components.



## 4.1 Configure MtasCarrierRn

The `MtasCarrierRn` MO defines the carrier.

The carrier Id is the MO key to this object. It is specified when the object is created and cannot be modified. The `mtasCarrierRnDomain` is a mandatory attribute which must be added when the object is created.

### 4.1.1 Create MtasCarrierRn

To create an instance of the `MtasCarrierRn` MO:

1. Navigate to the **MtasCsCpsRn** MO.
2. Right-click **MtasCsCpsRn** and click **New** in the popup-menu.

The **Set Entry Object Classes** window is displayed.

3. If there are any classes present in the **Selected Classes** field, select them and click **Remove**.
4. In the **Available Classes** list, select **MtasCarrierRn** and click **Add**.
5. In the **RDN** field, type the following:

**MtasCarrierRn=n** (*n* is a string of three to eight digits specifying the selected carrier mapped onto the CSC, for example, the digits xyz in DBxyz).

6. Click **OK**.
7. In the **mtasCarrierRnDestDisallowed** field, enter any disallowed destination values. Up to 32 values can be entered.
8. In the **mtasCarrierRnDomain** field, enter the carrier domain.
9. Click **Submit**.

A new `MtasCarrierRn` MO is displayed in the CM browser.

### 4.1.2 Modify MtasCarrierRn

To modify an instance of the `MtasCarrierRn` MO:

1. Navigate to the **MtasCarrierRn** MO.
2. Select the instance of the **MtasCarrierRn** to be modified.

After navigating to **MtasCarrierRn**, the following fields are displayed:

- **mtasCarrierRnDomain**





- **mtasCarrierRnDestDisallowed**

3. In the **Table Editor** window, modify the attributes as required:

- To modify the **mtasCarrierRnDomain** attribute, select the contents of the field to be changed and type a new value into the field.
- To add an entry to **mtasCarrierRnDestDisallowed**, right-click the attribute name and select Add Another Value from the pop-up menu.

This results in another row in the **Table Editor**, labeled appropriately.

- To delete an entry from **mtasCarrierRnDestDisallowed**, right-click the attribute name and select Delete from the pop-up menu.

To delete an entry from **mtasCarrierRnDestDisallowed**, right-click the attribute name and select Delete from the pop-up menu.

- To modify an entry of the **mtasCarrierRnDestDisallowed** attribute, select the contents of the field to be changed and type a new value into the field.

4. Click **Submit**.

### 4.1.3 Delete MtasCarrierRn

To delete an instance of the **MtasCarrierRn** MO:

1. Navigate to the **MtasCarrierRn** MO.
2. Right-click the instance of the **MtasCarrierRn** to be deleted, and select **Delete** in the pop-up menu.

**Note:** An instance of the **MtasCarrierRn** cannot be deleted if it is referenced by an instance of **MtasCsRnCsc**.

## 4.2 Configure MtasCsRnCsc

The **MtasCsRnCsc** MO defines the CSC. The CSC (010abc) maps to the corresponding DBxyz, which is inserted in the rn number in front of the area code.

The CSC is the MO key to this object. It is specified when the object is created and cannot be modified. The **mtasCsRnCscCarrierId** is a mandatory attribute which must be added when the object is created.

### 4.2.1 Create MtasCsRnCsc

To create an instance of the **MtasCsRnCsc** MO:

1. Navigate to the **MtasCsRn** MO.



2. Right-click **MtasCsRn** and click **New** in the pop-up menu.

The **Set Entry Object Classes** window is displayed.

3. If there are any classes present in the **Selected Classes** field, select them and click **Remove**.
4. In the **Available Classes** list, select **MtasCsRnCsc** and click **Add**.
5. In the **RDN** field, type the following:  
**MtasCsRnCsc=n** (n is a string of one to eight digits which specifies the CSC used to select the carrier, for example, 010abc).
6. Click **OK**.
7. In the **mtasCsRnCscCarrierId** field, enter the carrier id of a configured carrier.
8. Click **Submit**.

A new **MtasCsRnCsc** is displayed in the CM browser.

## 4.2.2 Modify MtasCsRnCsc

To modify an instance of the **MtasCsRnCsc** MO:

1. Navigate to the **MtasCsRnCsc** MO.
2. Select the instance of the **MtasCsRnCsc** to be modified.

After navigating to **MtasCsRnCsc**, the following field is displayed:

- **mtasCsRnCscCarrierName**

3. In the **Table Editor** window, modify the attributes as required:
  - To modify the **mtasCsRnCscCarrierName** attribute, select the contents of the field to be changed and type a new value into the field.
4. Click **Submit**.

## 4.2.3 Delete MtasCsRnCsc

To delete an instance of the **MtasCsRnCsc** MO:

1. Navigate to the **MtasCsRnCsc** MO.
2. Right-click the instance of the **MtasCsRnCsc** to be deleted, and select **Delete** in the pop-up menu.



## 4.3 Carrier Select Rn Administrative State Configuration

The CSRn service is enabled by setting the `mtasCsRnAdministrativeState` attribute in the `MtasCsRn` MO to 1 (Unlocked). If the `mtasCsRnAdministrativeState` is set to 0 (Locked), no CSRn service is provided by the MTAS.

**Note:** The CSRn service and the CS/CPS services are mutually exclusive. The `mtasCsRnAdministrativeState` in the `MtasCsRn` MO which governs the CSRn service, cannot be set to 1 (Unlocked) if either the `mtasCsAdministrativeState` attribute in the `MtasCs` MO or the `mtasCpsAdministrativeState` attribute in the `MtasCps` MO is set to 1 (Unlocked).

## 4.4 Service Data Configuration

This section describes how to configure the service data.

### 4.4.1 Operator Subscription Level Service Configuration

As a prerequisite for activating Carrier Select Rn, the Country Code and Area Code of the subscriber must be set in the Common Data.

See also Section 3.4.1 Operator Subscription Level Service Configuration on page 17.

### 4.4.2 Subscriber Subscription Level Service Configuration

There is no user subscription level service configuration for the CSRn service.





## 5 Carrier Pre-Select Service Configuration

The CPS service of the MTAS is controlled by the `MtasCps`, `Number-Analysis`, and `CarrierSelect` MOCs and their children. The MO structure of CPS service is shown in Figure 3.

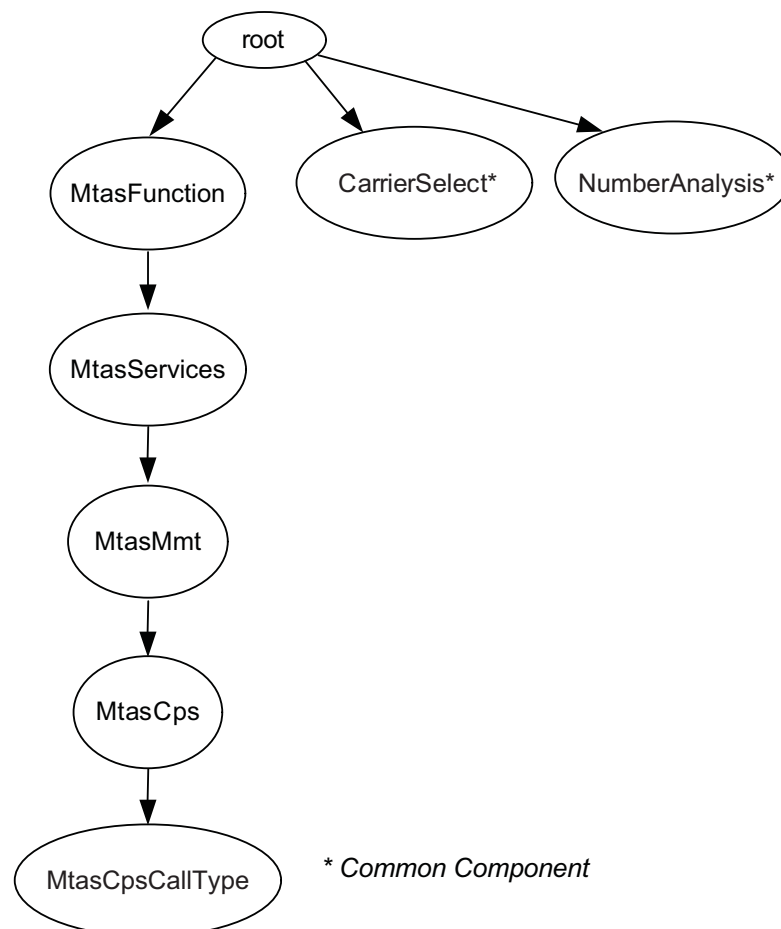


Figure 3 Carrier Pre-Select MOC Structure

The CPS service on the MTAS requires CS Common Component configuration Data to be set up, see Section 3.1 Carrier Select Common Component Data on page 15.

For configurable MOs and attributes, related to the CPS service, refer to *Managed Object Model (MOM)*.



## 5.1 Configure MtasCpsCallType

The MTAS Carrier Pre-Select service `MtasCpsCallType` MO defines the instance of the type of call. The `mtasCpsCallTypeName` attribute defines the name of the type of call.

### 5.1.1 Create MtasCpsCallType

To create an `MtasCpsCallType` MO:

1. Navigate to the **MtasCpsCallType** MO, see Figure 3 for where it is placed in the MO hierarchy.
2. Right-click the **MtasCps** and click **New** in the popup-menu.

The **Set Entry Object Classes** window is displayed.

3. If there are any classes present in the **Selected Classes** field, select them and click **Remove**.
4. If the available Classes list, select **MtasCpsCalltype** and Click **Add**.
5. In the RDN field, type the following: **MtasCpsCallType** =n (n is a number in the range 0–15).
6. Click **OK**.

A new **MtasCpsCallType** MO is displayed in the CM browser.

7. In the **Table Editor** window, set the attribute `mtasCpsCallTypeName` to a meaningful name for the call type.

**Note:** Each call type `mtasCpsCallType` must have a unique name.

8. In the **Table Editor** window, set the attribute `mtasCpsCallTypeMatchNumbers` to a list of strings. Each entry in the list of strings is shown by separate row in the **Table Editor** window. To add an entry to the list, right-click the attribute name and select Add another Value from the pop-up menu. This results in another row in the **Table Editor**, labeled `mtasCpsCallTypeMatchNumbers`. Each string is the leftmost part of a set of telephone numbers that are to be included in this call type. For example, **+449** would match premium service numbers in the UK and **150** would match operator inquiring numbers.
9. In the **Table Editor** window; set the attribute `mtasCpsCalltypeExempt numbers` to a list of strings.

Each entry in the list of strings is shown by a separate row in the **Table Editor** window. To add an entry to the list, right-click the attribute name and select Add Another Value from the pop-up menu. This results in another row in the **Table Editor**, labeled `mtasCpsCalltypeExempt numbers`. Each string is the leftmost part of a set of telephone



numbers that are to be excluded from this call type. Each string in `mtasCpsCallTypeExemptNumbers` begins with one of the strings in this instance of `mtasCpsCallType`.

10. Click **Submit**.

### 5.1.2 Modify MtasCpsCallType

To modify an `MtasCpsCallType` MO:

1. Navigate to the **MtasCpsCallType** MO.
2. Select the instance of the **MtasCpsCallType** to be modified.
3. In the **Table Editor** window, modify the attributes as required:
  - To modify the `mtasCpsCallTypeName` attribute, select the contents of the field to be changed and type a new value into the field.
  - To add an entry to `mtasCpsCallTypeMatchNumbers` or `mtasCpsCallTypeExemptNumbers`, right-click the attribute name and select **Add another Value** from the pop-up menu. This results in another row in the **Table Editor**, labeled appropriately. To delete an entry from `mtasCpsCallTypeMatchNumbers` or `mtasCpsCallTypeExemptNumbers`, right-click the attribute name and select **Delete** from the pop-up menu. This results in the selected row being removed from the **Table Editor** window.
4. Click **Submit**.

### 5.1.3 Delete MtasCpsCallType

To delete an `MtasCpsCallType` MO:

1. Navigate to the **MtasCpsCallType** MO.
2. Right-click on the instance of the **MtasCpsCallType** to be deleted, and select **Delete** in the pop-up menu.

## 5.2 Carrier Pre-Select Administrative State Configuration

The CPS service is enabled by setting the `mtasCpsAdministrativeState` attribute in the `MtasCps` MO to 1 (Unlocked). If the `mtasCpsAdministrativeState` is set to 0 (Locked), no CPS service is provided by the MTAS.

**Note:** The CPS service and the CS Rn/CPS Rn services are mutually exclusive. The `mtasCpsAdministrativeState` in the `MtasCps` MO which governs the CPS service cannot be set to 1 (Unlocked) if either the `mtasCsRnAdministrativeState` attribute in `MtasCsRn` MO or the `mtasCpsRnAdministrativeState` attribute in `MtasCpsRn` MO is set to 1 (Unlocked).



## 5.3 Configure Operator Calls

This section describes how to configure MTAS so that local operator calls and carrier operator calls are routed correctly. The `mtasCpsLocalOperatorCallNumber` and `mtasCpsLocalOperatorCallCallType` attributes define the treatment of local operator calls, and the attributes `mtasCpsCarrierOperatorCallNumber` and `mtasCpsCarrierOperatorCallCallType` define. The treatment of carrier operator calls.

This section describes how to configure the service data.

### 5.3.1 Modify Local Operator Call Number

### 5.3.2 Modify Local Operator Call Type

To modify the call type to be used to determine the carrier for a local operator call:

1. Navigate to the **MtasCps** MO.
2. IN the **Table Editor** window, modify the `MTasCpsLocal operator CallcallType` by selecting the contents of the field and typing the new value. The new value entered must be one of the instances of `mtasCpsCallTypeName`, "Local", "Non Local", "IntraLata", "IntraLataToll", "InterLata", "NanpZone1", and "NanpInternational". The new value cannot be the empty string unless `mtasCpsLocalOperatorCallNumbers` is empty.
3. Click Submit.

### 5.3.3 Modify Carrier Operator Call Number

To modify the number to be dialed to access the carrier operator:

1. Navigate to the **MtasCps** MO.
2. In the table Editor window, modify the `mtasCpsCarrierOperatorCallNumber` by selecting the contents of the field and typing the new value.
3. Click submit.

### 5.3.4 Modify Carrier Operator Call Type

To modify the call type to be used to determine the carrier for a carrier operator call, perform the carrier for a carrier operator call:

1. Navigate to the **MtasCps** MO.
2. In the **Table Editor** Window, modify the `mtasCpsCarrier OperatorCallCallType` by selecting the contents of the field and





typing the new value. The new value entered must be one of the empty strings, the value of an instance of `mtasCPSCallTypeName`, "Local", "Non Local", "IntraLata", "Intralata Tell", "Interlata", "NanpZone1", and "NanpInternational". The new value cannot be the empty string unless `mtasCpsCarrierOperatorCallNumber` is Empty.

3. Click Submit.

## 5.4 Service Data Configuration

This section describes how to configure the service data.

### 5.4.1 Operator Subscription Level Service Configuration

See Section 3.4.1 Operator Subscription Level Service Configuration on page 17.

### 5.4.2 Subscriber Subscription Level Service Configuration

There is no user subscription level service configuration for the CPS service.





## 6 Carrier Pre-Select Rn Service Configuration

The MO structure of the CPSRn service is shown in Figure 4.

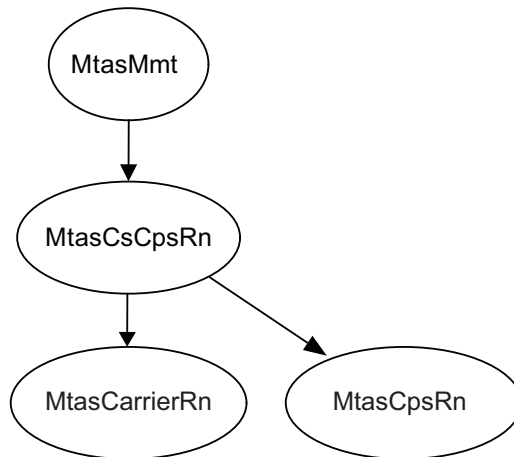


Figure 4 Carrier Pre-Select Rn MOC Structure

For configurable MOs and attributes, related to the CPSRn service, refer to *Managed Object Model (MOM)*.

### 6.1 Configure MtasCarrierRn

The `MtasCarrierRn` configuration is described in Section 4.1 Configure `MtasCarrierRn` on page 20.

### 6.2 Configure MtasCpsRn

The `MtasCpsRn` MO defines the attributes of the CPSRn service. The `mtasCpsRnTestNumLocal` and `mtasCpsRnTestNumRemote` attributes define the test numbers.

#### 6.2.1 Modify MtasCpsRn MO

To modify the `MtasCpsRn` MO:

1. Navigate to the **MtasCpsRn** MO.
2. In the **Table Editor** window, modify the attributes as required:
  - To add an entry to **mtasCpsRnTestNumLocal** or **mtasCpsRnTestNumRemote**, right-click the attribute name and select **Add Another Value** from the pop-up menu.



This results in another row in the **Table Editor**, labeled appropriately.

- To delete an entry from the **mtasCpsRnTestNumLocal** or **mtasCpsRnTestNumRemote**, right-click the attribute name and select **Delete** from the pop-up menu.
- To modify an attribute, select the contents of the field to be changed and type a new value into the field.

3. Click **Submit**.

## 6.3 Carrier Pre-Select Rn Administrative State Configuration

The CPSRn service is enabled by setting the `mtasCpsRnAdministrativeState` attribute in the `MtasCpsRn` MO to 1 (Unlocked). If the `mtasCpsRnAdministrativeState` is set to 0 (Locked), no CPSRn service is provided by MTAS.

**Note:** The CPSRn service and the CS/CPS services are mutually exclusive. The `mtasCpsRnAdministrativeState` in the `MtasCpsRn` MO which governs the CPSRn service, cannot be set to 1 (Unlocked) if either the `mtasCsAdministrativeState` attribute in the `MtasCs` MO or the `mtasCpsAdministrativeState` attribute in the `MtasCps` MO is set to 1 (Unlocked).

## 6.4 Service Data Configuration

This section describes how to configure the service data.

### 6.4.1 Operator Subscription Level Service Configuration

As a prerequisite for activating Carrier Pre-Select Rn, the Country Code and Area Code of the subscriber must be set in the Common Data.

See also Section 3.4.1 Operator Subscription Level Service Configuration on page 17.

### 6.4.2 Subscriber Subscription Level Service Configuration

There is no user subscription level service configuration for the CPSRn service.



## 7 Performance Management

For measurements, related to the carrier selection-related services, refer to *Managed Object Model (MOM)*.





## 8 Fault Management

For alarms related to the carrier selection-related services, refer to *MTAS Alarm List*.