

# MTAS Flexible Service Format Selection Management Guide

MTAS

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USER GUIDE

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# 1 Introduction

This document describes how to configure the Flexible Service Format Selection (FSFS) service in the MTAS.

## 1.1 Prerequisites

It is assumed that the user of this document is familiar with the O&M area, in general.

### 1.1.1 Licenses

To enable the FSFS service, the Service Exposure license must be installed.

For more information about the Service Exposure license, refer to *MTAS Licenses*.

### 1.1.2 Documents

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

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

### 1.1.3 Conditions

The following condition must apply:

An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.





## 2 Overview

The FSFS service makes it possible for S-CSCF or other application servers in front of MTAS in the IMS Centralized Services (ISC) chain to influence the set of services to be executed in MTAS for a specific session.

The FSFS service suppresses some of the existing MTAS services in a dynamic way by checking parameters in the incoming INVITE for each new session to decide which service is not needed in MTAS for the session. An example of use is a third-party application server implementing a “wakeup call service” which then sets a specific feature tag to identify that the call is a wakeup call. The terminating MTAS would then recognize the feature tag and omit Incoming Communication Barring (ICB) and Communication Diversion (CDIV) services for this particular call. Otherwise, it would not make any sense to bar or forward a wakeup call to voicemail.

Another example is when terminating S-CSCF provides an indicator that the incoming communication is an “E911 Callback”. The “E911 Callback” bypasses some particular services that can prevent the authority to call back the emergency caller. The terminating MTAS would then recognize the feature and would suppress the configured services or subfunctions.

### 2.1 Subfunctions

The subfunctions included in the FSFS service are described in this section.

#### 2.1.1 Configured MTAS Services Suppression

The subfunction suppresses the configured services other than FSFS following the evaluation of the communication session, see Section 2.1.2 Communication Session Evaluation on page 3. The subfunction, for charging report, also sends the list of the services to be suppressed and the matched header-parameter of INVITE that triggers the services suppression.

#### 2.1.2 Communication Session Evaluation

The evaluation of a communication session can be done on an outgoing or an incoming communication attempt, see Section 2.1.3 Outgoing Communication Attempt Evaluation on page 4 and Section 2.1.4 Incoming Communication Attempt Evaluation on page 4 respectively. Following the successful evaluation of the communication session, FSFS fetches the list of the configured services to be suppressed during the communication session, see Section 2.1.5 List Fetch of Configured Services on page 4.



### **2.1.3 Outgoing Communication Attempt Evaluation**

The subfunction evaluates the outgoing communication attempt and checks if the originating INVITE matches the configured regular expression of FSFS.

### **2.1.4 Incoming Communication Attempt Evaluation**

The subfunction evaluates the incoming communication attempt and checks if the terminating INVITE matches the configured regular expression of FSFS.

### **2.1.5 List Fetch of Configured Services**

The subfunction fetches the list of the configured services to be suppressed during the communication session. The FSFS conveys this information to the suppressed services.

### **2.1.6 Configuring Service (Node Level)**

The subfunction includes configuration management, performance management, and fault management needed for the FSFS service.

## **2.2 List of Configurable Services**

The FSFS service can only suppress the configured services, and only some services are configurable. The configurable services are the following:

- Communication Barring (CB)
- Communication Diversion (CDIV)
- Flexible Communication Distribution (FCD)
- Customized Alerting Tones (CAT)
- Call Admission Control (CAC)
- Session Transfer to Own Device (STOD)
- Explicit Communication Transfer (ECT)
- 3PTY (Three-party)

### **2.2.1 Communication Barring**

The CB service can be configured to support the FSFS service by configuring the `MtasFsfsServiceFormat.mtasFsfsServiceFormatSuppressedServices` attribute.





When the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute value contains **cb**, all subfunctions of the CB service are suppressed.

The subfunctions of terminating CB can be configured separately by inserting the name of the subfunction into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute, as follows:

- Insert **IcbGBL** to configure only the Global Incoming Communication Barring blacklist subfunction.
- Insert **Acr** to configure only the Anonymous Communication Rejection subfunction.
- Insert **Icb** to configure only the Incoming Communication Barring subfunction.
- Insert **Dndcb** to configure only the Do Not Disturb Communication Barring subfunction.

For more details about the CB service, refer to *MTAS Barring and Dial Plan Services Management Guide*.

## 2.2.2 Communication Diversion

The CDIV service can be configured to support the FSFS service by configuring the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute. Each type of CDIV service can be configured separately to be suppressed by the FSFS service. The FSFS service can also be configured to suppress the Communication Diversion service based on its target. Therefore, the FSFS service can be configured whether to suppress the Communication Diversion service that has the voicemail target only, or to suppress the Communication Diversion service that has the regular (non-voicemail) target only, or to suppress the communication diversions service that has any target.

When the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute value contains **cdiv**, all types of the CDIV service are suppressed.

The subfunctions of the CDIV service can be configured separately by inserting the name of the subfunction into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute, as follows:

- For **cfu**, the Communication Forwarding Unconditional (CFU) service with any target is suppressed, according to the following:
  - For **cfuVm**, the FSFS service suppresses the CFU service only if it has voicemail target.
  - For **cfuNonVm**, the FSFS service suppresses the CFU service only if it has regular (non-voicemail) target.



- For **cfb**, the Communication Forwarding on Busy (CFB) service with any target is suppressed, according to the following:
  - For **cfbvm**, the FSFS service suppresses the CFB service only if it has voicemail target.
  - For **cfbNonvm**, the FSFS service suppresses the CFB service only if it has regular (non-voicemail) target.
- For **cfnr**, the Communication Forwarding No Reply (CFNR) service with any target is suppressed, according to the following:
  - For **cfnrvm**, the FSFS service suppresses the CFNR service only if it has voicemail target.
  - For **cfnrNonvm**, the FSFS service suppresses the CFNR service only if it has regular (non-voicemail) target.
- For **cfnrc**, the Communication Forwarding Not Reachable (CFNRc) service with any target is suppressed, according to the following:
  - For **cfnrcvm**, the FSFS service suppresses the CFNRc service only if it has voicemail target.
  - For **cfnrcNonvm**, the FSFS service suppresses the CFNRc service only if it has regular (non-voicemail) target.
- For **cfnl**, the Communication Forwarding Not Logged in (CFNL) service with any target is suppressed, according to the following:
  - For **cfnlvm**, the FSFS service suppresses the CFNL service only if it has voicemail target.
  - For **cfnlNonvm**, the FSFS service suppresses the CFNL service only if it has regular (non-voicemail) target.
- For **dndcf**, the Do-Not-Disturb Communication Forwarding (DNDCF) service with any target is suppressed, according to the following:
  - For **dndcfvm**, the FSFS service suppresses the DNDCF service only if it has voicemail target.
  - For **dndcfNonvm**, the FSFS service suppresses the DNDCF service only if it has regular (non-voicemail) target.

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

### 2.2.3 Flexible Communication Distribution

The FCD service can be configured to support the FSFS service by inserting **Fcd** into the value of the `MtasFsfsServiceFormat.mtasFsfsServiceFormatSuppressedServices` attribute.



The Flexible Communication Distribution Divert Primary (FCDDP) service can be configured to support the FSFS service by inserting `fcddp` into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

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

## 2.2.4 Customized Alerting Tones

The CAT service can be configured to support the FSFS service by inserting `cat` into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

For more details about the CAT service, refer to *MTAS Customized Alerting Tones Management Guide*.

## 2.2.5 Call Admission Control

The CAC service can be configured to support the FSFS service by configuring the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

When the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute value contains `cac`, all types of the CAC services are suppressed.

The User CAC service can be configured separately to support the FSFS service by inserting `uCac` into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

The Group CAC service can be configured separately to support the FSFS service by inserting `gCac` into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

For more details about the CAC service, refer to *MTAS Call Admission Control Management Guide*.

## 2.2.6 Session Transfer to Own Device

The STOD service can be configured to support the FSFS service by inserting `stod` into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

For more details about the STOD service, refer to *MTAS Session Transfer to Own Device Management Guide*.



### 2.2.7 Explicit Communication Transfer

The ECT service can be configured to support the FSFS service by inserting **Ect** into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

For more details about the ECT service, refer to *MTAS Explicit Communication Transfer Management Guide*.

### 2.2.8 3PTY

The 3PTY service can be configured to support the FSFS service by inserting **ThreePty** into the value of the `MtasFsfServiceFormat.mtasFsfServiceFormatSuppressedServices` attribute.

For more details about the 3PTY service, refer to *MTAS Three Party Management Guide*.

## 2.3 Interaction with Other Services

This section describes the FSFS service interaction with other services.

### 2.3.1 Charging

The Charging service is started after the FSFS service. When the FSFS service determines to suppress the configured services, it conveys the information of the list of services to be suppressed, and the information of matched header-parameter pair of the received SIP INVITE that triggers the service suppression, to the Charging service. The Charging service then uses that information and reports it to the charging system.

The following service-specific AVPs are applicable to the FSFS service Charging:

- **Supplementary-Service-Information**  
Indicating the use of the FSFS service.
- **Service-Suppression-Info**  
Conveying grouped of the FSFS-specific Diameter charging data.
- **Matched-Regular-Expression**  
Indicating the matched regular expression (header-parameter pair) that triggers the service suppression attempt.
- **Services-To-Suppress**



Conveying the list of abbreviated name of the services to be suppressed by the FSFS service.

For more details about the Charging service, refer to *Diameter Offline Charging in MTAS* and *Diameter Online Charging in MTAS*.





## 3 FSFS Configuration

The FSFS service is controlled by the *MtasFsf* Managed Object (MO). An overview of the FSFS MO structure is shown in Figure 1.

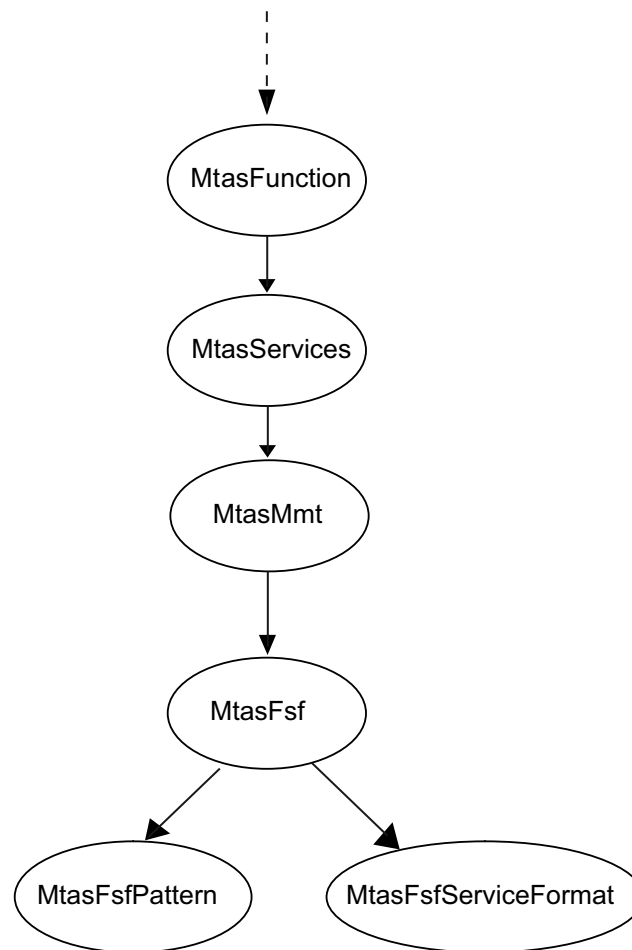


Figure 1 FSFS MO Structure

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

### 3.1 Configuration Activities

The configuration activities are listed in Table 1.

*Table 1 Additional Configuration Activities*

Activity	Attribute
Specifies the session case where the pattern is applied.	mtasFsfPatternSessionCase
Specifies the headers in the incoming INVITE message where the pattern is applied.	mtasFsfPatternHeaderNames
Specifies the regular expression that is used for matching one parameter in the incoming INVITE message. The session case and header names are specified by other attributes in the same object.	mtasFsfPatternRegularExpression
Indicates if the matched parameter is removed from the header in the INVITE message after the match or not.	mtasFsfPatternRemoveFlag
Specifies the algorithm being used by the FSFS service to evaluate the header that is displayed more than once in the SIP INVITE or to evaluate the header that has multiple values.	mtasFsfPatternMultipleHeadersHandling
Identifies the FSFS service format to be used when there is a match.	mtasFsfPatternServiceFormatName
This attribute specifies the list of suppressed services configured to support the FSFS service.	mtasFsfServiceFormatSuppressedServices
This attribute defines the list of URI addresses dedicated for voicemails servers.	mtasFsfVoiceMailAddress

## 3.2 FSFS Administrative State Configuration

The FSFS service is enabled by setting the `MtasFsf.mtasFsfAdministrativeState` attribute in the *MtasFsf* MO to 1 (Unlocked). If the `MtasFsf.mtasFsfAdministrativeState` is set to 0 (Locked), no FSFS service is provided by the MTAS.

## 3.3 Wholesale for Flexible Service Format Selection

The FSFS service supports Wholesale. FSFS is configurable on Virtual Telephony Provider level.





Wholesale for FSFS is activated when the following attributes are set to 1 (Unlocked):

- The `VtasFsf.vtasFsfAdministrativeState` attribute in the *VtasFsf* MO
- The `MtasFsf.mtasFsfAdministrativeState` attribute in the *MtasFsf* MO

For more information about the Wholesale service, refer to *MTAS Wholesale Support Management Guide*.

## 3.4 Service Configuration Examples

This section gives examples on how the FSFS service is to be configured to suppress selected services following the receipt of SIP INVITE that contains specific header and its particular associated parameter.

### 3.4.1 Suppression of CB, CDIV, and FCD Services in Terminating Registered Session

All subfunctions of CB, all types of CDIV service, and FCD service in the terminating registered MTAS are suppressed if any of the P-Asserted-Identity (PAI) headers in the received SIP INVITE contains an `authority` parameter, see Example 1.

```
INVITE ServedUserURI@example.com
P-Asserted-Identity: sip:authority@gov.example.com
P-Asserted-Identity: tel:+36305551234; authority
```

#### *Example 1 Authority*

The `authority` parameter is removed in the outgoing SIP INVITE.

The FSFS service configurations for Example 1 are listed in Table 2.

*Table 2 Service Configurations*

Managed Object Class	Attributes
MtasFsf = 0	mtasFsfAdministrativeState:1



Managed Object Class	Attributes
MtasFsfPattern = 2	mtasFsfPatternSessionCase: 1
	mtasFsfPatternHeaderNames: P-Asserted-Identity
	mtasFsfPatternRegularExpression: authority
	mtasFsfPatternRemoveFlag: 1
	mtasFsfPatternMultipleHeadersHandling: 0
	mtasFsfPatternServiceFormatName: VIPTreatment
MtasFsfServiceFormat = VIPTreatment	mtasFsfServiceFormatSuppressedServices: CDiv
	mtasFsfServiceFormatSuppressedServices: Cb
	mtasFsfServiceFormatSuppressedServices: Fcd

### 3.4.2

#### Suppression of Services by Reason of Emergency Callback

Suppose that an operator identifies incoming communication as an emergency callback if the top-most *Route* header of the SIP INVITE contains a *emergencyCallbackTag* parameter, see Example 2.

```
INVITE ServedUserURI@example.com
Route: mtas.ims.example.com; lr; emergencyCallbackTag
Route: scscf.ims.example.com; lr
Route: pcscf.ims.example.com; lr
```

##### *Example 2 Emergency Callback*

Terminating MTAS for registered session following the receipt of an emergency callback suppresses the following services:

- Anonymous Communication Rejection (ACR)
- Incoming Communication Barring (ICB)
- Do Not Disturb Communication Barring (DNDCB)
- Communication Forwarding Unconditional (CFU)
- Communication Forwarding No Reply (CFNR)
- Communication Forwarding Not Reachable (CFNRc)



- Do Not Disturb Communication Forwarding (DNDCF)
- Flexible Communication Distribution (FCD)
- Call Admission Control (CAC)
- Customized Alerting Tones (CAT)

Terminating MTAS for unregistered session following the receipt of an emergency callback suppresses the following services:

- Communication Barring (CB)
- Communication Forwarding Unconditional (CFU)
- Communication Forwarding Not Logged in (CFNL)
- Do Not Disturb Communication Forwarding (DNDCF)
- Flexible Communication Distribution Divert Primary (FCDDP)
- Call Admission Control (CAC)
- Customized Alerting Tones (CAT)

The `emergencyCallbackTag` parameter is not removed in the outgoing SIP INVITE.

Table 3 shows how to configure the FSFS service, if we expect MTAS to suppress some selected services after receiving a SIP INVITE (as shown in Example 2) that contains a specific header and parameter.

*Table 3 Service Configurations*

Managed Object Class	Attributes
MtasFsf = 0	mtasFsfAdministrativeState:1
MtasFsfPattern = 0	mtasFsfPatternSessionCase:1
	mtasFsfPatternHeaderNames: Route
	mtasFsfPatternRegularExpression: emergencyCallbackTag
	mtasFsfPatternRemoveFlag: 0
	mtasFsfPatternMultipleHeadersHandling: 1
	mtasFsfPatternServiceFormatName: EmergencyReg



Managed Object Class	Attributes
MtasFsfPattern = 1	mtasFsfPatternSessionCase:2
	mtasFsfPatternHeaderNames: Route
	mtasFsfPatternRegularExpression: emergencyCallbackTag
	mtasFsfPatternRemoveFlag: 0
	mtasFsfPatternMultipleHeadersHandling: 1
	mtasFsfPatternServiceFormatName: EmergencyUnreg
MtasFsfServiceFormat = EmergencyReg	mtasFsfServiceFormatSuppressedServices: Acr
	mtasFsfServiceFormatSuppressedServices: Icb
	mtasFsfServiceFormatSuppressedServices: Dndcb
	mtasFsfServiceFormatSuppressedServices: Cfu
	mtasFsfServiceFormatSuppressedServices: Cfnr
	mtasFsfServiceFormatSuppressedServices: Cfnrc
	mtasFsfServiceFormatSuppressedServices: Dndcf
	mtasFsfServiceFormatSuppressedServices: Fcd
	mtasFsfServiceFormatSuppressedServices: Cac
	mtasFsfServiceFormatSuppressedServices: Cat



Managed Object Class	Attributes
MtasFsfServiceFormat = EmergencyUnreg	mtasFsfServiceFormatSuppressedServices: Cb
	mtasFsfServiceFormatSuppressedServices: Cfu
	mtasFsfServiceFormatSuppressedServices: Cfnl
	mtasFsfServiceFormatSuppressedServices: Dndcf
	mtasFsfServiceFormatSuppressedServices: FcdDp
	mtasFsfServiceFormatSuppressedServices: Cac
	mtasFsfServiceFormatSuppressedServices: Cat





## 4 Performance Management

For measurements related to the FSFS service, refer to *Managed Object Model (MOM)*.







## 5 Fault Management

For alarms related to the FSFS service, refer to *MTAS Alarm List*.