

# M3UA Management

# Table of Contents

Using CLI .....	1
Using GUI .....	1
M3UA stack properties .....	2
Maximum Sequence Number .....	2
Maximum AS for route .....	3
Heart Beat time .....	4
View all M3UA Application Server Processes .....	5
Using CLI .....	5
Using GUI .....	6
Create a new M3UA Application Server Process .....	7
Using CLI .....	7
Using GUI .....	8
Delete an Application Server Process .....	9
Using CLI .....	9
Using GUI .....	9
Start an Application Server Process .....	10
Using CLI .....	10
Using GUI .....	10
Stop an Application Server Process .....	11
Using CLI .....	11
Using GUI .....	11
View all M3UA Application Servers .....	12
Using CLI .....	12
Using GUI .....	12
Create a new M3UA AS .....	13
Using CLI .....	13
Using GUI .....	16
Delete a M3UA AS .....	16
Using CLI .....	16
Using GUI .....	17
Assign an ASP to an AS .....	17
Using CLI .....	17
Using GUI .....	18
Unassign an ASP from an AS .....	19
Using CLI .....	19
Using GUI .....	20
View all M3UA Routes .....	20
Using CLI .....	21

Using GUI .....	21
Create a new M3UA Route .....	22
Using CLI .....	22
Using GUI .....	23
Delete a M3UA Route .....	24
Using CLI .....	24
Using GUI .....	24

# Using CLI

You can manage all M3UA Application Server, Application Server Process and Route related configurations through the Command Line Interface by using the `m3ua` command. You can create, destroy, start and stop ASPs by issuing the `m3ua asp` command with appropriate parameters. You can create, destroy, add and remove AS by issuing the `m3ua as` command with appropriate parameters. You can add and remove M3UA Routes by issuing the `m3ua route` command with appropriate parameters.

# Using GUI

The GUI will allow you to manage your M3UA configurations efficiently using a user-friendly interface. Open a Web Browser and navigate to <http://localhost:8080/jss7-management-console/>. Click on the 'M3UA' link in the left panel. The main panel will display the names of all configured M3UA Management units. To configure or view the settings of a particular M3UA Management Unit you must click on the name of that unit. The GUI will look similar to the figure below and is divided into four tabs.

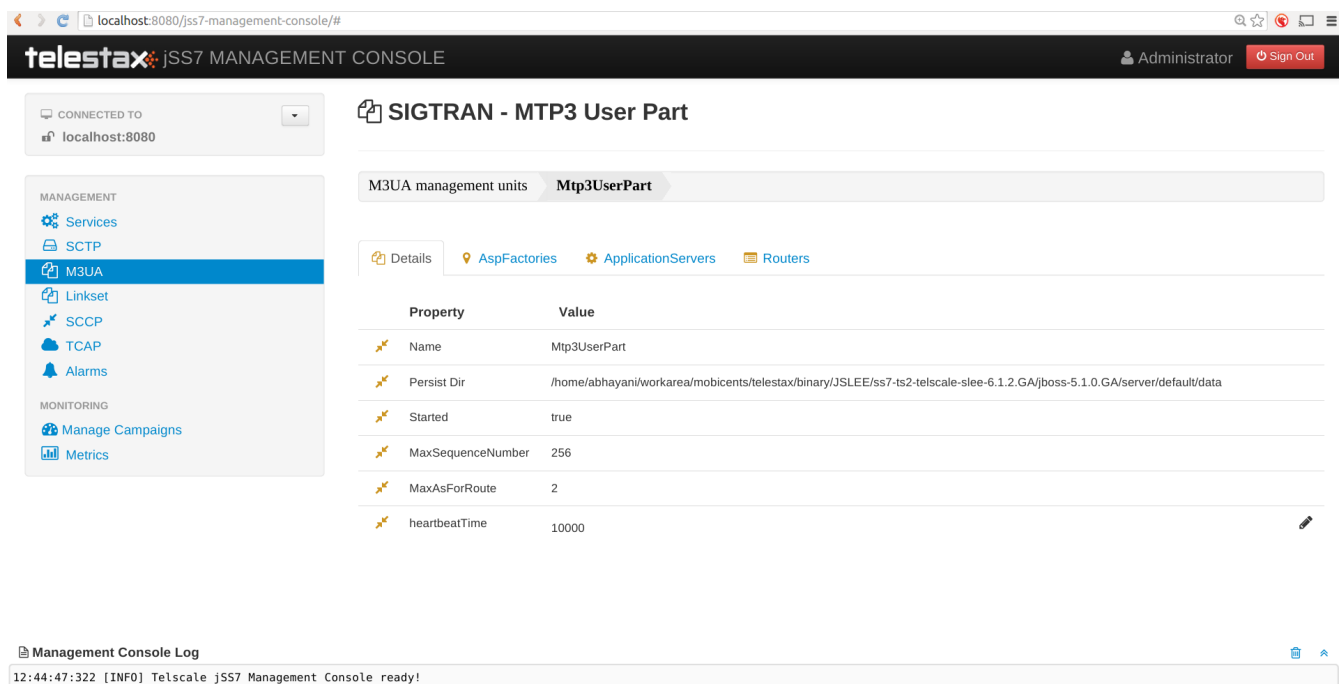


Figure 1. GUI - M3UA Management

The first tab will display the properties of the M3UA Management unit. These details displayed here are fetched from the XML descriptor file `jboss-beans.xml`, which is located at `$JBoss_HOME/server/profile_name/deploy/mobicents-ss7-service/META-INF`, where `profile_name` is the server profile name. These properties can be modified here in the GUI. To modify them you must click the pencil, change value and save. The GUI will then display the modified values.

The other three tabs will allow you to manage and monitor all Servers, ASPs and Routers within this M3UA Management unit.

# M3UA stack properties

## Maximum Sequence Number

You can modify the settings for the parameter 'maxsequencenumber' only when the M3UA Stack is not running. In addition, this parameter cannot be modified through the CLI or GUI. You will have to invoke the setter function directly from the source code.

If you are using the JBoss Application Server, then you can set this parameter by adding a property (as shown below) to the XML descriptor file *jboss-beans.xml*, which is located at *\$JBOSS\_HOME/server/profile\_name/deploy/mobicents-ss7-service/META-INF*, where *profile\_name* is the server profile name.

```
/*Add property for the parameter 'maxsequencenumber' to jboss-beans.xml file and  
specify the value*/  
<property name="maxSequenceNumber">128</property>
```

The current settings of the parameter can be viewed in the GUI or by invoking the appropriate CLI command as described below.

### Using CLI

You can retrieve the current settings of the parameter 'maxsequencenumber' by issuing the command `sctp get maxsequencenumber`. However as explained above, you cannot modify the settings through the CLI.

#### Name

`m3ua get maxsequencenumber`

#### SYNOPSIS

`m3ua get maxsequencenumber`

#### DESCRIPTION

This command is used to retrieve the current settings of the parameter 'maxsequencenumber'. The 'maxsequencenumber' parameter is used to specify the maximum sequence number used for load-balancing algorithm.

Sequence number or Signalling Link Selection (SLS) is used for load-balancing between ASPs in AS and also between various AS for the same point-code. The parameter 'maxsequencenumber' controls the maximum SLS that should be used for this. It is safe to leave it at 256.

The settings can be modified only when the M3UA Stack is not running. To modify this parameter you must invoke the setter function directly from the code or if you are using the JBoss AS, you can add a property to the XML descriptor file `jboss-beans.xml`. You cannot change the settings through the CLI.

## Using GUI

In the M3UA management page, you can view the current settings of the 'Max Sequence Number' property. But as explained above, you cannot change the settings in the GUI. For more details about this parameter, refer to the detailed description about the parameter in the above section for CLI.

## Maximum AS for route

You can modify the settings for the parameter 'maxasforroute' only when the M3UA Stack is not running. In addition, this parameter cannot be modified through the CLI or GUI. You will have to invoke the setter function directly from the source code.

If you are using the JBoss Application Server, then you can set this parameter by adding a property (as shown below) to the XML descriptor file `jboss-beans.xml`, which is located at `$JBOSS_HOME/server/profile_name/deploy/mobicents-ss7-service/META-INF`, where `profile_name` is the server profile name.

```
/*Add property for the parameter 'maxasforroute' to jboss-beans.xml file and specify the value*/  
<property name="maxAsForRoute">4</property>
```

The current settings of the parameter can be viewed in the GUI or by invoking the appropriate CLI command as described below.

## Using CLI

You can retrieve the current settings of the parameter 'maxasforroute' by issuing the command `sctp get maxasforroute`. However as explained above, you cannot modify the settings through the CLI.

### Name

```
m3ua get maxasforroute
```

### SYNOPSIS

```
m3ua get maxasforroute
```

### DESCRIPTION

This command is used to retrieve the current settings of the parameter 'maxasforroute'. The 'maxasforroute' parameter is used to specify the maximum routes for destination point code.

Every destination point code should be configured in M3UA with the corresponding AS. The parameter 'maxasforroute' controls the maximum number of AS that can be used to route the message to the same Destination Point Code.

It is better to always maintain this parameter as an even number for better load-sharing and a maximum of 2 is standard and widely accepted. You should not change this value if there is at least one route defined, else it will throw Exception for that route. You have to delete all the routes, change this property and redefine routes.

The settings can be modified only when the M3UA Stack is not running. To modify this parameter you must invoke the setter function directly from the code or if you are using the JBoss AS, you can add a property to the XML descriptor file jboss-beans.xml. You cannot change the settings through the CLI.

## Using GUI

In the M3UA management page, you can view the current settings of the 'Max As for Route' property. But as explained above, you cannot change the settings in the GUI. For more details about this parameter, refer to the detailed description about the parameter in the above section for CLI.

## Heart Beat time

### Using CLI

You can set the 'heartbeattime' by issuing the command `m3ua set heartbeattime` with appropriate parameters as described below. You can verify this by issuing the command `m3ua get heartbeattime` which will display the value set for this property.

#### Name

`m3ua set heartbeattime`

#### SYNOPSIS

`m3ua set heartbeattime <heartbeattime> stackname <stack-name>`

#### DESCRIPTION

Each ASP can send HEART\_BEAT to peer to determine the availability of link. If there is no traffic M3UA will initiate heart beat every 'heartbeatTime' milli seconds. If 3 consecutive HEART\_BEAT are missed, stack will close and re-initiate connection.

#### PARAMETERS

Standard Parameters

`<heartbeattime>` - Heart Beat time in milliseconds.

Optional Parameters

`<stack-name>` - Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

#### EXAMPLES

`m3ua set heartbeattime 30000`

## Using GUI

On M3UA management page, click on pencil against the 'Worker Threads' property and text box becomes editable. Change value and save.

# View all M3UA Application Server Processes

## Using CLI

You can view the details of all configured M3UA Application Server Processes by issuing the command `m3ua asp show` as described below:



## Name

m3ua asp show

## SYNOPSIS

m3ua asp show stackname <stack-name>

## DESCRIPTION

This command is used to view the details of all configured Application Server Processes. The information displayed will include the name, the SCTP Association name and if it is started or stopped.

## PARAMETERS

### Optional Parameters

<stack-name> - Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

## Using GUI

Navigate to the specific M3UA Management unit and switch to the 'AspFactories' tab. Here you can view a list of all the ASPs created. Every correctly configured ASP will be displayed in a row and for each ASP, the first column will display the name of the ASP. The icon adjacent to the name will be lit 'green' if the ASP is currently running or if the ASP is stopped the icon will be lit 'orange'. The second column will indicate the current state of the ASP (true / false), the third column will allow you to Start / Stop the ASP and the fourth column will allow you to delete the ASP.

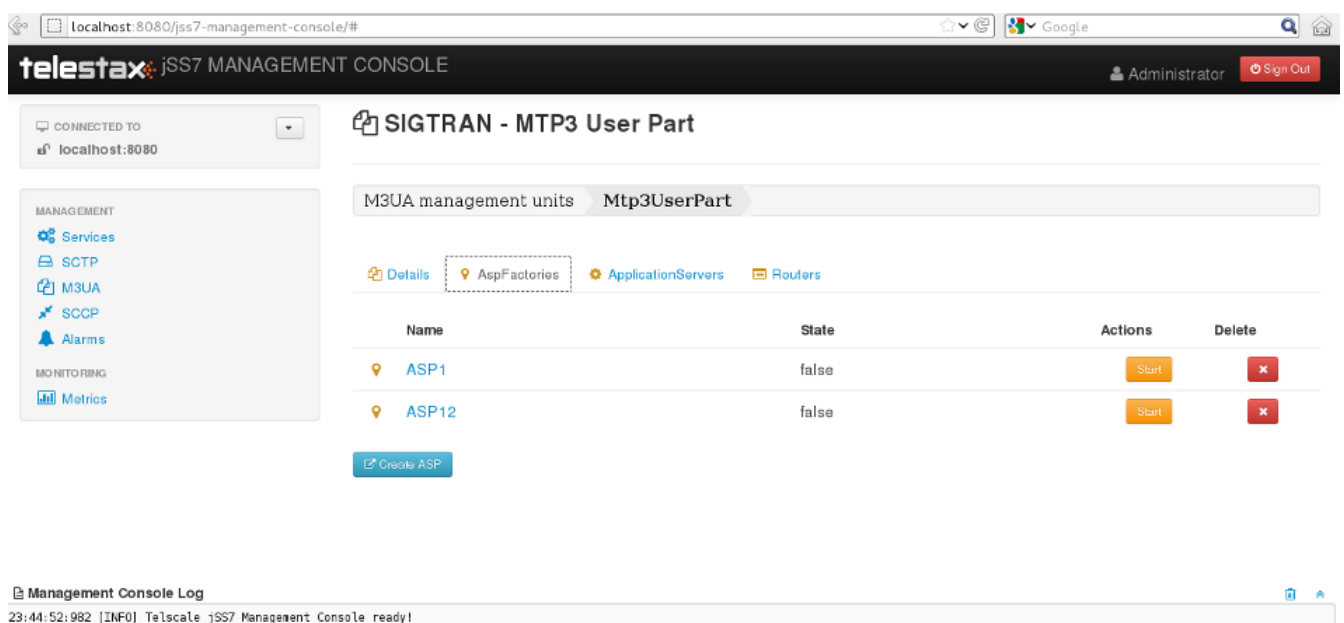


Figure 2. GUI - M3UA Management - AspFactories

In the screen above, click on the name of the ASP whose details you wish to view. This will launch the ASP Details and display all the configured properties of the selected ASP. The second tab in this

view will allow you to view all connected Application Servers. You can click on the bread crumbs at the top to return to any of the previous pages you navigated through.

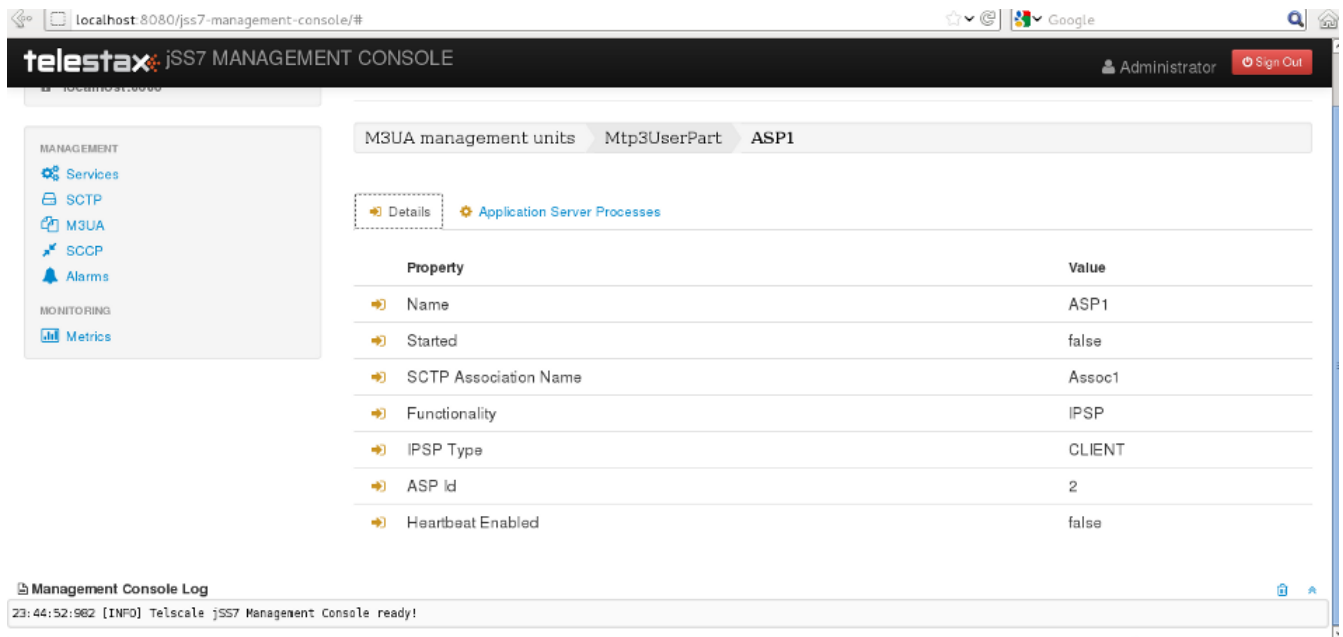


Figure 3. GUI - M3UA Management - ASP Details

# Create a new M3UA Application Server Process

## Using CLI

You can create a new M3UA ASP by issuing the command `m3ua asp create` with appropriate parameters as described below:

Name  
`m3ua asp create`

SYNOPSIS  
`m3ua asp create <asp-name> <sctp-association> aspid <aspid> heartbeat <true|false> stackname <stack-name>`

DESCRIPTION  
This command is used to create a new Application Server Process.

### PARAMETERS

#### Standard Parameters

`<asp-name>` - Name of the new Application Server Process created. This must be unique and takes any String value.

<sctp-association> - Name of the SCTP Association

#### Optional Parameters

<aspid> - Identifier for this newly created Application Server Process. If this is not passed, next available aspid will be used.

heartbeat <true|false> - If this parameter is enabled (value set to true), then heartbeat mechanism is enabled between M3UA peers. When this is enabled, it sends a Heartbeat message every 10 seconds. If there is no response for the third heartbeat then it assumes that the underlying network is dead. So it closes the connection and attempts to connect again. The M3UA peers are brought back to the same state as they were prior to dying.

This is an optional parameter and if unspecified, heartbeat mechanism is disabled.

<stack-name> - Name of the stack on which this command is executed. If not passed, the first stack configured in ShellExecutor will be used.

#### EXAMPLES

```
m3ua asp create ASP1 Assoc1 aspid 12 heartbeat true
```

The above command will create a new M3UA Application Server Process with name ASP1 and id 12. Heartbeat mechanism is enabled.

## Using GUI

### *Procedure: Create a new Application Server Process using GUI*

1. Navigate to the tab 'AspFactories' in the M3UA Management Unit window and click on the 'Create ASP' button. This will launch a pop-up 'Create AspFactory'.
2. In the 'Create ASP' page, add details of the new ASP. You must ensure that you fill in all the mandatory parameters (Name, SCTP Association Name). For definition of these parameters, please refer to the description of the CLI command for the same in the preceding section. You must ensure that a correctly configured SCTP Association is created and available prior to creating a new ASP. When the ASP is started or stopped, this corresponding SCTP Association will start / stop automatically.
3. Verify the details entered and then click on the 'Create' button. A new ASP will be created with parameters as specified. If there is an error in creating the ASP then you will find the details of

the error in the Management Console Log section below.

4. Click on the 'Close' button to close the 'Create Server' pop-up.

# Delete an Application Server Process

## Using CLI

You can delete an existing M3UA ASP by issuing the command `m3ua asp destroy` with appropriate parameters as described below:

### Name

```
m3ua asp destroy
```

### SYNOPSIS

```
m3ua asp destroy <asp-name> stackname <stack-name>
```

### DESCRIPTION

This command is used to delete an existing M3UA Application Server Process identified by the name 'asp-name'. You must ensure that the ASP is stopped prior to issuing the command.

### PARAMETERS

#### Standard Parameters

<asp-name>            -    Name of the ASP to be deleted.

#### Optional Parameters

<stack-name>    -    Name of the stack on which this command is executed.  
                  If not passed, the first stack configured in ShellExecutor  
                  will be used.

### EXAMPLES

```
m3ua asp destroy ASP1
```

The above command will destroy the ASP identified by the name ASP1.

## Using GUI

### *Procedure: Delete an Application Server Process using GUI*

1. Navigate to the 'ASPs' section in the M3UA Management Unit window and locate the row corresponding to the ASP you wish to delete.
2. You must ensure that the ASP is stopped and unassigned from AS prior to deletion. If the ASP is stopped, the last column for 'Delete' will display a 'x' button in red and will be enabled. If the Server is currently running, the 'x' button will be disabled.

3. Click on the red 'x' button to delete the corresponding ASP.

# Start an Application Server Process

## Using CLI

You can start an existing ASP by issuing the command `m3ua asp start` with appropriate parameters as described below:

### Name

`m3ua asp start`

### SYNOPSIS

`m3ua asp start <asp-name> stackname <stack-name>`

### DESCRIPTION

This command is used to start an existing ASP. You must ensure that the ASP is assigned to at least one AS prior to starting it.

### PARAMETERS

#### Standard Parameters

`<asp-name>` - Name of the ASP to be started.

#### Optional Parameters

`<stack-name>` - Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

### EXAMPLES

`m3ua asp start ASP1`

The above command will start the ASP identified by the name ASP1.

## Using GUI

### *Procedure: Start an Application Server Process*

1. Navigate to the 'AspFactories' tab in the M3UA Management Unit window and locate the row corresponding to the ASP you wish to start.
2. Click on the 'Start' button in the actions column to start the corresponding ASP. You must ensure that the ASP is assigned to at least one AS prior to starting it.
3. If the ASP has started successfully you will find the status indicating the ASP running as 'true' and the icon will be lit green. If there is an error and the ASP failed to start, you will find details of the error in the Management Console log below.

# Stop an Application Server Process

## Using CLI

You can stop a currently running ASP by issuing the command `m3ua asp stop` with appropriate parameters as described below:

### Name

```
m3ua asp stop
```

### SYNOPSIS

```
m3ua asp stop <asp-name> stackname <stack-name>
```

### DESCRIPTION

This command is used to stop a currently running ASP.

### PARAMETERS

#### Standard Parameters

<asp-name>            -    Name of the ASP to be stopped.

#### Optional Parameters

<stack-name>   -    Name of the stack on which this command is executed.  
                  If not passed, the first stack configured in ShellExecutor  
                  will be used.

### EXAMPLES

```
m3ua asp stop ASP1
```

The above command will stop the ASP identified by the name ASP1.

## Using GUI

### *Procedure: Stop an Application Server Process*

1. Navigate to the 'AspFactories' section in the M3UA Management Unit window and locate the row corresponding to the ASP you wish to stop.
2. Click on the 'Stop' button in the actions column to stop the corresponding ASP.
3. If the ASP has stopped successfully you will find the status indicating the ASP running as 'false' and the icon will be lit orange. If there is an error and the ASP failed to stop, you will find details of the error in the Management Console log below.

# View all M3UA Application Servers

## Using CLI

You can view the details of all configured M3UA Application Servers by issuing the command `m3ua as show` as described below:

### Name

```
m3ua as show
```

### SYNOPSIS

```
m3ua as show stackname <stack-name>
```

### DESCRIPTION

This command is used to view the details of all configured Application Servers. The information displayed will include the configured functionality (AS or IPSP or SGW), mode (SE or DE), IPSP type (if applicable), routing context, traffic mode and network appearance values.

### PARAMETERS

#### Optional Parameters

`<stack-name>` - Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

## Using GUI

Navigate to the specific M3UA Management unit and switch to the 'ApplicationServers' tab. Here you can view a list of all the ASs created. Every correctly configured AS will be displayed in a row and for each AS, the first column will display the name of the AS. The icon adjacent to the name will be lit 'green' if the AS is currently running or if the AS is stopped the icon will be lit 'orange'. The second column will indicate the current state of the AS (defined / undefined), the third column will allow you to delete the AS.

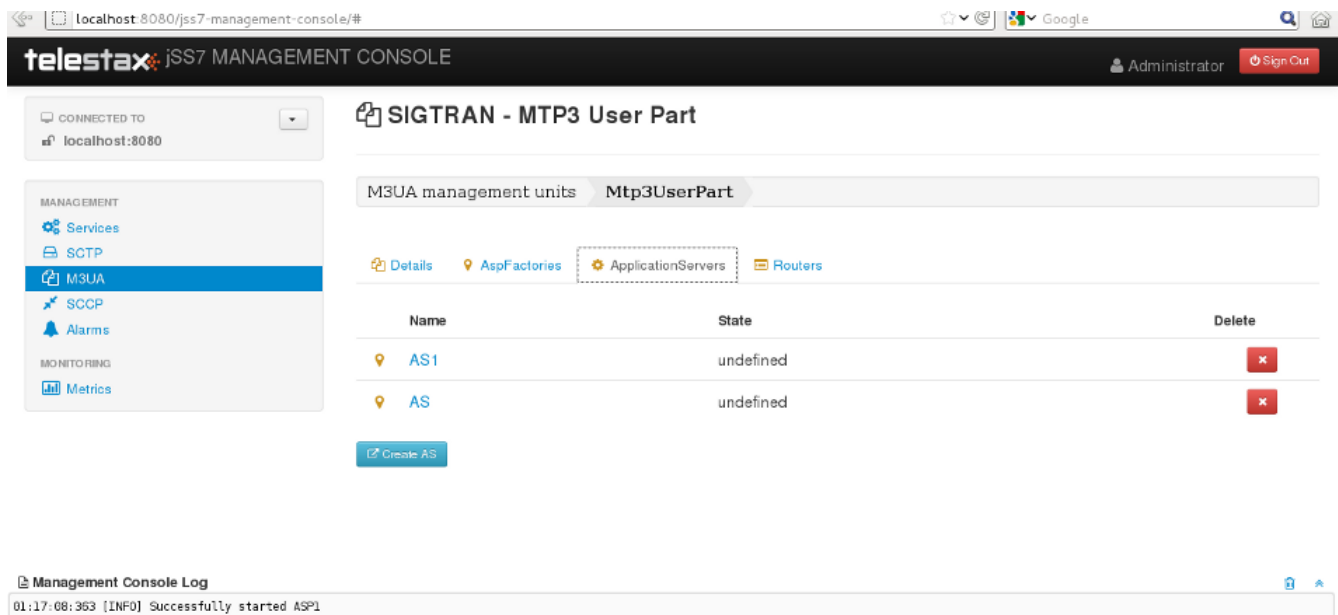


Figure 4. GUI - M3UA Management - ApplicationServers

In the screen above, click on the name of the AS whose details you wish to view. This will launch the AS Details and display all the configured properties of the selected AS. The second tab in this view will allow you to view the details of the connected ASP. You can click on the bread crumbs at the top to return to any of the previous pages you navigated through.

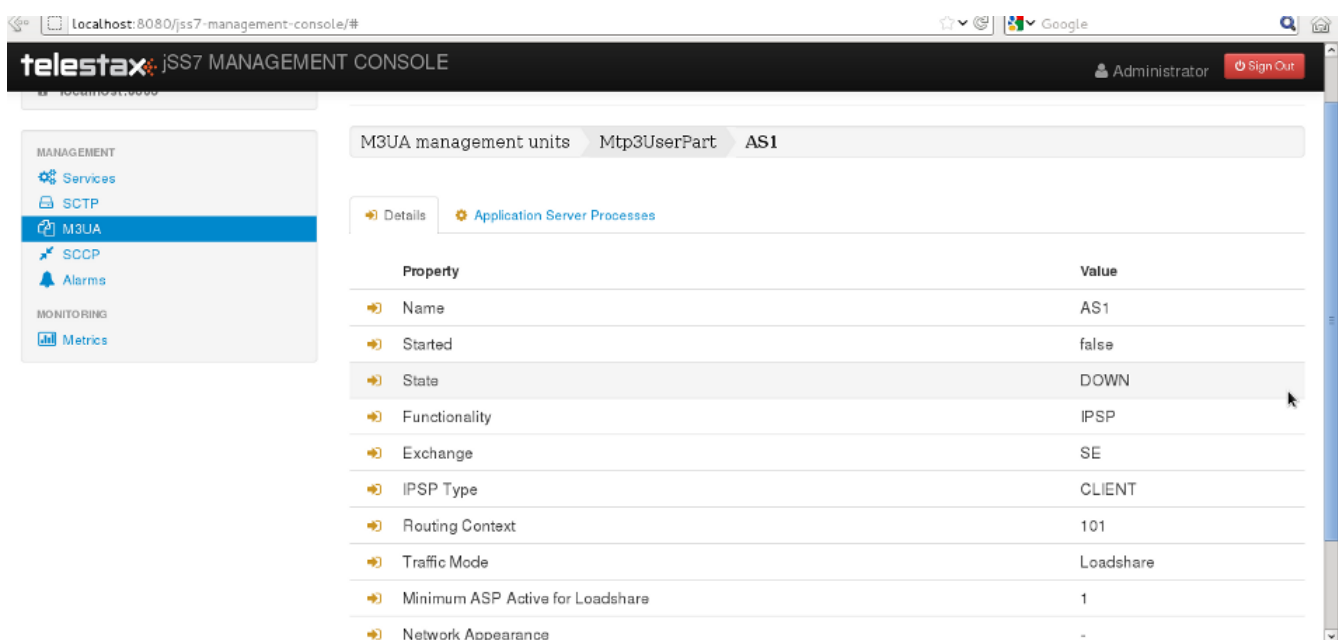


Figure 5. GUI - M3UA Management - AS Details

## Create a new M3UA AS

### Using CLI

You can create a new M3UA AS by issuing the command `m3ua as create` with appropriate parameters as described below:



## Name

m3ua as create

## SYNOPSIS

```
m3ua as create <as-name> <AS | SGW | IPSP> mode <SE | DE>
  ipspType <client | server> rc <routing- context> traffic-mode <traffic mode>
  min-asp <minimum asp active for TrafficModeType.Loadshare>
  network-appearance <network appearance value> stackname <stack-name>
```

## DESCRIPTION

This command is used to create a new Application Server.

## PARAMETERS

### Standard Parameters

- <as-name> - Name of the new Server created. This must be unique and takes any String value.
- <AS | SGW | IPSP> - The type of the new Server is specified using this parameter. The three possible values are AS (Application Server), SGW (Signaling Gateway) and IPSP.
- <SE | DE> - You must specify if Single Exchange or Double Exchange of ASPSM (ASP State Maintenance) and ASPTM (ASP Traffic Maintenance) messages should be performed.
- <client | server> - This is required if the newly created AS is of type IPSP. You must specify is if it is of type Client or Server.

### Optional Parameters

- <routing-context> - This refers to the Routing Context configured for M3UA Stack on SGW. This parameter is optional.

However for an ASP (Application Server Process) assigned to this AS to be configured to process signaling traffic related to more than one AS over a single SCTP Association, it is mandatory to specify a routing-context for the AS. If an ASP is configured to always process signaling traffic from one AS, irrespective of whether the received messages have routing context set or not, it will always be delivered to AS for further processing.

However if an ASP is configured to process signaling traffic related to more than one AS over a single SCTP Association and if a signaling

message is received without RC, then the ASP will drop the message and send back an Error message. A respective log4j error will also be logged.

<traffic-mode> - You may choose to specify the traffic mode for ASPs. At the moment jSS7 M3UA supports only 2 modes: loadshare and override. Broadcast mode is not supported.

This is an optional parameter and if not specified the default mode is 'loadshare'.

<min-asp> - You may choose to specify the minimum asp active for traffic mode 'loadshare' before the payload starts flowing.

This is an optional parameter and if not specified the default value is 1. Also if traffic-mode is not 'loadshare' setting this value has no effect.

<network-appearance> - This is a M3UA local reference (typically an integer) shared by SG and AS. This value together with a Signaling Point Code, uniquely identifies a SS7 node by indicating the specific SS7 network to which it belongs. It can be used to distinguish between signalling traffic, associated with different networks, being sent between the SG and the ASP over a common SCTP association.

<stack-name> - Name of the stack on which this command is executed. If not passed, the first stack configured in ShellExecutor will be used.

## EXAMPLES

```
m3ua as create AS1 IPSP mode DE ipspType server rc 1 traffic-mode loadshare
```

The above command will create a new M3UA Application Server identified as AS1, of type IPSP (Server), Double Exchange mode. The Routing Context is 1 and traffic-mode is 'loadshare'.

```
m3ua as create AS2 AS mode SE rc 100 traffic-mode loadshare 2 network-appearance
```

12

The above command will create a new M3UA Application Server identified as AS2, of type AS, Single Exchange mode. The Routing Context is 100, traffic-mode is 'loadshare' and minimum asp to be active for payload transfer is

2.

The network-appearance value is 12.

# Using GUI

*Procedure: Create a new M3UA Application Server using GUI*

1. Navigate to the tab 'ApplicationServers' in the M3UA Management Unit window and click on the 'Create AS' button. This will launch a pop-up 'Create AS'.
2. In the 'Create Application Server' pop-up, add details of the new AS. For definition of these parameters, please refer to the description of the CLI command for the same in the preceding section.
3. Verify the details entered and then click on the 'Create' button. A new AS will be created with parameters as specified. If there is an error in creating the AS then you will find the details of the error in the Management Console Log section below.
4. Click on the 'Close' button to close the 'Create Application Server' pop-up.

## Delete a M3UA AS

### Using CLI

You can create a new M3UA AS by issuing the command `m3ua as create` with appropriate parameters as described below:

#### Name

m3ua as destroy

#### SYNOPSIS

m3ua as destroy <as-name> stackname <stack-name>

#### DESCRIPTION

This command is used to delete an existing M3UA Application Server instance identified by the name 'as-name'. You must ensure that all ASPs are unassigned and the AS state is 'INACTIVE' prior to destroying the AS.

#### PARAMETERS

##### Standard Parameters

<as-name> - Name of the AS instance to be deleted.

##### Optional Parameters

<stack-name> - Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

#### EXAMPLES

m3ua as destroy AS1

The above command will destroy the AS identified by the name AS1.

## Using GUI

### *Procedure: Delete a M3UA Application Server using GUI*

1. Navigate to the 'ApplicationServers' tab in the M3UA Management Unit window and locate the row corresponding to the AS you wish to delete.
2. You must ensure that all ASPs are unassigned from this AS and the current state of the AS is 'INACTIVE' (displayed as 'undefined') prior to destroying the AS. If the AS is inactive, the last column for 'Delete' will display a 'x' button in red and will be enabled. You can only delete the AS if it is inactive.
3. Click on the red 'x' button to delete the corresponding AS.

## Assign an ASP to an AS

### Using CLI

You can assign an ASP to an AS by issuing the command **m3ua as add** with appropriate parameters as described below:

## Name

m3ua as add

## SYNOPSIS

m3ua as add <as-name> <asp-name> stackname <stack-name>

## DESCRIPTION

This command is used to assign an Application Server Process to an Application Server. The AS and ASP must both be created prior to executing this command.

You can configure an ASP to process signaling traffic related to more than one AS, over a single SCTP Association. However you must ensure that all the Application Servers that share the ASP are configured with a valid Routing Context value.

## PARAMETERS

### Standard Parameters

<as-name>        -    Name of the AS to which this ASP is being assigned.

<asp-name>       -    Name of the ASP that is being assigned to the AS.

### Optional Parameters

<stack-name> -    Name of the stack on which this command is executed.  
                  If not passed, the first stack configured in ShellExecutor  
                  will be used.

## EXAMPLES

m3ua as add AS1 ASP1

- The above command will assign ASP1 to AS1.

# Using GUI

## *Procedure: Assign an ASP to an AS using GUI*

1. Navigate to the 'ApplicationServers' tab in the M3UA Management Unit window, locate the row corresponding to the AS you wish to assign an ASP and click on the name of the AS.
2. This will launch the AS details page where all the properties of the AS will be displayed. Switch to the second tab in this view called "Application Server Processes". As shown in the figure below, you will find a list of all currently assigned ASPs to this selected AS.

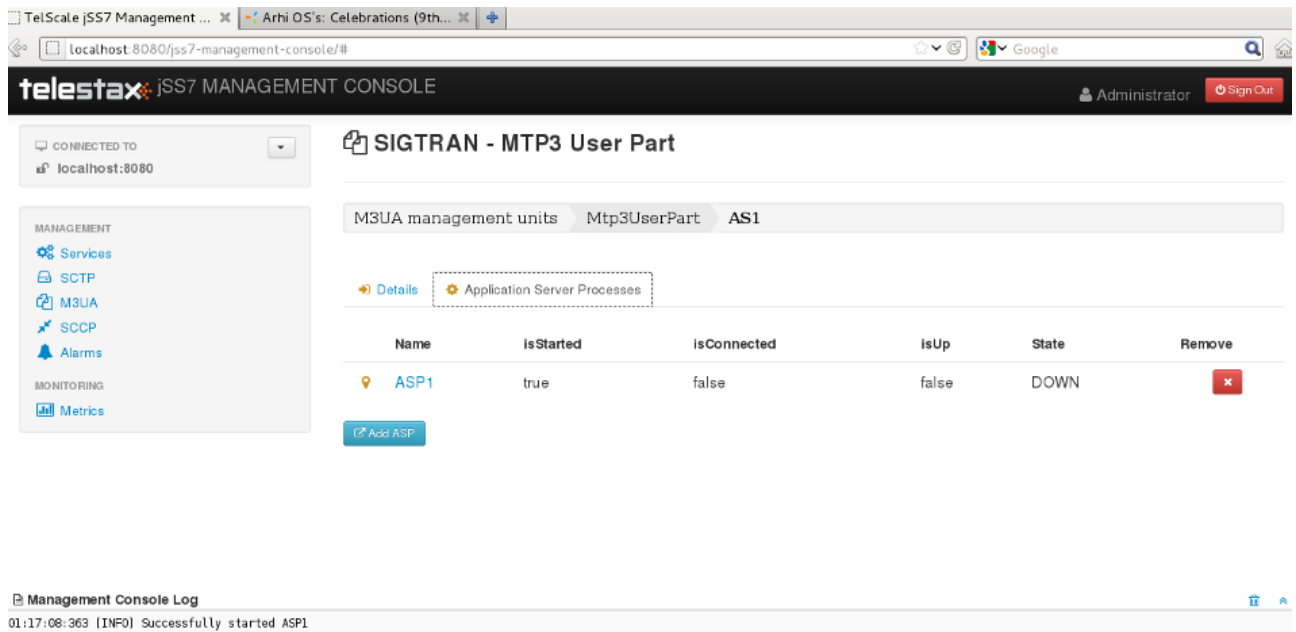


Figure 6. GUI - M3UA Management - Assign ASP to an AS

3. Click on the 'Add ASP' button at the bottom. This will launch a pop-up named 'Add ASP' where all available ASPs will be listed in a drop down box.
4. Click on the 'Create' button to add the selected ASP to this AS. The ASP will be assigned to this AS and will be displayed in the ASP list for this AS.
5. You can configure an ASP to process signaling traffic related to more than one AS, over a single SCTP Association. However you must ensure that all the Application Servers that share the ASP are configured with a valid Routing Context value.

## Unassign an ASP from an AS

### Using CLI

You can unassign an ASP from an AS by issuing the command `m3ua as remove` with appropriate parameters as described below:

#### Name

m3ua as remove

#### SYNOPSIS

m3ua as remove <as-name> <asp-name> stackname <stack-name>

#### DESCRIPTION

This command is used to un-assign an Application Server Process from an Application Server that it was previously assigned to.

#### PARAMETERS

##### Standard Parameters

<as-name>        -    Name of the AS from which this ASP is being un-assigned.

<asp-name>       -    Name of the ASP to be un-assigned.

##### Optional Parameters

<stack-name> -    Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

#### EXAMPLES

m3ua as remove AS1 ASP1

The above command will remove ASP1 from AS1.

## Using GUI

*Procedure: Unassign an ASP from an AS using GUI*

1. Navigate to the 'ApplicationServers' tab in the M3UA Management Unit window, locate the row corresponding to the AS you wish to unassign an ASP from and click on the name of the AS.
2. This will launch the AS details page where all the properties of the AS will be displayed. Switch to the second tab in this view called "Application Server Processes". As shown in the figure above, you will find a list of all currently assigned ASPs to this selected AS.
3. Locate the row corresponding to the ASP you wish to unassign from this AS.
4. Click on the red coloured 'x' remove button in the row corresponding to the ASP you wish to remove. This action will unassign the ASP from this AS.

## View all M3UA Routes

## Using CLI

You can view the details of all configured M3UA Routes by issuing the command `m3ua route show` as described below:

### Name

`m3ua route show`

### SYNOPSIS

`m3ua route show stackname <stack-name>`

### DESCRIPTION

This command is used to display all configured routes.

### PARAMETERS

#### Optional Parameters

`<stack-name>` - Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

## Using GUI

Navigate to the specific M3UA Management unit and switch to the 'Routers' tab. Here you can view a list of all the Routes created as shown in the figure below. Every correctly configured Route will be displayed in a row and for each Route, the first column will display DPC:OPC:SI values. The icon adjacent to the name will be lit 'green' if the Route is currently active or if the Route is inactive the icon will be 'orange'. The second column will indicate the current state of the Route (Active / Inactive) and the third column will display the name of the AS assigned to route messages for this DPC.



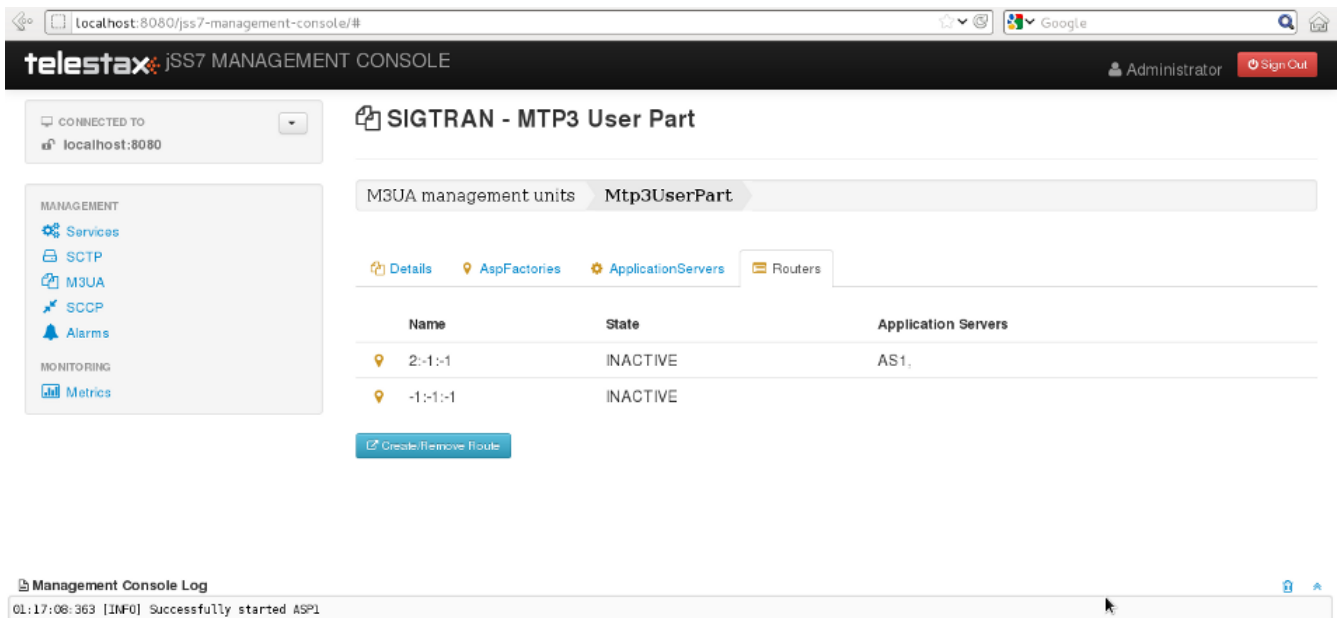


Figure 7. GUI - M3UA Management - Route

## Create a new M3UA Route

### Using CLI

You can create a new M3UA Route by issuing the command `m3ua route add` with appropriate parameters as described below:

## Name

m3ua route add

## SYNOPSIS

```
m3ua route add <as-name> <dpc> <opc> <si> trafficmode <traffic-mode> stackname  
<stack-name>
```

## DESCRIPTION

This command is used to configure an AS to route message, i.e. configure the destination point code that the message will be routed to. You must ensure that the AS is created prior to executing this command.

## PARAMETERS

### Standard Parameters

- <as-name> - Name of the AS assigned to route message for this dpc.
- <dpc> - Destination Point Code.
- <opc> - Originating Point Code.
- <si> - Service Indicator.

### Optional Parameters

- <traffic-mode> - There can be two or more AS defined for each route. The M3UA Stack will do load-balancing between these AS depending on the traffic-mode set for this m3ua route. Possible values are:
  - 1. Override
  - 2. Loadshare
  - 3. Broadcast (Broadcast is not yet supported by M3UA)
- <stack-name> - Name of the stack on which this command is executed. If this is not passed, the first stack configured in ShellExecutor will be used.

## EXAMPLES

```
m3ua route add AS1 2 -1 -1
```

# Using GUI

*Procedure: Create a new M3UA Route using GUI*

1. Navigate to the 'Routers' tab in the M3UA Management Unit window and click on the 'Create/Remove' button.
2. This will launch the pop-up 'Create/Remove Route', where you can add values for DPC, OPC, SI, traffic-mode and Application Server Name. For definition of these parameters, please refer to

the description of the CLI command for the same in the preceding section.

3. Verify the details entered and then click on the 'Create' button. A new Route will be configured with parameters as specified. If there is an error in creating the Route then you will find the details of the error in the Management Console Log section below.

## Delete a M3UA Route

### Using CLI

You can delete a M3UA Route by issuing the command `m3ua route remove` with appropriate parameters as described below:

#### Name

```
m3ua route remove
```

#### SYNOPSIS

```
m3ua route remove <as-name> <dpc> <opc> <si> stackname <stack-name>
```

#### DESCRIPTION

This command is used to remove a previously configured route.

#### PARAMETERS

##### Standard Parameters

<as-name> - Name of the AS assigned to route message for this dpc.

<dpc> - Destination Point Code.

<opc> - Originating Point Code.

<si> - Service Indicator.

##### Optional Parameters

<stack-name> - Name of the stack on which this command is executed.  
If not passed, the first stack configured in ShellExecutor will be used.

#### EXAMPLES

```
m3ua route remove AS1 2 -1 -1
```

### Using GUI

*Procedure: Delete a M3UA Route using GUI*

1. Navigate to the 'Routers' tab in the M3UA Management Unit window and click on the 'Create/Remove' button.
2. This will launch the pop-up 'Create/Remove Route'. Enter the values for DPC, OPC, SI and Application Server Name that you wish to remove from the list of Routes. For definition of these parameters, please refer to the description of the CLI command for the same in the preceding section.
3. Click on the 'Remove' button to delete the Route corresponding to the parameters specified.