

# TXNMS

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## User guide



**technetix**

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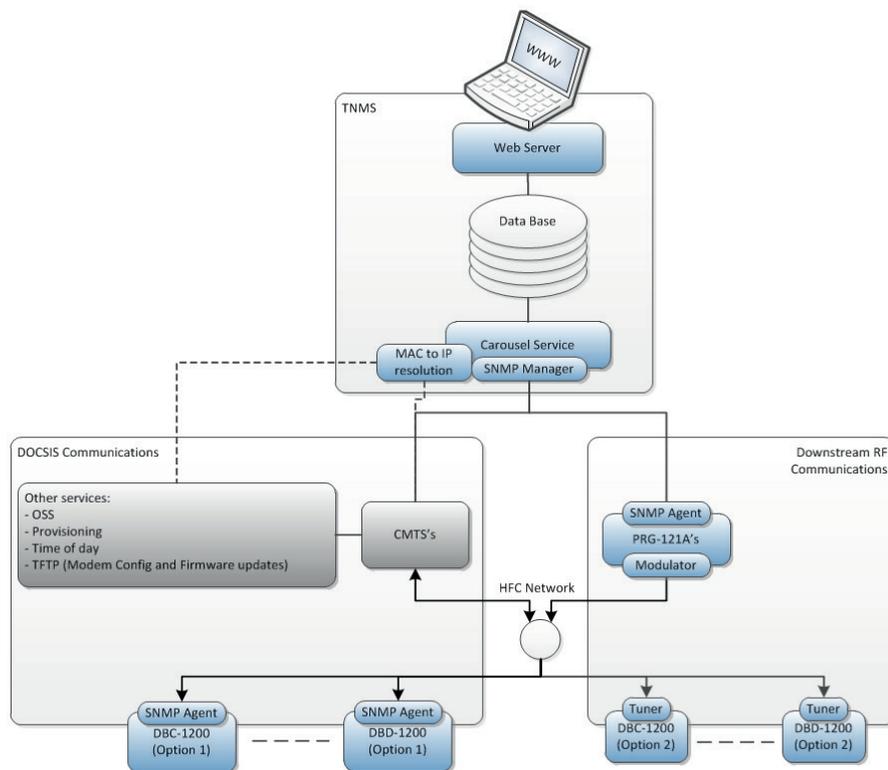
## What is TxNMS?

This document outlines the features for Technetix TxNMS v1.1.0 release which is backwards compatible via an upgrade from versions 1.0.3 onwards. Technetix Network Management System (short TxNMS) is an access network device management system.

### Features include:

- Web based user interface
- Device mapping within the network
- User access control with role definitions and user action logging
- Centralised ingress detection commands (add 0dB, -6dB and Disconnect upstream)
- TxNMS devices status events

## Architecture



The architecture consists of a modular design that can be run on a single server or separate web, database and control servers. The architecture is built in four elements: the webpage application, Messaging Service, DOCSIS service, and the database. The webpage application and the Messaging Service both communicate with the database.

## TxNMS for FSK

- Using the DBDCM-A1 control modules and PRG-121/PRG-122 gateways
- High priority commands for user actions
- Continual background device writes to ensure the devices are synchronised

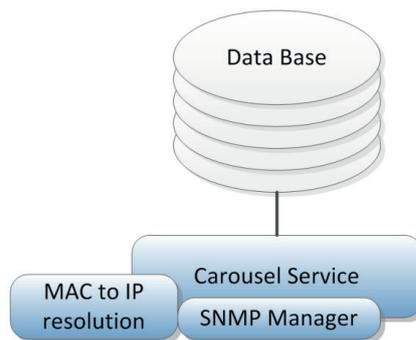
## TxNMS for DOCSIS

### Using the DBDCM-B2 control module

#### Features:

- Remote read/write of IDS switch.

## Carousel



### Main features

- Each instance can be assigned a network segment
- Background sync task to align the network devices from the DB
- High priority controls and reads
- Planned HMS MIB support

### RF messaging

### Background sync task

- Transmits the amplifiers control states as saved in the DB.
- Configurable poll time per carousel instance



## TxNMS user controls

Device updated in the DB and flagged for priority update by the carousel.

## CMTS messaging

### Slow background task

Checks amplifiers online state and status. If different to the DB the device will be updated. To manage bandwidth the poll time and number of devices polled are configurable in the TxNMS.

## TxNMS user controls

Device updated in the DB and flagged for priority update by the carousel.

## System requirements

### TxNMS Web app

- Windows 7 or later/Windows Server 2008 R2 or later
- Microsoft .NET Framework 4.6.2 or later
- IIS 7.5 or later
- 16 GB RAM
- 2 GHz Dual Core CPU
- 10 GB free HDD space (for IIS web logging if it is switched on)

### Messaging Service

- Windows 7 or later/Windows Server 2008 R2 or later Windows Server
- Microsoft .NET framework 4.6.2 or later
- 32 GB RAM
- 2.5 GHz Dual Core CPU
- 1 GB free HDD space (logging should be handled in Windows events)

### DOCSIS service

- Windows 7 or later/Windows Server 2008 R2 or later
- Java v8
- 8 GB RAM
- 2 GHz Dual Core CPU
- 256 MB free HDD space

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## Database

- Windows 7 or later/Windows Server 2008 R2 or later Windows Server
- SQL Server 2008 R2 or later. (Express editions can be used but are limited by Microsoft in database size. Express is not recommended for medium or larger production environments.)
- 8 GB RAM
- 2 GHz Dual Core CPU
- Minimum 100 GB free HDD space (for small size networks)
- 1 TB free HDD space (for very large size networks)

## Equipment

### PRG-121 and PRG-122

#### Used for RF receiver module (option 2)

##### Features

- SNMP interface to TxNMS
- PowerComm messaging to RF receiver in amplifiers
- Fully agile transmit frequency
- Recommended 4000 amplifiers per PRG

#### 100,000 Amplifiers deployment

- 13 PRG-121A's
- 3 Octus racks each with
  - Rack
  - RPS-156/B + H-15 conn supply
  - Power combiner/divider

#### RF receivers (option 2)

##### Features

- Receives PowerComm data from PRG-121A
- Receive frequency set locally

##### Control data

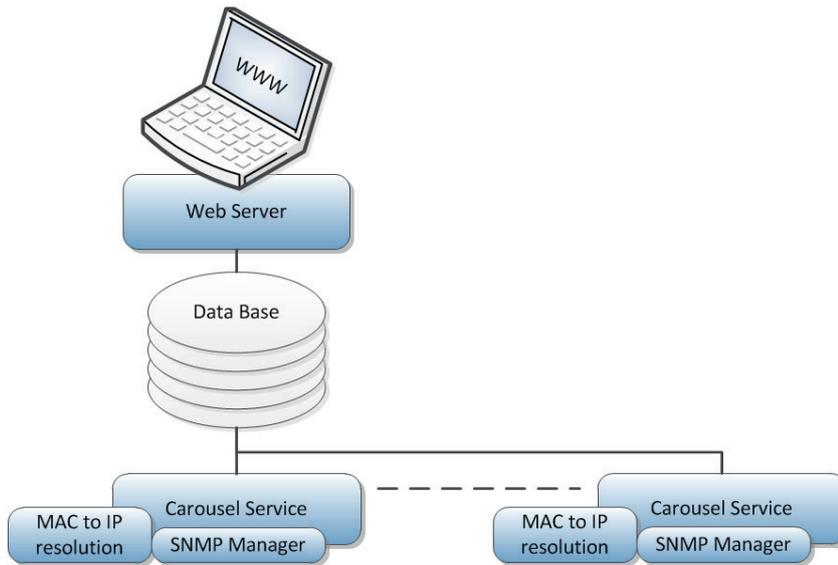
- IDS: 0dB, -6dB or disconnect

## DOCSIS Transponder

### Features

- SNMP interface to TxNMS
- Initial Technetix MIB support. Future HMS MIB support planned.

### Software



- User interface
- Web application
- Multiple user sessions
- Configurable user roles
- Full user action logging

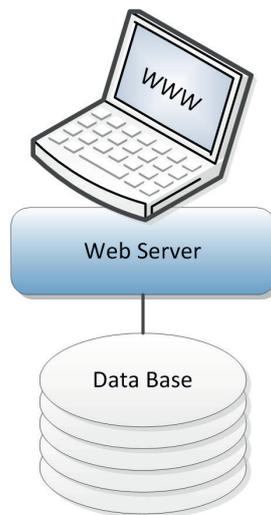
### Key Web pages

- Network View: view and control any devices on the network
- Network Setup: add, delete and edit devices
- Administration: change the configuration of the TxNMS system
- TxNMS Status: monitor the status of the system with one glance
- About: read the licence information including the EULA of TxNMS

### Database

Stores all the devices connectivity, setup and status.

## User interface



### Key features

- Web application
- All interaction with the network devices is via the database
- User control
  - Multiple user sessions
  - Configurable user roles
  - Full user action logging
- Network View
  - View network map
  - Select device
  - View current parameter state
  - Control device parameters
  - View and add user notes against individual device
  - Search – enter the name or partial name and the search will bring up a list of matches. Clicking a match will move the focus of the view panel to the object/device.
- Network Setup
  - Add, remove, and edit devices and objects
  - Whole parts of the network can be moved
- Administration
  - Configure DOCSIS Service
  - Configure application
  - Create, edit and delete carousel services
  - Create, edit and delete users and user roles
  - View user and carousel service logs
- Event View (TxNMS Status)
  - Displays
  - Carousel service statuses
  - Errors and warnings within network
- About
  - End User Licence Agreement
  - Copyright information
  - Open Source information

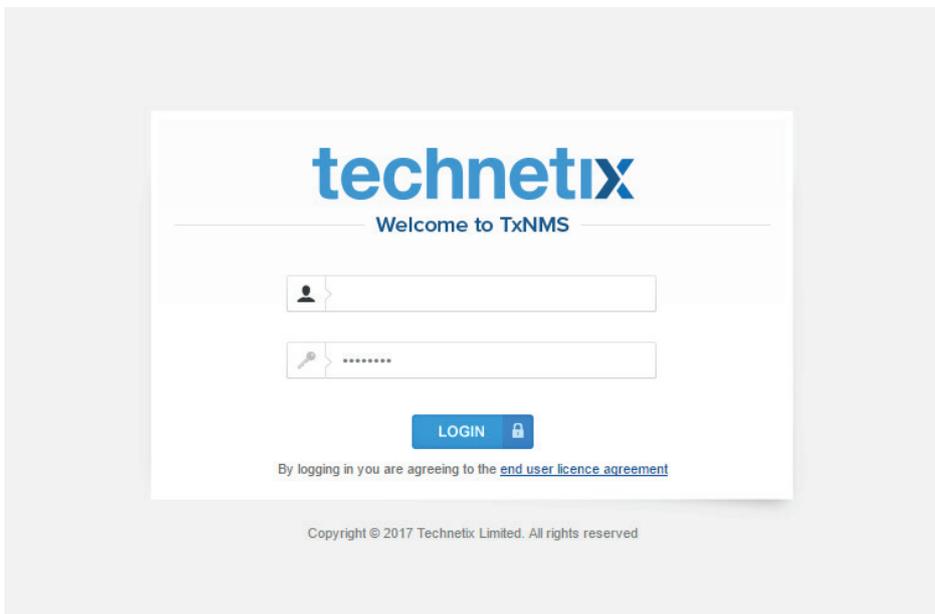


## Introduction to TxNMS

Over the rest of this document, we will cover the specifics on how to use the TxNMS system. We will cover logging in, setting up the network, editing the network, setting up the Messaging Service, and other features of TxNMS.

As in all cases, if there is something the manual does not cover, or you need further clarification or assistance, please do contact your Technetix representative.

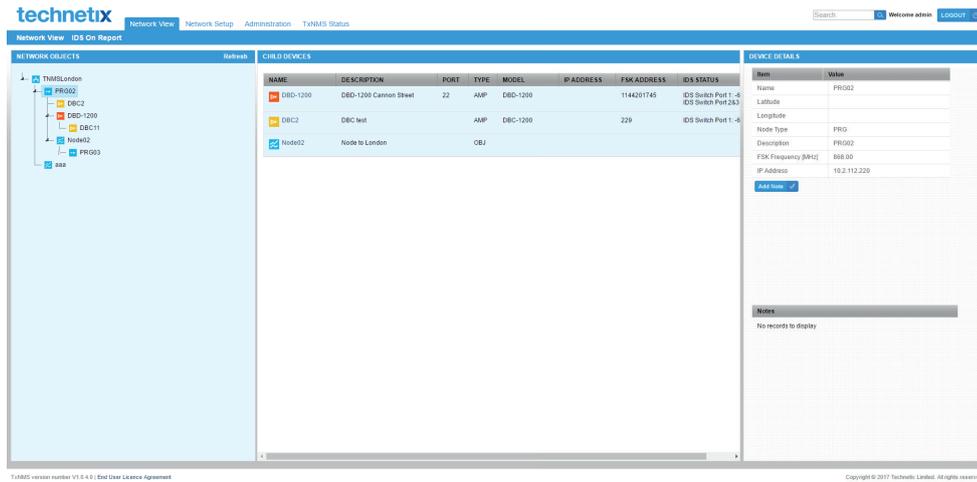
## Login



To login, the default administrator account and password are both “admin” (without quotation marks). For security reasons, it is strongly advisable that you change these defaults. Steps to achieve this are outlined in the “User Manager” section of this document.

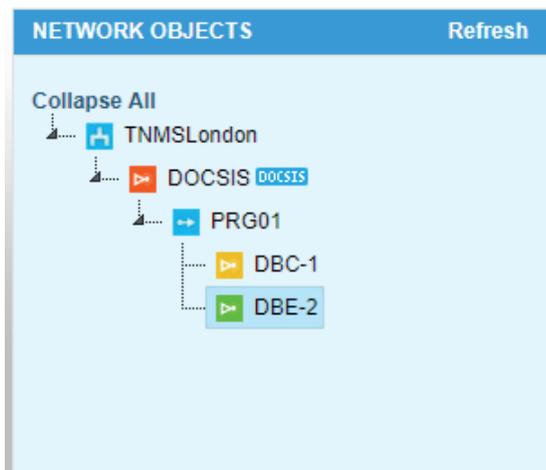
## Network View

Network View is the default page you will see each time you log in. It contains Network Objects, Child Devices and Device Details. Network View is the main page to monitor the status of each object. Each section of the Network View page are described below.



## Network objects

The Network objects panel is a tree view, representing the full network topology. You can traverse this tree with your mouse, and clicking the name of a node will then change the child devices and device details page as appropriate. The colour of icons also reflects the IDS state as described later in this section.



Clicking on either “Expand All” or “Collapse All” will open or close the entire tree. Please note, that for large sets of data with many levels, this could take a larger amount of time.



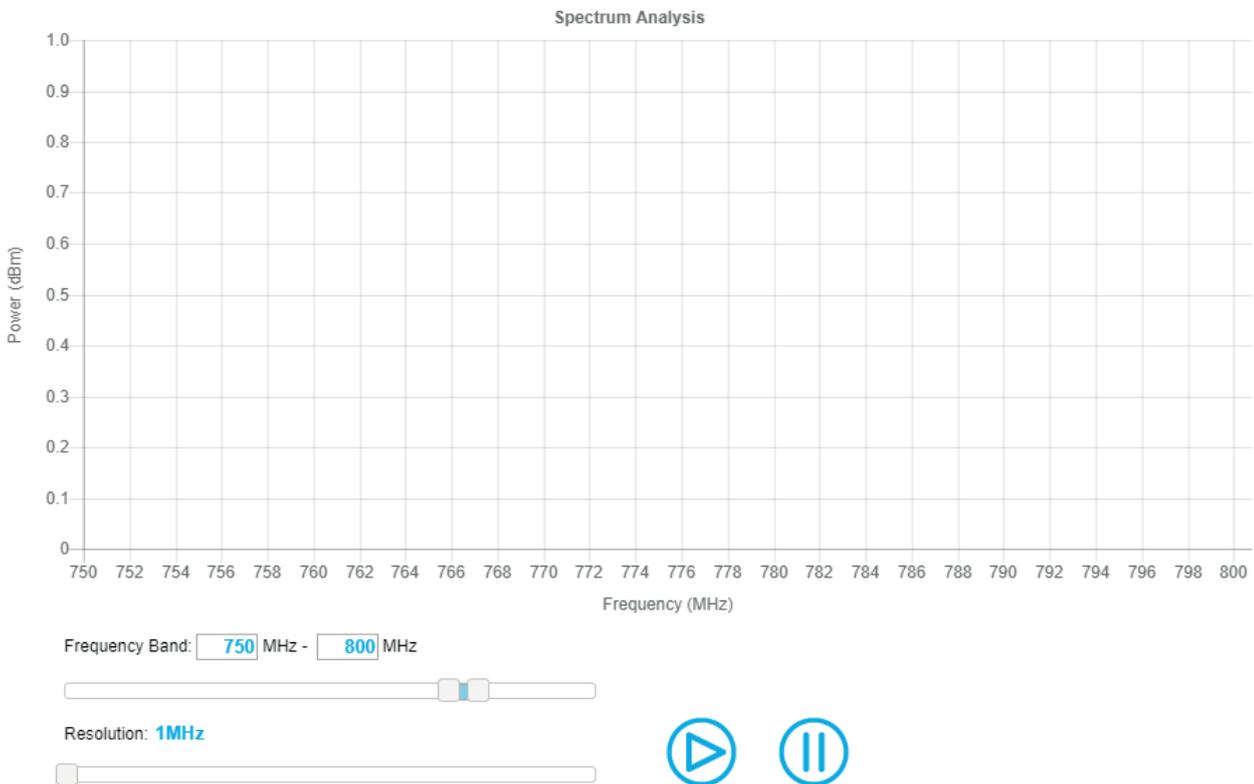
## Devices

The child devices panel in the middle of the Network View page presents the child devices of the selected node in the left-hand tree. Clicking on the name of a device, will present the device details to the right, and display the child devices in the middle panel. By clicking the names in this manner, the tree can be traversed without the need to use the tree view.

NAME	DESCRIPTION	PORT	TYPE	MODEL	FSK/IP ADDRESS	IDS STATUS
DBC1200	DBC 1200		AMP	DBC-1200	10.0.2.11	IDS Switch Port 1: -40db
DBD2	DBD		AMP	DBD-1200	35124354	IDS Switch Port 1: -6db IDS Switch Port 2&3: 0db
PRG01	PRG01		PRG	PRG-121( H & L )	1.2.3.4	

## Spectrum Analysis

If you have selected a DOCSIS amplifier, then the below graph should appear in place of the Child Devices panel.



There are a number of settings as explained below:

## Frequency Band

This sets the start and end frequencies for which the analysis is taken. Set these using the left and right sliders. You can also fine-tune without the sliders, using the text boxes to set the start and end frequencies.

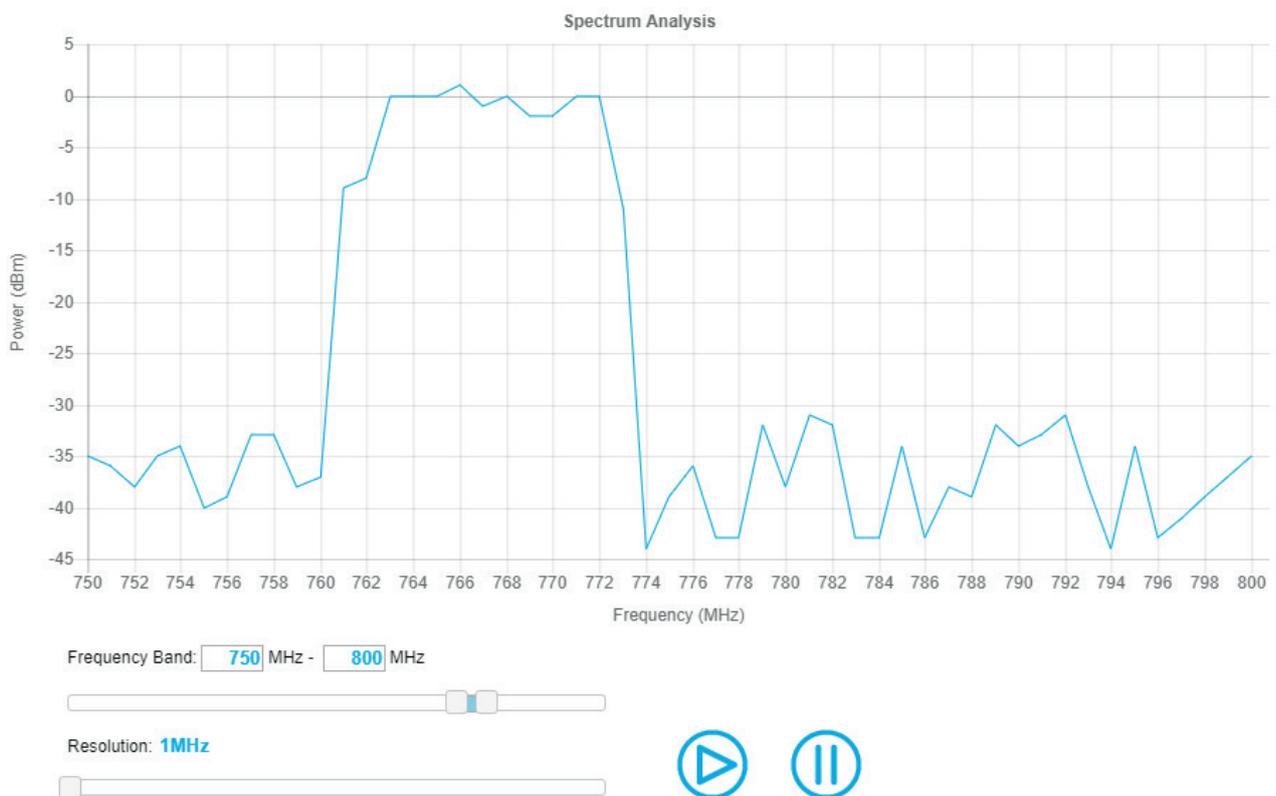
## Resolution

This is the resolution of the analysis. For instance, if set to 10MHz, the data points read into the graph go up in installments of 10 Mhz. Set this using the slider. The possible choices are 1 MHz, 5 MHz, 10 MHz, 20 MHz and 50 MHz.

## Play/Pause controls

To start the analysis, press the play button. To stop the analysis, please press the pause button. The last reading in the graph will be presented when the analysis is stopped.

If you want to change the start and end frequencies or the resolution, you will need to set these and then press the play button to apply the changes. The graph does not automatically change with the settings, only when you press the play button.





## Device details

Item	Value
Name	DBC1200
Parent Port	
Latitude	
Longitude	
Location	
Node Type	AMP
Description	DBC 1200
Model	DBC-1200
IP Address	10.0.2.11
Transponder Type	DOCSIS
FW v2.0 or higher	<input checked="" type="checkbox"/>
Active	<input checked="" type="checkbox"/>
IDS Switch Port 1	<input type="text" value="-40db"/> Priority: <input type="checkbox"/> <input type="button" value="Update IDS"/>

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## Name

This is the name of the device or node in the network, as defined when creating the node.

## Node type

This can be TOP, OBJ, AMP, PRG, or PRS depending on what type of node it is. TOP is a top node (the default node with no parents), OBJ is a user object and is otherwise known as a generic node. AMP, PRG, and PRS denote amplifiers, PRG devices, and PRS devices respectively.

## Description

This is the description of the node or device, as defined when creating the node.

## Latitude

The latitude of the node or device's location

## Longitude

The longitude of the node or device's location

## Location

This is the location in text form of the device, for example: 'Holborn Circus, London, UK'

## Parent port

This is the port that the device is connected to on the parent device in the network.

## Model

This is the model of the device, such as "DBC-1200" for DBC-1200 amplifiers

## FSK frequency [MHz]

This is the FSK frequency of the PRG device.

## IP/FSK address

This is the IP address for PRGs and DOCSIS transponders, or the FSK address (Unique ID) of FSK amplifiers or PRS devices



## Transponder type

This is the type of the transponder. For FSK devices, it should be “FSK”, and for DOCSIS devices, it should be “DOCSIS”. This is only available for Amplifiers.

## FW v2.0 or higher

This should be ticked if the amplifier is configured to use firmware 2.0 or greater.

## IDS switch

The IDS switch can be set to either 0, -6 or -40 (disconnect) dB. These are denoted by the 3 main colours of icons in the network tree. Green = 0dB, Orange = -6dB and Red = -40dB.

For FSK amplifiers and PRS devices in the TxNMS tree, the Messaging Service uses the IP address of the parent PRG, and the FSK address of the device, to send out commands. Priority updates are sent almost immediately, while other updates are added to a queue.

For DOCSIS amplifiers in the tree, the commands are sent from the DOCSIS Service to the Technetix DOCSIS transponder using its IP address.

## Active switch

The active checkbox is used to activate devices on the network. By simply clicking on this checkbox, you can activate or deactivate devices. Deactivated devices cannot have their IDS states changed, and appear with a grey icon in the tree on the left hand side. Activated devices appear either green, orange, or red in the tree, depending on their IDS state.



= Deactivated object. It will still operate, but no commands can be sent to this object.

## Notes

TxNMS gives you the option to add notes to each object to help keep a history of changes made to each object. To add a note, click on the “Add Note” button and follow the prompts.



## Icons

Amplifiers and PRS’s have different colours depending on the state of the object. These are listed below:

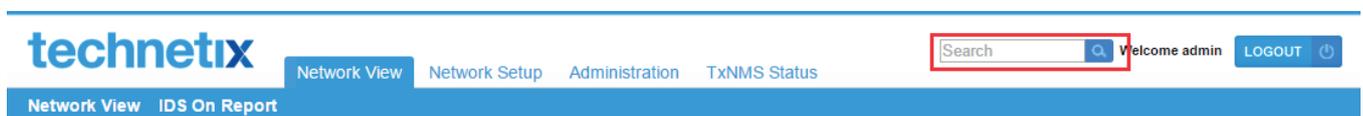
-  = IDS State -40 dB (Disconnected)
-  = IDS State -6 dB
-  = IDS state 0 dB
-  = Deactivated object. It will still operate, but no commands can be sent to this object.

There is also an icon to denote when an amplifier uses the DOCSIS transponder type: 

All amplifiers with this icon are DOCSIS enabled. All other devices are FSK-only.

## Search bar

The search bar is located on the upper right of the Network View page. Using this bar presents in the middle panel a list of all nodes in the tree that match or partially match the search term on both name and amplifier/PRS address.





## IDS on report

IDS on report shows all amplifiers and PRS's which have a state of -6dB or -40dB. Clicking on any one of the names in this report, will show the device details in the right hand panel.

NAME	DESCRIPTION	PORT	TYPE	MODEL	FSK/IP ADDRESS	IDS STATUS
DBC1200	DBC 1200		AMP	DBC-1200	10.0.2.11	IDS Switch Port 1: -40db
DBD2	DBD		AMP	DBD-1200	35124354	IDS Switch Port 1: -6db IDS Switch Port 2&3: 0db

## Network Setup

The Network Setup view is to create and manage the network topology. Using the drag and drop feature objects can be placed or rearranged anywhere in the tree.

**Please note:** Even though it is possible in the application, please do not add a PRG under a PRG in the tree. PRGs should be on the same level, or otherwise never a descendant of another PRG.

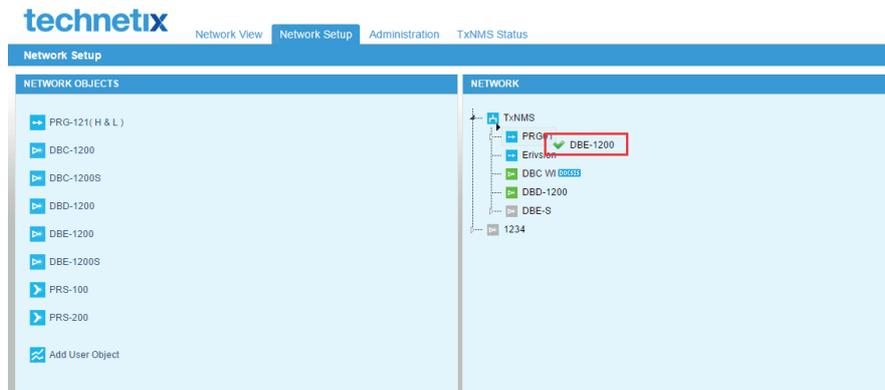
The screenshot displays the Technetix Network Setup interface. On the left, a 'NETWORK OBJECTS' list includes PRG-121(H & L), DBC-1200, DBC-1200S, DBD-1200, DBE-1200, DBE-1200S, PRS-100, PRS-200, Node, Sub Node, and Add User Object. The central 'NETWORK' view shows a tree structure with TxNMS at the root, containing PRG01, Test 1, DBC1200, and DBD2. The right panel shows the configuration for 'DBD2' with the following details:

Item	Value
Name *	DBD2
Parent Port	
Latitude	
Longitude	
Location	
Node Type	AMP
Description *	DBD
Model	DBD-1200
FSK/IP Address *	35124354
Transponder Type *	FSK
FW v2.0 or higher	<input checked="" type="checkbox"/>
Active	<input checked="" type="checkbox"/>

Buttons for 'Add Note', 'UPDATE', and 'Delete' are visible below the configuration fields. A 'Notes' section at the bottom indicates 'No records to display'.

## Drag and drop

Network Setup has a drag and drop feature to create the network tree. By dragging from the left-hand network objects panel and dropping into the middle network tree panel, new objects can be created anywhere in the tree. Dropping the object into the tree then opens up a window to provide the details for that object.



The user can create custom user objects to add to the tree by clicking “Add User Object” in the left hand panel. These user objects can be deleted if they are not in use by clicking the red X button to the right of the user object.

## Attributes

These attributes appear in a window when dropping new objects into the tree, they can also be manipulated in the right hand panel when an object is selected in the tree. For both, the below guide is provided. Some attributes do not appear in both the pop-up window and the right hand panel.

### All objects:

#### Name

Name field is required for each object. TxNMS will prevent you from creating a duplicate name and will not allow you to create an object without a name. *Required*

#### Latitude/longitude

Geographical GPS coordinates. These are optional fields. Note: Field for all objects except TOP node.

#### Location

This is the location in text form of the device, for example: ‘Holborn Circus, London, UK’. Note: Field for all objects except TOP node.



## Node type

Node type is set to either AMP, PRG or OBJ. These are set automatically when you choose an object to add to the tree. There is one TOP node created by default, this node should not be removed as it essential to the function of TxNMS. Any other TOP nodes created should have type OBJ.

## Description

Description field is required for each object. *Required*

## Top node:

Item	Value
Name *	TNMSLondon
Node Type	TOP
Description *	Top parent node - London

## PRGs

ATTRIBUTES 

Name \*

Latitude

Longitude

Location

Node Type

Description \*

FSK Frequency [MHz]

IP Address \*



## FSK frequency (MHz)

This is the FSK frequency of the PRG object and is for information only.

## IP address

IP address field is required for PRG objects. The IP address is the address of the PRG. *Required*

## Amplifiers

ATTRIBUTES✕

Name *	<input type="text"/>
Parent Port	<input type="text"/>
Latitude	<input type="text"/>
Longitude	<input type="text"/>
Location	<input type="text"/>
Node Type	<input type="text" value="AMP"/>
Description *	<input type="text"/>
FSK/IP Address *	<input type="text"/>
Transponder Type *	<input type="text" value="FSK"/>



## Parent port

Parent port number - Limited to the number of ports of the parent device.

- DBC-1200 and DBC-1200S can have up to 3 ports which means a child device of a DBC-1200 can have parent port as 1, 2, or (the bypass port) 3.
- DBD-1200 has 4 ports: Port 1, Port 2, Port 3 and Bypass Port 4. The child device of a DBD-1200 can have parent port as 1, 2, 3 or 4.
- DBE-1200 has up to 4 ports depending on modules in amplifier: Port 1, Port 2 Status and Port 3 and 4 Status. The child device of a DBE-1200 can have parent port as 1, 2, 3 or 4
- DBE-1200S has 3 ports. The child device of a DBE-1200S can have parent port as 1, 2 or 3.

## Model

Model is a pre-defined field. Displays what amplifier the object is, either DBC-1200, DBC-1200S, DBD-1200, DBE-1200 or DBE-1200S.

## FSK/IP address

The IP Address is used for DOCSIS transponders and should be provided here. The FSK Address is used for FSK amplifiers and should also be provided here. There should be no need to specify both an FSK and IP Address, and so from TxNMS 1.1.0 onwards, we have merged the two into one field. *Required*

## Transponder type

Can only be either FSK or DOCSIS. If FSK the FSK Address field is provided, if DOCSIS then the IP address field is provided. *Required*

## FW v2.0 or higher

Automatically selected if the device is believed to be firmware 2.0 or higher. This can be modified as required after adding the device. *Required*

## Active

Activate or deactivate the device as required. Deactivated nodes cannot have their IDS switches manipulated.

**Please note:** As of version 1.1.0 only IDS switches are implemented for DOCSIS devices.

## PRS

ATTRIBUTES✕

Name *	<input type="text"/>
Latitude	<input type="text"/>
Longitude	<input type="text"/>
Location	<input type="text"/>
Node Type	<input type="text" value="PRS"/>
Description *	<input type="text"/>
FSK Address *	<input type="text"/>

SAVE

### FSK address

Unique address. This ID is used to address devices to send FSK commands to each PRS device. *Required*

### User objects

ATTRIBUTES✕

Name *	<input type="text"/>
Latitude	<input type="text"/>
Longitude	<input type="text"/>
Location	<input type="text"/>
Node Type	<input type="text" value="OBJ"/>
Description *	<input type="text"/>

SAVE

### Latitude/longitude

Geographical GPS coordinates. *These are optional fields.*



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## Node types

### Amplifier

TxNMS currently supports DBC-1200, DBC-1200S, DBD-1200, DBE-1200 and DBE-1200S amplifiers. These are predefined objects in the Network Setup page. Please see above for the fields that amplifiers require.

FSK amplifiers use the IP address of the parent PRG, and the FSK address (the unique ID) to receive IDS switch commands. These are handled via the Messaging Service, which must be installed if you intend to operate FSK devices in TxNMS.

DOCSIS amplifiers use the IP address of the amplifier themselves, to receive commands and requests for information via the transponder. All communication between the TxNMS and the amplifier, is handled by the new DOCSIS Service product. If you intend to solely operate DOCSIS devices in your TxNMS network, then you do not need to have the Messaging Service installed, but you will need the DOCSIS service.

### PRG's

Only PRG-121 devices are currently supported in TxNMS.

### PRS's

TxNMS currently supports the PRS-100 and PRS-200 devices. Both are FSK-only devices, and thus do not have an IP address or a transponder type field. They are modified in the TxNMS Network View page in the same manner as for FSK amplifiers, and as such, will require the Messaging Service to be installed.

**Please note:** Regardless of whether you run solely FSK or DOCSIS devices, you will always need to have the database installed. TxNMS will not operate without the database.

## Administration

The administration page is used for all settings pertaining to TxNMS, but not directly controlling the network topology itself. Here we control the website, the carousels, the users and roles, and view the logs (if logging is enabled).

### Global

Period to auto-logout users <small>The minimum is 1 and the maximum is 48 minutes.</small>	:	<input type="text" value="48"/>
Number of failed logon attempts before blocking <small>The minimum is 1 and the maximum is 16.</small>	:	<input type="text" value="15"/>
Period for failed login users to be blocked <small>The minimum is 1 and the maximum is 48 minutes.</small>	:	<input type="text" value="48"/>

#### Period to auto-logout users

How long the user has to be inactive before the system logs them out. Can be set anywhere from 1 to 48 minutes.

#### Number of failed logon attempts before blocking

This sets the amount of attempts that a user can try to login incorrectly before the system blocks them.

#### Period for failed login users to be blocked

How long a user will be unable to access their account if they have gone over the number of login attempts. This can be set from 1 to 48 mins.



## Carousel management

[ADD CAROUSEL +](#)

CAROUSEL ID	CAROUSEL NAME	NODE NAME	STATUS	FSK MSG (MSEC.)	ACTIONS
10	Carousel01	TxNMS	True	200	Edit  Remove

This page shows the details for all the various carousels configured for the TxNMS system. Carousels are used to assign sub-trees in the network to individual Messaging Services which will then loop through the sub-tree, sending out FSK IDS commands to the devices in that sub-tree.

**Please note:** Only FSK devices need to be in a carousel. DOCSIS devices are handled by the DOCSIS service directly.

**Please note:** As of version 1.1.0, only one carousel can be assigned to each Messaging Service. To run multiple carousels concurrently, multiple instances of the Messaging Service would be required to be installed. Please contact your Technetix representative to receive help with this if desired.

The values are described in later sections, but the carousel ID is noted here for use in the Messaging Service configuration. In the section detailing the installation of the Messaging Service, the carousel ID field in the “Technetix.TxNMS.TxNMSService.exe.config” file is to be set to this number in the table.

### Add/edit carousel

Carousel Name :

Node Name :

FSK Message Delay :  MSec.

DOCSIS Message Delay :  MSec.

Status :

[ADD CAROUSEL +](#)

### Carousel name

The name of the carousel. Used for display purposes only.

### Node name

This is the name of the node in the tree from which the sub-tree for the carousel should begin. For example, if the node name is set to “London-01”, then the carousel will run for the node “London-01” and all of its descendants in the tree.

## FSK message delay

This is the time in between FSK messages when sending IDS switch updates. Able to be set from 1 to 300 Msec.

## DOCSIS message delay

*Not required for the carousel. This will be removed in a future release.*

## Status

This checkbox is used to enable a carousel for operation. If not ticked, then the carousel will not be run for its corresponding Messaging Service.

## DOCSIS Settings

Server Address	:	<input type="text" value="10.2.112.201"/>
Server Port	:	<input type="text" value="5555"/>
<small>The maximum is 65000.</small>		
Spectrum Analyser Timeout (Mins)	:	<input type="text" value="5"/>
<small>If set to 0, the Spectrum Analyser will continue executing and not time out. Use with caution. The maximum is 1440.</small>		
Community String	:	<input type="text" value="private"/>
<input type="button" value="UPDATE"/>		

### Server Address

This is set to the Server hostname or IP address of the machine running the DOCSIS Service.

### Server Port

This is the port set aside for the DOCSIS Service.

### Spectrum Timeout (Mins)

This is the timeout in minutes for the DOCSIS Spectrum Analyser. Once this timeout has been exceeded while the analyser is running with no user input, then the spectrum analyser closes the session.

If the timeout is 0, the Spectrum Analyser will continue to run and never time out. This should be used with caution.

### Community String

The community string for the SNMP communication between the service and the device.

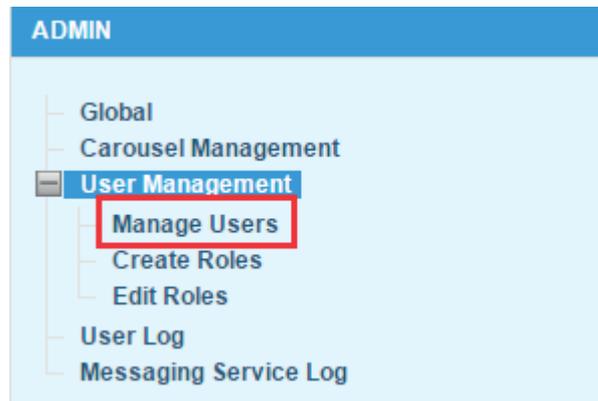


## User management

NUM	USERNAME	STATUS	ROLES / PERMISSION GROUPS	CREATED ON
1	admin	Active	Admin	13/03/2013 6:52AM
2	dale.hards	In-Active	Admin	03/03/2017 9:45AM
3	tim.smith	In-Active	Admin	24/02/2017 4:02PM

Table showing all users. This gives information as to whether the user is an active user or not, which permission group each user is set to and the date the account was created.

Creating and editing users cannot be done from this screen. In the expandable menu on the left hand pane marked "ADMIN" you can see "Manage Users". Clicking this link will take you to the user management editing screen.



## Manage users

**ADD USER** +

NUM	USERNAME	STATUS	CREATED ON	ROLES / PERMISSION GROUPS	ACTIONS
1	admin	Active	13/03/2013 6:52AM	Admin	Edit  Disable
2	dale.hards	In-Active	03/03/2017 9:45AM	Admin	Edit  Enable
3	tim.smith	In-Active	24/02/2017 4:02PM	Admin	Edit  Enable

This table gives information about each user similarly to user manager. You are able to create new users, edit existing ones and enable or disable users.

Certain accounts are built-in to the system, and cannot be disabled and are limited in edits.

To add a user, click the “ADD USER” button to the top left. Editing a user can be achieved by clicking the “Edit” link in the right most column for the user you wish to edit. Similarly, a user can be enabled or disabled with the “Disable” and “Enable” links, also in the right most column for that user.

## Add user

**ADD USER**

**BASIC INFORMATION**

Name :

Username\* :

Password\* :

Verify Password\* :

Email\* :

Telephone\* :

Department\* :

Region\* :

**ROLES / PERMISSION GROUPS**

Permission Group :

This form appears when you click the “ADD USER” button. For each of the fields, provide the information that will create the user:



---

## Name

The name of the user, such as "John Smith".

## Username

The unique username of the user, for example: "john.smith81". *Required*

## Password

The password for the user. *Required*

## Verify password

This must match the password provided above. It is used to ensure you have correctly entered the password. *Required*

## Email

The email address of the user, such as "john.smith81@example.com". *Required*

## Telephone

The contact telephone number of the user, e.g. "+44 (0)1808 192301". *Required*

## Department

The department for which the user works, for example: "Engineering". *Required*

## Region

The region within which the user works, such as "South East England". *Required*

## ROLES / PERMISSION GROUPS

Permission Group :

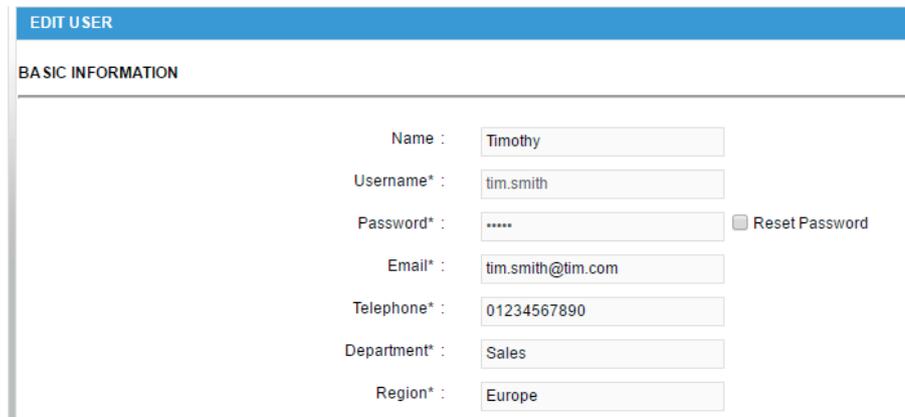
<b>Network View</b>	:User can View, Add, Edit, Delete
<b>TxNMS Status</b>	:User can View, Add, Edit, Delete
<b>Network Setup</b>	:User can View, Add, Edit, Delete
<b>Administration</b>	
<b>Carousel Management</b>	: User can View, Add, Edit, Delete
<b>Global</b>	: User can View, Add, Edit, Delete
<b>User Manager</b>	: User can View, Add, Edit, Delete
<b>Create Roles</b>	: User can View, Add, Edit, Delete
<b>Edit Roles</b>	: User can View, Add, Edit, Delete
<b>Manage Users</b>	: User can View, Add, Edit, Delete
<b>Add User</b>	: User can View, Add, Edit, Delete
<b>Edit User</b>	: User can View, Add, Edit, Delete
<b>User Logs</b>	
<b>Messaging Service Log</b>	: User can View, Add, Edit, Delete
<b>User Log</b>	: User can View, Add, Edit, Delete

This is a part of the add user page. With this view, the user can assign a permission group to the user that will be used to restrict the operations the user can perform. Use the “permission group” drop down to select what group/role the user should be assigned to. A list of the operations with the status of whether the user can execute them or not is then updated in the main panel (with the grey background).

Once you have correctly provided all the required inputs, and assigned a permission group, click the “SAVE” button, to save the new user. Alternatively, if you no longer want to add the user, click the “CANCEL” button.

## Edit user

This form appears when you click the “Edit” link. For each of the fields, provide the information that will edit the user:



The screenshot shows a web form titled "EDIT USER" with a sub-section "BASIC INFORMATION". The form contains the following fields and values:

Name :	Timothy
Username* :	tim.smith
Password* :	***** <input type="checkbox"/> Reset Password
Email* :	tim.smith@tim.com
Telephone* :	01234567890
Department* :	Sales
Region* :	Europe

### Name

The name of the user, such as “John Smith”.

### Username

The unique username of the user, for example: “john.smith81”. *Required*

### Password

The password for the user. Read-only.

If you tick, “reset password”, two new fields will appear:

### New password

The new password to assign to the user. *Required*.

### Confirm new password

This must match the password provided above. It is used to ensure you have correctly entered the password. *Required*

### Email

The email address of the user, such as “john.smith81@example.com”. *Required*

## Telephone

The contact telephone number of the user, e.g. "+44 (0)1808 192301". *Required*

## Department

The department for which the user works, for example: "engineering". *Required*

## Region

The region within which the user works, such as "South East England". *Required*

ROLES / PERMISSION GROUPS

Permission Group : Admin

Network View	:User can View, Add, Edit, Delete
TxNMS Status	:User can View, Add, Edit, Delete
Network Setup	:User can View, Add, Edit, Delete
<b>Administration</b>	
Carousel Management	: User can View, Add, Edit, Delete
Global	: User can View, Add, Edit, Delete
<b>User Manager</b>	: User can View, Add, Edit, Delete
Create Roles	: User can View, Add, Edit, Delete
Edit Roles	: User can View, Add, Edit, Delete
<b>Manage Users</b>	: User can View, Add, Edit, Delete
Add User	: User can View, Add, Edit, Delete
Edit User	: User can View, Add, Edit, Delete
<b>User Logs</b>	
Messaging Service Log	: User can View, Add, Edit, Delete
User Log	: User can View, Add, Edit, Delete

This is a part of the edit user page. With this view, the user can reassign a permission group to the user that will be used to restrict the operations the user can perform. Use the "permission group" drop down to select what group/role the user should be reassigned to. A list of the operations with the status of whether the user can execute them or not is then updated in the main panel (with the grey background).

Once you have correctly provided all the required inputs, and reassigned a permission group, click the "UPDATE" button, to save the edited user. Alternatively, if you no longer want to edit the user, click the "CANCEL" button.

## Create roles

ROLES / PERMISSION GROUPS

Permission Group Name :

<input type="checkbox"/> Network View
<input type="checkbox"/> View <input type="checkbox"/> Add <input type="checkbox"/> Edit <input type="checkbox"/> Delete
<input type="checkbox"/> TxNMS Status
<input type="checkbox"/> View <input type="checkbox"/> Add <input type="checkbox"/> Edit <input type="checkbox"/> Delete
<input type="checkbox"/> Network Setup
<input type="checkbox"/> View <input type="checkbox"/> Add <input type="checkbox"/> Edit <input type="checkbox"/> Delete
<input type="checkbox"/> Administration
<input type="checkbox"/> Carousel Management
<input type="checkbox"/> View <input type="checkbox"/> Add <input type="checkbox"/> Edit <input type="checkbox"/> Delete
<input type="checkbox"/> Global
<input type="checkbox"/> View <input type="checkbox"/> Add <input type="checkbox"/> Edit <input type="checkbox"/> Delete
<input type="checkbox"/> User Manager
<input type="checkbox"/> View <input type="checkbox"/> Add <input type="checkbox"/> Edit <input type="checkbox"/> Delete
<input type="checkbox"/> Create Roles
<input type="checkbox"/> View <input type="checkbox"/> Add <input type="checkbox"/> Edit <input type="checkbox"/> Delete
<input type="checkbox"/> Edit Roles

With this view, the user can create new permission groups/roles that will be used to restrict users. When creating a permission group, you can choose to give the users in that group either view, add, edit or delete for that view and function.

The top input “permission group name” is used to provide the name for the new permission group. As you scroll down the view, click whether you would like that role to be able to view that page, add new entries to the page, edit entries on the page, or delete entries.

Once finished, click the “SAVE” button to save the new role. Alternatively, if you no longer want to add the role/permission group, then click the “CANCEL” button.

## Edit roles

ROLES / PERMISSION GROUPS

Permission Group :

<input type="checkbox"/> Network View	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delete
<input type="checkbox"/> TxNMS Status	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delete
<input type="checkbox"/> Network Setup	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delete
<input type="checkbox"/> Administration				
<input type="checkbox"/> Carousel Management	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delete
<input type="checkbox"/> Global	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delete
<input type="checkbox"/> User Manager	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delete
<input type="checkbox"/> Create Roles				
<input type="checkbox"/> Edit Roles	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delete

Edit roles provides the ability to edit existing permission groups. This page can also be used to view the actions that the role can allow.

Select the permission group/role to edit using the “Permission Group” drop down at the top of the page. The permissions in grey will then update to display the precise permissions for that group. Edit these permissions as desired and when completed, click the “UPDATE” button to save the edited group/role. Alternatively, if you no longer want to perform the edit, click the “CANCEL” button.



## User log page

NUM	USERNAME	DESCRIPTION	PERFORM ACTION TIME
1	admin	Logged On	03/03/2017 12:27:17
2	admin	Logged On	03/03/2017 12:00:27
3	admin	Logged On	03/03/2017 10:26:05
4	admin	Added role(Admin) to (dale.hards)	03/03/2017 09:45:31
5	admin	Added new user (dale.hards)	03/03/2017 09:45:31
6	admin	Logged On	03/03/2017 09:44:29
7	admin	Logged On	03/03/2017 08:52:05
8	admin	Logged Off	01/03/2017 13:20:00
9	admin	Logged On	01/03/2017 12:52:10
10	admin	Logged Off	01/03/2017 11:39:21

The user log helps monitor what users do and when. It shows a brief description on what action the user has performed, the date and time that the action was performed and by which user.

## Messaging Service log

NUM	TYPE	TIME STAMP	MODULE	CONTENT
1	INFO	26/01/2017 15:20:32	TxNMSService Carousel: 1	Finished polling carousel
2	INFO	26/01/2017 15:20:32	TxNMSService Carousel: 1	Starting to poll carousel
3	INFO	26/01/2017 15:20:29	MS_FECOMManager Carousel: 1	Sending command: E2AFBF01
4	INFO	26/01/2017 15:20:29	TxNMSService Carousel: 1	Sending out command
5	INFO	26/01/2017 15:20:29	TxNMSService Carousel: 1	IDS processed. PRG ID:3; IDS ID:2; State:6; Commands:E2AFF000;E2AFBE01
6	INFO	26/01/2017 15:20:29	TxNMSService Carousel: 1	IDS processed. IP Address:10.2.112.220;FSK Address:1144201745
7	EXCEPTION	26/01/2017 15:20:29	MS_FECOMManager Carousel: 1	Exception:SnmpSharpNet.SnmpException: Request has reached maximum retries. at Technetix.TNMS.SnmpManager.SNMP2.Set(Byte[] cmd) at Technetix.TNMS.SnmpManager.SNMP2.SendCommand(UInt32 id, String command) at MS_FECOMManager.CommandsExecutor.ExecuteCommand(Boolean runConsole, Int32 carouselId, Int32 prgId, String commands, Int32 uniqId, String address, Int32 fskDelay)
8	INFO	26/01/2017 15:20:27	TxNMSService Carousel: 1	Finished polling carousel
9	INFO	26/01/2017 15:20:27	TxNMSService Carousel: 1	Starting to poll carousel
10	INFO	26/01/2017 15:20:24	MS_FECOMManager Carousel: 1	Sending command: E2AFF000

The Messaging Service log provides a table displaying any errors, traces and other information from the Messaging Service. By default, the Messaging Services have all error and trace logging switched off. If you would like to switch this on, please contact your Technetix representative.

## TxNMS status



This tab provides a status dashboard detailing a view of how the network is performing. Each status has its own square bubble, with one of three colours.

A red bubble is a fatal error, meaning something in the system has broken in such a way that the system cannot make any compensation for it. An example of this is if the Messaging Service has been shut down, or is not responding.

A yellow status indicates an error that is not preventing the rest of the system from running, but that this particular function is not performing as it should. An example of this would be for if one of the PRG or amplifier devices is not responding. In such a scenario, the rest of the PRG or amplifier devices should still be responsive.

Finally, a green bubble indicates that this particular function is performing as expected of the system.

In each bubble, diagnostic information should be presented, including some or all of the following: the date and time of the last status update, the Carousel name, the IP/FSK address, a summary, and a detailed message (such as the error text).



# About

About TxNMS

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PLEASE READ THIS SOFTWARE LICENCE AGREEMENT ("LICENCE") CAREFULLY BEFORE USING THIS TxNMS APPLICATION. BY USING THE TxNMS APPLICATION, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS LICENCE. IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENCE, DO NOT USE THE TxNMS APPLICATION AND (IF APPLICABLE) RETURN THE SOFTWARE TO TECHNEXIX.

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TxNMS by Technetix Limited uses the following third-party libraries, the licences of which are provided below. Every best effort has been made to reference each and every additional work, but some may not be fully accounted for.

- JQUERY**  
<https://jquery.org>
- The MIT Licence**  
<https://jquery.org/license/>

The About page is new to the TxNMS version 1.1.0 and contains the End-User Licence Agreement, which all users need to agree with as part of using the TxNMS software. This section also details the copyright for Technetix Limited as well.

Further down the page we have information pertaining to all the various Open Source libraries and plugins that TxNMS uses, with links to the software and links to the Licence as requested by the contributors.

## Assigning a carousel to the Messaging Service

Earlier in this document the carousel management view was presented and explained.

As an example, let us assume we want to use the last carousel in the table: "carousel", which has a carousel ID of 10.

ADD CAROUSEL +

CAROUSEL ID	CAROUSEL NAME	NODE NAME	STATUS	FSK MSG (MSEC.)	ACTIONS
10	Carousel01	TxNMS	True	200	 Edit  Remove

In the folder within which the Messaging Service is installed, you should find a file called "TxNMSService.exe.config". Open this file in notepad and scroll down to find the entry (the value may be different):

```
<!--SNMP Request Type-->
<add key="SNMPLIBTYPE" value="2"/>

<!--Carousel ID-->
<add key="CarouselId" value="1"/>

<!-- Polling timer in seconds -->
<add key="PollingWait" value="5"/>

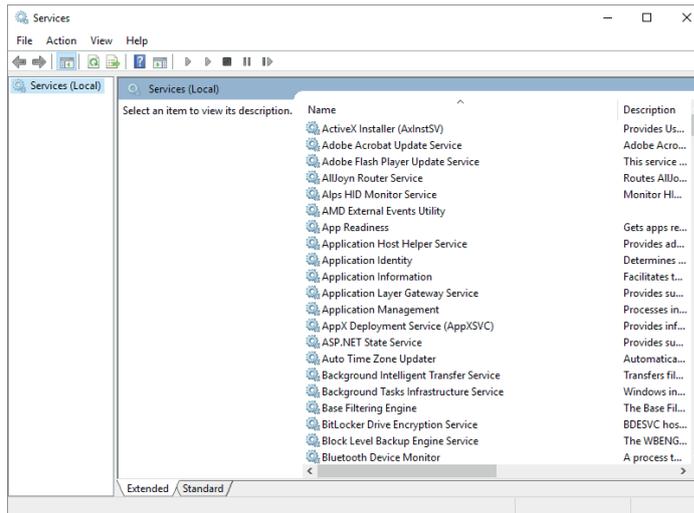
<!-- Execution timer in seconds -->
<add key="ExecutionWait" value="1"/>
```

It is this value we need to set. Set it to the carousel ID in the table for the carousel you wish to run. So in this example, the text would look like this:

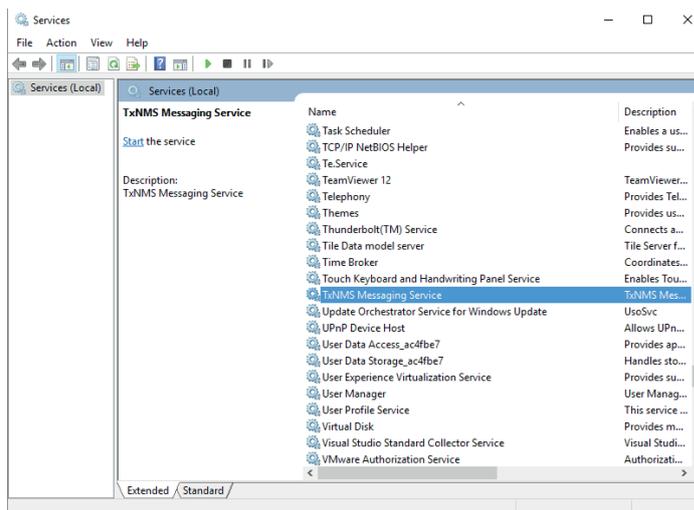
```
<add key="CarouselId" value="10"/>
```

Once this is done, you will need to restart the Messaging Service. This can be done in two ways, either by restarting the physical machine that the Messaging Service is installed on, or you could use the Services snap-in provided by Microsoft to restart the service.

Go to the start menu and type "services", you should see the services icon and text appear in the search results. Go into this screen and the following should appear:



Scroll down, until you find the service “TxNMS Messaging Service”



Right click this service, and click “Restart”.

Please Note: No FSK commands will be sent to any devices while the Messaging Service or the Server hardware is restarting. This will cause a red square to appear in the TxNMS status page for the messaging service, until the restart has successfully completed.

Further Note: It is advisable that if the user is in any way unsure how to perform any of the tasks in this section, then they should contact their Technetix representative for more information.



The Technetix logo is displayed in a bold, blue, lowercase sans-serif font. The letters 't', 'e', 'c', 'h', 'n', 'e', 't', 'i', 'x' are all in a uniform blue color. The 't' and 'x' have a slightly different weight or style compared to the other letters, giving it a modern, tech-oriented appearance.

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