NYROC Tools

Residential New Hire Tier 3 Agents

User Guide

Time Warner Cable

COS Tier 3 New Hire: Docsis Participant Guide Revisions

Note: Most recent revision at the top

Revision Date	Effective Date	Author	Approval	What Changed
10/28/2014	10/28/2014	A. Garcia		Document Created

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Goal

Docsis (a part of the NYROC system) will be one of the main tools you will be using for troubleshooting internet and digital phone. You can view signal quality, status of equipment, data usage, equipment provisioning, and much more. Because of this learning how to read Docsis and understanding what tools are available to you within Docsis will be crucial to your ability to troubleshoot.

Our goal is to have an understanding of what tools are found within the NYROC system, what information is available, and how to use the additional functions/tools built into the tools.

Objectives

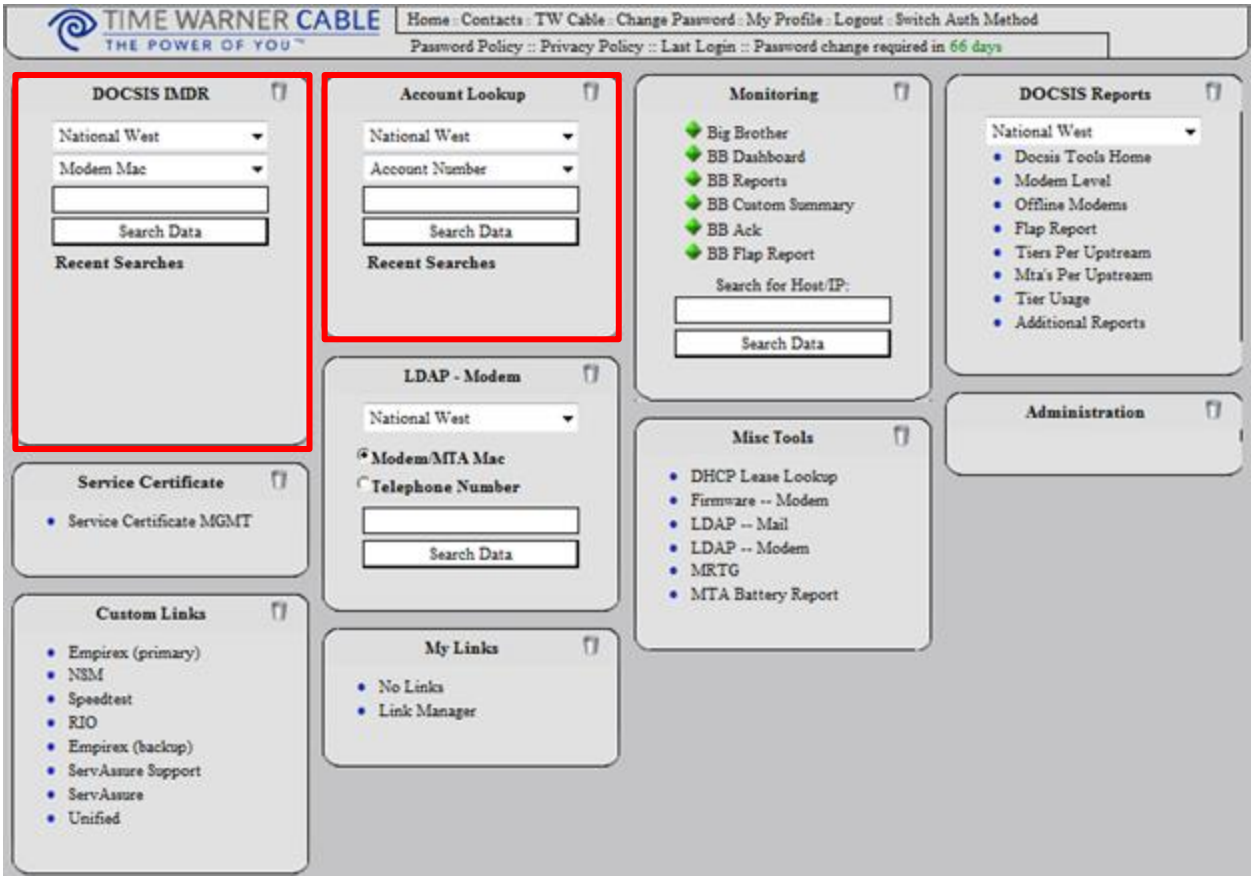
Upon completion of this guide, you will be able to:

- Understand what the NYROC systems are used for
- Understand your search options
- Read the information found in the different sections within Docsis
- Understanding the different signals and what each can effect
- Understanding modem provisioning and reading a Bin File
- Utilize Docsis to gather specific diagnostic information
- Understand how to pull up and read Big Brother Graphs

NYROC

What is NYROC?

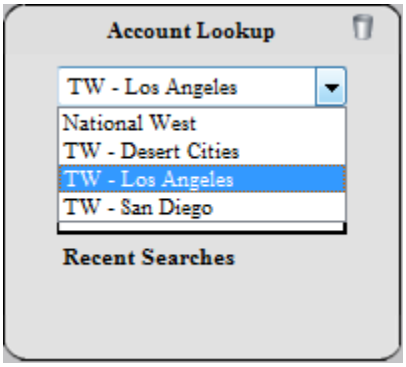
NYROC will be one of our main diagnostic tools we use for troubleshooting, and finding accounts depending on the situation. As a tier 3 agent you will mainly use two tools within NYROC; **Docsis** and **Account Lookup**. The screenshot below will highlight these tools.



Account Lookup Tool:

This tool will mainly be used for the promotions of e-mail accounts (promoting a sub account to master), and handling webjam requests.

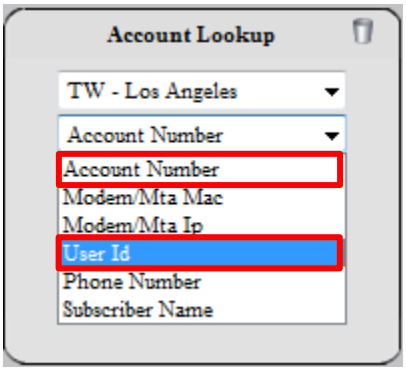
Searching for an account or e-mail address:



1. Select the correct **Division** that the account or e-mail address belong in.

2. Select the best search option based on what you are trying to locate or do. You will typically be using the **Account Number** or the **User ID** search options in this tool.

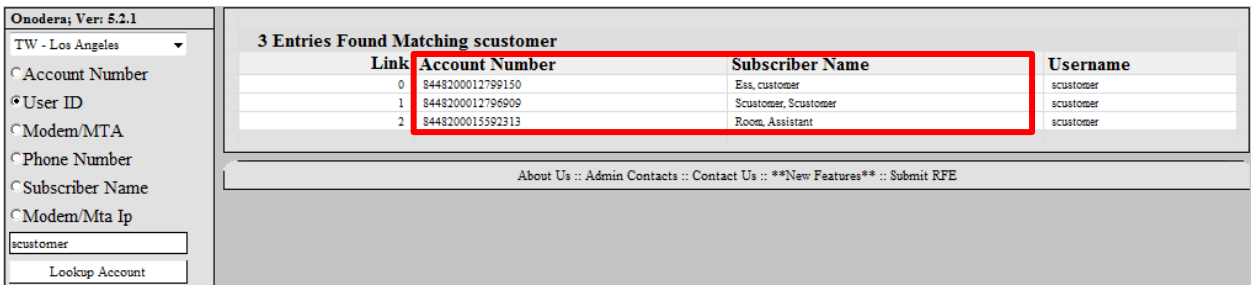
3. Enter in criteria you want to search for in the blank search bar, then click the **Search Data** button or press the enter key.



User ID	Account Number
This search method will let you search for an account(s) that have the e-mail address you type into the search bar. **Note:** Do not include the domain of the e-mail.	This search method will let you search for a specific account(s) based on the account number you enter. This is the fastest way to find an account when available.

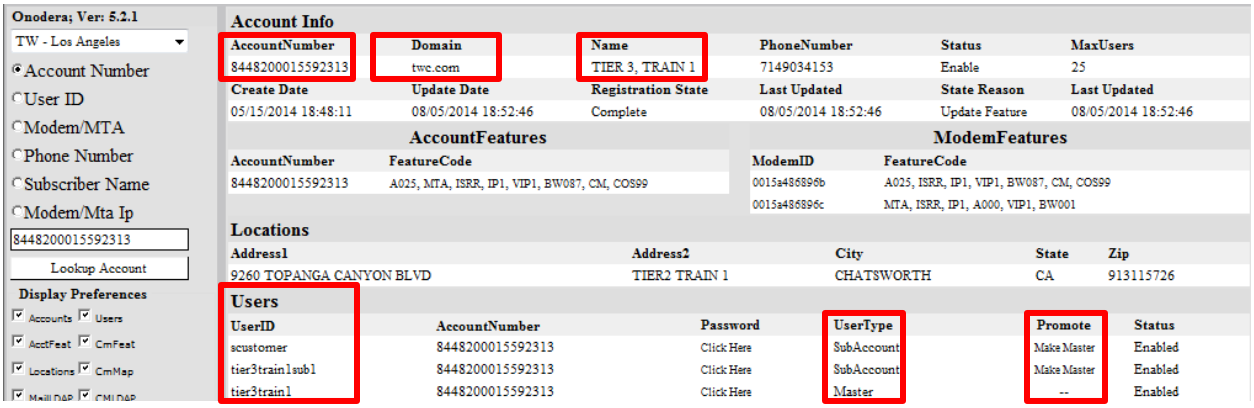
Possible User ID search results:

If you search for an e-mail address that happens to be the same on multiple accounts (same e-mail name, different domain) you will get the screen below, which shows the different account numbers and customer names associated with the e-mail address. You can then just click on the account you wish to go to.



Account Lookup Results:

Once you have located the specific account that you will be working with you will get the following screen. This screen will show you general account information like the **account number** and **name on the account**. You will also see the **domain attached to the e-mails** and a **list of the e-mails on the account**, along with the **option to promote (Make Master)** for each.



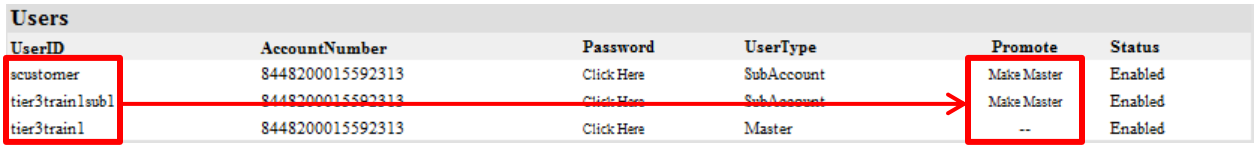
Webjams:

Webjam is the process of transferring e-mails from one account to another. In some cases the customer will not remember the account number of the "old account", so you will have to find the account by using one of the e-mail names on the old account. As long as the names and domains on both accounts match a Tier 3 supervisor can transfer the e-mails over. E-mails can **NOT** be transferred across Divisions (example: can't transfer from LA account to a SD account).

Note: For more information on the webjam process click here!

Promoting an e-mail account:

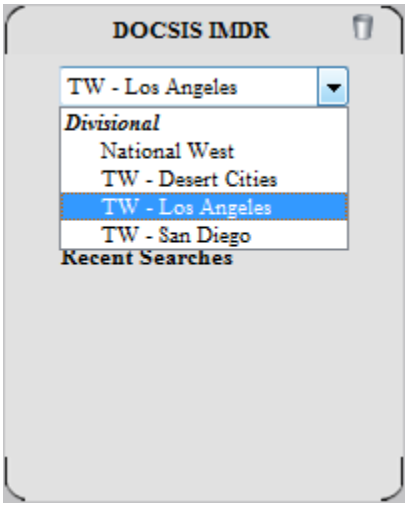
If a customer wishes to promote a different e-mail address on his/her account you will first have to find the account using the Account Lookup tool. Once the account is pulled up you will have to identify the correct e-mail the customer wants promoted under the **Users** section. Once you have identified the e-mail the customer wants to promote click the **Make Master** option directly to the right of the e-mail name, under the **promote** section.



Docsis Tool:

This tool will let you check and run diagnostic tests to a customer's modem. You will be able to see modem status, modem errors, signal levels, bin files, current firmware version, and other options that will be shown in this document. This is one the main tools you will be regularly using to diagnose and repair customer service issues.

Searching for an account:

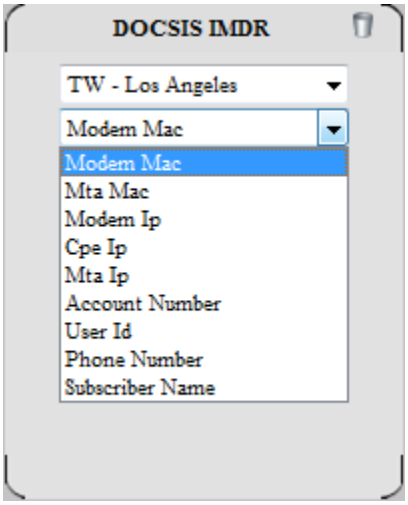


1. Select the correct **Division** that the account you are trying to pull up belongs in.

2. Select the way you wish to search for the account. Typically you will want to use the **Modem Mac** or the **Account Number** search option.

Note: You will **not** use the Mta Mac search option. If you wanted to search for the Mta Mac address you would still use the Modem Mac search option.

3. Enter in criteria you want to search for in the blank search bar, then click the **Search Data** button or press the enter key.



Modem Mac	Account Number
Searching by modem mac can sometimes be the fastest way of getting information to pull up in Docsis. Especially if you are only working with 1 specific piece of equipment on an account.	Searching by account number can be beneficial if you are working with multiple pieces of equipment on an account simultaneously. This method will give you tabs at the top of the page with the mac of each piece of equipment on the account.

Docsis break down, by section:

This portion of the document will break down each row and what sections within the rows are relevant. An explanation will be given as to why the highlighted sections are important or what they can tell you. Keep in mind that many sections within Docsis are clickable (the bold sections will give you definitions/explanations as well if clicked).

Modem Info:

This row gives you general information about the modem status, information that might be necessary if trying to escalate, and the option to reset.

Modem Info For 001dcd93b9be

Index	Upstream	State	Offset	Micro Refl	Cm Us SNR	RX-P	Modulation	Ip Address	CMTS	Action
11870	cable-upstream 2/7/6.0	online	2312	30	35.1	0 dBmV	atdma / 2.0	10.46.199.146	simicacd02m.socal.rr.com	Reset

- **Upstream:** Will show you what **Blade** the customer is currently on.
- **State:** Will show you the current state of the modem. It is real time and clickable. If you click on the on the online status itself you will get a pop up window that will update as the status of the modem changes. This comes in handy when resetting a modem; it will let you know when the modem is back online without having to refresh Docsis repeatedly.
- **CMTS:** Will show you what **CMTS** the customer is currently on.
- **Action:** Gives you the option to Reset. If clicked this will reset the modem remotely, which is the equivalent of power cycling the modem.

Flap Info:

This row will give you an idea if there may be problems with the signals to the modem, or the modem itself. For definitions you can click on each section (in bold). We want these numbers to be zero, but don't always represent a problem if present. However if these numbers keep rising as you troubleshoot consider a possible modem, signal, or blade issue.

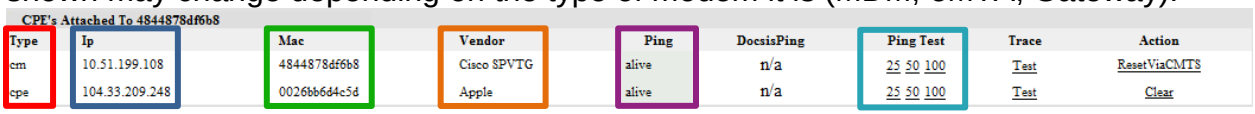
Flap Info For 001dcd93b9be

Last CMTS Clear	Create Time	Last Flap	Ins Fail	Hits	Misses	Perc	CRC Err	P-Adj	Ttl	Action
		10/24/2014 13:25:51 PDT		0		0%		0		n/a

- **Ins Fail:** Will show you if the modem is failing to connect to the interface. If this number keeps rising there may be a modem issue, or an undeclared outage.
- **Misses/Perc:** Will show you if the modem is having problems keeping communication up.
- **P-Adj:** Will show you if the modem keeps having to adjust its signal to stay up.

CPE's Attached to Info:

This row will show you what lines of equipment are currently being recognized/read by the modem you are currently looking at. The layout of what is shown may change depending on the type of modem it is (MDM, eMTA, Gateway).



CPE's Attached To 4844878df6b8

Type	Ip	Mac	Vendor	Ping	DocsisPing	Ping Test	Trace	Action
cm	10.51.199.108	4844878df6b8	Cisco SPVTG	alive	n/a	25 50 100	Test	ResetViaCMTS
cpe	104.33.209.248	0026bb6d4c5d	Apple	alive	n/a	25 50 100	Test	Clear

- **Type:** Will show you Mac Types are currently being picked up by the modem.
    - There are 3 "Types" you will see, they are as follows:
        - **CM** – Cable Modem: this type represents the **modem mac** and will be assigned a **Private IP**.
        - **CPE** – Customer Premises Equipment: this type represents the mac of the **device that is currently direct connected** on a modem. This could also represent the **networking mac of the modem if it is a gateway**. This type will be assigned a **Public IP**.
        - **MTA** – Multimedia Terminal Adapter: this type represents the mta mac and will be assigned a **Public IP**.
- **IP:** Will show you the IP address that is being assigned to each "type" of mac.
- **Mac:** Will show you the mac addresses for the modem, and anything that is connected to it.
- **Vendor:** Will show you the maker of the device associated with the Mac address listed in the Mac section. (Examples: Dell, Apple, Netgear, Arris, etc.)
- **Ping:** Will show you the status of the device associated in that line of data.
    - The status will show up as one of two possibilities; they are as follows:
        - **Alive:** Pings can be sent to and from this device, no firewalls up.
        - **Unreachable:** Pings can't be sent to this device, a firewall is up, device is off/disconnected, or something else is blocking pings.
- **Ping Test:** Sends a range of pings (25, 50, or 100) to the device on that line. This test will come back with the ms and packet loss results. Ideally we want ms to stay under 50ms, packet loss can start causing noticeable problems at 4% +.

CPE's Attached to Info for MDM, GW, eMTA:

Modem:

CPE's Attached To 4844878df6b8

Type	Ip	Mac	Vendor	Ping	DocsisPing	Ping Test	Trace	Action
cm	10.51.199.108	4844878df6b8	Cisco SPVTG	alive	n/a	25 50 100	Test	ResetViaCMTS
cpe	104.33.209.248	0026bb6d4c5d	Apple	alive	n/a	25 50 100	Test	Clear

Gateway:

CPE's Attached To 485ab6f91bc7

Type	Ip	Mac	Vendor	Ping	DocsisPing	Ping Test	Trace	Action
cm	10.248.172.243	485ab6f91bc7	Hon Hai Precision Ind. Co.,Ltd.	alive	n/a	25 50 100	Test	ResetViaCMTS
cpe	76.90.241.16	485ab6f91bc8	Hon Hai Precision Ind. Co.,Ltd.	alive	n/a	25 50 100	Test	Clear

EMTA:

CPE's Attached To 0015a486896b

Type	Ip	Mac	Vendor	Ping	DocsisPing	Ping Test	Trace	Action
cm	10.34.62.155	0015a486896b	ARRIS International	alive	Test	25 50 100	Test	ResetViaCMTS
mta	69.75.153.252	0015a486896c	ARRIS International	alive	n/a	25 50 100	Test	ResetViaCMTS

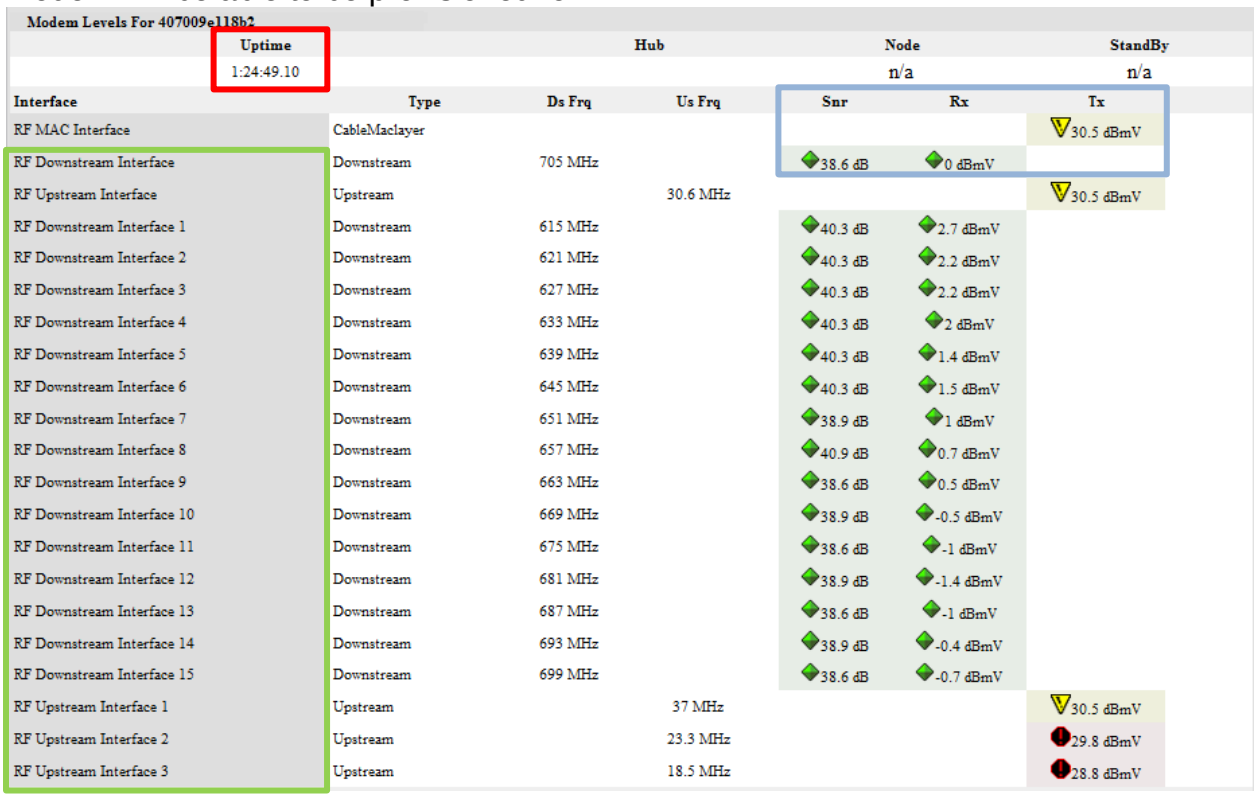
EMTA Gateway:

CPE's Attached To 407009e118b2

Type	Ip	Mac	Vendor	Ping	DocsisPing	Ping Test	Trace	Action
cpe	104.34.206.63	407009e118b4	ARRIS Group, Inc.	alive	n/a	25 50 100	Test	Clear
cm	10.32.122.15	407009e118b2	ARRIS Group, Inc.	alive	n/a	25 50 100	Test	ResetViaCMTS
mta	98.151.219.195	407009e118b3	ARRIS Group, Inc.	alive	n/a	25 50 100	Test	ResetViaCMTS

Modem Levels:

This row will show you how long this modem has been up & running without being reset/power cycled, and modem's signal levels. You will also be able to see the amount of downstreams the modem has. This will play a part in how much speed the modem will be able to be provisioned for.



Modem Levels For 407009e118b2

Uptime			Hub	Node	StandBy
1:24:49.10				n/a	n/a
Interface	**Type**	**Ds Frq**	**Us Frq**	**Snr**	**Rx**	**Tx**
RF MAC Interface	CableMaclayer					30.5 dBmV
RF Downstream Interface	Downstream	705 MHz		38.6 dB	0 dBmV	
RF Upstream Interface	Upstream		30.6 MHz			30.5 dBmV
RF Downstream Interface 1	Downstream	615 MHz		40.3 dB	2.7 dBmV	
RF Downstream Interface 2	Downstream	621 MHz		40.3 dB	2.2 dBmV	
RF Downstream Interface 3	Downstream	627 MHz		40.3 dB	2.2 dBmV	
RF Downstream Interface 4	Downstream	633 MHz		40.3 dB	2 dBmV	
RF Downstream Interface 5	Downstream	639 MHz		40.3 dB	1.4 dBmV	
RF Downstream Interface 6	Downstream	645 MHz		40.3 dB	1.5 dBmV	
RF Downstream Interface 7	Downstream	651 MHz		38.9 dB	1 dBmV	
RF Downstream Interface 8	Downstream	657 MHz		40.9 dB	0.7 dBmV	
RF Downstream Interface 9	Downstream	663 MHz		38.6 dB	0.5 dBmV	
RF Downstream Interface 10	Downstream	669 MHz		38.9 dB	-0.5 dBmV	
RF Downstream Interface 11	Downstream	675 MHz		38.6 dB	-1 dBmV	
RF Downstream Interface 12	Downstream	681 MHz		38.9 dB	-1.4 dBmV	
RF Downstream Interface 13	Downstream	687 MHz		38.6 dB	-1 dBmV	
RF Downstream Interface 14	Downstream	693 MHz		38.9 dB	-0.4 dBmV	
RF Downstream Interface 15	Downstream	699 MHz		38.6 dB	-0.7 dBmV	
RF Upstream Interface 1	Upstream		37 MHz			30.5 dBmV
RF Upstream Interface 2	Upstream		23.3 MHz			29.8 dBmV
RF Upstream Interface 3	Upstream		18.5 MHz			28.8 dBmV

- **Uptime:** Will show you how long the modem has been running without being reset or power cycled.

- **Signal Levels:** Will show you the current state of the signals going to the modem. Docsis will show you if the signals are within an acceptable range (), if signals are borderline and may cause problems (), or if signals are poor (). Specific acceptable ranges can be found elsewhere in Docsis.

    - There are 3 types of signals you will see, they are as follows:

        - SNR (Signal to Noise Ratio) – Measures the amount of desired signal compared to undesired signals or noise. A higher number indicates a stronger signal. Anything lower than 32 can start causing problems.

- RX (Receive) – Measures the strength of the signal received at the modem. This signal can be too high or too low. Most regions are looking for a signal approximately between -9 and 9.

- TX (Transmit) – Measures the strength of the signal transmitted from the modem. This signal can be too high or too low. Most regions are looking for a signal approximately between 33 and 51.

- **Downstreams:** Will show you the amount of downstreams the modem has. This will directly impact the maximum bandwidth our system will provision the modem for, regardless of the package the customer subscribes to. The screenshot displays a D3 Gateway that has 16 downstreams and 4 Upstreams (16x4).

  Customers will sometimes insist that their modems were designed to handle higher speeds than what the chart below explains. For example some 8x4 gateways will show that they can handle up to 300Mbps+ on the box, it will only get 100Mbps with our system. This is because in October of 2013 a decision was made at the Corp IT level to limit the amount of bandwidth a modem can be provisioned for based on the amount of downstreams on the modem. This would help alleviate some bandwidth issues.

  - As of now the max amount of downstreams available with our modems is 16. Here is a breakdown of what the different types can handle:

    - **D2 modems 1x1:** Can support up to 20Mbps

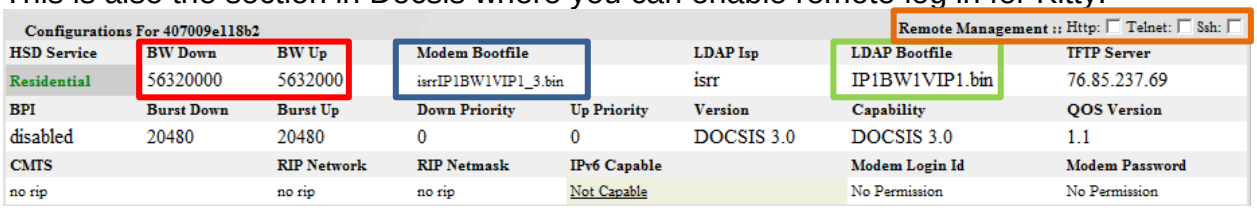
    - **D3 modems 4x4:** Can support up to 50Mbps

    - **D3 modems 8x4:** Can support up to 100Mbps

    - **D3 modems 16x4:** Can support up to 300Mbps

Configurations:

This will show you the information that the modem is currently provisioned for. This is also the section in Docsis where you can enable remote log in for Kitty.



Configurations For 407009e118b2

Remote Management :: Http: ☐ Telnet: ☐ Ssh: ☐

HSD Service	BW Down	BW Up	Modem Bootfile		LDAP Isp	LDAP Bootfile	TFTP Server
Residential	56320000	5632000	isrrIP1BW1VIP1_3.bin		isrr	IP1BW1VIP1.bin	76.85.237.69
BPI	**Burst Down**	**Burst Up**	**Down Priority**	**Up Priority**	**Version**	**Capability**	**QOS Version**
disabled	20480	20480	0	0	DOCSIS 3.0	DOCSIS 3.0	1.1
CMTS		**RIP Network**	**RIP Netmask**	**IPv6 Capable**		**Modem Login Id**	**Modem Password**
no rip		no rip	no rip	Not Capable		No Permission	No Permission

- **Bandwidth Provisioned:** Will show what bandwidth the modem is currently provisioned for and putting out (download and upload). Measure in megabits, the example above shows a modem provisioned for 50Mbps down and 5Mbps up.

- **Bin File:** Will tell you what this modem is provisioned for, based on what the modem pulls from the LDAP Bin.
  Note: For a complete explanation on how to read bin files, and different types, refer to your Bin File handout.

  - The Bin File is read from left to right, the breakdown is as follows:
    - **Isrr** – tells you who the ISP is, in this case it is TWC.
    - **IP1** – tells you this customer is only supposed to be getting 1 IP address.
    - **BW1** – tells you what bandwidth is being assigned to the modem, in this case Standard internet.
    - **VIP1** – tells you that the modem is provisioned for 1 line of digital phone service.
    - **_3.bin** – tells you this modem is a D3 gateway.

- **LDAP Bin File:** Will tell you how many IP addresses are to be assigned, what is the speed of the connection, and is there digital phone service. This bin file is pulled by Docsis depending on what codes are on the account.
  Note: For a complete explanation on how to read bin files, and different types, refer to your Bin File handout.

- **Remote management:** This section allows you to enable the remote access portion(s) of our gateway. Allowing you to get into the gateway's GUI and check or modify the customer's wireless gateway settings. Typically you will only check the http box and access the gateway using the Kitty tool.

Digital Phone Configs:

This section will show you the current platform the phone line is on, the phone number the mta sees attached to it, and the current line status.

Digital Phone Configs — Remote Management :: Http: [Arris Loop Diagnostics]

Mta Mac	Platform	Prov State	Oper State	Vendor	Mta Ip	MtaReset	DHCP Opt60
407009e118b4	IMS	Pass w/Warn	Operational		98.151.219.195	Reset	pktc2.0
FQDN		**Status**	**Bootfile**		**Battery Status**	**PCSCF**	**End Points**
x1-6-40-70-09-e1-18-b3.ddns.socal.rr.com		Enabled	7BEWGbBAcAnhGLNi9vD		n/a	pcscfgm.ims.rr.com	Unknown
IMPU Id	**Phone Number**	**Line Status**	**Rate Center**	**LATA Name**	**Admin Status**	**Oper Status**	**Row Status**
sip:7148423473@ims.rr.com		OnHook			Active	Active	Active

- **Platform Info:** Will show you the platform the modem is currently under. This will be important if certain 3rd party vendors like nomorobo are not working with our DP service; they require the platform to be IMS. The screenshot above shows a customer on the IMS platform. Platform mismatches could also occur, causing a no dial tone issue.

The screenshot below is an example of a modem on the NCS platform.

Digital Phone Configs — Remote Management :: Http: [Arris Loop Diagnostics]

Mta Mac	Platform	Prov State	Oper State	Vendor	Mta Ip	MtaReset	DHCP Opt60
001dcfb54c23	NCS	Pass w/Warn	Operational	arris	98.147.243.218	No Reset	pktc1.5
FQDN		**Status**	**Bootfile**		**Battery Status**	**DTMF Mode**	**End Points**
x1-6-00-1d-cf-b5-4c-23.ddns.socal.rr.com		Enabled	[001dcfb54c23/-t-mta/v-arris/dv-3		Missing	n/a []	2
Call Agent		**Line Status**	**Phone Num**	**BTS Status**	**BTS Profile ID**	**BTS Sub ID**	**BTS**
ncs-lax03q.voip.orange.rr.com		aaln/1: OnHook		[illegible]	simivalley-ca1	0015cee0d6c8_1	CA lax03q
ncs-lax03q.voip.orange.rr.com		aaln/2: OnHook					

- **Phone Number:** Will show the phone number that the modem sees it is attached to. (will not always display, this is necessarily not a problem)

- **Line Status:** Will show you the current state of the line. It is not real time left alone. If you want the real time status click on the **On Hook** itself and a pop up will appear with the real time status. The pop up may show missing data, or not work (This does not mean there is a problem).

    - There are 3 types of line statuses you can see, they are as follows:

        - On-Hook: Phone is hung up and ready to use.

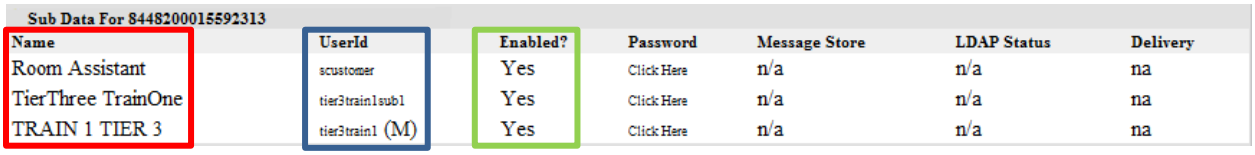
        - Off-Hook: Phone is currently in use (or the modem thinks it is).

        - On-Hook w/activity: Phone is hung up, but is ringing (someone is trying to call in and the mta reads the incoming call).

- **Oper Status:** If this section shows Inactive there could be a problem with the modem that needs to be addressed by a MTA reset in the device management tool. (Device Look Up > Enter MTA MAC > Actions > Reset MTA > Wait 2-5 Min)

Sub Data:

This section will show you the e-mails the customer has on his/her account. Each line will show you the name of the person, the e-mail name (without domain), and the status.



Sub Data For 8448200015592313

Name	UserId	Enabled?	Password	Message Store	LDAP Status	Delivery
Room Assistant	scustomer	Yes	Click Here	n/a	n/a	na
TierThree TrainOne	tier3train1sub1	Yes	Click Here	n/a	n/a	na
TRAIN 1 TIER 3	tier3train1 (M)	Yes	Click Here	n/a	n/a	na

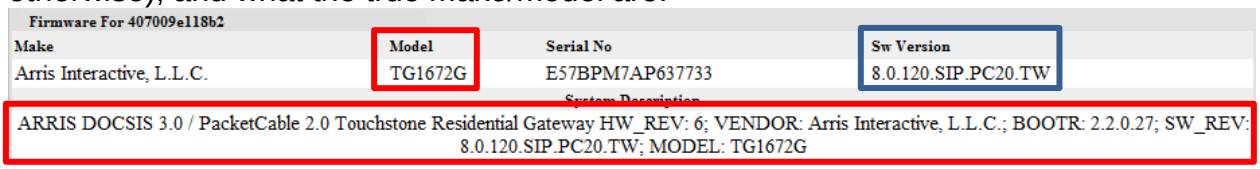
- **Name:** Will show you the name of the person who was entered in when the e-mail was created.

- **User ID:** Will show you name of the e-mail address minus the domain. If the e-mail address was scustomer@twc.com, the user id will come up as scustomer. One of these e-mail accounts will also have a (M) next to it. This means that it is the Master account, all the rest are sub accounts. You can promote sub accounts through the Account Lookup tool mentioned earlier in this document.

- **Enabled?:** Will show you if the e-mail address on that line is enabled (YES) or disabled (NO). Typically the reason a group of e-mails would be disabled is if the customer has disconnected internet services through us, or they manually disabled using the self-care site (selfcare.twcc.com). If the customer does have internet services with us but wants the e-mail(s) enabled they can go back to the self-care site and re-enable.

Firmware:

This section will show you the current firmware attached to the modem. This is also where you can see for sure what type of modem this is (if any other system shows otherwise), and what the true make/model are.



Firmware For 407009e118b2

Make	Model	Serial No	Sw Version
Arris Interactive, L.L.C.	TG1672G	E57BPM7AP637733	8.0.120.SIP.PC20.TW

System Description

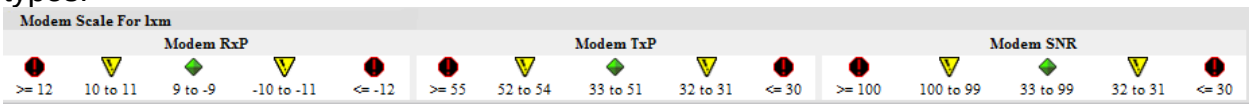
ARRIS DOCSIS 3.0 / PacketCable 2.0 Touchstone Residential Gateway HW_REV: 6; VENDOR: Arris Interactive, L.L.C.; BOOTR: 2.2.0.27; SW_REV: 8.0.120.SIP.PC20.TW; MODEL: TG1672G

- **True Make and Model:** Will Sometimes the systems will tell you that the make is one thing but this section will tell you for sure what it really is. This is a common step for modems labeled as Arris since Motorola gateways show up as Arris. This will be important if you have trouble remotely accessing the gateway.

- **Current Firmware:** Will show you the current version of the firmware the modem has attached. This will play a factor into situations where the modem/gateway is not responding correctly; if the firmware will not update we will have to replace the equipment.

Modem Scale:

This section will show you the different signal ranges for the different signal types.

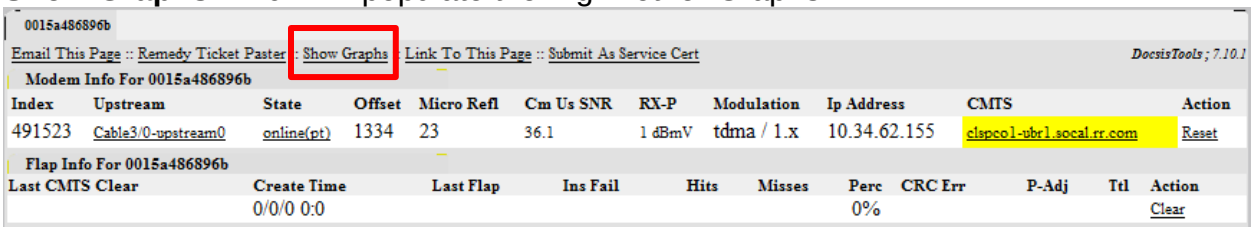


What is Big Brother?

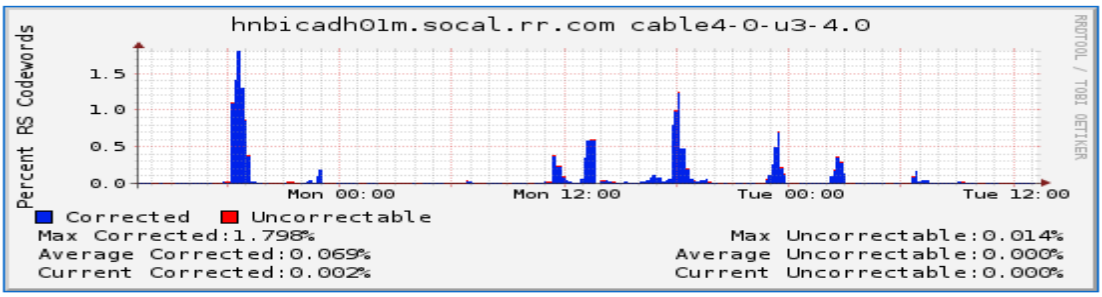
Big Brother is a tool built into Docsis that lets you see the current status of the blade the modem is assigned to. This tool will play a big role in determining if a problem (like signal issues) is at the customer's location, or if the problem could be originating from our headend(s).

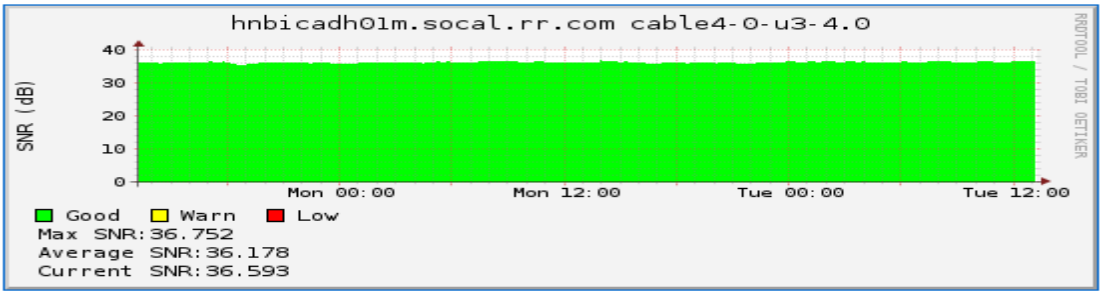
How to find the Big Brother Graphs:

Towards the top of the Docsis page (where you see the tabs with Mac addresses) you will see a row of clickable options. The only one we use in Tier 3 is the **Show Graphs** which will populate the Big Brother Graphs.



Once you click the **Show Graphs** option Docsis will expand to the right. It is there where you will see the Big Brother Graphs populate.





What to look for in the graphs:

When we pull up the graphs we are looking at 2 graphs; **Percent RS Codewords** and **SNR (dB)**. We are also looking for specific sections within these graphs that could indicate a problem.

Percent RS Codewords:

- Current Uncorrectable: If there is a significant spike in uncorrectable errors you may want to get bridge to take a look.
- Average Uncorrectable: Anything above or near 8% should be escalated to bridge.
- Can cause problems with intermittent or no connectivity.

SNR (dB):

- Current SNR: If there is a significant drop in SNR you may want to get bridge to take a look.
- Average SNR: Anything below or near 31 should be escalated to bridge.
- Can cause problems with intermittent, slow, or no connectivity.