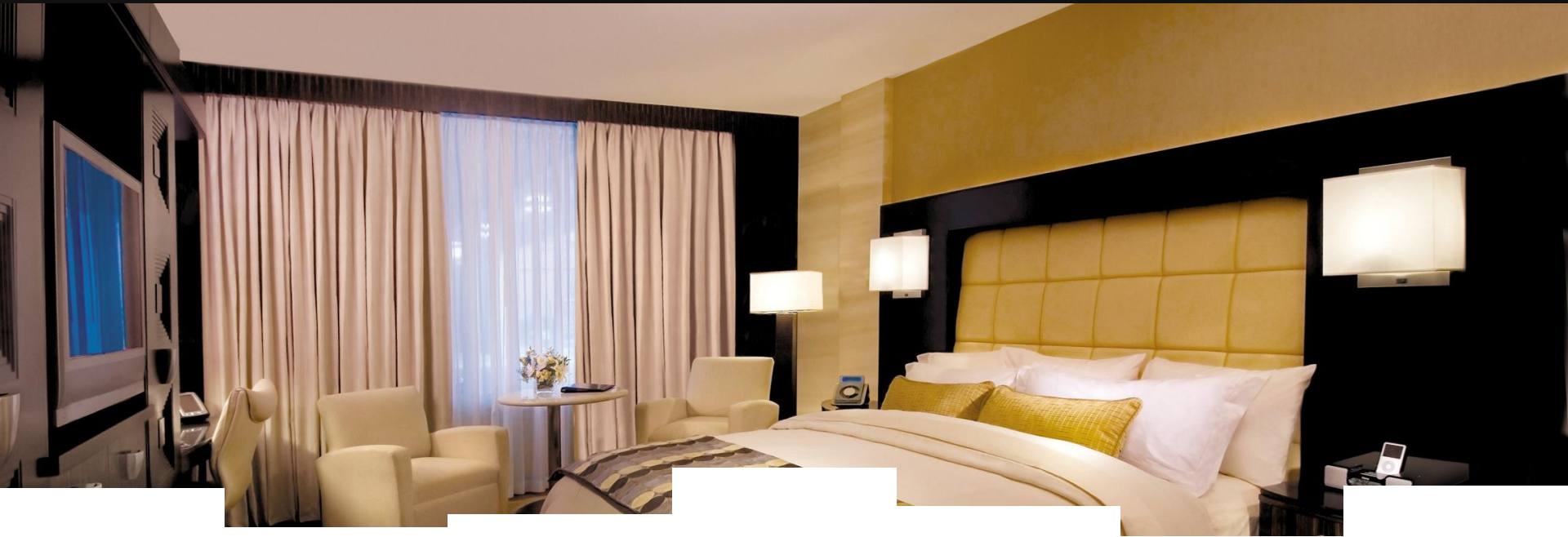




COM2000 Training Workshop



technicolor



Welcome

Welcome to the Technicolor COM2000 training workshop

Your instructor is Mark Anderson

The Technicolor MCS Management Team is:

- Rob Rhodes – Director of R&D
- Doug Strachota – Product Manager
- Tony Watters – Sales Manager

Contacting Technicolor MCS

The Technicolor MCS website:

<http://www.technicolor.com/en/solutions-services/connected-home/commercial-video-solutions>

The Technicolor MCS toll free support number:

1-855-297-5820

The Technicolor MCS email address:

mcssales@technicolor.com

Classroom Etiquette

Please DO

- Turn all cellphones to vibrate or off
- Keep all conversations relevant to the current topic
- Feel free to ask questions when needed

Please DO NOT

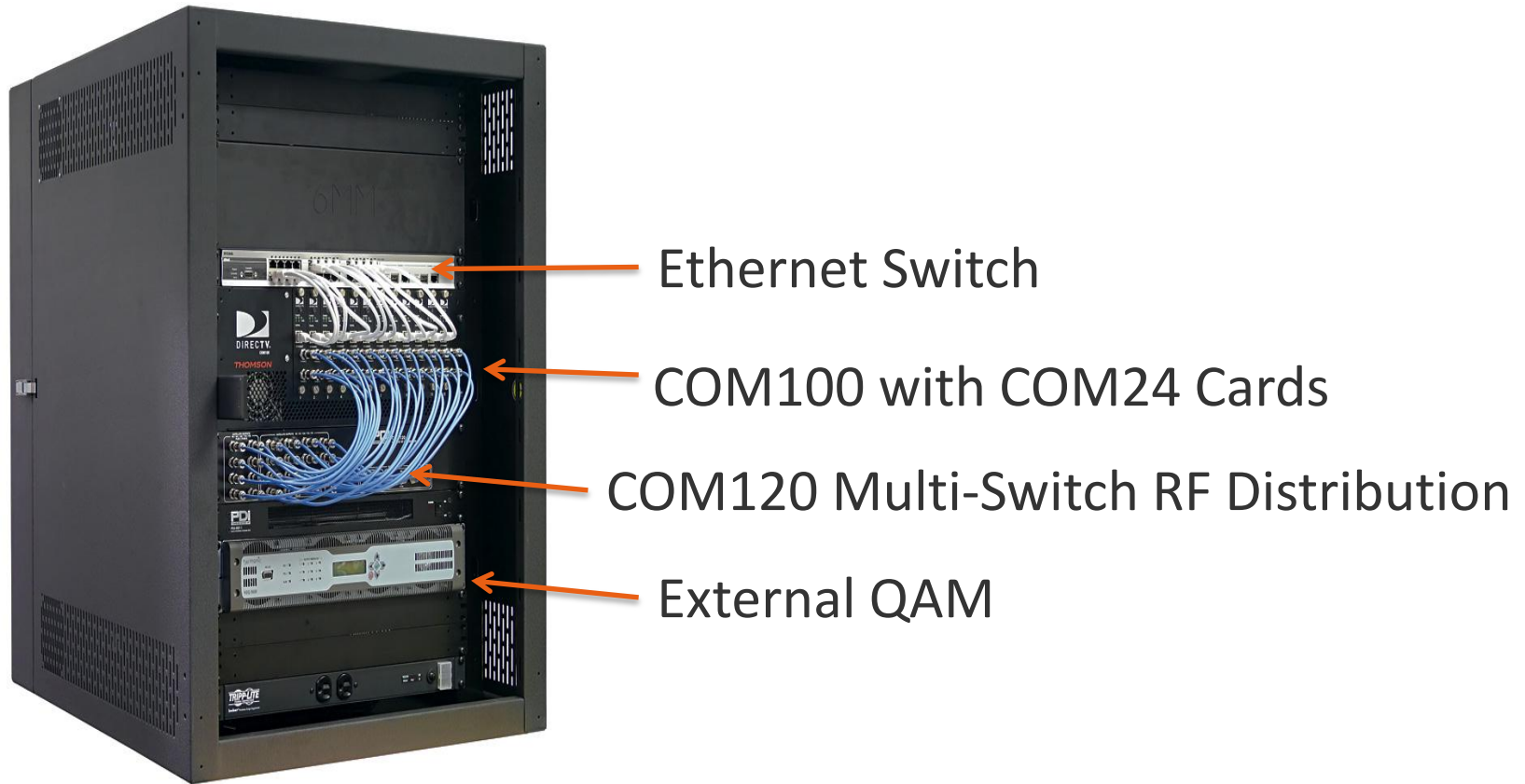
- Talk on your cell phone
- Carry on side conversations
- Be afraid to ask questions
- Be disruptive to others in the class

A Brief Technicolor MCS Product History

- Commercial Gateways for MDU - Captiva
- Gateways for Aircraft - LiveTV (U.S.) & Azul (Brazil)
- COM24 & COM100 – Colony System
- COM200 - Chassis with integrated Ethernet switch
- QAM24 - Integrated 12 channel modulator
- COM24-FLX - SD only, SWM only version of the COM24 , Upgradable
- GbE1 - Provides access to COM200 backplane slot 1 Gigabit Ethernet port
- QAM6 & SWQAM2- Integrated 6 channel modulator & SW upgrade
- DCI401 MCS - Pro:Idiom decrypting set back box
- ATSC8 - 1 RU, 8 tuner ATSC receiver
- MediaTune - Graphical user interface for bars and restaurants

Evolution of the COM1000 System

2009



Evolution of the COM1000 System

2012

Integrated QAM

COM200 with COM24 Cards and QAM



4RU



Integrated Ethernet Switch

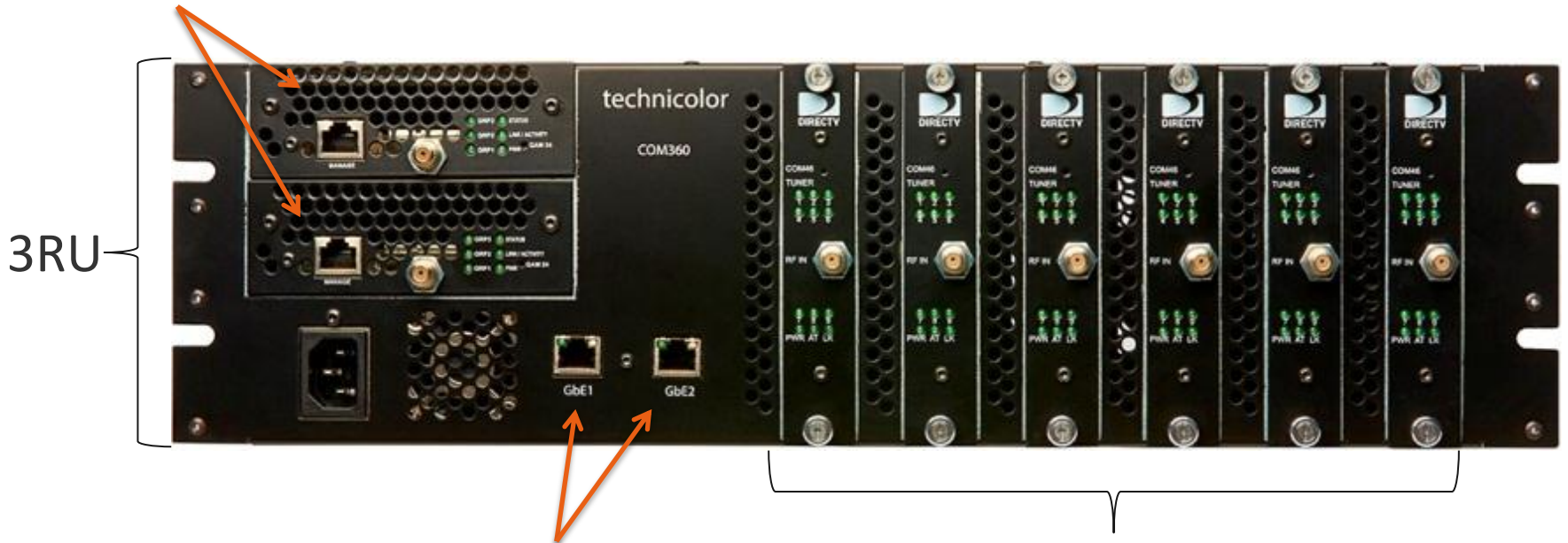
SWM Compatibility

Introducing the COM2000 System

2014

2 QAM Slots

COM360 with COM46 Cards and QAMS



3RU

Dual Gigabit Ethernet Ports

Up to 6 COM46, COM46FLX, COM24 or COM24FLX Cards

What We Will Cover In This Workshop

- COM360 System Chassis
- COM46 and COM46-FLX satellite receiver cards
- QAM6 Modulator card
- EPG & PSIP (Electronic Program Guide, Program and System Information Protocol)
- Integrating an EAS (Emergency Alert System) solution
- Local Content Insertion (Security cameras, local info video, etc.)
- ATSC8 off air receiver
- DCI401MCS Pro:Idiom decrypting set back box

System Components - COM360

COM360 Chassis

- (2) Gigabit User Defined Ethernet Ports
- (2) QAM Slots
- Provides 3 RU rack mounted enclosure and power supply
- Backplane provides power distribution and integrated Gigabit Ethernet switch
- Redundant fans for cooling



System Components - COM46

COM46 Receiver Card

- Receives Satellite RF stream
- Removes DIRECTV's encryption
- Applies Pro:Idiom digital content protection
- Supports 8 DIRECTV channels
- Outputs IP video in UDP or RTP formats
- Remote software upgrades and management
- LED blinking sequence provides front panel diagnostics
- Only supports SWM RF plants



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System Components - COM46-FLX

COM46-FLX Receiver Card

- Receives Satellite RF stream
- Removes DIRECTV's encryption
- Supports 8 DIRECTV SD channels
- Outputs IP video in UDP or RTP formats
- Remote software upgrades and management
- LED blinking sequence provides front panel diagnostics
- Only supports SWM RF plants



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System Components - QAM6 & SWQAM2

QAM6 & SWQAM2

- Cost effective, scalable solution for a variety of channel counts
- Reduced feature set specific to hospitality market
- QAM6 supports 6 QAM @ 256 with single RF output – Max 12 QAM with update keys
- Two channel upgrade keys can be purchased: Mdl # SWQAM2
- J.83 Annex B, frequency range 54Mhz – 860 MHz



System Components - ATSC-8



- 1 RU
- 8 available ATSC digital tuners
- IP output
- Configured via COM46 or COM46-FLX HTML interface

System Components - DCI401MCS



- QAM input
- HDMI, RF outputs
- Pro:Idiom Decode
- Utilizes PSIP data when present
- MPEG4/MPEG2/DIRECTV legacy decode
- Configured via COM46 or COM46-FLX HTML interface

Commissioning a COM2000 System - Toolkit

- COM24mdns.exe
- Web browser - IE, Chrome, Firefox, Safari
- TFTP server - tftpd32
- DHCP server - tftpd32
- Syslog server - tfpd32, Kiwi Syslog Daemon
- IP video playback utility, VLC
- Packet Capture - Wireshark
- DCI401MCS
- Video monitor with HDMI input
- AIM

Technicolor COM2000 - What's New?

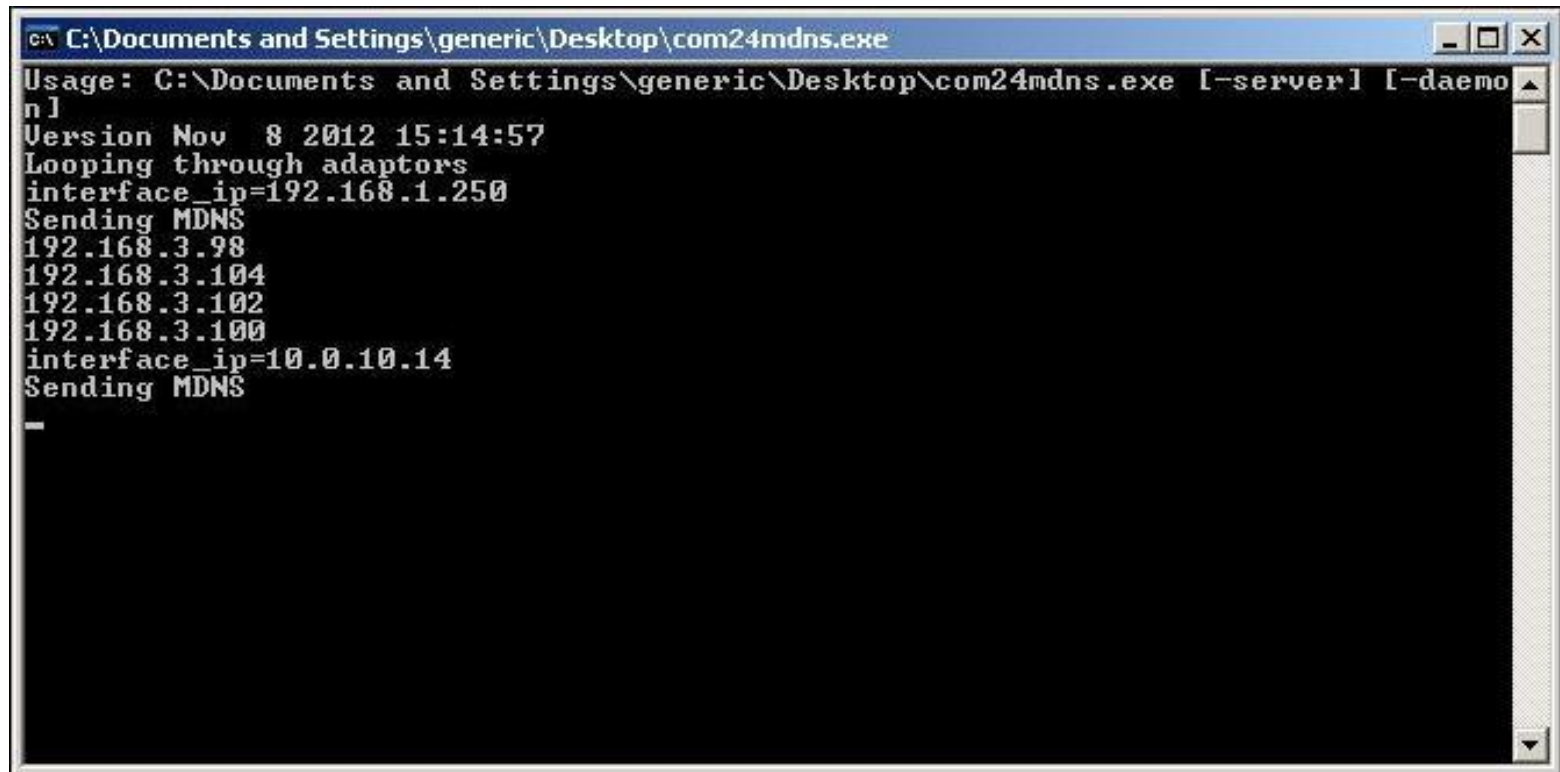
COM46 - Receiver Card

- Overview Page
- Eight tuners per card
- HTML file upload capability
- SWM only
- No front Ethernet port
- Gigabit Ethernet

COM360 - Chassis

- Dual QAM slots
- Integrated gigabit switch
- Two user defined gigabit front Ethernet ports
- Single power supply

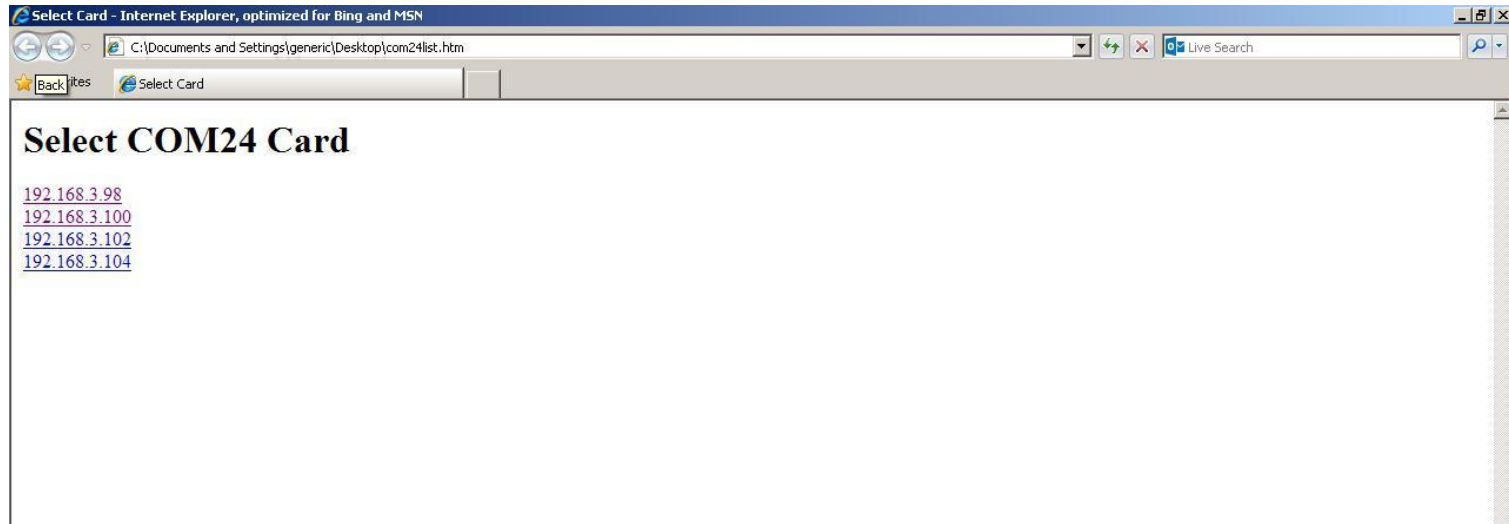
Discovery Tool - COM24mdns.exe



```
C:\Documents and Settings\generic\Desktop\com24mdns.exe
Usage: C:\Documents and Settings\generic\Desktop\com24mdns.exe [-server] [-daemon]
Version Nov  8 2012 15:14:57
Looping through adaptors
interface_ip=192.168.1.250
Sending MDNS
192.168.3.98
192.168.3.104
192.168.3.102
192.168.3.100
interface_ip=10.0.10.14
Sending MDNS
-
```

MDNS = Multicast Domain Name Service

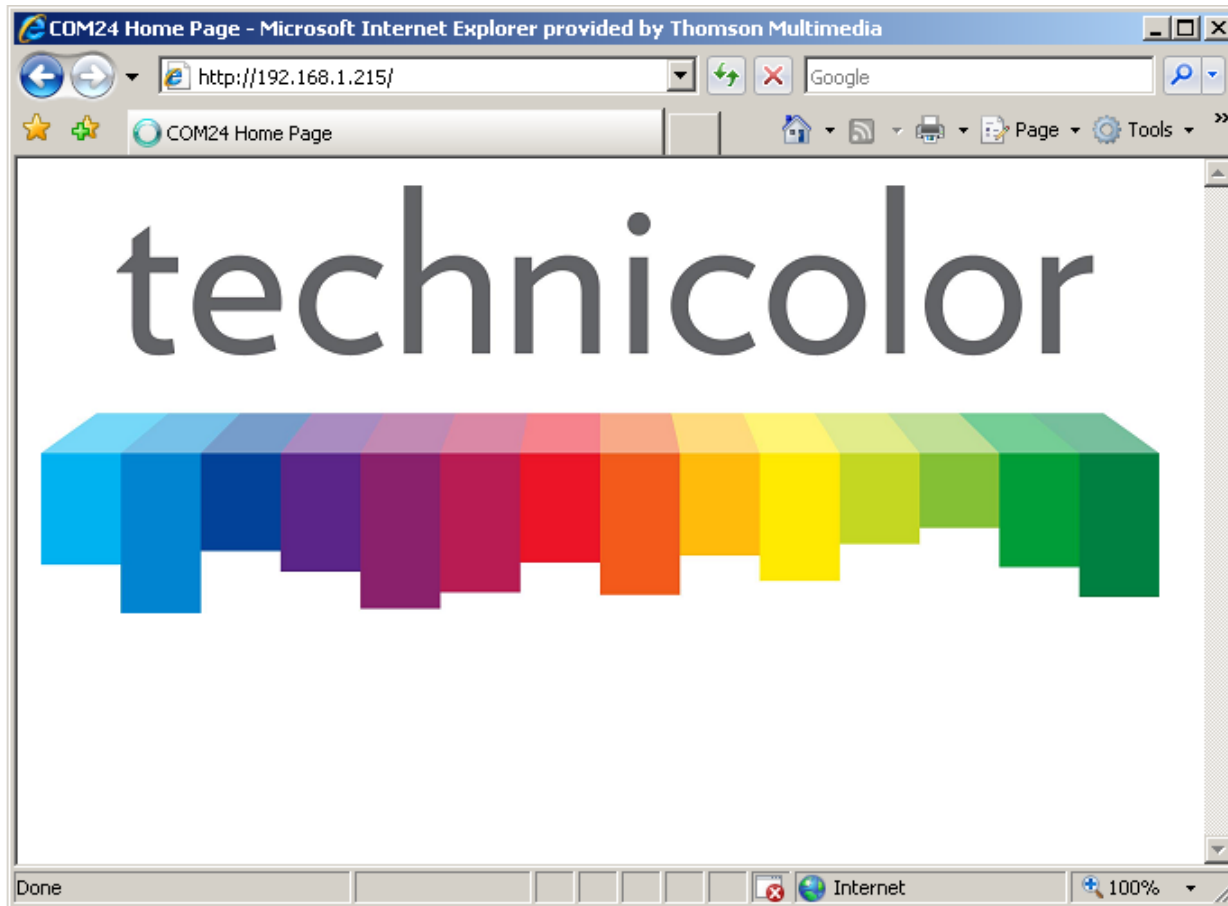
Discovery Tool - COM24mdns.exe



After running the COM24mdns.exe tool your default browser will launch and present you with a page of links to the Technicolor COM46/COM24 cards it has discovered

COM46 - Technicolor Splash Screen

After clicking on a link to a COM46/COM24 card you will see the Technicolor splash screen for a few seconds.



COM46 - Discover Page



Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#),
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

Links to other system pages

Sending MDNS
Refreshing...

Chassis	Slot	Tuner	QAM	Bitrate	Channel	SNR	Strength
1	1	QAM 42-1	5.2 Mbps	202 CNNHD	13	-22	
	2	QAM 42-2	9.2 Mbps	269 HISTHD	14	-22	
	3	QAM 43-1	10.9 Mbps	271 H2HD	16	-22	
	4	QAM 43-2	5.6 Mbps	290 DISeHD	10	-23	
	5	QAM 44-1	3.3 Mbps	244 SyfyHD	11	-22	
	6	QAM 44-2	6.2 Mbps	283 NGWHD	13	-19	
	7	QAM 45-1	4.3 Mbps	245 TNTHD	11	-22	
	8	QAM 45-2	7.3 Mbps	284 SCIHD	11	-24	
3	1	QAM 46-1	3.9 Mbps	241 SpikeHD	9	-22	
	2	QAM 46-2	6.2 Mbps	242 USAHD	15	-23	
	3	QAM 47-1	1.8 Mbps	238 REELZ	15	-24	
	4	QAM 47-2	3.4 Mbps	277 TRAVHD	10	-25	
	5	QAM 48-1	5.8 Mbps	278 DSCHD	11	-23	
	6	QAM 48-2	6.7 Mbps	254 AMCHD	11	-19	
	7	QAM 49-1	5.7 Mbps	247 TBSHD	12	-19	
	8	QAM 49-2	6.8 Mbps	248 FXHD	8	-28	

Basic system info grid by chassis
by slot by tuner

Links to simple tune page by tuner



COM46 - Discover Page - Links

Overview

- This page presents you with the most used system information on a single page. It provides for tuning and routing configuration.

Discover

- Sends out a multicast discovery request to find all cards installed on the network

PairingInfo

- The PairingInfo page presents the user with links to the syslogs and camlogs for all cards, shows authorization status and provides for simultaneous multiple card software updates

COM46 - Discover Page - Links

TuneAll

- From this page you can paste in a tuning list and tune all tuners in the system at once and see all current tuning parameters in a plain text format and you copy to a file for future use.

Help

- This page presents the user with a list of the page links with a brief description of each and a link to the Technicolor MCS web site

Refresh

- Refreshes all of the data for cards currently listed, will NOT list data for any cards added since last discover function

COM46 - Discover Page - Links

Display

- Relists the current data for all cards installed in the COM2000 system but does NOT refresh the data or discover cards

SysInfo

- This page displays MAC and IP addresses of all the cards in the system by chassis/slot and will show which card(s) are running an EPG

HealthInfo

- This page displays basic IC temperature and fan status information

COM46 - Discover Page - Links

EPG

- From this page you can configure and manage the Electronic Program Guide and Program and System Information Protocol functionality

Syslog

- Takes you to the Syslog of the card you are currently addressing

Lock

- From this page you can set a system password to restrict write access to all cards in the system

COM46 - Discover Page - Links

ATSC

- From this page you configure and manage the ATSC8 off air receiver

401

- From this page you configure and manage the DCI401MCS Pro:Idiom decrypting set back box

QAM

- From this page you configure and manage the Technicolor QAM

COM46 - Discover Page - Data Fields

QAM/IP Address

- When streaming to a Technicolor QAM, this field will display the major and minor QAM channel
- If streaming externally, or if there is a problem this field will display the destination IP Address

Bitrate/Port

- If streaming to a Technicolor QAM this field will display a static snapshot of the stream bitrate
- If streaming externally, or if there is a problem this field will display the destination port number

COM46 - Discover Page - Data Fields

SNR

- Displays the Signal to Noise Ratio of the incoming RF signal in dB. This is an indicator of signal quality, bigger is better

Strength

- This is a measurement of the incoming signal strength expressed in dBm

Color Coding

- Some fields will change background color if values are outside of nominal. WHITE = nominal, YELLOW = cautionary or warning, RED will be an issue requiring someones attention

Slot ID

- This is a link that will take you to the CAM log of that card. Grey shading indicates log message(s) are in the log file(s)

COM46 - Simple Tune Page

COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.98/cgi-bin/webcmd?screen=CardTune&tune=0

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SvsInfo](#), [HealthInfo](#), [EPG](#), [Svslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

Channel Tune

Dest_IP_Address:

Dest_Port_Number:

Major_Number: ***

QamMajor:

QamMinor:

Major_Number: ***

[Advanced Edit](#)

Destination by IP & port
or
by QAM major & minor
channel number

Link to Advanced Edit page

COM46 - Advanced Edit Page, Channel Tune

COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.100/cgi-bin/webcmd?screen=CardEdit?tune=0

Back to COM1000 (Alt+Left)

Favorites COM1000

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SvsInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

Edit (Chassis=6, Slot=1, Tuner=1, IP=192.168.3.98)

Channel Tune

Dest_IP_Address: OR Qam-Sub

Dest_Port_Number:

Protocol_Type:

Channel_Object_ID:

Major_Number: ***

Minor_Number:

Stream_ID:

Security_Mode:

Persistent:

COM46 - Advanced Edit, Tuning

Dest_IP_Address

- This is usually the IP address of a QAM or a multicast IP address

Dest_Port_Number

- IP Port numbers usually represent QAM minor channel numbers

Protocol_Type

- Allows user to select UDP or RTP protocol for IP encapsulation

Channel_Object_ID

- This is a unique number that represents a DIRECTV channel. It is filled in when a tuner locks however it can be used, when known, to force a tuner to lock a particular DIRECTV channel

COM46 - Advanced Edit, Tuning

Major_Number

- This is where you enter the DIRECTV channel number you wish to tune

Minor Number

- Default value of 65535 is filled in automatically by the COM46 card and generally does not need to be changed

Stream_ID

- Allows for a unique identifier to be applied to every video stream produced by the COM2000 system

COM46 - Advanced Edit, Tuning

Security_Mode

- This pull down allows the user to select the encryption mode used to protect the HD streams leaving the COM46 card
- Encryption can be turned off for SD channels

Persistent

- This setting enables the COM46 card to remember all of its settings and return to them after a power cycle or reboot

COM46 - Advanced Edit Page, Info

Info	
*Chassis_ID:	6
*Slot_ID:	1
*Tuner:	1
*Card_IP:	192.168.3.98
*Receiver_ID:	036624337238
*CAM_ID:	003805104902
*Network_ID:	10
*Frequency_Index:	135
*Authorized:	1
*Paired:	1
*Blackout:	0
*SW_Version:	ST03.02.00

Provides a convenient place to see information from several different pages in one location

COM46 - Advanced Edit Page, Info

Chassis_ID, Slot_ID, Receiver_ID, CAM_ID, Authorized, Paired

- Names may look slightly different but the functionality is the same across all screens

Network_ID

- Translates to a specific satellite

Frequency_Index

- Translates to a specific transponder

Blackout

- A '1' indicates that a coverage-blackout is being enforced in the systems zip code for the program that is tuned

SW_Version

- Reports the COM46 software version

COM46 - Advanced Edit Page, LED Control

LED Control

Led State:

0 = Off
1 = On
2 = Flashing

- Provides a pull down that allows the user to control the state of LED number 9
- Can be useful for remote identification of a particular card in the system


COM46 - Advanced Edit Page, Read Cam Log

Read CAM log

Submit Query

- Provides one method to get access to the CAM log for review of messages
- CAM log is where the DIRECTV 700 messages will be found if experiencing authorization issues, etc. i.e. 721, 722, 727

COM46 - Black Out Screen



This event is blacked out in your area.
Normal programming will return after this event.

When a guest tunes to a channel in the lineup that is tuned to a locally blacked out event (727 message) they are presented with this still frame

COM46 - Advanced Edit Page, Reset

Reset

Submit Query

Performs a software reset of the COM46 card

COM46 - Advanced Edit Page, File Transfer

File Transfer

Usage:

Server_IP_Address:

Filename:

Mode:

The primary function of this command is to provide you a method to transfer files to the COM46 card using tftp or ftp protocols

COM46 - Advanced Edit Page, File Transfer

File Transfer

Usage: 0 = NA

Server_IP_Address: 0 = NA

Filename: 1 = MT

Mode: 2 = SW_Upgrade

3 = Log

4 = License

5 = B

6 = Flash_Image

- A pull down list is provided to tell the COM46 card which type of file you are transferring.
- Files types include Media Tune, software files of various types and sizes, license files, etc.

COM46 - Advanced Edit, File Transfer

Usage

- Defines the operation to perform for the COM46 card

IP_Address

- Sets the IP address of the ftp or tftp server
- *Default: 192.168.1.254*

Filename

- Defines the file to retrieve or sets the name of the log file

Mode

- Selects which file-transfer protocol to use for the file transfers
- *Default: 0 = tftp*

COM46 - Advanced Edit Page, User Config

User Config

WARNING: Changing the settings in this section may cause the card to be unable to communicate. Please record all settings for future reference.

IP_Config:	<input type="text" value="0 = Default"/>	
Base_IP:	<input type="text"/>	
Subnet:	<input type="text"/>	Recommended: 255.255.0.0. Warning: You may lose communication with the card.
Gateway:	<input type="text"/>	
DNS_IP:	<input type="text"/>	
Time_To_Live:	<input type="text" value="3"/>	
Log_IP:	<input type="text"/>	
Log_Level:	<input type="text"/>	a# (app; guide; hw; publish; verifier; 0 - debug; 1- verbose; 2 - info; 3 - warn; 4 - error)
UtilConfig:	<input type="text"/>	

- Allows user to configure the COM46 NIC settings
- Provides ability to set the syslog message level and route it to a remote syslog server when required
- Provides another method to apply special software keys to the COM46

COM46 - Advanced Edit Page, User Config

IP_Config

- Allows the user to select one of 3 IP addressing modes
- Default mode is based on the chassis ID and slot number

Base_IP

- Displays current IP address. This is where you set the COM46 IP address in the Fixed mode

Subnet

- Display or sets the subnet mask, default is 255.255.0.0

Gateway

- This field is where the user defines the IP address of the gateway

DNS_IP

- This is where you apply the IP address of the Domain Name System server

COM46 - Advanced Edit Page, User Config

Time_To_Live

- This is where you can change the TTL setting for the COM46 card
- The default value is 3

Log_IP

- Here you define the IP address of a remote syslog server

Log_Level

- This setting allows the user to change the verbosity of the syslog

UtilConfig

- This field is mainly used for development and the application of special software keys

COM46 - Advanced Edit Page, Direct Tune

Direct Tune

Tuner_Index:

Network_ID:

Frequency_Index:

Allows the user to tune DIRECTV channels using the DIRECTV Network ID and Frequency Index

COM46 - Advanced Edit Page, Simulcrypt

Simulcrypt

SimulcryptIP: Will be copied to all cards in the chassis

Port:

ChassisBitmap:

- Used to support Samsung LYNK encryption method
- Supplies IP address and port value of the encryption key server to all COM24/46 cards in the system once entered into any COM24/46 in the system

COM46 - Overview Page

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

QAM Summary

Chassis	IP	Alt IP	Base Ch 1	Base Ch 2	Base Ch 3
6	192.168.6.7	192.168.6.99	42	46	50

Submit

Display Mode QAM IP
SD Duplicates Show Hide

Chassis	Slot	Tuner	Security	Channel	Mode	Major.Minor / IP:Port	Bitrate	SNR	Strength	Status
1	1	Pro:Idiom	202 CNNHD	QAM	42 . 1	6.0 Mbps	12	-22	OK	
	2	Pro:Idiom	269 HISTHD	QAM	42 . 2	3.4 Mbps	13	-23		
	3	Pro:Idiom	271 H2HD	QAM	43 . 1	10.3 Mbps	15	-22		
	4	Pro:Idiom	290 DiSeHD	QAM	43 . 2	6.9 Mbps	10	-24		
	5	Pro:Idiom	244 SyfyHD	QAM	44 . 1	9.0 Mbps	11	-22		
	6	Pro:Idiom	283 NGWHD	QAM	44 . 2	8.9 Mbps	13	-19		
	7	Pro:Idiom	245 TNTHD	QAM	45 . 1	2.6 Mbps	10	-23		
	8	Pro:Idiom	284 SCIHD	QAM	45 . 2	5.8 Mbps	10	-26		
3	1	Pro:Idiom	241 SpikeHD	QAM	46 . 1	7.6 Mbps	8	-23	This slot can only support 6 HD streams	
	2	Pro:Idiom	242 USAHD	QAM	46 . 2	4.7 Mbps	15	-23		
	3	Pro:Idiom	238 REELZ	QAM	47 . 1	1.9 Mbps	15	-24		
	4	Pro:Idiom	277 TRAVHD	QAM	47 . 2	3.6 Mbps	9	-26		
	5	Pro:Idiom	278 DSCHD	QAM	48 . 1	4.8 Mbps	11	-23		
	6	Pro:Idiom	254 AMCHD	QAM	48 . 2	8.6 Mbps	11	-19		
	7	Pro:Idiom	247 TBSHD	QAM	49 . 1	8.5 Mbps	12	-19		
	8	Pro:Idiom	248 FXHD	QAM	49 . 2	4.8 Mbps	7	-29		
6	1	Pro:Idiom	100 CNN	QAM	40 . 1	2.8 Mbps	10	-25		

QAM data summary

System Info grid with pull downs for simple configuration tasks

COM46 - Overview Page, Security Pull Down

COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.100/cgi-bin/webcmd?screen=Overview

Favorites Connecting...

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

QAM Summary

Chassis	IP	Alt IP	Base Ch 1	Base Ch 2	Base Ch 3
10	192.168.6.11	192.168.6.11	30	34	38

Submit

Display Mode QAM IP

SD Duplicates Show Hide

Chassis	Slot	Tuner	Security	Channel	Mode	IP:Port
	1		Pro:Idiom	202 CNNHD	IP	192 . 168 . 6 . 11 : 17
	2		None	269 HISTHD	IP	192 . 168 . 6 . 11 : 18
	3		Pro:Idiom	271 H2HD	IP	192 . 168 . 6 . 11 : 66
	4		Pro:Idiom	290 DISeHD	IP	192 . 168 . 6 . 11 : 33
			liom	244 SyfyHD	IP	192 . 168 . 6 . 11 : 34
			liom	283 NGWHD	IP	192 . 168 . 6 . 11 : 65
	7		Pro:Idiom	245 TNTHD	IP	192 . 168 . 6 . 11 : 50
	8		Pro:Idiom	284 SCIHD	IP	192 . 168 . 6 . 11 : 49

Security Mode Pull Down

COM46 - Overview Page, Channel Pull Down

COM1000 - Internet Explorer, optimized for Bing and MSN
http://192.168.3.100/cgi-bin/webcmd?screen=Overview

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

QAM Summary

Chassis	IP	Alt IP	Base Ch 1	Base Ch 2	Base Ch 3
10	192.168.6.11	192.168.6.11	30	34	38

Submit

Display Mode QAM IP
SD Duplicates Show Hide

Channel list pull down

Chassis	Slot	Tuner	Security	Channel	Mode	IP:Port	Bitrate	SNR	Strength	Status
1	1	Pro:Idiom	202 CNNHD	IP	192.168.6.11:17	8.6 Mbps	12	-21	OK	
	2	Pro:Idiom	203 LOOK	IP	192.168.6.11:18	8.8 Mbps	14	-22		
	3	Pro:Idiom	204 HLN	IP	192.168.6.11:66	6.6 Mbps	16	-21		
	4	Pro:Idiom	205 SMXHD	IP	192.168.6.11:33	5.6 Mbps	10	-22		
	5	Pro:Idiom	206 ESPN	IP	192.168.6.11:34	5.8 Mbps	12	-22		
	6	Pro:Idiom	206 ESPNHD	IP	192.168.6.11:65	9.7 Mbps	13	-19		
	7	Pro:Idiom	207 ESN	IP	192.168.6.11:50	8.3 Mbps	11	-21		
	8	Pro:Idiom	207 ESNHD	IP	192.168.6.11:49	4.0 Mbps	11	-24		
6	1	Pro:Idiom	209-1 ESNa	IP	192.168.6.11:97	6.8 Mbps	10	-29	This slot can only support 6 HD streams	
	2	Pro:Idiom	209-1 ESNaHD	IP	192.168.6.11:98	8.8 Mbps	13	-28		
	3	Pro:Idiom	209-2 ESNa	IP	192.168.6.11:145	2.9 Mbps	15	-33		
	4	Pro:Idiom	209-2 ESNaHD	IP	192.168.6.11:146	8.8 Mbps	12	-34		
	5	Pro:Idiom	212 NFL	IP	192.168.6.11:81	4.4 Mbps	11	-30		
	6	Pro:Idiom	213 NFLHD	IP	192.168.6.11:82	5.7 Mbps	11	-28		
	7	Pro:Idiom	213 MLBN	IP	192.168.6.11:161	2.5 Mbps	12	-28		

COM46 - Overview Page, QAM Mode

COM1000 - Internet Explorer, optimized for Bing and MSN
http://192.168.3.98/cgi-bin/webcmd?screen=Overview

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Svslog](#), [Lock](#), [ATSC](#), [40I](#), [QAM](#)

QAM Summary

Chassis	IP	Alt IP	Base Ch 1	Base Ch 2	Base Ch 3
6	192.168.6.7	192.168.6.99	42	46	50

Submit

Display Mode QAM IP

SD Duplicates Show Hide

Chassis	Slot	Tuner	Security	Channel	Mode	Major.Minor / IP:Port	Bitrate	SNR	Strength	Status
1	1	Pro.Idiom	202 CNNHD	QAM	42 . 1	6.0 Mbps	12	-22	OK	
	2	Pro.Idiom	269 HISTHD	QAM	42 . 2	3.4 Mbps	13	-23		
	3	Pro.Idiom	271 H2HD	QAM	43 . 1	10.3 Mbps	15	-22		
	4	Pro.Idiom	290 DISeHD	QAM	43 . 2	6.9 Mbps	10	-24		
	5	Pro.Idiom	244 SyfyHD	QAM	44 . 1	9.0 Mbps	11	-22		
	6	Pro.Idiom	283 NGWHD	QAM	44 . 2	6.9 Mbps				
	7	Pro.Idiom	245 TNTHD	QAM	45 . 1	2.6 Mbps				
	8	Pro.Idiom	284 SCIHD	QAM	45 . 2	5.8 Mbps				
3	1	Pro.Idiom	241 SpikeHD	QAM	46 . 1	7.6 Mbps			This slot can only support 6 HD streams	
	2	Pro.Idiom	242 USAHD	QAM	46 . 2	4.7 Mbps	15	-23		
	3	Pro.Idiom	238 REELZ	QAM	47 . 1	1.9 Mbps	15	-24		
	4	Pro.Idiom	277 TRAVHD	QAM	47 . 2	3.6 Mbps	9	-26		
	5	Pro.Idiom	278 DSCHD	QAM	48 . 1	4.8 Mbps	11	-23		
	6	Pro.Idiom	254 AMCHD	QAM	48 . 2	8.6 Mbps	11	-19		
	7	Pro.Idiom	247 TBSHD	QAM	49 . 1	8.5 Mbps	12	-19		
	8	Pro.Idiom	248 FXHD	QAM	49 . 2	4.8 Mbps	7	-29		

Overview display mode radio buttons sets the display mode for the page

Destination set with QAM major/minor channel pull downs

COM46 - Overview Page, IP Mode

COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.100/cgi-bin/webcmd?screen=Overview

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [40i](#), [QAM](#)

QAM Summary

Chassis	IP	Alt IP	Base Ch 1	Base Ch 2	Base Ch 3
10	192.168.6.11	192.168.6.11	30	34	38

Submit

Display Mode QAM IP

SD Duplicates Show Hide

Destination set using IP address and port

Chassis	Slot	Tuner	Security	Channel	Mode	IP:Port	Bitrate	SNR	Strength	Status
6	1	1	Pro:Idiom	202 CNNHD	IP	192.168.6.11:17	8.6 Mbps	12	-21	OK
		2	Pro:Idiom	269 HISTHD	IP	192.168.6.11:18	8.8 Mbps	14	-22	
		3	Pro:Idiom	271 H2HD	IP	192.168.6.11:66	6.6 Mbps	16	-21	
		4	Pro:Idiom	290 DISeHD	IP	192.168.6.11:33	5.6 Mbps	10	-22	
		5	Pro:Idiom	244 SyfyHD	IP	192.168.6.11:34	5.8 Mbps	12	-22	
		6	Pro:Idiom	283 NGWHD	IP	192.168.6.11:65	9.7 Mbps	13	-19	
		7	Pro:Idiom	245 TNTHD	IP	192.168.6.11:50	8.3 Mbps	11	-21	
		8	Pro:Idiom	284 SCIHD	IP	192.168.6.11:49	4.0 Mbps	11	-24	
6	3	1	Pro:Idiom	241 SpikeHD	IP	192.168.6.11:97	6.8 Mbps	10	-29	This slot can only support 6 HD streams
		2	Pro:Idiom	242 USAHD	IP	192.168.6.11:98	8.8 Mbps	13	-28	
		3	Pro:Idiom	238 REELZ	IP	192.168.6.11:145	2.9 Mbps	15	-33	
		4	Pro:Idiom	277 TRAVHD	IP	192.168.6.11:146	8.8 Mbps	12	-34	
		5	Pro:Idiom	278 DSCHD	IP	192.168.6.11:81	4.4 Mbps	11	-30	
		6	Pro:Idiom	254 AMCHD	IP	192.168.6.11:82	5.7 Mbps	11	-28	
		7	Pro:Idiom	247 TBSHD	IP	192.168.6.11:161	2.5 Mbps	12	-28	
		8	Pro:Idiom	248 FXHD	IP	192.168.6.11:162	8.5 Mbps	10	-31	

COM46 - Overview Page, Mode Pulldown

COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.98/cgi-bin/webcmd?screen=OverviewUpd&Submit+Changes=Submit&=1&=3900947&=0&=42&=1&=1&=3900931&=0&=42&=2&=1&=9867

COM1000

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

Sending MDNS
Refreshing...

QAM Summary

Chassis	IP	Alt IP	Base Ch 1	Base Ch 2	Base Ch 3
6	192.168.6.7	192.168.6.99	42	46	50

Display Mode QAM IP

SD Duplicates Show Hide

Chassis	Slot	Tuner	Security	Channel	Mode	Major.Minor / IP:Port	Bitrate	SNR	Strength
1	1	Pro:Idiom	202 CNNHD	QAM	42 . 1	8.3 Mbps	12	-21	
	2	Pro:Idiom	269 HISTHD	QAM IP	42 . 2	8.1 Mbps	13	-23	
	3	Pro:Idiom	271 H2HD	QAM	43 . 1	6.4 Mbps	16	-21	
	4	Pro:Idiom	290 DISeHD	QAM	43 . 2	5.1 Mbps	10	-24	
	5	Pro:Idiom	244 SyfyHD	QAM	44 . 1	4.0 Mbps	11	-22	
	6	Pro:Idiom	283 NGWHD	QAM	44 . 2	5.2 Mbps	13	-19	
	7	Pro:Idiom	245 TNTHD	QAM	45 . 1	3.6 Mbps	11	-22	

Mode pulldown sets the display mode for a single tuner

COM46 - PairingInfo Page

COM1000 - Internet Explorer, optimized for Bing and MSN
http://192.168.3.98/cgi-bin/webcmd?screen=info

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

Chassis	Slot	CardIP	RID	CAM_ID	Serial_Number	Authorized	Paired	SW_Version	Up_Time	Upgrade
6	1	192.168.3.98	036624337238	003805104902	2097316136	1	1	ST03.02.00	3d:0h	<input type="checkbox"/>
	3	192.168.3.100	036624337402	003805104894	2097316134	1	1	ST03.02.00	16d:23h	<input type="checkbox"/>
	5	192.168.3.102	036624337519	003805175621	2097314817	1	1	ST03.02.00	1d:19h	<input type="checkbox"/>
	7	192.168.3.104	036624336545	002299004701	-1	1	1	ST03.02.00	1d:23h	<input type="checkbox"/>

Software Upgrade:
Usage:
Server_IP_Address:
Filename:
Mode:

Browser Upload
FTTP server at 192.168.3.98 current files:
Upload a file to the FTTP server at 192.168.3.98

RID and CAM_ID List
chassis-slot-tuners RID CAM_ID
6-1-8 036624337238 003805104902
6-3-8 036624337402 003805104894
6-5-8 036624337519 003805175621
6-7-8 036624336545 002299004701

Key Entry
Enter list of chassis-slot-tuners RID KEY

HTML file upload facility

Multiple software key application facility

COM46 - PairingInfo Page

- Reports COM46 uptime since last reboot
- Lists all CAM, RID, and serial numbers for the system
- Reports pairing and authorization status for each card
- Provides links to syslogs and camlogs by card
- Provides interface for simultaneous multi-card COM46 software updates via tftp or ftp
- Provides an HTML file upload facility for putting files on the COM46 card
- Allows for the simultaneous entry of special software keys

COM46 - SysInfo Page

COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.100/cgi-bin/webcmd?screen=SysInfo

COM1000

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SvsInfo](#), [HealthInfo](#), [EPG](#), [Svslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

Chassis	Slot	CardIP	EPG	MAC_Address
6	1	192.168.3.98		c4:27:95:d5:9a:31
6	3	192.168.3.100		c4:27:95:d5:9a:2f
6	5	192.168.3.102	EPG	00:26:24:18:0f:7e
10	2	192.168.3.164		00:26:24:39:66:94
10	3	192.168.3.165		00:26:24:39:66:7c
10	5	192.168.3.166		80:c6:ab:1e:d7:aa
10	6	192.168.3.167		00:19:df:d6:00:5a
10	7	192.168.3.168		28:be:9b:4f:7a:e6
10	8	192.168.3.169		fc:94:e3:1b:5a:a1
10	9	192.168.3.170		fc:94:e3:1b:5a:cd
10	11	192.168.3.172		28:be:9b:4f:7a:e2
10	12	192.168.3.173		fc:94:e3:1b:5a:c9

- Displays chassis number, slot number, card IP address & MAC address
- Identifies which card(s), if any are generating an EPG and/or PSIP

COM46 - Tune All Page

COM1000 - Internet Explorer, optimized for Bing and MSN
http://192.168.3.100/cgi-bin/webcmd?screen=TuneAll

technicolor

Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [40i](#), [QAM](#)

Tune All

```
Chassis-Slot-Tuner, IP_Dest:Port, MajorNum-MinorNum-Mode:  
5-2-1, 192.168.100.4:1234, 287-65535-1;  
0-0-0, 192.168.100.4:1235, 284-65535-1; //use any tuner  
287sd -> 50-1 //QAM24 mode  
284hd -> 50-2 //QAM24 mode
```

Submit Query

Current Tuning Table

```
6-1-1, 192.168.6.11:17, 202-65535-1;  
6-1-2, 192.168.6.11:18, 269-65535-1;  
6-1-3, 192.168.6.11:66, 271-65535-1;  
6-1-4, 192.168.6.11:33, 290-65535-1;  
6-1-5, 192.168.6.11:34, 244-65535-1;  
6-1-6, 192.168.6.11:65, 283-65535-1;  
6-1-7, 192.168.6.11:50, 245-65535-1;  
6-1-8, 192.168.6.11:49, 284-65535-1;  
6-3-1, 192.168.6.11:97, 241-65535-1;  
6-3-2, 192.168.6.11:98, 242-65535-1;
```

- Provides a quick way to tune an entire COM2000 system
- Useful for creating test-cases or easily replicating a standard system configuration

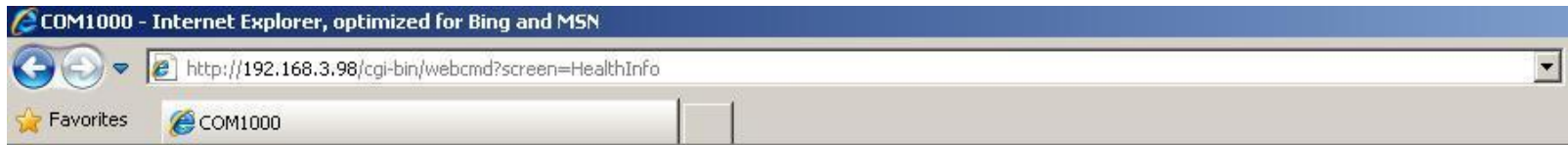
COM46 - Tune All Page

- After creating/modifying the data in your favorite text-editor to meet your channel line up requirements paste it into the window and click Submit Query to apply
- Works across multiple networked chassis
- Format:

Chassis-Slot-Tuner, IP_Dest:Port, MajorNum-MinorNum-Pro:Idiom;

```
6-11-1, 192.168.1.249:1241, 503-65535-0;  
6-11-2, 192.168.1.249:1242, 502-65535-0;  
6-11-3, 192.168.1.249:1243, 505-65535-0;  
8-3-1, 192.168.6.9:33, 284-65535-0;  
8-3-2, 192.168.6.9:34, 287-65535-0;  
12-9-1, 192.168.1.248:1234, 229-65535-0;  
12-9-2, 192.168.1.248:1235, 816-65535-0;  
12-9-3, 192.168.1.248:1236, 277-65535-0;  
15-3-1, 192.168.6.1:177, 245-65535-1;  
15-3-2, 192.168.6.1:178, 244-65535-1;  
15-4-1, 192.168.6.16:65, 355-65535-1;  
15-4-2, 192.168.6.16:66, 247-65535-1;
```

COM46 - HealthInfo Page



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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

Chassis	Slot	CardIP	Card_Temperature	IC_Temperature	PS0 Health	PS1 Health	Fan0 Health	Fan1 Health
6	1	192.168.3.98	NA	54	NA	NA	OK	OK
6	3	192.168.3.100	NA	53	NA	NA	OK	OK
6	5	192.168.3.102	NA	51	NA	NA	OK	OK
6	7	192.168.5.1	NA	47	NA	NA	OK	OK

Provides a chassis/slot grid with IC temperature and cooling fan status info

COM46 - EPG Page

IP and port determines major-minor of the EPG channel. Set DestIP to 1.2.3.4 for PSIP only

Virtual channel number for PSIP channel mapping

Chassis and port enables PSIP for that channel. Set both to -1 to disable PSIP.

* Chassis ID is the ID of the chassis with the QAM that is streaming the channel you want to apply PSIP to

COM46 - Electronic Program Guide



Wed 12/15	7:00 p	7:30 p	8:00 p
2 LA2	Quiet Time		Red Slippers >
4 LA4	The Fiesty Black Cat		>
5 LA5	< Local News	Beach City Fun	>
7 LA7	< Helicopter Cops		
9 LA9	Sierra Quest		>
10 SPKE	< Batman Begins		Cops >
11 SHO	Tougher in Alaska		Modern Marvels >
12 HBO	All My Children		Emotions
14 REAL	Judge Alex	NCIS	

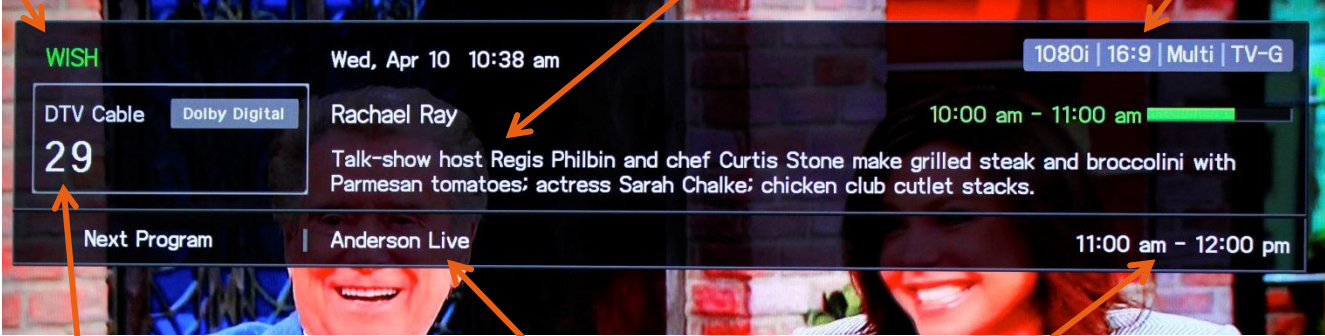
- Can include all DIRECTV channels
- SD SMATV & local ATSC off-air that are in the DIRECTV APG
- Allows for static data entry for sources not in the DIRECTV APG
- Provides upcoming programming information
- Allows for DIRECTV & End Customer branding

COM46- EPG Page, PSIP

Station Callsign

Current program name and description

Program format & rating



The screenshot shows a television screen with a dark overlay containing program information. The overlay includes the station callsign 'WISH' in green, the current date and time 'Wed, Apr 10 10:38 am', and technical details '1080i | 16:9 | Multi | TV-G'. The current program is 'Rachael Ray', described as a talk-show with Regis Philbin and chef Curtis Stone. The time slot is '10:00 am - 11:00 am'. The next program is 'Anderson Live' at '11:00 am - 12:00 pm'. A virtual channel mapping box shows 'DTV Cable' and 'Dolby Digital' above the number '29'. Orange arrows point from text labels to these specific elements: 'Station Callsign' to 'WISH', 'Current program name and description' to 'Rachael Ray', 'Program format & rating' to the technical details, 'Virtual channel mapping' to the '29' box, and 'Next program name, start time, end time' to the 'Anderson Live' and '11:00 am - 12:00 pm' text.

Virtual channel mapping

Next program name, start time, end time

- PSIP is part of the ATSC A/65 standard
- Most current televisions will make use of PSIP data if available
- PSIP is enabled on the EPG page
- Can be used with or without an EPG

COM46 - Syslog Page

```
Syslog:
Feb 11 07:50:10 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=93, index=8, x_con=3, stream_pid=4114,rv
Feb 11 07:50:14 buildroot user.crit syslog: NDS.CDI HDXEA completed: 1
Feb 11 07:50:15 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=68, index=3, x_con=1, stream_pid=4160,rv
Feb 11 07:50:15 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=67, index=2, x_con=1, stream_pid=4162,rv
Feb 11 07:50:18 buildroot user.err syslog: m: WARNING mutex swm locked for 58 ms by ../main/swm.c:722
Feb 11 07:50:19 buildroot user.crit syslog: NDS.CDI HDXEA completed: 2
Feb 11 07:50:19 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=87, index=7, x_con=2, stream_pid=4128,rv
Feb 11 07:50:19 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=86, index=6, x_con=2, stream_pid=4130,rv
Feb 11 07:50:21 buildroot user.notice syslog: a: MCount (5626,5624,5622,5620,5617,5615,5613,5610)
Feb 11 07:51:04 buildroot user.crit syslog: NDS.CDI HDXEA completed: 4
Feb 11 07:51:04 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=85, index=5, x_con=4, stream_pid=4176,rv
Feb 11 07:51:04 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=84, index=4, x_con=4, stream_pid=4178,rv
Feb 11 07:51:06 buildroot user.crit syslog: NDS.CDI HDXEA completed: 6
Feb 11 07:51:06 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=96, index=11, x_con=6, stream_pid=4160,rv
Feb 11 07:51:06 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=95, index=10, x_con=6, stream_pid=4162,rv
Feb 11 07:51:06 buildroot user.crit syslog: NDS.CDI HDXEA completed: 7
Feb 11 07:51:07 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=107, index=15, x_con=7, stream_pid=4192,rv
Feb 11 07:51:07 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=106, index=14, x_con=7, stream_pid=4194,rv
Feb 11 07:51:07 buildroot user.crit syslog: NDS.CDI HDXEA completed: 0
Feb 11 07:51:07 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=61, index=1, x_con=0, stream_pid=4160,rv
Feb 11 07:51:07 buildroot user.crit syslog: NDS.CDI DESC HDX_SetDescrambler: DEMUX_DESCRAMBLER_SET_CONTROL_WORD, fd=60, index=0, x_con=0, stream_pid=4162,rv
Feb 11 07:51:08 buildroot user.crit syslog: NDS.CDI HDXEA completed: 3
```

- Provides a listing of the system log file for the COM46 card you are currently addressing
- Can be highlighted and copied for emailing, etc.

COM46 - Lock Page



The screenshot shows an Internet Explorer browser window with the title "COM1000 - Internet Explorer, optimized for Bing and MSN". The address bar contains the URL "http://192.168.3.98/cgi-bin/webcmd?screen=Lock". The browser's Favorites bar shows a single entry for "COM1000". The main content area features the Technicolor logo at the top, followed by a list of commands: **Commands:** [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#), [Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#). Below this is a section titled "Lock" with a "Password:" label and an empty text input field. A "Submit Query" button is positioned below the input field. A note at the bottom of the page states: "This will lock write access to all of the cards. Enter a zero length password to unlock the cards."

Allows user to set a password to write protect all COM46 cards in the system

COM46 - ATSC Page

COM1000 - Internet Explorer, optimized for Bing and MSN
http://192.168.3.98/cgi-bin/webcmd?screen=Atsc

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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [40i](#), [QAM](#)

ATSC

See <http://dtv.gov/stationlist.htm>

Usage: HomeRun_IP Tuner_Index RF_Index Major.Minor Dest_IP Dest_Port
192.168.2.1 0 21 20.1 192.168.6.9 17

To acquire all of the subchannels, set Major.Minor to '0.0' and add 256 to the QAM24 port. When acquiring all subchannels, no other channels can be sent to the same QAM channel.

Set RF_Index to -1 to close the tuner.

192.168.4.3	0	9	8.2	192.168.6.11	145
192.168.4.3	1	25	6.1	192.168.6.11	146
192.168.4.4	0	45	59.1	192.168.6.11	193
192.168.4.4	1	45	59.2	192.168.6.11	194
192.168.4.2	0	9	8.1	192.168.6.11	161
192.168.4.2	1	13	13.1	192.168.6.11	162
192.168.4.1	0	21	20.1	192.168.6.11	177
192.168.4.1	1	29	29.1	192.168.6.11	178

Save Run Query

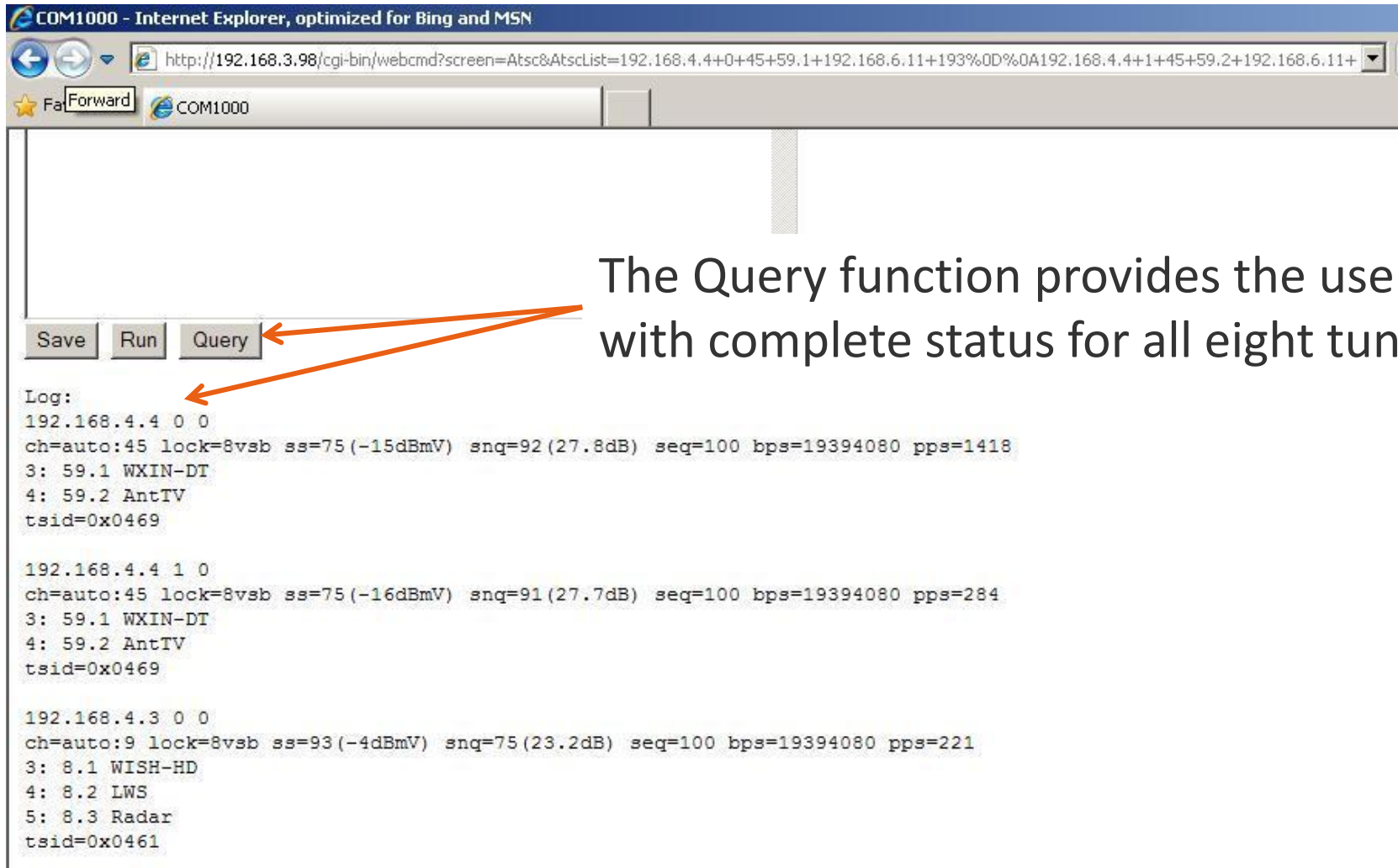
To discover ATSC boards and set their IP address:
Base IP address:
Discover Set Load

- Facilitates configuration and management of the ATSC8 off air receiver
- User can configure ATSC NICs and tuners
- Cut and paste text file can be used for duplication of a configuration

Tuning data format:

```
ATSC8_IP Tuner_Index RF_Index Major.Minor Dest_IP Dest_Port  
192.168.4.1 0 25 4.1 192.168.6.11 33
```

COM46 - ATSC Page



COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.98/cgi-bin/webcmd?screen=Atsc&AtscList=192.168.4.4+0+45+59.1+192.168.6.11+193%0D%0A192.168.4.4+1+45+59.2+192.168.6.11+

COM1000

Save Run Query

The Query function provides the user with complete status for all eight tuners

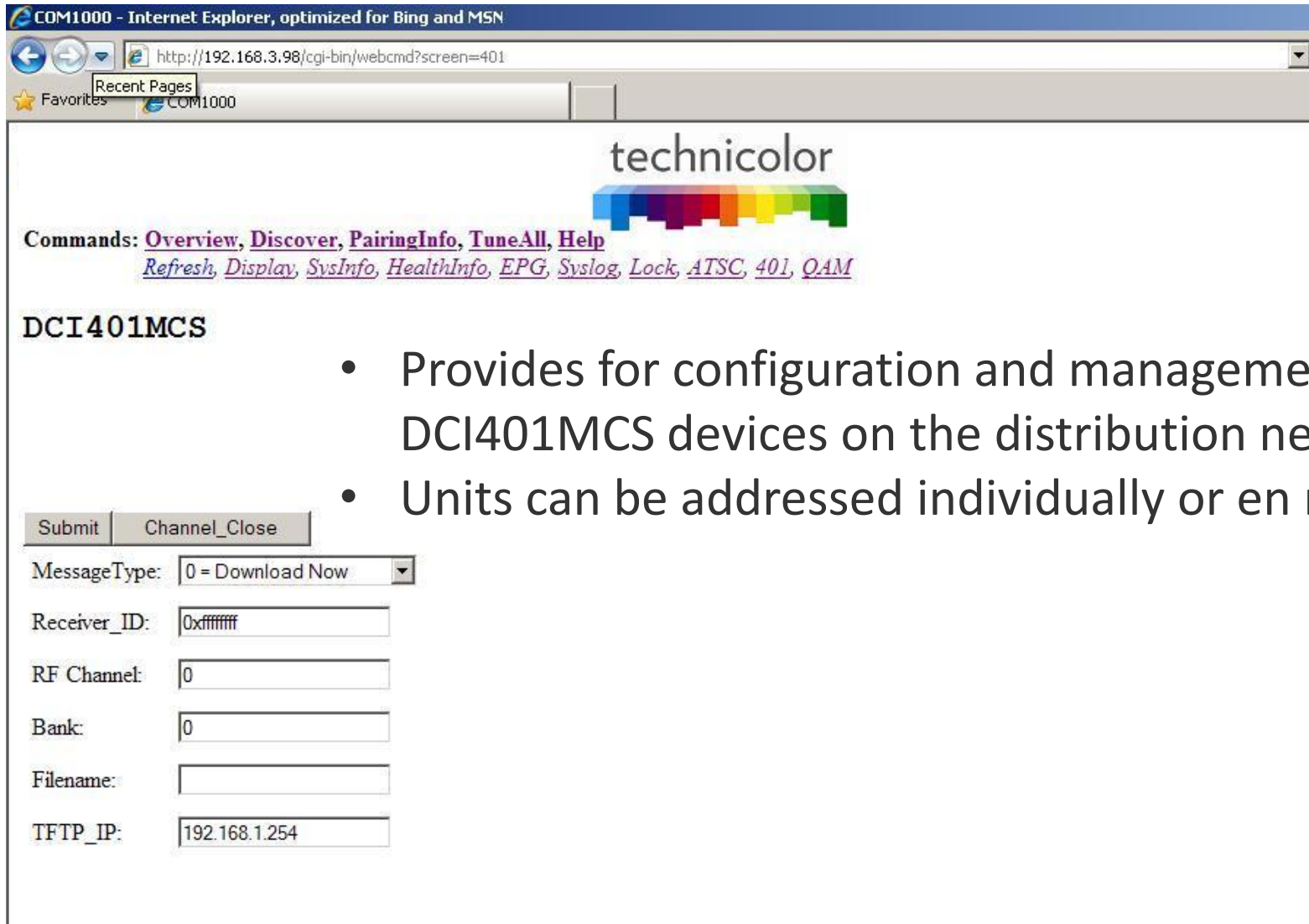
Log:

```
192.168.4.4 0 0
ch=auto:45 lock=8vsb ss=75 (-15dBmV) snq=92 (27.8dB) seq=100 bps=19394080 pps=1418
3: 59.1 WXIN-DT
4: 59.2 AntTV
tsid=0x0469

192.168.4.4 1 0
ch=auto:45 lock=8vsb ss=75 (-16dBmV) snq=91 (27.7dB) seq=100 bps=19394080 pps=284
3: 59.1 WXIN-DT
4: 59.2 AntTV
tsid=0x0469

192.168.4.3 0 0
ch=auto:9 lock=8vsb ss=93 (-4dBmV) snq=75 (23.2dB) seq=100 bps=19394080 pps=221
3: 8.1 WISH-HD
4: 8.2 LWS
5: 8.3 Radar
tsid=0x0461
```

COM46 - 401 Page



COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.98/cgi-bin/webcmd?screen=401

Recent Pages

COM1000

technicolor

Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

DCI401MCS

- Provides for configuration and management of all DCI401MCS devices on the distribution network
- Units can be addressed individually or en masse

Submit Channel_Close

MessageType: 0 = Download Now

Receiver_ID: 0xffffffff

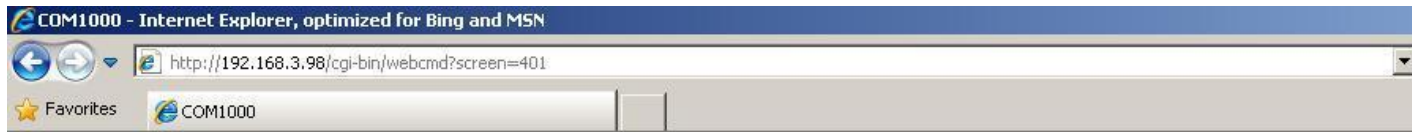
RF Channel: 0

Bank: 0

Filename:

TFTP_IP: 192.168.1.254

COM46 - 401 Page



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Commands: [Overview](#), [Discover](#), [PairingInfo](#), [TuneAll](#), [Help](#)
[Refresh](#), [Display](#), [SysInfo](#), [HealthInfo](#), [EPG](#), [Syslog](#), [Lock](#), [ATSC](#), [401](#), [QAM](#)

DCI401MCS

Pull down provided for available management functions

Submit Channel_Close

MessageType: 0 = Download Now

Receiver_ID: 0 = Download Now
1 = Tier Level
2 = Channel List

RF Channel: 3 = Feature Enable
4 = Clear

Bank: 5 = Tune Channel
6 = Channel Scan

Filename: 7 = Display Message
8 = HDCP SRM

TFTP_IP: 9 = Guide Channel
10 = Text Override
11 = Graphic Download
12 = Channel Map
13 = System Mode

COM46 - 401 Page

COM1000 - Internet Explorer, optimized for Bing and MSN

http://192.168.3.98/cgi-bin/webcmd?screen=401

Favorites COM1000

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DCI401MCS

Submit Channel_Close

MessageType: 12 = Channel Map

Receiver_ID: 0xffffffff

Num Channels: 0

freqIndex-programNum MajorNum-MinorNum ChannelName

freqIndex-programNum	MajorNum	MinorNum	ChannelName
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- Provides a method to apply virtual channels via channel mapping
- Example: 30-1 12-0 CNNHD
- User can paste in list for entire channel lineup

COM46 - QAM Page

COM1000 - Internet Explorer, optimized for Bing and MSN
http://192.168.3.98/cgi-bin/webcmd?screen=Qam&Qam=192.168.6.11

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EdgeQAM Modulator

Which EdgeQam (192.168.6.1+chassis):

Mega-Bits Per Second

Port = QamChannel * 16 + QamSubChannel

	PortBase	Chan	-1	-2	-3	-4	-5	-6	-7	total
Qam1	16	30	8.3	8.1	0.0	0.0	0.0	0.0	0.0	16.3
Qam2	32	31	8.6	7.4	0.0	0.0	0.0	0.0	0.0	16.1
Qam3	48	32	6.4	2.5	0.0	0.0	0.0	0.0	0.0	8.9
Qam4	64	33	6.0	7.5	0.0	0.0	0.0	0.0	0.0	13.5
Qam5	80	34	4.5	6.8	0.0	0.0	0.0	0.0	0.0	11.3
Qam6	96	35	4.3	7.9	0.0	0.0	0.0	0.0	0.0	12.1
Qam7	112	36	0.5	2.1	1.2	1.8	4.6	1.0	1.7	12.8
Qam8	128	37	1.7	3.8	1.1	2.4	2.0	4.1	3.4	18.6
Qam9	144	38	2.5	9.5	0.0	0.1	0.0	0.0	0.0	12.1
Qam10	160	39	3.6	2.4	0.0	0.0	0.0	0.0	0.0	6.0
Qam11	176	40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Qam12	192	41	13.2	8.4	0.0	0.0	0.0	0.0	0.0	21.6
Total										149.3

Control

chassisId = 10, hwVersion = 0.6, swVersion = 1.9.10, tempC = 30
MAC = 80:c6:ab:08:26:80, licenseCount = 12

baseChannel: A= B= C=

carrierOn: A= B= C=

alternateIp:

tftpIp:

tftpFilename:

reset:

Address box for managing multiple QAMs

Button for retrieving QAM log

Self expanding grid showing QAM major-minor with individual bitrates and summary bitrates

Control section allows for setting base channels, enabling/disabling carriers, QAM SW updates



COM46 - QAM Page

QAM IP Addressing

- The QAM has a fixed IP address = $192.168.6.[\text{ChassisID} + 1]$
- In the COM360 chassis the second QAM, if installed, will have an IP address of $192.168.6.[\text{ChassisID} + 1] + 16$
- For a COM360 chassis with an ID of 1 and two QAMs the IP addresses will be 192.168.6.2 & 192.168.6.18
- An alternate address can be assigned per QAM
- The alternate IP, if assigned, can be either unicast or multicast

COM46 - QAM Page

baseChannel

- This is where you set the base or starting channel for each upconverter chip
- You can NOT cross bands within one 4 channel chip. Channels within a chip MUST maintain standard 6 Mhz spacing

carrierOn

- Setting this to 1 will enable that RF carrier, 0 to disable

alternatelp

- This field can be used to assign a second IP address to QAM

tftplp

- This is the IP address of your tftp server used for file transfer to the QAM

COM46 - QAM Page

tftpFilename

- This is for the filename of the file to be transferred. Mainly used for software upgrade

Reset

- Setting this to 1 and clicking Submit Query performs a software reset of the QAM

COM2000 - Local Content Insertion

- The COM2000 system is capable of taking local content and inserting it into your channel lineup
- Local content can be represented in the property EPG
- This is accomplished by routing a Single Program Transport Stream (Mpeg2 transport packets) to the QAM
- Source can be Mpeg2, Mpeg4 or h.264
- All televisions SHOULD be able to correctly play an Mpeg2 stream with AC3 audio
- Available content sources can include security cameras, videos streaming from a PC, etc.

COM2000 - Implementing an EAS Solution

- The COM2000 system is capable of integrating an EAS system when required
- The QAM has a special port (25600) for EAS. When data arrives at the QAM IP on this port the stream is duplicated on ALL QAM channels. When the incoming stream stops all channels will resume regular programming
- Field application note available for integrating the Trilithic EASyCAP solution
- Technicolor support available for other EAS systems

Thank you

