

## A QUICK INTRODUCTION TO THE NEW DIGITAL CABLE TUNER DIAGNOSTIC TOOL

The Media Center Integrator Alliance released its first diagnostic tool to its members at EHX Spring in March. It was part of an effort to train more custom integrators on the Windows Media Center platform through the MCIA-sponsored Media Center University. Now that the attendees have a much better understanding of the CableCARD architecture and configuration process, they are able to fine tune and troubleshoot their installations much more efficiently through the use of this diagnostic tool.

The Digital Cable Tuner Diagnostics (DCT Diag) application is designed to help integrators set up and diagnose issues with Windows Media Center® and CableCARD®. The application uses UPnP programmatic interfaces to gather information from the tuner(s) and displays it in an easy-to-use interface for troubleshooting issues. The tool currently supports both Motorola S-Cards and M-Cards and Scientific Atlanta M-Cards using ATI's Digital Cable Tuners.

The DCT Diag tool has the capability to

- Detect the Digital Cable Tuner(s) and display diagnostic and troubleshooting information
- Scan the individual channels and display information specific to each one
- Export the data so that it can be sent to an off-site expert for further evaluation

The user interface groups the information into several sections.

The screenshot shows the 'Digital Cable Tuner Diagnostics' application window. On the left, there are two blue callout boxes: 'Overall status of the tuner' pointing to the top-left status area, and 'Tuner details' pointing to the middle-left details pane. On the right, there are two more blue callout boxes: 'Import and export scans into XML' pointing to the top-right area, and 'Channel scan results' pointing to the central table. The table contains the following data:

Name	Service	Modulation	MHz	Type	Status	Signal Strength
1	ATSC	Digital	54000.0	ATSC	OK	100%
2	ATSC	Digital	54000.0	ATSC	OK	100%
3	ATSC	Digital	54000.0	ATSC	OK	100%
4	ATSC	Digital	54000.0	ATSC	OK	100%
5	ATSC	Digital	54000.0	ATSC	OK	100%
6	ATSC	Digital	54000.0	ATSC	OK	100%
7	ATSC	Digital	54000.0	ATSC	OK	100%
8	ATSC	Digital	54000.0	ATSC	OK	100%
9	ATSC	Digital	54000.0	ATSC	OK	100%
10	ATSC	Digital	54000.0	ATSC	OK	100%
11	ATSC	Digital	54000.0	ATSC	OK	100%
12	ATSC	Digital	54000.0	ATSC	OK	100%
13	ATSC	Digital	54000.0	ATSC	OK	100%
14	ATSC	Digital	54000.0	ATSC	OK	100%
15	ATSC	Digital	54000.0	ATSC	OK	100%
16	ATSC	Digital	54000.0	ATSC	OK	100%
17	ATSC	Digital	54000.0	ATSC	OK	100%
18	ATSC	Digital	54000.0	ATSC	OK	100%
19	ATSC	Digital	54000.0	ATSC	OK	100%
20	ATSC	Digital	54000.0	ATSC	OK	100%
21	ATSC	Digital	54000.0	ATSC	OK	100%
22	ATSC	Digital	54000.0	ATSC	OK	100%
23	ATSC	Digital	54000.0	ATSC	OK	100%
24	ATSC	Digital	54000.0	ATSC	OK	100%
25	ATSC	Digital	54000.0	ATSC	OK	100%
26	ATSC	Digital	54000.0	ATSC	OK	100%
27	ATSC	Digital	54000.0	ATSC	OK	100%
28	ATSC	Digital	54000.0	ATSC	OK	100%
29	ATSC	Digital	54000.0	ATSC	OK	100%
30	ATSC	Digital	54000.0	ATSC	OK	100%
31	ATSC	Digital	54000.0	ATSC	OK	100%
32	ATSC	Digital	54000.0	ATSC	OK	100%
33	ATSC	Digital	54000.0	ATSC	OK	100%
34	ATSC	Digital	54000.0	ATSC	OK	100%
35	ATSC	Digital	54000.0	ATSC	OK	100%
36	ATSC	Digital	54000.0	ATSC	OK	100%
37	ATSC	Digital	54000.0	ATSC	OK	100%
38	ATSC	Digital	54000.0	ATSC	OK	100%
39	ATSC	Digital	54000.0	ATSC	OK	100%
40	ATSC	Digital	54000.0	ATSC	OK	100%
41	ATSC	Digital	54000.0	ATSC	OK	100%
42	ATSC	Digital	54000.0	ATSC	OK	100%
43	ATSC	Digital	54000.0	ATSC	OK	100%
44	ATSC	Digital	54000.0	ATSC	OK	100%
45	ATSC	Digital	54000.0	ATSC	OK	100%
46	ATSC	Digital	54000.0	ATSC	OK	100%
47	ATSC	Digital	54000.0	ATSC	OK	100%
48	ATSC	Digital	54000.0	ATSC	OK	100%
49	ATSC	Digital	54000.0	ATSC	OK	100%
50	ATSC	Digital	54000.0	ATSC	OK	100%

- There is an overall status area in the top left that provides a quick go/no go indication of the state of the DCT and CableCARD.

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- There is a detailed view of all of the available information related to the DCT and CableCARD configuration in the bottom left corner

Property	Value
Update	3/8/2009 5:14:04 PM
Host Manufacturer	ATI Technologies, Inc.
Host Serial Number	50D9
Host ID	08400074D7
Host Power Status	Powered on
Host Boot Status	Booted
Host Memory Report	SDRAM - 32 MB, Flash - 4 MB
Host Application	WM DRM v2.0 (Microsoft)
Host Firmware	1.17.1.08040741, Apr 7 2008
Host Connection	USB
Host IP Address	192.168.100.73
Host MAC Address	00-06-8B-10-50-D9
Signal Channel	1000
Signal Channel Format	Digital
Signal Frequency	721.250
Signal Modulation	QAM256
Signal Carrier Lock	True
Signal PCR Lock	True
Signal SNR	31
Signal Level	-11
Signal Authorization Status	Not Available
Signal Purchasable Status	Not Available
Signal Purchased Status	Not Available
Signal Preview Status	Not Available
OOB Status	Locked
OOB Center Frequency	75250
OOB Bit Rate	2048
CableCard Status	Error
CableCard Manufacturer	Motorola
CableCard Version	1029
CVT Image Filename	

- There is a large pane that lists all of the information carried in the Transport Stream for each channel in addition to the status of each channel and how it maps to the data found in the Windows Media Center Guide. Additionally, this view allows one to match up the channel mappings contained in the Virtual Channel Table (VCT) with the channel lineup and subscription package from the cable provider. Colored indicators immediately highlight potential Signal Level problems with specific channels.

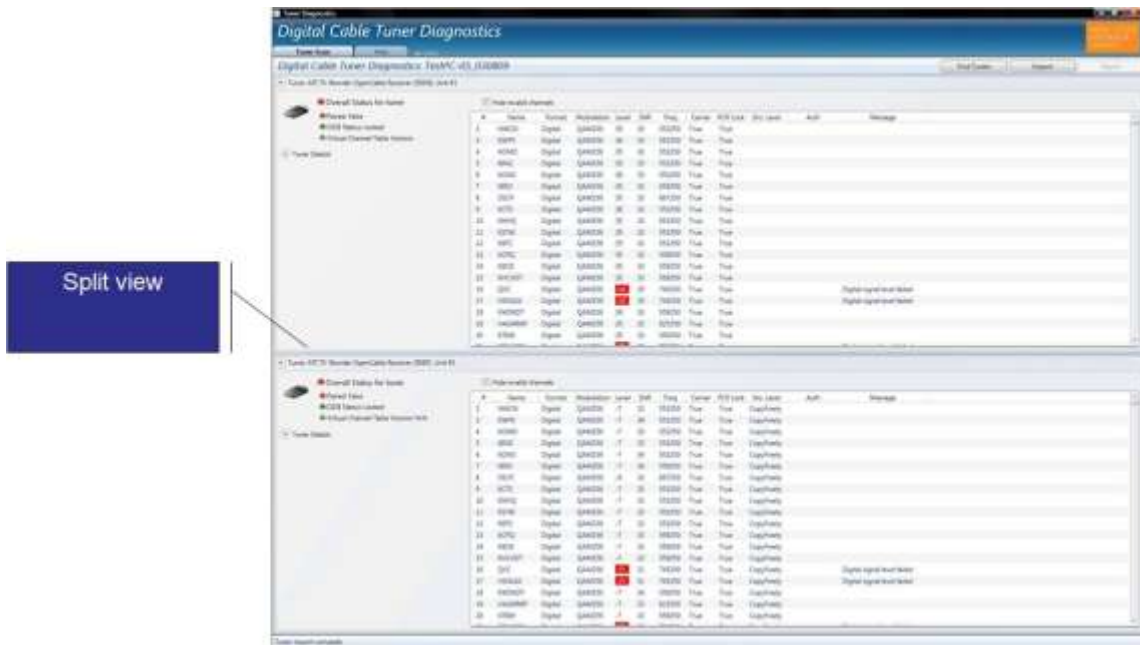
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#	Name	Format	Modulation	Level	SNR	Freq.	Carrier	PCR Lock	Enc. Level	Auth	Message
37	WE	NTSC-M	NTSC-M	40	28	301250	True	True			
38	TVLAND	NTSC-M	NTSC-M	40	28	307250	True	True			
39	USA	NTSC-M	NTSC-M	40	28	313250	True	True			
40	LIFE	NTSC-M	NTSC-M	40	28	319250	True	True			
41	DSC	NTSC-M	NTSC-M	39	28	325250	True	True			NTSC signal level marginal
42	AETV	NTSC-M	NTSC-M	42	28	331250	True	True			NTSC signal level marginal
43	HISTORY	NTSC-M	NTSC-M	40	28	337250	True	True			
44	APL	NTSC-M	NTSC-M	40	28	343250	True	True			
45	TLC	NTSC-M	NTSC-M	39	28	349250	True	True			NTSC signal level marginal
46	TCM	NTSC-M	NTSC-M	42	29	355250	True	True			NTSC signal level marginal
47	BHNSCF	Digital	QAM256	-13	20	595257	True	True			Digital signal level failed
48	AMC	NTSC-M	NTSC-M	42	28	367250	True	True			NTSC signal level marginal
49	BHLEAC	Digital	QAM256	-14	20	745250	True	True			Digital signal level failed
50	FSNFL1	Digital	QAM256	35	24	523250	True	True			

There also is a “details pane” available when you select a channel that provides more information about the channel itself. When you click on the Update Channel button, it tunes to that station and rereads the data.

Update Channel		Channel Details: BHLEAC	
Property		Value	
Update		03/10/2009 14:59:24	
Number		49	
Signal Channel		49	
Signal Channel Format		Digital	

The design of the user interface supports multiple Digital Cable Tuners and CableCARDs. This makes it easy to navigate between tuners and to see which one is tuned to which channel. This is invaluable when trying to determine why some channels come in intermittently.



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Overall, the response to the tool has been fantastic. We have stories from the field already indicating that it has helped resolve problems that otherwise may have taken hours to diagnose.

The DCT Diagnostic Tool is available to the MCIA members for download at [http://www.mediacenterintegrator.org/digital\\_cable\\_tuner\\_diagnostics\\_tool](http://www.mediacenterintegrator.org/digital_cable_tuner_diagnostics_tool).