Danny Wilson
President & CEO

AN 135
STB Diagnostic Mode with ECP

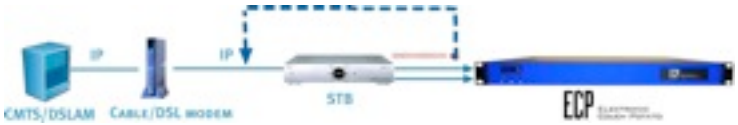
Modern Set Top Boxes offer a wealth of troubleshooting and diagnostic information. Accessed through a 'secret' key sequence, getting to the information has required the direct hands-on action of an engineer or technician, which is not always possible or affordable.

The ECP macro key recorder combined with custom entry and exit sequences lets you remotely monitor built-in STB diagnostics.

Background

Automated, remote monitoring of QoE can truly only be done after the Set Top Box – the point closest to the viewers point of perception. The ECP - Electronic Couch Potato from Pixelmetrix provides direct observation and measurement of video and audio coming from the set top box.

The ECP is a "programmable test robot" which drives a STB using a built-in IR controller and analyses the decoded signal from a consumer grade STB to fully and truly evaluate the output audio and video signals.

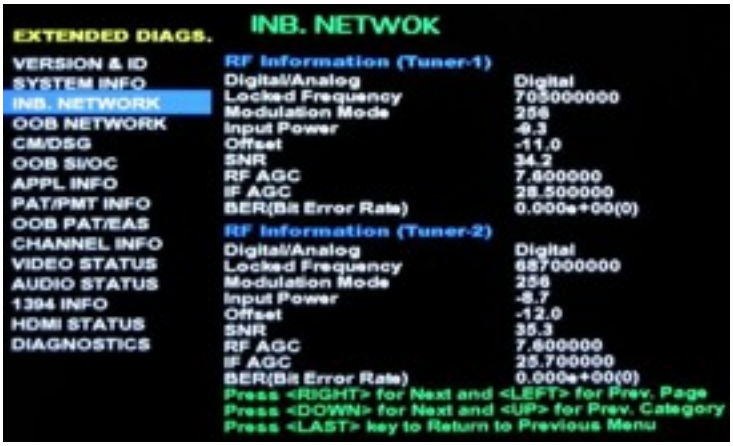


Although channels are most often scanned in linear or random order, often operators need to access special diagnostic screens of the remote STB for detailed troubleshooting. The ECP's macro key recorder combined with custom channel entry and exit sequences lets you define any number of "Diagnostic Channels" as part of the normal scanning line up.

STB Diagnostic Mode

To assist in on-site troubleshooting, modern STBs have any number of diagnostic screens which provide detailed information on their internal state, received signal quality and other parameters.

These screens are usually accessed via special key combinations on the remote control; key combinations usually only known to service personnel.



Historical Thumbnails

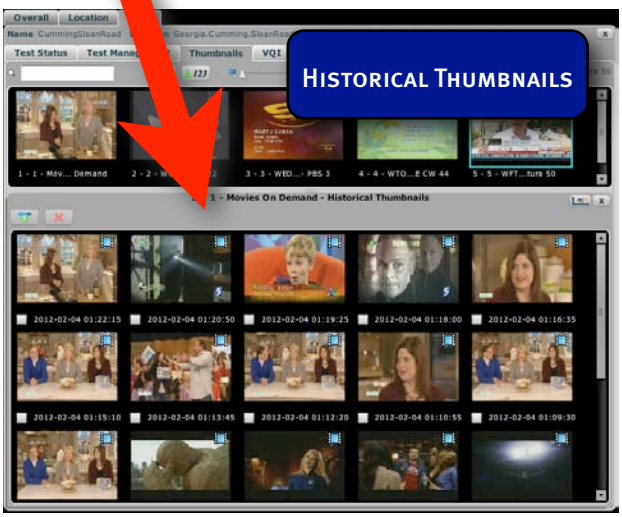
As the ECP scans channels, it takes and stores a full resolution JPEG image of each channel. These "historical thumbnails" are stored on each ECP providing a visual record of what it "saw".

These static images are stored on each ECP, providing a long-term history of service affecting issues.

In normal operation, scanning defined channels like a test robot, errors detected by the ECP are automatically logged.

The multi-user GUI lets you quickly zoom directly from the alarm event to the image sequence causing an alarm. (Moreover, full motion audio/video can be viewed with a simple click.)

A full history is maintained allowing you to investigate problems well after the fact.



Pixelmetrix corporation

Channel Entry/Exit Sequence

In the simplest case, the ECP sends the channel number via the IR transmitter to change channels, that is, "56" for CNN, "92" for ESPN, and so on.

However, there are numerous variations in STB middleware, meaning simple numerical input is sometimes insufficient. For example, must "OK" be pressed after the digits, or just wait?

To accommodate these variations, each channel has an *entry* and *exit* property. In the simplest case, the entry sequence is just the channel digit and the exit is blank. However, this pre- and post-amble can be used to drive quite advanced behavior from the STB.

This feature can be directly employed to activate the Diagnostic Mode of the STB – which in turn, then, can be defined as a special "channel" and continuously scanned.

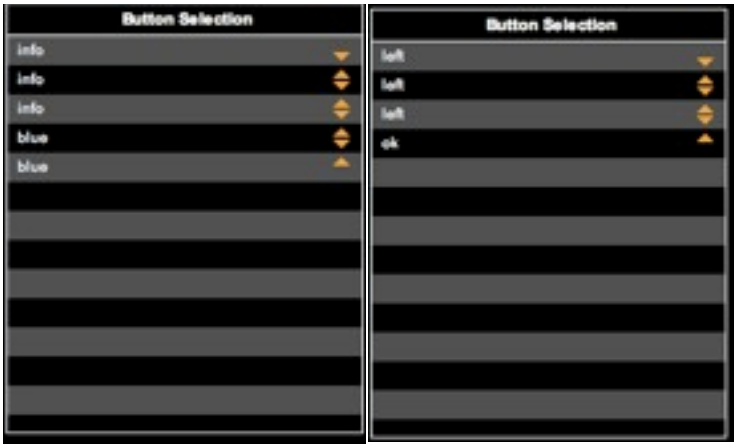
Macro Key Recorder

Defining the entry and exit sequence is easy with the built-in macro key recorder.

Simply click the remote keys you would normally click to activate the diagnostic mode – the keystrokes are automatically recorded in the window on the right.

Any number of one second pauses can be inserted into the sequence, and the key macro can be fully edited before saving.

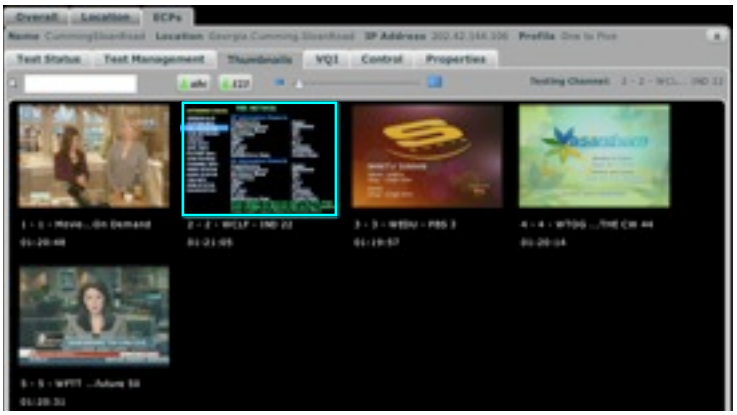
The entry and exist sequence can be specified separately. So, in the example below, activating *Diagnostic Mode* and leaving *Diagnostic Mode* can have a different key sequence.



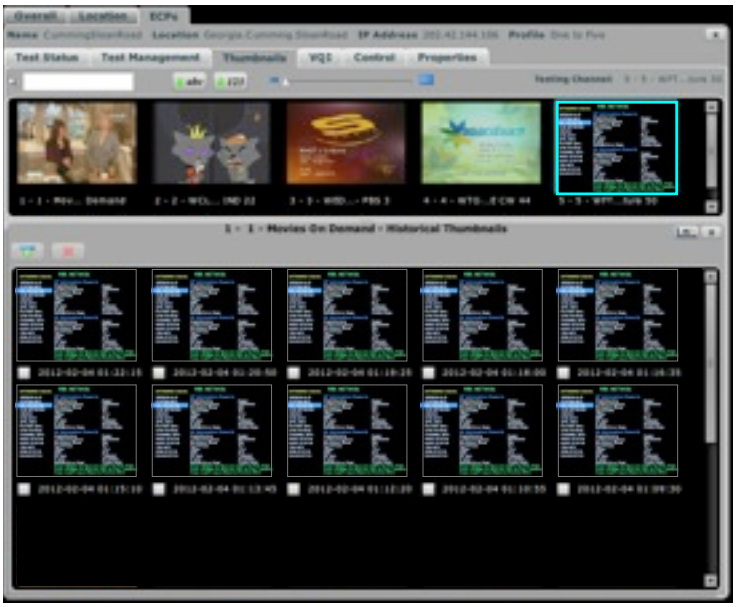
Entry Sequence *Exit Sequence*

Bringing It All Together

With the custom "Diagnostic Channel" now added to your standard portfolio of monitored channels, the channel will be added to the standard channel scan display:



And with historical thumbnails being stored for each channel, a simple click takes you "back in time" to inspect STB diagnostics!



For More Information

To learn more about our Test, Measurement & Monitoring solutions, request a demo, or learn how Pixelmetrix might help you optimize video network integrity, contact us today!

N America: 954 472 5445
Asia Pacific: +65 6547 4935
Europe: +34 93 539 6819

Email: sales@pixelmetrix.com
Web: http://www.pixelmetrix.com