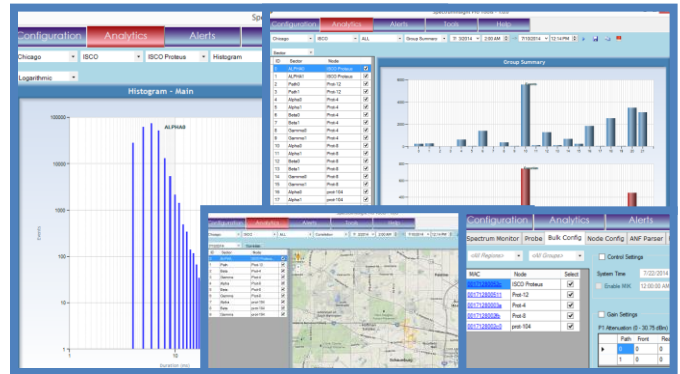


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ProTools Desktop Application Spectral Visibility and Device Configuration



ProTools is a desktop-based application containing tools which allow you to monitor and analyze spectrum interference and manage your ISCO spectrum conditioning devices. The combination of data and configuration capabilities allows you to not only see the condition of your wireless spectrum but take action to ensure your network is providing the best possible performance for your wireless users. ProTools presents the data in ways which are meaningful for you – by individual node and sector or grouping nodes together to reflect your own structure. Based on the data you can easily adjust filter parameters from within the ProTools application or deploy targeted field resources to quickly address the problem and minimize the impact on the user experience.

ProTools Features:

- **Access to Multiple Tools**
 - Easily switch from data analysis to device configuration within the application
 - Integrates with Spectrum Monitor™ to analyze overall spectral condition
- **Report Generation and Analysis**
 - A variety of reports show interference activity across devices, organized into regions/groups/nodes defined by the user
- **Multi-unit Geolocation**
 - Shows node and sector data from multiple units, including main/diversity antennas and overlapping sectors
 - Displays on a map for easy identification
- **Device Management**
 - Adjust parameters in response to actual spectral activity
 - Immediate cut-through to node configuration screen
- **Alert Tracking**
 - Easily view log of instances when interference was excessive
 - Set customized alerts based on interference activity

ProTools Benefits:

- **Provides data and insight that helps you take action**

View many nodes simultaneously to quickly see where interference is causing problems. Use information on frequency and geography to help set filters or deploy field resources.
- **Ensures interference is mitigated even if you can't reach the source**

Set UBRs (User-defined Band Reject filters) or adjust device parameters in response to interference problems. Protect performance while the source is hunted and removed and in cases where the source is inaccessible.
- **Delivers access to device management tools and visibility into your spectrum in a variety of ways from one place**

Arrange nodes into meaningful groups or drill down individually. As more devices are connected the information and capabilities become even more powerful.

ProTools delivers a consolidated view into ISCO devices with the ability to analyze spectral interference data and easily change device configurations. Reduce reaction times and keep network performance high even when interference is present.

Technical Requirements and Sample Reports

Release 1.0

System Notes

Compatible with Windows 7 or later

Reliable remote connectivity to ISCO devices is required for live streaming from online nodes
(Ethernet VPN recommended)

Internet access is required for proper functioning of Geolocation reports

Windows XP does not automatically support .net 4.5 framework so manual install is required

Using the software on high performance computers will provide a better user experience

Recommended for up to 25 Proteus, Proteus1, dANF and DAS Tray units

SpectrumInsight Pro Tools - 1.0				
Configuration	Analytics	Alerts	Tools	Help
Node Table Naming and Addressing RFM Settings Alert Settings Data Import and Export	Group Rpts <ul style="list-style-type: none"> Distribution Geolocation Summary Daily/Hourly Node Rpts <ul style="list-style-type: none"> Data Range Spec Cond Summary Notch Activity Carrier Histogram Top Ten Waterfall 	Amplitude Duration Connection Hi-Power Broadband PIM Miscellaneous	Spectrum Monitor* Probe Node Config ANF Parser ReFlash	Online help available for each section

*Spectrum Monitor license must be purchased separately

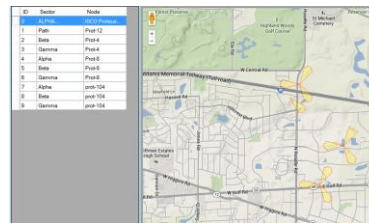
ProTools Structure and Capabilities

Selected ProTools Sample Screens



Group Summary

Quickly pinpoint problem areas in the network by showing number and duration of events by node or sector over the designated period of time.



Geolocation

Facilitates network oversight by showing location and orientation (azimuth) of each RF path on a map. Depicts single/main/diversity antennas and overlapping sectors.

Status	MAC	Node	Region	Group	Online	IP Address
✓	0017128002c	ISCO Proteus	Chicago	ISCO	✓	192.168.0.12
✓	001712800511	Prot-12	Chicago	ISCO	✓	10.53.2.216
✓	00171280003a	Prot-4	Chicago	ISCO	✓	10.53.2.216
✓	0017128002b	Prot-8	Chicago	ISCO	✓	10.53.2.216
✓	0017128002c	prot-104	Chicago	ISCO	✓	10.53.0.104

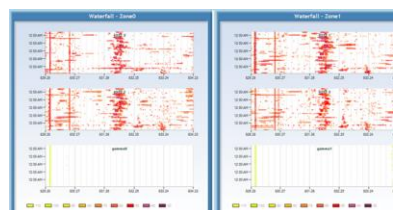
Node Table

Simplifies network management by listing all nodes, their parameters and status green or red (alert). Can be filtered by group/region. All attributes except MAC can be edited.



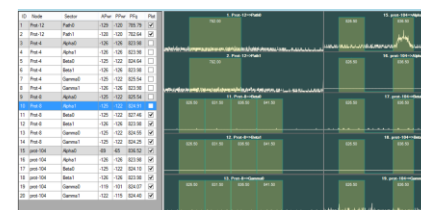
Hourly Report

Monitor interference activity to determine the timing of problems. Allows corrective action to be taken during important events.



Waterfall Report

Easily see how much interference is in the system at each frequency and whether it is strong enough to worry about. Color-coded by power level.



Group Monitor

Integrates with Spectrum Monitor™ (sold separately) to remotely view spectrum conditions on up to 30 RF paths at once.