



COSMOS

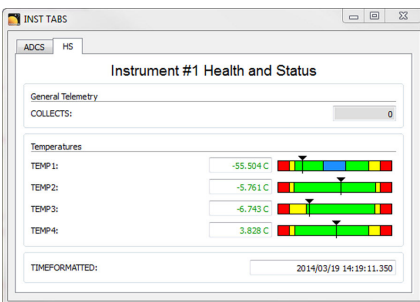
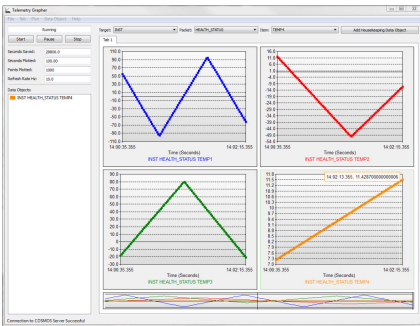
COSMOS is an operations and test system that provides all the functionality needed to command and control any system from a complete satellite to an individual board. COSMOS is easier to configure and use, more cost-effective, and provides more functionality than any competing product.

Free and Open Source

Downloads and Documentation at
cosmosrb.com

View the code at:

<http://github.com/BallAerospace/COSMOS>



ADVANTAGES:

- **Full Lifecycle System:** Supports board level test, box level test, AI&T, and operations providing a consistent user interface throughout the full lifecycle of a product
- **Get Up and Running Fast:** Easy configuration gets your project up and running within days, not months
- **Cost Savings:** Simple setup and maintenance *reduce project costs*
- **Extensibility:** Modular design allows for connecting to any other system that provides an interface, from test equipment to deliverable products
- **Customizability:** Create custom tools and data visualizations using the same libraries used to build the provided 15 COSMOS applications
- **Compatibility:** Runs on *Windows, Linux, and Mac OSX* operating systems
- **Technically Advanced:** Built using modern, supported, open-source technologies

GRAPHING:

- **Realtime and Offline:** Processes multiple telemetry points from the real-time telemetry stream or post-test from logs
- **Easy:** Rapidly select the desired telemetry mnemonics from drop down lists
- **Advanced:** Design and organize your data into multiple plots and across multiple tabs for consistent viewing by all users

TELEMETRY DISPLAY:

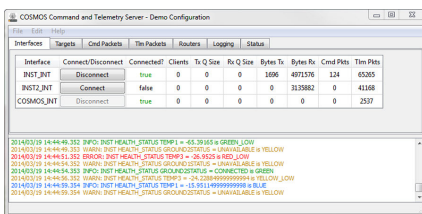
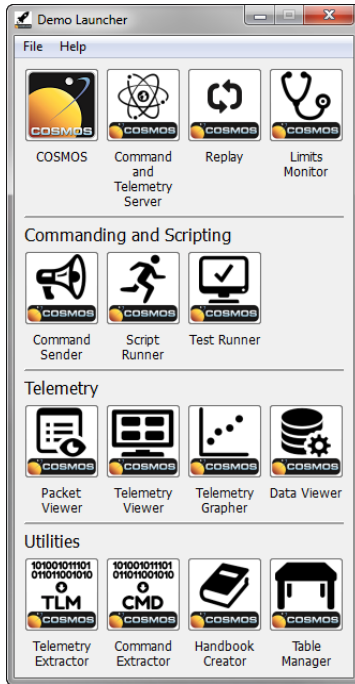
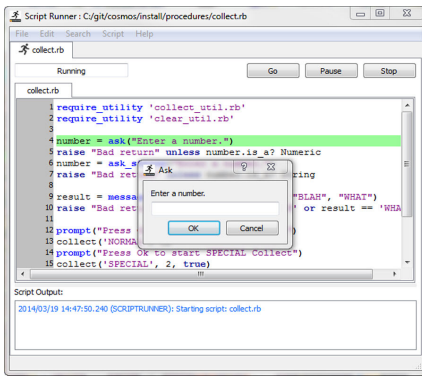
- **Ready to Go:** Packet Viewer provides a display of telemetry values with no screen configuration required
- **Innovative Displays:** The Limits Bar Widget (shown left) allows the user to know where a telemetry point is within its limits range
- **Information On-Demand:** Right click menus provide detailed information on any telemetry point
- **Simple Setup:** Define custom telemetry screens using plain text configuration files

COMMANDING AND SCRIPTING:

- **Integrated Tools:** Script execution, editing, and syntax checking *in one tool*
- **Easily Write Tests:** Easy script development aided by Command/Telemetry mnemonic code completion
- **Powerful Language:** Full capabilities of the Ruby programming language are available in test procedures
- **Logged Execution:** All commanding, script execution, and user input is logged



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POST-TEST ANALYSIS:

- **Review Logs:** Easily review logged data for post-test analysis or anomaly investigation, and test archiving. Extract to CSV or view within tools
- **Replay Data:** Replay data to watch how events unfolded

PROVIDED TOOLS:

COSMOS is made up of the following 15 applications:

- **Command and Telemetry Server:** Provides realtime commanding, telemetry reception, logging, limits monitoring, and packet routing
- **Command Sender:** Provides a graphical interface for manually sending individual commands
- **Script Runner:** Executes test scripts and provides highlighting of the currently executing line
- **Test Runner:** Provides a high level framework for system level testing including test report generation
- **Packet Viewer:** Provides realtime visualization of every telemetry packet that has been defined
- **Telemetry Viewer:** Provides custom telemetry screen functionality with advanced layout and visualization capabilities
- **Telemetry Grapher:** Provides realtime and offline graphing of data
- **Data Viewer:** Provides highly customizable text based telemetry visualization
- **Limits Monitor:** Monitors telemetry with defined limits and shows items that currently are or have violated limits, with the capability to respond to limits violations
- **Telemetry Extractor:** Extracts telemetry packet log files into CSV data
- **Command Extractor:** Extracts command packet log files into human readable text
- **Table Manager:** Provides a binary file editor that can be used to build configuration tables or other binary data
- **Handbook Creator:** Creates html and PDF documentation of available commands and telemetry packets
- **Replay:** Replays logged data as if it was being received by the Command and Telemetry Server
- **Launcher:** Provides a graphical dashboard for launching each of the tools that make up the COSMOS system.

ADDITIONAL INFORMATION:

- **Easy Installation:** GUI-based installation wizard on Windows, simple instructions for Linux and Mac OSX
- **Access Control:** Access control lists can be specified to block unauthorized access
- **Log File Analysis:** Display logged data in graphs, Excel compatible text files, or on telemetry screens
- **Use Standalone or Alongside:** Can be used as the primary operations and test system or alongside an existing system
- **Change Management:** The use of plain text configuration files makes differencing what has changed between project releases a breeze
- **Configuration Management:** Built in CRC checking lets you know if any files have been modified
- **Interface Compatibility:** Connect to embedded systems using Ethernet sockets (TCP/IP or UDP), or serial out of the box. Connect to any other interface by plugging in custom code