

RomCLI™ Feature Overview



Command Line Interface Toolkit for Embedded Devices

The RomCLI and RomCLI Secure Command Line Interface toolkits are designed to speed the implementation of text line interfaces for embedded devices. In particular the RomCLI toolkits support command line interfaces that look like Cisco IOS-style command systems. The RomCLI toolkits stand alone or work in conjunction with the RomPager Advanced Web Server to provide unified variable access using common variable access routines.

The RomCLI toolkits have the following components:

RomTelnet - This module provides Telnet server services for the RomCLI toolkit. The Telnet server provides standard protocol negotiation to allow TTY-style interaction with any Telnet client. Telnet sessions are standard TCP sessions and may be initiated over Ethernet or PPP serial links. Multiple simultaneous sessions may be supported depending on configuration.

RomConsole - This component provides interface services between the RomPager main engine and user provided RS-232 port services. As with other RomPager I/O services, all commands use asynchronous I/O to allow other device services to run gracefully. With this component, RomCLI is able to provide command line services on top of a serial port as well as TCP/IP interfaces.

RomSShell - This optional component is included as part of the RomCLI Secure product and provides secure shell services for the RomCLI toolkit. The RomCLI Secure server provides SSH version 2 support to allow TTY-style interaction with SSH clients. Multiple simultaneous sessions may be supported depending on configuration.

Command Line Handler - This component provides the basic line handling elements that are common to all parse trees. Characters are gathered from the Telnet, SSH or serial interfaces and are assembled into command lines for the Parser System. Specific command sequences include: <CR> to finish a line; ^X to clear the input and reset the line buffer; VT100 up arrow and down arrow to move through the command line history; and VT100 left and right arrows to move forward or backwards through the line.

Parser System - This component uses predefined parse tree tables to provide a set of command interactions. The interface style is 'Cisco-like' in that all commands are stateless request-response format. The RomCLI product allows device builders to create command line interfaces that look and behave the same way as Cisco IOS products. Multiple parse trees are supported so that authorization, configuration, and operation command sets may be specified separately. Command prompts are specified as part of the parse trees allowing different prompts in different modes. Parse tree commands resolve to an action. An action can be the retrieval or storage of variable data or invoking of a user exit routine. A user exit routine can display special format information or load a different parse tree. Full <TAB> and ? command completion are supported to access the command help support.

Variable Access - Variable retrieval and storage is done using the RomPager Variable Access architecture. The parse tree contains the variable name which is a pointer to the RomPager named element list which in turn provides access to the Set/Get access routines and variable type information. Built-in conversion routines provide support for conversion to and from internal data types to the external string formats.

CliBuilder - This offline compiler takes an XML format description of the command tree syntax used by the parser including command help, action routines, security realms, etc. and produces the internal parse tree tables and help string tables that are used by the Parser System.

VarBuilder - This offline compiler takes an XML format description of the variables to be accessed, the accessor routines and the datatypes and produces the interface structures between RomCLI and the device variable storage.

RomCLI Components

| | | |
|---------------------------|----------------------------|------------------|
| User Exit Functions | User Get/Set Functions | |
| | Variable Access Structures | |
| Parser System | | |
| Command Line Handler | | |
| RomTelnet | RomSShell | RomConsole |
| TCP Interface | | Serial Interface |