

Using PERL to Send XML scripts to an iLO Management Processor

The Remote Insight XML scripting interface allows administrators to manage virtually every aspect of the Remote Insight Board, Integrated Lights-Out or Integrated Lights-Out 2 Management Processor in an automated fashion. HP currently provides the Lights-Out Configuration Utility (cpqlocfg.exe) to assist deployment efforts. This utility is a Windows command-line utility that sends XML scripts to Lights-Out devices.

Administrators may also use PERL scripts to send XML scripts to the Lights-Out devices or use PERL to perform more complex tasks than cpqlocfg.exe can perform by itself.

The basic method used to send scripts to a Lights-Out device is to send the XML script to the device over an SSL socket. To accomplish this in PERL, you must have OpenSSL (<http://www.openssl.org/>) installed, as well as the PERL modules Net::SSLeay and IO::Socket::SSL (both available from <http://www.cpan.org/>). Most Linux distributions already have OpenSSL installed; however you will need to install the PERL modules yourself.

Example 1: Building your own CPQLOCFG with PERL:

This example shows how to create an SSL socket and send the XML script to the Lights-Out device. It also includes special case code to update the firmware. This example provides a near-replacement for the CPQLOCFG utility.

```
#!/usr/bin/perl
#####
##
## Simplified perl version of CPQLOCFG
## Copyright 2003 Hewlett Packard Development Company, L.P.
##
## To use this program, you must have Net::SSLeay and IO::Socket::SSL
## installed. You may obtain these modules from http://www.cpan.org/
##
## You may use and modify this program to suit your needs.
##
#####
use IO::Socket::SSL;
use Getopt::Long;

sub usage
{
    print "Usage:\n";
    print " locfg [-s server] [-l logfile] [-f inputfile]\n";
    exit 0;
}
#####
##
## Process options
##
#####

my $host, $logfile, $file, $verbose, $help;
$verbose = 0;
$r = GetOptions("server|s=s" => \$host,
               "logfile|l=s" => \$logfile,
               "input|f=s" => \$file,
               "verbose" => \$verbose,
               "help|?" => \$help
               );

if ($help || !$host || !$file) {
    usage();
}

if ($logfile) {
    # If a logfile is specified, open it and select it as the default
    # filehandle
```

```

        open(L, ">$logfile") || die "Can't open $logfile\n";
        select(L);
    }

    # Set the default SSL port number if no port is specified
    $host .= ":443" unless ($host =~ m/:/);

    # Open the SSL connection and the input file
    my $client = new IO::Socket::SSL->new(PeerAddr => $host);
    open(F, "<$file") || die "Can't open $file\n";

    # Send the XML header and begin processing the file
    print $client '<?xml version="1.0"?>' . "\r\n";
    while($ln=<F>) {
        # Chop off any EOL characters
        $ln =~ s/\r|\n//g;

        # Special case: UPDATE_RIB_FIRMWARE violates XML. Send the full
        # UPDATE firmware tag followed by the binary firmware image
        if ($ln =~ m/UPDATE_RIB_FIRMWARE/i) {
            if ($ln =~ m/IMAGE_LOCATION="\(.*)"/i) {
                $firmware = $1;
                open(G, "<$firmware") || die "Can't open $firmware\n";
                $len = (stat(G))[7];
                print $client "\r\n<UPDATE_RIB_FIRMWARE
                IMAGE_LOCATION=\"$firmware\" IMAGE_LENGTH=\"$len\"/>\r\n";
                print "\r\n<UPDATE_RIB_FIRMWARE IMAGE_LOCATION=\"$firmware\"
                IMAGE_LENGTH=\"$len\"/>\r\n" if ($verbose);
                $x = read(G, $buf, $len);
                print "Read $x bytes from $firmware\n" if ($verbose);
                $x = $client->write($buf, $x);
                print "Wrote $x bytes\n" if ($verbose);
                close(G);
                next;
            }
        }
        # Send the script to the iLO board
        print $ln . "\n" if ($verbose);
        print $client $ln . "\r\n" ;
    }
    close(F);

    print "----\n" if ($verbose);

    # Ok, now read the responses back from iLO
    while($ln=<$client>) {
        last if (length($ln) == 0);

        # This isn't really required, but it makes the output look nicer
        $ln =~ s/<\/RIBCL>/<\/RIBCL>\n/g;
        print $ln;
    }

    # All done
    exit 0;

```