cURL Software for testing HTTP transactions

An open source software application called cURL is useful for testing TOA4 RPC commands and for inspecting the HTTP requests and responses related to them. The cURL software is available via free download for Windows, Mac OS, and Linux. See the project web site at *http://curl.haxx.se/*. The cURL user documentation is online at *http://curl.haxx.se/docs/manpage.html*. There is also a Wikipedia article about cURL at *http://en.wikipedia.org/wiki/CURL*.

Here are some examples of how to run TOA4 RPC transactions from a command line using cURL. Substitutions for items such as RPC login ID and password are needed as indicated in the examples by boldface. The command must be typed with no line breaks. In these examples the command is wrapped for display only. The command URL, enclosed in double quotes, should always be at the end.

If you include a -v argument, cURL echoes the HTTP request sent and the HTTP response received.

Example 1. Run the "welcome" command.

```
> curl -u rpcloginid:rpcpassword "https://www.toa4online.com/toa/rpc/welcome"
```

Example 2. Import new laboratory data into TOA4 Online from a csv data file. The data file path must be preceded by an "@" symbol as shown. The POST method is needed because this inserts or modifies data. The header specifies that the file contains text, even though the "data-binary" argument is telling cURL to send everything in the file as-is.

```
> curl -X POST --header "Content-Type: text/plain" --data-binary @filepath/filename.csv -u
rpcloginid:rpcpassword "https://www.toa4online.com/toa/rpc/append_test_data"
```

Example 3. Download test data to a file.

```
> curl -u rpcloginid:rpcpassword -o filepath/filename.csv
"https://www.toa4online.com/toa/rpc/export_test_data?equipnum=XYZ123&apprtype=TRN&tank=MAIN"
```

Example 4. Delete a specified equipment item, along with all of its test data.

```
> curl -X POST -u rpcloginid:rpcpassword "https://www.toa4online.com/toa/rpc/delete_eqp?
equipnum=XYZ123&apprtype=TRN"
```

Note: If cURL running in Microsoft Windows has a problem with recognition of the security certification authority (CA) for https, add a -k argument to suppress CA checking. **Do not revert to using the insecure http protocol for RPC transactions!** There is no problem with the TOA4 security certificates. The certification authority for all public TOA4 web sites is Go Daddy Secure Certification Authority, a well-known and widely used CA.

HTTP Protocol Documentation

The HTTP/1.1 protocol, including the detailed specifications for HTTP requests and responses, is documented in RFC2616, which is freely downloadable from *ftp://ftp.isi.edu/in-notes/rfc2616.txt*. The Wikipedia article "Hypertext Transfer Protocol" contains a good overview of the protocol, examples of request and response messages, and links to related material. See that article at *http://en.wikipedia.org/wiki/HTTP*.