**ICS
ELECTRONICS**
division of Systems West Inc.

IEEE 488

APPLICATION BULLETIN

CONFIGURING ICS INTERFACES WITH AN EXCEL COMMAND LIST
Using ICS's VISA Command Loader Utility

INTRODUCTION

ICS's Ethernet and GPIB Interfaces require a number of commands to configure them correctly for the user's application. The commands can be entered individually using one our ICS's interactive keyboard programs. This works for interfaces that only have a few commands but it is prone to human error. The operator often doesn't notice that a command was miss entered or that the interface did not accept the command. The commands are often not recorded which makes it very difficult for someone later on to replicate or maintain the existing system.

Entering individual commands when configuring multiple units, or configuring an interface with a large number of commands requires a different solution. Some users have written scripts to enter the commands but scripts do not do error checking and are not easily used by others. They also do not provide good documentation for other users who have to maintain the test system.

This Application Note describes ICS's VISA Command Loader and how to use a simple Excel cvs spreadsheet to configure any IEEE-488.2 compatible Ethernet, GPIB or Serial interface.

ICS's VISA COMMAND LOADER UTILITY

ICS's VISA Command Loader Utility program is a Visual Basic .NET program that will run in most Windows PCs that support Microsoft's .NET Framework 4.0 and higher. It will run in 32 and 64-bit x86 systems.

The VISA Command Loader Utility uses VISA to communicate with Ethernet, GPIB or even Serial devices. This was done so one program can handle all of ICS's devices. Use the program with any VXI-11 compatible VISA such as those from Keysight (Agilent), Kikisui or National Instruments.

To configure GPIB interfaces, the user will need a GPIB Controller with a GPIB-32.dll in his computer. The VISA layer will make calls to the GPIB-32.dll. Do not use a GPIB controller that does not have a GPIB-32.dll. If you need one, order a 488-USB2 from ICS.

PREPARATION

The first step to configuring an interface is installing a VISA layer on your Windows PC if its not already installed. If you have LabVIEW or a National Instruments GPIB Controller, you may already have the NI VISA on your computer. If not, download it from NI and install it.

If you are using a Keysight (Agilent or HP) GPIB Controller, you may have their VISA installed. If not download the latest version of the IO Libraries from the Keysight website.

If you just need a VISA layer, we recommend downloading and installing the latest version of Keysight's IO Libraries from the Keysight website.

The second step is preparing the Excel Command spreadsheet. The Command spreadsheet must use the following format and be saved as a .csv file to be recognized as a valid file by the VISA Command Loader program. The Command File can be edited in Notepad but it must be saved as a .cvs file.

Line 1, Column 1 or cell 1 is the device model number. This must match the model number displayed in the device's IDN message. Cell 2 should be the file title and its good to put a revision date in the title. See Figure 1.

Line 2 specifies the number of commands to be loaded and the delay time in seconds between each command. Some commands in some programs are saved as they are entered and the delay allows that to happen. Column 1 or cell 1 is the number of commands. Cell 2 is "Lines" or "Commands". Cell 3 is the delay time in seconds. Use 0 for no delay. Cell 4 is "Delay".

Lines 3 to the end of the spreadsheet are the commands. Enter all commands in column or cell 1. Do not add a '\n' character at the end of the commands as that is done by the VISA Command Loader program.

Figure 1 shows an example Command File for a 8013 Ethernet to Parallel Interface board.

	1	2	3	4	5	6	
1	8013	Sample Command File 6-30-16					
2	6	Commands	1	Delay			
3	SENS:DATA:PORT1:POL 0						
4	SENS:DATA:PORT2:POL 255						
5	SOUR:DATA:PORT3:POL 0						
6	SOUR:DATA:PORT4:POL 0						
7	SOUR:DATA:PORT3 0						
8	SOUR:DATA:PORT4 0						

Figure 1   Sample 8013 Command File

RUNNING THE PROGRAM

Download the VISACmdLoader.zip file into a new folder. Unzip it to extract the four files. Place the new Command File in the same folder with the VISACmdLoader.exe file.

Launch the VISACmdLoader program by double clicking on the .exe file. The Treeview window in the lower left corner of the program window should show the folder containing the VISACmdLoader program.

The VISACmdLoader lets the user specify a device with its IP address, with a GPIB address or with a VISA Resource Name. Click on a left hand button in the Instrument Resource group to select the way to specify the device. Enter the appropriate information in the windows and click the Open Resource button to establish the VISA session. Use the 'inst0' personality for Ethernet IP addressed devices. A successful session connection to the device will display the device's IDN message in the Device Response window.

At this time you should be able to use the Device Command window and Send button to send commands and queries to the device.

Inst personalities are similar in concept to a GPIB device with multiple addresses. *inst0* is analogous to a GPIB device's primary or main address. *inst1* and higher personalities are analogous to a GPIB device's dual primary or multiple secondary addresses.

LOADING THE COMMAND FILE

Expand the directory shown in the Treeview window to display the files in the directory. Scroll to display the .cvs Command File. Click on the file to select it which will enable the Load File button. Click on the Load File button to start the load process.

Loaded commands are displayed in the Device Response window as they are loaded. When done, a message is displayed at the top of the list. If the load was successful, the Save Configuration button is enabled. Click the Save Configuration button to save the new configuration. If there were any errors, scroll down to see the offending command(s). Correct the bad commands in the Excel sheet and rerun the VISA CmdLoader program.

SUMMARY

This Application Note has shown how ICS's Ethernet and GPIB Interfaces can be easily and accurately configured with ICS's VISA Command Loader Utility program. End users can save the Excel file and VISACmdLoader program with the system documentation so later users can maintain the system or chassis and easily configure a replacement ICS interface should it need replacing. OEMs can use the VISA Command Loader to quickly configure ICS interfaces as they are installed in different chassis.

ICS's VISA Command Loader Utility program is not restricted to working with just ICS devices. It can be used to program any IEEE-488.2 compatible device that can be accessed through the VISA layer. Ethernet devices need to be VXI-11.3 compatible and support the *IDN? query and *SAV 0 command.