User Manual
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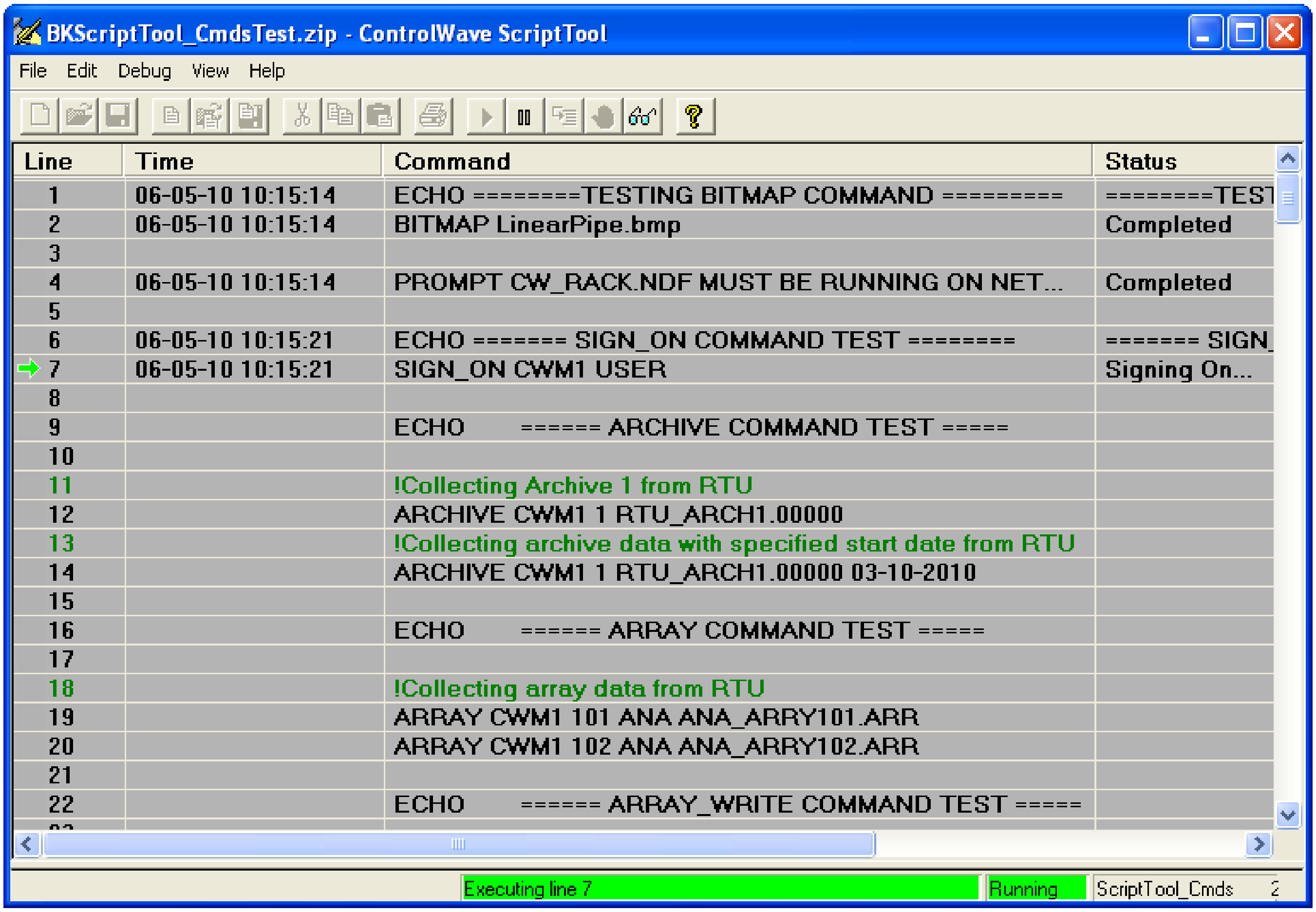
OpenBSI Version 5.9

ControlWave ScriptTool User's Guide



Line	Time	Command	Status
1	06-05-10 10:15:14	ECHO ========TESTING BITMAP COMMAND =========	========TEST
2	06-05-10 10:15:14	BITMAP LinearPipe.bmp	Completed
3			
4	06-05-10 10:15:14	PROMPT CW_RACK.NDF MUST BE RUNNING ON NET...	Completed
5			
6	06-05-10 10:15:21	ECHO ======= SIGN_ON COMMAND TEST ========	======= SIGN_
➔ 7	06-05-10 10:15:21	SIGN_ON CWM1 USER	Signing On...
8			
9		ECHO ====== ARCHIVE COMMAND TEST =====	
10			
11		!Collecting Archive 1 from RTU	
12		ARCHIVE CWM1 1 RTU_ARCH1.00000	
13		!Collecting archive data with specified start date from RTU	
14		ARCHIVE CWM1 1 RTU_ARCH1.00000 03-10-2010	
15			
16		ECHO ====== ARRAY COMMAND TEST =====	
17			
18		!Collecting array data from RTU	
19		ARRAY CWM1 101 ANA ANA_ARRY101.ARR	
20		ARRAY CWM1 102 ANA ANA_ARRY102.ARR	
21			
22		ECHO ====== ARRAY_WRITE COMMAND TEST =====	

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Application Safety Considerations

- **Protecting Operating Processes**
  A failure of this application – for whatever reason -- may leave an operating process without appropriate protection and could result in possible damage to property or injury to persons. To protect against this, you should review the need for additional backup equipment or provide alternate means of protection (such as alarm devices, output limiting, fail-safe valves, relief valves, emergency shutoffs, emergency switches, etc.)

⚠CAUTION

When implementing control using this product, observe best industry practices as suggested by applicable and appropriate environmental, health, and safety organizations. While this product can be used as a safety component in a system, it is NOT intended or designed to be the ONLY safety mechanism in that system.

Contents

Chapter 1 – Introduction - What is the ScriptTool?

This manual discusses the ControlWave ScriptTool.

Chapter 1 introduces some of the terminology.

Chapter 2 explains how to create scripts and run them.

Chapter 3 discusses command line options.

Chapter 4 talks about debugging scripts.

Appendix A – includes a list of all commands you can use in scripts.

In This Chapter

The ControlWave ScriptTool allows you to create pre-defined sets of instructions – called **scripts** – which you can use to access a ControlWave.

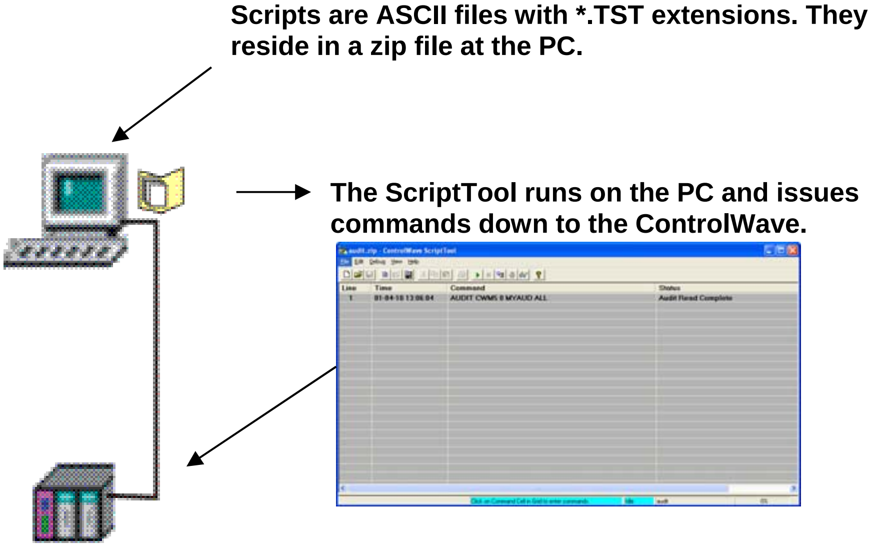
You edit scripts directly in the ScriptTool, or with an ASCII text editor.

Scripts have the file extension *.TST and are ASCII text files. The ScriptTool stores the scripts in a standard *.zip file on the OpenBSI workstation. The zip file holds multiple scripts as well as other files that the ScriptTool requires to perform the commands included in the scripts.

Most of the commands used in the scripts are lower-level commands that OpenBSI utilities normally use. The ScriptTool bypasses the OpenBSI utilities and executes these commands directly.

Typically, you use scripts to run test sequences to verify your ControlWave and its application functions correctly.

Scripts also serve as a method for automating certain day-to-day tasks you might need to perform.



Scripts are ASCII files with *.TST extensions. They reside in a zip file at the PC.

The ScriptTool runs on the PC and issues commands down to the ControlWave.

audit.zip - ControlWave ScriptTool

Line	Time	Command	Status
1	01-04-10 13:06:04	AUDIT CWMS 0 MYAUD ALL	Audit Read Complete

Click on Command Cell in Grid to enter commands. Idle audit

Figure 1-1. ScriptTool Overview

1.1 Log File

As commands in the script execute, by default, all text messages generated are sent to a *.LOG file included within the zip file. The ScriptTool provides commands to suspend logging or to redirect the text logging to a different file.

The log file can help you debug problems with your script because it shows the results of commands.

1.2 Zip File

As mentioned earlier, the ScriptTool stores scripts in a zip file. The zip file also includes other files important to the scripts including the log file, other input or output files, etc.

1.3 Commands

Appendix A includes a full list of the available commands you can use in your scripts.

When you create your scripts, you can type the command parameters in directly, or optionally, you can activate a prompt for a given command by pressing the **F2** key. This activates a dialog box which shows the various parameters and, if applicable, selectable options for the current command.

1.4 Script Variables

Since scripts are essentially programs that the ScriptTool can run, scripts can include script variables to store values. Based on these values you can make logical decisions for executing portions of the script.

Note: Do not confuse script variables with variables inside the ControlWave project. You **can** assign the value of a variable from the ControlWave project to a script variable, but the script variable is only used or modified from within the script, you can't reference it from within the ControlWave project.

1.5 Operator Interface page

When you run ScriptTool you can optionally launch an operator interface screen. The operator selects scripts from the **File** menu.

For information on launching the operator interface screen, see the "-O" command line option in *Chapter 3*.

To change the icon displayed within the operator interface screen, see the BITMAP command in *Appendix A*.

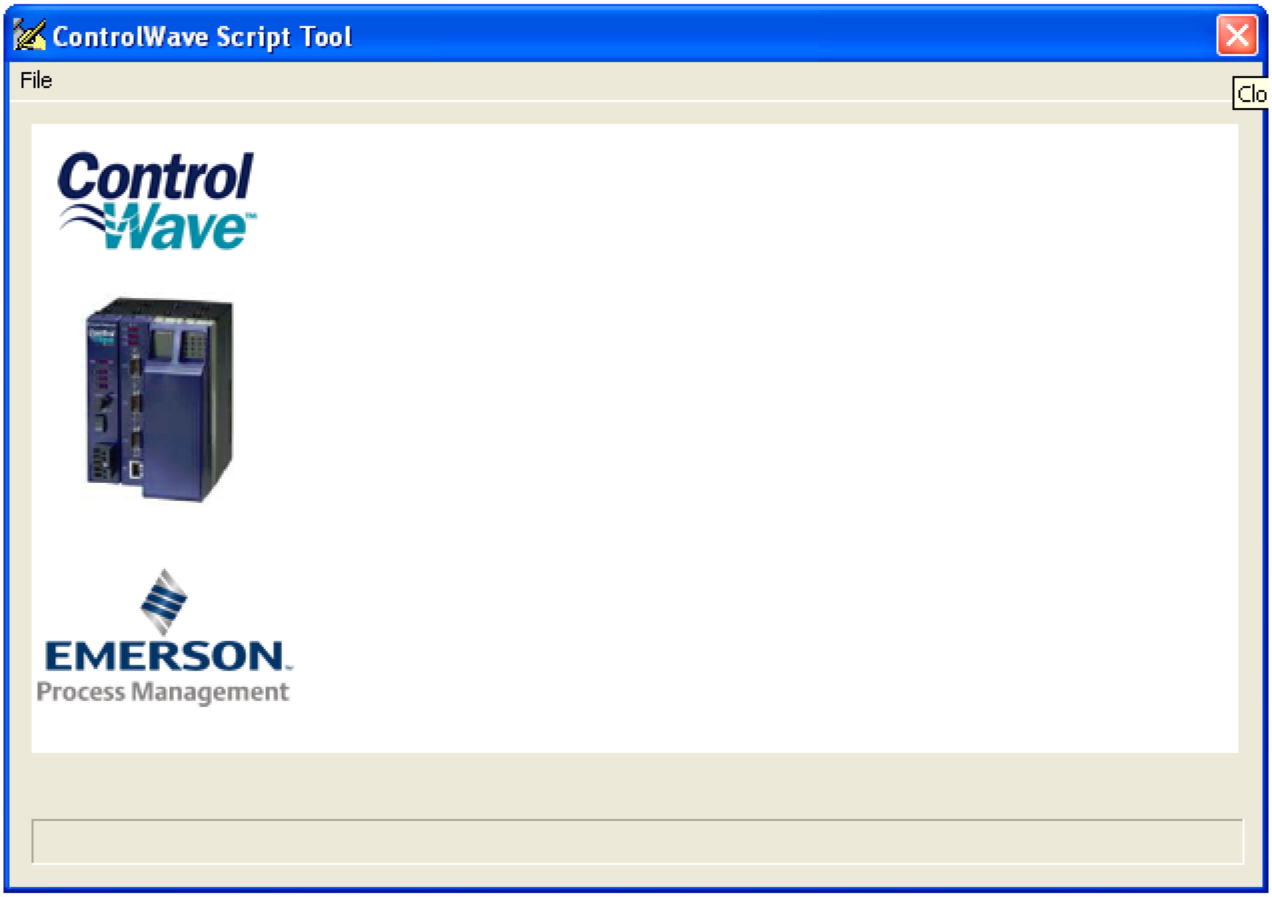


Figure 1-2. Operator Interface Page

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Chapter 2 – Starting ScriptTool and Creating Scripts

In this chapter, we discuss how to create scripts, and how to work with zip files.

In This Chapter

2.1 Before You Begin

When you install either OpenBSI Network Edition or BSI_Config (Version 5.8 and newer) you automatically install ScriptTool.

NetView or TechView provide communications between ScriptTool and the ControlWave so you must run either NetView or TechView to use the ScriptTool.

2.2 Starting the ScriptTool

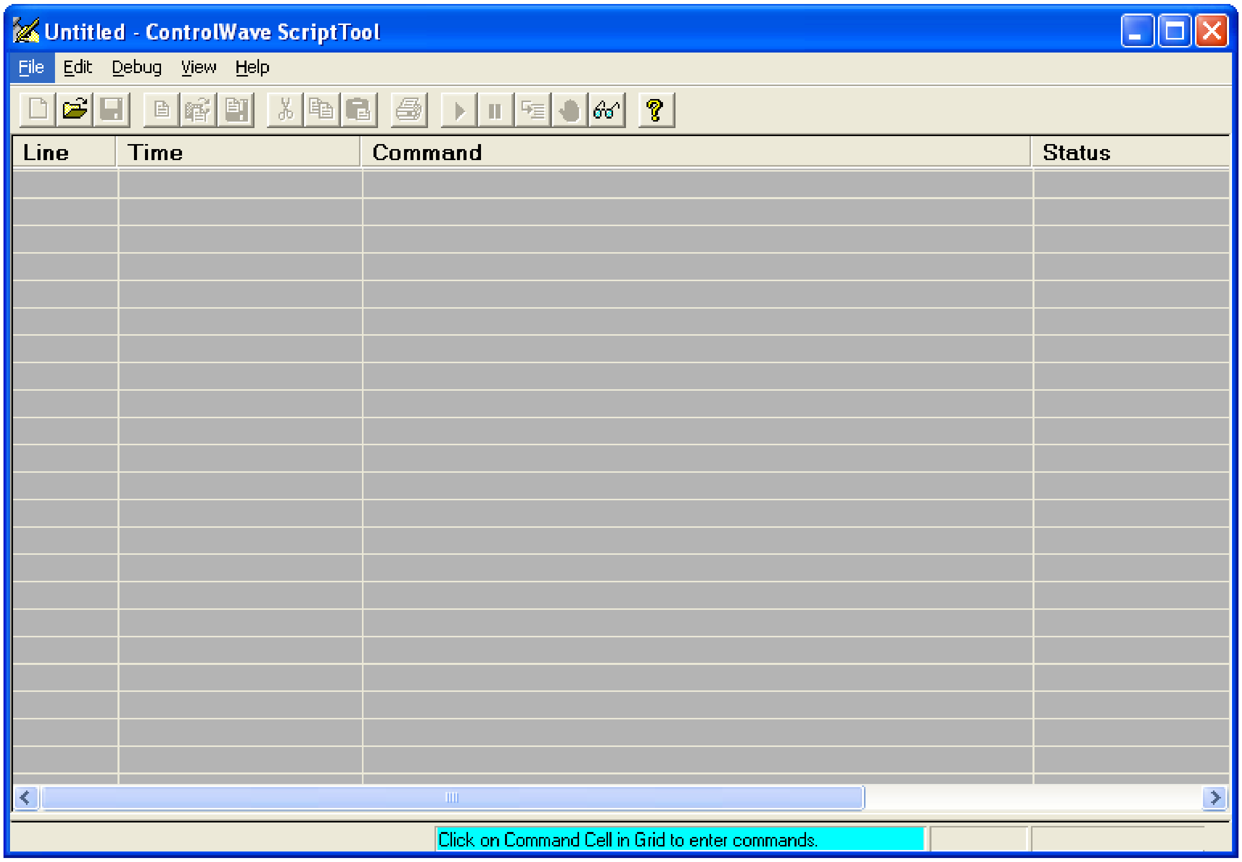
To start the ScriptTool, click: **Start** > **Programs** > **OpenBSI Tools** > **ControlWave Tools** > **ControlWave ScriptTool**

Note: You can also start the tool from the command line. Typically, you would use this technique to automate execution of scripts you already created. See *Chapter 3* for more information.

2.3 Creating a Simple Script

These steps outline how to make a very simple script.

1. Start ScriptTool by clicking: **Start** > **Programs** > **OpenBSI Tools** > **ControlWave Tools** > **ControlWave ScriptTool**. The ScriptTool opens.



Click on Command Cell in Grid to enter commands.

Figure 2-1. ControlWave ScriptTool

2. Click the first line of the **Command** column, and scroll in the drop-down menu to the command you want to choose. For this example, choose the **ECHO** command.

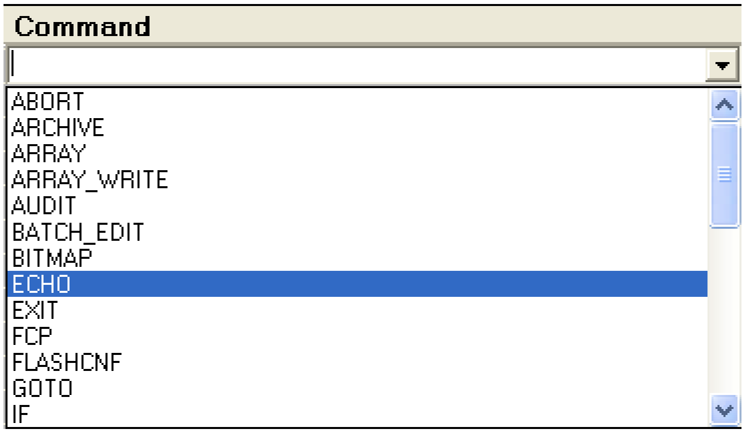


Figure 2-2. Selecting a Command

3. The ScriptTool shows ECHO on the first line.

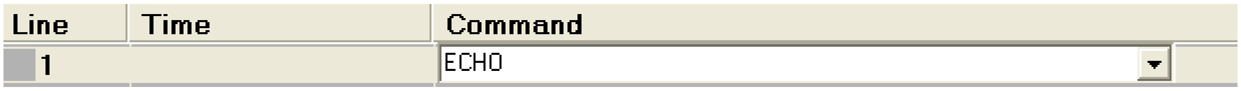
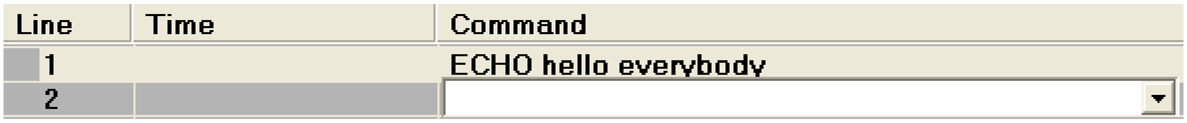


Figure 2-3. Command without parameter(s)

4. Now type the words “hello everybody” (or whatever words you choose) after the command and press **Enter**. This completes the first line of the script and advances the cursor to the second line, where you can enter another command if desired.



Line	Time	Command
1		ECHO hello everybody
2		

Figure 2-4. Entering a Command

5. To cancel editing of a line, press **Esc**.
6. If you want to create another script in this zip file, click the “New Script” 🗎 icon, or click on **File > New Script.**
7. When you finish creating scripts, save the script(s) and zip file. (See *Section 2.4* for information on how to do this.)

2.4 Saving the Script / Zip File

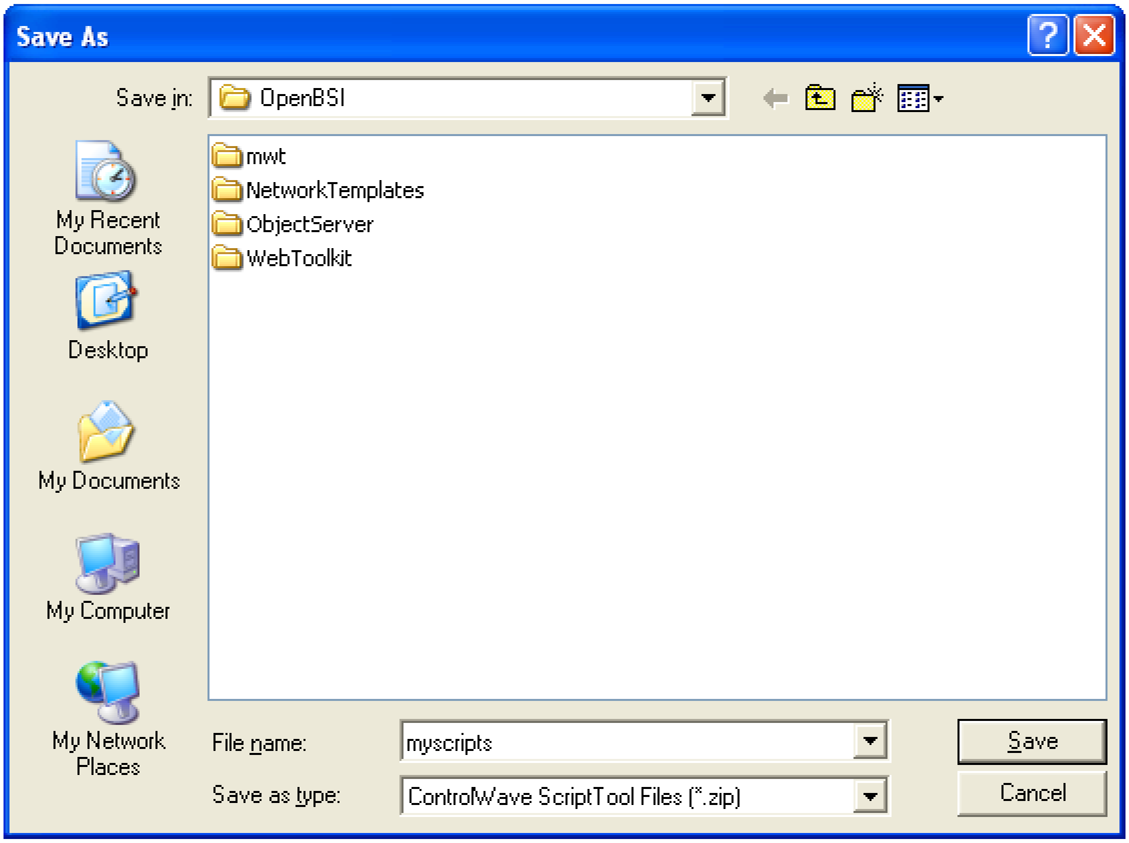
The method for saving the script varies depending upon whether this is the first script in a zip file, or you are saving a script in a zip file that already includes other scripts.

Note: When you edit files in the zip file through the ScriptTool, ScriptTool temporarily saves them in a working folder; once you complete your edits in the ScriptTool and close the zip file, ScriptTool overwrites your existing scripts with your newly edited scripts. This happens even if the files are only written to the RTU. If, for some reason, you want to preserve the earlier version, you must copy it to another folder for safekeeping before you begin editing the zip file. If you want to make changes to the files manually, you must not have the zip file open in the ScriptTool until you are finished making your changes as it overwrites your files with the ones from the ScriptTool when the ScriptTool either closes the zip file or exits.

Saving the first script in a zip file

To save a script in a zip file that hasn’t been saved yet, and so doesn’t include any other scripts, first you must save the zip file.

1. Click the “Save File” icon 💾 or click **File** > **Save Zip**.
2. Enter a name for the zip file in the **File name** field, then click **Save**.



Save As

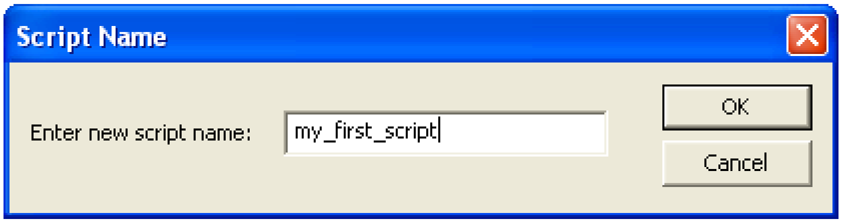
Save in: OpenBSI

File name: myscripts

Save as type: ControlWave ScriptTool Files (*.zip)

Figure 2-5. Saving the Zip File

3. The Script Name dialog box opens. Enter a name for your script, then click **OK**.



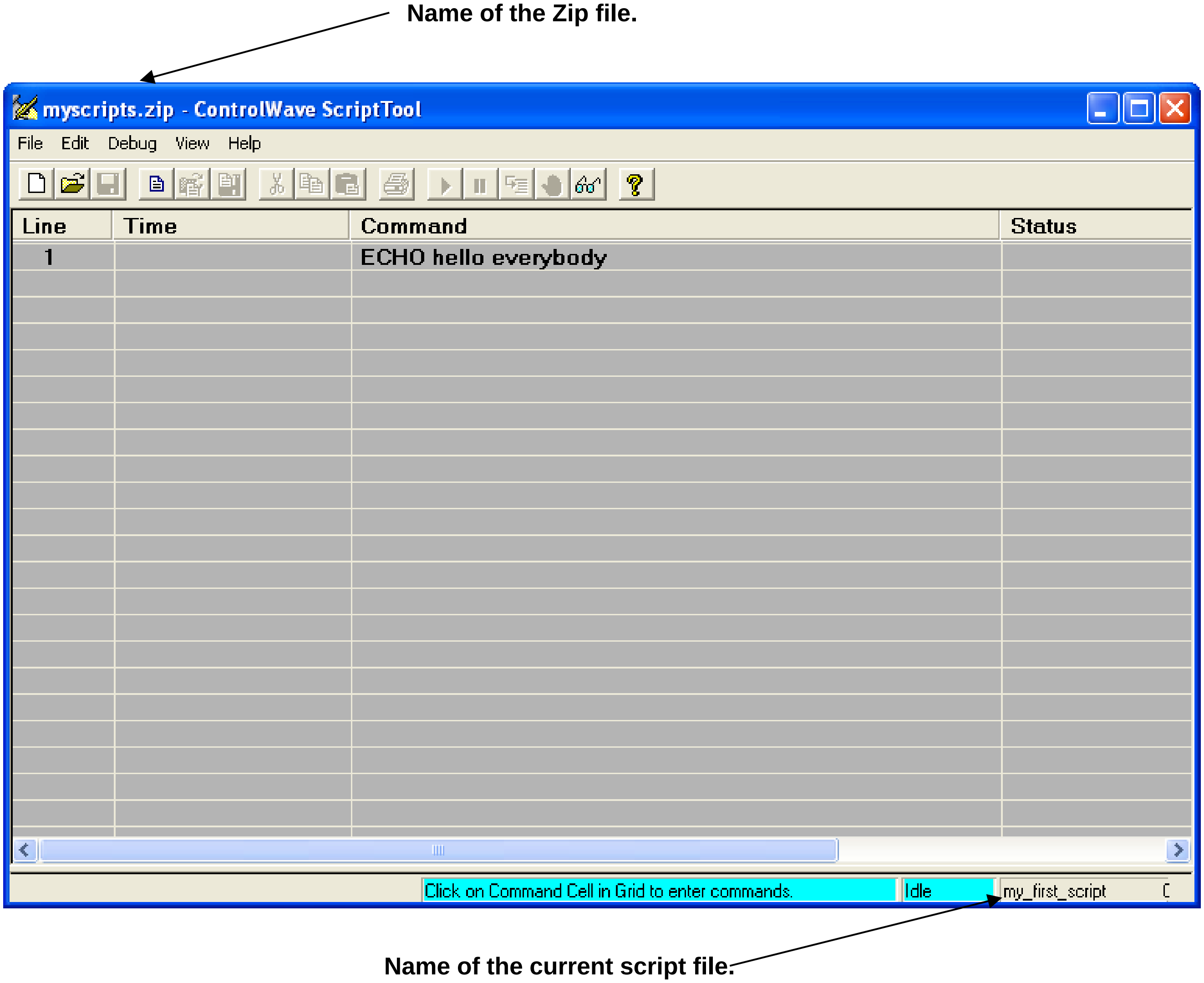
Script Name

Enter new script name: my_first_script

Figure 2-6. Naming the Script

4. The ScriptTool now shows the zip file name in the title bar, and the name of the script you just created shows in the status bar.

Name of the Zip file.



Line	Time	Command	Status
1		ECHO hello everybody	

Click on Command Cell in Grid to enter commands. Idle my_first_script

Name of the current script file.

Figure 2-7. Zip and Script File Names Displayed

Saving the script in a zip file that contains other scripts

Click the "Save File" icon 💾 or click **File** > **Save Zip**.

2.5 Creating a New, Empty Zip File

If, when you finish with the current zip file, you want to create *another* zip file, click the "New Zip" icon 🗋 *or* click **File** > **New Zip**.

2.6 Opening an Existing Zip File

To open an existing zip file, click the "Open File" icon, or click **File > Open Zip.**

In the Open dialog box, select the name of the zip file, and click **Open**.

Notes:

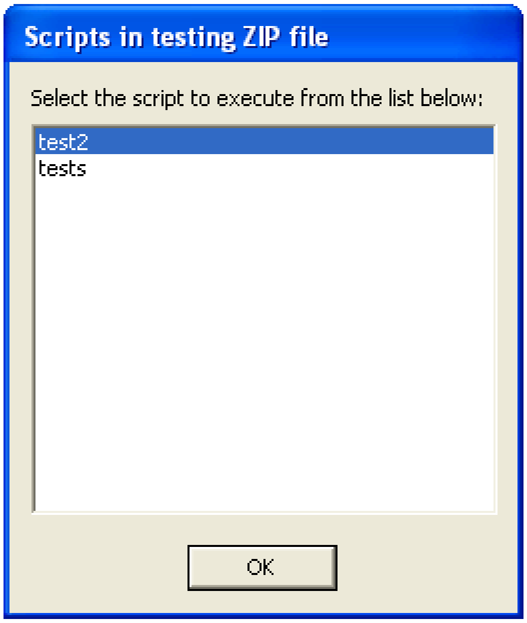
- The File pulldown menu displays recently opened files. If you see the file you want there, click on it directly.
- You can also open a zip file by dragging it from Windows® Explorer onto a running instance of the ScriptTool.

2.7 Making a Copy of the Current Zip File with a Different Name

Click **File** >**Save Zip As**.

2.8 Selecting a Script From within the Current Zip File

To open a script in the current zip file, click the "Open Script" icon, or click **File** >**Open Script** to open the Scripts dialog box.


Scripts in testing ZIP file

Select the script to execute from the list below:

test2
tests

Figure 2-8. Selecting an Existing Script

This dialog box lists all scripts in the current zip file. Select the script you want to open and click **OK**.

2.9 Making a Copy of the Current Script with a Different Name

Click **File >Save Script As**. You can now edit the new script.

2.10 Modifying Lines of a Script

When you edit a script, you can use standard editing techniques to cut, paste, copy, etc. entire lines in a script. The table, below, shows the supported editing commands:

Table 2-1. ScriptTool Editing Functions

Editing Function	Toolbar Icon	Menu Bar Sequence	Description
Cut	✂	**Edit > Cut**	Cuts the selected line of the script and stores it in the paste buffer.
Copy	📄	**Edit > Copy**	Copies the selected line of the script and puts it in the paste buffer.
Paste	📋	**Edit > Paste**	Pastes the contents of the paste buffer to the current script line.
Insert	Not applicable	**Edit > Insert**	Inserts a blank line in the script
Delete	Not applicable	**Edit > Delete**	Deletes the current line of the script.

2.11 Deleting a Script

Outside of the ScriptTool, open the zip file in an application such as Winzip, and delete the script. Then save the zip file.

2.12 More Information on Creating Scripts

So far, we’ve talked about creating a really simple script using the ECHO command. Typically, you’re going to want to do more than just display text on the screen.

You might, for example, want to collect the flash configuration parameters from a controller, and collect the audit records from the controller. We’ll do this using the FCP and AUDIT commands; see *Appendix A* for more information on any command.

To create a script that does that, follow these steps:

1. Start the ScriptTool as described in *Section 2.2*.
2. Click on the first line of the script in the **Command** column, and select the FCP command from the pull down menu.

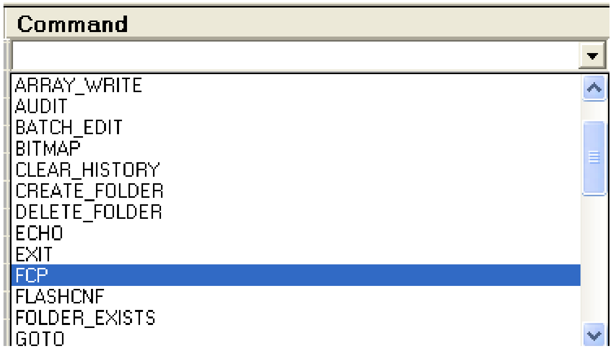
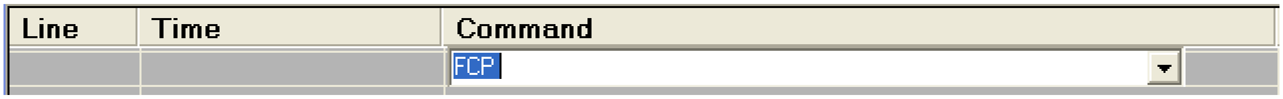


Figure 2-9. Selecting a Command

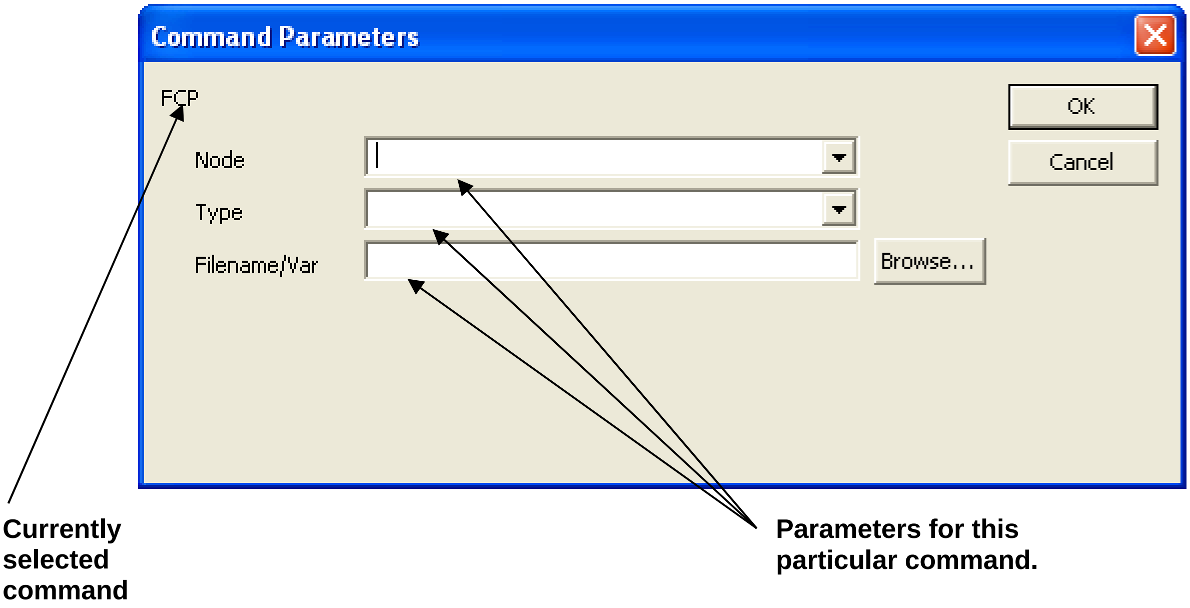
3. With "FCP" visible in the **Command** column, press **F2**.



Line	Time	Command
		FCP

Figure 2-10. Command Column – Command Selected

4. If you go to *Appendix A* you can look at the parameters associated with the FCP command, and type them in. It might be easier, though, to use the **F2** key. The **F2** key calls up the Command Parameters dialog box. The appearance of this dialog box varies depending upon which command you choose.

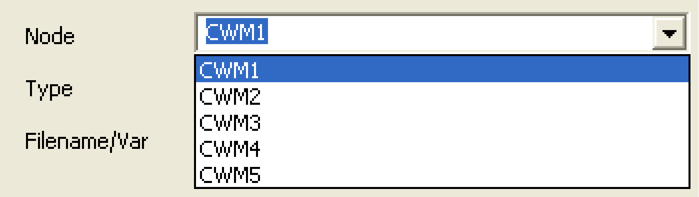


Currently selected command

Parameters for this particular command.

Figure 2-11. Command Parameters dialog box

5. Use the **Node** list box to select the controller from which you want to retrieve flash parameters.



Node: CWM1

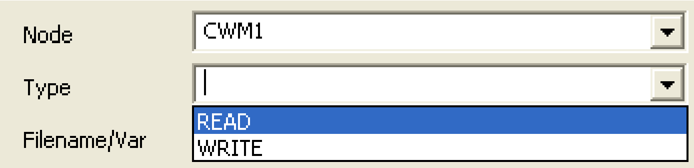
Type

Filename/Var

Figure 2-12. Selecting the Controller

Note: If you want to use this same script for operations with multiple different controllers, you can specify the keyword **"RTU"** for the **Node** and then run the script from the command line using the **–R** switch. See *Chapter 3* for more information.

6. For the **Type** field, select the **"READ"** option.



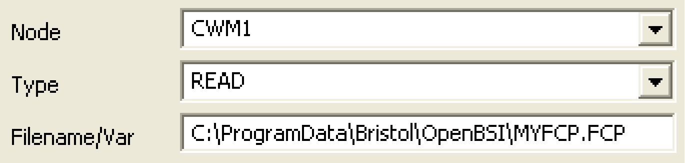
Node: CWM1

Type

Filename/Var

Figure 2-13. Selecting the Type

7. Specify a filename to hold the collected FCP parameters. Here we specified a filename called: "C:\ProgramData\Bristol\OpenBSI\MYFCP.FCP."



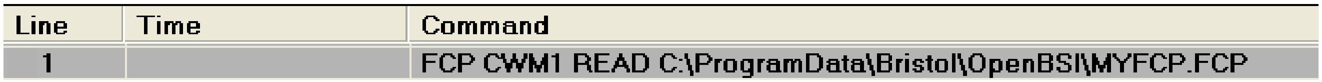
Node: CWM1

Type: READ

Filename/Var: C:\ProgramData\Bristol\OpenBSI\MYFCP.FCP

Figure 2-14. Specifying a Filename

8. When you finish specifying the parameters in the Command Parameters dialog box, click **OK**. This displays the completed command.



Line	Time	Command
1		FCP CWM1 READ C:\ProgramData\Bristol\OpenBSI\MYFCP.FCP

Figure 2-15. Completed Command

9. Now click on the second line and select the **"AUDIT"** command.

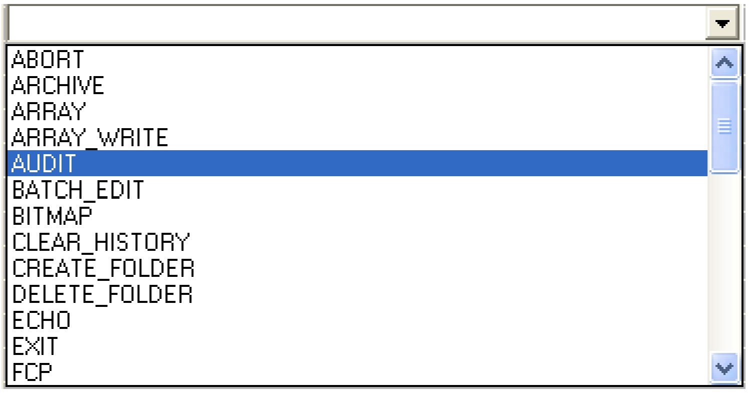
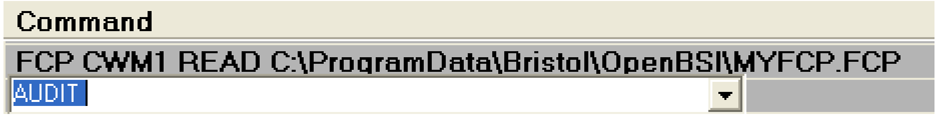


Figure 2-16. Selecting a Command

10. As before, while **"AUDIT"** is highlighted, press **F2**.



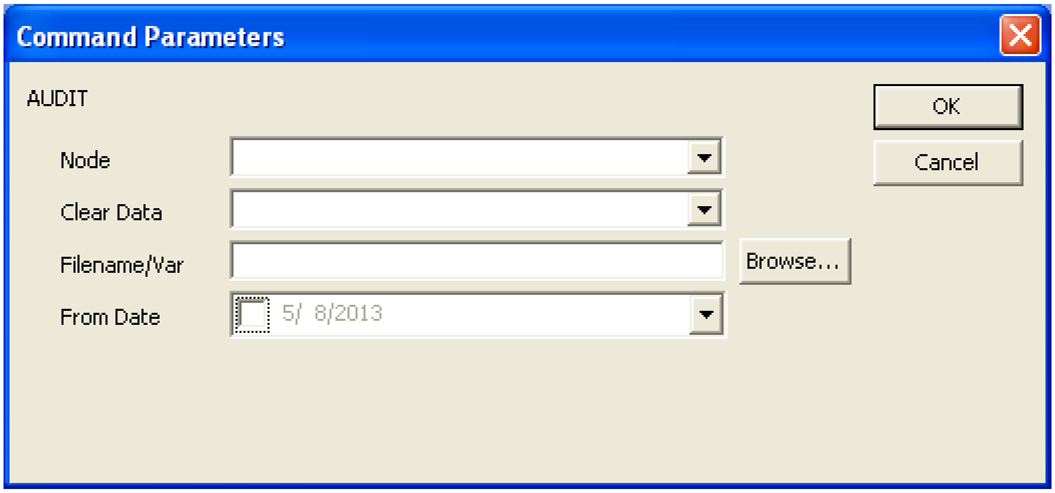
Command

FCP CWM1 READ C:\ProgramData\Bristol\OpenBSI\MYFCP.FCP

AUDIT

Figure 2-17. Command Column

11. The **F2** key calls up the Command Parameters dialog box. Notice that the Command Parameters dialog box looks different; it shows parameters for a different command.



Command Parameters

AUDIT

Node

Clear Data

Filename/Var

From Date □ 5/ 8/2013

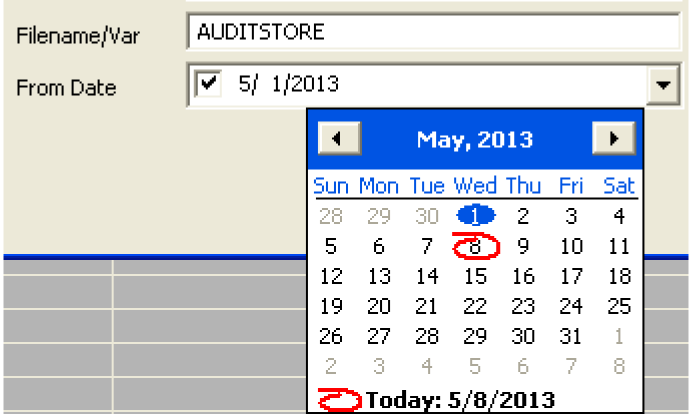
Figure 2-18. Command Parameters – for AUDIT

12. Choose the controller in the **Node** field.

13. Use the **Clear Data** list box to choose whether or not you want to delete audit records from the controller once you collect them. **"O"** preserves the audit records; **"1"** deletes audit records.

14. Specify a name for the file in the **Filename/Var** field that stores the audit records; if you specify a full path, ScriptTool stores the file according to that path; if you just enter a filename, the file resides in the zip file. For this example, we'll just make up a name "AUDITSTORE."

15. In the **From Date** field you can optionally select a date; ScriptTool only collects audit records from that date forward.



Filename/Var: AUDITSTORE

From Date: ☑ 5/ 1/2013

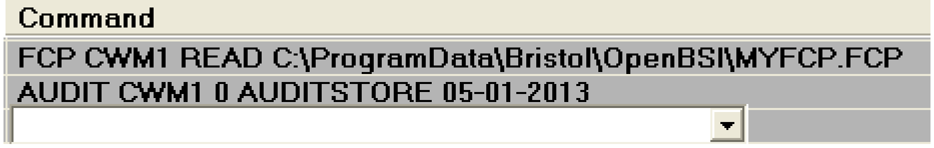
May, 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

Today: 5/8/2013

Figure 2-19. Selecting Audit Records From After a Specific Date

16. When you finish completing the fields, click **OK**. Now you have two commands in your script, and the cursor moves to the third line.



```
Command
FCP CWM1 READ C:\ProgramData\Bristol\OpenBSI\MYFCP.FCP
AUDIT CWM1 0 AUDITSTORE 05-01-2013
```

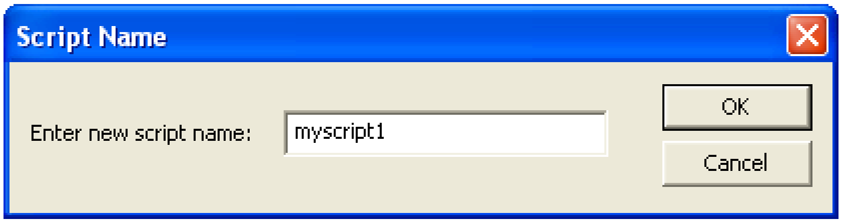
Figure 2-20. Finishing the Script

17. Since we don't need to add any other command to finish the script, press **Esc** to exit the third line.

18. Now save the zip file by clicking **File>Save Zip** or just click the 💾 icon.

19. In the Save As dialog box, specify a name for the zip file in the **File name** field, then click **Save**.

20. The Script Name dialog box opens. Specify a name for the script; for this example we entered "myscript1."



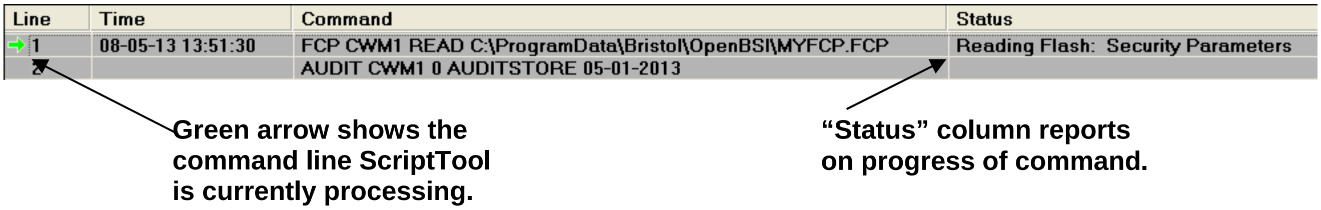
Enter new script name: myscript1

Figure 2-21. Entering the Script Name

2.12.1 Testing the Script You Just Created

Now that you’ve successfully created the script, you can test it.

1. Click **Debug > Run** or click the Run icon .
2. A green arrow on the screen points to the line of the script currently executing, in this case, line 1. Notice that as ScriptTool executes the first command it reports the progress in the **Status** column. When the ScriptTool finishes executing the first command (which may take some time) the green arrow advances to the next line and ScriptTool begins processing the second command.



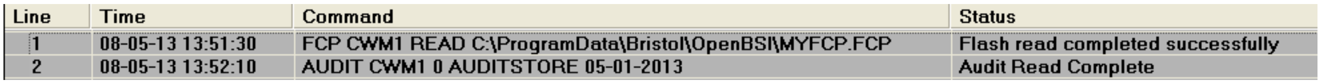
Line	Time	Command	Status
1	08-05-13 13:51:30	FCP CWM1 READ C:\ProgramData\Bristol\OpenBSI\MYFCP.FCP	Reading Flash: Security Parameters
2		AUDIT CWM1 0 AUDITSTORE 05-01-2013	

Green arrow shows the command line ScriptTool is currently processing.

“Status” column reports on progress of command.

Figure 2-22. Testing the Script

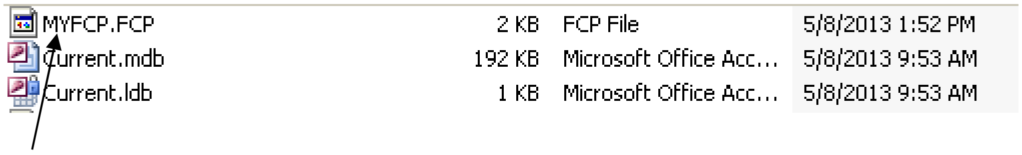
4. Check the **Status** column. It should look like the **Status** column in *Figure 2-23.*



Line	Time	Command	Status
1	08-05-13 13:51:30	FCP CWM1 READ C:\ProgramData\Bristol\OpenBSI\MYFCP.FCP	Flash read completed successfully
2	08-05-13 13:52:10	AUDIT CWM1 0 AUDITSTORE 05-01-2013	Audit Read Complete

Figure 2-23. Successful Execution

5. As a further check, you should verify that the script actually created the files you specified. Using Windows® Explorer, look on the C drive for the MYFCP.FCP file

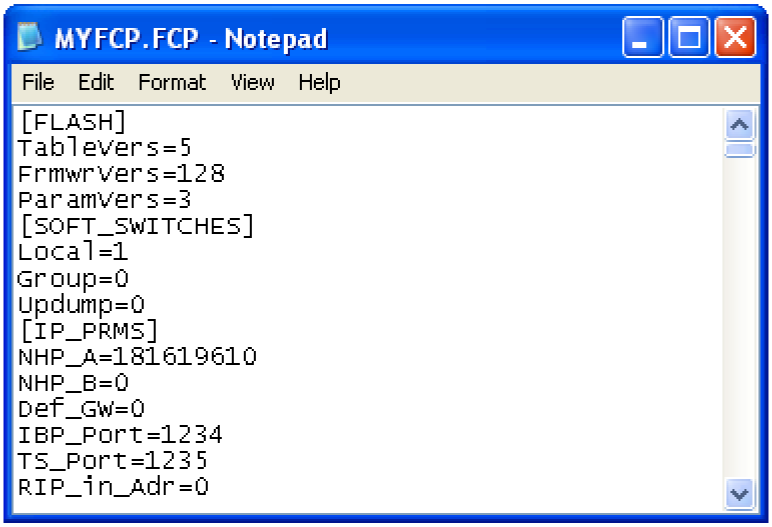


MYFCP.FCP	2 KB	FCP File	5/8/2013 1:52 PM
Current.mdb	192 KB	Microsoft Office Acc...	5/8/2013 9:53 AM
Current.ldb	1 KB	Microsoft Office Acc...	5/8/2013 9:53 AM

MYFCP.FCP file present

Figure 2-24. Verify FCP File Creation

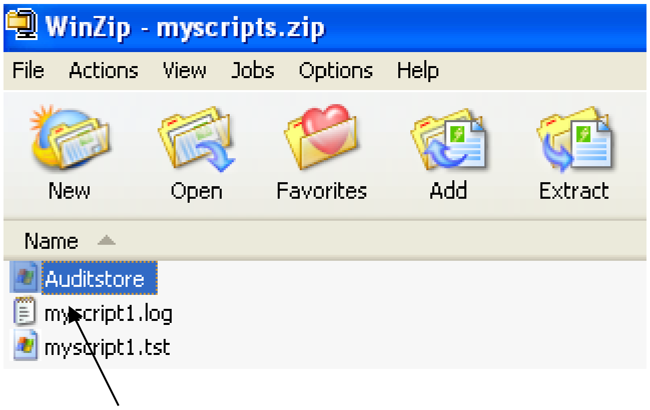
6. Now use Notepad (or another text editor) to look at the contents of the MYFCP.FCP file; you can see flash parameter information collected from the controller.



```
[FLASH]
Tablevers=5
Frmwrvers=128
Paramvers=3
[SOFT_SWITCHES]
Local=1
Group=0
Updump=0
[IP_PRMS]
NHP_A=181619610
NHP_B=0
Def_Gw=0
IBP_Port=1234
TS_Port=1235
RIP_in_Adr=0
```

Figure 2-25. Contents of FCP File

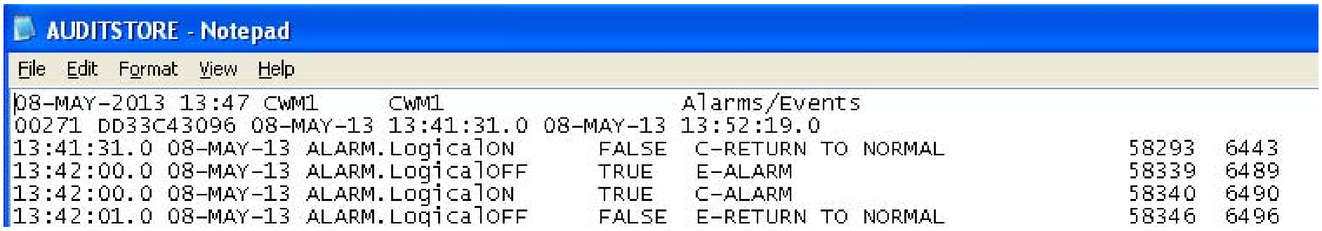
7. Similarly, since we specified a file called "AUDITSTORE" without any path to hold audit data, you should to see that ScriptTool created it inside the zip file.



Look for file in the ZIP.

Figure 2-26. Files in the Zip File

8. Since audit data is in ASCII format, you can also view the AUDITSTORE file in a text editor



```
08-MAY-2013 13:47 CWM1      CWM1                 Alarms/Events
00271 DD33C43096 08-MAY-13 13:41:31.0 08-MAY-13 13:52:19.0
13:41:31.0 08-MAY-13 ALARM.LogicalON      FALSE  C-RETURN TO NORMAL            58293  6443
13:42:00.0 08-MAY-13 ALARM.LogicalOFF     TRUE   E-ALARM                       58339  6489
13:42:00.0 08-MAY-13 ALARM.LogicalON      TRUE   C-ALARM                       58340  6490
13:42:01.0 08-MAY-13 ALARM.LogicalOFF     FALSE  E-RETURN TO NORMAL            58346  6496
```

Figure 2-27. Audit Records

Congratulations! You've created a script!

Note: If you can’t find an AUDIT file in your zip, it could be that there were no audit records in the controller to retrieve, or you specified a start date newer than the most recent audit records.

This two line script allowed you to collect flash parameters using the FCP command, and audit records using the AUDIT command. There are many other commands. For more information on the available commands, please see *Appendix A*.

You can run the script as we did, directly in the ScriptTool using the Run icon. You may, however, decide that you want to automate the process by running the script from the command line using some sort of scheduled-task software or batch files. See *Chapter 3* for information on command line options.

Because there are dozens of different commands you can include in a script, it is fairly easy for you to create very complex scripts that might be hundreds of lines long. If you want to create lengthy scripts, you’ll want to review the debugging techniques in *Chapter 4*.

Chapter 3 – Running ScriptTool from the Command Line

You might choose to run the ScriptTool from the command line if you want to use a third-party scheduling program or batch files to invoke the ScriptTool at a particular time, for example to handle certain day-to-day tasks. This section describes command line options.

In This Chapter

3.1 ScriptTool Command Line

Note: In this section, optional modifiers for the script appear in brackets ([ ]) which may be nested. You do not type the brackets.

From a DOS command prompt, you can enter the command in one of two formats:

SCRIPTTOOL *–Tscript_name [–Zzip_file] [-Rnode_name] [-A [-Lnnn]]*

or

SCRIPTTOOL –O *–Zzip_file –Tscript_name [-Rnode_name]*

where:

-A Autostart – Starts script immediately and closes tool on completion of the script.

-O Start script through operator interface page. When you specify this switch the only other valid switches are: "-Z", "-T", and "-R". The operator interface page only works with ZIP files, therefore if you specify the "-T" switch, you must specify the "-Z" switch as well.

-L*nnn* Start script execution from decimal line *nnn* of the script or at textual label *nnn* within script. This switch is valid only when the "-A**"** switch is specified as well.

-R*node_name*

If the script includes the text "RTU" this replaces each occurrence of RTU with the specified *node_name*. This is particularly useful because it lets you specify generic commands in your scripts that you can re-use with different controllers.

-T*script_file*

specifies the name of the script file which has a *.TST extension. If you specify a zip file (-Z switch) this is the file name of a *.TST file within the zip file. Otherwise, you must specify an absolute path for the script file.

-Z*zip_file*

specifies the path and name of the zip file. The zip file contains scripts and other files needed by the scripts.

3.2 Sample Command Lines

To run a script called "script1.tst" which resides in the zip file "c:\Program Files\Bristol\OpenBSI\myscripts.zip" enter:

SCRIPTTOOL –Tscript1.tst **–**Z"c:\Program Files\Bristol\OpenBSI\myscripts.zip"

To run a script called "script2.tst," that is located in the path "C:\Program Files\Bristol\OpenBSI" (not in a zip file) and replace each occurrence of the text "RTU" with the node name "cwm7," enter:

SCRIPTTOOL – T"c:\Program Files\bristol\openbsi\script2.tst" **–R**cwm7

To run a script called "bigscript.tst" which resides in the zip file "c:\Program Files\Bristol\OpenBSI\scriptlibrary.zip" and start it within the operator interface page, enter:

SCRIPTTOOL –O –Z"c:\Program Files\Bristol\OpenBSI\scriptlibrary.zip" **–T**bigscript.tst

Note: Because the path for the above command lines includes a space (in the "Program Files" portion of the path) the full path must be surrounded by " " quotation marks. If there were no spaces in the path, the quotation marks around the path would be unnecessary.

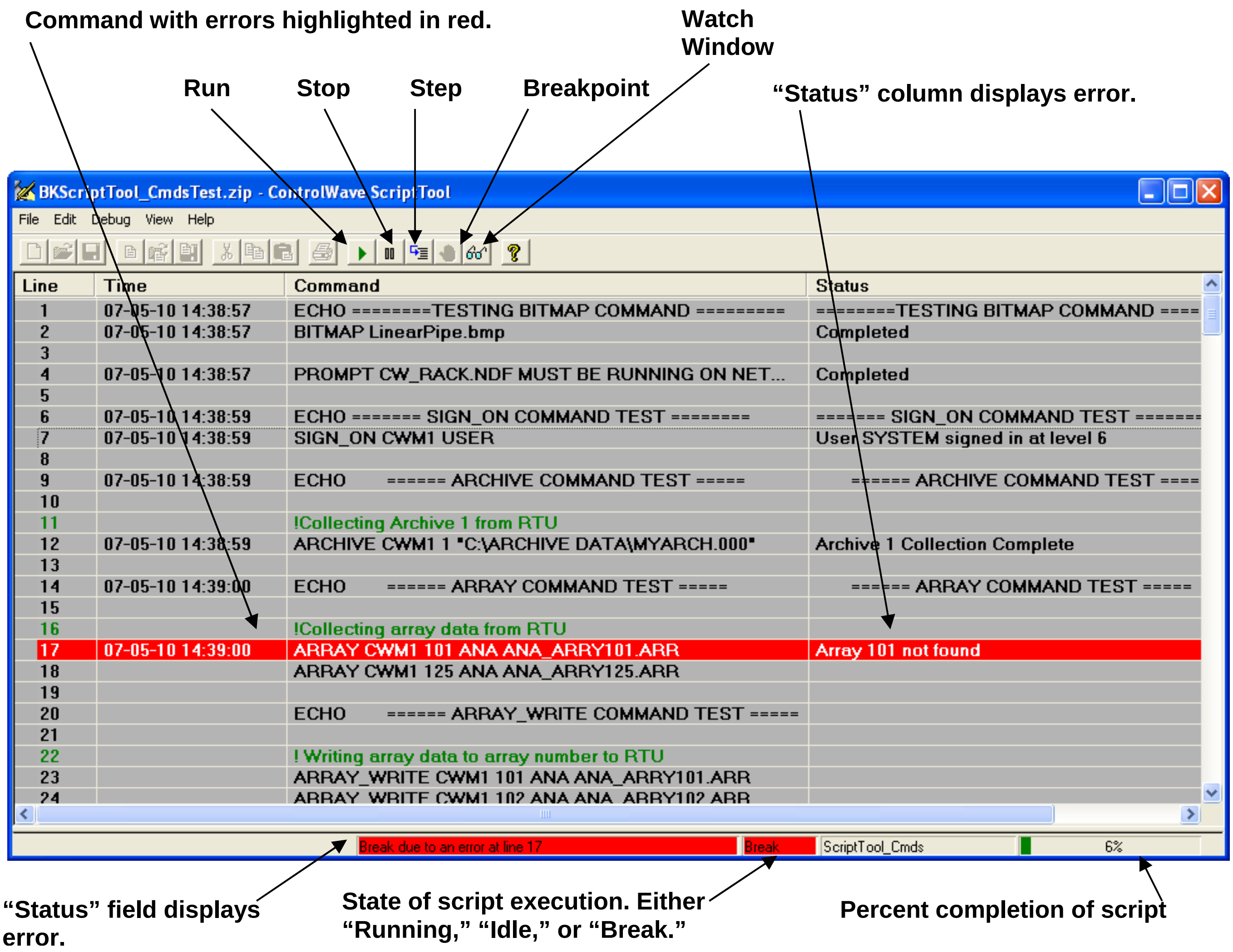
Chapter 4 – Debugging Scripts

If you create a complex script that includes dozens or even hundreds of lines of commands, it will likely include some errors. To help you correct the errors, ScriptTool includes some debugging features.

In This Chapter

4.1 Error Reporting

If ScriptTool encounters a problem when it executes a line of your script, it highlights that line in red, and displays an error message in the **Status** column. This helps you identify common syntactical errors.


BKScriptTool_CmdsTest.zip - ControlWave ScriptTool
File Edit Debug View Help

Command with errors highlighted in red.

Run

Stop

Step

Breakpoint

Watch Window

"Status" column displays error.

Line	Time	Command	Status
1	07-05-10 14:38:57	ECHO ========TESTING BITMAP COMMAND =========	========TESTING BITMAP COMMAND ====
2	07-05-10 14:38:57	BITMAP LinearPipe.bmp	Completed
3			
4	07-05-10 14:38:57	PROMPT CW_RACK.NDF MUST BE RUNNING ON NET...	Completed
5			
6	07-05-10 14:38:59	ECHO ======= SIGN_ON COMMAND TEST ========	======= SIGN_ON COMMAND TEST =======
7	07-05-10 14:38:59	SIGN_ON CWM1 USER	User SYSTEM signed in at level 6
8			
9	07-05-10 14:38:59	ECHO ====== ARCHIVE COMMAND TEST =====	====== ARCHIVE COMMAND TEST ====
10			
11		!Collecting Archive 1 from RTU	
12	07-05-10 14:38:59	ARCHIVE CWM1 1 "C:\ARCHIVE DATA\MYARCH.000"	Archive 1 Collection Complete
13			
14	07-05-10 14:39:00	ECHO ====== ARRAY COMMAND TEST =====	====== ARRAY COMMAND TEST =====
15			
16		!Collecting array data from RTU	
17	07-05-10 14:39:00	ARRAY CWM1 101 ANA ANA_ARRY101.ARR	Array 101 not found
18		ARRAY CWM1 125 ANA ANA_ARRY125.ARR	
19			
20		ECHO ====== ARRAY_WRITE COMMAND TEST =====	
21			
22		! Writing array data to array number to RTU	
23		ARRAY_WRITE CWM1 101 ANA ANA_ARRY101.ARR	
24		ARRAY_WRITE CWM1 102 ANA ANA_ARRY102.ARR	

Break due to an error at line 17 | Break | ScriptTool_Cmds | 6%

"Status" field displays error.

State of script execution. Either "Running," "Idle," or "Break."

Percent completion of script

Figure 4-1. Error Reporting

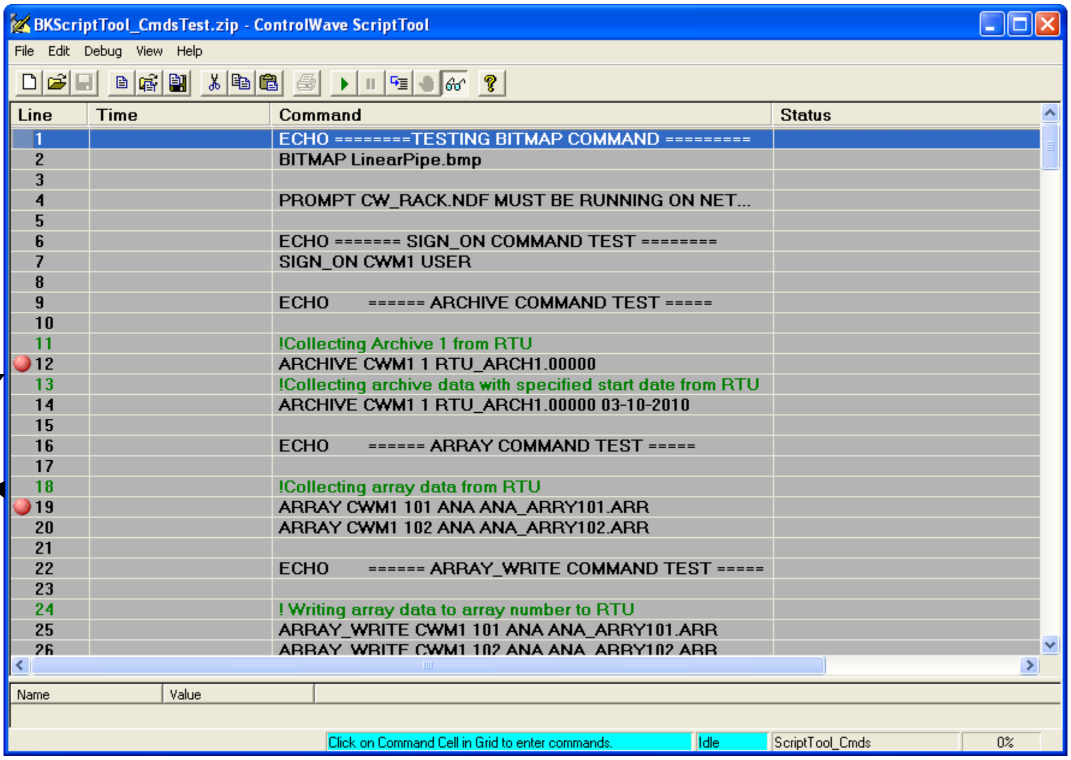
You can resume execution after the line containing the error by clicking on the Run ▶ icon.

Although the ScriptTool detects syntactical errors during execution, sometimes script errors relate more to the logic of the script. To solve those kinds of problems often requires you to look at more than just the current script line. You might need to pause execution at a particular point, and then proceed line by line, while examining the state of different script variables. To do this, you need to use the breakpoint feature and step mode.

4.2 Working with Breakpoints

A **breakpoint** is a flag that you place on a line at which you would like execution to pause. As the script executes, it pauses on the line containing the breakpoint, but doesn't execute the command on the line. This allows you to look at the watch window to view the state of script variables immediately before the breakpoint. When the execution pauses, the script enters **step mode**. Step mode allows you to execute one script line at a time, by clicking on the Step icon.

By stopping execution at certain points, and then looking at script variables, it is possible to better understand how the script works, and identify errors in the script's logic. As you advance line by line, you may be able to identify the source of a problem so you can correct it.



Line	Time	Command	Status
1		ECHO ========TESTING BITMAP COMMAND =========	
2		BITMAP LinearPipe.bmp	
3			
4		PROMPT CW_RACK.NDF MUST BE RUNNING ON NET...	
5			
6		ECHO ======= SIGN_ON COMMAND TEST ========	
7		SIGN_ON CWM1 USER	
8			
9		ECHO ====== ARCHIVE COMMAND TEST =====	
10			
11		!Collecting Archive 1 from RTU	
● 12		ARCHIVE CWM1 1 RTU_ARCH1.00000	
13		!Collecting archive data with specified start date from RTU	
14		ARCHIVE CWM1 1 RTU_ARCH1.00000 03-10-2010	
15			
16		ECHO ====== ARRAY COMMAND TEST =====	
17			
18		!Collecting array data from RTU	
● 19		ARRAY CWM1 101 ANA ANA_ARRY101.ARR	
20		ARRAY CWM1 102 ANA ANA_ARRY102.ARR	
21			
22		ECHO ====== ARRAY_WRITE COMMAND TEST =====	
23			
24		! Writing array data to array number to RTU	
25		ARRAY_WRITE CWM1 101 ANA ANA_ARRY101.ARR	
26		ARRAY_WRITE CWM1 102 ANA ANA_ARRY102.ARR	

Click on Command Cell in Grid to enter commands. | Idle | ScriptTool_Cmds | 0%

Breakpoints set

Figure 4-2. Setting Breakpoints

4.2.1 Setting a Breakpoint

There are three different ways to set a breakpoint.

- You can click in the **Line** column on the script line where you want to place the breakpoint *–or–*
- You can click in one of the other columns of the script line where you want the breakpoint, and click on the Breakpoint ✋ icon, *–or–*
- You can click in one of the other columns of the script line where you want the breakpoint, and click **Debug > Breakpoint**

Any of these methods places a stop flag 🔴 in the **Line** column. This means that line has a breakpoint.

The next time you execute the script, execution pauses on the line containing the 🔴 flag, prior to executing the command on that line.

Notes:

- You can only set or clear a breakpoint when the script is in either the "Idle" or "Break" state.
- You cannot set a breakpoint on a comment line or an empty line.
- ScriptTool preserves breakpoints between sessions.

4.2.2 Stepping through the Script using Step Mode

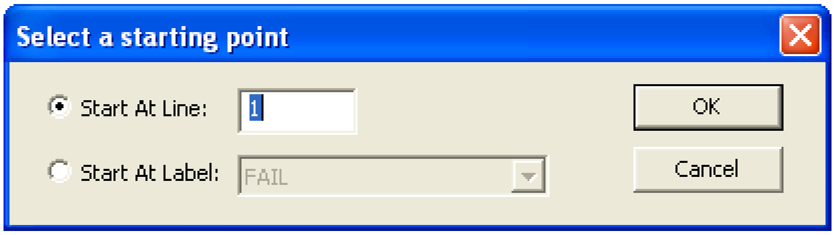
Once execution pauses on a particular line of the script, you can proceed one line at a time by clicking on the Step icon ↳ or click **Debug > Step**. You can also press the **F10** key to do this.

You can now look in the Watch Window to see how values of script variables in the script change. See *Using the Watch Window*.

4.2.3 Skipping Over a Section of the Script

If a section of your script has errors, but there are later sections of the script you want to run, for testing purposes, you can specify a starting point for the script, from which you can run the script, or optionally, step through the script.

1. Click **Debug > Run – Start At Line** to run the script from a particular line or **Debug > Step – Start At Line** to step through the script beginning at a certain line.
2. In either case, the "Select a starting point" dialog box opens. Choose **Start At Line** and specify a particular line from which to start the script, *–or–* click **Start At Label** and select a label from within the script as the starting point.
3. Click **OK** to start the script from the specified point.



● Start At Line: 1

○ Start At Label: FAIL

Figure 4-3. Select a starting point dialog box

4.2.4 Re-Executing a Line of the Script

If execution stops on a particular line of the script, and you want to re-execute that line, you can do so. You have the option of either re-starting the script execution on that line, or re-executing the line and then executing in step mode.

Click **Debug** > **Run – Repeat Current Command** to re-start the script from the current line or **Debug** > **Step – Repeat Current Command** to re-run the line and then keep the execution in step mode.

4.2.5 Clearing a Single Breakpoint

There are three different ways to clear a breakpoint.

- You can click in the **Line** column on the breakpoint icon to clear the breakpoint. *–or–*
- You can click in one of the other columns of the script line where you want to clear the breakpoint, and click on the Breakpoint ✋ icon, *–or–*
- You can click in one of the other columns of the script line where you have the breakpoint, and click **Debug > Breakpoint**

Any of these methods removes the stop flag ● in the **Line** column, thereby clearing the breakpoint.

4.2.6 Clearing All Breakpoints

To clear all breakpoints in the script, click **Debug** > **Clear All Breakpoints**.

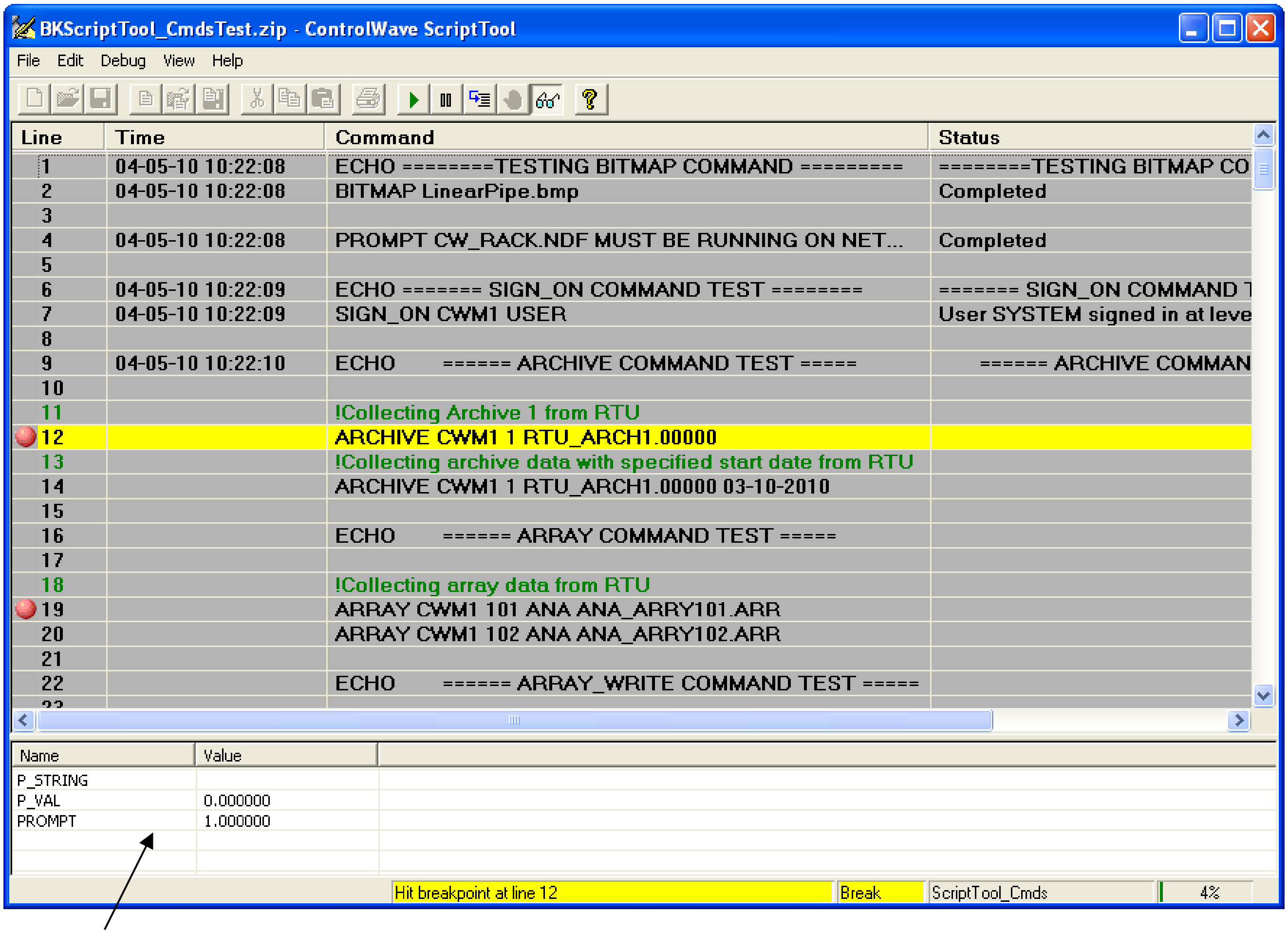
4.3 Using the Watch Window

When the script execution pauses on a breakpoint, the Watch Window displays the current value of script variables executed up until that point. This helps you know how the logic in the script affects the variables and can help you identify problems.

⚠ Caution **Values in the Watch Window are only updated when the script stops at a breakpoint. The values shown are only for those variables which have already executed in the script. The Watch Window displays a white background in this state.**

When the script resumes execution, the Watch Window displays a gray background; values shown during execution may not reflect the most recent changes. Therefore, only trust Watch Window values if you see a white background.

To open the watch window, click on the Watch Window icon, or click **View** > **Watch Window**. You close the watch window the same way.



Line	Time	Command	Status
1	04-05-10 10:22:08	ECHO ========TESTING BITMAP COMMAND =========	========TESTING BITMAP CO
2	04-05-10 10:22:08	BITMAP LinearPipe.bmp	Completed
3			
4	04-05-10 10:22:08	PROMPT CW_RACK.NDF MUST BE RUNNING ON NET...	Completed
5			
6	04-05-10 10:22:09	ECHO ======= SIGN_ON COMMAND TEST ========	======= SIGN_ON COMMAND T
7	04-05-10 10:22:09	SIGN_ON CWM1 USER	User SYSTEM signed in at leve
8			
9	04-05-10 10:22:10	ECHO ====== ARCHIVE COMMAND TEST =====	====== ARCHIVE COMMAN
10			
11		!Collecting Archive 1 from RTU	
● 12		ARCHIVE CWM1 1 RTU_ARCH1.00000	
13		!Collecting archive data with specified start date from RTU	
14		ARCHIVE CWM1 1 RTU_ARCH1.00000 03-10-2010	
15			
16		ECHO ====== ARRAY COMMAND TEST =====	
17			
18		!Collecting array data from RTU	
● 19		ARRAY CWM1 101 ANA ANA_ARRY101.ARR	
20		ARRAY CWM1 102 ANA ANA_ARRY102.ARR	
21			
22		ECHO ====== ARRAY_WRITE COMMAND TEST =====	
23			

Name	Value
P_STRING	
P_VAL	0.000000
PROMPT	1.000000

Hit breakpoint at line 12 | Break | ScriptTool_Cmds | 4%

Watch Window

Figure 4-4. Watch Window

4.4 Stopping the Currently Executing Script

To stop the currently executing script, click the Stop ⏸ icon or click **Debug>Stop**.

The system prompts you to confirm you want to stop the script. Click **OK**.

You can then proceed to make edits to the script or start a different script.

Appendix A – ScriptTool Commands

In this appendix we use the following conventions:

You make entries in **bold** exactly as shown.

You replace entries in *italics* with a valid parameter.

We show optional parameters in square brackets ([*optional item*]). You do not type the brackets.

Notes:

- You include a single command on each line of the script.
- Include a space or tab between different parameters in the command.
- If you specify a path, folder, or filename that includes spaces you must place quotation marks (" ") around the entire path and filename. For example, C:\MY DATA\DATA.TXT must be entered as: "C:\MY DATA\DATA.TXT"
- To include a comment in the script, place an exclamation point (!) at the beginning of the line; all other characters on that line are treated as comments.
- To include a label in the script include a colon (:) at the beginning of a line. That makes the line a label. (A label is just a name; the script can use GOTO commands to jump to a subsequent line with a label.)

Commands:

ABORT command

Terminates the current script. If you include the [*string*] parameter, ScriptTool displays the *string* on the screen for the operator and logs it in the file.

Syntax: **ABORT** *[string]*

Examples:

To terminate the script without a message use:

ABORT

To terminate the script and show a message “script is finished” on the screen enter:

ABORT script is finished

ARCHIVE command

Collects an archive file from the controller.

Syntax**:** **ARCHIVE** *node archive_file [output_file] [option]*

where:

node specifies the name of the controller, as defined in NetView.

archive_file specifies either the number of the archive file here, or a script variable for which the value of the script variable is the archive file number.

output_file If the *output_file* is present ScriptTool stores archive data in UOI format to that file. You can specify a full path for the file; if you just enter a filename, ScriptTool stores the output file in the ZIP file. If you omit *output_file* entirely, ScriptTool writes the archive data to the log file. You can optionally use a script variable to specify the *output_file*.

option If the *option* is "ALL" ScriptTool collects all archive data. If *option* contains a date (mm-dd-yyyy) where mm = month, dd=day, and yyyy-year, ScriptTool collects data from that date forward. If you omit *option*, ScriptTool collects data from where the last collection left off according to the stored file.

Examples:

To collect all archive data from archive file 10 in node CWM5 and store it in a file called DAILY.ARC in the zip file enter:

ARCHIVE CWM5 10 DAILY.ARC ALL

To collect archive data from March 27, 2010 forward from archive file 7 in node ELM_STREET, and store it in a file called MYARC.DAT in the zip file enter:

ARCHIVE ELM_STREET 7 MYARC.DAT 03-27-2010

To collect archive data from where the last collection left off in archive file 3 in node RPC2, and store it in a file on the PC with the path C:\ProgramData\Bristol\OpenBSI\ArchData\ARCH2.ARC, enter:

ARCHIVE RPC2 3 C:\ProgramData\Bristol\OpenBSI\ArchData\ARCH2.ARC

ARRAY command

Collects an array from the controller.

Syntax: **ARRAY** *node array type* [*output_file*]

where:

node specifies the name of the controller, as defined in NetView.

array specifies either the number of the array here, or a script variable name for which the value of the script variable is the array number.

type specifies the type of array. Enter either ANA for analog array or LOG for logical array.

output_file If the *output_file* is present ScriptTool stores array data in that file. You can specify a full path for the file; if you just enter a filename, ScriptTool stores the output file in the ZIP file. If you omit *output_file* entirely, ScriptTool writes the array data to the log file. You can optionally use a script variable to specify the *output_file*.

Example:

To collect all array data from analog array 23 in node CWM2 and store it in a file called CWM2.ARY in the zip file enter:

ARRAY CWM2 23 ANA CWM2.ARY

ARRAY_WRITE command

Writes data from a file to an array in the controller.

Syntax: **ARRAY_WRITE** *node array type input_file*

where:

node	specifies the name of the controller, as defined in NetView.
array	specifies either the number of the array here, or a script variable for which the value of the script variable is the array number.
type	specifies the type of array. Enter either ANA for analog array or LOG for logical array.
input_file	specifies the file that holds data to be written to the array. You can specify a full PC path for the file; or if you just enter a filename, ScriptTool searches for the input file in the ZIP file. You can optionally use a script variable to specify the *input_file*.

Example:

To write the data from file ARAYINIT.TXT in the zip file into analog array 17 in node MAIN_STREET enter:

ARRAY_WRITE MAIN_STREET 17 ANA ARAYINIT.TXT

AUDIT command

Collects audit information from the controller. Audit collection begins from the oldest data.

Syntax: **AUDIT** *node clear_data [output_file] [option]*

where:

node	specifies the name of the controller, as defined in NetView.
clear_data	specifies whether the ScriptTool should erase audit records from the controller once it collects them. If 0, it does not erase audit records from the controller; if non-

zero, it erases records from the controller after it collects them. You can specify a script variable for *clear_data*.

output_file If the *output_file* is present ScriptTool stores audit data in UOI format in that file. You can specify a full path for the file; if you just enter a filename, ScriptTool stores the output file in the ZIP file. If you omit *output_file* entirely, ScriptTool writes the audit data to the log file. You can optionally use a script variable to specify the *output_file*.

option If the *option* is "ALL" ScriptTool collects all audit data. If *option* contains a date (mm-dd-yyyy) where mm = month, dd=day, and yyyy-year, ScriptTool collects data from that date forward. If you omit *option*, ScriptTool collects data from where the last collection left off according to the stored file.

Examples:

To collect all audit records from node RSM3, without erasing the records after collection, and store it in a file called RSM3.AUD in the zip file enter:

AUDIT RSM3 0 RSM3.AUD ALL

To collect audit records from April 3, 2010 forward from node LINCOLN, delete them from the node after collection, and store the records in a file called LINCOLN.AUD in the zip file enter:

AUDIT LINCOLN 1 LINCOLN.AUD 04-03-2010

BATCH_EDIT command

Copies archive and list definitions between a folder in the zip file (or on the PC) and the ControlWave project in the controller.

Note: The BATCH_EDIT command only copies the structure and configuration of the archive file, not the data values and timestamps stored in the archive file. Similarly, it only copies the names and order of variables in lists, not the values of those variables.

Syntax**:** **BATCH_EDIT** *node type folder project*

where:

node specifies the name of the controller, as defined in NetView.

type specify READ to read archive and list definitions from the controller and store it in the *folder*. Specify WRITE to take definitions from *folder* and copy it to the controller.

folder You can specify a full path for the folder; if you just enter a folder name, ScriptTool assumes the folder is in the ZIP file.

project specify the name of the ControlWave project running in the controller.

Examples:

To copy archive and list definitions from the folder MYDEFS in the zip file, and send it to the ControlWave project MYPROJ running in node CWM4, enter:

BATCH_EDIT CWM4 WRITE MYDEFS MYPROJ

To copy archive and list definitions from the ControlWave project CW3 in node PINE_STREET, and store it in the folder C:ProgramData\Bristol\OpenBSI\MYDEFS\BACKUP enter:

BATCH_EDIT PINE_STREET READ C:\ProgramData\Bristol\OpenBSI\MYDEFS\BACKUP CW3

BITMAP command

Changes the bitmap displayed on the operator interface page.

Syntax**:** **BITMAP** *filename*

where:

filename specifies the filename of the bitmap to display. A blank filename sets the bitmap back to the default bitmap. You can specify a full path for the bitmap; if you just enter a *filename*, ScriptTool assumes the file is in the ZIP file. You can optionally use a script variable to specify the *filename*.

Example:

To display a bitmap called calib.bmp from the zip file, enter:

BITMAP calib.bmp

CLEAR_HISTORY command

Deletes archive and/or audit data from the controller.

⚠ **Caution** **If there should be a power failure to the ControlWave during the CLEAR_HISTORY operation, files will not delete properly.**

If you want to save any Audit or Archive data, you must do this before you use the CLEAR_HISTORY command.

We also recommend you save your current historical configuration to an FCP file prior to deleting audit or archive files, so that you can restore the structure (though not the data), if a failure occurs.

THERE IS NO CONFIRMATION PROMPT TO PREVENT ACCIDENTAL DELETION. Once CLEAR_HISTORY executes there is no way to reverse the deletion operation; the CLEAR_HISTORY command removes the chosen files from the unit and the unit re-boots twice to accomplish the deletion operation.

Syntax: **CLEAR_HISTORY** *node type [arch_num]*

where:

node specifies the name of the controller, as defined in NetView.

type specifies the type of data to delete, as follows:

ALL = delete ALL data (audit and archive)

ARCHIVE = delete archive file(s)

AUDIT = delete all audit records

arch_num optionally specifies a specific archive file number to delete. Use only when *type* = ARCHIVE. *arch_num* can be a constant or a script variable. If you omit *arch_num* from the command and *type* = ARCHIVE, ScriptTool deletes all archive files.

Example:

To delete all historical files (audit and archive) from controller OAK_ST, enter:

CLEAR_HISTORY OAK_ST ALL

To delete all audit records from controller SPRING_ST, enter:

CLEAR_HISTORY SPRING_ST AUDIT

To delete all archive files from controller ELM_ST, enter:

CLEAR_HISTORY ELM_ST ARCHIVE

To delete only archive file 5 from controller BIRCH_AVE, enter:

CLEAR_HISTORY BIRCH_AVE ARCHIVE 5

CREATE_FOLDER command

Creates a folder.

Syntax: **CREATE_FOLDER** *folder*

where:

folder specifies the name of the folder. You can specify a full path for the folder; if you just enter a name, ScriptTool creates the folder in the ZIP file. You can optionally use a script variable to specify the folder or path and folder.

Examples:

To create a folder named HISTDATA in the zip file, enter:

```
CREATE_FOLDER HISTDATA
```

To create a folder on the PC in the C:\ProgramData\Bristol\OpenBSI\MYDATA folder named HISTDATA enter:

```
CREATE_FOLDER C:\ProgramData\Bristol\OpenBSI\MYDATA\HISTDATA
```

To use a script variable named MYFOLDER to create a folder on the PC in the C:\ProgramData\Bristol\OpenBSI\MYDATA folder named HISTDATA, enter:

```
VAR_F_VAL MYFOLDER
C:\ProgramData\Bristol\OpenBSI\MYDATA\HISTDATA
CREATE_FOLDER MYFOLDER
```

DELETE_FOLDER command

Deletes a folder.

Syntax: **DELETE_FOLDER** *folder*

where:

folder specifies the name of the folder. You can specify a full path for the folder; if you just enter a name, ScriptTool looks for the folder in the ZIP file. You can optionally use a script variable to specify the folder or path and folder.

Example:

To delete a folder named YEST_DATA in the zip file, enter:

```
DELETE_FOLDER YEST_DATA
```

ECHO command

Displays the *string* on the screen and logs it to the output file.

Syntax**:** **ECHO** *string*

where:

string specifies text to display on the screen for the operator.

Example:

To display the *string* "starting file copy"enter:

ECHO starting file copy

EXIT command

Causes SCRIPTTOOL to exit. Optionally, the tool writes the contents of *string* to the log file.

Syntax: **EXIT** *string*

where:

string specifies text to display on the screen for the operator.

Example:

To display the *string* "terminating script" enter:

EXIT terminating script

FCP command

Reads or writes all FCP parameters from/to the controller.

Syntax: **FCP** *node type filename*

where:

node specifies the name of the controller, as defined in NetView.

type specify READ to read FCP parameters from the controller and store it in the *filename*. Specify WRITE to take FCP parameters from *filename* and copy them to the controller.

filename specifies the filename of the FCP file. You can specify a full path for file; if you just enter a *filename*, ScriptTool assumes the file is in the ZIP file. You can optionally use a script variable to specify the *filename*.

Example:

To write FCP parameters from the file myparams.FCP, in the zip file, to the controller named RPC4, enter:

FCP RPC4 WRITE MYPARAMS.FCP

To read FCP parameters from the controller named OAK_ST and store it in the file C:\ProgramData\Bristol\OpenBSI\MYFILES\FCPSTUFF.FCP, enter:

FCP OAK_ST READ C:\ProgramData\Bristol\OpenBSI\MYFILES\FCPSTUFF.FCP

FLASHCNF command

Syntax:

FLASHCNF *node list parameter_code param_value1 [param_value2] [param_value3]*

where:

node specifies the name of the controller, as defined in NetView.

list specifies the name of an internal list of flash parameters you want to define with this command. The list is named based on the type of parameters you want to define, and must be one of the following:

Name of list	Description
SECURITY	Security parameters
SOFTSW	Soft switches
IP	IP parameters
APPL	Application parameters
SPORT1	Serial Port 1 parameters
SPORT2	Serial Port 2 parameters
SPORT3	Serial Port 3 parameters
SPORT4	Serial Port 4 parameters
SPORT5	Serial Port 5 parameters
SPORT6	Serial Port 6 parameters
SPORT7	Serial Port 7 parameters
SPORT8	Serial Port 8 parameters
SPORT9	Serial Port 9 parameters
SPORT10	Serial Port 10 parameters
SPORT11	Serial Port 11 parameters
EPORT1	Ethernet Port 1 parameters
EPORT2	Ethernet Port 2 parameters
EPORT3	Ethernet Port 3 parameters
AUDIT	Audit parameters
ARCHIVE	Archive parameters

parameter_code specifies which parameter within the list that you want to define. Depending on the parameters, you may have to define one, two, or three parameter values for the parameter. To choose the proper *parameter_code* see the descriptions based on the list name, later in this sub-section.

Notes:

- You can only specify one parameter code in a particular **FLASHCNF** command. If a particular list has more than one parameter, you need to have a separate **FLASHCNF** command for each parameter you define.
- Depending on the requirements of the parameter, you may need to specify more than one value for a particular parameter in a single **FLASHCNF** command.

param_value1
param_value2
param_value3

specifies the value(s) for a particular parameter. Once you define the *parameter_code* you define the values required by that parameter. Depending on the parameter, you may need to define one, two, or three values for that parameter. To determine the proper value for *param_value1, param_value2,* or *param_value3* see the descriptions based on the list name, later in this sub-section.

list = **SECURITY**

When *list* is SECURITY *parameter_code* defines the privileges of the RDB_Max user. (The RDB_Max user is used by OpenBSI RDB commands that access the RTU.)

Note: To configure security privileges, you must log on as an administrator.

Choices are:		
	1	Operator
	2	Engineer
	3	Administrator

If you're configuring the RDBMax user, typically, you should choose "3" for the privileges.

param_value1 specifies the name of a file defining each user.

Example:

To specify RDB_Max has administrative privileges and that other users are defined in the file USERS.TXT, enter:

FLASHCNF RTU SECURITY 3 USERS.TXT

The contents of the users file (in this case we named it USERS.TXT) must define each user in the system. Each line of the file defines a single format according to the following syntax:

UserName Password Privileges [User_Priv]

where:

UserName is the user's name (up to 16 characters)

Password is the user's password (up to 16 characters0

Privileges is one of the following:

1 = Operator privileges

2 = Engineer privileges

3 = Adminstrator privileges

4 = User-defined privileges as specified by [*User_Priv*].

[User_Priv] when *Privileges* is 4, this is a number that specifies which bits representing particular privileges are set. Although 64 bits (bits 0 to 63) are available, only the first 17 are currently defined. For each privilege you want to assign add the decimal equivalents of the bit (2^{bit}) value. The sum of all decimal equivalents is *user_priv*.

The bits which make up *[User_Priv]* are:

Bit	**User Privilege**	**Decimal used to represent this privilege (2^{bit})**
0	Read data value	1
1	Update data value	2
2	Read Flash Files via FTP	4
3	Change / Del Flash Files via FTP	8
4	Read Historical Data (audit / archive)	16
5	Change Last Read Pointers in Audit Info	32
6	Update Signal Attributes	64
7	Change / Delete Historical Definitions	128
8	Add / Change / Del User Security Info	256
9	Modify Soft Switches	512
10	Run Diag to read Memory	1024
11	Run Diag to write Memory	2048
12	Read Stat / Diag Info	4096
13	Reset Stat / Crash Blocks	8192
14	Read Application Values	16384
15	Write Application Values	32768
16	Full Application Access in	65536

ControlWave Designer.

Examples:

In USERS.TXT, to define a user named BOB with a password of BT738 who has operator privileges, enter:

BOB BT738 1

In USERS.TXT, to define a user named ANN with a password of H72M who has administrative privileges, enter:

ANN H72M 3

In USERS.TXT, to define a user named FRED with a password HAPPY who has the following user-defined privileges

(Read data values = bit 0; decimal equivalent 1)

(Update data values = bit 1; decimal equivalent 2)

(Update signal attributes = bit 6; decimal equivalent 64)

then enter:

FRED HAPPY 4 67

We entered "67" because that is the sum of the decimal equivalents for the three privileges we mentioned: 1 + 2 + 64 = 67.

list = **SOFTSW**

When *list* is SOFTSW, there are two possible values for *parameter_code* each of which have a single parameter (*param_value1*).

parameter_code	values for *param_value1*
0 (define BSAP local address)	1 to 127
2 (define EBSAP group number)	0 to 126

Examples:

To set the BSAP local address of RTU to 6, enter:

FLASHCNF RTU SOFTSW 0 6

To set the EBSAP group number of RTU to 0, enter:

FLASHCNF RTU SOFTSW 2 0

list = **IP**

When *list* is IP, there are several possible values for *parameter_code* each of which have a single parameter (*param_value1*).

parameter_code	values for *param_value1*
0 (define NHP IP address A)	Primary IP address of NHP in format *aaa.bbb.ccc.ddd*
1 (define NHP IP address B)	Secondary IP address of NHP in format *aaa.bbb.ccc.ddd*
2 (define IBP port)t	UDP port number (socket number) the IPdriver uses.
3 (define Time synch port)	UDP port number (socket number) the IP driver uses for time synchronization of the RTU's.
4 (define default gateway address)	IP address of the default gateway in format *aaa.bbb.ccc.ddd*
5 (define default username)	Username used for PAP/CHAP protocol.
6 (define RIP inclusion address)	IP address in format *aaa.bbb.ccc.ddd*
7 (define RIP inclusion mask)	IP mask in format *aaa.bbb.ccc.ddd*
8 (define RIP exclusion address)	IP address in format *aaa.bbb.ccc.ddd*
9 (define RIP exclusion mask)	IP mask in format *aaa.bbb.ccc.ddd*
10 (define IP ping rate)	Dynamic IP routing ping rate in milliseconds.
11 (define IP ping timeout)	Dynamic IP routing ping timeout in milliseconds.
12 (define IP ping retries)	Number of additional ping tests the system makes after the first failure.
13 (define filename to define IP routes)	Filename to define destination IP destinations and masks for IP routes. Each line of the file takes the format: *CheckPrim DestAddr DestMask GateAddr_1 GateAddr_2 GateAddr_3 GateAddr_4*

	PingAddr_1 PingAddr_2 *PingAddr_3 PingAddr_4* Where: *CheckPrim* - Check Primary 0 = Don't Check 1 = Check *DestAddr* = Destination IP Address *DestMask* = Destination IP Mask *GateAddr_1* = Gateway IP Address #1 *GateAddr_2* = Gateway IP Address #2 *GateAddr_3* = Gateway IP Address #3 *GateAddr_4* = Gateway IP Address #4 *PingAddr_1* = Ping IP Address #1 *PingAddr_2* = Ping IP Address #2 *PingAddr_3* = Ping IP Address #3 *PingAddr_4* = Ping IP Address #4
46 (disable SNMP processing)	If “0” SNMP processing allowed. If “1” SNMP processing disabled.

Note: For details on dynamic IP routing, and othere IP parameters see the Flash Configuration section of *Chapter 5 of the OpenBSI Utilities Manual (D5081).*

Examples:

To set the primary (A) IP address for the NHP to 10.211.75.124 enter:

FLASHCNF RTU IP 0 10.211.75.124

To set the time synch port number to 1235 enter:

FLASHCNF RTU IP 3 1235

To define the destination IP addresses and masks in a file called “my_routes.txt” enter:

FLASHCNF RTU IP 13 my_routes.txt

list = **APPL**

When *list* is APPL, there are several possible values for *parameter_code* each of which have a single parameter (*param_value1*).

parameter_code	values for *param_value1*
0 = goal idle	This is a goal expressing the desired percentage of time the ControlWave CPU remains idle.
1 = idle min ticks	This is the minimum number of 1 millisecond clock ticks allowed between executions of the DEFAULT task.
2 = minimum idle	If the ControlWave CPU cannot maintain this percentage of free CPU time, it reports an overload exception.
3 = program RAM	In kilobytes, this is the amount of memory the system reserves at startup to store the code for the ControlWave project.
4 = data RAM	This is the size of storage the system reserves for variables in kilobytes.
5 = retain RAM	This is the size of storage space (in kilobytes) the system reserves at startup for variables marked “RETAIN”.
6 = unit A address	This IP address must correspond to an Ethernet port on the A controller in a redundant pair.
7 = unit B address	This IP address must correspond to an Ethernet port on the B controller in a redundant pair.
8 = power fail time before jump to safe state (I/O expansion rack only)	See the *ControlWave I/O Expansion Rack Quick Setup Guide* (D5122) for information on this.

9 = communications loss time before set safe state (I/O expansion rack only.)	See the *ControlWave I/O Expansion Rack Quick Setup Guide* (D5122) for information on this.
10 thru 19 – MFA registration codes	No longer supported.
20 = serial failover enabled (I/O expansion rack only)	See the *ControlWave I/O Expansion Rack Quick Setup Guide* (D5122) for information on this.

Examples:

To set the IP address for unit A of a redundant pair to 10.0.0.5 enter:

FLASHCNF RTU APPL 6 10.0.0.5

To set the program RAM parameter to 1250K enter:

FLASHCNF RTU APPL 3 1250

list = **SPORT*x*** When *list* is SPORTx (where x is a serial port number) there are multiple parameters.

Setting the Baud Rate for the Serial Port:

To set the baud rate, you must set *parameter_code* to 0 and *param_value1* to the value that corresponds to the desired baud rate.

parameter_code	**Set *param_value1* to**	**to get this baud rate**
0 (set baud rate)	2	300 baud
	3	600 baud
	4	1200 baud
	5	2400 baud
	6	4800 baud
	7	9600 baud
	8	19200 baud
	9	38400 baud
	10	57600 baud
	11	115200 baud

Examples:

To set the baud rate for serial port 4 to 9600 baud enter:

FLASHCNF RTU SPORT4 0 7

To set the baud rate for serial port 2 to 115200 baud enter:

FLASHCNF RTU SPORT2 0 11

Setting the Data Format for the Serial Port:

You configure three separate items that for the data format: number of bits per character, the number of stop bits, and the parity.

parameter_code	***param_value1***	***param_value2***	***param_value3***
1 (set data format)	Number of bits per character	Number of stop bits	Parity
	5 = 5 bits/char	1 = 1 stop bit	0 = no parity
	6 = 6 bits/char	2 = 2 stop bits	1 = odd parity
	7 = 7 bits/char	3 = 1.5 stop bits	2 = even parity
	8 = 8 bits/char		

Examples:

To set serial port 3 to 8 bits per character, 1 stop bit, no parity, enter:

FLASHCNF RTU SPORT3 1 8 1 0

To set serial port 5 to 7 bits per character, 2 stop bits, odd parity enter:

FLASHCNF RTU SPORT5 1 7 2 1

Setting the Protocol Mode for the Serial Port:

The protocol mode determines the type of communication messages that this port can receive and transmit.

parameter_code	***param_value1***
2 (set protocol mode)	0 = Port Unused 1 = BSAP Slave 2 = EBSAP Slave 3 = VSAT Slave 4 = MODBUS Master 7 = Gould MODBUS Slave 8 = Enron MODBUS Slave 14 = Allen Bradley DF1 Slave 29 = Generic Serial Communications 32 = DNP3 Serial Master 33 = DNP3 Serial Slave 200 = Allen Bradley DF1 Master 256 = PPP Port 4096 = BSAP Master 4098 = EBSAP Master

Examples:

To designate serial port 4 as a BSAP master port enter:

FLASHCNF RTU SPORT4 2 4096

To designate serial port 2 as a Gould Modbus slave enter:

FLASHCNF RTU SPORT2 2 7

Setting the P1 Parameter:

P1 is a protocol-specific value, typically used with a custom protocol or user-defined protocol.

parameter_code	***param_value1***
3 (set P1)	Varies depending on protocol.

Example:

To set the P1 value for serial port 3 to 6 enter:

FLASHCNF RTU SPORT3 3 6

Setting the P2 Parameter:

P2 is a protocol-specific value, typically used with a custom protocol or user-defined protocol.

parameter_code	***param_value1***
4 (set P2)	Varies depending on protocol.

Example:

To set the P1 value for serial port 5 to 89 enter:

FLASHCNF RTU SPORT5 4 89

Setting the IP address: (PPP ports only)

If this is a serial IP port (PPP) you must specify the IP address for the port.

parameter_code	***param_value1***
5 (set IP address)	IP address in dotted decimal format, i.e. aaa.bbb.ccc.ddd.

Example:

To set the IP address for serial port 2 to 10.21.115.1 enter:

FLASHCNF RTU SPORT2 5 10.21.115.1

Setting the IP mask: (PPP ports only)

If this is a serial IP port (PPP) you must specify the IP mask for the port.

parameter_code	***param_value1***
7 (set IP mask)	IP mask in dotted decimal format, i.e. aaa.bbb.ccc.ddd.

<u>Example</u>:

To set the IP mask for serial port 2 to 255.255.0.0 enter:

```
FLASHCNF RTU SPORT2 7 255.255.0.0
```

Setting the maximum number of slaves for an EBSAP master

If this is an EBSAP master port, you must specify the maximum number of slave nodes under a virtual node on this port.

parameter_code	***param_value1***
8 (set max number of slaves)	maximum number of slaves under a virtual node.

<u>Example</u>:

To set the maximum number of slaves under a virtual node on an EBSAP master port on serial port 4 to 5, enter:

```
FLASHCNF RTU SPORT4 8 5
```

list = **EPORT*x***

When *list* is EPORTx (where x is an Ethernet port number) the different parameters you need to define are the IP address(es) for the port and the IP mask.

Setting the IP address(es) and mask for the Ethernet Port

parameter_code	***param_value1***
5	Sets primary IP address (A) in dotted decimal format *aaa.bbb.ccc.ddd*
6	Sets secondary IP address (B) in dotted decimal format *aaa.bbb.ccc.ddd*
7	Sets IP mask for the Ethernet port in dotted decimal format *aaa.bbb.ccc.ddd*

<u>Examples:</u>

To set the primary IP address for Ethernet port 1 to 10.2.3.100 enter:

FLASHCNF RTU EPORT1 5 10.2.3.100

To set the secondary IP address for Ethernet port 3 to 10.7.2.37 enter:

FLASHCNF RTU EPORT3 6 10.7.2.37

To set the IP mask for Ethernet port 2 to 255.255.0.0 enter:

FLASHCNF RTU EPORT2 7 255.255.0.0

list = **AUDIT**

When *list* is AUDIT you configure parameters for audit storage in the controller.

Setting AUDIT Parameters:

parameter_code	***param_value1***
0 (set storage location)	0 = store records in FLASH memory 1 = store records in SRAM
1 (set logging type)	0 = Continuous Logging 1 = Stop on Full
2 (set number of events)	Enter desired number of events you want to maintain in the audit buffer.
3 (set number of alarms)	Enter desired number of alarms you want to maintain in the audit buffer.
4 (set percentage for number of record in overflow buffer)	Enter percentage for number of records in overflow buffer.
5 (set logging master port)	0 = COM Port #1 1 = COM Port #2 2 = COM Port #3 3 = COM Port #4 4 = COM Port #5 15 = Ethernet

Examples:

To specify that the ControlWave should store audit records in Flash memory, enter:

FLASHCNF RTU AUDIT 0 0

To specify continuous logging enter:

FLASHCNF RTU AUDIT 1 0

To specify that the audit buffer should maintain 100 events enter:

FLASHCNF RTU AUDIT 2 100

list = **ARCHIVE**

When *list* is ARCHIVE you configure parameters for archive storage in the controller. You define the archive parameters in a separate text file.

To identify a text file named archives.txt, enter:

FLASHCNF RTU ARCHIVE archives.txt

Each line starting with "#" in the archive file defines one archive as follows:

#filenum filename num_recs location interval mode

where:

filenum specifies the archive file number from 1 to 64.

filename specifies the archive file name. You can optionally use a script variable to specify the *filename*.

num_recs specifies the number of records in the archive file.

location specifies where the controller stores archive data:
0 = store archives in Flash memory
1 = store archives in SRAM

interval specifies the storage interval.

0 = No Interval
1 = 1 min
2 = 5 min
3 = 15 min
4 = 1 hr
5 = 1 day

mode specifies the storage interval.

0 = Start of Period
1 = Storage Time

Each line starting with "&" in the archive file defines one column of the archive file as follows:

&column_name data_type char size precision

where:

column_name specifies the title for the column

data_type specifies the type of data in the column. Choices include:

1 = BOOL
2 = SINT
3 = INT
4 = DINT
10 = REAL
17 = BYTE
18 = WORD
19 = DWORD

char specifies the logging characteristics. Choices include:

0 = Average for Time
1 = Arithmetic Mean
2 = Average of Square Root
3 = Square of Average of Square Root
4 = Instantaneous
5 = Minimum
6 = Maximum
7 = Place Value in Log
8 = Integration

size specifies the width (in number of characters) for the data in this column.

precision specifies the data precision. This is the number of characters to the right of the decimal point for data in this column.

FOLDER_EXISTS command

Checks if a folder exists. If it does, execution jumps to a label.

Syntax**:** **FOLDER_EXISTS** *folder label*

where:

folder specifies the name of the folder. You specify a full path for the folder if it resides on the PC outside of the zip file; if you just enter a name, or a relative path, ScriptTool looks for the folder in the ZIP file. You can optionally use a script variable to specify the folder or path and folder.

label specifies a textual label in the script file that the script jumps to.

Example:

To check whether the folder HIST_DATA exists, and to jump to label DONE if it does, enter:

FOLDER_EXISTS HIST_DATA DONE

GOTO command

Jumps from the current line of the script to another line identified by a label.

Syntax: **GOTO** *label*

where:

label specifies a textual label in the script file that the script jumps to.

Example:

To jump from the current line of the script to the line labeled ERRORS enter: **GOTO ERRORS**

IF command

Compares a script variable to another script variable or a number, and if the expression is true, jumps to a label in the script.

Syntax: **IF** *variable condition var_or_number label*

where:

variable is a script variable

condition is a condition to be evaluated for the variables. It must be one of the following:

EQ	equal to
NE	not equal to
LE	less than or equal to
LT	less than
GE	greater than or equal to
GT	greater than

var_or_number

is a script variable, a number, or a string literal.

label specifies a textual label in the script file that the script jumps to.

Example:

To jump from the current line of the script to the line labeled EXIT if script variable COUNT1 is greater than script variable COUNT2, enter:

IF COUNT1 GT COUNT2 EXIT

IMPORT command

Imports a specified file into the active log file. After the last line of the source file is included the text "IMPORT END" is included in the log file to designate the end of included data.

Syntax: **IMPORT** *filename*

where:

filename is the name of the file you want to include in the log file. You can optionally use a script variable to specify the *filename*.

Example:

To include the file C:\ProgramData\Bristol\OpenBSI\mydata\description.txt in the current log file, enter:

IMPORT C:\ProgramData\Bristol\OpenBSI\mydata\description.txt

LIST command

Collects a list from the controller and stores it in a file.

Syntax: **LIST** *node list [filename]*

where:

node is the controller that contains the list.

list is the number of the list, or the name of a variable that stores the number of the list.

[filename] is the name of the file you want to hold the list. ScriptTool stores the list data in UOI format. You can specify a full path for file; if you just enter a *filename*, ScriptTool assumes the file is in the ZIP file. If you omit this entirely, ScriptTool saves the list data in the current

log file. You can optionally use a script variable to specify the *filename*.

Example:

To collect list 5 from controller R201 and store it in the file C:ProgramData\Bristol\OpenBSI\MYDATA\LIST5.LST enter:

LIST R201 5 C:\ProgramData\Bristol\OpenBSI\MYDATA\LIST5.LST

NDARRY command

Turns polling ON or OFF for a given local address.

Syntax: **NDARRY** *local value*

where:

local specifies the BSAP local address (1 to 127) of the controller for which you want to turn ON/OFF polling.

value is either ON (to turn ON polling) or OFF (to turn OFF polling).

Example:

To turn polling on for the controller at local address 7 enter:

NDARRY 7 ON

OUTPUT command

Specifies whether ScriptTool keeps a log of commands, responses, and collected data in a log file. The log file resides in the ZIP file.

Syntax: **OUTPUT** *flag*

where:

flag is either ON (to turn ON logging) or OFF (to turn OFF logging). ON is the default.

Note: For commands that specify a *filename* for output e.g. ARRAY, AUDIT, ARCHIVE, LIST collected data goes to that specified file, not the log file, regardless of the OUTPUT command setting.

Example:

To turn logging on, enter:

OUTPUT ON

PAUSE command

Stops processing of the current script for a specified number of seconds.

Syntax: **PAUSE** *seconds*

where:

seconds specifies the number of seconds that ScriptTool stops processing. When this number of seconds expires, ScriptTool resumes processing the script.

Example:

To pause the script for 15 seconds, enter:

PAUSE 15

PROJCTRL command

Activates project control commands normally invoked through ControlWave Designer. This includes downloading the boot project to the controller and activating the project.

Syntax: **PROJCTRL** *node action [source_file [destination]]*

where:

node specifies the name of the controller, as defined in NetView.

action is one of several possible project control actions. These are:

Action	Description
ACTCOLD	Perform an ACTIVATE, then perform a COLD start. (See ACTIVATE and COLD)
ACTIVATE	Copies the bootproject into active memory (SDRAM or SRAM depending upon platform). This happens automatically on RESET.
ACTWARM	Perform an ACTIVATE, then perform a WARM start. (See ACTIVATE and WARM)
BOOTCOLD	Perform a BOOTPROJ then perform an application COLD start. See BOOTPROJ and COLD.
BOOTPROJ	Download the bootproject (*.PRO file) to the controller.
BOOTWARM	Perform a BOOTPROJ then perform an application WARM start. See BOOTPROJ and WARM.
COLD	Application cold start. Project in active memory is started from the beginning with all variables set to initial values. Project must be in STOP state to initiate a cold start. If project is running it must be stopped prior to initiating the cold start.

DELBOOT	Delete the bootproject from the controller.
HOT	Hot start the project in the controller. No variables initialized. Project must be in STOP state to initiate a hot start. If project is running it must be stopped prior to initiating the hot start.
READFILE	Allows uploading of files from the controller's flash to your PC. (Requires OpenBSI 5.8 Service Pack 2 or newer)
RESET	STOP the current project running in the controller (if not already stopped) then initiate an application COLD start. See STOP and COLD.
STOP	Stop the current project running in the controller. Project must be in RUN state to initiate a STOP.
WARM	Application warm start. Project in active memory is started from the beginning with retain variables set to saved values; all other variables set to initial values. Project must be in STOP state to initiate a warm start. If project is running it must be stopped prior to initiating the warm start.
WRITEFILE	Copies a file to the controller, e.g. web pages, text files, etc.

source_file used with BOOTCOLD, BOOTPROJ, BOOTWARM, WRITEFILE and READFILE only.

for an *action* of BOOTPROJ, BOOTCOLD, or BOOTWARM, specifies a project *.PRO file:

If you specify a relative path and filename, e.g.

\myfiles\cwm3.pro

ScriptTool assumes the PRO file resides in the zip file.

If you specify a full path and filename, e.g.

C:\programdata\bristol\OpenBSI\myprojects\boulevard.pro

ScriptTool looks for the file on the PC, not in the zip file.

For an *action* of WRITEFILE, if the path in *source_file* includes a ":" then the path is used as is and the file is read from the specified location. Otherwise, the file is expected to be in the zip file. The file name cannot be longer than 34 characters (including the extension).

For an *action* of READFILE specifies the name of the file at the RTU that you want to upload to the PC. The file name cannot be longer than 34 characters (including the extension).

destination For an *action* of WRITEFILE, *destination* specifies the path and filename on the PC to which ScriptTool copies the *source_file*.

Examples:

To download the bootproject called LINCOLN.PRO located in the folder C:\ProgramData\Bristol\OpenBSI\MYLOADS to a controller named CWM8, and then initiate an application cold start, enter:

```
PROJCTRL CWM8 BOOTCOLD C:\ProgramData\Bristol\OpenBSI\MYLOADS\LINCOLN.PRO
```

To perform an application warm start of the current project in a controller named PINE_ISLAND, enter:

```
PROJCTRL PINE_ISLAND WARM
```

To copy the file MAINMENU.HTM from the zip file to a controller named **LINVILLE** enter:

```
PROJCTRL LINVILLE WRITEFILE MAINMENU.HTM
```

To copy the file MAINMENU.HTM from the zip file to a controller named **LINVILLE**, but to give it the name LINVILLE.HTM at the controller, enter:

```
PROJCTRL LINVILLE WRITEFILE MAINMENU.HTM
LINVILLE.HTM
```

To upload the file bootfile.pro from the RTU named DC4 to the path and filename C:\ProgramData\Bristol\OpenBSI\MYPROJECTS\FLOWPROJECT.PRO enter:

```
PROJCTRL DC4 READFILE BOOTFILE.PRO
          C:\ProgramData\Bristol\OpenBSI\MYPROJECTS\F
          LOWPROJECT.PRO
```

Note: In addition to invoking it through scripts, you can optionally start the PROJCTRL utility alone from a DOS prompt. To do so, enter parameter "0" between PROJCTRL and the *node* parameter. For example, PROJCTRL 0 IP64 STOP.

PROMPT command

Displays a message for the operator and processes their YES/NO response.

Syntax: **PROMPT** *string*

where:

string is the message the ScriptTool displays on the screen for the operator.

If the operator clicks **OK** (yes) or **NO**, the test proceeds; if the operator clicks **Cancel**, the test stops. The result of the operation is loaded into the script variable PROMPT. Where:

PROMPT = 1 when the operator selects YES
PROMPT = 0 when the operator selects NO

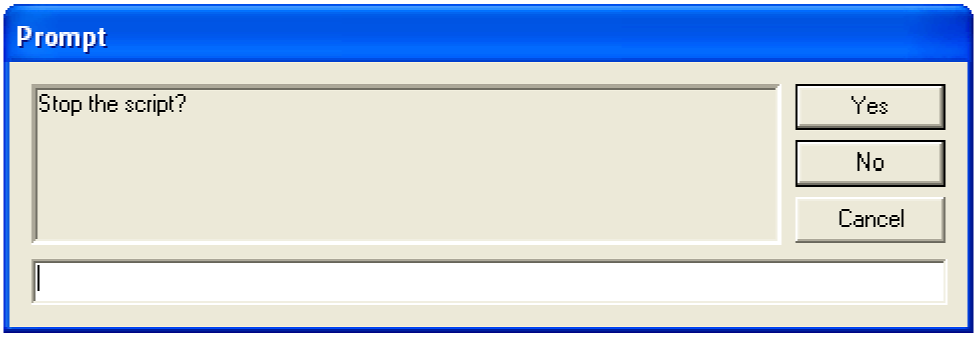
ScriptTool loads the string data entered into the prompt text box into the variable P_STRING. ScriptTool loads the numeric equivalent of the data entered into the prompt text box into the variable P_VAL.

Example:

To prompt the operator whether to stop the script, enter:

PROMPT Stop the script?

The operator sees this:



Stop the script?

If the operator clicks **Yes** the ScriptTool loads a “1” into the script variable PROMPT and into the P_VAL variable.

If the operator clicks **NO** the ScriptTool loads a “0” into the script variable PROMPT and into the P_VAL variable.

If the operator enters a value in the text field at the bottom of the dialog box, ScriptTool stores that in the P_STRING variable.

You must include logic in the script to process the response and perform the desired action, for example, to stop the script you could use something like:

```
IF PVAL EQ 1 ENDSCRIPT
:ENDSCRIPT  ABORT Terminating Script
```

RECIPE command

Reads or writes a recipe from/to the controller.

Syntax:	**RECIPE** *node type recipe_name*
where:	
node	specifies the name of the controller, as defined in NetView.
type	specify READ to read the current values of the variables named in the recipe *recipe_name* from the controller and update them in the *recipe_name* recipe. Specify WRITE to copy the values from the recipe in *recipe_name* to the corresponding values in the controller.
recipe_name	specifies the filename of the RCP file. You can specify a full path for the file; if you just enter a *filename*, ScriptTool assumes the file is in the ZIP file. You can optionally use a script variable to specify the *recipe_name*.

Example:

To write values from the recipe MYRECIPE.RCP, in the zip file, to the controller named CWM5 enter:

```
RECIPE CWM5 WRITE MYRECIPE.RCP
```

RUN command

Executes the specified batch file or program.

Syntax:	**RUN** *file*
where:	
file	is either the name of an executable program (.EXE), the name of a batch file (.BAT), or a string script variable. If you specify a BAT file, you must include the .BAT extension. If you specify a string script variable, the string must be either the name of an EXE, or a BAT file name, with the .BAT extension. **Note:** The string script variable option requires OpenBSI 5.8 Service Pack 2 or newer.

Example 1:

To run a batch file called COPYFILES.BAT enter:

RUN copyfiles.bat

Example 2:

To run an executable program called MYPROG.EXE enter:

RUN MYPROG

Example 3:

To set a string script variable called "MYSTRING" to the value of a STRING variable called "@GV.MYCOMM" running in the ControlWave named "RTU1" and then use that value with the RUN command, enter:

VAR_F_SIG MYSTRING RTU1 @GV.MYCOMM

RUN MYSTRING

SETVAL command

Writes a value to a variable in the controller.

Syntax: **SETVAL** *node variable type value*

where:

node specifies the name of the controller, as defined in NetView.

variable specifies the name of the variable in the controller.

type specifies the type of varaible. Enter either ANA for analog variables, LOG for logical variables or STR for string variables.

value specifies the value you want to assign to the variable in the controller. For logical variables, *value* must be 0 or 1.

Example:

To set the value of analog variable @GV.SPEED_SETPOINT to 50 in controller CWM2, enter:

SETVAL CWM2 @GV.SPEED_SETPOINT ANA 50

SIGN_ON command

Signs on to the controller.

Syntax: **SIGN_ON** *node [option]*

where:

node specifies the name of the controller, as defined in NetView.

option if set to USER, ScriptTool loads the credentials of the user currently signed into NetView or TechView. If you don’t specify this option, ScriptTool prompts for a username and password.

<u>Example</u>:

To sign on to controller WCS3 using credentials of the currently signed on user, enter: **SIGN_ON WCS3 USER**

To prompt the user to provide a username and password when signing on to controller CW7, enter: **SIGN_ON**

TEXTFILE command

Instead of sending text to the log file, redirects the text from this point in the script forward to a specified text file.

<u>Syntax</u>: **TEXTFILE** *command filename*

where:

command specifies the file operation for the redirected text file. Valid commands are:

WRITE Opens a new text file (as specified by *filename)* for writing.

APPEND Opens an existing text file (as specified by *filename)* for writing, and redirects text to the end of the file.

CLOSE Closes the currently open text file.

filename specifies the name of the text file for redirected text. You can optionally use a script variable to specify the *filename*.

<u>Example</u>:

To redirect text to the file C:\ProgramData\Bristol\OpenBSI\MYDATA\REPORT.TXT enter:

TEXTFILE WRITE C:\ProgramData\Bristol\OpenBSI\MYDATA\REPORT.TXT

To append text output to the file LISTING.TXT in the zip file, enter:

TEXTFILE APPEND LISTING.TXT

To close the currently open text file enter:

TEXTFILE CLOSE

UPDATE_FRM command

Updates the system firmware in the controller.

Syntax: **UPDATE_FRM** *node file [flag]*

where:

node specifies the name of the controller, as defined in NetView.

filename specifies the filename of the firmware *.BIN file. You can specify a full path for the file; if you just enter a *filename,* ScriptTool assumes the file is in the ZIP file.

flag if set to Q, download occurs without operator prompting. Otherwise, the operator receives a prompt to confirm the system firmware update.

Example:

To silently update the system firmware in controller SEASIDE_DRIVE using file CWP05.30.BIN in the zip file enter:

UPDATE_FRM SEASIDE_DRIVE CWP05.30.BIN Q

VAR_ADD command

Adds a specified value to a script variable, or concatenates a value to a string script variable's contents. **Note:** The concatenation option requires OpenBSI 5.8 Service Pack 2 or newer.

Syntax: **VAR_ADD** *var value*

where:

var specifies the name of an existing script variable.

value specifies either a value to add to the script variable named by *var*, or the name of another script variable containing a value to add to *var*. If *var* is a STRING type variable, the command concatenates *value* to the contents of the string script variable *var*.

Examples:

To add the value of 5 to a script variable named TOTAL enter:

VAR_ADD TOTAL 5

To add the value of script variable to Y to a script variable named X enter:

VAR_ADD X Y

To concatenate the contents of string script variable MYSTRING (where my string's value is "RTU") to the value 5, enter:

VAR_ADD MYSTRING 5

This results in the value of MYSTRING changing to "RTU5".

VAR_DECR command

Decrements a script variable by 1.

Syntax: **VAR_DECR** *var*

where:

var specifies the name of an existing script variable.

Example:

To subtract 1 from the current value of the script variable COUNT enter:

VAR_DECR COUNT

VAR_F_SIG command

Sets a script variable to the value of a variable from the ControlWave project. If the script variable doesn't exist, this creates it.

Syntax: **VAR_F_SIG** *var node variable*

where:

var specifies the name of a script variable. If the script variable doesn't already exist, ScriptTool creates one with this name.

node specifies the name of the controller, as defined in NetView.

variable specifies the name of an analog or logical variable from the project running in *node*.

Example:

To create a script variable called COUNTER and set it to the value of the variable @GV.F101_COUNT in the controller MAIN_ST enter:

VAR_F_SIG COUNTER MAIN_ST @GV.F101_COUNT

VAR_F_VAL command

Sets a script variable to a value or to the value of another script variable. If the destination script variable doesn't exist, this creates it.

Syntax: **VAR_F_VAL** *var var_or_val*

where:

var specifies the name of a script variable. If the script variable doesn't already exist, ScriptTool creates one with this name.

var_or_val specifies the name of another script variable or just a value. The destination script variable is set to this. You can specify a numeric value or a string for the value.

Examples:

To create a script variable called TEMP and set it to the value of the script variable named TOTAL enter:

VAR_F_VAL TEMP TOTAL

To create a script variable called TEST and set it to 25.3 enter:

VAR_F_VAL TEST 25.3

VAR_INCR command

Increments a script variable by 1.

Syntax: **VAR_INCR** *var*

where:

var specifies the name of an existing script variable.

Example:

To add 1 to the current value of the script variable COUNT enter:

VAR_INCR COUNT

VERSION command

Retrieves version information from a controller, and stores it in script variables. The script variables are:

FWVERSION stores the system firmware version level

PMVERSION stores the PROM release version level

BTVERSION stores the Boot PROM version level

CSTVERSION stores the custom PROM version level

Syntax: **VERSION** *node*

where:

node specifies the name of the controller, as defined in NetView.

Example:

To retrieve version information from the controller CWM4 enter:

VERSION CWM4

WAIT_FOR_SIG command

Pauses execution until a comparison between a script variable (or constant) and a variable in the controller evaluates to true or a timer expires. If the comparison becomes TRUE prior to expiration of the timer, execution proceeds normally; if the timer expires **before** an evaluation that the comparison is TRUE, execution jumps to a label, if present, or if there is no label, execution proceeds normally.

Syntax:

WAIT_FOR_SIG *var node variable condition max_time [label]*

where:

var is a script variable or constant

node specifies the name of the controller, as defined in NetView.

variable specifies the name of an analog or logical variable from the project running in *node*.

condition is a condition to be evaluated for the variables. It must be one of the following:

EQ	equal to
NE	not equal to
LE	less than or equal to
LT	less than
GE	greater than or equal to
GT	greater than

max_time is a script variable or a constant that specifies the maximum waiting time before execution resumes.

label optionally specifies a textual label in the script file that the script jumps to if the comparison does not become TRUE prior to expiration of *max_time*.

Example:

To pause execution of the script for a maximum of 60 seconds or until the script variable TOTAL is greater than or equal to the variable @GV.FLOW_001 in controller OAK_ST enter:

WAIT_FOR_SIG TOTAL OAK_ST @GV.FLOW_001 GE 60

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