Emulators

Wavelink Telnet Client Scripting Reference Guide

tn-rg-script-20070824

Revised 08/24/07

Table of Contents

Chapter 1: Introduction

This document provides information about creating and executing scripts using Telnet Client. This chapter provides an overview of the document and scripting features. It includes:

- Document Assumptions
- Document Conventions
- About Telnet Client Scripting

Document Assumptions

This document is written with the assumption the reader and user of the Telnet Client possess:

- Knowledge of wireless networks and wireless networking protocols.
- Knowledge of TCP/IP, including IP addressing, subnet masks, routing, BootP/DHCP, WINS, and DNS.
- Knowledge of Wavelink Telnet Client.
- Knowledge or rudimentary experience with programming/scripting languages.

Document Conventions

The following table lists the document conventions used in this manual.

Convention	Description
`courier new`	Any time you interact directly with text-based user interface options, such as a button, or type specific information into an text box, such as a file pathname, that option appears in the `Courier New` text style. This text style is also used for keys that you press, filenames, directory locations, and status information. For example: Press `ENTER`. Click `OK`.
bold	Any time this document refers to a labelled user interface option, such as descriptions of the choices in a dialog box, that option appears in the **Bold** text style. Examples: Enable the **DHCP** checkbox. Access the Telnet Client **Session** menu.
italics	Italicized text is used to indicate the name of a window or dialog box. For example: The *Update Utility* dialog box. The *Profile Manager* dialog box.

Table 1-1: *Text-Formatting Conventions*

About Telnet Client Scripting

The Script Editor is a component of the Wavelink Telnet Client. The Script Editor provides the ability to create and execute scripts that automate processes on the Telnet Client. The Script Editor is included in Telnet Client 5.1 and later versions.

Overview of the Scripting Process

The following steps outline the process of creating scripts using the Script Editor:

1 **Launch the Script Editor.**You can launch the Script Editor from the Telnet Client, from Avalanche Manager, or from Avalanche MC.

2 **Create scripts using the Script Editor.** You can use the Script Editor to manually build the script code.

-or-

Create scripts using the Script Capture option. Capture the actions you want to include in your script to build the script code.

3 **Configure an execution method for the script.** Select from the available options the method you want to use to execute your script.

4 **Execute the script from the Telnet Client.** Using the activation method you selected for the script, you can activate and execute your script.

NOTE You can only run scripts while a Telnet session is connected to a host. If the connection drops, the script is terminated. If you switch between sessions, the script running in the first session remains suspended until that session is active again.

Chapter 2: Launching the Script Editor

The method you use to launch the Script Editor depends on where you are deploying the Telnet Client. This chapter provides information about the following tasks:

- Launching the Script Editor from Avalanche Manager
- Launching the Script Editor from Avalanche MC

Launching the Script Editor from Avalanche Manager

If you are using Avalanche Manager to deploy the Telnet Client, you launch the Script Editor from the Avalanche Manager. Scripts created by or imported into the Script Editor are automatically deployed to the remote devices.

To launch the Script Editor from Avalanche Manager:

1 Install the Telnet Client package in Avalanche Manager.

2 From the Tree View in the Avalanche Console, right-click the Telnet Client software package.

3 Select `Configure Package > Script Editor`.

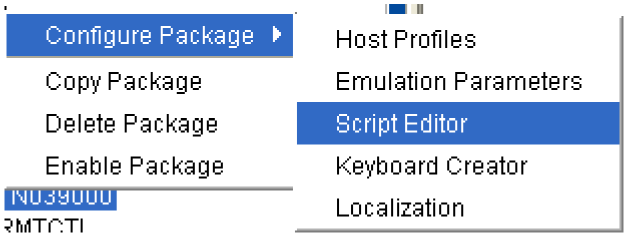
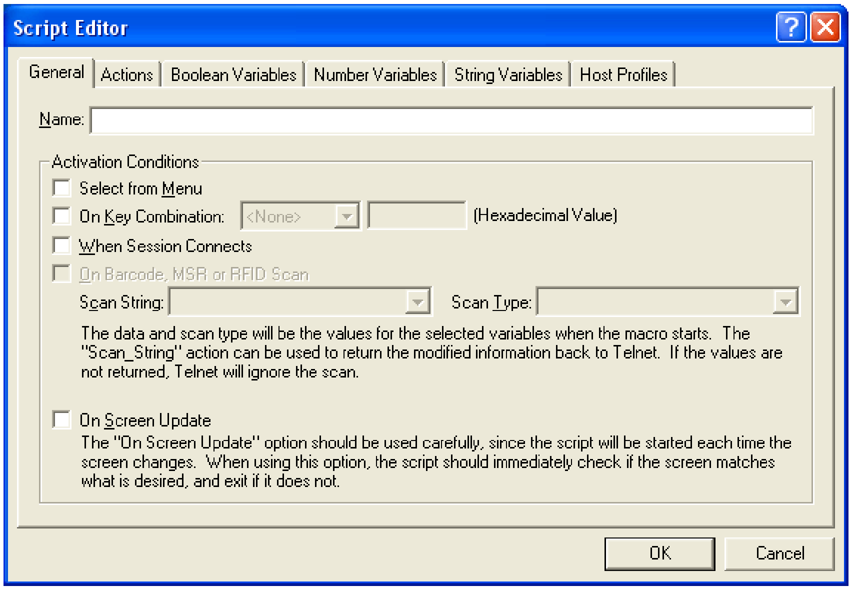


Figure 2-1. *Launching the Script Editor from Avalanche Manager*

The Script Editor appears.

4 Click `Add` to access the *Script Editor Configuration* dialog box.



Name:

Activation Conditions

- [ ] Select from Menu
- [ ] On Key Combination: <None> (Hexadecimal Value)
- [ ] When Session Connects
- [ ] On Barcode, MSR or RFID Scan

Scan String: Scan Type:

The data and scan type will be the values for the selected variables when the macro starts. The "Scan_String" action can be used to return the modified information back to Telnet. If the values are not returned, Telnet will ignore the scan.

- [ ] On Screen Update

The "On Screen Update" option should be used carefully, since the script will be started each time the screen changes. When using this option, the script should immediately check if the screen matches what is desired, and exit if it does not.

Figure 2-2. *Script Editor Configuration Dialog Box*

From this dialog box, you can configure and create scripts. For information about script creation, refer to *Chapter 3: Creating Scripts* on page 15.

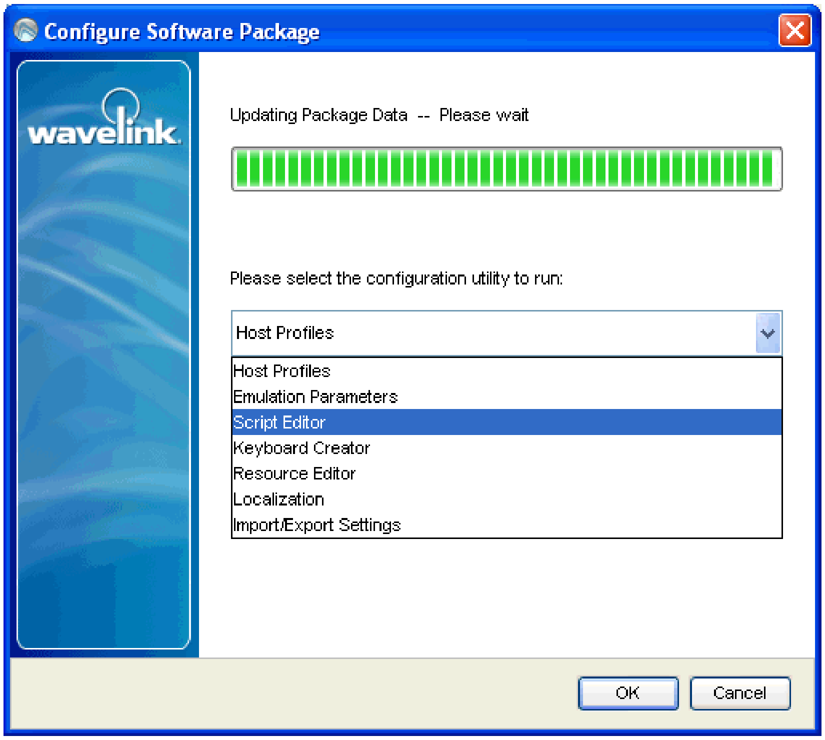
Launching the Script Editor from Avalanche MC

If you are deploying the Telnet Client from Avalanche MC, you can launch the Script Editor from the Avalanche MC Console.

To launch the Script Editor from Avalanche MC:

1. Install the software package to Avalanche MC.
2. Select the software profile that includes the Telnet Client package.
3. In the **Software Package** tab, click `Configure`.

   The *Configure Software Package* dialog box appears.



Updating Package Data -- Please wait

Please select the configuration utility to run:

Host Profiles

Host Profiles
Emulation Parameters
Script Editor
Keyboard Creator
Resource Editor
Localization
Import/Export Settings

Figure 2-3. *Configuring the Software Package*

4 Select `Script Editor` and click `OK`.

The Script Editor appears.

5 Click `Add` to access the *Script Editor Configuration* dialog box.

From this dialog box you can create and configure scripts. For more information about script creation, refer to *Chapter 3: Creating Scripts* on page 15.

Chapter 3: Creating Scripts

There are two ways you can create scripts:

- **Manually**. Using this method, you build the script code from scratch using the Script Editor.
- **Script Capturing**. Using this method, you generate the script code by enabling script capturing and performing the action you want the script to do. The Script Editor records the key presses and mouse/pen cursor movement. and saves the information as script code. You can edit the captured code to customize the way the script runs.

Once you create a script, you can save and deploy the script to the mobile devices you want to run the script.

This section provides information about creating scripts, including:

- Creating Scripts Manually
- Performing Script Capturing
- Editing Scripts
- Importing Scripts
- Saving and Exporting Scripts
- Deploying Scripts
- Syncing Scripts
- Creating Log Files
- Script Nesting
- Field Data ID Feature

NOTE Screen captures in this document may differ according to device type.

Creating Scripts Manually

When you create a script manually, you build the code for the script line by line in the Script Editor. This section provides information about creating scripts manually and includes the following information:

- Configuration Overview
- Naming Scripts
- Selecting Activation Methods
- Creating Script Code
- Creating Variables
- Selecting Host Profiles

Configuration Overview

The following steps provide an overview of how you create a script. The subsequent sections in this chapter describe each step in more detail.

To build a script:

1. Name the script.
2. Select an activation method.
3. Build the script code. In the Actions tab, create the code, line-by-line, that describes what you want actions you want the script to perform.
4. Create any variables that you need for your script in the Boolean Variables, Number Variables, or String Variables tabs.
5. Assign host profiles that can perform the script.

   Your script is complete and ready to activate upon a Telnet Client to host connection.

Naming Scripts

Name scripts a unique name according to the action the script performs.The script name is the name you will select from when activating the scripts. You can name your script in the **General Settings** tab.

To name scripts:

1 Launch the Script Editor.

2 Click `Add` to access the *Script Editor Configuration* dialog box.

3 In the **General Settings** tab, enter the name of the script.

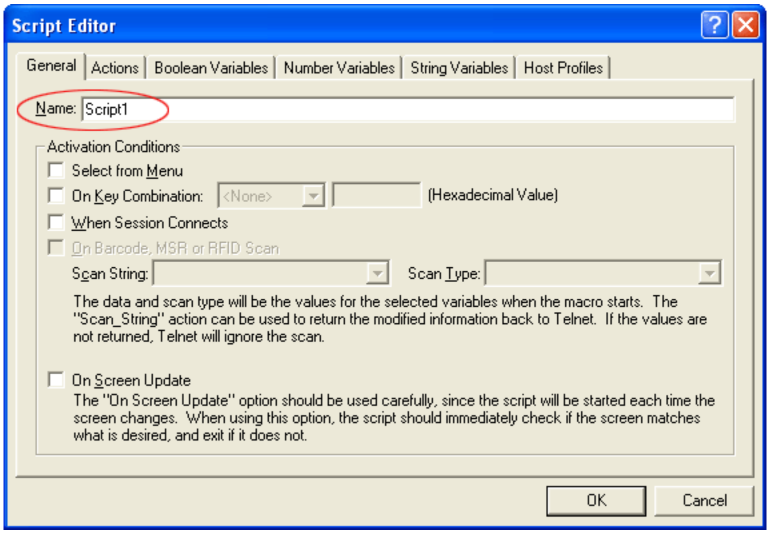
4 Click `OK` to save the name and exit the *Script Editor Configuration* dialog box.

Selecting Activation Methods

The Activation Method determines the way you execute the script from the Telnet Client. A script with no activation method selected can only e called by another script. It can not activate alone.

Activation methods are selected in the **General Settings** tab of the *Script Editor Configuration* dialog box. This section provides information about the different activation methods including:

- Select from Menu
- On Key Combination
- When Session Connects
- On Barcode, MSR or RFID Scan
- On Screen Update



Name: Script1

Activation Conditions

- [ ] Select from Menu
- [ ] On Key Combination: <None> (Hexadecimal Value)
- [ ] When Session Connects
- [ ] On Barcode, MSR or RFID Scan

Scan String: Scan Type:

The data and scan type will be the values for the selected variables when the macro starts. The "Scan_String" action can be used to return the modified information back to Telnet. If the values are not returned, Telnet will ignore the scan.

- [ ] On Screen Update

The "On Screen Update" option should be used carefully, since the script will be started each time the screen changes. When using this option, the script should immediately check if the screen matches what is desired, and exit if it does not.

Figure 3-1. *Entering the Script Name*

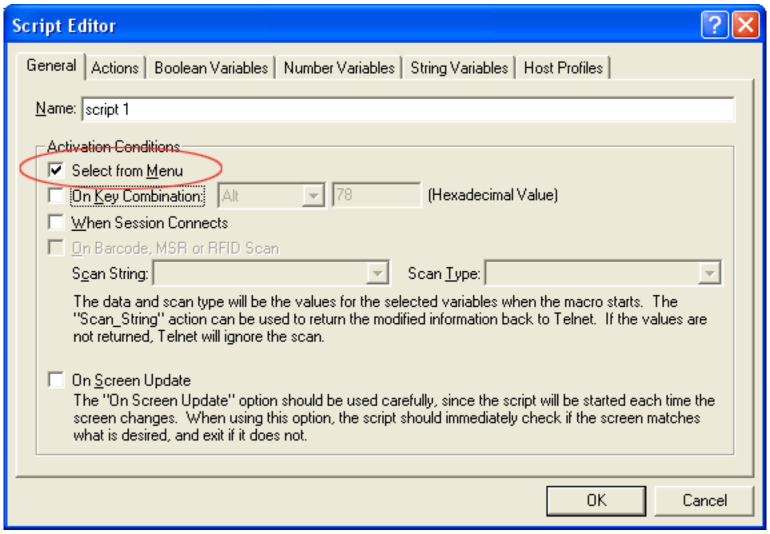
Select from Menu

The Select from Menu option places a script execution selection in the Telnet Client menu.

To configure the Select from Menu method:

1 Select the **General** tab or the **Activate** tab in the Script Editor.

2 Enable the **Select from Menu** option.



Name: script 1

Activation Conditions

[✓] Select from Menu

[ ] On Key Combination: Alt 78 (Hexadecimal Value)

[ ] When Session Connects

[ ] On Barcode, MSR or RFID Scan

Scan String: Scan Type:

The data and scan type will be the values for the selected variables when the macro starts. The "Scan_String" action can be used to return the modified information back to Telnet. If the values are not returned, Telnet will ignore the scan.

[ ] On Screen Update

The "On Screen Update" option should be used carefully, since the script will be started each time the screen changes. When using this option, the script should immediately check if the screen matches what is desired, and exit if it does not.

Figure 3-2. *Select from Menu*

3 Click `OK`.

On Key Combination

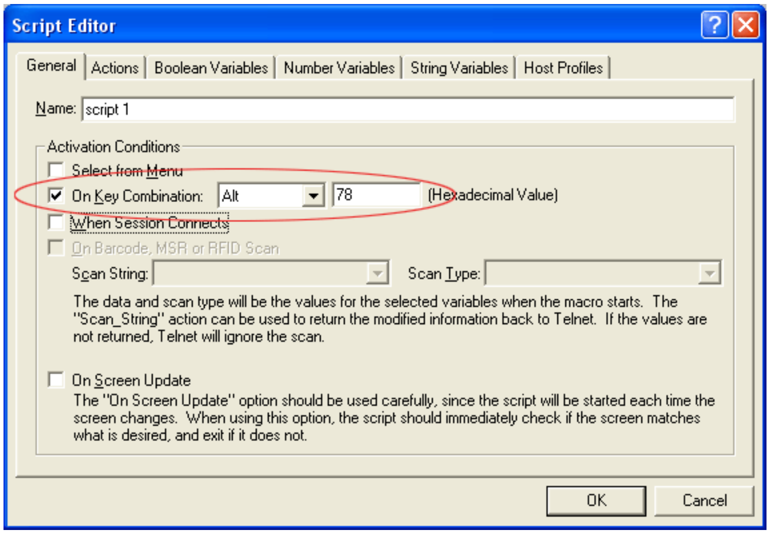
If you enable the **On Key Combination**, you can launch the script by pressing the specified keys.

Use the Diagnostic Utility to obtain the key value. For more information about using the Diagnostic Utility refer to the *Wavelink Telnet Client User's Guide*.

To configure the On Key Combination method:

1 Select the **General** tab or **Activate** tab in the Script Editor.

2 Enable the **On Key Command** option.



Name: script 1

Activation Conditions

- [ ] Select from Menu
- [✓] On Key Combination: Alt 78 (Hexadecimal Value)
- [ ] When Session Connects
- [ ] On Barcode, MSR or RFID Scan

Scan String: Scan Type:

The data and scan type will be the values for the selected variables when the macro starts. The "Scan_String" action can be used to return the modified information back to Telnet. If the values are not returned, Telnet will ignore the scan.

- [ ] On Screen Update

The "On Screen Update" option should be used carefully, since the script will be started each time the screen changes. When using this option, the script should immediately check if the screen matches what is desired, and exit if it does not.

Figure 3-3. *On Key Combination*

3 Use the drop-down menu and text box to assign a key combination to the script.

4 Click `OK`.

When Session Connects

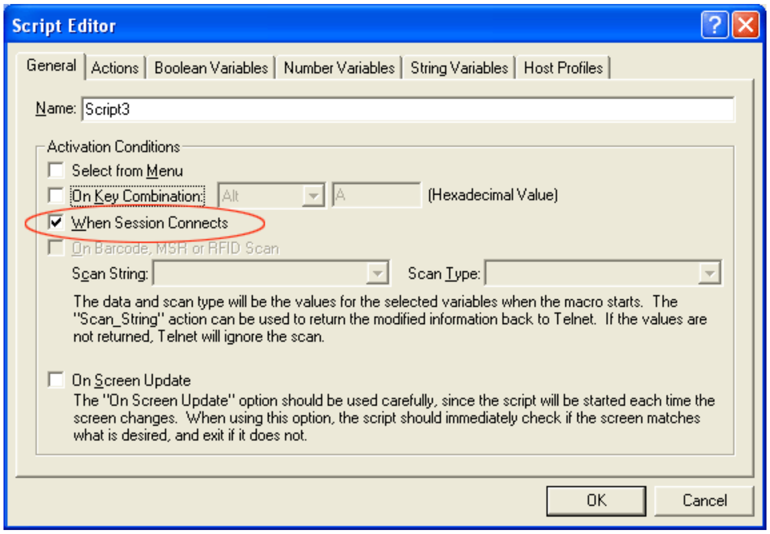
If you enable the **When Sessions Connects**, the script activates when the host profile it supports is activated.

If you use this option, Wavelink strongly recommends that you limit the script to the appropriate host profiles. Because the script activates before any information appears on the emulation screen, you need to have your script wait for the appropriate screen to appear before activates. You should not have more than one script set to start when a session connects because the first script that starts will prevent any other scripts from running while it waits for the initial screen. Refer to *Selecting Host Profiles* on page 26 for more information.

To configure the When Session Connects method:

1 Select the **General** tab or **Activate** tab in the Script Editor.

2 Enable the **When Session Connects** option.



Name: Script3

Activation Conditions

- [ ] Select from Menu
- [ ] On Key Combination: Alt A (Hexadecimal Value)
- [✓] When Session Connects
- [ ] On Barcode, MSR or RFID Scan

Scan String: Scan Type:

The data and scan type will be the values for the selected variables when the macro starts. The "Scan_String" action can be used to return the modified information back to Telnet. If the values are not returned, Telnet will ignore the scan.

- [ ] On Screen Update

The "On Screen Update" option should be used carefully, since the script will be started each time the screen changes. When using this option, the script should immediately check if the screen matches what is desired, and exit if it does not.

Figure 3-4. *When Session Connects*

3 Click `OK`.

On Barcode, MSR or RFID Scan

If you want to perform special processing on items scanned into the computer, the Scan Handler is often powerful enough to make the changes you need. The Scan Handler settings, found in the Configuration Manager, are located in `Emulation Parameters > Scanner > Common > Scan Handler`. However if the Scan Handler is insufficient, you can use a script to perform any processing you need.

Before you can activate the script for a scan, you must create a string variable and a number variable.

- The string variable allows you to obtain the initial scan data
- The number variable allows you to obtain the type of scan data.

Refer to *Appendix C: Symbologies and Values* on page 99 for the values of different symbologies. You can also use the `Get_Scan_Type_Name` and `Get_Scan_Type_Value` commands to display or handle scan types. Using the GetScanType Value means all types are specified in the editor and you can select the type you want to use.

Calling the `Scan_String` command before your script exits allows Telnet to handle the scanning data. Because you are specifying the data and type returned, the script can change either one. If the script exits without calling `Scan_String`, the scanned data disappears.

To configure the On Barcode, MSR, or RFID Scan method:

1 Create the `Scan_String` and `Scan_Type` variables.

   Once you create these variables, the **On Barcode, MSR, or RFID Scan** options becomes available.

   Create these variables in the String Variables and Number Variables tabs. Refer to *Creating Variables* on page 25 for information on creating variables.

1 Select the **General** tab or **Activate** tab in the Script Editor.

2 Enable the **On Barcode, MSR, or RFID Scan** option.

3 From the drop-down menu, select the `Scan_String`.

4 From the drop-down menu select the `Scan_Type`.

5 Click `OK`.

On Barcode, MSR or RFID Scan Example 1

The following is a sample script you can use if you want to insert a string (which could be just one character long) after the first six characters of any barcode at least six characters long.

A few notes about the sample script:

- **ScanData** is a string variable with the original barcode.
- **NewString** is a variable where you store the new barcode.
- **ScanType** is the number variable that keeps the type of scan data received.
- **OldLength** is an integer variable.
- **XXYY** is the string you insert.

```
   OldLength=String_Length(ScanData)
   If (Number_Greater_Than_Or_Equal(OldLength,6))
NewString=String_Combine(String_Left(ScanData,6), “XXYY”
 )
   NewString =
String_Combine(NewString,String_Right(ScanData,
Number_Minus(OldLength,6)))
   Else
   NewString = ScanData
   End_If
   Scan_String(NewString,ScanType)
   Return
```

On Barcode, MSR or RFID Scan Example 2

This example converts any DataMatrix scan values to PDF417 scan values. The ScanData and ScanType variables described for the previous example are used again.

```
  If
(Number_Equal(ScanType,Get_Scan_Type_Value("DATAMATRIX"))
)
  Scan_String(ScanData,Get_Scan_Type_Value("PDF417"))
  Else
  Scan_String(ScanData,ScanType)
  End_If
  Return
```

On Screen Update

This option activates the script (if activation is allowed) every time the text on the emulation screen changes. This includes updates from the Telnet host or when the user presses a key and the key value is shown on the screen. It is recommended that you limit the host profiles that the script supports.

The following example generates a script that enters a command each time a particular string appears on the screen:

```
  Label:Start:
  If
(String_Equal(Get_Screen_Text_Columns(1,1,5),“Ready”,
0,FALSE))
  Keypress_String(“Proceed”)
  Keypress_Key(“Enter”)
  End_If
  Wait_For_Screen_Update
  Goto: Start
  Return
```

If the script is set to activate when the session first connects, it will work as desired with one limitation. Because it is always activated, no other scripts can be activated during the emulation session.

Here is an alternate implementation:

```
   If (String_Equal(Get_Screen_Text_Columns(1,1,5),
"Ready", 0, FALSE))
   Keypress_String("Proceed")
   Keypress_Key("Enter")
   End_If
   Return
```

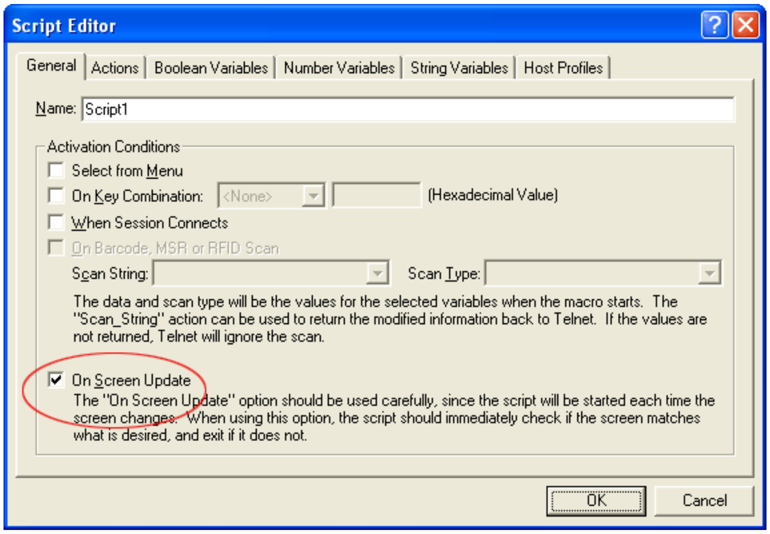
If the script is set to run each time the screen updates, you get the desired behavior. Because the script is not active all the time, other scripts can be activated as well.

NOTE Use this option carefully as it can cause a script to be executed frequently.

To configure the On Screen Update method:

1 Select the **General** tab or **Activate** tab in the Script Editor

2 Enable the **On Screen Update** option.



Name: Script1

Activation Conditions

- [ ] Select from Menu
- [ ] On Key Combination: <None> (Hexadecimal Value)
- [ ] When Session Connects
- [ ] On Barcode, MSR or RFID Scan

Scan String: Scan Type:

The data and scan type will be the values for the selected variables when the macro starts. The "Scan_String" action can be used to return the modified information back to Telnet. If the values are not returned, Telnet will ignore the scan.

- [✓] On Screen Update

The "On Screen Update" option should be used carefully, since the script will be started each time the screen changes. When using this option, the script should immediately check if the screen matches what is desired, and exit if it does not.

Figure 3-5. *Selecting the On Screen Update Method*

3 Click `OK`.

Creating Script Code

Once you name a script and select an activation method, you can use the **Actions** tab in the Script Editor to build the script. Refer to *Chapter 5: Building Scripts Manually* on page 49 for a detailed example of creating script code manually.

Creating Variables

There are three types of values recognized by scripting:

- Booleans (TRUE or FALSE values only)
- Numbers (integers)
- Strings

Every argument for every action is one of these three value types. Every action that returns a value returns one of these types. Variables provide a way to save the result of an action for later use as an argument for another command.

You can create and edit variables located in the corresponding tabs while editing a script. You can also create new variables while editing an action.

When a script starts, all the variables will have known values: boolean variables are FALSE, number variables are 0, and string variables are empty. One possible exception to this is when a script activates another script. Refer to *Script Nesting* on page 39 for more information.

To create variables:

1. Determine which type of variable you want to create: boolean, number, or string.
2. From the Script Editor, select the tab that corresponds with the type of variable you want to create.
3. Click `Add`.
4. In the *Edit Variable* dialog box, enter the name of the new variable.

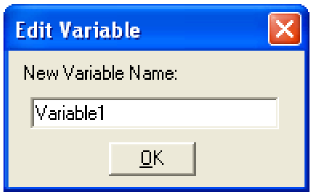
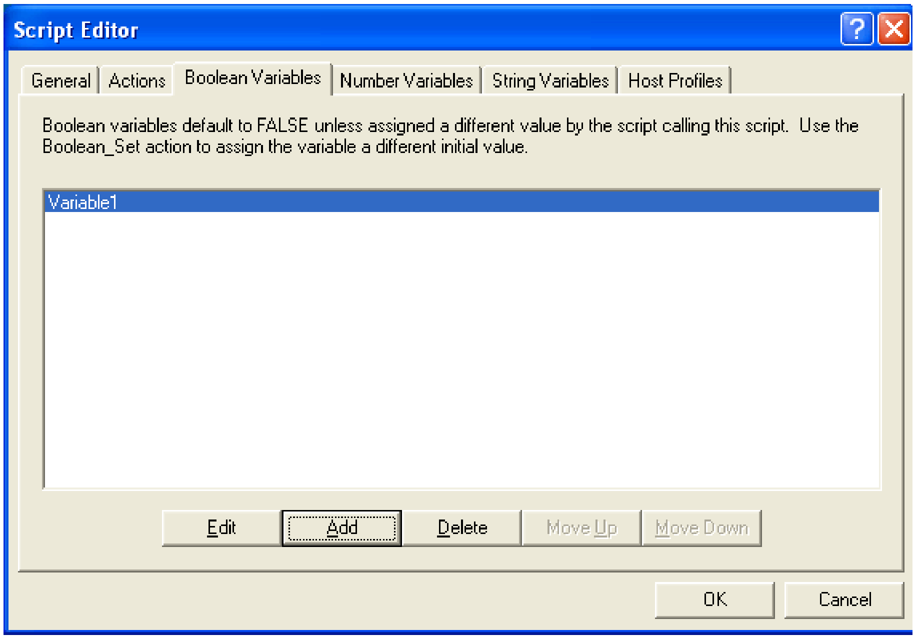


Figure 3-6. *Adding a New Variable*

5 Click `OK`.

The new variable appears in the corresponding tab.



Boolean variables default to FALSE unless assigned a different value by the script calling this script. Use the Boolean_Set action to assign the variable a different initial value.

Variable1

Figure 3-7. *New Variable*

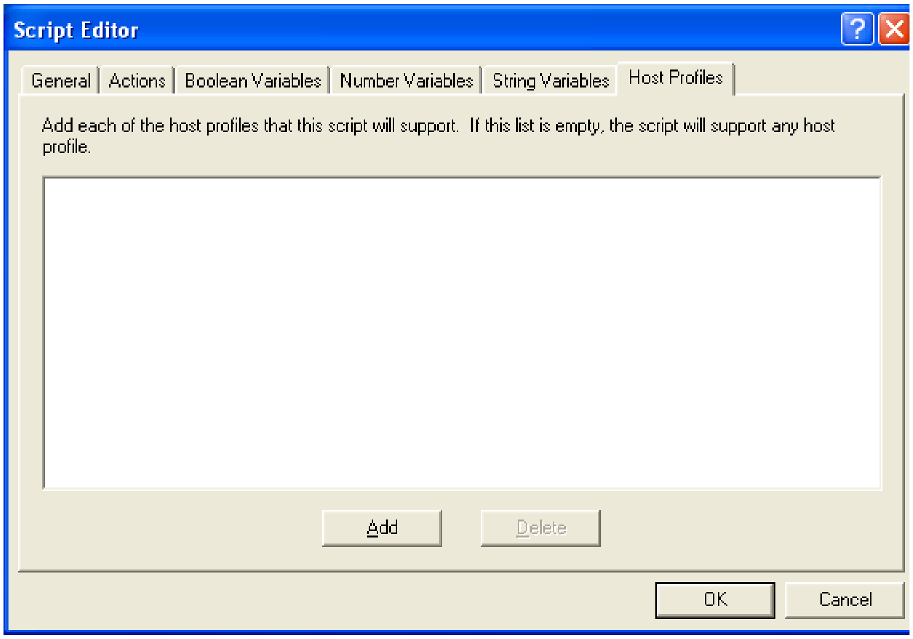
Selecting Host Profiles

For each script, you can specify which host profiles will be supported by that script. You may select host profiles from the **Host Profiles** tab.

If the script is generated by script capturing, limit the script to a host profile that was in use when the script was captured. The default - no host profile - allows the script to be run when any host profile is used.

To select host profiles:

1 From the Script Editor, select the **Host Profiles** tab.



Add each of the host profiles that this script will support. If this list is empty, the script will support any host profile.

Figure 3-8. *Host Profiles Tab*

2 Click `Add`.

The *Select Host* dialog box opens.

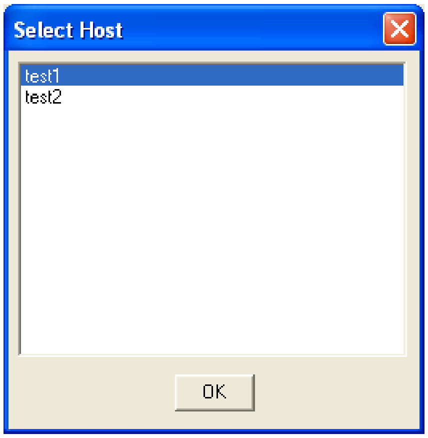


Figure 3-9. *Selecting Host Profiles*

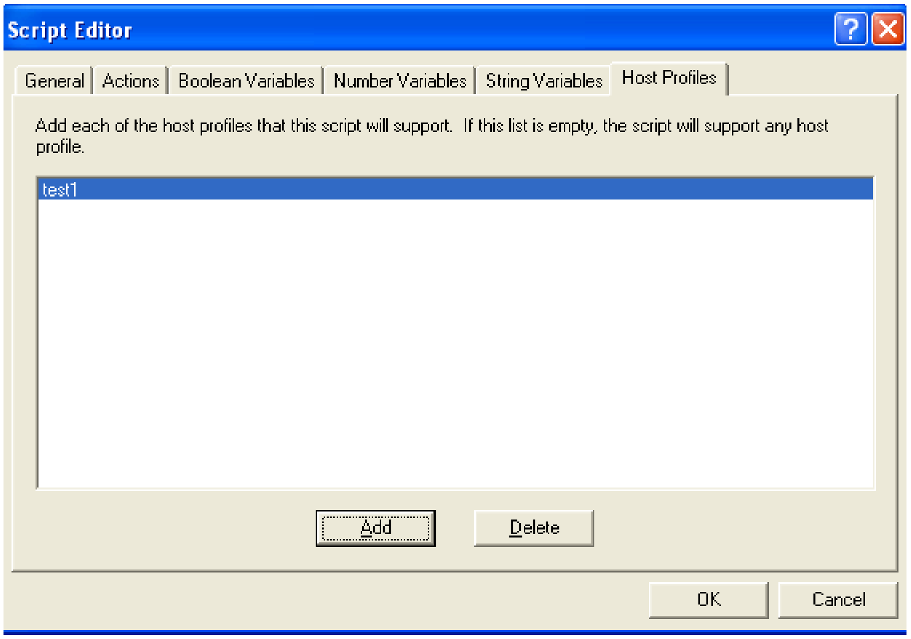
3 Select which host you want to use from the list of Avalanche hosts.

NOTE If you have not created any host profiles, this dialog box will be empty.

---

4 Click `OK`.

The host appears in the **Host** tab.



Add each of the host profiles that this script will support. If this list is empty, the script will support any host profile.

test1

Figure 3-10. *Selected Profile in Host Profiles Tab*

Performing Script Capturing

Script capturing is an easy way to generate a script that automates actions or processes. When script capturing is activated, it captures key presses and mouse/pen cursor movements so those action can be replayed when the script is activated.

To perform a script capture:

1 Position your mouse or cursor at the emulation screen you want to be at when the automated process starts.

2 From the **Term** or **Options** menu, select `Scripting > Start Capture`.

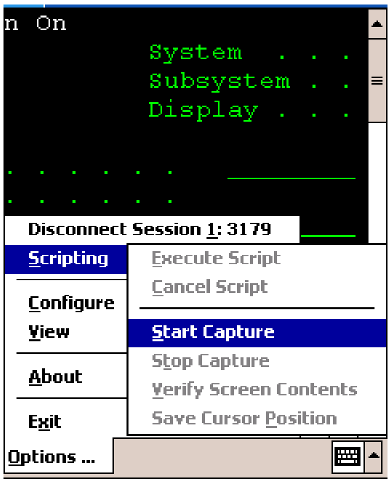
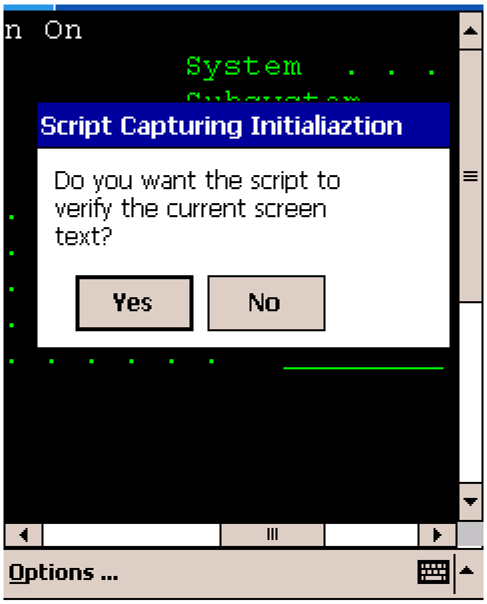


Figure 3-11. *Starting Script Capture*

3 At the prompt, select `Yes` to verify the current screen text.

Select `No` if you do not want to verify the current screen text.


Script Capturing Initialiaztion

Do you want the script to verify the current screen text?

Figure 3-12. *Verifying the Current Screen Test*

Selecting `Yes` makes the captured script start with an `If_not` command that tells the script to exit if the correct screen is not currently shown. Unless you know that your script will only run from the correct screen (for example, a script that is run only when a session first starts, or a script called by another script), you should select `Yes`.

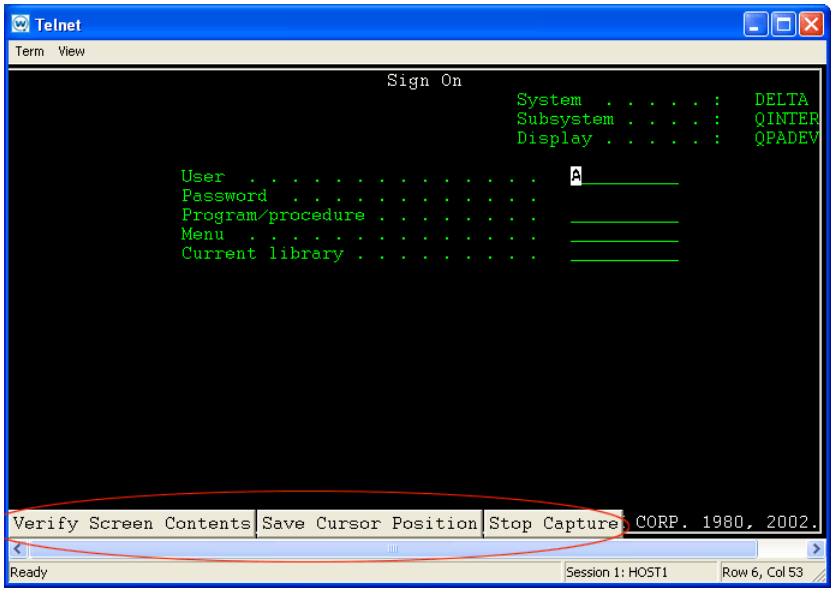
NOTE If you select `No`, click `Verify Screen Contents` and `Save Cursor Position` when you start your script capture. This causes your script to wait for Telnet to finish updating the screen before processing script actions.

---

4 Perform any actions you want to include in the script.

5 Each time the screen changes, click `Verify Screen Contents` button.

NOTE Some devices may only display buttons labeled `Screen`, `Cursor` and `Stop`. The `Screen` button refers to the `Verify Screen Contents` button. The `Cursor` button refers to the `Save Cursor Position` button. The `Stop` button refers to the `Stop Capturing` button.



```
                              Sign On
                                         System  . . . . . :   DELTA
                                         Subsystem . . . . :   QINTER
                                         Display . . . . . :   QPADEV

                  User  . . . . . . . . . . . . . .          A
                  Password  . . . . . . . . . . . .
                  Program/procedure . . . . . . . .
                  Menu  . . . . . . . . . . . . . .
                  Current library . . . . . . . . .

                                                       CORP. 1980, 2002.
```

Figure 3-13. *Verify Screen Contents and Save Cursor Position Buttons*

NOTE Clicking the `Verify Screen Contents` button causes the generated script to pause and wait for the screen update. The pauses are necessary because scripts can run much faster than the interaction with the Telnet host.

---

6 When you finish capturing the behaviors you want in the script, click `Stop Capture`.

Once you capture a script, the Script Editor opens allowing you to name the script and select an activation method. You can use the **Actions** tab to add actions for any error condition that the user may encounter.

Editing Scripts

You can edit scripts that are created manually and scripts that are generated using script capturing.

To edit scripts:

1 Launch the Script Editor.

2 Select the script you want to edit from the script list.

3 Click `Edit`.

4 Make the desired changes in the Script Editor configuration dialog box.

5 Click `OK` to save your changes.

Once you have completed editing the script you have two options:

- Export the script to a specified location. Refer to *Saving and Exporting Scripts* on page 35 for more information.
- Execute the script by launching the Telnet Client and performing the activation method you assigned to the script. Refer to *Chapter 4: Executing Scripts* on page 45 for more information.

Importing Scripts

You can use the import button in the Script Editor to import previously created scripts.

NOTE You can only import scripts that have been created using the Script Editor.

To import a script:

1 From the Script Editor, click `Import`.

The *Select the Script File* dialog box opens.

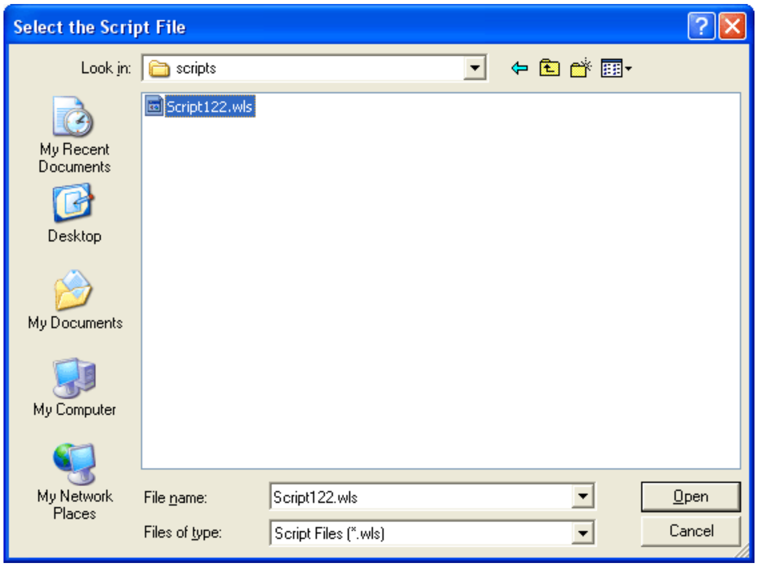


Figure 3-14. *Importing a Script File*

2 Navigate to and select the script file.

3 Click `Open`.

The name of the file is imported into the Script Editor.

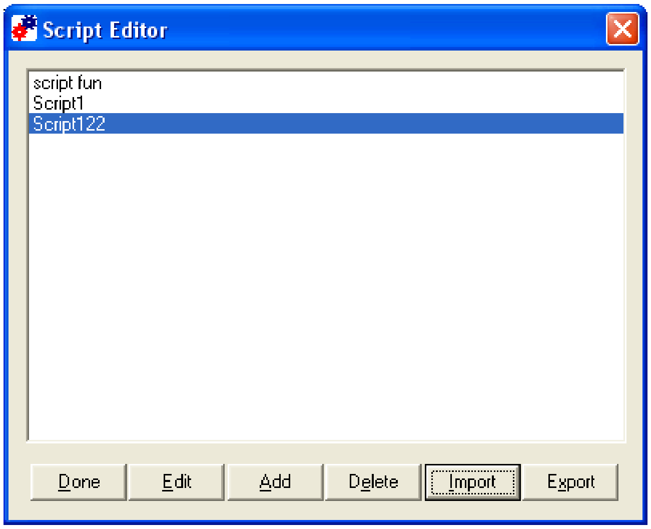


Figure 3-15. *Imported Script File*

Once you have imported the file, you can edit the script. Refer to *Editing Scripts* on page 32 for more information.

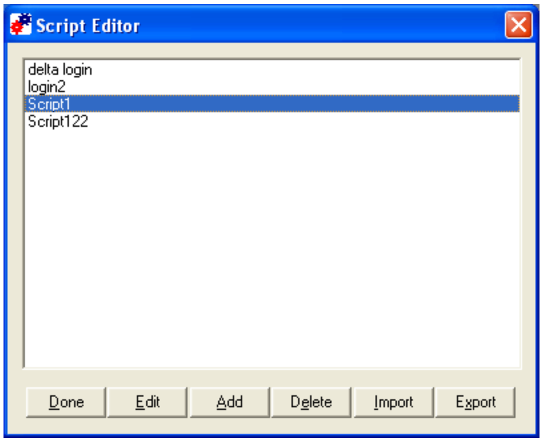
Saving and Exporting Scripts

After you finish building a script, your script is automatically saved in the Script Editor. You can also export a script and save it in a specific location on the network.

Scripts are saved as `.wls` files. Scripts can not be viewed outside the Script Editor and must be imported back in to the Script Editor to view or edit.

To export a script:

1 From the script list, select the script you want to export.

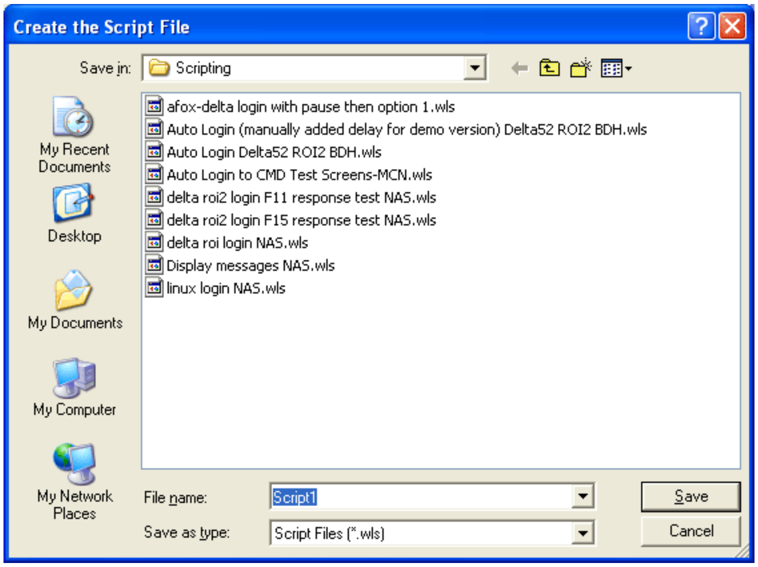


delta login
login2
Script1
Script122

Figure 3-16. *Selecting a Script to Export*

2 Click `Export`.

The *Create the Script File* dialog box opens.



Save in: Scripting

afox-delta login with pause then option 1.wls
Auto Login (manually added delay for demo version) Delta52 ROI2 BDH.wls
Auto Login Delta52 ROI2 BDH.wls
Auto Login to CMD Test Screens-MCN.wls
delta roi2 login F11 response test NAS.wls
delta roi2 login F15 response test NAS.wls
delta roi login NAS.wls
Display messages NAS.wls
linux login NAS.wls

File name: Script1
Save as type: Script Files (*.wls)

Figure 3-17. *Exporting a Script*

3 Navigate to the location where you want to export your script.

4 Click `Save`.

To view an exported script you need to import the script into the Script Editor. Refer to *Importing Scripts* on page 33 for more information.

Deploying Scripts

Scripts are deployed to the Telnet Client the next time the client syncs with the Avalanche Manager or Avalanche MC.

Syncing Scripts

The section provides information about syncing scripts that are edited or created on the mobile device to the Script Editor in Avalanche Manager or Avalanche MC.

When you create or edit a script on a mobile device, you need to sync the script to the Script Editor in Avalanche Manager. This allows you to edit and modify the scripts from the Avalanche Manager.

To sync scripts:

1 From the device list in Avalanche Manager, right-click the device to which you want to sync.

2 Select `Launch Session Monitor`.

As you connect to Session Monitor, an *Authorizing* dialog box appears and then the *Sync Script* dialog box appears.

3 Click `Yes` to sync your scripts from the mobile device to Avalanche Manager.

The Script Editor opens and display all scripts.

If you edited a script on the mobile device that is also saved in the Script Editor in Avalanche Manager, both scripts display in the Script Editor after syncing. The original script retains named the original name. The script that was edited on the mobile device appears as `[`*`Original Name`*`] Telnet`.

Creating Log Files

Use the `Logging_On` and `Logging_Off` commands in your code to generate log files. Each action executed, with the values of its arguments and the results of the action, is written to the log file. When you configure the `Logging_On` action, you can set the File Path name to where the log file is stored.

When a script calls another script, the logging for the calling script is suspended. Logging resumes when the called script exits and the suspended script resumes. It is possible to have a script called by another script (or a script calling itself recursively) use the same logging file.

Entering the Logging_On Action

Include a `Logging_On` action in your script code to generate a log file. Place the `Logging_On` action at the point you want to begin logging.

To enter the Logging_On action:

1 From the **Actions** tab, click `Insert`.

2 From the **Actions** drop-down menu, select `Logging_On`.

3 Click the **File Path** tab.

4 In the **Constant String** text box, enter the location where you want to store the log file.

5 Click the **Overwrite** tab.

6 Set the **Override Previous option.**

   When you set the **Override Previous** option to FALSE, the latest log file will not replace the existing file. Instead, a separate log file is created for each log.

   When you set the **Override Previous** option to TRUE, the most recent log file will replace the existing log file.

NOTE Because logging slows the performance of Telnet, and takes up space on your devices, you may not want to include it in end-user scripts. Set the **Override Previous** value be TRUE to keep the log files from getting too large.

---

7 Click OK.

The code is added to the **Actions** tab.

Entering the Logging_Off Action

If the script exits, logging automatically terminates, so you usually will not need the Logging_Off action. However, if you only want to log a portion of the script, you can enter a Logging_Off action to stop the logging.

To enter a Logging_Off action:

1 From the **Actions** tab, click the Insert button.

2 From the **Actions** drop-down menu, select Logging_Off.

3 Click OK.

The code is added to the **Actions** tab.

Script Nesting

You can program scripts to call other scripts or call itself. This makes it easier to take a block of functionality and use it multiple times or to solve problems that can be described recursively.

A factorial is the product of all positive integers from 1 to the given number. For example, the factorial of 5 (usually written as 5!) = 1 x 2 x 3 x 4 x 5 = 120. Here is an example of a script that uses recursion (a script calling itself) to calculate factorials:

```
   If (Number_Equal(ArgumentValue,1))
Comment: The factorial of 1 is 1
   Return
   End_If
   If (Number_Not_Equal(ArgumentValue,0))
Comment: The factorial of X is X multiplied by the
factorial of X - 1
   Temp=ArgumentValue
   ArgumentValue=Number_Minus(Temp,1)
   Call: Factorial
   ArgumentValue <-> ArgumentValue
   ArgumentValue = Number_Multiply(Temp,ArgumentValue)
   Return
   End_If
   ArgumentValue = Ask_Number("Enter a number:",
"Factorial Calculator",1,12,0)
  Call: Factorial
  ArgumentValue <-> ArgumentValue
Ask_OK(String_Combine("The factorial is",
Number_To_String_Decimal(ArgumentValue)), "Result")
  Return
```

This script uses two integer variables, ArgumentValue and Temp.

When a script calls another script, the calling script can assign values to the called script variables. The factorial example script knows it is being called recursively because the ArgumentValue variable is not 0. If ArgumentValue is 0, the script will ask for the number to calculate the factorial with. Each time the script is called, the ArgumentValue variable of the calling script is assigned the final value in the called script's ArgumentValue variable. This keeps the results of the called script's actions from being lost. (If the value were not returned, then there would be a "<--" instead of a "<->" in the Call action's argument list.) When you add the action for calling a script, you need to specify which variables in the called script will be assigned a value, and what that initial value will be.

NOTE If you wanted to be more efficient, you could create a `While` loop that performs the multiplications to calculate the factorial. You could also return the proper response for each factorial, since numbers higher than 12 exceed the maximum number value. However, there are some problems that are easiest to solve using recursion. The example above should give you an idea how you could go about using it.

Field Data ID Feature

The Field Data ID feature allows you to use scripting to configure Field Data Identifiers. Field Data Identifiers assign a unique identification, such as a letter, to each field on the screen. Any time a barcode beginning with that identifier is scanned, the information automatically populates in the corresponding field.

NOTE This feature is only available for IBM 5250 emulation.

This section provides the following information:

- Adding a Field Data ID or Symbology
- Editing a Field Data ID or Symbology

Adding a Field Data ID or Symbology

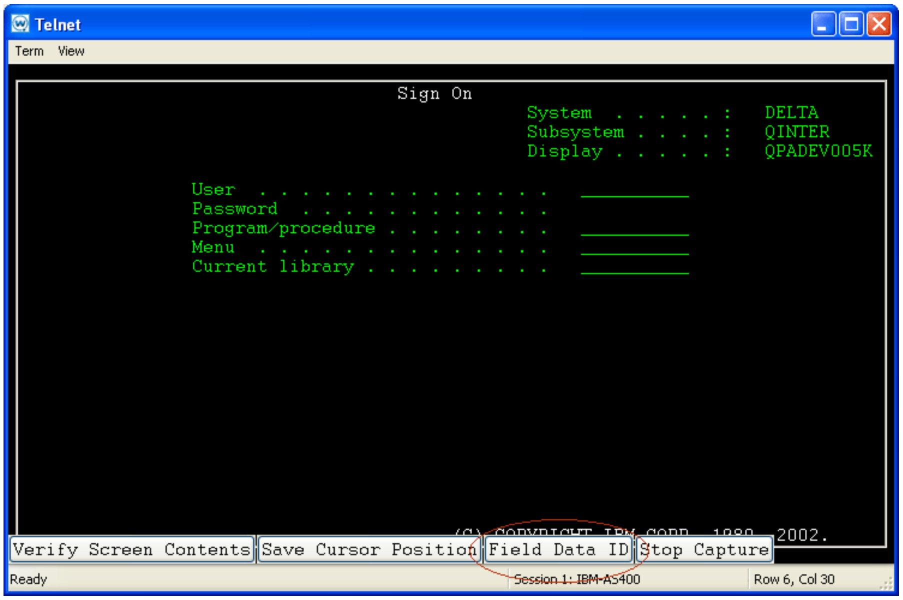
Use the *Field Data ID* dialog box to add a Data ID or Symbology to a field.

To add a Field Data ID or Symbology:

1. Access the IBM 5250 emulation screen.
2. From the **Term** menu, select `Scripting > Start Capture`.

   The *Script Capturing Initialization* dialog box appears.
3. Click `Yes`.

   The *Select Screen Text* dialog box appears.
4. Select the desired text string(s) from the list and click `OK`.
5. Place the cursor on the field where you want to add a Data ID.
6. From the bottom of the emulation screen, click the `Field Data ID` button.



```
                                  Sign On
                                              System  . . . . . :   DELTA
                                              Subsystem . . . . :   QINTER
                                              Display . . . . . :   QPADEV005K

                 User  . . . . . . . . . . . . . .       __________
                 Password  . . . . . . . . . . . .
                 Program/procedure . . . . . . . .       __________
                 Menu  . . . . . . . . . . . . . .       __________
                 Current library . . . . . . . . .       __________

                                         (C) COPYRIGHT IBM CORP. 1980, 2002.
```

Figure 3-18. *Field Data ID Button*

The *Field Data ID* dialog box appears.

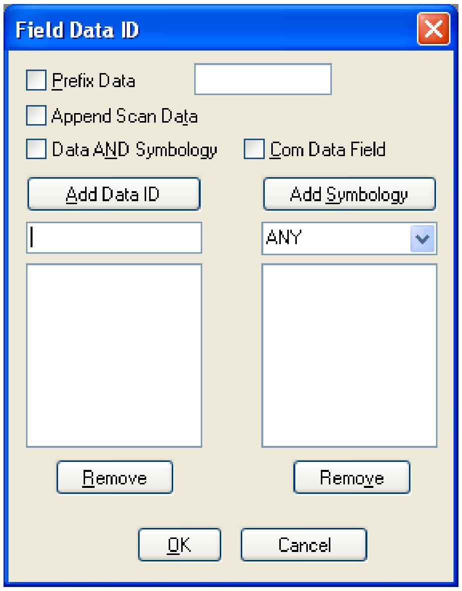


Figure 3-19. *Field Data ID Dialog Box*

7 In the text box below the `Add Data ID` button, enter the desired Data ID.

8 Click `Add Data ID`.

The new Data ID appears in the list below the text box.

9 If you want to remove a Data ID, select the desired ID from the list and click `Remove`.

10 From the drop-down menu below the `Add Symbology` button, select the desired Symbology.

11 Click `Add Symbology`.

The new Symbology appears in the list below the text box.

12 If you want to remove a Symbology, select the desired Symbology from the list and click `Remove`.

13 If you want to add a prefix to the data, enable the **Prefix Data** checkbox and enter the prefix in the available text box.

- If you want to append scan data in the field, enable the **Append Scan Data** checkbox.
- If you want to add a Data ID and a Symbology, enable the **Data AND Symbology** checkbox.
- If you want the field to be the Com Data Field for the screen, enable the **Com Data Field** checkbox.

14 Click `OK` to close the *Field Data ID* dialog box and save your changes.

Editing a Field Data ID or Symbology

If you want to make changes to a Data ID or Symbology, you must manually edit the script you created using the Field Data ID feature. For more information about editing scripts, refer to *Editing Scripts* on page 32.

Chapter 4: Executing Scripts

This section provides information about activating scripts using each of the available activation methods:

- Select From Menu
- On Key Combination
- When Session Connects
- On Barcode, MSR, or RFID Scan
- On Screen Update
- From Web Pages

For information on assigning an activation method to a script, refer to *Selecting Activation Methods* on page 17.

NOTE Screen captures may differ according to device type.

Select From Menu

If you assigned this activation method, you can activate the script from the **Term** menu of the Telnet Client.

To activate:

1 Launch the Telnet Client on the mobile device.

2 From the **Term** menu, select `Scripting > Execute Script`.

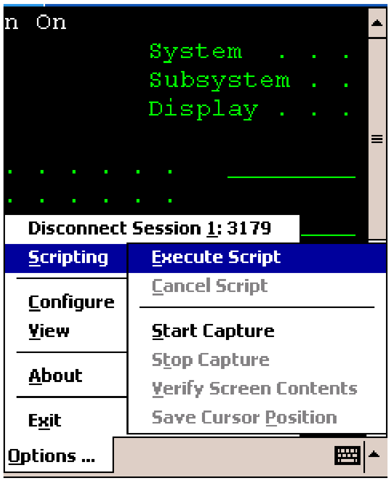


Figure 4-1. *Executing Scripts from the Menu*

3 If more than one script is available for the current host profile, select which script you want to use from the list.

NOTE This option is not available if a script is running for the current session or if the session is not connected.

On Key Combination

If you assigned this activation method, the script activates when you press the specified key combination (as long as it is currently possible for script to run).

To activate:

1 Launch the Telnet Client.

2 Enter the key combination you assigned to execute the script.

When Session Connects

If you assigned this activation method, the script activates when the host profile it supports is activated.

To execute when the session connects:

1 Launch the Telnet Client.

2 From the **Term** or **Options** menu, select `Connect`.

3 Select the host to which you want to connect.

4 Click `OK`.

The script runs upon connection.

On Barcode, MSR, or RFID Scan

If you assigned this activation method, the script activates with each barcode, MSR, or RFID scan.

On Screen Update

If you assigned this activation method, the script activates (if activation is allowed) every time the text on the emulation screen changes. This includes updates from the Telnet host or when the user presses a key and the key value appears on the screen.

From Web Pages

You can launch Wavelink scripts from web pages using the `wls` type, followed by the script name.

Launching Scripts from Web Pages Example 1

This example launches a script called `WebAuto` which launches when the web page is first loads.

```
<title>TE70 Test1 - Launch Telnet Scripts</title>
<meta http-equiv="OnStartup" content="wls:WebAuto">
```

Launching Scripts from Web Pages Example 2

This example launches a script called `WebClick` when a user clicks the hyperlink “`here`” on the web page.

```
  <p>
  Click <a href="wls:WebClick">here</a> to launch the
&quot;WebClick&quot; script.
  </p>
```

Chapter 5: Building Scripts Manually

This chapter provides information about building a script manually. The purpose of this example is to demonstrate (step-by-step) how to create a script. Values, names and variables are used for example purposes only. The example values may differ according to device type and operating system.

The following script is the example used:

```
Comment:Verify that this is the desired screen
  If_Not(String_Equal(Get_Screen_Text_Length(1, 36, 7),
“Sign On”, 0, FALSE))
  Return
  End If
  Set_Cursor_Positiong(6, 53)

  Message(“Starting Script” 3)

  Keypress_String(“User Name”)
  Keypress_Key(“Down Arrow”)
  Keypress_String(“Password”)
  Keypress_Key(“Enter”)

Comment:Wait for the desired screen.

  While_Not(String_Equal(Get_Screen_Text_Length(11,1,
16), “9. FUNCTION KEYS”,0,FALSE))
  Wait_For_Screen_Update
  End_While

  Keypress_String(“9”)

  Message(“String Done”,3)
  Return
```

NOTE Screen captures may differ according to device type.

The following sections contain the tasks required to create the example script:

- Launching the Script Editor
- Naming the Script and Selecting the Activation Method
- Building the Script Code.

Launching the Script Editor

Launch the Script Editor from the Avalanche Manager or from the Telnet Client. For detailed instructions about launching the Script Editor, refer to *Chapter 2: Launching the Script Editor* on page 11.

Naming the Script and Selecting the Activation Method

In the **General** tab, name the script and select which method you want to use to activate the script. For detailed instructions, refer to *Naming Scripts* on page 16 and *Selecting Activation Methods* on page 17.

Building the Script Code

Once you name the script and select an activation method, you can begin entering the code. You build the code in the **Actions** tab. The example script performs the following actions upon completion and activation:

- Verifies that the script is starting on the right screen and sets the correct cursor position.
  - If the script is not on the correct screen, the script ends.
  - If the emulation screen is correct, the script enters a user name and password in the correct locations.
- Verifies that the emulation screen is correct.
- Selects a specific menu and exits

The steps to enter this example code are divided into the three main sections:

1 Verifying the Script Starts on the Correct Screen

2 Entering the User Name and Password

3 Verifying the Screen and Navigating Menus

Verifying the Script Starts on the Correct Screen

This portion of script verifies that the script is starting on the right screen and sets the correct cursor position. If the script is not on the right screen, the script ends. Once the script verifies that it is starting on the correct screen, a message displays “`Starting Script`.”

To build the script code:

1 From the **Actions** tab, click the `Insert` button.

The *Action Editor* dialog box opens.

2 From the **Actions** drop-down menu, select `Comment`.

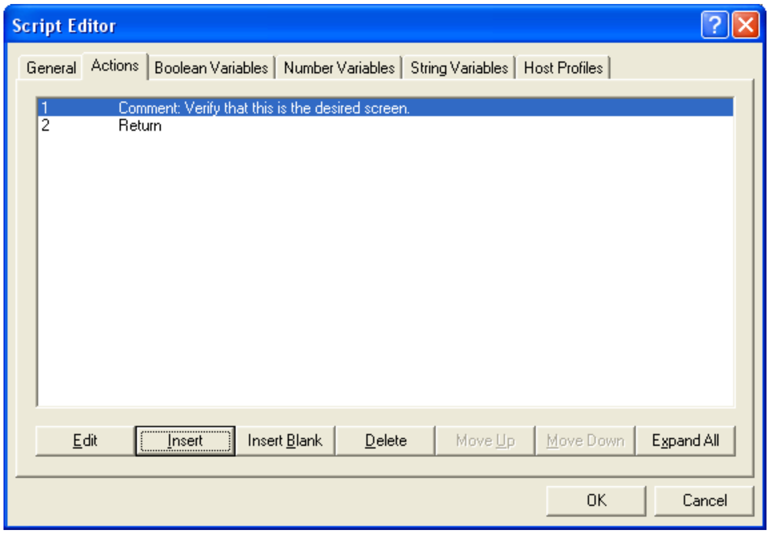
3 Click the **Comment** tab and enter `Verify that this is the desired screen` in the **Constant String** text box.

NOTE Comments can be any string you want. This is just an example.

---

4 Click `OK`.

The code is added to the **Actions** tab.



```
1    Comment: Verify that this is the desired screen.
2    Return
```

Figure 5-1. *Entering a Comment*

5 Click the `Insert` button.

6 From the **Actions** drop-down menu, select `If_Not`.

7 Click the **Test** tab.

8 Enable the **Action** drop-down option and select `String_Equal` from the drop down menu.

9 Click the `Edit Action Value` button.

10 Click the **Test 1** tab.

11 Enable the **Action** drop-down option and select `Get_Screen_Test_Length` from the drop down menu.

12 Click the `Edit Action Value` button.

13 Click the **Row** tab and enter the number `1`.

14 Click the **Column** tab and enter the number `38`.

15 Click the Maximum Length tab and enter the number `7`.

16 Click `OK`.

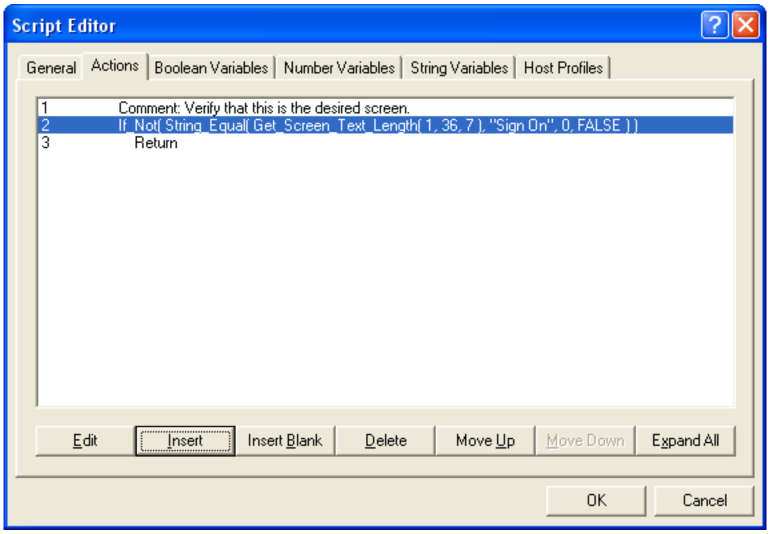
17 Click the **Test 2** tab and enter `Sign On` in the **Constant String** text box.

18 Click the **Maximum Length** tab and enter the number `0` in the **Constant Number** text box.

19 Click the **Ignore Case** tab and enable the `False` option.

20 Click `OK` until you return to the **Actions** tab in the Script Editor.

The code appears in the **Actions** tab.



```
1    Comment: Verify that this is the desired screen.
2    If  Not( String_Equal( Get_Screen_Text_Length( 1, 36, 7 ), "Sign On", 0, FALSE ) )
3      Return
```

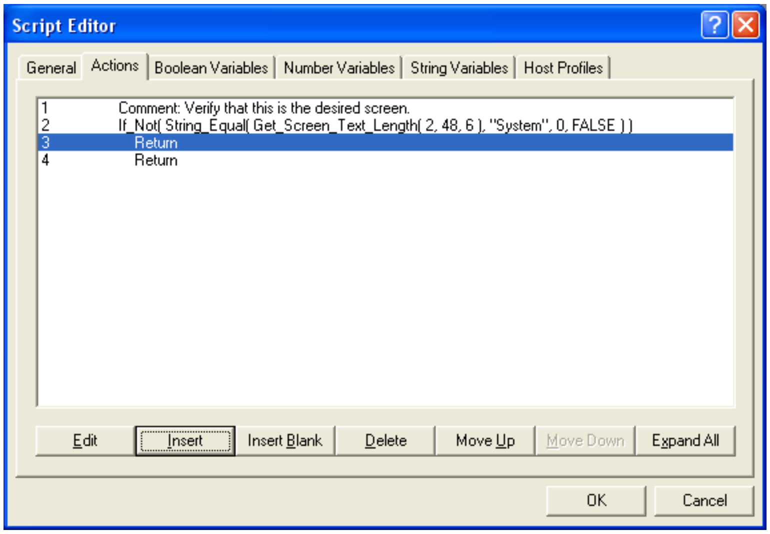
Figure 5-2. *Entering an IF_Not Action*

21 Click the `Insert` button

22 From the **Actions** drop-down menu, select `Return`.

23 Click `OK`.

The code appears in the **Actions** tab.



```
1    Comment: Verify that this is the desired screen.
2    If_Not( String_Equal( Get_Screen_Text_Length( 2, 48, 6 ), "System", 0, FALSE ) )
3        Return
4        Return
```

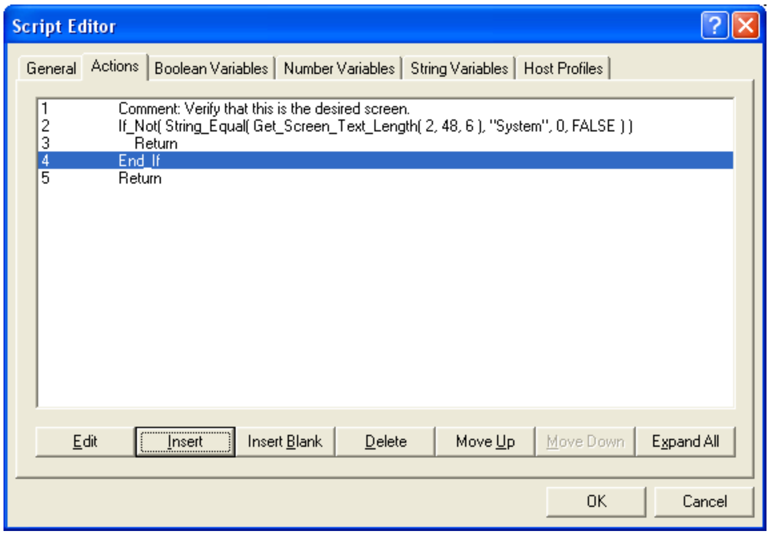
Figure 5-3. *Entering a Return*

24 Click the `Insert` button.

25 From the **Actions** drop-down menu, select `End_If`.

26 Click `OK`.

The code appears in the **Actions** tab.



```
1    Comment: Verify that this is the desired screen.
2    If_Not( String_Equal( Get_Screen_Text_Length( 2, 48, 6 ), "System", 0, FALSE ) )
3       Return
4    End_If
5    Return
```

Figure 5-4. *Entering the End_If Action*

27 Click the `Insert` button.

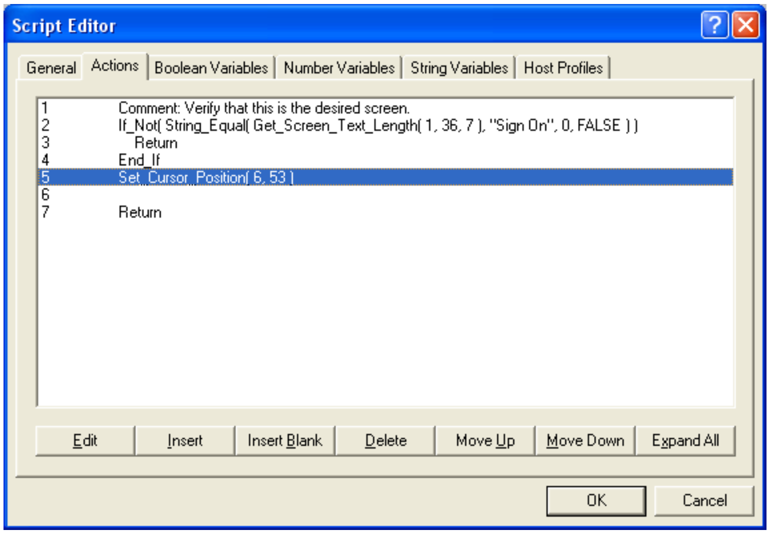
28 From the **Actions** drop-down menu, select `Set_Cursor_Position`.

29 Click the **Row** tab and enter `6` in the **Constant Number** text box.

30 Click the **Column** tab and enter `53` in the **Constant Number** text box.

31 Click `OK`.

The code appears in the **Actions** tab.



```
Comment: Verify that this is the desired screen.
If_Not( String_Equal( Get_Screen_Text_Length( 1, 36, 7 ), "Sign On", 0, FALSE ) )
   Return
End_If
Set_Cursor_Position( 6, 53 )

Return
```

Figure 5-5. *Entering the Set_Cursor_Position Action*

32 From the **Action** tab, click the `Insert Blank` button to insert a blank line in the code.

33 Click the `Insert` button.

34 From the **Actions** drop-down menu, select `Message`.

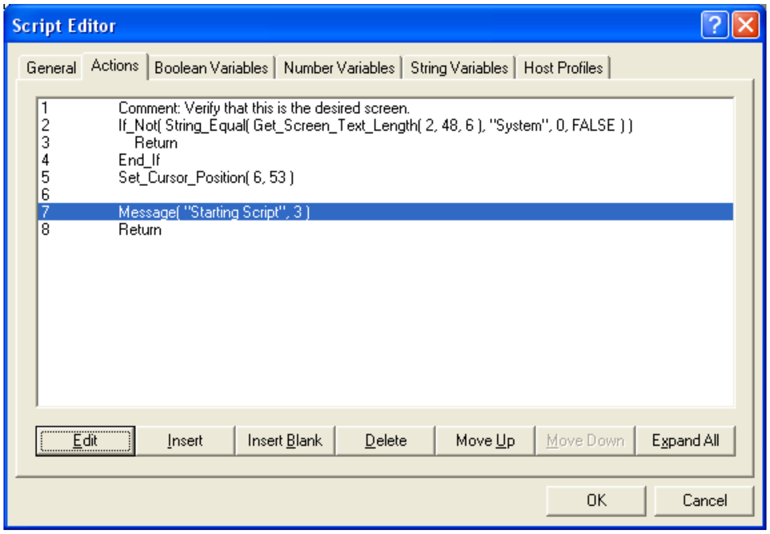
35 Click the **Message** tab and enter `Starting Script` in the **Constant Number** text box.

This code displays a “Starting Script” message on the emulation screen.

36 Click the **Timeout (Seconds)** tab and enter the number `3` in the **Constant Number** text box.

37 Click `OK`.

The code appears in the **Actions** tab.



```
Comment: Verify that this is the desired screen.
If_Not( String_Equal( Get_Screen_Text_Length( 2, 48, 6 ), "System", 0, FALSE ) )
   Return
End_If
Set_Cursor_Position( 6, 53 )

Message( "Starting Script", 3 )
Return
```

Figure 5-6. *Entering the Message Code*

Entering the User Name and Password

This portion of the script enters the login information.

To build the script code:

1 Click the `Insert Blank` button to insert a blank line in the code.

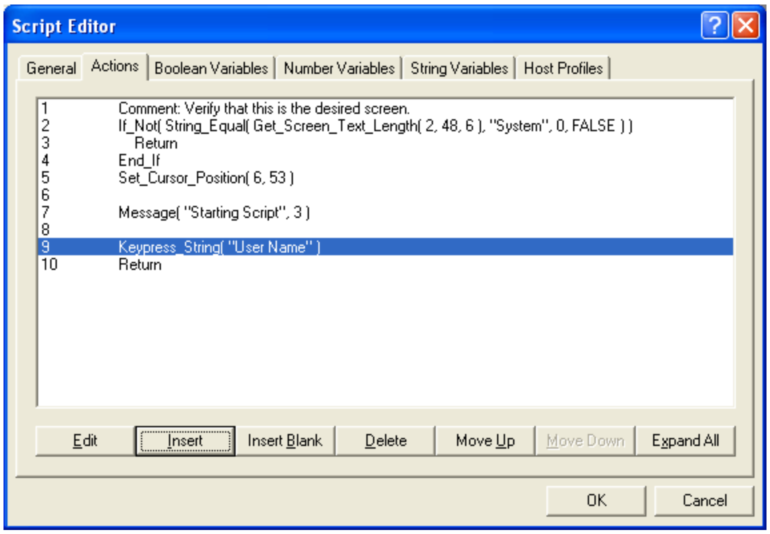
2 Click the `Insert` button.

3 From the **Actions** drop-down menu, select `Keypress_String`.

4 Click the **Characters** tab and enter `User Name`.

5 Click `OK`.

The code appears in the **Actions** tab.



```
Comment: Verify that this is the desired screen.
If_Not( String_Equal( Get_Screen_Text_Length( 2, 48, 6 ), "System", 0, FALSE ) )
    Return
End_If
Set_Cursor_Position( 6, 53 )

Message( "Starting Script", 3 )

Keypress_String( "User Name" )
Return
```

Figure 5-7. *Entering the User Name Code*

6 Click the `Insert` button.

7 From the **Actions** drop-down menu, select `Keypress_Key`.

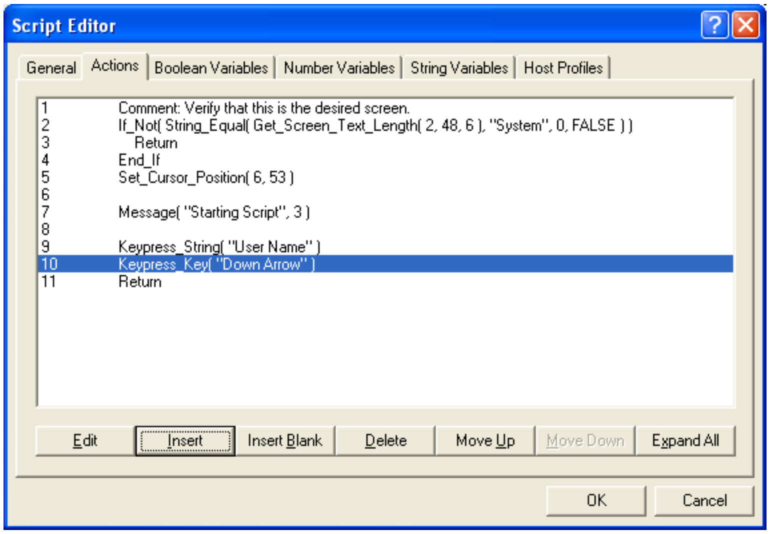
8 Click the **Key** tab.

9 From the **Emulation** drop-down menu, select the emulation type.

10 From the **Key** drop-down menu, select `Down Arrow`.

11 Click `OK`.

The code appears in the **Actions** tab.



```
Comment: Verify that this is the desired screen.
If_Not( String_Equal( Get_Screen_Text_Length( 2, 48, 6 ), "System", 0, FALSE ) )
   Return
End_If
Set_Cursor_Position( 6, 53 )

Message( "Starting Script", 3 )

Keypress_String( "User Name" )
Keypress_Key( "Down Arrow" )
Return
```

Figure 5-8. *Entering the Down Arrow Keypress*

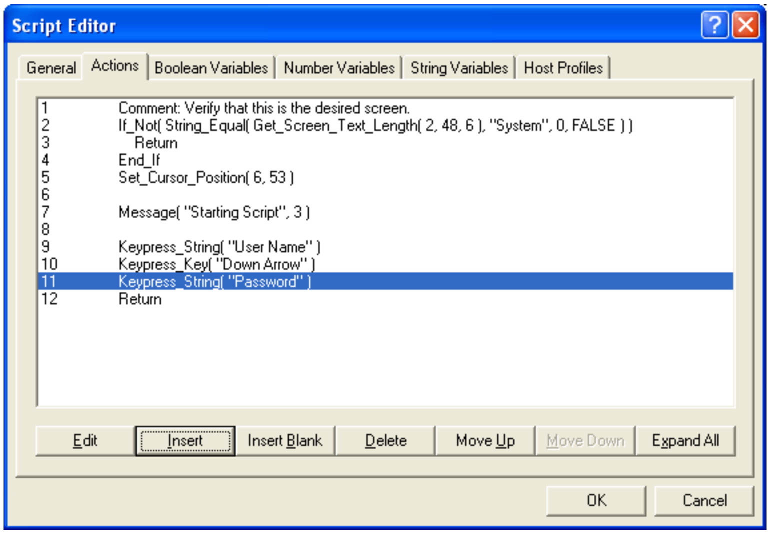
12 Click the `Insert` button.

13 From the **Actions** drop-down, select `Keypress String`.

14 Click the **Character** tab and enter `Password` in the **Constant String** text box.

15 Click `OK`.

The code appears in the **Actions** tab.



```
Comment: Verify that this is the desired screen.
If_Not( String_Equal( Get_Screen_Text_Length( 2, 48, 6 ), "System", 0, FALSE ) )
   Return
End_If
Set_Cursor_Position( 6, 53 )

Message( "Starting Script", 3 )

Keypress_String( "User Name" )
Keypress_Key( "Down Arrow" )
Keypress_String( "Password" )
Return
```

Figure 5-9. *Entering the Password Action*

16 Click the `Insert` button.

17 From the **Actions** drop-down menu, select `Keypress_Key`.

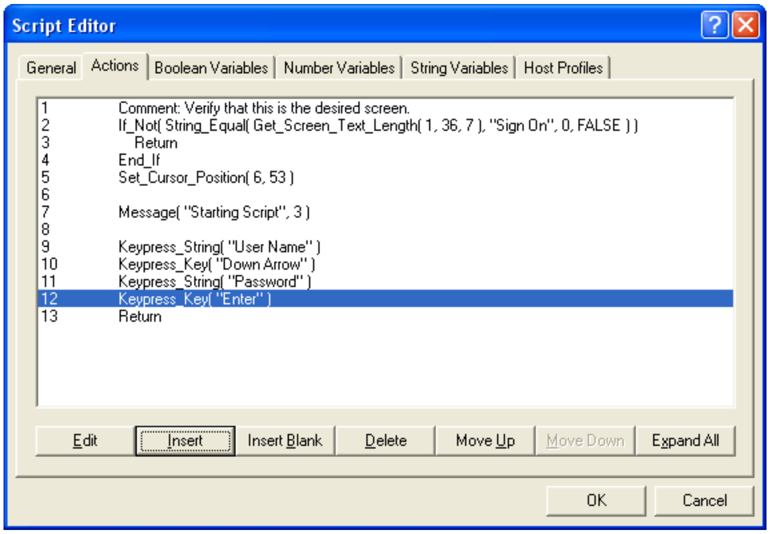
18 Click the **Key** tab.

19 From the **Emulation** drop-down menu, select your emulation type.

20 From the **Key** drop-down menu, select `Enter`.

21 Click `OK`.

The code appears in the **Actions** tab.



```
Comment: Verify that this is the desired screen.
If_Not( String_Equal( Get_Screen_Text_Length( 1, 36, 7 ), "Sign On", 0, FALSE ) )
   Return
End_If
Set_Cursor_Position( 6, 53 )

Message( "Starting Script", 3 )

Keypress_String( "User Name" )
Keypress_Key( "Down Arrow" )
Keypress_String( "Password" )
Keypress_Key( "Enter" )
Return
```

Figure 5-10. *Entering an Enter Action*

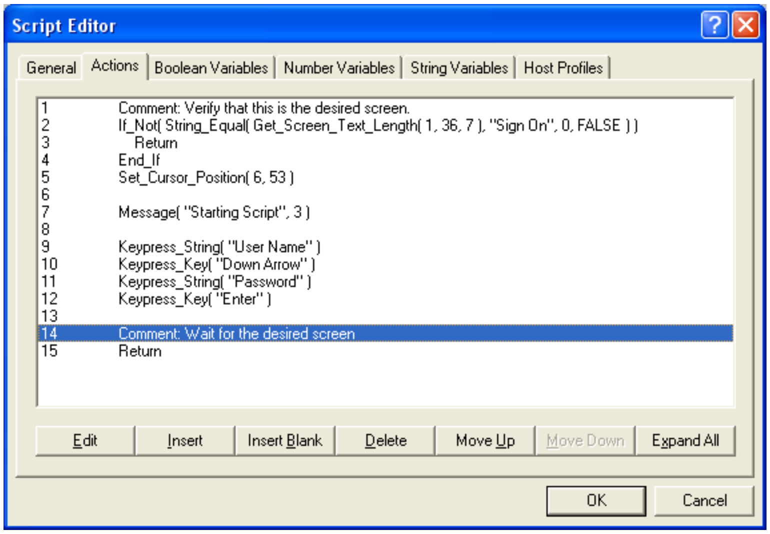
Verifying the Screen and Navigating Menus

This portion of the code verifies that you are on the correct screen after login. If you are not on the correct screen, the script will wait until the correct screen appears. Once the you are on the correct screen, the script navigates to a specific menu. The script displays the message “Script Done” and the script exits.

To build the script code:

1. Click the `Insert Blank` button.
2. Click the `Insert` button.
3. From the **Action** drop-down menu, select `Comment`.
4. Click the **Comment** tab and enter `Wait for desired screen`.
5. Click `OK`.

   The code appears in the **Actions** tab.



```
Comment: Verify that this is the desired screen.
If_Not( String_Equal( Get_Screen_Text_Length( 1, 36, 7 ), "Sign On", 0, FALSE ) )
    Return
End_If
Set_Cursor_Position( 6, 53 )

Message( "Starting Script", 3 )

Keypress_String( "User Name" )
Keypress_Key( "Down Arrow" )
Keypress_String( "Password" )
Keypress_Key( "Enter" )

Comment: Wait for the desired screen
Return
```

Figure 5-11. *Entering the Delay Action*

6 Click `Insert`.

7 From the **Actions** drop-down menu, select `While_Not`.

8 Click the **Test** tab.

9 From the **Actions** drop-down menu, select `String_Equal`.

10 Click the `Edit Action Value` button.

11 Click the **Test 1** tab.

12 From the **Action** drop-down menu, select `Get_String _Text_Length`.

13 Click the **Test 2** tab and enter 9. FUNCTION KEYS in the **Constant String** text box.

14 Click the **Maximum Length** tab and enter the number 0 in the **Constant Number** text box.

15 Click the **Ignore Case** tab and enable the **FALSE** option.

16 Click the **Test 1** tab.

17 Click the `Edit Action Value` button.

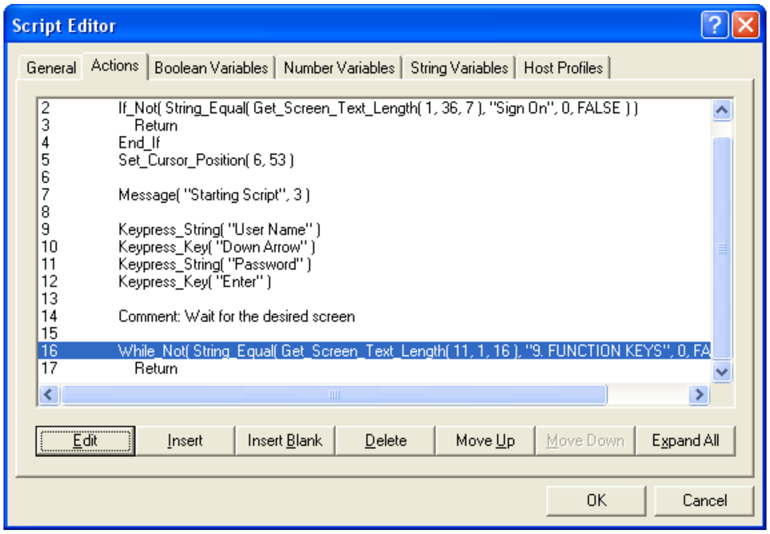
18 Click the **Row** tab and enter the number `11` in the **Constant Number** text box.

19 Click the **Column** tab and enter the number `1` in the **Constant Number** text box.

20 Click the **Maximum Length** tab and enter the number `16` in the **Constant Number** text box.

21 Click `OK` until you return to the **Action** tab.

The code is added to the **Action** tab.



```
        If_Not( String_Equal( Get_Screen_Text_Length( 1, 36, 7 ), "Sign On", 0, FALSE ) )
          Return
        End_If
        Set_Cursor_Position( 6, 53 )

        Message( "Starting Script", 3 )

        Keypress_String( "User Name" )
        Keypress_Key( "Down Arrow" )
        Keypress_String( "Password" )
        Keypress_Key( "Enter" )

        Comment: Wait for the desired screen

        While_Not( String_Equal( Get_Screen_Text_Length( 11, 1, 16 ), "9. FUNCTION KEYS", 0, FA
          Return
```

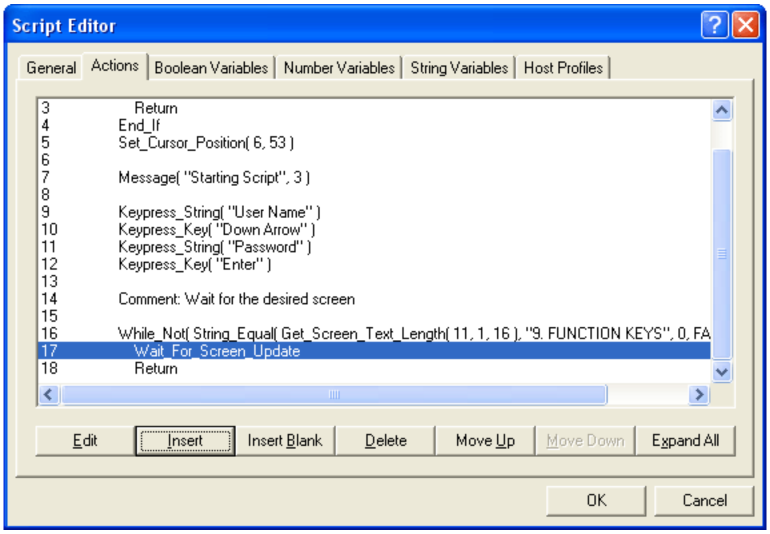
Figure 5-12. *Entering a While_Not Statement*

22 Click the `Insert` button.

23 From the **Actions** drop-down menu, select `Wait_For_Screen_Update`.

24 Click `OK`.

The code appears in the **Actions** tab.



```
        Return
    End_If
    Set_Cursor_Position( 6, 53 )

    Message( "Starting Script", 3 )

    Keypress_String( "User Name" )
    Keypress_Key( "Down Arrow" )
    Keypress_String( "Password" )
    Keypress_Key( "Enter" )

    Comment: Wait for the desired screen

    While_Not( String_Equal( Get_Screen_Text_Length( 11, 1, 16 ), "9. FUNCTION KEYS", 0, FA
        Wait_For_Screen_Update
        Return
```

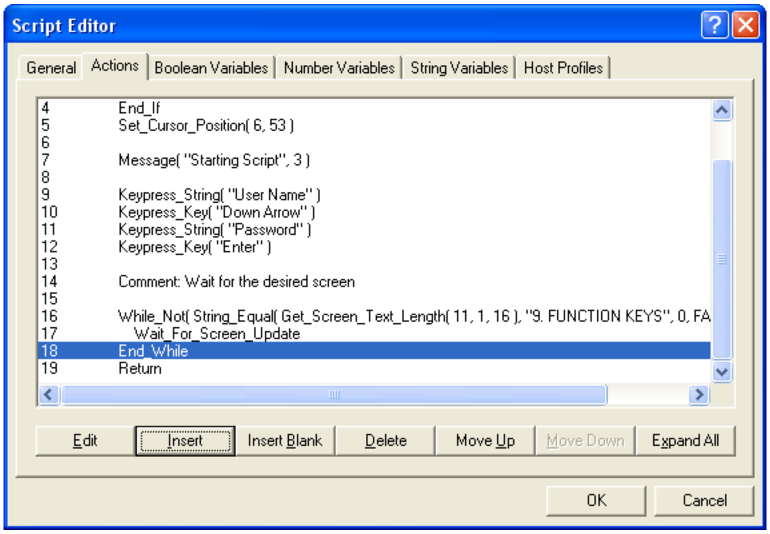
Figure 5-13. *Entering a Wait_For_Screen_Update Action*

25 Click the `Insert` button.

26 From the **Actions** drop-down menu, select `End_While`.

27 Click `OK`.

The code appears in the **Actions** tab.



```
        End_If
        Set_Cursor_Position( 6, 53 )

        Message( "Starting Script", 3 )

        Keypress_String( "User Name" )
        Keypress_Key( "Down Arrow" )
        Keypress_String( "Password" )
        Keypress_Key( "Enter" )

        Comment: Wait for the desired screen

        While_Not( String_Equal( Get_Screen_Text_Length( 11, 1, 16 ), "9. FUNCTION KEYS", 0, FA
          Wait_For_Screen_Update
        End_While
        Return
```

Figure 5-14. *Entering an End_While Action*

28 Click the `Insert Blank` button to insert a blank line in the code.

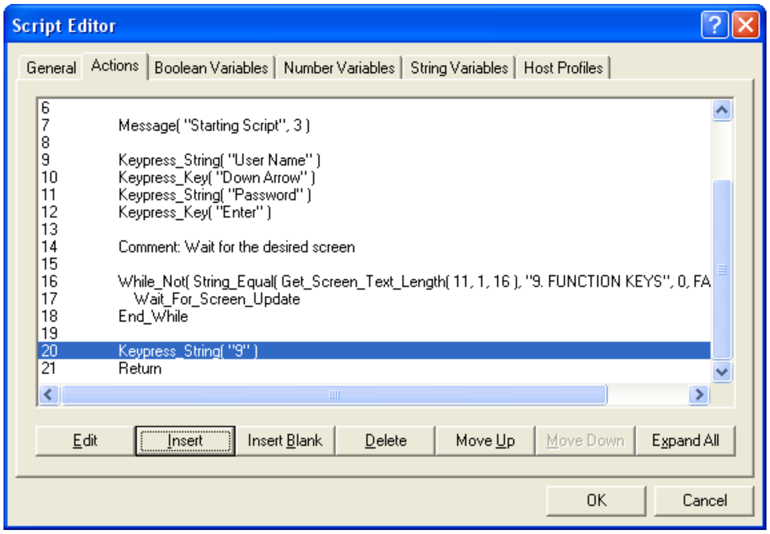
29 Click the `Insert` button.

30 From the **Actions** drop-down menu, select `Keypress_String`.

31 Click the **Characters** tab and enter the number `9` in the **Constant String** text box.

32 Click `OK`.

The code is added to the **Actions** tab.



```
	Message( "Starting Script", 3 )

	Keypress_String( "User Name" )
	Keypress_Key( "Down Arrow" )
	Keypress_String( "Password" )
	Keypress_Key( "Enter" )

	Comment: Wait for the desired screen

	While_Not( String_Equal( Get_Screen_Text_Length( 11, 1, 16 ), "9. FUNCTION KEYS", 0, FA
	   Wait_For_Screen_Update
	End_While

	Keypress_String( "9" )
	Return
```

Figure 5-15. *Entering a Keypress Action*

33 Click the `Insert Blank` to insert a blank line in the code.

34 Click the `Insert` button.

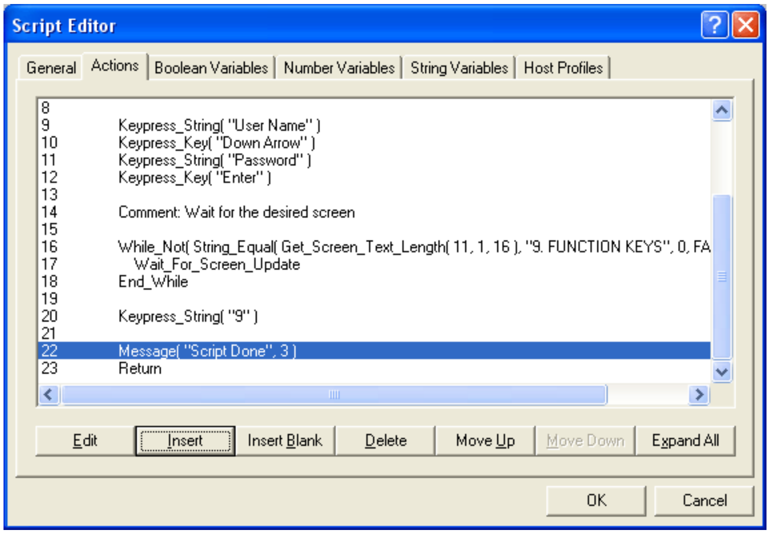
35 From the **Actions** drop-down menu, select `Message`.

36 Click the **Message** tab and enter `Script Done` in the **Constant String** text box.

37 Click the **Time(Milliseconds)** tab and enter the number `3` in the **Constant Number** text box.

38 Click `OK`.

The code is added to the **Actions** tab.



```
        Keypress_String( "User Name" )
        Keypress_Key( "Down Arrow" )
        Keypress_String( "Password" )
        Keypress_Key( "Enter" )

        Comment: Wait for the desired screen

        While_Not( String_Equal( Get_Screen_Text_Length( 11, 1, 16 ), "9. FUNCTION KEYS", 0, FA
          Wait_For_Screen_Update
        End_While

        Keypress_String( "9" )

        Message( "Script Done", 3 )
        Return
```

Figure 5-16. *Entering a Message Action*

The code is complete.

39 Click `OK` to save the code in the Script Editor script list.

Once you complete the script you have two options:

- Export the script to a specified location. Refer to *Saving and Exporting Scripts* on page 35 for more information.
- Execute the script by launching the Telnet Client and performing the activation method you assigned to this script. Refer to *Chapter 4: Executing Scripts* on page 45 for more information.

Appendix A: Examples

This appendix provides example scripts. Use these script examples to customize your own scripts according to preference.

Example 1: Beep

This is an example of a script that tells the device to beep if the word ALARM appears on the top five rows of the screen.

Example Code

```
If_Not(Search_Screen("ALARM",1,5,FALSE))
Return
End_If
Beep(1000,200,5)
Delay(200)
Beep(1500,500,9)
Return
```

Notes

This example should be set to activate each time the screen changes. Make sure that the `ALARM` text disappears quickly after being shown. Otherwise, the alarm will go off each time the screen updates (because the user pressed a key, each character from a bar code scanned was shown on the screen, etc.).

Here is an alternate implementation that waits for the `ALARM` text to disappear. The limitation with this version is that no other scripts will be able to run until the `ALARM` text is removed from the screen.

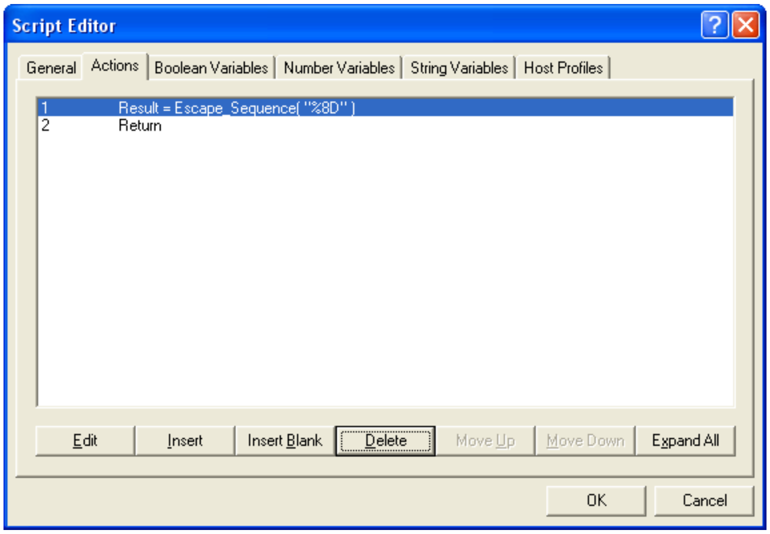
```
If_Not(Search_Screen("ALARM",1,5,FALSE))
Return
End_If
Beep(1000,200,5)
Delay(200)
Beep(1500,500,9)
While(Search_Screen("ALARM",1,5,FALSE))
Wait_For_Screen_Update
End_While
Return
```

Example 2: Escape Sequence

This is an example of using an escape sequence to turn off the Codabar symbology.

Example Code

```
Result=Escape_Sequence("%8D")
Return
```



```
Result = Escape_Sequence( "%8D" )
Return
```

Creating an Escape Sequence Script

Notes

You need to create a string variable named **Result** for this example, since the `Escape_Sequence` command returns a string value.

Refer to *Creating Variables* on page 25 for more information on creating variables.

Example 3: Request Information

This example request the mobile device user to input some information and displays the result.

Example Code

```
  Result=Ask_String("Enter a string:","Length
Calculator",0,200,"")
  Ask_OK(String_Combine("The string"",String_Combine(
Result, String_Combine(""is",String_Combine(
Number_To_String_Decimal(String_Length(Result)),"characte
rs long." )))),"String Length”)
  Return
```

Notes

This example also requires a string variable named **Result**. The `ASK_OK` instruction uses actions inside of actions to get several layers deep. You could also use variables to break that instruction into several short instructions.

Example 4: Display Screen Button

This example displays a log out button that appears in the in the bottom-left corner of the screen (row two, column five) when the text “logged out” appears on the screen. Pressing the bottom allows you to exit Telnet.

Example Code

```
  If_Not(String_Equal( Get_Screen_Text_Columns(2,5,10),
"logged out", 0, FALSE ) )
  Return
  End_If
  Button_Create_View( "Exit", 1000,1,0,ButtonPressed)
  While_Not( ButtonPressed)
  If_Not(String_Equal(Get_Screen_Text_Columns(2,5,10),
“logged out",0,FALSE))
  Return
  End_If
  Wait_For_Screen_Update
  End_While
  Exit_Application(0)
```

Notes

This example uses a boolean variable “**ButtonPressed”** to know if the screen button is pressed. The button is destroyed when the script exits so you do not need to delete the script.

The `While_Not` loop uses the `Wait_For_Screen_Update` action to detect if the `logged out` text is no longer there so that the scripts do not continually loop.

Sample Voice-Enabled Emulation Scripts

This section contains example scripts that perform various Voice-Enabled Emulation functions. For information on using the sample voice scripts, refer to *Wavelink Voice-Enabled Emulation User Guide.*

Play_Screen Sample Script

The following example script that converts the current Telnet Client screen into speech that the user can hear.

```
nNumRows=Get_Screen_Rows
nCurrentRow=1
While(Number_Less_Than_Or_Equal(nCurrentRow,nNumRows))
  Speech_From_Text(Get_Screen_Text
  (nCurrentRow,1),FALSE)
  nCurrentRow=Number_Plus(nCurrentRow,1)
End_While
Return
```

Get_Number_Test Sample Script

The following example script converts a spoken number into text that displays on the mobile device. This script must be used in conjunction with the Get_Number sample script.

```
Speech_From_Text(“Say a number”,FALSE)
Call:Get_Number
   nResult <--> nResult
Ask_OK(Number_To_String_Decimal(nResult),
”Number Returned”)
Return
```

Get_Number Sample Script

The following example script is called by the `Get_Number_Test` script. It retrieves the appropriate number for the `Get_Number_Test` script to display.

```
Comment:This script is designed to be called by other
scripts.
Comment:The result of the Speech-to-Text will be in the
nResult variable.
```

```
Comment:The number.bnf file must be available as a
grammar file.

Speech_To_Text(sResult,”number”)
nResult=0
While_Not(String_Empty(sResult))
 nNextSpace=String_Find_First(sResult,””,FALSE)
 nResult=Number_Plus(nResult,String_To_Number_Decimal
 (sResult))
 If_Number_Less_Than(nNextSpace,0))
    Break
 End_If
 nNextSpace=Number_Plus(nNextSpace,1)
 sResult=String_Right(sResult,Number_Minus
 (String_Length(sResult),nNextSpace))
End_While
Return
```

Speech_Button_Demo Sample Script

The following example script creates the following buttons on the screen: `Digits`, `State`, `Play Screen`, `Done`. When selected, the buttons allow the user to verbally input data.

For more information about each button and its function, refer to *Using the Speech_Button_Demo Sample Script* on page 24.

```
While_Not(bExit)

 If_Not(bButtonsVisible)
    Button_Create_View(“Digits”,999,1,6,bGetDigits)
    Button_Create_View(“State”,999,16,5,bGetState)
    Button_Create_View(“PlayScreen”,1000,1,11,
    bPlayScreen)
    Button_Create_View(“Done”,1000,13,4,bExit)
 End_If

 Wait_For_Screen_Update

 If(bPlayScreen)
    bPlayScreen=FALSE
    Button_Remove_All
    bButtonsVisible=FALSE
    Delay(1)

    nNumRows=Get_Screen_Rows
    nCurrentRow=1
    While(Number_Less_Than_Or_Equal
    (nCurrentRow,nNumRows))
     Speech_From_Text(Get_Screen_Text
     (nCurrentRow,1),FALSE)
     nCurrentRow=Number_Plus(nCurrentRow,1)
    End_While
 End_If

 If(bGetDigits)
    bGetDigits=FALSE
    Button_Remove_All
    bButtonsVisible=FALSE

    Message(“Say 1 or more digits...”,0)
    szResult=””
    Speech_To_Text(szResult,”connected_digits”)
    Message_Clear
    szResult=String_Strip_Characters(szResult,””,FALSE)
    Keypress_String(szResult)
 End_If

 If(bGetState)
    bGetState=FALSE
    Button_Remove_All
    bButtonsVisible=FALSE

    Message(“Say a USA state...”,0)
    szResult=””
    Speech_To_Text(szResult,”usa_states”)
    Message_Clear
    Keypress_String(szResult)
 End_If

End_While
Button_Remove_All
Return
```

Appendix B: Actions

This appendix describes each scripting action. The appendix is divided into sections according to the type of value that is returned after each action. The following is a list of the values:

- No Return Values
- Boolean Values
- String Values
- Integer Values

No Return Values

This section contains a list of actions that return no value. The following action categories are described in this section:

- Blank Line and Comment Actions
- Goto Support Actions
- Macro Exiting
- Conditionals
- General Queries
- Send Characters
- Message
- Sounds
- Waiting
- Logging
- Call Other Macros
- Screen Buttons

- Reboot

Blank Line and Comment Actions

Blank_Line

Proceeds to the next instruction without taking any action.

Comment

Proceeds to the next instruction without taking any action.

Goto Support Actions

Goto

Jumps to the supplied label.

Label

Label to which a Goto can jump.

Macro Exiting

Return

Exits the script normally.

If this script was started by another script, the calling script's variables are updated and the calling script resumes.

Abort

Exits the script immediately.

If this script was started by another script, the calling script's variables are not updated and the calling script resumes.

Abort_All

Exits all scripts for the session

Disconnect

Exits all scripts for the session and disconnects the session.

Exit_Application

Shuts down the Telnet application

The Return Value is the application exit value Telnet will use when it exits.

Conditionals

If

If the Test is TRUE, continues executing until the next `Else` or `EndIf` statement. Otherwise, only executes actions (if any) between the next `Else` and `EndIf` statements.

If_Not

If the Test is FALSE, continues executing until the next `Else` or `EndIf` statement.

Otherwise, only executes actions (if any) between the next `Else` and `EndIf` statements.

Else

Start of statements to be executed if an `If` test fails.

This command is only valid inside of an `If` block.

End_If

End of statements to be executed for an `If` test.

While

If the Test is TRUE, the statements after `While` and before the next `EndWhile` statement are executed and the `While` statement will be executed again.

Otherwise, execution will proceed to the next `EndWhile` statement.

The `While` loop will continue execute until the test fails, a `Break` command is executed, or the script exits.

While_Not

If the Test is FALSE, the statements after `While` and before the next `EndWhile` statement are executed and the `While` statement will be executated again.

Otherwise, execution proceeds to the next `EndWhile` statement.

The `While` loop continues to execute until the test succeeds, a `Break` command is executed, or the script exits.

End_While

End of statements to be executed for a `While` test.

Continue

Jumps back to the last `While` statement and re-test the test value.

This command is only valid inside of a `While` loop.

Break

Jumps to the first statement following the next `EndWhile` statement (exiting the loop).

This command is only valid inside of a `While` loop.

General Queries

Ask_OK

Displays the message in a box with an `OK` button and waits until the user presses the button.

Send Characters

Keypress_String

Creates one or more key presses to send the supplied string to the Telnet session.

Keypress_Key

Sends a single keypress to the Telnet session. This is useful for emulation keys that `Keypress_String` cannot handle.

Scan_String

Treats the string as scanned data of the type specified.

Set_Cursor_Position

Moves the cursor to the specified row and column.

The top-most row is 1, and the left-most column is 1.

Message

Message

Displays the message on the Telnet screen.

If the time-out value is greater than 0, the message is removed after that number of seconds elapses.

Message_Clear

Clears the message on the Telnet screen.

Sounds

Beep

Causes the device to beep. A Frequency of 1000 is a good default.

The Duration is in milliseconds, so a value of 1000 would be 1 second.

The Volume is a value between 0 and 9, where 0 is the softest and 9 is the loudest.

Play_Sound

Causes the device to play the sound specified by the sound name. The sound name may be any wave file located in the folder specified by the emulation parameters or Resource Editor.

Waiting

Wait_For_Screen_Update

Suspends the current script until the screen has been updated.

Any changes to the screen will cause the script to resume, so it is usually a good idea to put the wait command inside a `While` loop, and only exit the loop once you have detected the screen you want.

Delay

Suspends the current script until the specified time has passed.

The time is in milliseconds, so a value of 1000 would be 1 second.

Logging

Logging_On

Creates a log file that records all subsequent script execution activity.

This can be useful while developing a script, but is not recommended for production use.

If `Overwrite Previous` is TRUE, a previous log file will be overwritten.

Otherwise, the new information will be appended to the existing file.

Logging is only turned on for the current script. Scripts called by this script will not have logging enabled.

Logging_Off

Turns off logging for the script.

Call Other Macros

Call

Suspends the current script, and executes another script. The current script resumes when the called script exits.

Refer to *Script Nesting* on page 39 for more information.

Screen Buttons

Button_Bitmap_Create_Emulation

Creates a button with the specified bitmap name, and puts the left side of it where emulation text at the supplied coordinates would be.

NOTE You can add bitmaps to the resource file by using the Resource Editor.

If the width value is 0, the button will be sized to fit the text. Each time the button is pressed, the boolean variable specified will be set to TRUE. You will need to reset the variable if you want to detect future button presses. All buttons created by the script will be removed when the script exits. The `Wait_For_Screen_Update` action can be used to wait for a button to be pressed.

Button_Bitmap_Create_View

This command is the same as `Button_Bitmap_Create_Emulation`, except that the screen position is used instead of the text position, allowing the button to always be visible. For example, if `Button_Bitmap_Create_View` is used to create a button at position 1,1, that button will always be in the upper-left corner of the Telnet view screen. A `Button_Bitmap_Create_Emulation` button will be hidden if the emulation text at that location is hidden.

A bottom and/or right value of 1000 represents the bottom or right side of the screen. For example, a button at position 1,990 would start 11 columns left of the upper-right corner of the screen.

Button_Create_Emulation

Creates a button with the specified text and puts the left side of it where emulation text at the supplied coordinates would be.

If the width value is 0, the button will be sized to fit the text. Each time the button is pressed, the boolean variable specified will be set to TRUE. You will need to reset the variable if you want to detect future button presses. All buttons created by the script will be removed when the script exits. The `Wait_For_Screen_Update` action can be used to wait for a button to be pressed.

Button_Create_View

This command is the same as `Button_Create_Emulation` except that the screen position is used instead of the text position allowing the button to always be visible.

For example, if `Button_Create_View` is used to create a button at position 1, 1, that button will always be in the upper-left corner of the Telnet view screen. A `Button_Create_Emulation` button will be hidden if the emulation text at that location is hidden. A bottom and/or right value of 1000 represents the bottom or right side of the screen. For example, a button at position 1, 990 would start 11 columns left of the upper-right corner of the screen.

Button_Remove

Removes a button created with the `Button_Create_Emulation` and `Button_Create_View` actions with the specified text.

Button_Remove_All

Removes all buttons created with the `Button_Create_Emulation` and `Button_Create_View` action for this script.

Reboot

Reboots the device. Any subsequent commands will not be executed unless the reboot fails.

If `Cold Boot` is TRUE, the device will cold boot. Some applications and settings may be lost.

NOTE Cold boot is only supported by some mobile devices.

Boolean Values

This section contains a list of actions that return boolean values. The following action categories are described in this section:

- Boolean Assignments
- Boolean Comparisons
- String Comparisons
- Field Identifiers and Data
- Integer Comparison
- General Queries
- Suspend
- Search the Screen
- WEB Emulation Commands
- Speech Commands

Boolean Assignments

Boolean_Set

Returns TRUE if the Test is TRUE, FALSE otherwise.

Boolean_Not

Returns FALSE if the Test is TRUE, TRUE otherwise.

Boolean_And

Returns TRUE if all test values are TRUE. Returns FALSE otherwise.

All tests will be evaluated each time this action is taken.

Boolean_Or

Returns TRUE if one or more test values are TRUE. Returns FALSE otherwise.

All tests will be evaluated each time this action is taken.

Boolean Comparisons

Boolean_Equal

Returns TRUE if both Test1 and Test2 are TRUE, or both Test1 and Test2 are FALSE. Returns FALSE otherwise.

Boolean_Not_Equal

Returns FALSE if both Test1 and Test2 are TRUE, or both Test1 and Test2 are FALSE. Returns TRUE otherwise.

String Comparisons

String_Empty

Returns TRUE if the string is 0 characters in length, FALSE otherwise.

String_Less_Than

Returns TRUE if Test1 precedes Test2 in alphabetical ordering, FALSE otherwise. If the `Maximum Length` value is greater than 0, any characters after the specified number of characters are ignored.

If `Ignore Case` is TRUE, then upper-case and lower-case letters are considered to be equal.

String_Less_Than_Or_Equal

Returns TRUE if Test1 precedes Test2 in alphabetical ordering or they are the same string, FALSE otherwise. If the `Maximum Length` value is greater than 0, any characters after the specified number of characters are ignored.

If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

String_Equal

Returns TRUE if Test1 and Test2 are the same string, FALSE otherwise. If the `Maximum Length` value is greater than 0, any characters after the specified number of characters are ignored.

If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

String_Greater_Than_Or_Equal

Returns TRUE if Test1 follows Test2 in alphabetical ordering or they are the same string, FALSE otherwise.

If the `Maximum Length` value is greater than 0, any characters after the specified number of characters are ignored.

If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

String_Greater_Than

Returns TRUE if Test1 follows Test2 in alphabetical ordering, FALSE otherwise. If the `Maximum Length` value is greater than 0, any characters after the specified number of characters are ignored.

If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

String_Not_Equal

Returns FALSE if Test1 and Test2 are the same string, TRUE otherwise.

If the `Maximum Length` value is greater than 0, any characters after the specified number of characters are ignored.

If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

Field Identifiers and Data

Set_Field_Data_ID

Sets the Data ID for a field. Returns TRUE if successful, FALSE if the field index is not valid.

A field may have more than one Data ID. If the field already has a Data ID, this command will add another Data ID. Use a blank string to clear all Data IDs for the field.

This is only valid when using IBM 5250 or 5555 emulation.

Set_Field_Symbology_ID

Sets the Symbology ID for a field. If And-Or with Data ID is TRUE, then the field data must match both the Data ID and the Symbology ID. If And-Or is FALSE, then the field data must match either the Data ID or the Symbology ID.

A field may have more than one Symbology ID. If the field already has a Symbology ID, this command will add another Symbology ID. Use Symbology ID ANY to clear the symbologies, which will then allow you to use All Symbologies. ANY causes Get_Num_Field_Symbology_IDs ( ) to return zero and Get_Field_Symbology_ID ( ) to return an empty string.

This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Symbology_Operator

Returns TRUE if the field data must match both the Data ID and the Symbology ID. Returns FALSE if the field data must match either the Data ID or Symbology ID.

This is only valid when using IBM 5250 or 5555 emulation.

Set_Field_Append_Scan_Data

Controls whether to append scan data in the field. Returns TRUE if successful, FALSE if the field index is not valid.

This is only valid when using IBM 5250 or 5555 emulation.

Set_Field_Com_Data_Field

Sets a field to be the Com Data Field for the screen. Returns TRUE if successful, FALSE if the index is not valid.

There can be only one Com Data Field per screen. Use FALSE to remove the Com Data Field setting.

This is only valid when using IBM 5250 or 5555 emulation.

Set_Field_Prefix_Scan_Data

Sets the data prefixed to a field when the field is scanned. Returns TRUE is successful, FALSE if the field index is not valid.

Use a blank string to clear the prefix data.

This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Append_Scan_Data

Query whether data is appended when the field is scanned.

This is only valid when using IBM 5250 or 5555 emulation.

Integer Comparison

Number_Less_Than

Returns TRUE if Test1 is smaller than Test2, FALSE otherwise.

Number_Less_Than_Or_Equal

Returns TRUE if Test1 is no greater than Test2, FALSE otherwise.

Number_Equal

Returns TRUE if Test1 is the same as Test2, FALSE otherwise.

Number_Greater_Than_Or_Equal

Returns TRUE if Test1 is no smaller than Test2, FALSE otherwise.

Number_Greater_Than

Returns TRUE if Test1 is larger than Test2, FALSE otherwise.

Number_Not_Equal

Returns FALSE if Test1 is the same as Test2, TRUE otherwise.

General Queries

Ask_OK_Cancel

Displays the message in a box with an `OK` and `Cancel` button and waits until the user presses a button.

Returns TRUE if the user presses `OK`, FALSE if the user presses `Cancel`.

Ask_Yes_No

Displays the message in a box with a `Yes` and `No` button and waits until the user presses a button. Returns TRUE if the user presses `Yes`, FALSE if the user presses `No`.

Suspend

Suspends the device. Returns TRUE if the device was suspended; returns FALSE otherwise.

If `Prefer Hibernation` is TRUE, the device will hibernate instead of suspend. (Not supported on CE devices.)

If `Force Suspension` is TRUE, the device will suspend immediately and other applications will not be allowed to override.

Search the Screen

Search_Screen

Searches the screen for the supplied text. Returns TRUE if the text is found, FALSE otherwise.

The rows to be searched can be specified, where 1 is the top row. If the bottom row value is less than 1, searching continues to the bottom of the screen. If `Ignore Case` is TRUE, then upper-case and lower-case letters are considered to be equal.

WEB Emulation Commands

Web_Navigate

Navigates WEB emulation to the URL provided. Returns TRUE if the navigation was successful; returns FALSE otherwise.

Web_Navigate_Frame

Navigates WEB emulation to the URL provided within the indicated frame (`\Frame Name\`). Returns TRUE if the navigation was successful; returns FALE otherwise.

Web_Navigate_Post_Data

Navigates WEB emulation to the URL provided. The `\Post Data\` is sent to the server using an HTTP POST transaction (rather than an HTTP GET transaction). Returns TRUE if the navigation was successful; returns FALSE otherwise.

Web_Scripting

Instructs WEB emulation to execute the scripting information. The code should start with a `\javascript:\` or `\vbscript:\` string to ensure that the correct scripting type is used. Returns TRUE if the script execution started successfully; returns FALSE otherwise.

Web_Search_Source

Searches the page source of the current WEB emulation page. Returns TRUE if the text is found anywhere in the page source; returns FALSE otherwise. If `\Search Frames\` is TRUE, the page source of any frames will be searched as well.

Speech Commands

Speech_From_Text_Available

Returns TRUE if text-to-speech is supported on the computer; returns FALSE otherwise.

Speech_From_Text

Converts text into sound and plays the resulting sound on the computer. Returns TRUE if the sound was played successfully; returns FALSE otherwise. If `\Wait Until Done\` is FALSE, the script will continue to execute while the sound is being played.

Speech_To_Text_Available

Returns TRUE if speech-to-text is supported on the computer; returns FALSE otherwise.

Speech_To_Text

Returns the text equivalent of a user's speech. Returns an empty string if no acceptable speech was detected. If a grammar is specified, the grammar file with that name is used for speech recognition; otherwise, the previous grammar file is reused.

Speech_To_Text_No_Wait

Listens to the user speak and returns the text equivalent of what the user said in the string variable. The boolean variable is set to TRUE when the speech is recognized or times out. If a grammar is specified, the grammar file with that name is used for the speech recognition. Otherwise, the previous grammar file is reused.

Speech_To_Text_Cancel

Returns after canceling the last Speech_To_Text_No_Wait action. Returns immediately if there is no action to cancel. Provides a way for the script to do other things while the Speech-to-Text action occurs.

Speech_Setting_Available

Identifies speech settings by case-insensitive name strings. Returns TRUE if the speech setting name is supported; returns FALSE otherwise. Refer to the *Wavelink Voice-Enabled Emulation User Guide* for a list of available setting names.

Speech_Change_Settings

Changes the speech setting to the specified value. Returns TRUE if the setting is supported and the value is valid for that setting; returns FALSE otherwise.

Speech_Get_Setting

Returns the current value for the speech setting. Returns `-1` if the speech setting is not valid.

Speech_Get_Setting_Max

Returns the largest possible value for a speech setting. Returns `0` if only one setting value is supported, returns `-1` if the speech setting is not valid.

Speech_Find_Setting_Value

Searches all possible value descriptions for the speech setting and returns the value of the setting that is the closest match. If `\"Exact Only\"` is TRUE, then only exact matches are returned. Returns `-1` if no match is found.

Speech_Get_Setting_Value_Desc

Returns a string that describes the value for the speech setting (this does not need to be the setting's current value). Returns an empty string if the setting or value is not valid.

String Values

This section contains a list of actions that return a string value. The following action categories are described in this section:

- Get System Information
- Scanner Information
- ESC Sequence Support
- String Variable Assignments

- Number to Character Conversion
- Field Identifiers and Data

Get System Information

Get_MAC_Address

Returns the current MAC address for the device.

Get_IP_Address

Returns the current IP Address for the device.

Get_Field_Symbology_ID

Returns the field symbology ID. There may be more than one symbology ID in a field; pass in the zero-based Symbology Index. For example, Symbology Index 0 gets the first symbology ID. The return ID ANY means Use All Symbologies. An empty or blank return ID means either the field has no symbology IDs or the field index is not valid.

This is only valid when using IBM 5250 or 5555 emulation.

Get_Screen_Text

Returns the text starting at the specified screen position up to the right side of the display.

Get_Screen_Text_Length

Returns the text starting at the specified screen position up to the right side of the display. The string will be truncated if it is longer than the number of characters specified.

Get_Screen_Text_Columns

Returns the text starting at the specified screen position up to the right side of the display.

The string will not include information past the number of columns specified.

Get_Workstation_ID

Returns the current Workstation ID.

This is only valid when using IBM emulation (3270, 5250 or 5555) and a Workstation ID has been specified for the current Host Profile.

Otherwise, an empty string is returned.

Scanner Information

Get_Scan_Type_Name

Returns the name of the supplied scan type.

An empty string is returned if the scan type is not recognized.

ESC Sequence Support

Escape_Sequence

Handles the supplied Wavelink Custom or Telxon ESC Sequence for all emulation types. The sequence should be all the characters that will follow the first ESC character. The string returned will be the sequence returned by the ESC sequence (without the initial ESC) or an empty string if the sequence returns nothing.

String Variable Assignments

String_Set

Returns the value of the string.

String_Combine

Returns the value of string1 concatenated with string2.

String_Left

Returns a string with just the first N characters of the input string.

If the input string is less than N characters, the entire string is returned.

String_Right

Returns a string with just the last N characters of the input string. If the input string is less than N characters, the entire string is returned.

String_Middle

Returns a string with just the middle *n* characters of the input string.

The string parsing starts at the position specified, with 0 being the left-most character, so a position value of 0 is the same as `String_Left`.

If the input string is less than *n* characters, the entire string is returned.

String_Upper

Returns a string with all characters converted to uppercase.

String_Lower

Returns a string with all characters converted to lowercase.

String_Replace

Returns a string where all instances of `Substring to Replace` have been replaced with `Replacement Substring`. If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

String_Only_Characters

Returns a string where all characters in `String to Parse` that are not in `Characters to Keep` have been deleted.

If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

String_Strip_Characters

Returns a string where all characters in `String to Parse` that are in `Characters to Strip` have been deleted.

If `Ignore Case` is TRUE then upper-case and lower-case letters are considered to be equal.

String_Trim_Spaces_Start

Returns a string where all spaces and tabs at the start of the string have been deleted.

String_Trim_Spaces_End

Returns a string where all spaces and tabs at the end of the string have been deleted.

Number_To_String_Binary

Returns a string with the binary (base 2) representation of the number.

Number_To_String_Octal

Returns a string with the octal (base 8) representation of the number.

Number_To_String_Decimal

Returns a string with the decimal (base 10) representation of the number.

Number_To_String_Hexadecimal_Lowercase

Returns a string with the hexadecimal (base 16) representation of the number using lowercase characters.

Number_To_String_Hexadecimal_Uppercase

Returns a string with the hexadecimal (base 16) representation of the number using uppercase characters.

Ask_String

Displays a dialog asking the user for a string, and returns the string supplied by the user. The supplied default string is returned (unaltered) if the user cancels the dialog.

Ask_String_Password

Displays a dialog asking the user for a string, and returns the string supplied by the user.

The string is displayed as a password (a series of asterisks).

The supplied default string is returned (unaltered) if the user cancels the dialog.

Ask_String_Uppercase

Displays a dialog asking the user for a string, and returns the string supplied by the user. Any lowercase letters entered are converted to uppercase characters. The supplied default string is returned (unaltered) if the user cancels the dialog.

Ask_String_Lowercase

Displays a dialog asking the user for a string, and returns the string supplied by the user. Any uppercase letters entered are converted to lowercase characters. The supplied default string is returned (unaltered) if the user cancels the dialog.

Number to Character Conversion

Number_To_Character

Returns a string one character in length, where the value for that character is the supplied number. For example, a number value of 87 would return a string consisting of a `W` -- the ASCII character for value 87.

Field Identifiers and Data

Get_Field_Data_ID

Returns the field's Data ID. A blank string means no Data ID is set for the field or the field index is invalid. A field may have more than one Data ID.

This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Prefix_Scan_Data

Returns the data prefixed when the field is scanned.

This is only valid when using IBM 5250 or 5555 emulation.

Integer Values

This section contains a list of actions that return an integer value. The following action categories are described in this section:

- Get System Information
- Scanner Information
- General Queries
- String Handling
- Integer Assignments
- Convert Strings to Integers
- Ask User for Integer
- Number/Character Conversion

Get System Information

Get_Screen_Columns

Get the number of columns on the screen. This is the total number of columns, not the number of columns visible.

Get_Screen_Rows

Get the number of rows on the screen. This is the total number of rows, not the number of rows visible.

Get_Position_Column

Get the column number the cursor is currently located on. The left-most column is 1

Get_Position_Row

Get the row number the cursor is currently located on. The top-most row is 1.

Get_Session_Number

Get the number for the session this script is executing in.

Get_Time

Returns the number of seconds that have elapsed since January 1, 2000.

Get_Time_Since_Reset

Returns the number of milliseconds that the computer has been non-suspended since the last reboot.

Get_Field_Index

Get the index of a field at the specified row and column. An index of -1 means there is no field at the row and column. This is only valid when using IBM 5250 or 5555 emulation.

Get_Num_Fields

Get the number of fields on the screen. This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Index_Row_Text

Get the index of a field that is in the same row as the text. The text may be before or after the field in the same row as the field. An index of -1 means either the text was not found or there is no field before or after the text in the row where the text was found. This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Index_Column_Text

Get the index of a field that is in the same column as the text. The text may be above or below the field, in the same column as the field. An index of -1 means either the text was not found or there is no field above or below the text in the column where the text was found. This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Row

Get the row number of the field. A row number of 0 means that the field index is not valid. This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Column

Get the column number of the field. A column number of 0 means that the field index is not valid. This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Length

Get the length of the field. A length of 0 means that the field index is not valid. This is only valid when using IBM 5250 or 5555 emulation.

Get_Num_Field_Data_IDs

Get the number of data IDs in a field. The number -1 means the field index is not valid. This is only valid when using IBM 5250 or 5555 emulation.

Get_Num_Field_Symbology_IDs

Get the number of symbology IDs in a field. The number -1 means the field index is not valid. This is only valid when using IBM 5250 or 5555 emulation.

Get_Field_Com_Data_Field

Get the index of the field that is the Com Data Field. An index of -1 means that no field is the Com Data Field. This is only valid when using IBM 5250 or 5555 emulation.

Scanner Information

Get_Scan_Type_Value

Returns the value of the supplied scan type name. A value of 0 is returned if the scan type name is not recognized.

General Queries

Ask_Yes_No_Cancel

Displays the message in a box with a `Yes`, `No` and `Cancel` button, and waits until the user presses a button. If the `Make No Default` value is TRUE, then the `No` button is the default. Otherwise, the `Yes` button is the default.

Returns 2 if the user presses `Yes`, 1 if the user presses `No`, and 0 if the user presses `Cancel`.

String Handling

String_Length

Returns the number of characters in the string.

Returns 0 is the string is empty (has no characters).

String_Find_First

Finds the first instance of the substring inside the string, and returns the position where that substring starts. The left-most position is 0, so a value of 0 would be returned if the string started with the substring. A value of -1 is returned if no instances of the substring are in the string.

String_Find_Last

Finds the last instance of the substring inside the string, and returns the position where that substring starts. The left-most position is 0, so a value of 0 would be returned if the only substring found was at the beginning of the string. A value of -1 is returned if no instances of the substring are in the string.

Integer Assignments

Number_Set

Returns the value of the number.

Number_Plus

Returns the sum of the two numbers.

Number_Minus

Returns the value when `Number2` is subtracted from `Number1`.

Number_Multiply

Returns the product of the two numbers.

Number_Divide

Returns the value when Number1 is divided by Number2.

Because the numbers are integers, the remainder is ignored. For example, 7 divided by 3 would return 2.

Number_Divide_Remainder

Returns the remainder when Number1 is divided by Number2. For example, 7 divided by 3 would return a remainder of 1.

Convert Strings to Integers

String_To_Number_Binary

Returns the binary (base-2) number represented by the string. Parsing the string continues until a character other than a 0 or 1 is reached.

If the string does not represent a binary number, a 0 is returned.

String_To_Number_Octal

Returns the octal (base-8) number represented by the string. Parsing the string continues until a character other than a 0 through 7 is reached. If the string does not represent an octal number, a zero is returned.

String_To_Number_Decimal

Returns the decimal (base-10) number represented by the string. Parsing the string continues until a character other than a 0 through 9 is reached. If the string does not represent a decimal number, a 0 is returned.

String_To_Number_Hexadecimal

Returns the hexadecimal (base-16) number represented by the string. Parsing the string continues until a character other than a 0 through 9, `a` through `f`, or `A` through `F` is reached. If the string does not represent a hexadecimal number, a 0 is returned.

Ask User for Integer

Ask_Number

Displays a dialog asking the user for a decimal number, and returns the number supplied by the user. The supplied default value is returned if the user cancels the dialog.

Number/Character Conversion

Character_To_Number

Converts the character at position Index in the string into the number value for that character. An index of 0 indicates the left-most character in the string. If the Index does not point to a character, a value of 0 is returned.

Appendix C: Symbologies and Values

The following is a list of symbologies and their values:

```
UPCE0 = 48

UPCE1 = 49

UPCA = 50

MSI = 51

EAN8 = 52

EAN13 = 53

CODABAR = 54

CODE 39 = 55

D 2 OF 5 = 56

I 2 OF 5 = 57

CODE 11 = 58

CODE 93 = 59

CODE 128 = 60

D 2 OF 5 IATA = 62

EAN/UCC 128 = 63

PDF417 = 64

TRIOPTIC 39 = 66

COUPON CODE = 67

BOOKLAND = 68

MICROPDF = 69

CODE 32 = 70
```

```
MACRO PDF = 71

MAXICODE = 72

DATAMATRIX = 73

QR CODE = 74

MACRO MICROPDF = 75

RSS 14 = 76

RSS LIMITED = 77

RSS EXPANDED = 78

SIGNATURE = 82

WEBCODE = 84

CUECODE = 85

COMPOSITE = 86

TLC 39 = 88

POSTNET = 97

PLANET = 98

BRITISH POSTAL = 99

JAPAN POSTAL = 100

AUSTRALIA POSTAL = 101

DUTCH POSTAL = 102

CANADA POSTAL = 103

AZTEC = 160

AZTEC MESA = 161

CODE 49 = 162
```

```
OCR = 163

CODABLOCK = 164

MATRIX 2 OF 5 = 165

PLESSEY = 166

CHINA POSTAL = 167

KOREA POSTAL = 168

TELEPEN = 169

CODE 16K = 170

POSICODE = 171

UPC = 241

MSR = 245

RFID = 246
```

Appendix D: Wavelink Contact Information

If you have comments or questions regarding this product, please contact Wavelink Customer Service via email or telephone.

Email: customerservice@wavelink.com

Phone: 425-823-0111

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