

emPower®

Utilities Reference Manual



Part No. 09-0269

REVISION E

March 23, 2009

Document History

Rev X	Initial Release	7/11/2001	J. D.
Rev A	ECO 15390	9/05/2001	B. H.
Rev B	ECO xxxxx	6/25/2002	J. A.
Rev C	ECO 15906	4/14/2005	J. A.
Rev D	ECO 16049	3/09/2006	R.W.
Rev E	ECO 16494	3/23/2009	B. L.

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1. THE *emPower*® UTILITIES DIALOG WINDOW (OPTIONS TAB)

1.1 What you can do in the *emPower*® Utilities dialog window (Options tab)

There are three tasks you can do in the *emPower*® Utilities/Options tab; they are:

Task 1. Change the default NHR background image to an image of your choice & choose to have that background image stretched to fit the screen.

Task 2. Choose to auto hide the *emPower*® task bar.

Task 3. Reset the background image to the default.

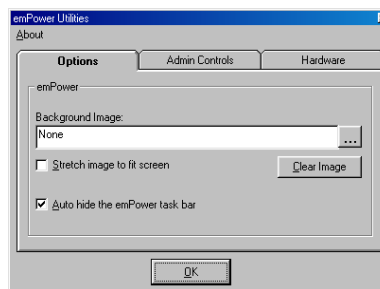


Figure 1 – The *emPower*® Utilities (Options tab) dialog window

Task 1 – Choosing a background image.

With *emPower*® running:

Open the *emPower*® Utilities dialog window (Options tab) – instructions on page 9.

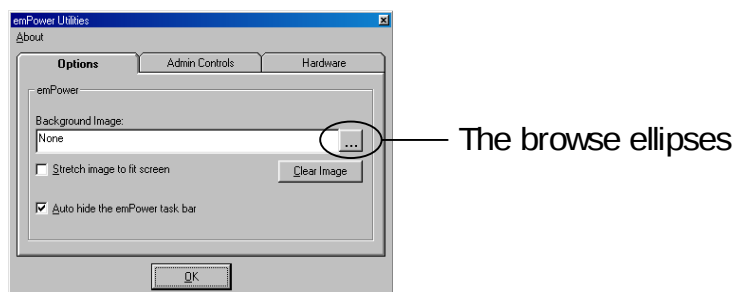


Figure 2 – The *emPower*® Utilities dialog window

Click the browse ellipses – a standard windows browsing dialog window opens.

Browse to the image you want to use as your background image, and select it.

Click the Open button.

In the *emPower*® Utilities dialog window (Options tab), click the OK button.

Quit, and restart *emPower*®.

Before *emPower*® will use any image as the background image, the Block desktop with emPower **check box must be checked** – see page 23 for more information on blocking the computer’s desktop.

By checking the Stretch to fit screen checkbox, *emPower*® will stretch the selected image to fill the screen area. Unchecked, the selected image will be used unstretched.

Task 2 – Auto hiding the *emPower*® task bar.

Checking the Auto hide task bar checkbox, will cause the *emPower*® task bar, **Figure 6**, to be hidden when the mouse pointer is not over it.

Open the *emPower*® Utilities dialog window (Options tab) – instructions on page 9.

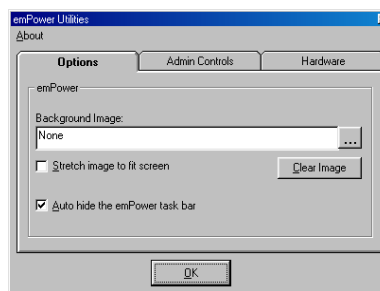


Figure 3 – The *emPower*® Utilities (Options tab) dialog window

Check the Auto hide the *emPower*® task bar checkbox.

Click the OK button – the *emPower*® dialog window opens.

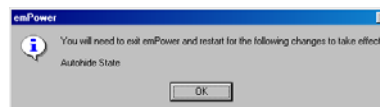


Figure 4 – The *emPower*® dialog window

The message in the dialog window warns: “You will need to exit *emPower*® and restart for the following changes to take effect”.

Click the OK button.

In the *emPower*® Utilities dialog window (Options tab), click the OK button.

In *emPower*® quit, and restart *emPower*®.

Task 3 – Resetting the background image to default.

Open the *emPower*® Utilities dialog window (Options tab).

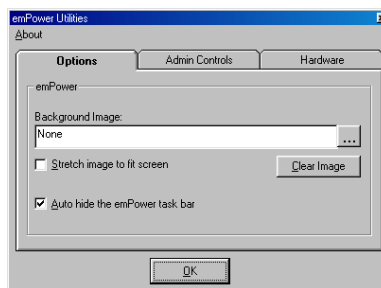


Figure 5 – The *emPower*® Utilities (Options tab) dialog window

Click the Clear Image button – the image path field is reset to None.
Click the OK button.

1.2 Opening the *emPower*® Utilities dialog window (Options tab)

With *emPower*® running:

Click the Utilities button in the *emPower*® task bar, Figure 6, – the *emPower*® Utilities dialog window (Options tab), Figure 7, opens.



Figure 6 – The *emPower*® task bar

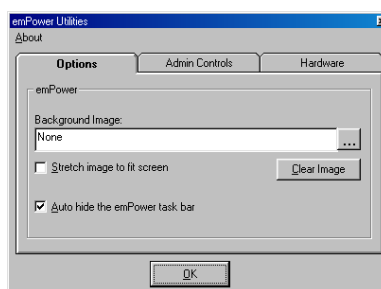


Figure 7 – The *emPower*® Utilities dialog window (Options tab)

2. THE emPower® UTILITIES DIALOG WINDOW (ADMIN CONTROLS TAB)

Each user login in emPower® is assigned to a user group to define the access rights for that individual. The access for the standard user groups are shown below. For defining custom user groups, see Section 2.2 Task 6.

2.1 Standard Access Levels User Group

- Operator: Access to Test & Quality Monitor environments.
- Advance Operator: Access to Test, Control, and Quality Monitor environments.
- Technician: Access to Test, Edit, Control, Quality Monitor, and Utilities (minus access to the admin controls section of admin control tab) environments.
- Programmer: Access to all environments minus DB Manager.
- Admin: Access to all environments.

2.2 The Administration dialog window

What you can do in the Administration dialog window.

In the Administration dialog window you can do 7 tasks; they are:

- Task 1. Change the Path to the ACCESS.nhr file (page 13).
- Task 2. Change the User Group of an existing user (page 15).
- Task 3. Delete an existing user (page 16).
- Task 4. Create a new user (page 17).
- Task 5. Change the Password of an existing user (page 18).
- Task 6. Define your own user groups (page 19).
- Task 7. Block the desktop with emPower® (page 24).
- Task 8. Embed configuration file in Test Program (page 25).
- Task 9. Suppress Pre- and Post-test confirmation dialogs (page 25).

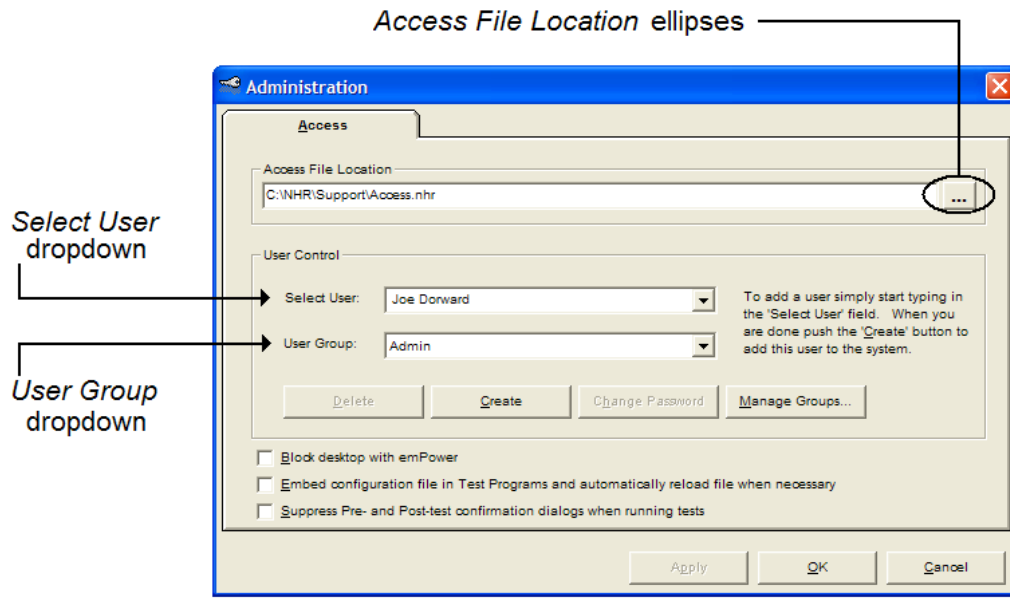


Figure 8 – The Administration dialog window

Task 1 – Change the Path to the **Access.nhr** file.

The file **Access.nhr**, is the file that contains the Usernames, and Passwords for **emPower®**

. The default Path is: **C:\NHR\Support\Access.nhr**.

**Why would I change this Path?**

The Default Path points to the hard disk of the computer that **emPower®** is installed on. You would change this Default Path if you had many computers on a network, and you wanted them all to use the same network-wide **Access.nhr** file. Alternatively, you might want to restrict a User to a single computer. In that case you could set up an **Access.nhr** file on that single computer, leaving the network-wide **Access.nhr** file without an entry for that User.

Open the Administration dialog window, Figure 9 – instructions on page 25.

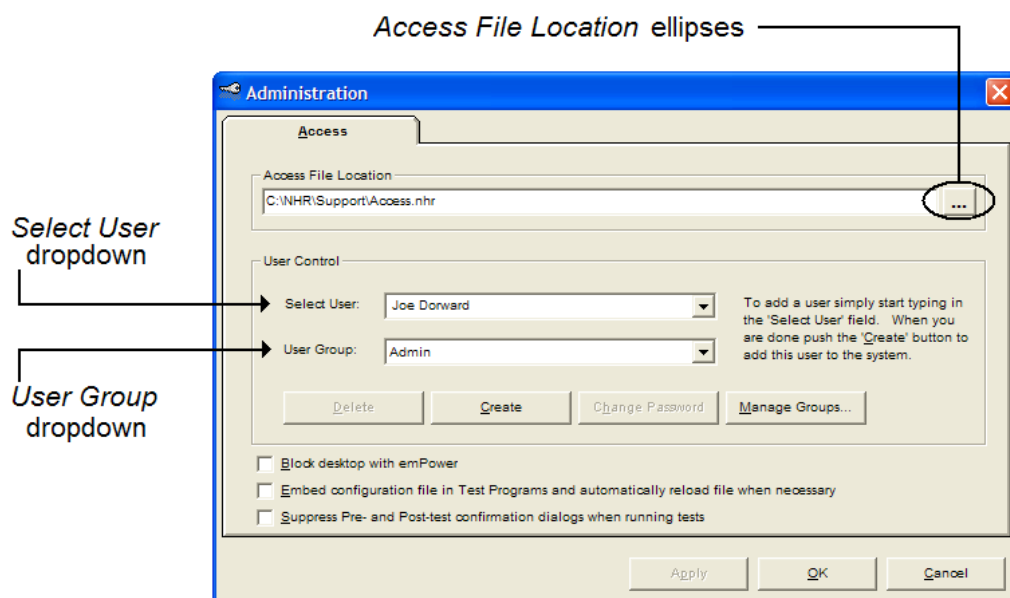


Figure 9 – The Administration dialog window

Click the Access File Location ellipses – the standard Windows browse dialog window opens.

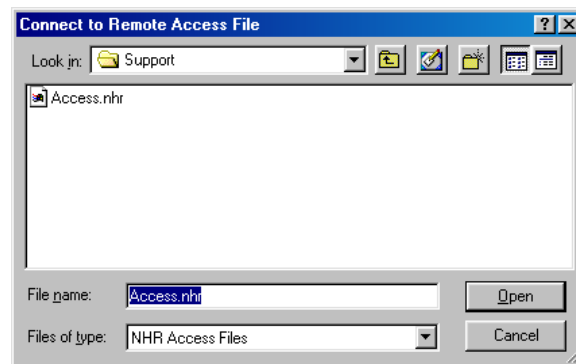


Figure 10 – The Connect to Remote Access File dialog window

Browse to the new file location you want to use.
Click the Open button.



Copying the current Access .nhr file

If you browse in a folder that doesn't contain an Access .nhr file; when you click the Open button in the Connect to Remote Access File dialog window, the Access File Missing dialog window, Figure 11, opens. Clicking the Yes button creates a copy of the current Access .nhr file in this new location, and changes the Path to point to this copy.

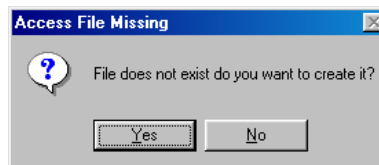


Figure 11 – The Connect to Remote Access File dialog window

Click the Yes button – a copy of the Access .nhr file is created in the new location.
In the Administration dialog window, click the OK button.
In the emPower® Utilities dialog window (Admin Controls tab), click the OK button.

Task 2 – Change the User Group of an existing user.

Open the Administration dialog window, Figure 12 – instructions on page 25.

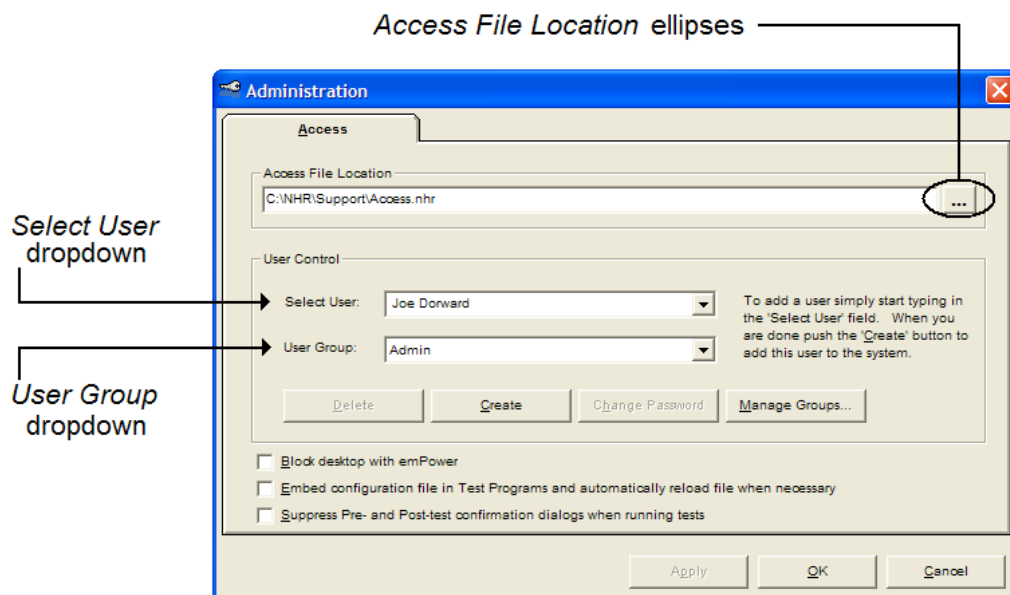


Figure 12 – The Administration dialog window

Select the user in the Select User: dropdown.

Select the new User Group in the User Group: dropdown – the Apply button becomes enabled.

Click the Apply button – the Change User Access Level dialog window, Figure 13, opens.

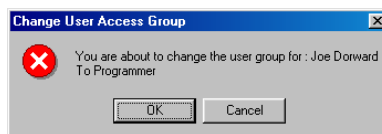


Figure 13 – The Change User Access Group dialog window

Click the OK button.

In the Administration dialog window, click the OK button – the Administration dialog window closes.

In the emPower® Utilities (Admin Controls tab), click the OK button.

Task 3 – Delete an existing user.

Open the Administration dialog window, Figure 14 – instructions on page 25.

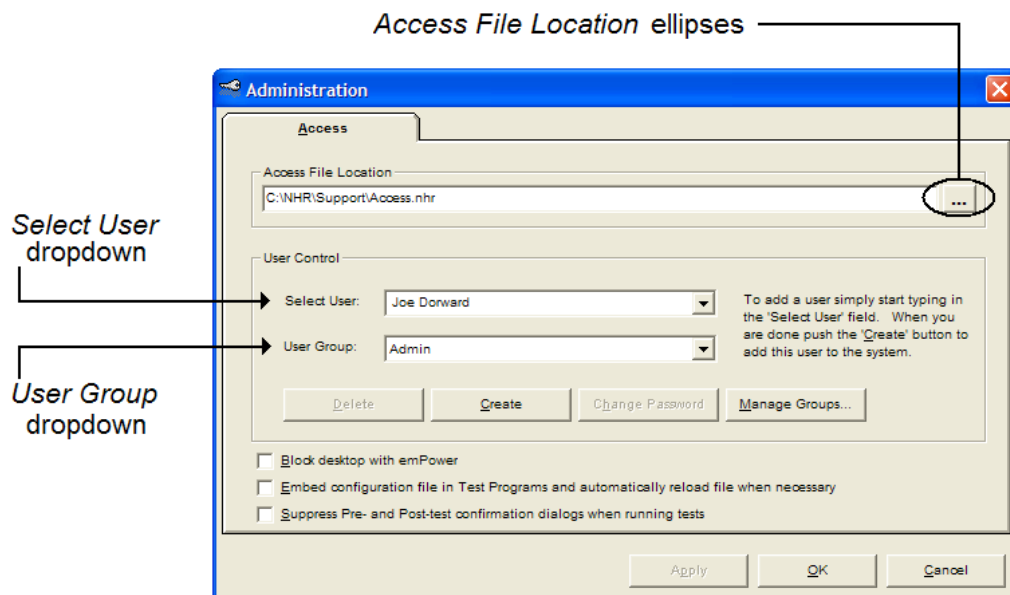


Figure 14 – The Administration dialog window

Select the Username in the Select User: dropdown – the User Group is auto selected.
Click the Delete button – the Delete User dialog window, Figure 15, opens.

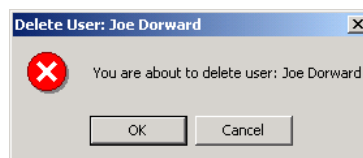


Figure 15 – The Delete User dialog window

Click the OK button.

In the Administration dialog window, click the OK button.

In the emPower® Utilities dialog window (Admin Controls tab), click the OK button.

Task 4 – Create a new user.

Open the Administration dialog window, Figure 16 – instructions on page 25.

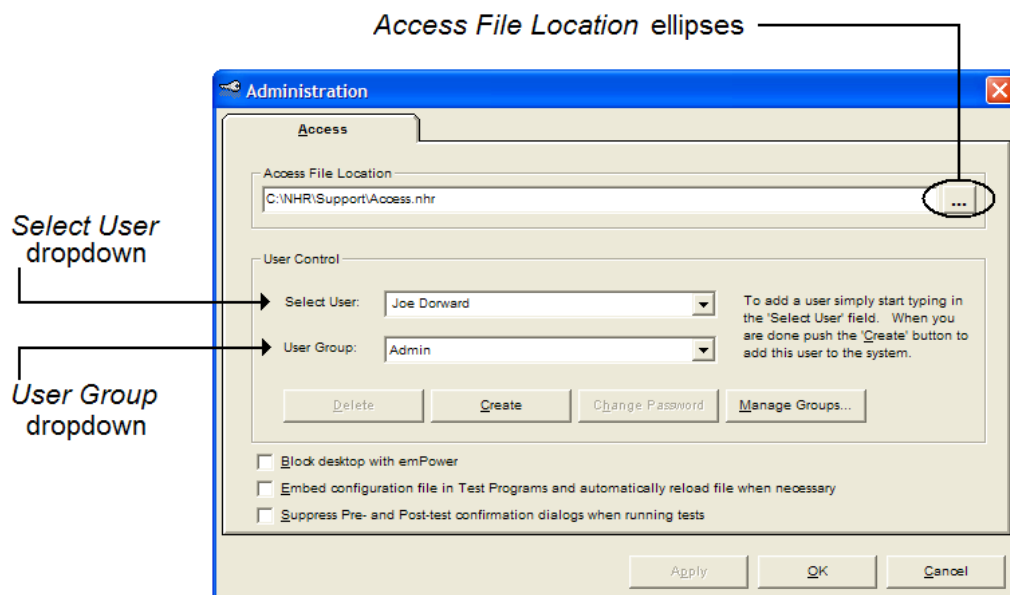


Figure 16 – The Administration dialog window

Enter a Username in the Select User dropdown – the Create button becomes active.
Select a User Group in the User Group dropdown.
Click the Create button – the Set User Password dialog window, Figure 17, opens.

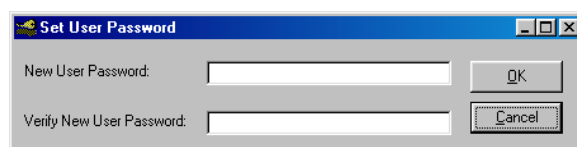


Figure 17 – The Set User Password dialog window

Enter a Password in the New User Password field – or click the OK button for no password (if you click the OK button here, skip the next two steps).

Enter the same Password in the Verify New User Password: field.
Click the OK button – the Add User dialog window, Figure 18, opens.

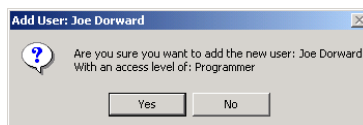


Figure 18 – The Add User dialog window

Click the Yes button.

In the Administration dialog window, click the OK button.

In the emPower® Utilities dialog window (Admin Controls tab), click the OK button.

Task 5 – Change the Password of an existing user.

Open the Administration dialog window, Figure 19– instructions on page 25.

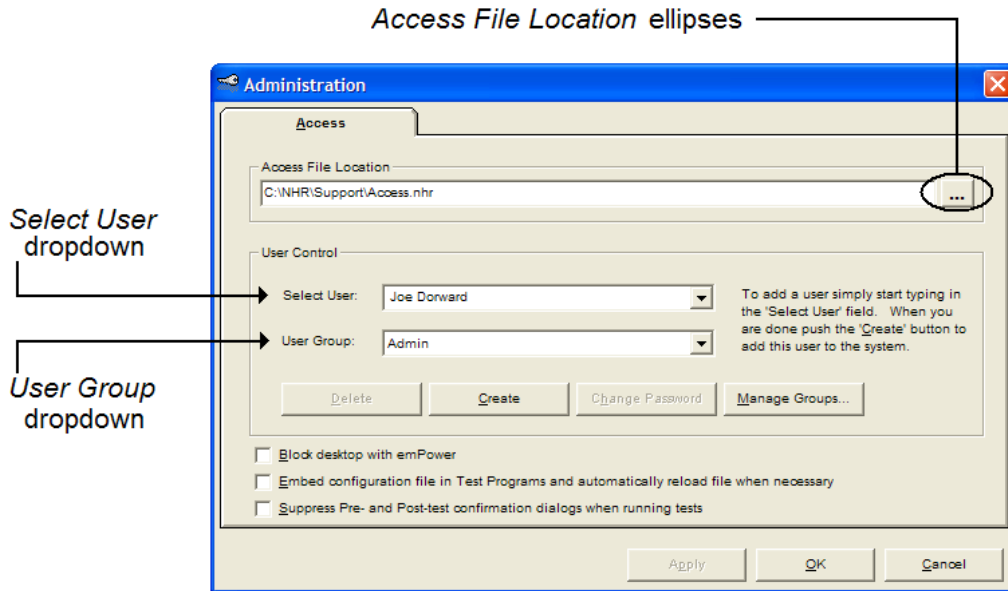


Figure 19 – The Administration dialog window

Select the Username in the Select User: dropdown – the User Group is auto selected, and the Change Password button becomes active.

Click the Change Password button – the Set User Password dialog window, Figure 20, opens.

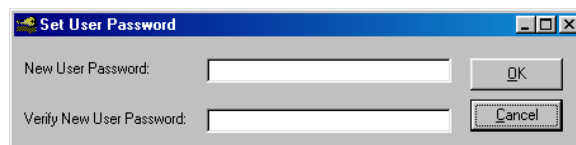


Figure 20 – The Set User Password dialog window

Enter the new Password in the New User Password: field – or click OK to set no password for the user (if you click the OK button here, skip the next two steps).

Enter the same new Password in the Verify New User Password field.

Click the OK button – the Change User Password dialog window, Figure 21, opens.

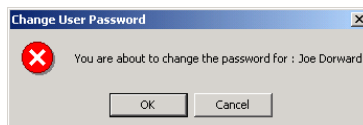


Figure 21 – The Change User Password dialog window

Click the OK button.

In the Administration dialog window, click the OK button.

In the emPower® Utilities dialog window (Admin Controls tab), click the OK button.

Task 6 – Define your own user groups.

The emPower® system comes with five default user groups: Admin, Programmer, Technician, Advanced Operator, and Operator. The emPower® system gives you the ability to add to these by defining your own non-default User Groups. Define your own user groups has 4 sub-tasks, they are:

Sub-task 1 – Creating a non-default user group (page 19).

Sub-task 2 – Change the access permissions of a non-default User Group (page 22).

Sub-task 3 – Delete a non-default User Group (page 23).

Sub-task 4 – Block the desktop with emPower® (page 24).

Sub-task 1 – Creating a non-default user group

Open the Administration dialog window, Figure 22 – instructions on page 25.

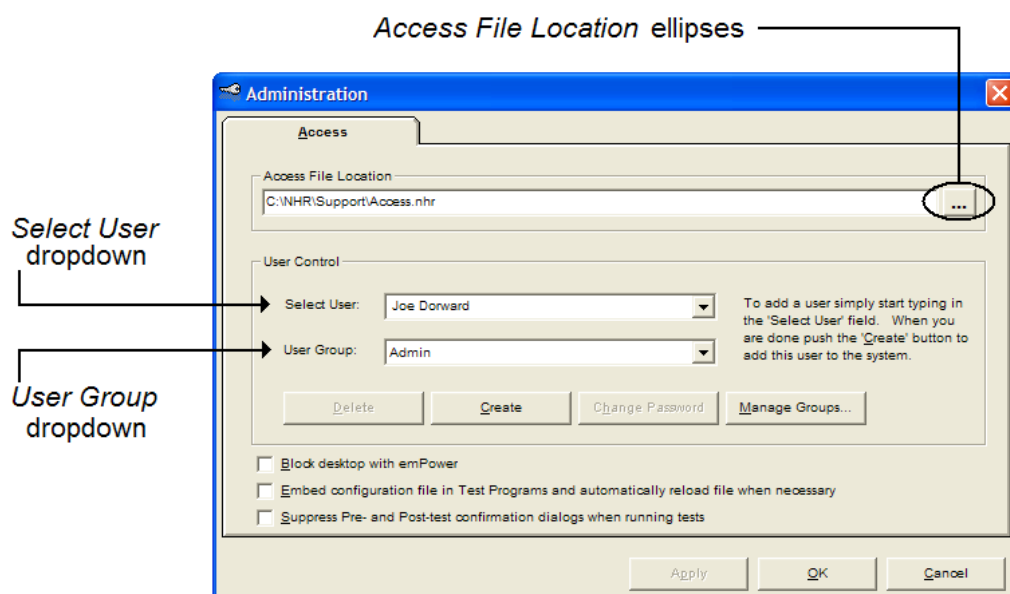


Figure 22 – The Administration dialog window

Click the Manage Groups button – the User Groups Management dialog window, Figure 23, opens.



Figure 23 – The User Groups Management dialog window

Click the New Group button – the New User Group dialog window opens.

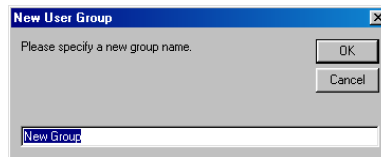


Figure 24 – The New User Group dialog window

Enter a name for the new User Group – I'll be using Trainee Programmer in this example. Click the OK button – the New User Group dialog window closes, showing the User Group Management dialog window with the name of the new User Group in the User Group dropdown.



Figure 25 – The User Group Management dialog window

Check the appropriate checkboxes for the new User Group's access permissions. Click the OK button – the User Group Management dialog window closes. This new User Group is now added to the emPower® system, and exists as if it was a member of the default User Groups. We can check this in the Administration dialog window.

In the Administration dialog window:

Select yourself in the Select User: dropdown – selecting yourself is a good idea so you don't risk change anyone else's User Group.

Click the dropdown arrow of the User Group: dropdown – the list of User Groups opens, Figure 26, showing our newly created User Group at the bottom.

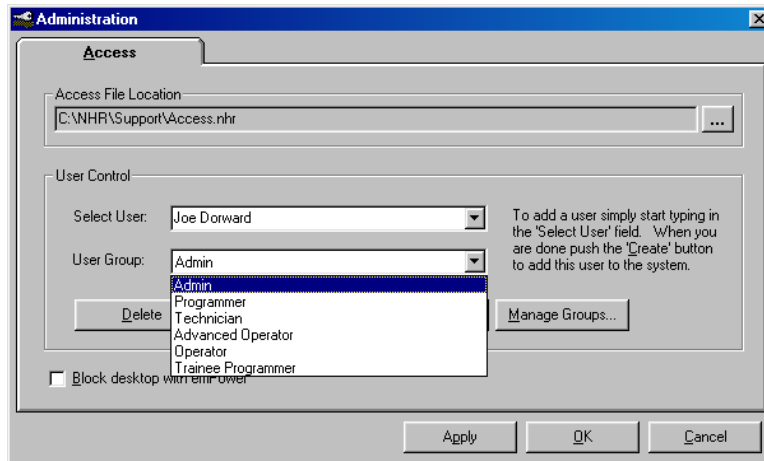


Figure 26 – The Administration dialog window (new User Group)

To make sure nothing happens because of the previous step:

Click the Title bar of the Administration dialog window.

Click the Cancel button.

In the emPower® Utilities dialog window (Admin Controls tab), click the OK button.

Sub-task 2 – Change the access permissions of a non-default User Group

Open the Administration dialog window, Figure 27 – instructions on page 25.

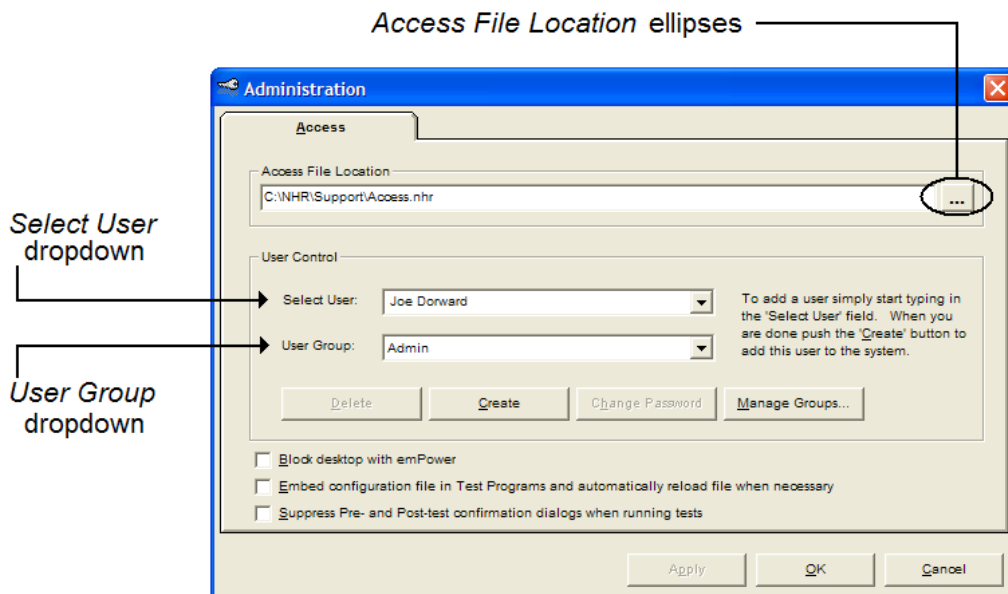


Figure 27 – The Administration dialog window

Click the Manage Groups button – the User Groups Management dialog window, Figure 28, opens showing the first (alphabetically) non-default User Group in the User Groups dropdown.



Figure 28 – The User Group Management dialog window

In the User Groups dropdown, select the User Group you want to modify.

To add access permissions to the User Group – check the access permission checkboxes.
To remove access permissions from the User Group – uncheck the access permissions checkboxes.

Click the OK button.

In the Administration dialog window, click the OK button.

In the emPower® Utilities dialog window (Admin Controls tab), click the OK button.

Sub-task 3 – Delete a non-default User Group

Open the Administration dialog window, Figure 29 – instructions on page 25.

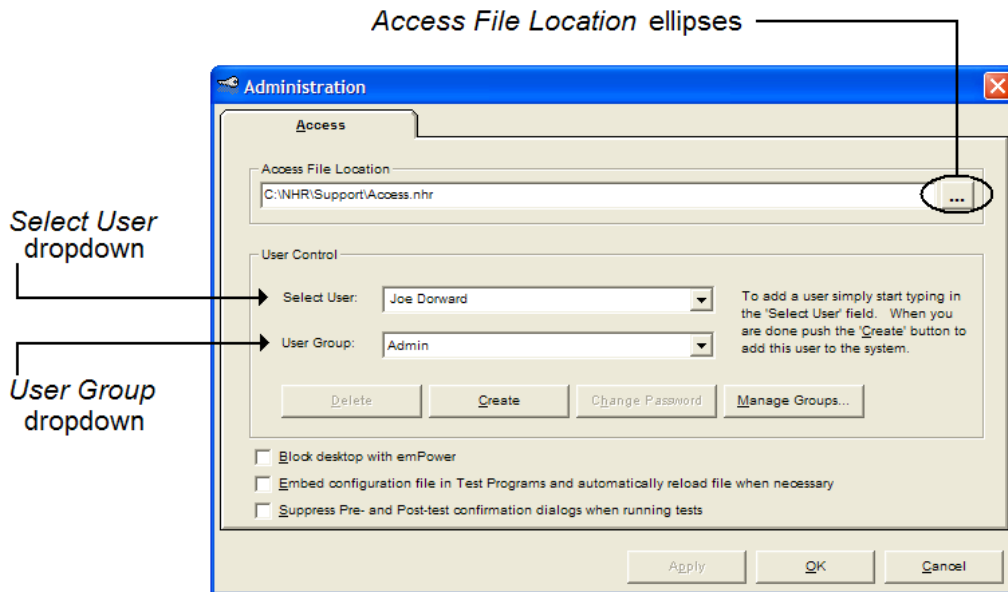


Figure 29 – The Administration dialog window

Click the Manage Groups button – the User Groups Management dialog window, Figure 30, opens showing the first (alphabetically) non-default User Group in the User Groups dropdown.

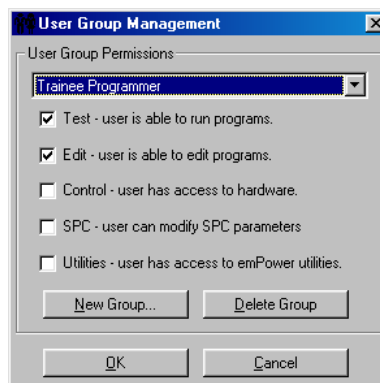


Figure 30 – The User Group Management dialog window

In the User Groups dropdown, select the User Group you want to delete.
Click the Delete Group button.



Caution (deleting a non-default User Group)

By deleting a User Group, you remove ALL access permissions from the

members of that deleted User Group. The names of these users still exist, but they cannot use **emPower®** without being re-assigned to an existing User Group.

If (in the Select User dropdown of the Administration dialog window) you try to select a member of a deleted User Group, the Missing User Group dialog window, Figure 31, opens informing you that this user will have no access to **emPower®**.

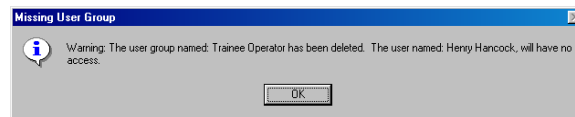


Figure 31 – The Missing User Group dialog window

See also:

1. **Change the User Group of an existing user, page 64**

In the Administration dialog window, click the OK button.

In the **emPower®** Utilities dialog window (Admin Controls tab), click the OK button.

Task 7 – Block the desktop with **emPower®**

With the Block desktop with **emPower®** checkbox, Figure 32, unchecked any user of the computer has access to its desktop. Checking the checkbox makes the computer look like a single function machine.

Before **emPower®** will block the desktop with the default NHR image, or an image of your choice, you must:

1. Check the Block desktop with **emPower®** checkbox in Administration dialog window.
2. Quit, and restart **emPower®**.

In the blocked state, the Windows key on the computer's keyboard will still function.

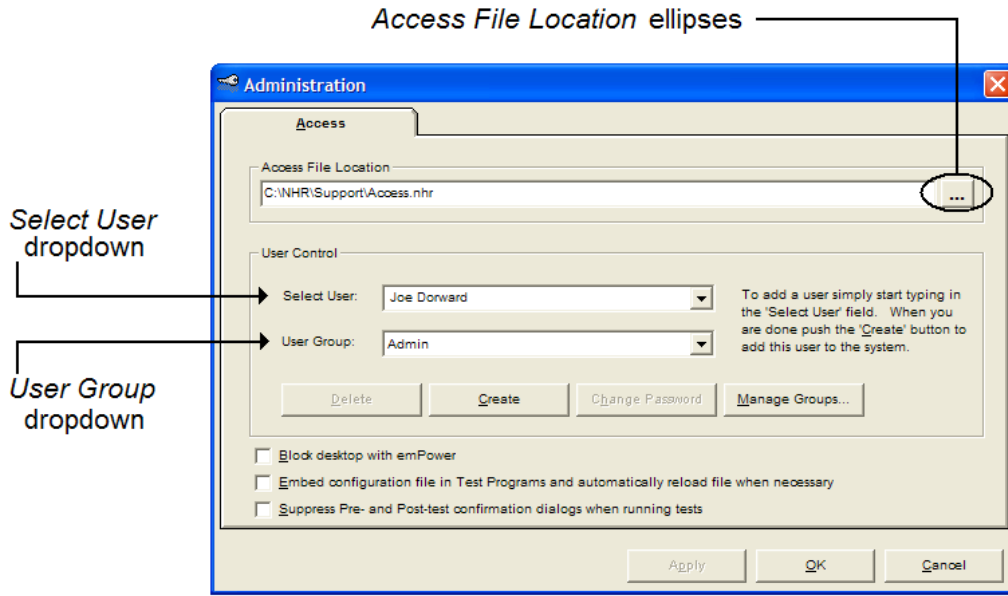
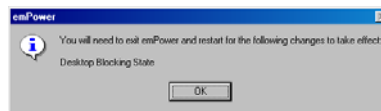


Figure 32 – The Administration dialog window

Check the Block desktop with *emPower*® checkbox.
Click the OK button – the *emPower*® dialog window opens.

Figure 33 – The *emPower*® dialog window

The message in the dialog window warns: “You will need to exit *emPower*® and restart for the following changes to take effect”.

Click the OK button.
Quit, and restart *emPower*®.

Task 8 – Embed configuration file in Test Program

When this option is selected, the path to the active configuration file will be stored within each test program. Whenever a test program is loaded, the corresponding configuration file will also be loaded automatically. Without this option, the active configuration file is always used for each test program. This option is useful when you have multiple configuration files for your test system. You may wish to create multiple configuration files when you need to parallel devices for some test programs and not others, and those devices cannot be paralleled within the test program itself.

Task 9 – Suppress Pre- and Post-test confirmation dialogs

When a test program contains a pre- or post-test sequence, the operator is presented with an option to run or cancel the sequence before it is executed (see Figure 34). This option allows the administrator to suppress this dialog.

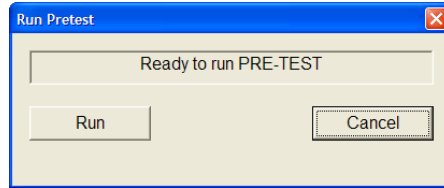


Figure 34 – The Pre-test dialog window

When suppressed, TEST will execute the pre- or post-test sequence as if the operator had pressed the “Run” button.

2.3 Opening the Administration dialog window

With *emPower*® running:

Click the Utilities button in the *emPower*® task bar, Figure 35, – the *emPower*® Utilities dialog window (Options tab), Figure 36, opens.



Figure 35 – The *emPower*® task bar

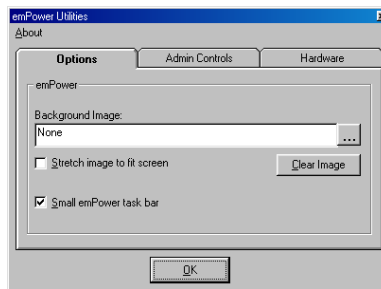


Figure 36 – The *emPower*® Utilities dialog window (Options tab)

Click the Admin Controls tab – the *emPower*® Utilities dialog window (Admin Controls tab), Figure 37, opens.

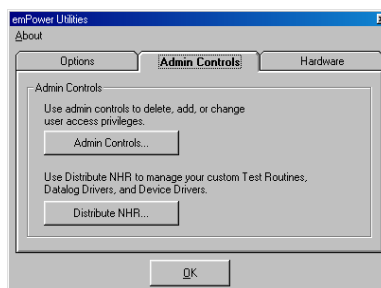


Figure 37 – The *emPower*® Utilities dialog window (Admin Controls tab)

Click the Admin Controls... button – the Administration dialog window opens.

2.4 Distribute NHR

What you need to know about Distribute NHR.

In *emPower*® all Test Routines, and Datalog Drivers, are referred to as Objects.

When programmers create/modify an Object, they are creating/modifying true ActiveX Objects. All new/modified Objects must be “Distributed” across the network so that each installation of *emPower*® on the network will be using the same versions of these Objects.

Distribute NHR is a semi-automatic process for ensuring that new/modified Objects are used by all NEW starts/restarts of *emPower*® on a network.

Distribute NHR must be used to first Register, and then Distribute new/modified Objects even on systems that consist of a single computer for Program Development, and UUT testing, since *emPower*® cannot “see” new/modified Objects until they are Registered, and Distributed by Distribute NHR.

There are four steps in this process, and Distribute NHR does the first two; they are:

1. Copy the new/modified Objects (from the local Test Routine, or Datalog Driver folder) into the Object Depot.



The Object Depot

The Object Depot is where all new/modified Objects are placed by Distribute NHR. This is typically: C:\WINDOWS\Temp\ on a single computer Test System, but it could be any folder on a network.

Every installation of *emPower*® on a network MUST use the same Object Depot, otherwise Objects will not be properly Distributed

2. Tells each installation of *emPower*® on the network, that there are new/modified Objects in the Object Depot. It does this by putting a .tmp file into each Object folder in its Distribution List.

See also:

1. What you need to know about the Distribution List (page 33).

The next two steps in the process are done by each installation of *emPower*® the next time it starts/restarts after being told about new/modified Objects:

3. *emPower*® will go to the Object Depot, get a copy of each new/modified Object and place the copies onto its local Test Routine, or Datalog Driver folder.
4. *emPower*® will then register these new/modified Objects with the Operating System of the machine it's running on, and with itself.



Paths, Distribute NHR

Distribute NHR has a Path that leads to the Object Depot. Distribute NHR uses this Path, to distribute new/modified Objects to the Object Depot.

What you need to know about Registering, and Distributing.

There are two kinds of files that you need to Register, and Distribute to your *emPower*® Test System, they are:

1. .dll files
2. .exe files

All Objects come contained within files of these two types.

There are two reasons why you will need to Register, and Distribute these files, they are:

1. If NH Research produces a new/modified or customized Object that you need.
2. If you create/modify your own Object.

When you are putting one of these new .dll, or .exe file on your Test System, there are three tasks that you need to do (in this order); they are:

- Task 1. Copy the file into your local Test Routine, or Datalog Driver folder – I'm assuming you know how to do that.
- Task 2. Register the file with the Operating System (not *emPower*®) of your computer.
- Task 3. Distribute the new file – at this point Distribute NHR copies the new Object into the Object Depot, and tells ALL installations of *emPower*® on the network (including the installation on your computer) that there is a new Object in the Object Depot.

Registering an Object:

In this section we are going to Register a Test Routine (registering a Datalog Driver follows the exact same method).

The .dll, or .exe files containing your Test Routine Objects can be stored in any folder on your computer, but typically they are stored in: C:\Program Files\NH Research\emPower\Test Routines\.

The best way to learn about registering Test Routines is by registering a Test Routine already in use on your computer (this is an easy, and safe thing to do).

For this I've chosen the Test Routine Object: NHRTRrampupsvr.nhrtrrampup contained within the file: NHRTRRampUpSvr.dll. If you search your computer for this file you should find copies of the .dll file in your Test Routine folder, and your Object Depot folder.

Open the Distribute NHR dialog window – instructions on page 44.

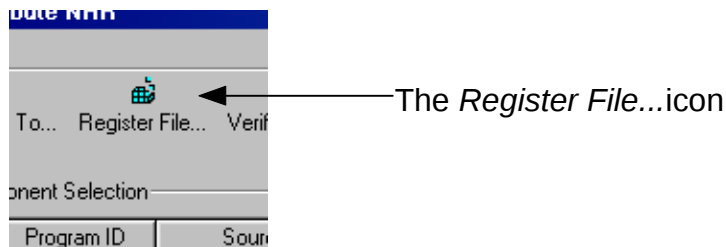
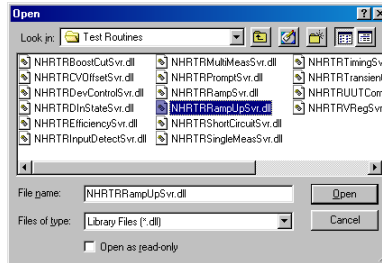


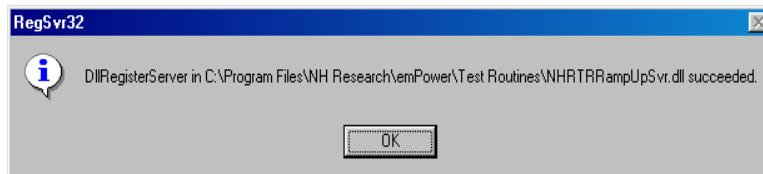
Figure 38 – The Register File... icon

Click the Register File... icon – a standard windows browsing dialog window opens. Open the Test Routine folder, and select (with a single mouse click) the file:

NHRTRRampUpSvr .dll, Figure 39.

**Figure 39 – A standard windows file browsing dialog window**

Click the Open button – the RegSvr32 dialog window, Figure 40, opens.

**Figure 40 – The RegSvr32 dialog window**

Click the OK button – the file: NHRTRRampUpSvr .dll, is now Registered with the Operating System of your Test System.

Now you need to Distribute the Object.

Distributing an Object:

In this section we are going to Distribute the Test Routine we have been working with, but Distributing any Test Routine, or Datalog Driver follows the exact same method.

Your Test Routines can be stored in any folder on your computer, but typically they are stored in: C:\Program Files\NH Research\emPower\Test Routines\

The best way to learn about Distributing a Test Routine is by Distributing a Test Routine already in use on your computer (this is an easy, and safe thing to do).

For this I've chosen the Test Routine Object: NHRTRrampupsvr .nhrtrrampup contained within the file: NHRTRRampUpSvr .dll. If you search your computer for this file you should find copies of the .dll file in your Test Routine folder, and your Object Depot folder.

Open the Distribute NHR dialog window – instructions on page 44.

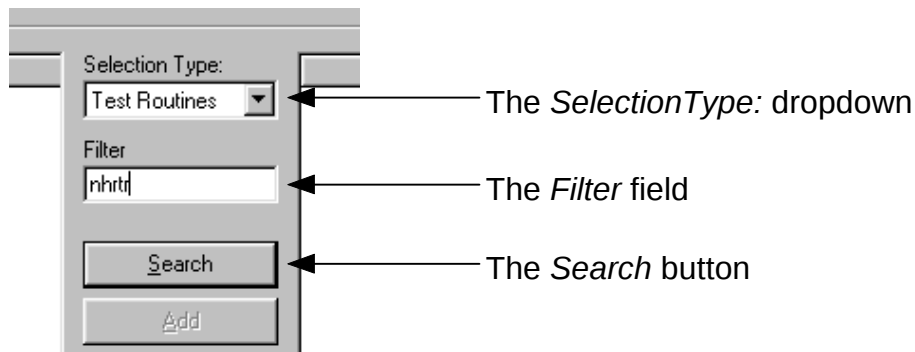
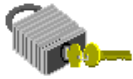


Figure 41 – The Distribute NHR dialog window (close up)

Select Test Routines in the Selection Type: dropdown – this is the type of Object we will be distributing.

Enter the NHRTR (a shortening of NH Research Test Routine) in the Filter field – all NH Research Test Routines begin with this string.



Distribute NHR – the Filter field

All emPower® Objects are contained within .dll, or .exe files, and we have no real way of knowing what Objects are inside any specific .dll, or .exe file, but it's the Objects that we need to Distribute, not the .dll, or .exe files.

However, when we want to Distribute a new/modified Object we can search for the component Objects of these .dll, or .exe files.

That is what the Filter field, and Search button allows us to do.

Click the Search button – all the Test Routine Objects with names matching the filter will be listed (Program ID column) in the left-hand pane of Distribute NHR dialog window, Figure 42, along with the names of the .dll, or .exe files they are in (Source File column).

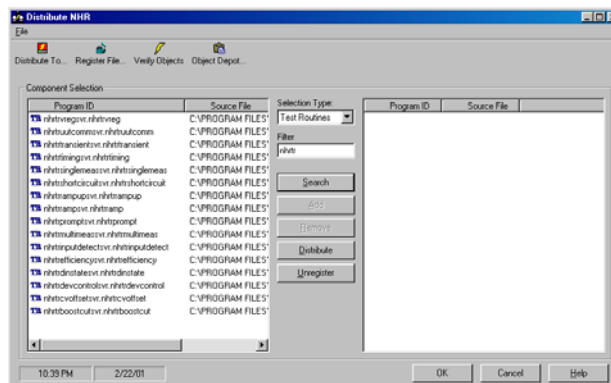
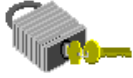


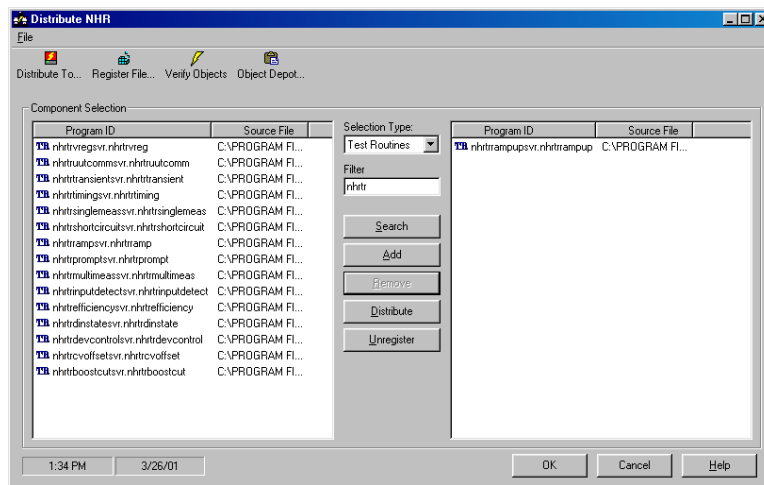
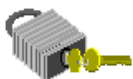
Figure 42 – The Distribute NHR dialog window

Select (by single-clicking) the Test Routine named `NHRTRrampupsvr.nhrttrampup` in the left-hand pane of Distribute NHR dialog window – the Add button becomes active.



Checking the selected Object at Add

At this point, Distribute NHR checks that the selected Object is a valid Object (it will be, since this is a Test Routine already in use) then the selected Test Routine will appear in the right-hand pane of the Distribute NHR dialog window, and be removed from the left-hand pane, Figure 43.

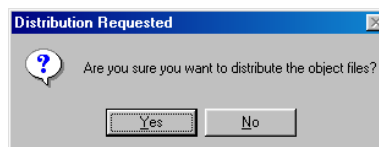
**Figure 43 – Distribute NHR dialog window (after adding)**

The Add, and Remove buttons

After adding a Test Routine, the Add button is still active. You can repeat the process by selecting another Test Routine and clicking the Add button again.

emPower® also allows to remove a Test Routine from the right-hand pane by selecting it, and clicking the Remove button. When you remove a Test Routine from the right-hand pane, it will reappear in the left-hand pane.

Click the Distribute button – the Distribution Requested dialog window, Figure 44, opens.

**Figure 44 – The Distribution Requested dialog window**

Click the Yes button – the Distribution Complete dialog window, Figure 45, opens.

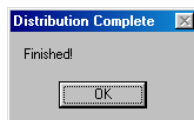


Figure 45 – The Distribution Completed dialog window

Click the OK button.



Copy and tell

At this point, Distribute NHR has **copied** the Test Routine Object into the Object Depot, and **told** all installations of emPower® (including yours) in your Distribution List that there is a new/modified Object in the Object Depot. The next time each installation of emPower® is started it will “know” there is a new/modified Object in the Object Depot, it will then:

1. Copy the new/modified Object into the appropriate Object folder.
2. Register the new/modified Object with the Operating System.
3. Register the new/modified Object with itself.

In the Distribute NHR dialog window, click the OK button.

In the emPower® Utilities dialog window (Admin Controls tab), click the OK button.

Quit emPower®.

Restart emPower® – as emPower® starts-up you will see the Registering Objects dialog window, Figure 46, which shows the names of each new/modified Object as it is Registered.



Figure 46 – The Registering Objects dialog window

If you had modified the Test Routine Object, emPower® would now be using the modified Test Routine Object.

What you need to know about the Distribution List.

The Programming Computer's View

On the Programming Computer, the Distribution List contains the list of folders that need to get a copy of all new/modified Test Routines, and Datalog Drivers.

When a new/modified Test Routine or Datalog Driver is Distributed from a Programming Computer, *emPower*® puts a Test Routines.tmp, or Datalog Drivers.tmp file into the appropriate Object folders in the Distribution List, and puts a copy of the new/modified Object into the Object Depot. This is how *emPower*® on the Programming Computer “tells” *emPower*® on the Remote Test System that there are new/modified Objects in the Object Depot.

The Remote Test System's View

On the Remote Test System, the Distribution List contains the list of folders where the *emPower*® Test Routine, and Datalog Driver Objects “live”. Each time *emPower*® is started on the Remote Test System, it looks in the Test Routine folder for a file named Test Routines.tmp, and in the Datalog Driver folder for a file named Datalog Drivers.tmp.

These .tmp files contain the names of the .dll, or .exe files now in the Object Depot that contain the new/modified Objects.

When *emPower*® finds a .tmp file in a Test Routine, or Datalog Driver folder, it:

1. Copies the named .dll, or .exe file from the Object Depot to it's local Test Routine, or Datalog Driver folder.
2. Registers the .dll, or .exe file with its Operating System.
3. Registers the new/modified Object Component with itself.

Adding a Path to the Distribute To... list.

Below is an illustration of a simple Programming and Testing Network. In it there are two programmers: Programmer Brad, and Programmer Jeff, and two Remote Test Systems: Remote Test System 1, and Remote Test System 2.

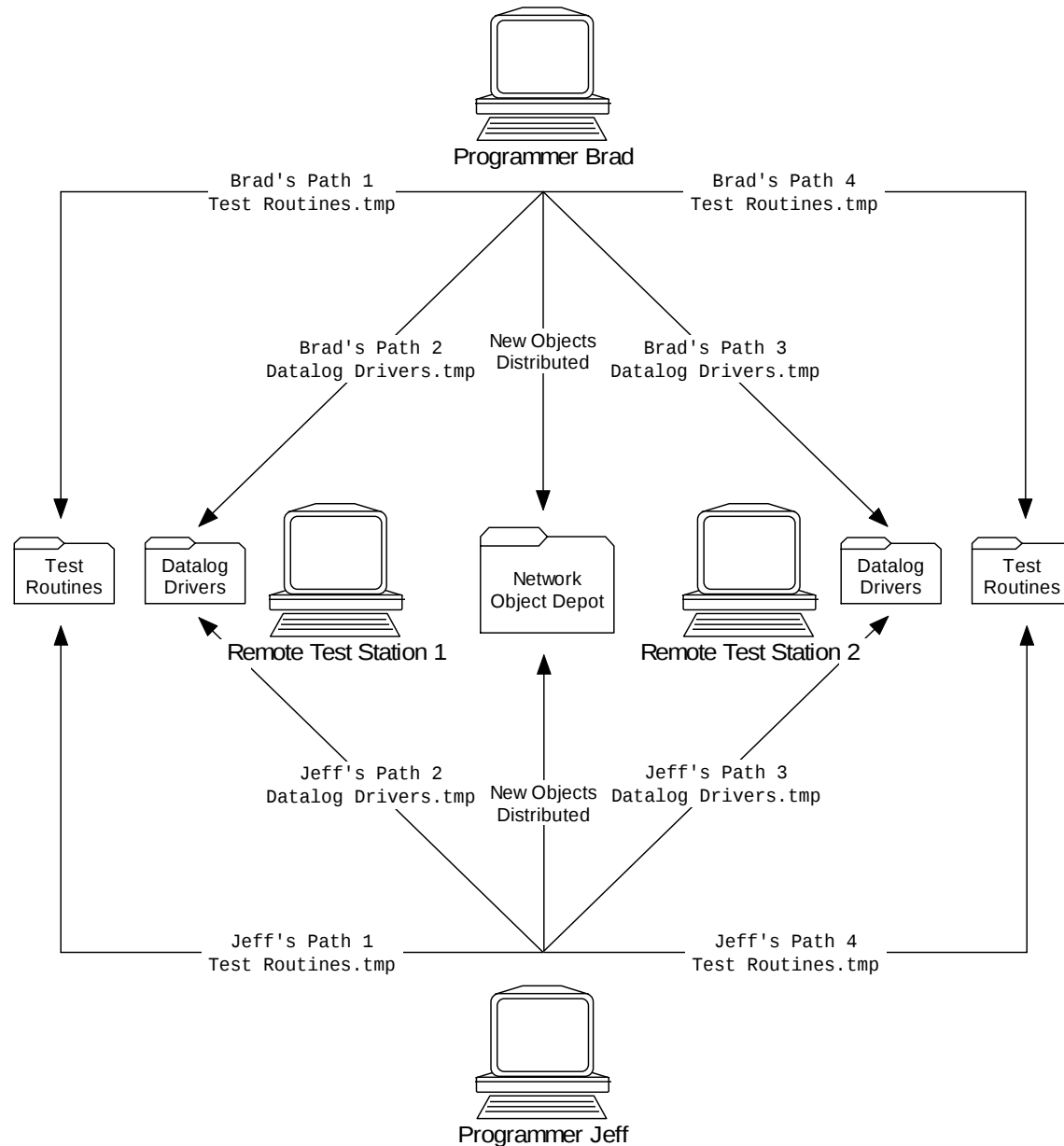


Figure 47 – Simple overview of a Programming and Testing Network

You are Programmer Brad, and Remote Test System 2 has just been added to the Testing Network. You need to add its Test Routine, and Datalog Driver folders to your Distribution List.

This is how you'd add Brad's Path 4, Figure 47, to his Distribution List.

First we'll add the Test Routine folder.

Open the Distribute NHR dialog window – instructions on page 44.

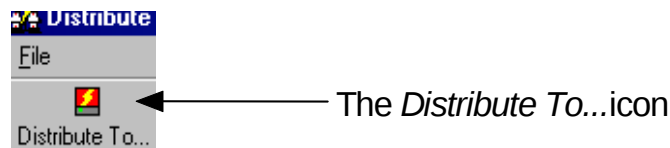


Figure 48 – The Distribute To... icon

Click the Distribute To... icon – the Distribution List dialog window, Figure 49, opens (the contents of your Distribution List dialog window will be different – this is not a problem).

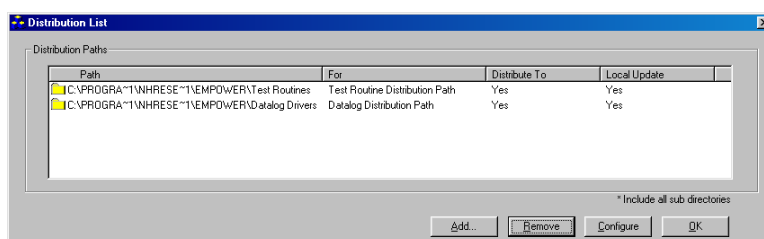


Figure 49 – The Distribution List dialog window

Click the Add button – the Type of Distribution Path dialog window, Figure 50, opens.

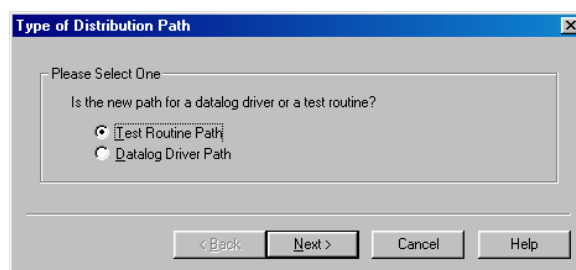


Figure 50 – The Type of Distribution Path dialog window

The Test Routine Path option is selected by default, and this is what we want.

Click the Next > button – the Distribute dialog window, Figure 51, opens.

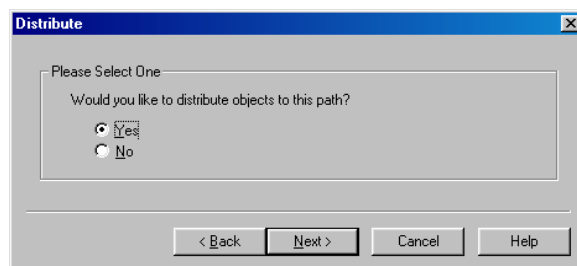


Figure 51 – The Distribute dialog window



This dialog window asks the question: “Would you like to distribute objects to this path?”, but we are not really distributing any Objects anywhere except to the Object Depot ever!

What we are going to do though, is to Distribute a `Test Routines.tmp` file to this Path so that the specific installation of *emPower*® will find it the next time it starts. When that specific installation of *emPower*® starts up and finds this `Test Routines.tmp` file, it will “know” there is a new/modified Test Routine Object in the Object Depot.

The Yes option is selected by default. Since we are adding a new Path for Distribution To..., it’s the option we want.

Click the Next > button – the Look For Object Updates? dialog window, Figure 52, opens.

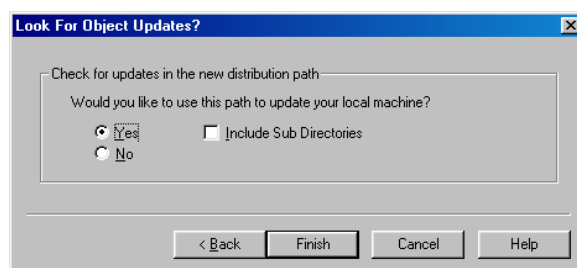
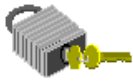


Figure 52 – The Look For Object Updates dialog window



This dialog window asks the question: “Would you like to use this path to update your local machine?” Since we are adding a Path to the Test Routine folder of a Remote Test System we won’t want our version of *emPower*® to check this Path for new Test Routines.tmp files.

We already have a Path to the Test Routine folder on our Programming Computer that is already used for this purpose.

Select the No option – the Browse for Folder dialog window, Figure 53, opens.

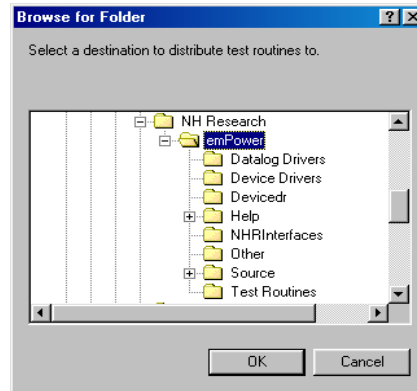


Figure 53 – The Browse for Folder dialog window

Browse to the Test Routine folder on the Remote Test System.
Click the OK button – the Distribution List dialog window shows the new Path.

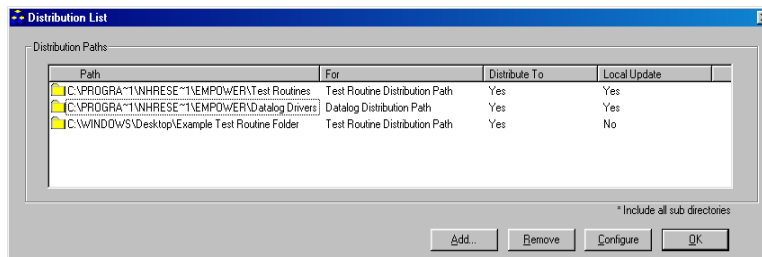


Figure 54 – The Distribution List dialog window

I’ve added the new Path for the folder: “Example Test Routine Folder” on my computer’s Desktop. You can see from the entry that the new Path is a: Test Routine Distribution Path, that it is a Distribute To Path, but not a Local Update Path – just what we want.

We are finished adding Brad’s Path 4, Figure 47, to his Distribution List. Obviously, Programmer Jeff would have to follow the same process to add his Path 4.

The next step is to add Brad’s Path 3 to his Distribution List.

Click the Add button – the Type of Distribution Path dialog window, Figure 55, opens.

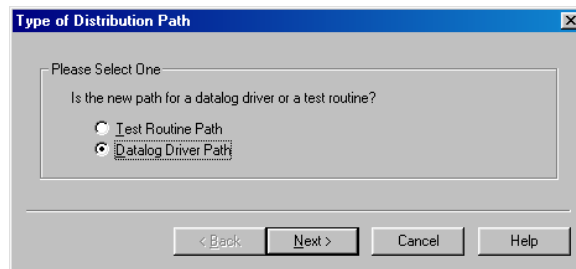


Figure 55 – The Type of Distribution Path dialog window

Select the Datalog Driver Path option.

Click the Next > button – the Distribute dialog window, Figure 56, opens.

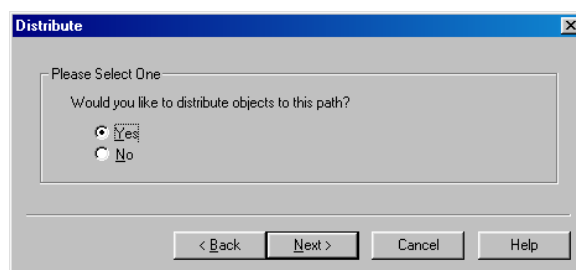


Figure 56 – The Distribute dialog window

The Yes option is selected by default. Since we are adding a new Path for Distribution To..., it's the option we want.

Click the Next > button – the Look For Object Updates? dialog window, Figure 57, opens.

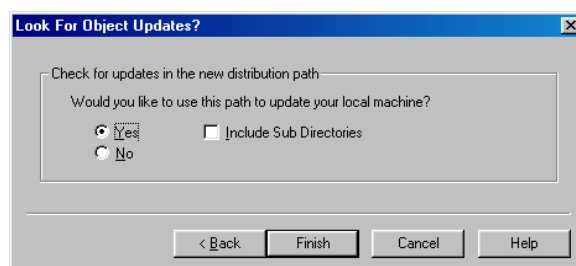


Figure 57 – The Look For Object Updates dialog window



This dialog window asks the question: “Would you like to use this path to update your local machine?” Since we are adding a Path to the Datalog Driver folder of a Remote Test System we won't want our version of **emPower®** to check this Path for new `Datalog Drivers.tmp` files.

We already have a Path to the Datalog Driver folder on our Programming Computer that is already used for this purpose.

Select the No option.

Click the Finish button – the Browse for Folder dialog window, Figure 58, opens.

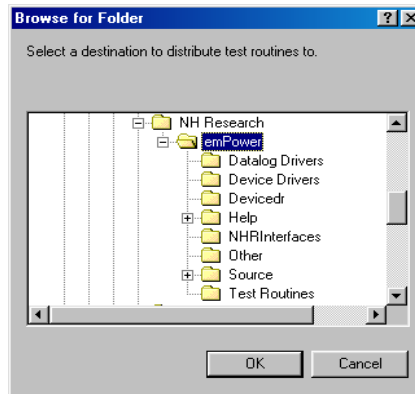


Figure 58 – The Browse for Folder dialog window

Browse to the Datalog Driver folder on the Remote Test System.
Click the OK button – the Distribution List dialog window shows the new Path.

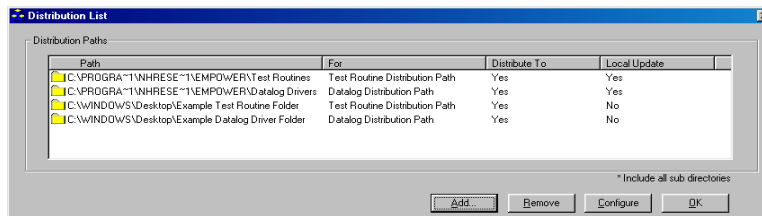


Figure 59 – The Distribution List dialog window

I've added the new Path for the folder: "Example Datalog Driver Folder" on my computer's Desktop. You can see from the entry that the new Path is a: Datalog Distribution Path, that it is a Distribute To Path, but not a Local Update Path – just what we want.

We are finished adding Programmer Brad's Path 3, Figure 47, to his Distribution List. Obviously, Programmer Jeff would have to follow the same process to add his Path 3.

In the Distribution List dialog window, click the OK button.
In the Distribute NHR dialog window, click the OK button.

Removing a Path from the Distribute To... list.
Open the Distribute NHR dialog window – instructions on page 44.

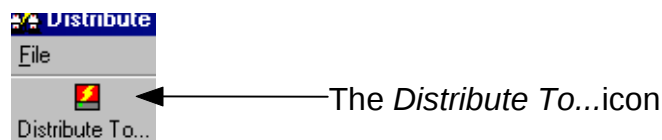


Figure 60 – The Distribute To... icon

Click the Distribute To... icon – the Distribution List dialog window opens (the contents of your Distribution List dialog window will be different – this is not a problem).

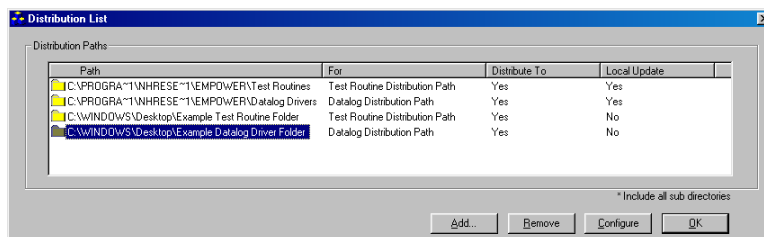


Figure 61 – The Distribution List dialog window

Select (by single-clicking) the Path you want to remove, Figure 61.
Click the Remove button – the Path is removed, Figure 62.

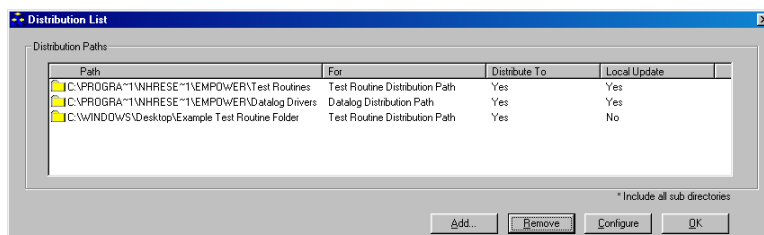


Figure 62 – The Distribution List dialog window

In the Distribution List dialog window, click the OK button.
In the Distribute NHR dialog window, click the OK button.

Configuring a Path in the Distribute To... list.

Selecting a Path, and clicking the Configure button will step you through the same dialog windows that you see when you Add a new Path. This allows you to change the settings chosen when the Path was added, all except where the Path leads to.

Open the Distribute NHR dialog window – instructions on page 44.

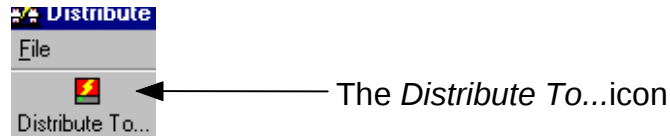


Figure 63 – The Distribute To... icon

Click the Distribute To... icon – the Distribution List dialog window opens (the contents of your Distribution List dialog window will be different – this is not a problem).

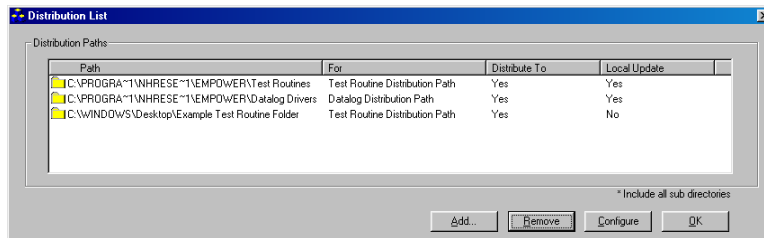


Figure 64 – The Distribution List dialog window

Select (by single-clicking) the Path you want to Configure.

Click the Configure button – the Type of Distribution Path dialog window, Figure 65, opens.

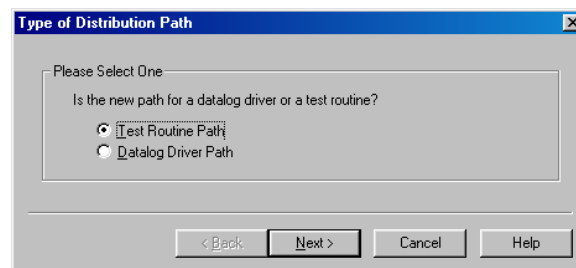


Figure 65 – The Type of Distribution Path dialog window

Select the option you want.

Click the Next > button – the Distribute dialog window, Figure 66, opens.

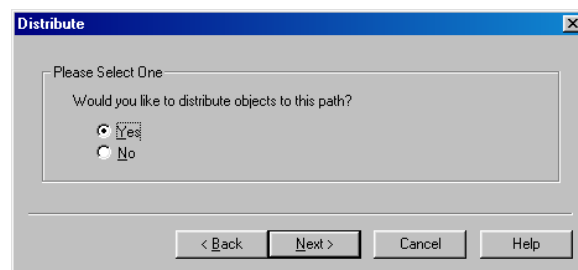


Figure 66 – The Distribute dialog window

The Yes option is selected by default.

Select the option you want.

Click the Next > button – the Look For Object Updates? dialog window, Figure 67, opens.

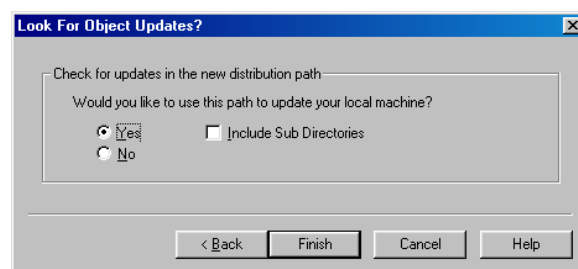


Figure 67 – The Look For Object Updates dialog window

Select the options you want.

Click the Finish button.

In the Distribution List dialog window, click the OK button.

In the Distribute NHR dialog window, click the OK button.

Verifying Test Routine, and Datalog Driver Objects.

Open the Distribute NHR dialog window – instructions on page 44.

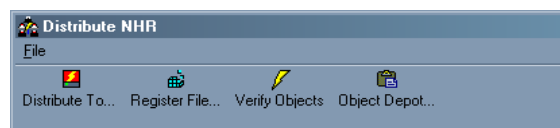


Figure 68 – The Verify Objects icon

Click the Verify Objects icon – the Verify Test Routines pop-up window, Figure 69, opens showing the progress of its verification.



Figure 69 – The Verify Test Routines pop-up window

Then the Verify Datalog Drivers pop-up window, Figure 70, opens showing the progress of its verification.



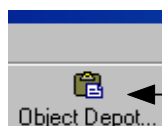
Figure 70 – The Verify Datalog Drivers pop-up window

Changing the default Path to the Object Depot.

When *emPower*® is installed, its default Object Depot is the C : \Windows\Temp\ folder.

Using the same example as above, the Object Depot of the new Remote Test System 2 is still set to its default location, and we need to change it so that it uses the Network Object Depot.

Open the Distribute NHR dialog window – instructions on page 44.



— The *Object Depot...* icon

Figure 71 – The Object Depot... icon

Click the Object Depot... icon – the Browse for Folder dialog window, Figure 72, opens.

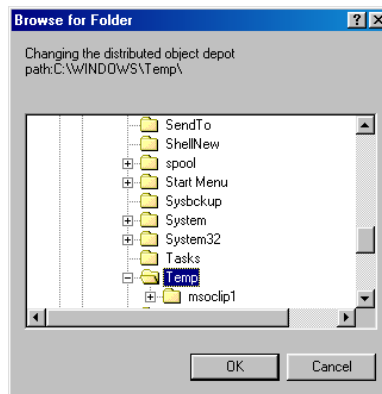


Figure 72 – The Browse for Folder dialog window

You can see that the default Object Depot: C : \Windows\Temp\ is being used.

Browse to the Network Object Depot.

Click the OK button – the Network Object Depot is now being used.

In the Distribute NHR dialog window, click the OK button.

2.5 Opening the Distribute NHR dialog window

With *emPower*® running:

Click the Utilities button in the *emPower*® toolbar, Figure 73 – the *emPower*® Utilities dialog window (Options tab) opens.



Figure 73 – The *emPower*® toolbar

Click the Admin Controls tab – the *emPower*® Utilities dialog window (Admin Controls tab), Figure 74, opens.

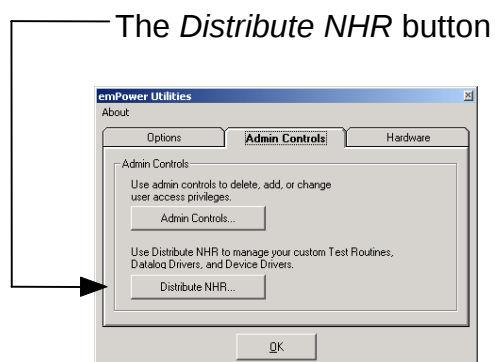


Figure 74 – The *emPower*® Utilities (Distribute NHR button)

Click the Distribute NHR button – the Distribute NHR dialog window, Figure 75, opens.

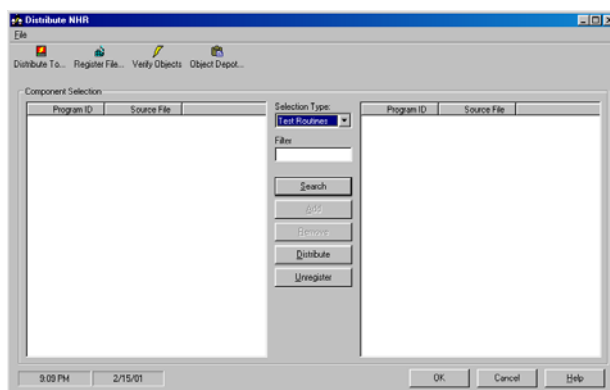


Figure 75 – The Distribute NHR dialog window

3. THE emPower® UTILITIES DIALOG WINDOW (HARDWARE TAB)

3.1 Hardware Tab

The hardware tab (see Figure 76) gives you access to the utilities used to describe how your system is wired. Define the computer ports that are available to use on your computer in the Port Configurator utility by pressing the “Modify Port Settings...” button. Define the hardware installed in your system with the NHR Configurator by pressing the “Modify Configuration...” button.

This tab also allows you to choose a “Safe Shutdown” mode. Whenever a test program ends, the sources will be shutoff before the test ends. In some cases, DC sources with large output capacitance will take a long time to bleed down to safe levels. Enabling this feature will shutdown the sources and then continuously measure the outputs until they are safe (<5V DC and < 10VAC) before allowing the test to end. A dialog will be displayed to the operator during the bleed down.

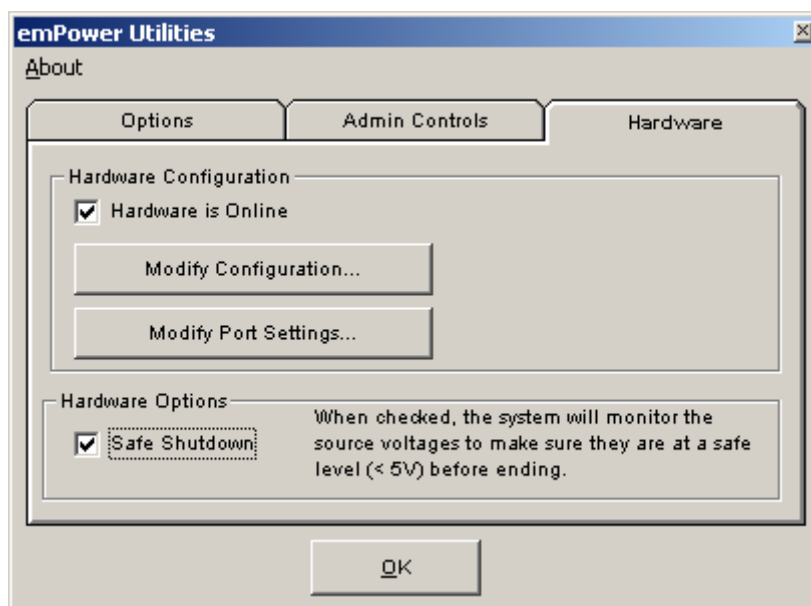


Figure 76 -- Utilities Hardware Tab

3.2 The NHR Configurator – what you need to know

The NHR Configurator dialog window, Figure 128, has two frames, the Supported Devices frame, and the Current Configuration frame. Figure 128 shows the NHR Configurator with the demonstration configuration file `Demo.cfg` as the Current Configuration file.

The Supported Devices frame – what you need to know.

The Supported Devices frame contains the list of all hardware drivers on your Test System. Your Test System came with the standard set of NH Research hardware device drivers for that family of Test Systems, plus any extra hardware device drivers you requested on a CD-ROM.

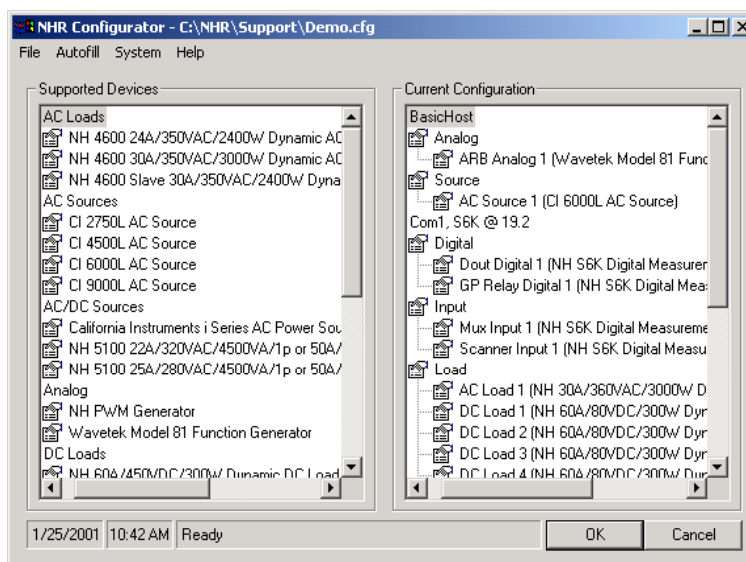


Figure 77 – The NHR Configurator dialog window

Logical, and descriptive names for hardware devices

You will notice, that the hardware devices listed in the Current Configuration frame are listed by logical names such as: AC Source 1, Scanner Input 1, DC Load 1, with their more descriptive name in parentheses following it. The logical names are for the Test Program, the descriptive name is for us, so we know which box the logical name refers to. In this Current Configuration the AC Source 1 is California Instruments 6000L AC Source.

Now suppose the 6000L failed, and we didn't have another to replace it, but we did have a 9000L, and (let's assume) the 9000L is functionally a superset of the 6000L. Since we are using a logical name for AC Source 1, all we'd have to do is change the devices over, and the Test Program will work "happily" with this new device connected.

The Current Configuration frame – what you need to know.

The Current Configuration frame shows the list of implemented device drivers in the Current Configuration file, usually named after the form: `salesorder.cfg`. This configuration file is customized to your requirements by NHR.

If the device driver for a hardware device is not present in the Current Configuration frame, then your Test System cannot "see" that hardware device, because **emPower®** uses the list of device drivers in the Current Configuration frame when it creates the list of available hardware devices in the Devices dialog windows, such as the Input Devices dialog window, Figure 78.

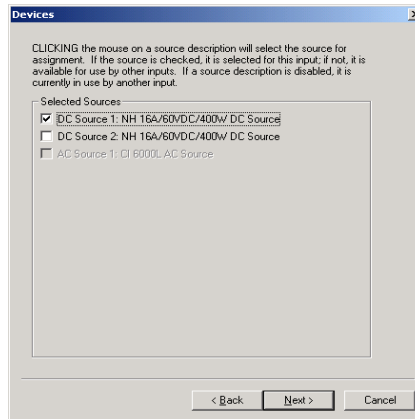


Figure 78 – The Input Devices dialog window

The demonstration configuration file – what you need to know.

Your system came supplied with the demonstration configuration file `Demo.cfg`, Figure 128, and the demonstration programs: `Demo DC-DC.NHRtpl`, and `Demo UPS.NHRtpl`.

The demonstration configuration file `Demo.cfg` was designed specifically for the demonstration programs: `Demo DC-DC.NHRtpl`, and `Demo UPS.NHRtpl`. These programs require `Demo.cfg` to be the Current Configuration file, and since `Demo.cfg` may refer to specific hardware devices that your Test Station does not have, you will probably need to run these demonstration programs in the Offline mode (see page 85).

emPower® and configuration files – what you need to know.

When any emPower® application is started (but not when you start emPower® itself) it “looks” at the hardware devices listed in the Current Configuration file, and:

1. Checks that every hardware device is available, and functioning.
2. Resets each hardware device to a know (device specific) state.



Un-configured hardware devices

If your Test System contains hardware devices that are not in the Current Configuration file, emPower® will not “know” about them, and will not attempt to interact with them.



Non-existent/Non-functioning hardware devices

If a hardware device referred to in the Current Configuration file is either Non-existent (because it has been removed, or disconnected), or Non-functioning (because it is damaged), emPower® will display a non-communication fault message.

3.3 The NHR Configurator – Using

What you can do in the NHR Configurator dialog window?

The Current Configuration file contains ALL the information about ALL the hardware devices connected together in an emPower® Test System.

There are 18 tasks you can do in the NHR Configurator, they are:

The NHR Configurator – File menu

- Task 1. Create a new Configuration file (page 51).
- Task 2. Open an existing Configuration file (page 53).
- Task 3. Save the Current Configuration file (page 54).
- Task 4. Save a copy of the Current Configuration file (page 54).
- Task 5. Set Current Configuration to be the default Configuration file (page 54).
- Task 6. View, Save, and Print the Current Configuration file (page 55).

The NHR Configurator – Autofill menu

- Task 7. Add a new Device Driver (Automatically) (page 60).

The NHR Configurator – Supported Devices frame

- Task 8. Add a new Device Driver (Manually) (page 61).
- Task 9. Add a new Serial Communication Host (page 63).
- Task 10. Add new BasicHost communication port (page 67).

The NHR Configurator – System menu

- Task 11. Select a source to be Presence Signal Master (page 69).
- Task 12. Define your own Serial Communication Protocol (page 70).

The NHR Configurator – Current Configuration frame (right-click menu)

- Task 13. Change the configuration of a hardware device (page 71).
- Task 14. Rename a hardware device (page 73).
- Task 15. Remove a Host (page 75).
- Task 16. Removing a hardware device (page 77).
- Task 17. Dump the configuration of a hardware device (page 79).
- Task 18. Update the Firmware of a hardware device (page 81).

More on your Configuration File

The main Configuration file on your Test System is likely to be named after the form: salesorder.cfg. This Configuration file is on your Test System when it is shipped from NH Research, a backup copy is also supplied on a floppy disk. Although emPower® gives you the ability to modify your Configuration file, it is not something you will do often.

Task 1 – Create a new Configuration file.

Open the NHR Configurator dialog window – instructions on page 82.

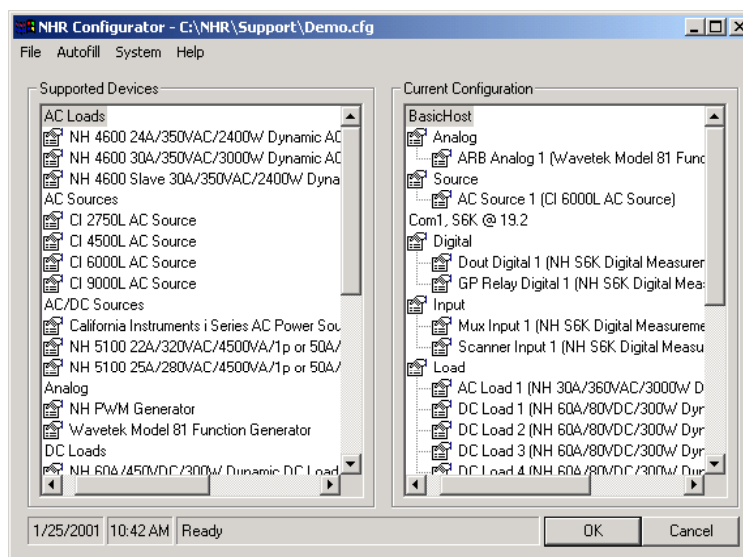


Figure 79 – The NHR Configurator dialog window

Click File – the File menu opens.

Select the New option – a new, un-named, Configuration file is created with no hardware devices in the Current Configuration frame, Figure 80.

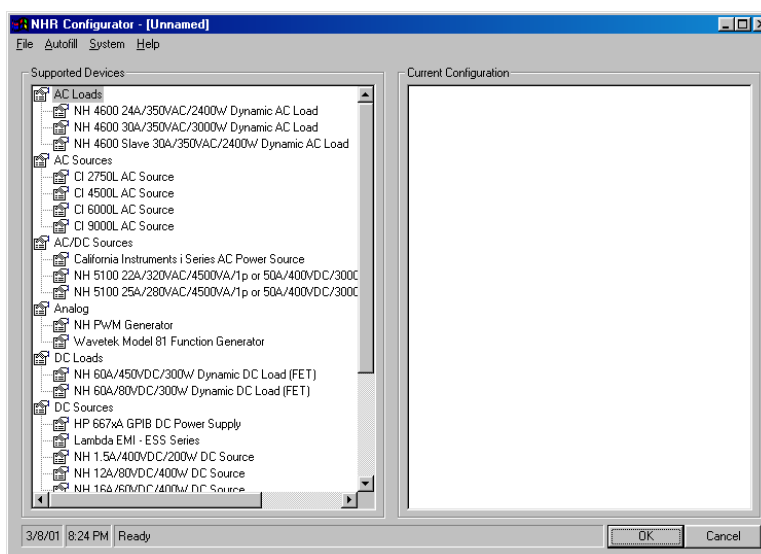


Figure 80 – The NHR Configurator dialog window

Before you go any further, it's a good idea to save this new Configuration file, so:

Click File – the File menu opens.

Select the Save As... option – a standard windows browser dialog window opens.

Enter an appropriate name for the Configuration file in the File Name: field.

Click the Save button – the NHRCFGSVR (NHR Configuration Server) dialog window opens, Figure 81.

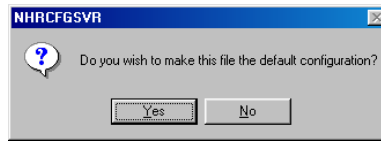


Figure 81 – The NHRCFGSVR dialog window

Click the Yes button – the new Configuration file is saved, and is set to be the default Configuration file.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 2 – Open an existing Configuration file.

The easy way to change Configuration files is to just open the Configuration file you want to be your Current Configuration file.

Open the NHR Configurator dialog window – instructions on page 81.

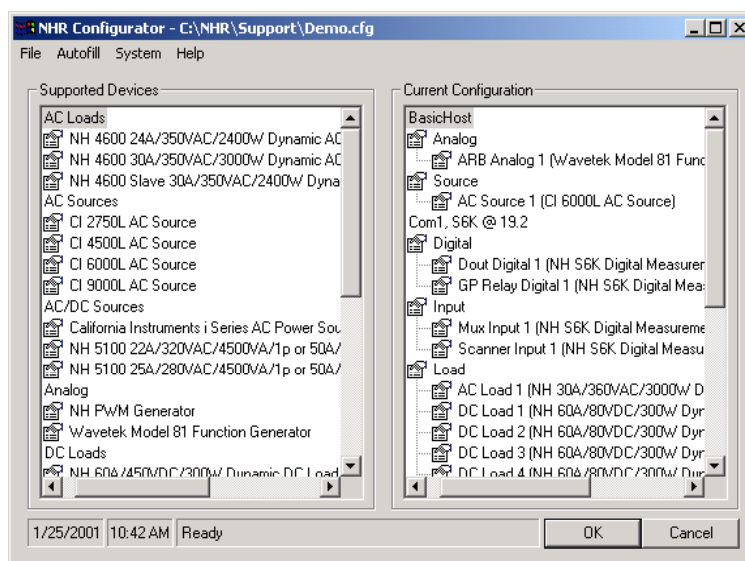


Figure 82 – The NHR Configurator dialog window

Click File – the File menu opens.

Select the Open... option – a standard windows browser dialog window opens.

Select the Configuration file you want to open.

Click the Open button – the NHRCFGSVR (NHR Configuration Server) dialog window opens, Figure 83.

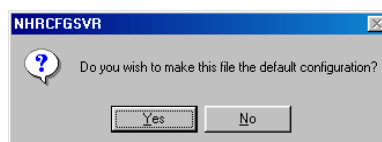


Figure 83 – The NHRCFGSVR dialog window

Click the Yes button – the Opened Configuration file is set to be the default Configuration file.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 3 – Save the Current Configuration file.

Like many electronic files, it makes sense to save the Configuration file as you make changes to it. If you need to save the Configuration file, you will already have the NHR Configurator open, assuming that:

Click File – the File menu opens.

Select the Save option – the Current Configuration file is saved.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 4 – Save a copy of the Current Configuration file.

Like many software applications, emPower® gives you the ability to save a copy of the Current Configuration file by using the Save As... option of the File menu. If you need to save a copy of the Configuration file, you will already have the NHR Configurator open, assuming that:

Click File – the File menu opens.

Select the Save As... option – a standard windows browser dialog window opens.

Enter a filename for the copy in the File Name field.

Click the Save button – the copy is saved, and the NHRCFGSVR (NHR Configuration Server) dialog window opens.

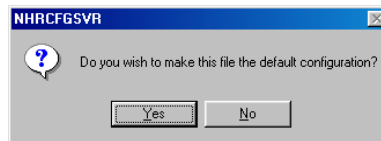


Figure 84 – The NHRCFGSVR dialog window

Here you are given the choice of making the saved copy of the Current Configuration file the default Configuration file.

Click the appropriate button.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 5 – Set Current Configuration to be the default Configuration file.

If you need to set the Configuration file to be the default Configuration file, you will already have the NHR Configurator open, assuming that:

Click File – the File menu opens.

Select the Set as Default... option – the Select a Default Configuration File dialog window, Figure 85, opens.

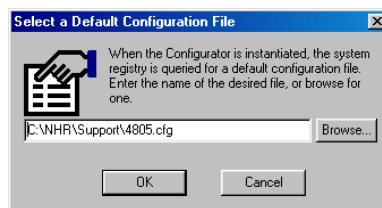


Figure 85 – The Select a Default Configuration File dialog window

Enter a filename, or click the Browse... button, and browse to a file location in the standard windows fashion.

Click the OK button – the named file is set as the default Configuration file.

In the NHR Configurator dialog window, click the OK button.

In the *emPower*® Utilities dialog window (Hardware tab), click the OK button.

Task 6 – View, Save, and Print the Current Configuration file.

Viewing the Current Configuration file.

Open the NHR Configurator dialog window – instructions on page 81.

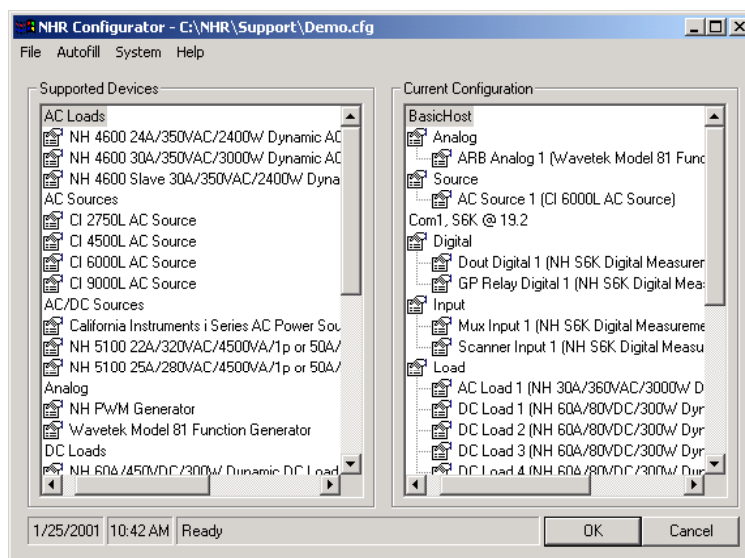


Figure 86 – The NHR Configurator dialog window

Click File – the File menu opens.

Select the Print... option – the Print Configuration dialog window, Figure 87, opens.

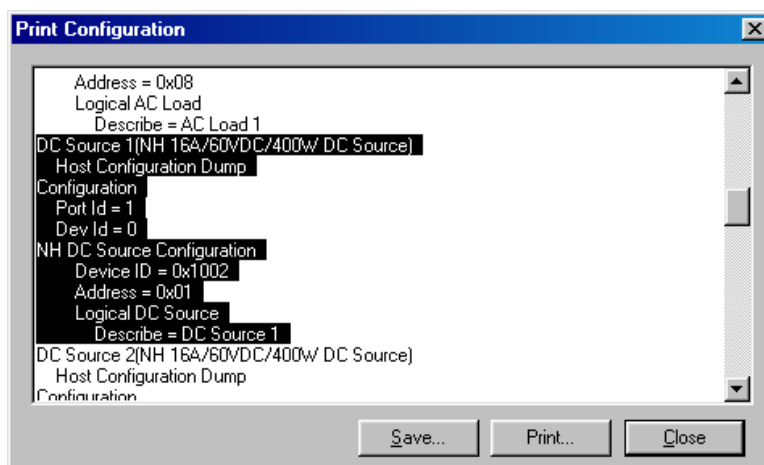


Figure 87 – The Print Configuration dialog window

Scroll down to view the details of each hardware device in the Current Configuration file.



The Print Configuration dialog window

The details listed in the Print Configuration dialog window, Figure 87, contains the configuration details of all hardware devices in the Current Configuration file. In, Figure 87, the configuration details of the hardware device with the logical name of DC Source 1 is highlighted

Click the Close button when finished.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Saving an .rtf (Rich Text Format) copy of the Current Configuration file

One of the advantages of saving a copy of the Current Configuration file in the .rtf format is that you will have a human-readable copy of the Current Configuration file in electronic form that you can view without emPower®.

Open the NHR Configurator dialog window – instructions on page 81.

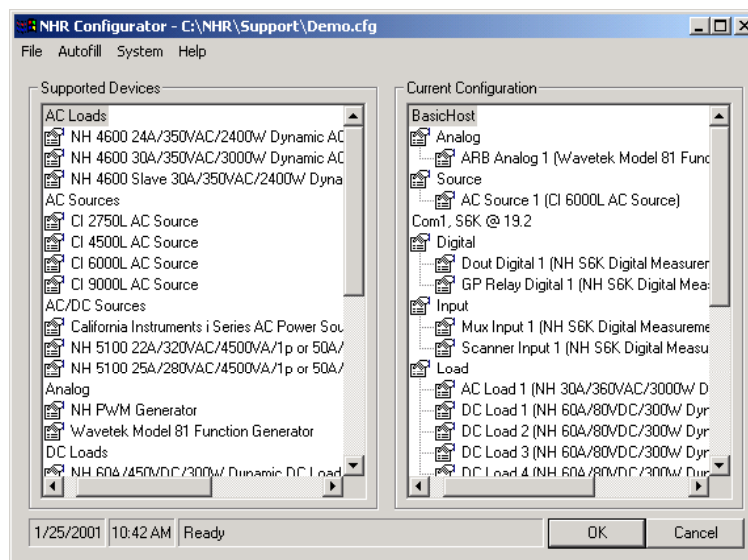


Figure 88 – The NHR Configurator dialog window

Click File – the File menu opens.

Select the Print option – the Print Configuration dialog window, Figure 89, opens.

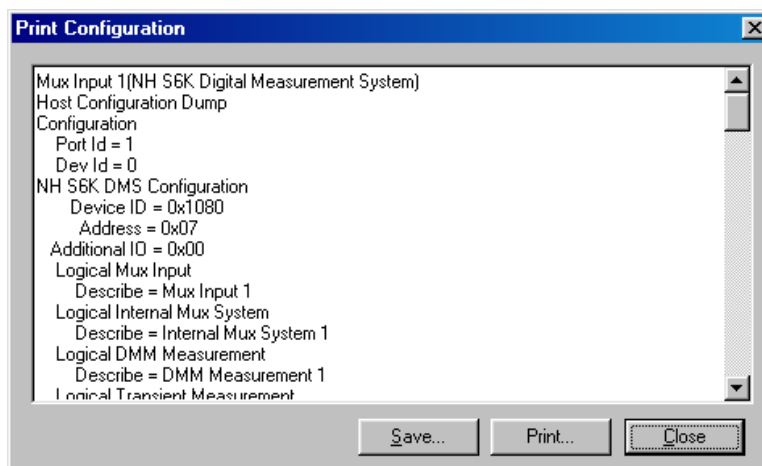


Figure 89 – The Print Configuration dialog window

Click the Save button – a standard windows browse dialog window opens.

Browse to the location you want to save the .rtf file – you may change the name of the .rtf file before saving.

Click the Save button.

In the Print Configuration dialog window, click the Close button.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Printing a copy of the Current Configuration file

There are a few reasons why you'd want to print a copy of your Current Configuration, one is: as a backup – you can re-create a configuration file from a paper copy if your electronic copy is damaged/destroyed/lost.

Open the NHR Configurator dialog window – instructions on page 81.

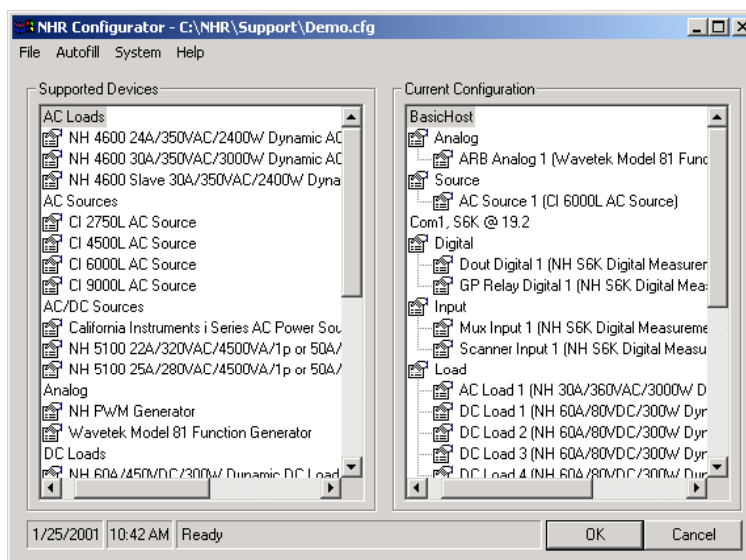


Figure 90 – The NHR Configurator dialog window

Click File – the File menu opens.

Select the Print option – the Print Configuration dialog window, Figure 91, opens.

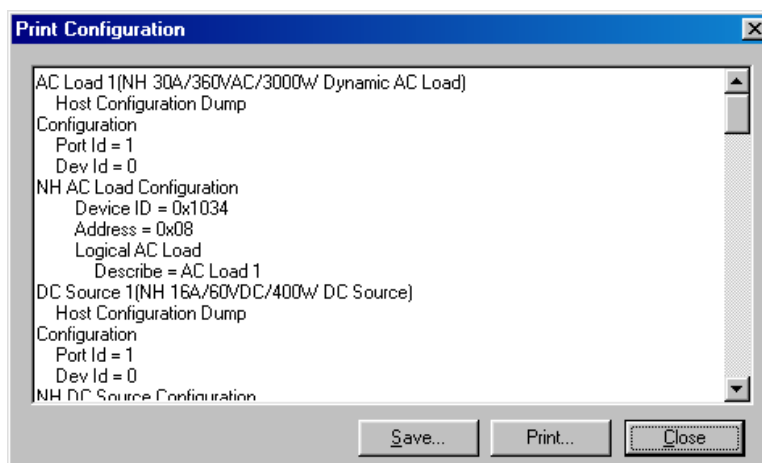


Figure 91 – The Print Configuration dialog window

Click the Print button – a standard windows printer dialog window opens.

In the Printer dialog window, click the OK button – the Current Configuration file is printed on your default printer.

In the PrintConfiguration dialog window, click the Close button.

In the NHR Configurator dialog window, click the OK button.

In the *emPower*® Utilities dialog window (Hardware tab), click the OK button.

BasicHost – what you need to know:

Adding a hardware device that will use the BasicHost for communication is straight forward since the BasicHost is a catchall communication port for non-serial communication port devices.

Serial Communication Hosts – what you need to know.

Adding a hardware device that will use a serial communication port for communication, is a slightly complex process, since you are actually adding this new hardware device to a Serial Communication Host, and a Serial Communication Host is defined by:

1. The named communication port (one per Host) to be used by the Host
2. The communication protocol to be used by the Host
3. The communication speed to be used by the Host

Each Serial Communication Host must have its own communication port, and you must have a Serial Communication Host for each communication protocol, and for each communication speed.

Adding a device driver – what you need to know:

In an NHR Test System there are two ways that *emPower*® communicates with hardware devices:

1. Through the BasicHost, a General Purpose Interface Bus (GPIB).
2. Through the computer's communication port(s) Com1, Com 2 (etc), a standard serial communication port.

Most non-NHR hardware devices supplied by NHR use a GPIB. When installed by NHR, NHR installs the GPIB card in the computer, the communications driver for the card, and the *emPower*® device driver for that non-NHR hardware device. NHR can also supply an *emPower*® device driver for non-NHR hardware devices that you buy after delivery/installation of your Test System.

Most NHR hardware devices use the computer's standard communication port(s). Since the communication ports of the hardware devices are connected serially, daisy-chained, to the computer's standard communication port, there is usually no need for the computer to have more than one standard communication port.

When you buy a new hardware device from NHR, it will come with an Installation Disk. When you run the installation program on the Installation Disk the new hardware device will be added to the list of devices shown in the Supported Devices frame of the NHR Configurator.

When that is done, you need to modify the Current Configuration file, by adding this new Supported Device to the Current Configuration file.

Task 7 – Add a new Device Driver (Automatically).

Using the Search for Devices option in the Autofill menu of NHR Configurator is the recommended method for adding new hardware device drivers to the Configuration file.



Autofill – Online mode only

The Search for Devices option **ONLY** works on NHR hardware devices connected to the serial communication ports; and only when *emPower*® is in Online mode (see page 86 for more on that topic).

Using this method Configurator does most of the work for you; it “autofills” much of the setup information that *emPower*® would otherwise ask you to supply. It does this because *emPower*® can find, and ask the NHR hardware devices about themselves.

Open the NHR Configurator dialog window – instructions on page 81.

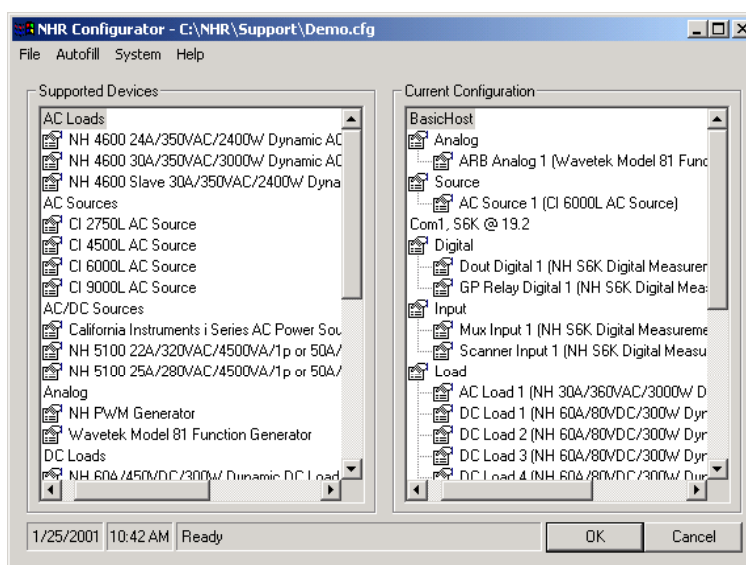


Figure 92 – The NHR Configurator dialog window

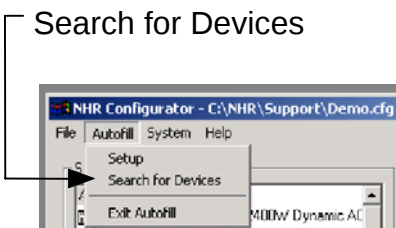


Figure 93 – Search for Devices in the Autofill menu

Select Search for Devices in the Autofill menu, Figure 93 – the XXXX dialog window opens, Figure 94, showing the number of hardware devices found

Figure 94 – The XXXX dialog window

Task 8 – Add a new Device Driver (Manually).

To add a new Device Driver manually, you either:

1. Double-click the named device in the Supported Devices frame
2. Drag the named device in the Supported Devices frame, into the Current Configuration frame.

Either way, one of the Select Host dialog windows, Figure 95, opens.

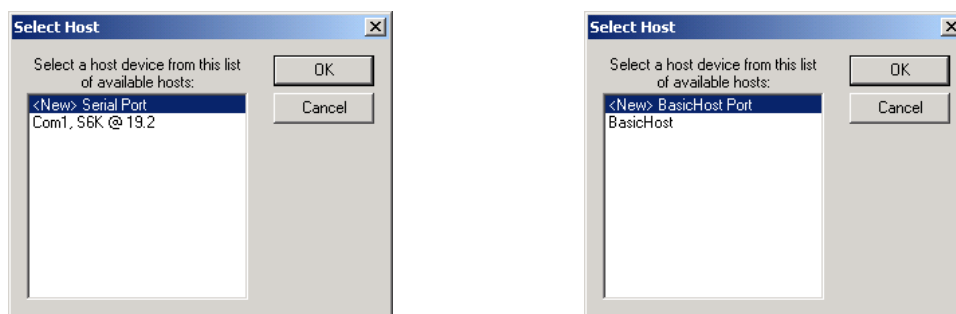


Figure 95 – The Select Host dialog windows

Adding most NHR hardware devices will produce the Select Host (Com1) dialog window (left-hand side), while most non-NHR hardware devices will produce the Select Host (Basic Host) dialog window (right-hand side). Whichever dialog window you get, you have the choice to use the existing (if any) Host, or add a new Host.

Selecting either existing Host will take you into a device dependant dialog that is beyond the scope of this manual.

See also:

1. **The NHR Device Driver manual for information on device dependant settings.**
2. **Adding a new serial communications port – what you need to know (page 61).**
3. **Adding a new BasicHost communications port – what you need to know (page 66).**

Adding a new Serial Communication Host – what you need to know:

If you add a new Serial Communication Host to the Current Configuration you must add a new serial communication port to the Current Configuration also. Adding a new serial communication port to the Current Configuration file is a task that can only be done with the Port Configuration Utility (see page 80).

In the Select Host dialog window (left-hand side), Figure 95, the second line shows Com1, S6K @ 19.2, this line contains the three pieces of information that defines a Serial Communication Host, they are:

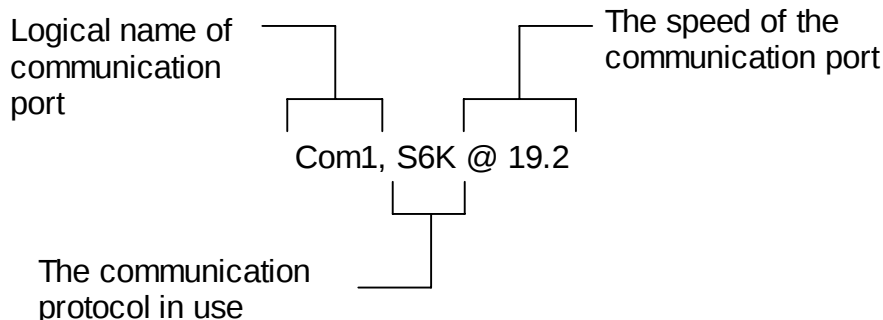


Figure 96 – Port, Protocol, Speed

The communication Protocol, and communication Speed required by any hardware device is device dependant. You will need to refer to the NH Research Device Driver manual (or the manufacturer's manual for non-NH Research device manual) for that information. Variation in communication protocol, and communication speed is the basis for adding a new Serial Communication Host to the Current Configuration.



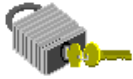
Adding a new Serial Communication Host – why, reason 1

If (for whatever reason) only <New> Serial Port appeared in the left-hand dialog window of Figure 95, then you be forced to add a new Serial Communication Host to the Current Configuration file.



Adding a new Serial Communication Host – why, reason 2

If, as in the left-hand dialog window in Figure 95, the second line shows Com1, S6K @ 19.2, and you knew the device you were adding needed to use another Protocol, then you will have to add a new Serial Communication Host with this other communication Protocol to the Current Configuration file.



Adding a new Serial Communication Host – why, reason 3

If, as in the first dialog window, Figure 95, the second line shows Com1, S6K @ 19.2, and the device you were adding communicated at a different Speed, then you will have to add a new Serial Communication Host set at this communication Speed to the Current Configuration file.

Task 9 – Add a new Serial Communication Host (Reason 1).

The Reason: You are adding “some” hardware device to the Current Configuration frame, and the Select Host dialog window, Figure 106, opens.

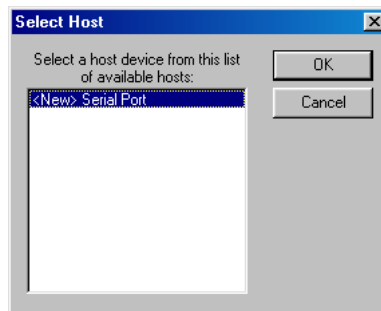


Figure 97 – The Select Host dialog window (<New> Serial Port only)

This shows you there is no Serial Communication Host in the Current Configuration, so you have to add one.

Click the OK button – the Select a Communication Port and Protocol dialog window, Figure 98, opens.

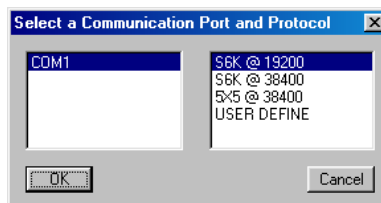


Figure 98 – The Select a Communication Port and Protocol dialog window

The COM1 entry in the left-hand frame of Figure 98 shows that the Current Configuration contains a single serial communication port with the logical name: COM1.

Select COM1

Choosing the appropriate communication protocol, and speed for a hardware device is device dependant, and beyond the scope of this manual.

See also:

1. **Can I use an existing communication port for a new Serial Communication Host?**, page 65.
2. **The NHR Device Driver manual for information on device dependant settings.**
3. **The manufacturer's Device Driver manual for non-NH Research devices .**

Task 9 – Adding a new Serial Communication Host (Reason 2).

The Reason: You are adding “some” hardware device to the Current Configuration frame, and the Select Host dialog window, Figure 99, opens, and you know that the hardware device you are adding uses a communication protocol other than the S6K shown.

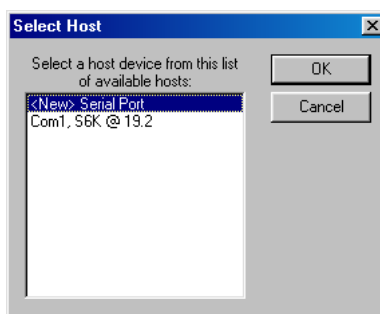


Figure 99 – The Select Host dialog window

With the line: <New> Serial Port selected.

Click the OK button – one of the Select a Communication Port and Protocol dialog windows in Figure 100, opens.

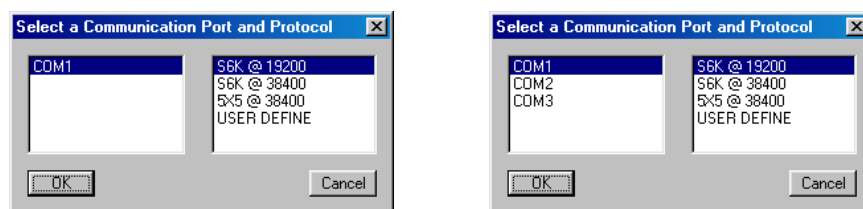


Figure 100 – The Select a Communication Port and Protocol dialog window

Since you want to add a Serial Communication Host to the Current Configuration, if the left-hand dialog window in Figure 100 opens, you will have to add a new serial communication port first using the NHR Port Configuration Utility. If the right-hand dialog window in Figure 100 opens:

Select COM2 – or any appropriate serial communication port listed.

Choosing the appropriate communication protocol, and speed for a hardware device is device dependant, and beyond the scope of this manual.

See also:

1. The NHR Device Driver manual for information on device dependant settings.
2. The manufacturer's Device Driver manual for non-NH Research devices.

Task 9 – Adding a new Serial Communication Host (Reason 3).

The Reason: You are adding “some” hardware device to the Current Configuration frame, and the Select Host dialog window, Figure 101, opens, and you know that the hardware device you are adding uses a communication speed other than the 19.2 Kilo-bits per second shown.

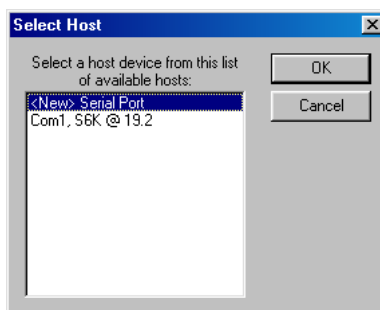


Figure 101 – The Select Host dialog window

With the line: <New> Serial Port selected.

Click the OK button – one of the Select a Communication Port and Protocol dialog windows in Figure 102, opens.

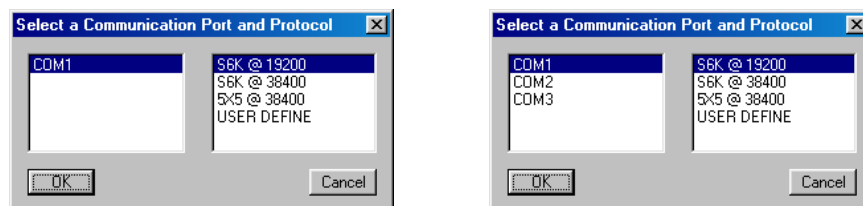


Figure 102 – The Select a Communication Port and Protocol dialog window

Since you want to add a Serial Communication Host to the Current Configuration, if the left-hand dialog window in Figure 102 opens, you will have to add a new serial communication port first using the NHR Port Configuration Utility. If the right-hand dialog window in Figure 102 opens:

Select COM2 – or any appropriate serial communication port listed.

Choosing the appropriate communication protocol, and speed for a hardware device is device dependant, and beyond the scope of this manual.

See also:

1. The NHR Device Driver manual for information on device dependant settings.

2. The manufacturer's Device Driver manual for non-NH Research devices.

Can I use an existing communication port for a new Serial Communication Host?

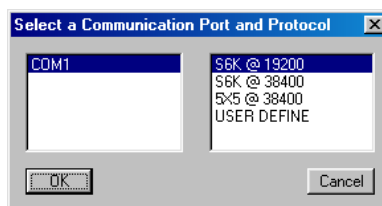


Figure 103 – The Select a Communication Port and Protocol dialog window

You can use an existing communication port if either of the following is true:

1. It isn't already in use by another Serial Communication Host
2. You are going to change the communication protocol (and/or) the communication speed of the existing Serial Communication Host.

Figure 99 shows that the only communication port in the Current Configuration is COM1.

You can tell if it's in use, or not, by opening NHR Configurator, and looking in the Current Configuration frame, Figure 104.

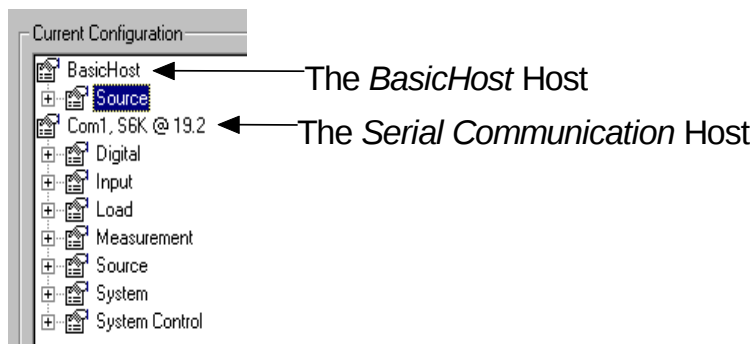


Figure 104 – The Current Configuration frame (close up)

This shows that COM1 is already being used as a Serial Communication Host with the protocol S6K, and speed of 19.2 (Kilo-bits per second). So you cannot use the existing serial communication port, COM1, for a new Serial Communication Host.

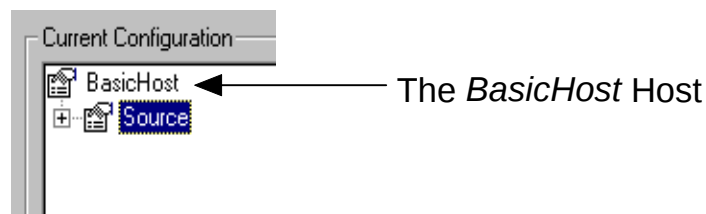


Figure 105 – The Current Configuration frame (close up)

Figure 105 shows no entry for COM1, which means it isn't being used as a Serial Communication Host. So you can use the existing serial communication port, COM1, for a new Serial Communication Host.

Adding a new BasicHost communications port – what you need to know.



Adding a new BasicHost port – why

Since all non-serial communications port hardware devices “hang” from a single BasicHost port, the only time you will add one of these is when you don't have one already.

Task 10 – Add new BasicHost communication port.

If you need to add a BasicHost communication port in NHR Configurator, you will discover that when you try to add a hardware device that requires a BasicHost communication port, and no BasicHost communication port exists. When that happens you will see the Select Host dialog window, Figure 106.

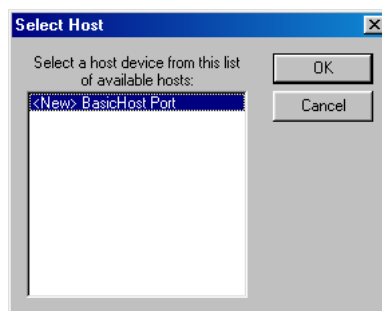
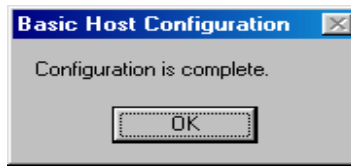


Figure 106 – Select Host dialog window

Click the OK button – the BasicHost Configuration dialog window opens.



Click the OK button.

This takes you into a device dependant dialog that is beyond the scope of this manual.

See also:

1. **The NHR Device Driver manual for information on device dependant settings.**
2. **The manufacturer's Device Driver manual for non-NH Research devices.**

System Triggers – what your need to know.

The Source Present signal is the signal that a source generates when it starts supplying power to a UUT (it starts supplying power to a UUT when your Test Program tells it to). Sources generate this Source Present signal when they begin supplying power to a UUT, even if your Test Program makes no use of it.

System Triggers – why would you use them

Sometimes you'll want to know how much time the UUT takes to reach a certain state, after it begins receiving power. Your timer can be started by a Source Present signal from a source, and stopped by a Test Routine when it decides that the certain state exists.

For example: On a Test System the DC Source 1 has been selected as the DC Presence Signal Master, and the UUT has a Power Good signal (this goes High when the output voltage of the UUT reaches its specified minimum value), and you want to know how much time the UUT takes to generate the Power Good signal after it is supplied with power.

So you set up your Test Program to tell DC Source 1 to begin supplying power to the UUT. As soon as DC Source 1 begins supplying power to the UUT, it tells the Test Program that it's doing that (by sending the DC Presence signal). The Test Program then begins timing, and times until the Power Good signal is received from the UUT. The value of the timer is the information you wanted about the UUT.

Task 11 – Select a source to be Presence Signal Master.

Open the NHR Configurator dialog window – instructions on page 81.

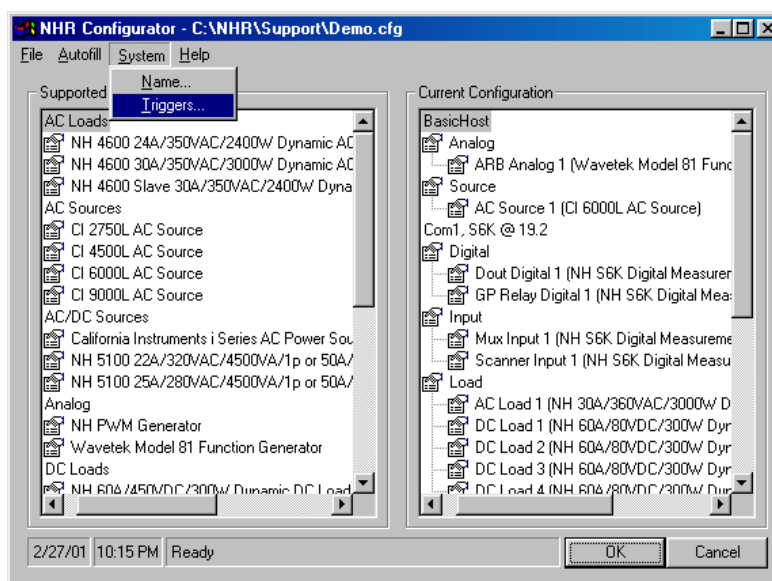


Figure 107 – The NHR Configurator dialog window

In the System menu, select Triggers – the System Triggers dialog window, Figure 108, opens.

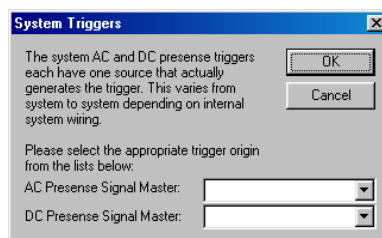


Figure 108 – The System Triggers dialog window

At this point, both the AC Presence Signal Master:, and the AC Presence Signal Master: dropdowns will show the logical names of the AC Sources, and DC Sources that are part of your Current Configuration file.

Select the appropriate (for your Test Program) AC Source, or DC Source from the appropriate Presence Signal Master dropdown.

Click the OK button.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 12 – Define your own Serial Communication Protocol.

The **emPower**® system comes with a choice of three serial communication protocols, and communication speeds for use with hardware devices. These three serial communication protocols, and communication speeds are:

1. S6K @ 19.2 (kilo-bits per second).
2. S6K @ 38.4 (kilo-bits per second).
3. 5X5 @ 38.4 (kilo-bits per second).

You will see these three serial communication protocols offered to you when you are adding a new Serial Communication Host in the Select a Communication Port and Protocol dialog window, Figure 109.

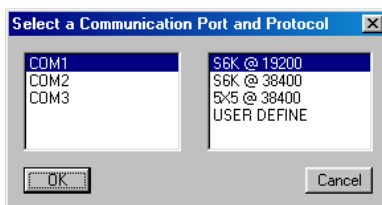


Figure 109 – The Select a Communication Port and Protocol dialog window

Since each serial communication port can only support one serial communication protocol and communication speed at a time, you must have an unused serial communication port available for your User Defined communication protocol.

In the left-hand frame of the Select a Communication Port and Protocol dialog window (Figure 109), select an unused serial communication port.

In the right-hand frame of the Select a Communication Port and Protocol dialog window (Figure 109), select USER DEFINE.

Click the OK button.

This takes you into a device dependant dialog that is beyond the scope of this manual.

See also:

1. **The NHR Device Driver manual for information on device dependant settings.**
2. **The manufacturer's Device Driver manual for non-NH Research devices.**

Task 13 – Change the configuration of a hardware device.

Two reasons for changing the configuration of hardware devices are:

1. If you are changing the position of your hardware devices in the daisy chain, you will need to change their addresses too.
2. If you want to give a descriptive name to a Mux channel because it has a special purpose such as having a noise filter attached to it.

Open the NHR Configurator dialog window – instructions on page 81.

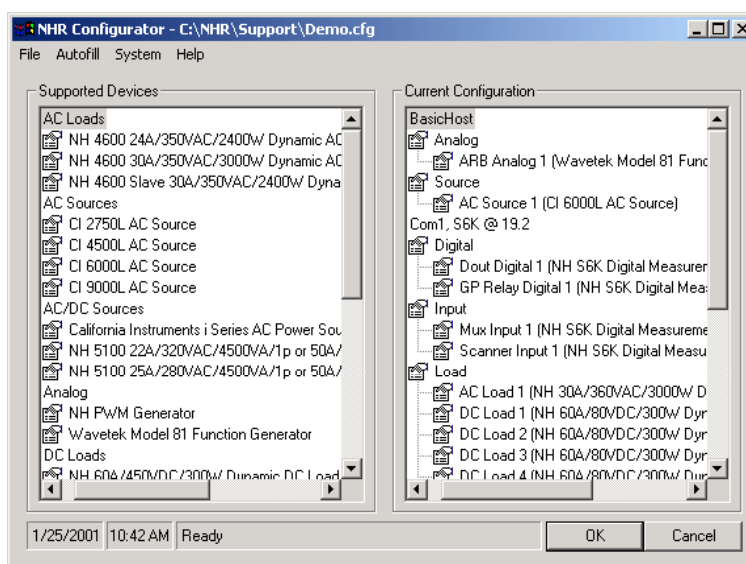


Figure 110 – The NHR Configurator dialog window

In the Current Configuration frame:

Right-click the name of hardware device you want re-configure – a menu opens, Figure 111.

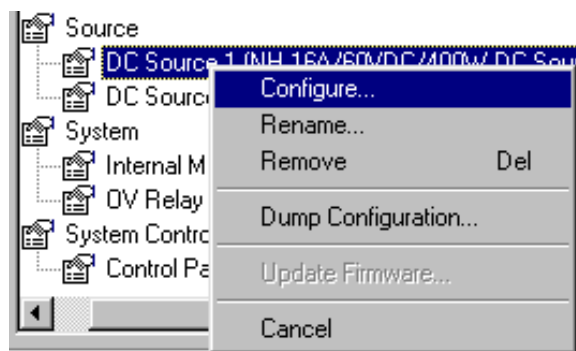


Figure 111 – The Current Configuration frame (close up)

Select the Configure option – the device dependant Configuration dialog window, Figure 112, opens.

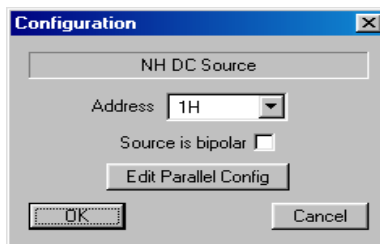


Figure 112 – The Configuration dialog window

Make your changes to the configuration.

Click the OK button.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 14 – Rename a hardware device.

One reason that you would want to change the Logical Name of a hardware device is if you are changing physical locations of hardware devices in the communication daisy chain. For example, if you were inserting a new load into the communication daisy chain (to keep the loads together in a physical group) you'd have to change the Logical Names of any loads it was inserted in front of.

This section tells you how to change the Logical Name of a hardware device. Open the NHR Configurator dialog window – instructions on page 81.

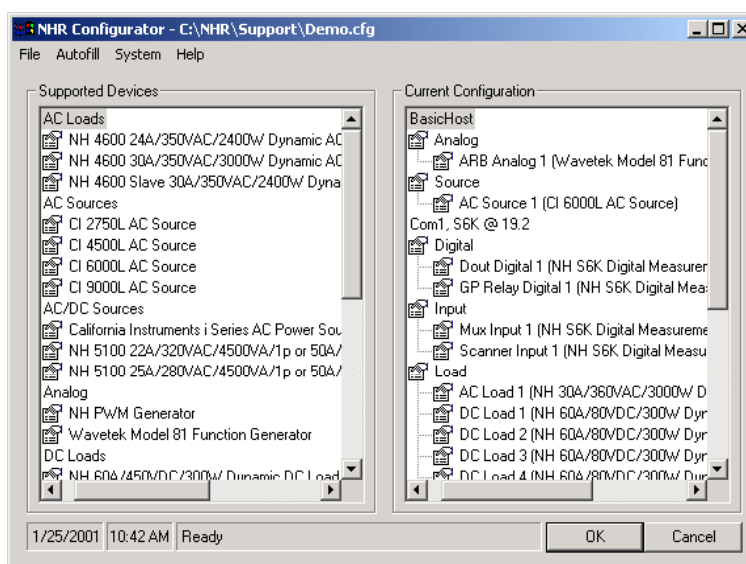


Figure 113 – The NHR Configurator dialog window

In the Current Configuration frame:

Right-click on the hardware device you want to rename – a menu opens, Figure 114.

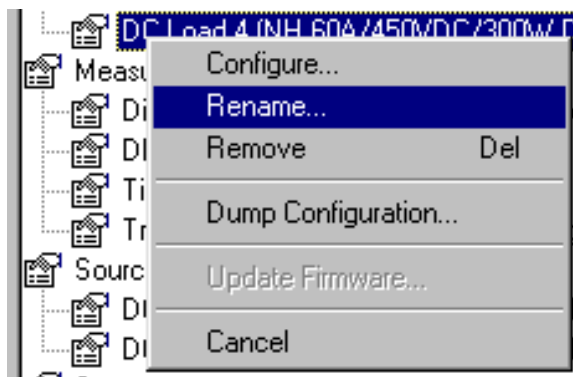


Figure 114 – The Current Configuration frame (close up)

Select the Rename option – the Device Logical Name dialog window, Figure 115, opens.

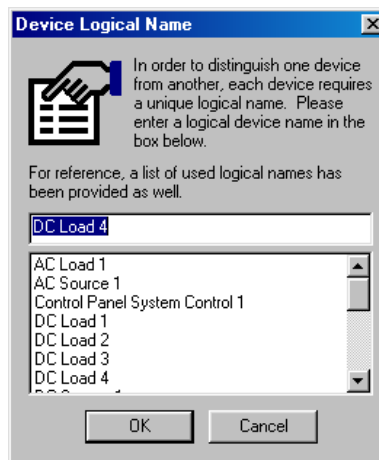


Figure 115 – The Device Logical Name dialog window

Enter a new Logical Name for the hardware device, click the OK button.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 15 – Remove a Host.

This method applies to both the BasicHost, and Serial Communication Host(s). Open the NHR Configurator dialog window – instructions on page 81.

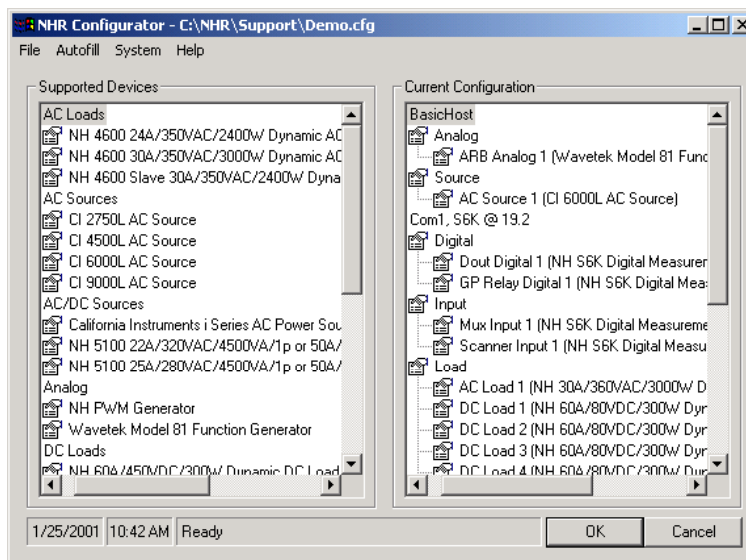


Figure 116 – The NHR Configurator dialog window

In the Current Configuration frame:

Right-click on the Host you want to remove – a menu opens, Figure 117.

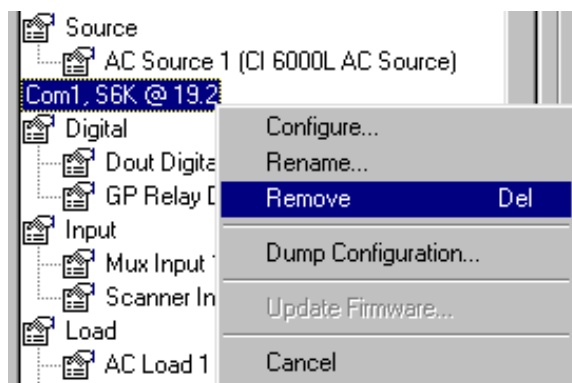


Figure 117 – The Current Configuration frame (close up)

Click the Remove option – the NHR Configuration Server (NHRCFGSVR) dialog window, Figure 118, opens.

The NHR Configuration Server (NHRCFGSVR) dialog window lists all the hardware devices that will be removed from the Current Configuration if the selected Host is removed from the Current Configuration.

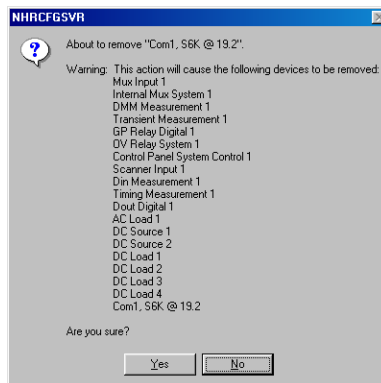


Figure 118 – The NHRCFGSVR dialog window

Click the Yes button – the selected Host is removed from the Current Configuration.

In the NHR Configurator dialog window, click the OK button.

In the *emPower*® Utilities dialog window (Hardware tab), click the OK button.

Task 16 – Removing a hardware device.

One reason that you would need to remove a hardware device from the Current Configuration is if that hardware device was defective. You'd physically remove the hardware device from your Test System (so it can be repaired), and then remove it from the Current Configuration. You must remove it from the Current Configuration since **emPower®** attempts to communicate with every hardware device in the Current Configuration, and **emPower®** will generate a runtime error if it cannot communicate with all the hardware devices in the Current Configuration.

This method applies to both the BasicHost, and Serial Communication Host(s).

Open the NHR Configurator dialog window – instructions on page 81.

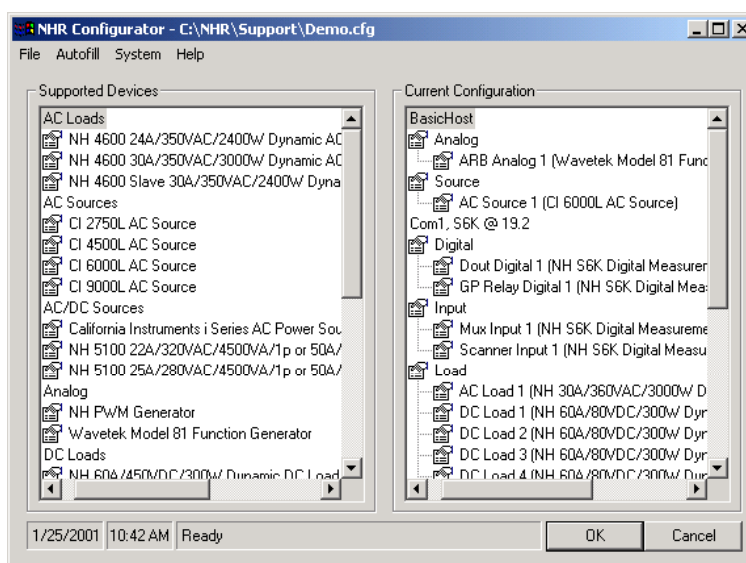


Figure 119 – The NHR Configurator dialog window

In the Current Configuration frame:

Right-click on the hardware device you want to remove – a menu, Figure 120, opens.

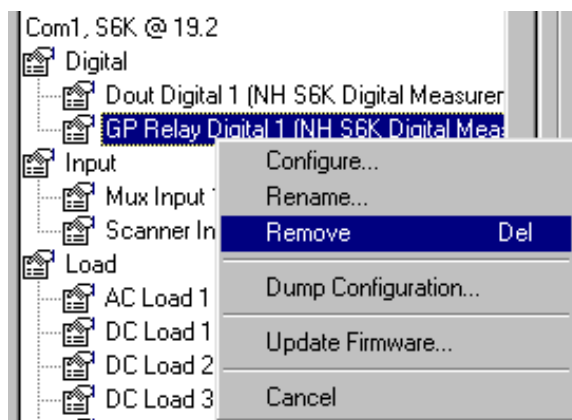


Figure 120 – The Current Configuration frame (close up)

Click the Remove option – the NHR Configuration Server (NHRCFGSVR) dialog window, Figure 121, opens.

The NHR Configuration Server (NHRCFGSVR) dialog window lists all the hardware devices that will be removed from the Current Configuration if the selected hardware device is removed from the Current Configuration.

The contents of the NHR Configuration Server (NHRCFGSVR) dialog window will vary depending on what kind of hardware device you are removing.

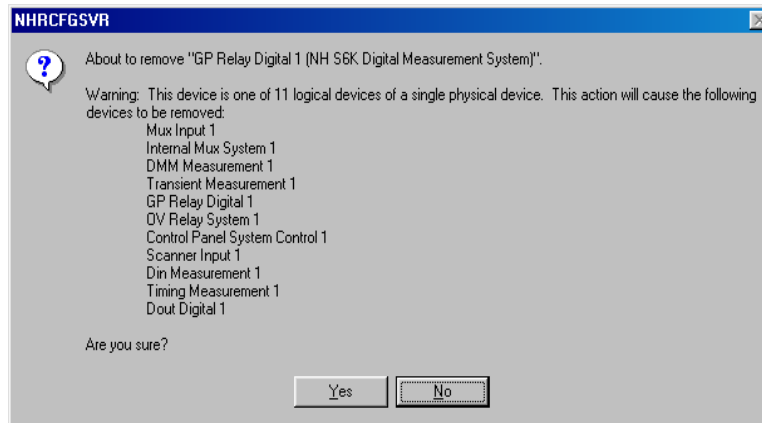


Figure 121 – The NHRCFGSVR dialog window

Click the Yes button – the selected hardware device is removed from the Current Configuration.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 17 – Dump the configuration of a hardware device.

Open the NHR Configurator dialog window – instructions on page 81.

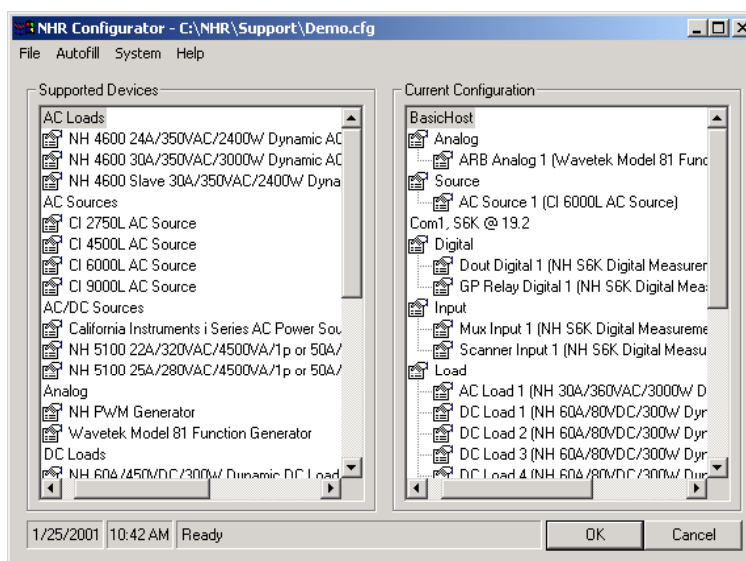


Figure 122 – The NHR Configurator dialog window

In the Current Configuration frame:

Right-click the name of hardware device you want the configuration details of – a menu opens, Figure 123.

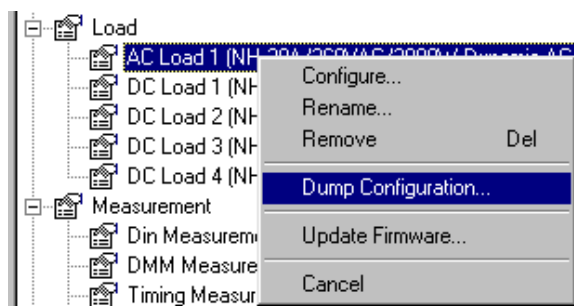


Figure 123 – The Current Configuration frame (close up)

Select the Dump Configuration option – the NHRCFGSVR (NHR Configuration Server) dialog window, Figure 124, opens showing the configuration details of the selected hardware device.

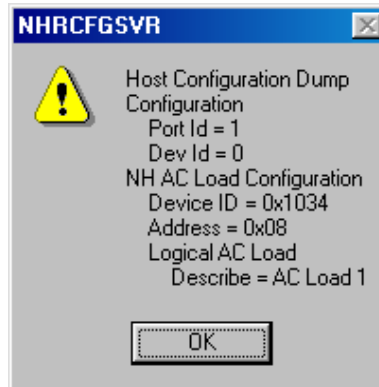


Figure 124 – The NHRCFGSVR dialog window

Click the OK button.

In the NHR Configurator dialog window, click the OK button.

In the emPower® Utilities dialog window (Hardware tab), click the OK button.

Task 18 – Update the Firmware of a hardware device.

The Firmware is really software that “lives” on a computer chip built into an NH Research hardware device. Some of NH Research’s hardware devices allow you to update the Firmware. Since updating Firmware is an interactive process (between **emPower®** and a hardware device) you can only update Firmware while **emPower®** is on-line. Open the NHR Configurator dialog window – instructions on page 81.

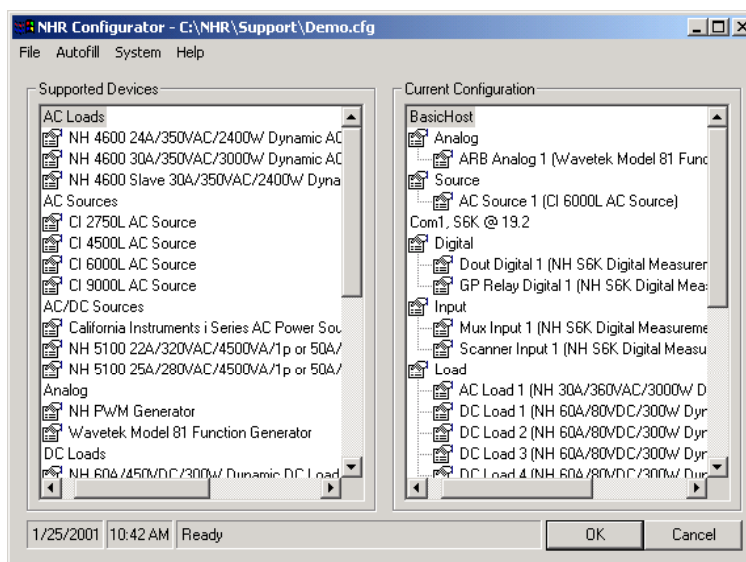


Figure 125 – The NHR Configurator dialog window

In the Current Configuration frame:

Right-click the name of hardware device you want to update – the hardware device menu opens.

If the menu item Update Firmware... is enabled (left-hand side of Figure 126), then the hardware device you right-clicked can have its Firmware updated; if the menu item Update Firmware... is disabled (right-hand side of Figure 126) then the hardware device cannot have its Firmware updated.

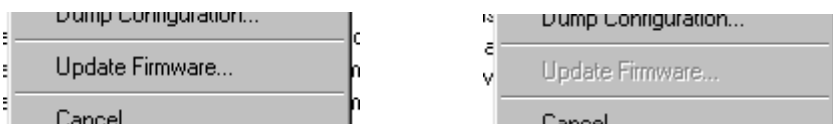


Figure 126 – The hardware device menu

Select Update Firmware... if enabled – the NHRCFGSVR (NHR Configuration Server) dialog window, Figure 127, opens.

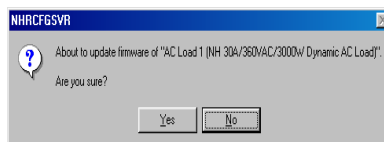


Figure 127 – The NHRCFGSVR dialog window

Click the Yes button.

This will take you into a device dependant dialog that is beyond the scope of this manual.

See also:

1. The NHR Device Driver manual for information on device dependant settings.

3.4 Opening the NHR Configurator dialog window

With emPower® running click the Utilities button in the emPower® task bar, Figure 128, – the emPower® Utilities dialog window (Options tab) opens.



Figure 128 – The emPower® task bar

Click the Hardware tab – the emPower® Utilities (Hardware tab) dialog window, Figure 129, opens.

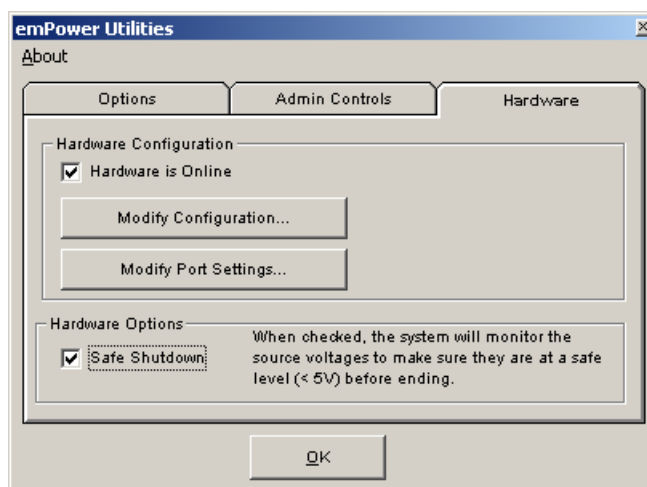


Figure 129 – The emPower® Utilities (Hardware tab) dialog window

Click the Modify Configuration... button – the NHR Configurator dialog window opens.

3.5 The NHR Port Configuration Utility – what you need to know

In the NHR Port Configuration Utility you describe/re-describe to *emPower*® the serial communication ports it has available for communicating with hardware devices. The NHR Port Configuration Utility can only be used to configure/re-configure the standard serial communications ports.

What you can do in the NHR Port Configuration Utility.

In the NHR Port Configuration Utility you can do 8 tasks; they are:

- Task 1. Add a new port.
- Task 2. Delete an existing port.
- Task 3. Select/change an I/O Address range for an existing port.
- Task 4. Select/change an IRQ value for an existing port.
- Task 5. Select a existing port to be the Trigger Master.
- Task 6. Toggle the Online/Offline mode.
- Task 7. Enter a value in the Offline Pass Percentage field.
- Task 8. Test that an existing port, and the communications cable connected to it, are working.

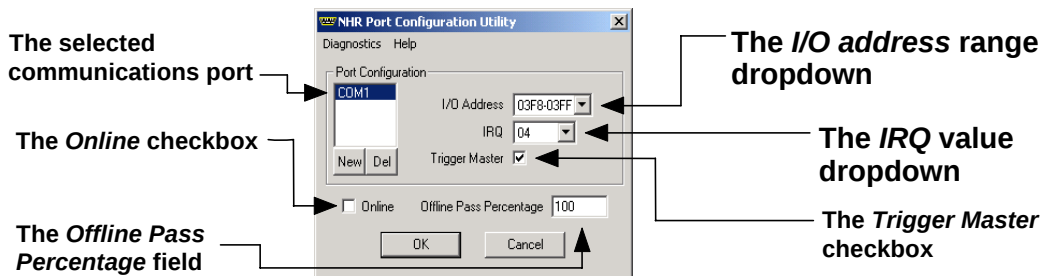


Figure 130 – The NHR Port Configuration Utility dialog window

Task 1 – Adding a new serial communication port.

Most *emPower*® Test Systems use only one serial communication port. From that single communications port, all the hardware devices in the Test System are connected serially “daisy-chained” together. This “daisy-chain” includes the line used as the Master Trigger.

The communication protocol used by most NHR hardware devices is the S6K, and with that communications protocol a single serial communications port can have up to 63 hardware devices “hanging” from it.

When configuring the serial communications port(s) for a Test Program, you need to keep in mind that you are configuring the program for the Target Computer (the computer that the Test Program will be run on) not the Programming Computer (the computer that the Test Program is developed on). Often, both tasks are done on the same computer, but this is not necessarily the case.

It is also possible that the multiple serial communications port(s) on the Target Computer are not numbered sequentially, so it is very important that you keep in mind the specifications of the Target Computer when developing a Test Program.

Open the **emPower®** Utilities (Hardware tab) – instructions on page 81.

Open the NHR Port Configuration Utility – instructions on page 88.

In the NHR Port Configuration Utility.

Click the New button – the Select Communications Port dialog window opens.

Click the Select Communications Port dropdown.

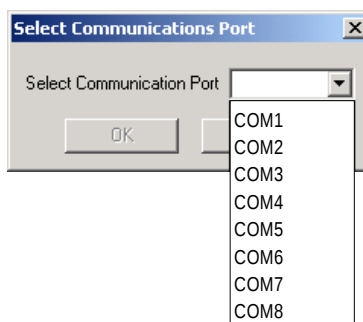


Figure 131 – The Select Communications Port dialog window

Select the “Appropriate” communications port from the list – the new port appears in the NHR Configuration Utility, Figure 132.

Usually, the “Appropriate” communications port will be the next available one in the dropdown list, but the choice will really depend on the specifications of the Target Computer.

Click the OK button – the Select Communications Port dialog window closes showing the NHR Port Configuration Utility with the new communications port added.

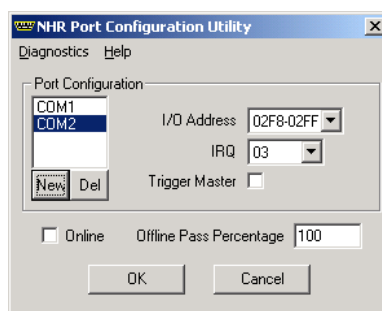


Figure 132 – The NHR Configuration Utility showing new port



Industry standard settings for communication ports

The first four communications ports on a computer have “industry standard”

I/O Address ranges, and IRQ values, *emPower*® plugs these industry standard settings in as you add the first four communications ports. For most configurations these settings are correct, however you really should check these settings – just to be sure.

Click the OK button – the NHR Configuration Utility dialog window closes.

In the *emPower*® Utilities dialog window (Hardware tab), click the OK button – The Utilities dialog window (Hardware tab) closes.

Task 2 – Deleting an existing port.

Since your *emPower*® Test Programs only use the communications ports they are “told” to use, and never even “look” at any other communications port, you don’t actually need to remove extra communications ports. But, since we can create a new port, we are also able to delete an existing communications port. To do that:

Open the *emPower*® Utilities (Hardware tab) – instructions on page 88.

Open the NHR Port Configuration Utility – instructions on page 88.

In the NHR Port Configuration Utility:

Select the communications port you want to delete – the selected communications port is highlighted.

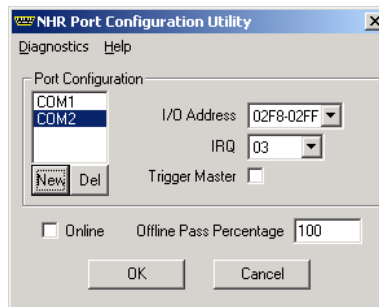


Figure 133 – The NHR Port Configuration Utility (selecting a communications port)

Click the Del button – the selected port is deleted from the NHR Configuration Utility.

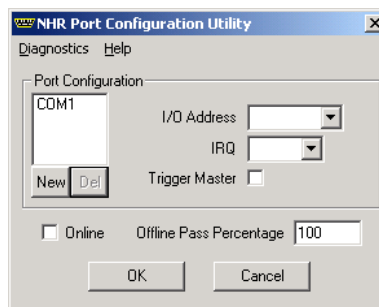


Figure 134 – The NHR Port Configuration Utility (communications port is deleted)

In the NHR Port Configuration Utility dialog window, click the OK button – the NHR Port Configuration Utility dialog window closes.

In the emPower® Utilities dialog window (Hardware tab), click the OK button – the emPower® Utilities dialog window (Hardware tab) closes.

Task 3 – Selecting/changing an I/O Address range of a port.

The value you select for the I/O Address range is the actual I/O (Input/Output) address that your Operating System is using for your communication port. To find out what you should be using, you need to ask your Operating System what I/O Address range it's using for the communication port.

Task 4 – Selecting/changing an IRQ value for a port.

The value you enter as the IRQ (Interrupt ReQuest) value is the actual value that your Operating System is using for the selected communication port. To find out what this value is, you need to ask your Operating System what IRQ value it's using for the communications port.

When you ask your Operating System (see your user manual, or online help) what I/O Address range, and IRQ value it is using for the communication port, you will shown something like Figure 135, where you can read-off the values/settings you need.

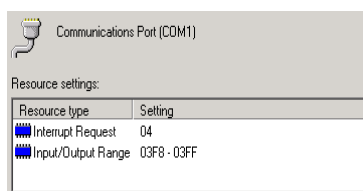


Figure 135 – An example Port Properties information window

Task 5 – Selecting an existing port to be the Trigger Master.

By checking the Trigger Master checkbox, you are choosing to use the Ready To Send (RTS) line of the selected communication port as the Trigger Master. This means that emPower® will use this RTS line, of this communication port, to send Trigger Signals.

Sometimes, emPower® Test Routines require that a measurement is taken from a UTT while a Source/Load is in a particular state. emPower® “knows” that the Source/Load is in that state, because the Source/Load is programmed to go into that state when Triggered to do so, and the measurement device is programmed to take its measurement when it is Triggered to do so by the same Trigger Signal sent by emPower® down the RTS line.

Task 6 – Toggling the Online/Offline mode.

With this checkbox unchecked, emPower® will run in the Offline mode, and will not attempt to interact with any hardware devices when emPower® is installed, its default mode is Offline. You must toggle this mode to Online mode before emPower® can interact with any hardware devices.

Open the emPower® Utilities dialog window (Hardware tab) – instructions on page 89.

Open the NHR Port Configuration Utility dialog window – instructions on page 89.

When the Online checkbox is checked, *emPower*® is running in Online mode. Check, or uncheck the Online checkbox as you require.



Running *emPower*® in Online mode

To run Online, you must, use a configuration file that matches the hardware devices in your Test Station, or a sub-set of those hardware devices, because *emPower*® regularly attempts to interact with all the hardware devices in the current configuration file. If *emPower*® cannot interact with a hardware device listed in the current configuration file it will display a non-communication fault message.

Task 7 – The Offline Pass Percentage field.

The Offline Pass Percentage value only impacts the evaluation of Test Routine measurements made by *emPower*® in the Offline mode.

Since *emPower*® doesn't attempt to interact with any hardware devices, including a UUT, while in Offline mode, there is **NO POSSIBILITY** that a measurement taken by a Test Routine in Offline mode will be a “bad” value unless we make it a “bad” value somehow. The Offline Pass Percentage field is that somehow.

For example, if the Offline Pass Percentage field is set to 99%, then 99% of a Test Routine's evaluations of a measured value will be “good values” (between the minimum, and maximum range of values specified for that measurement in the Test Routine). The other 1% of those evaluations will be evaluated as “bad values” (outside the minimum, and maximum range of values specified for that measurement in the Test Routine).

Task 8 – Testing an existing port, and communications cable.

Why would you test a communications port?

The answer to this question is easy, but general. You test a communication port when *emPower*® fails to communicate with hardware devices. This “failure to communicate” can show itself in many ways, but testing your communication ports, and communication cable can either show them to be, or not to be, the cause of the “failure to communicate”.

Testing a communication port

You can use *emPower*® to test that your communication port is actually able to send, and receive data. To do this you place a Loop Back plug on the communication port, and *emPower*® simulates communication with a hardware device, and the Loop Back plug Loops the outbound data, Back though the communications port. If *emPower*® can send, and receive this data, then the communication port is working.

Testing a communication cable

To test your communication cable, you perform the same test with the communication cable attached to the computer's communication port, and the Loop Back plug attached to the end of the communication cable. If *emPower*® can still send, and receive data, then both the communication port, and communication cable are working.

To test a communication port:

Open the **emPower®** Utilities dialog window (Hardware tab) – instructions on page 81.

Open the NHR Configuration Utility dialog window – instructions on page 82.

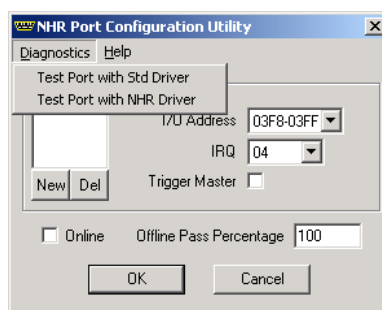


Figure 136 – The NHR Port Configuration Utility (Test Port menu)

In the NHR Configuration Utility dialog window:

Select the communication port you want to test.

Open the Diagnostics menu.

Click the Test Port with Std Driver option – the PORTCFG (Diagnostics) dialog window, Figure 137, opens.

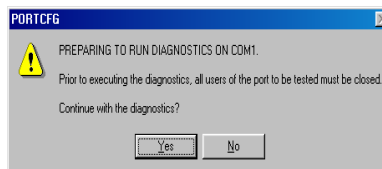


Figure 137 – The PORTCFG (Diagnostics) dialog window

Notice that the logical name of the port under test (COM1 in this case) appears in the PORTCFG (Diagnostics) dialog window above.

Click the Yes button – the PORTCFG (Loop Back) dialog window, Figure 138, opens.

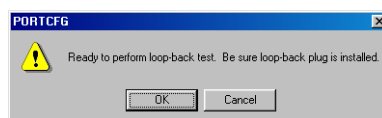


Figure 138 – The PORTCFG (Loop Back) dialog window

If you have a Loop Back plug attached to the communication port you are testing:

Click the OK button.

Otherwise:

Click the Cancel button.

Some tests are carried out on the communication port even if you clicked the Cancel button above. Clicking the Cancel button only skips the Loop Back, so clicking either button causes the PORTCFG (Tests completed) dialog window, Figure 139, to open.

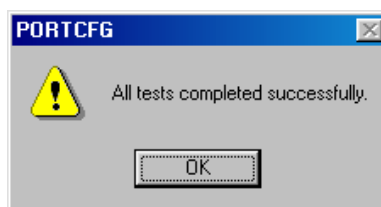


Figure 139 – The PORTCFG (Tests completed) dialog window

If the Loop Back test fails, the PORTCFG (Error) dialog window, Figure 140, opens.

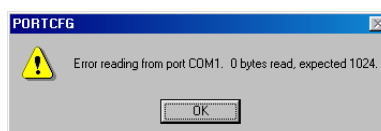


Figure 140 – The PORTCFG (Error) dialog window

If this dialog window appears, you will have found at least one reason why *emPower*® is failing to communicate with the connected hardware devices.

3.6 Opening the NHR Port Configuration Utility

With *emPower*® running:

Click the Utilities button in the *emPower*® task bar, Figure 141, – the *emPower*® Utilities dialog window (Options tab) opens.



Figure 141 – The *emPower*® task bar

Click the Hardware tab – the *emPower*® Utilities (Hardware tab) dialog window opens.

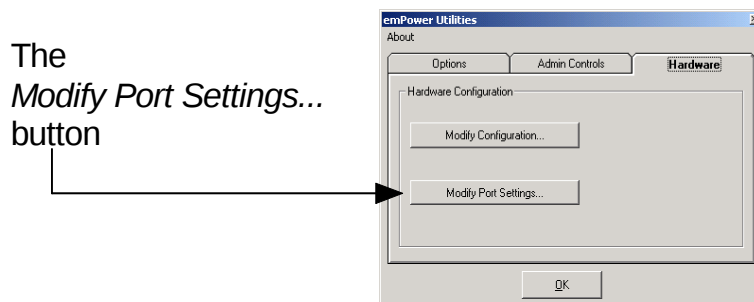


Figure 142 – The emPower® Utilities dialog window (Hardware tab)

Click the Modify Port Settings... button – the NHR Port Configuration Utility dialog window opens.

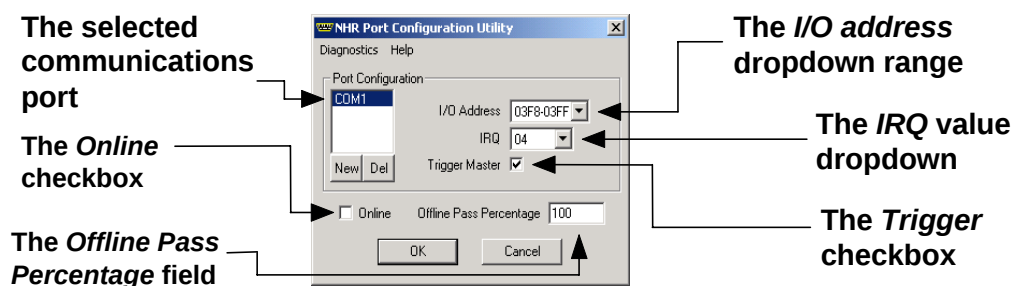


Figure 143 – The NHR Port Configuration Utility dialog window

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