

ARES Version 4.4.1



**Security and Access Control
Management System**

**PRODUCT INSTALLATION GUIDE
UPDATED JANUARY, 2000**



The Leader In Innovative Security Technology

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ARES MANAGEMENT SOFTWARE

The ARES Management System is a dedicated alarm and access control software package. The multi-tasking, multi-operator station, multi-Challenger versatility of ARES provides total system management over the entire Challenger product range.

It offers unparalleled flexibility for large sites.

ARES impressive list of features include a three tier alarm response facility, an extensive range of reporting options, a user database with programmable fields and fully programmable operator access levels, including view only status and password protection.

The system is ready for door and lift access control and has dynamic graphics capabilities.

For increased security integrity, ARES includes remote control and automated processes, remote monitoring, user image databases and high-end integration of third party closed circuit television devices.

ARES INSTALLATION INTRODUCTION

ARES is always installed from CD-ROM.

The QNX Operating System and QNX Windows may be installed from the ARES CD or, if you have purchased them separately, from floppy diskette.

If you are using the ARES CD to load QNX and QNX Windows, the licenses for these products are included on the ARES Boot Diskette, together with your ARES site license.

Hardware

Refer to Appendix A for the hardware requirements necessary for ARES.

Before beginning installation you should know the type of the following hardware in your PCs:

Hard Disk Controller	EIDE or SCSI
Network Card	only needed for ARES systems requiring more than 1 PC. Refer to Appendix N, page 59 for supported Network cards.
Video Card	The default resolution is 640 x 480 at 16 colours. Higher resolution is possible. If you are going to use a User Imaging System the video card must be in 256 colour mode. In this case all PCs must have the same type of Video Card.

For installation of QNX, etc from the ARES CD the Tecom Loader (AQL) attempts to automatically detect the hardware, but it does require confirmation from the installer.

AQL installation is described in **Section 1**.

Installation of QNX and QNX Windows from floppy disk is more complex and is described in **Section 2**.

TCP/IP

TCP/IP is only required if any of the following conditions apply:

- Your ARES system is using the FOX ID Imaging package
- You have a multi-PC setup where one or more of the nodes are located via a Wide Area Network
- You are communicating to Challenger(s) via TCP/IP over a Local or Wide Area Network

TCP/IP is always purchased separately (TS9056) and is installed from floppy diskettes and is described in **Section 3**.

ARES CONNECTION DIAGRAMS

Simple to follow wiring diagrams for a variety of connections, LAN topologies, etc. are located at the rear of this installation manual.

ARES INSTALLATION SEQUENCE

For Node 1:

- Compulsory - QNX & QNX Windows (either **Section 1** or **Section 2**)
- Compulsory - ARES (**Section 4**)
- Optional - TCP/IP (**Section 3**)

For Other Nodes:

- Compulsory - QNX & QNX Windows (either **Section 1** or **Section 2**)
- Optional - TCP/IP (**Section 3**)

(ARES is loaded from Node 1 only on all other nodes)

Section 1

INSTALLATION OF QNX, QNX WINDOWS & ARES FROM THE ARES CD-ROM

NOTE: If an operating system other than QNX is currently resident on the hard disk of your PC we recommend that you back it up and then delete it.

1. Boot the PC from the ARES Boot Diskette and wait for the message

“Welcome to QNX...”

2. Type *AQL* <enter>

3. *AQL* will attempt to detect the type of disk controller and will prompt for confirmation.

If the PC has both an IDE and a SCSI disk controller installed, *AQL* will always detect the SCSI controller. *AQL* will inform you and ask if the SCSI is the controller for the hard disk.

If you do not confirm *AQL*'s disk controller selection a Menu appears listing the types of controller with which ARES is compatible. Select the correct controller type for this PC.

- 4.

i..

If an existing QNX partition is found, the following message will appear:

Found an existing QNX Partition
OK to overwrite ? y

Enter 'y' to overwrite and continue, or 'n' to abort the installation.

ii..

If no QNX partition is found, information will appear outlining the available options.

Read the options carefully and respond as required. *AQL* will repeat this step until all information is correct or you abort the installation.

5. AQL will now attempt to find the CD-rom drive. If it cannot detect the CD drive it will present a Menu of drivers. Select the correct driver. AQL will repeat this step until it detects the CD drive or you abort the installation.

6. AQL will prompt you to insert the ARES CD. It will then copy the operating system files to hard disk and then install QNX.

This step will take some time. The file names will scroll down the screen as they are unpacked.

7. AQL will now prompt for the node number for this PC. Each PC MUST have a unique node number. The node numbers must be sequential.

ie . if your ARES system has three nodes, they must be 1, 2 & 3.

AQL builds the operating system image and copies it to the hard disk.

8. AQL presents a Menu of Time Zones. Select the correct location.

9. If this is node 1 AQL asks for the current time.

You must enter your local time (according to Question 8's answer) without daylight saving.

Time format is CCYYMMDDhhmm

eg. 3.23pm 12th March 2001 is 200103121523

10. AQL now loads QNX Windows. This takes some time.

11. If this is node 1 AQL will ask you if this is a multi-node ARES system.

If this is any other node, a multi-node system is assumed.

For a multi-node system, AQL will attempt to detect what type of Network Interface Card (NIC) is installed in your PC.

It will display the Ethernet address, the Driver, the IO port and the IRQ line used.

You MUST note the Ethernet address, the Network driver, the IO port and IRQ number. This information has to be manually inserted into the system initialisation file and the system netmap file.

If AQL is unable to detect a network card then refer to **Appendix K** for manual detection. This can be done at Step 14 of the installation.

Please note: Steps 12 & 13 are for Node 1 only..

12. (Node 1 only) If this is node 1 you will be prompted if ARES should now be loaded.

You can choose 'n' and install ARES later if you wish.
Usually you would choose 'y'.

If you choose to install ARES, AQL will transfer the ARES files from CD to hard disk. Near the end of the installation you will be prompted if you wish to edit the sysinit file.

Answer 'y'.

If this is a multinode system, the network driver displayed at step 11 should be entered into section A of the sysinit file.

eg . remove the hash (#) before Net &
remove the hash before Net.ether1000 and replace Net.ether1000
with the driver found at step 11.
remove the hash before netmap -f

Make any other changes required such as setting up serial card drivers.

13. (Node 1 Only) One final question is asked:

Do you wish to use a second hard drive for history? (y/n)

If you only have one drive, you must select **n** and press enter.

14. (For multi-node systems. If your system is not multi-node, skip this step.)

You now must do the multi-node system set-up. Refer to the next page.

One you have completed the multi-node setup, please ensure the following is done before going on to the next step:

- a) On Node 1, ensure the network startup commands are inserted and enabled in the */etc/config/sysinit.1* file and the */etc/config/netmap* file is completed.
- b) On all other nodes, ensure the network startup commands are inserted and enabled in the */etc/config/sysinit* file and the */etc/config/netmap* file is completed. After and only after the 'Copy Ares to Node' step in **Section 4, Step C**, enter the network startup commands in the */etc/config/sysinit.x* (x being the node number).

15. Remove the floppy from the floppy drive and type:

shutdown

MULTI-NODE SYSTEMS

NOTE: Steps 1 to 11 should be repeated on each node (PC).

ARES is loaded from Node 1 to all other nodes from ARES itself. ARES cannot be installed directly from cd on to any other node except node 1.

(Via MENU item **Administration Menu/ Configuration/ Copy Ares to Node**)

For a multinode system, the netmap file should be created before you reboot.

Creating Network Map File

If you do not know the Ethernet address of the Network Card, refer to **Appendix K** for manual detection of the Network Card.

The contents of the netmap file consist of three columns of data:

Column 1 is the node number

Column 2 is the logical LAN number - usually 1

Column 3 is the ethernet address

The columns must be separated by a TAB character.

The netmap file on each node must be identical unless your system is using TCP/IP communications between nodes. See **TCP/IP installation, Section 3**.

Example:

We have a three node system.

Node 1 has an ethernet address of 0034 EF43 C123

Node 2 has an ethernet address of 0034 EF43 123F

Node 3 has an ethernet address of 00C1 1BC8 AFD3

the /etc/config/netmap file on each node would be:

```
1      1      0034 EF43 C123
2      1      0034 EF43 123F
3      1      00C1 1BC8 AFD3
```

to produce the above file, the key sequence would be:

vedit /etc/config/netmap <enter>

```
1 <tab> 1 <tab> 0034 EF43 C123 <enter>
2 <tab> 1 <tab> 0034 EF43 123F <enter>
3 <tab> 1 <tab> 00C1 1BC8 AFD3 <enter>
```

press ALT and X to save and quit.

Section 2

INSTALLATION OF QNX & QNX WINDOWS FROM FLOPPY DISK AND ARES FROM CD-ROM

Before installing the ARES software, every machine must be loaded with the QNX Operating System and QNX Windows.

NOTE: If DOS exists on your hard drive then it is advisable to back up your DOS files before installing QNX. However, we recommend that no other operating system be installed on the ARES hard drive.

IMPORTANT!: Read all instructions before hitting any key.

TO BEGIN

Before turning on the computer insert the floppy disk marked QNX Boot Disk into the floppy drive. Turn the computer on and the system will then boot from the floppy disk.

DO NOT PRESS ESC when the system prompts! Press ESC only if you wish to abort the installation.

Allow the installation to proceed until the

Welcome to QNX prompt. # _

The #, or hash, is known as the prompt and signifies the PC is waiting for keyboard input.

At the prompt, #, type install and press **enter**.

QNX will then provide you with information regarding the general installation.

To continue, press **enter**.

QNX will ask you to select a keyboard type:

US Keyboard?y press **enter**

Step 1:

Step 1 - Creating a QNX Hard Disk Partition

After reading the instructions that appear on the screen, press enter to create a QNX partition.

Reminder: If MSDOS exists on your hard drive then it is advisable to back up your MSDOS files before installing QNX. However, we recommend that no other operating system be installed on the ARES hard drive.

Step 1a:

Step 1a - Execute: /bin /disktrap

QNX will now try to determine your type of hard disk controller.

NOTE: If a SCSI card exists in the PC QNX will find the SCSI controller first.

The following is an example of what will appear on screen:

*Found controller type: EIDE: Enhanced Integrated Drive Electronics.
The driver used for this controller type is Fsys.eide*

Do you believe this to be correct? y

If correct, press **enter**.

If this is not the correct drive type, press **N** and wait for a list of currently supported hard disk controllers to be displayed. Choose a driver from this list.

Make a note of the device driver selected. Write this information on the ARES System Information sheet on page 64. This information is relevant at Step 7.

Step 1b:

QNX will start the driver you selected. For example, the screen will display:

*Step 1b - Execute: Fsys.eide
Waiting for /dev /hd0 to initialize*

This message may reappear as the driver is initialized. If the correct drive is selected and found then a message similar to this will be displayed:

Is your drive 3093 Megabytes containing 824 cylinders 128 heads and

63 sectors/tracks (y/n)? y

If this is correct, press **y**.

If the following message appears:

You already have a QNX 4 Partition! Invoking the fdisk utility.

Then QNX has previously been installed. Press **enter** to continue. If there is no QNX partition then you will need to create one.

If the hard drive is blank, a partition table will be displayed showing you how the hard disk has been prepared for QNX installation. Type **a** for all. This will format the whole drive for QNX.

Press **S** to save the partition.

Step 2:

Step 2 - Initializing the QNX File Structure.

An information screen will appear. Read it and then press enter.

The new screen displays the following:

Step 2a - Execute: mount -p /dev/hd0

Press **enter** to continue.

A screen with a warning may arise if QNX has been previously installed. At this point you have the opportunity to confirm the installation and erase all existing QNX files. Press **enter** to continue with the installation.

QNX will perform *Step 2b* and *Step 2c*. You will be asked to confirm what sort of check will be performed on your hard drive.

Three choices are available. It is recommended that you choose **n** to skip the disk check.

If a test is performed, QNX displays its progress through the hard drive. When the check is finished, it will report the results of the check.

Press **enter**.

Step 3:

Step 3 - Copying Files from Floppies to Hard Disk.

An information screen will appear. Read the screen and then press enter.

Follow the QNX instructions:

*Installing a QNX license on the hard disk.
Insert Operating System Install Disk 1 in the floppy drive.
Press <enter> when you have changed diskettes.*

Step 3a: Invoking the Licenses Utility.

Step 3a - Execute /ram/license -q /dev/fd0 /hd/etc/licenses

NOTE: The disk with the license is install disk 1 of the QNX disks.
This step reads the license from the install disk. Once a license is read, a message will appear to press **enter** to continue.

If the license is not on the disk in the drive, please insert the disk that does. If you have no license then you can not proceed with the installation.

*Insert Operating System Install Disk 1 in the floppy drive.
Press <enter> when you have changed diskettes.*

Place install disk 1 in the drive if you have not already done so, and press enter when ready to proceed.

Step 3b:

A short beep will sound and Step 3b will appear.

*Step 3B - Execute vol-b 15360 -r /dev/fd0 | melt | pax -rv -s, ^/,/hd/
Vol: When drive light goes out instert disk 1 & press return*

A series of file names will scroll up the screen followed by instructions to insert the second operating disk. These instructions will be repeated for every operating disk.

After the last disk is copied, a message appears:

Press Enter to continue.

Do so.

You may then be asked to insert a particular QNX disk into the drive. If so, do this and follow the instructions. Press **enter** to continue.

Step 4:

Step 4 - Making QNX Boot from your Hard Disk.

An information screen will appear. Read the information and then press **enter**.

A series of questions will be asked which you will need to respond to.

Do you wish to have 16 bit Drivers as the default? n

Select **n**.

What will be the logical node number for this machine (Default 1)?

Select the node number for this machine.

This number must be noted on the system information sheet on page 64 as it is vital in the installation process.

Each node must be a different node number in numeric order.

eg: For a 3 node ARES system, the nodes would be 1, 2 and 3.

Select a logical number and press **enter**.

Continue to press **enter** through a range of screens in step 4.

These are *4a, 4b, 4c, 4d, 4e, 4f, 4f1*. Do this until step 5 appears.

Step 5:

Step 5 - Create a system initialization file.

An information screen will appear. Read the information and then press **enter**.

QNX asks you to select a location and timezone from a list.

NOTE: Be careful with your selection. Enter is not required and there is no second chance to change your selection once it is made.

What timezone are you in?

At the prompt type in the letter corresponding to your location from the list displayed.

QNX then asks:

Is your real time clock set at local time or Greenwich Mean Time? (l/g)?

NOTE: You MUST choose **g**.

How many consoles would you like mounted? (123456789a)?

Select **a**.

Will you be using a mouse with this machine?

If you are going to use a mouse, select **y**.

Step 6:

Step 6 - Configuring a Network Machine

An information screen will appear. Read it and then press **enter**.

Do you wish to configure this machine for use on the QNX Network? n

Always select **n**.

A message will then appear:

Installation Complete.

Although there is an instruction to reboot, DO NOT DO SO.

Step 7: The QNX system must now be customised for ARES.

At the prompt, #, type the following (ensuring that case sensitive syntax is correct):

```
cd /boot/build          press enter
vedit hard.[node number] where [node number] is the number you entered at step 4 above.
Press enter.
```

An edit screen will appear with menus at the top and a list of commands running down the screen. The cursor will be at the top of the commands. By using the arrow keys scroll through to find the line that

reads as follows:

```
$ Fsys
```

change this line to read:

```
$ Fsys -r 512
```

Save the changes by pressing Alt and X to exit the editor. You will then be asked to save the changes. Do this by pressing **enter**.

At the prompt, #, type the following:

```
cd ..                                press enter
rm images/hard.[node number]        press enter

make b=hard.[node number] d=Fsys.+++ press enter
```

where [node number] is the number you entered in step 4 of the QNX installation process and where + + + represents the disk driver which was selected at Step 1a of this manual and which you wrote down on the system information sheet on page 64.

e.g. for node 3 and an eide disk controller the above line would read:

```
make b=hard.3 d=Fsys.eide
```

A screen of file names and information will scroll, finishing with a prompt, #, type the following:

```
cp /.boot /.altboot                press enter
cp images/hard.[nodenumber] /.boot press enter
```

where [node number] is the number you entered in step 4 of the QNX installation process.

The Operating System is now installed and customised for ARES. Ensure all floppy disks are removed from the drive.

At the prompt, type: shutdown press **enter**

The system should reboot. If it does not, press the PC's reset switch.

Section 2

QNX WINDOWS INSTALLATION

This is the next step after successful installation of the QNX Operating System.

After you reboot the large QNX logo and welcome screen appear, followed by:

Login: _

Type the login name **root** and press **enter**.

Set the date and time for QNX now by following the instructions below.

At the prompt, #, type the following:

date yyymmddhhmm press **enter**

where yyyy is the year, mm is month, dd is date, hh is hour (24 hour), mm is minutes.
Eg: 200010271231

Now write the date and time to the PC Hardware with the following at the prompt #:

rtc -s hw press **enter**

Insert the QNX Windows Install Disk 1.

Type the following at the new prompt, #:

install press **enter**

NOTE: If an error appears, press <CTL> C then type:

install /dev/fd1 press **enter**

Please insert license disk 1 and press **enter**. This will invoke the license utility. Restoring the archive vol: when drive light goes out insert disk 1 and press **enter**.

Follow the instructions. When asked to, insert the subsequent disks and press **enter**.

Installation complete #

Section 2

MULTI-NODE SYSTEMS

NOTE: QNX and QNX Windows should be loaded on each PC before completing this step.

Step 1: *Licensing*

Although each machine has a license for both QNX and QNX Windows, for networking to be established, each node must have the QNX and QNX Windows licenses for each and every node.

If you purchased your QNX and QNX Windows disks from Tecom then you will have a license disk for each node which contains the license for both QNX and QNX Windows.

If you purchased a complete QNX and QNX Windows disk set from a third party then the licenses are on install disk 1 of each set.

To load the licenses onto the PC it is necessary to invoke the license utility. Insert one of the license disks into the floppy drive. At the prompt, #, type

license

press **enter**

The floppy disk light should come on.

Note: if there are errors, then try license /dev/fd1.

The license file will be read from the diskette.

The following will then be displayed:

Type N to stop or insert next key disk and press <enter>

Make sure the drive light goes off before ejecting any disks!

Keep inserting the license disks until all licenses are entered. Then answer **n**.

Remember, this procedure must be completed on all nodes!

Step 2: *Determining the Network Drivers & Network Addresses*

You must know the ethernet address of each network interface card and the network driver required.

Follow the steps below to determine this information.

At the prompt, #, type

```
nettrap query  <enter>
```

This will display the commands necessary to run up the network driver.

eg.:

```
Net &  
Net.tulip-I0 -11 &  
netmap -f
```

This tells us the driver is Net.tulip

To find the address, run Net then run the driver in verbose mode. Type the following:

```
Net &          <enter>  
Net.tulip -v &
```

The ethernet address will be displayed.

If the above steps produce an initialization error, the driver has been unable to find the network card.

For an ISA card you will need to find the IO address of the card and then invoke the driver with the -p option.

eg: Net.ether1000 -v -pXXXX (where XXXX is the IO address in hex)

For a PCI card the show_pci utility may show the card's IO address.

Once again it will be necessary to invoke the driver with the -p option.

Step 3 : *Creating the Network Mapping File*

The contents of the netmap file consist of three columns of data.

Column 1 is the node number
Column 2 is the logical LAN number - usually 1
Column 3 is the ethernet address

The columns must be separated by a TAB character.

The netmap file on each node must be identical unless your system is using TCP/IP communications between nodes. See **Section 3**.

Example:

We have a three node system.

Node 1 has an ethernet address of 0034 EF43 C123

Node 2 has an ethernet address of 0034 EF43 123F

Node 3 has an ethernet address of 00C1 1BC8 AFD3

the /etc/config/netmap file on each node would be:

1	1	0034 EF43 C123
2	1	0034 EF43 123F
3	1	00C1 1BC8 AFD3

To produce the above file, the key sequence would be:

vedit /etc/config/netmap <enter>

1	<tab>	1	<tab>	0034 EF43 C123	<enter>
2	<tab>	1	<tab>	0034 EF43 123F	<enter>
3	<tab>	1	<tab>	00C1 1BC8 AFD3	<enter>

Press ALT and X to save and quit.

Remember to create the netmap file on all nodes.

Section 2

ARES INSTALLATION

It doesn't matter whether you are running a single or multi-node system, ARES is only ever installed onto Node 1.

In the case of a multi-node system, once ARES is loaded on Node 1, it is then copied to all the other nodes from within the ARES menu itself. You only ever need to install from the cd-rom once.

STEP 1:

Insert the ARES cd-rom into the cd-rom drive and wait until the drive light goes out.

Type the following: *Iso9660fsys* &

Again, wait for the following message to appear..

QNX device ./1/dev/cd0 adopted as CDRom drive ./cd0..

And wait until the drive light goes out. Then press **enter**.

Now type: */cd0/usr/bin/InstallARES* */cd0* and press **enter**.

Files will then scroll down the screen as ARES is installed. This will take several minutes.

STEP 1A:

IMPORTANT: DO NOT touch the keyboard during the installation process!

Near the end of the installation, the following message will appear:

Do you wish to edit the sysinit file? (y/n)

Press **y** then press **enter**

The sysinit file will now appear on the screen. Make changes to the relevant sections that apply to your PC and ARES system. Once complete, press ALT and X to save and exit.

Important Note: If your PC has only one hard drive - press **n** and enter to the next message. If you are wanting to use a second hard drive specifically for ARES history, then press **y** and hit enter. Then follow the instructions given.

Section 3

TCP/IP INSTALLATION

TCP/IP is only required if any of the following conditions apply:

- Your ARES system is using the FOX ID Imaging package
- You have a multi-PC setup where one or more of the nodes are located via a Wide Area Network
- You are communicating to Challenger(s) via TCP/IP over a Local or Wide Area Network

TCP/IP must be installed on each QNX node that will be communicating via TCP/IP.

If only the Challengers are communicating via TCP/IP, you may only need one Node with TCP/IP.

General Installation:

If ARES is running, shut down ARES via the **Administration** menu but do not reboot the PC.

Once the message that ARES has shut down appears, hit enter and log in to QNX.

Then insert disk 1 of the TCP/IP disks and at the prompt type:

```
cd /                                press enter
```

Then type:

```
install                            press enter.
```

NOTE: If an error appears, press **control** and **c** for a prompt, then type:

```
install /dev /fdl                  press enter.
```

When asked to, insert disk 2 and press **enter**.

A question will appear concerning the type of installation:

Is this a first-time install?

Press **a** then **enter**.

Another question may appear confirming the types of files to be installed. Press **y** then **enter**.

Wait until the installation is complete and then remove all disks and store them safely.

The General installation must be done on each node requiring TCP/IP.

Note:

- a) If there are multiple nodes using TCP/IP, then a license needs to be purchased for each node. For example, A 5 node system and 3 of those nodes are using TCP/IP, 3 TCP/IP licenses need to be purchased.
- b) Each Node using TCP/IP must have all TCP/IP licenses installed on it. Therefore, using the example above, each node using TCP/IP will need the 3 licenses installed on them, or else they will not communicate.

ARES TCP/IP SETUP

Node 1 Only:

If node 1 will be using TCP/IP, then follow these steps:

- a) ARES must be running.
- b) From the main menu, go to **Administration/Configuration/TCP/IP/Configuration**.
- c) Enter the relevant TCP/IP addresses and then save. If you do not know the TCP/IP addresses, you will need to speak to the IT administrator for the site(s).

Explanation:

<i>Address:</i>	Is the TCP/IP address for this node.
<i>Gateway:</i>	Only applies if you are using a WAN (going through a Router).
<i>Netmask:</i>	(also referred to as a subnet mask) Normally left blank. Refer to your IT administrator for more information on the use of this field.
<i>Broadcast:</i>	Normally left blank. Refer to your IT administrator for more information on the use of this field.
<i>Infleet Port:</i>	Usually left set at 5999. This must be the same on all nodes using TCP/IP
<i>Image PC:</i>	Only available on node 1. This is the TCP/IP address of the Imaging PC system.

- d) For multi-node TCP/IP, this node needs to know the TCP/IP addresses for each node using TCP/IP. To enter the addresses, press **F3** or double left-click on the “Infleet Port” data field.

An Infleet Nodes form will be displayed showing numbers from 1 to 40, each with a check box next to it.

Check each node (represented by the box) that will be using TCP/IP, excluding the node you are working on.

Once the boxes are checked, you must hit **F3** on the box to display another form to enter the TCP/IP address of that node. Once you have entered the TCP/IP address for that node, save it.

Do this for each node. The TCP/IP addresses you enter for each node are only used for that node to identify the location of the other nodes. It does not configure the other nodes.

Now, save this data. Once you press the save button (or **F5**) it will take you back to the original form where you must save it!

Once this data is entered and saved, a message will appear to reboot the PC for the changes to take effect. **Do not do this** at this stage.

e) Edit the sysinit file. To do this, at a QNX prompt, type:

```
vedit /etc/config/sysinit$NODE
```

Go to **Section A (Networking)**. If the nettrap command is being used, you must put a # in front of the nettrap command to disable it.

You need to enable the manual network start up commands as shown in **Section A** and also shown below:

```
Net &  
Net.ether1000 &  
netmap -f
```

These 3 lines must be enabled by removing the # from the start of the line, however they also must be modified:

```
Net -d10 &  
Net.ether1000 &  
netmap -f
```

The "Net -d10 &" line needs to have the '-d' option with a number next to it showing how many ARES nodes (this eg is shown as 10 ARES nodes - not all 10 have to be using TCP/IP.)

The next line "Net.ether1000 &" must be substituted with the correct network driver. Refer to **Appendix N** for installing Network cards and drivers.

The third line "netmap -f" remains the same.

Go to **Section B** and take out the # in front of the line: `#!/usr/bin/netstart$NODE` to enable it.

Save the sysinit file and exit it (Alt x)

- f) Shutdown ARES from the menu and reboot the PC when told to do so after the shut down procedure.

For nodes other than Node 1:

You must have a blank QNX formatted floppy disk for this procedure. (If you don't have a blank QNX floppy, you can format a disk from ARES main menu/Backup/Format Disk from Node 1.)

Steps:

- a) Although this is not for Node 1, you need to insert the blank floppy into Node 1.
- b) On node 1, at a QNX prompt, type:

```
mkinfleetfd    <press enter>
```

Now, the system will copy files from Node 1 to the floppy for use in setting up other nodes for TCP/IP. Do not remove the floppy until the drive light goes out. Once it does, remove the floppy.

- c) Insert the floppy into the node being set up for TCP/IP.

(This node must have the general installation procedure performed first. This is at the beginning of this section.)

At a QNX prompt on this node, type:

```
cd /fd0;TpConfig    <press enter>
```

A screen will appear similar to what appeared on Node 1 except ARES is not running on this node.

Enter the relevant TCP/IP addresses and then save by pressing **F5**. If you do not know the TCP/IP addresses, you must see the site's IT administrator for the addresses.

Explanation:

<i>Address:</i>	Is the TCP/IP address for this node.
<i>Gateway:</i>	Only applies if you are using a WAN (going through a Router).
<i>Netmask:</i>	(also referred to as a subnet mask) Normally left blank. Refer to your IT administrator for more information on the use of this field.
<i>Broadcast:</i>	Normally left blank. Refer to your IT administrator for more information on the use of this field.

Infleet Port: Usually left set at 5999. This must be the same on **all** nodes using TCP/IP.

Image PC: Only available on node 1.

d) For multi-node TCP/IP, this node needs to know the TCP/IP addresses for all the other nodes. To enter the TCP/IP addresses, press **F3** or double left-click on the “Infleet Port” data field.

An Infleet Nodes form will be displayed showing numbers from 1 to 40, each with a check box next to it.

Check each node (represented by the box ☐) that will be using TCP/IP, excluding the node you are working on.

Once the boxes are checked, you must hit **F3** to display another form to enter the TCP/IP address of that node. Once you have entered the TCP/IP address for that node, save it by pressing **F5** and it will take you back to the Infleet Nodes form.

Do this for each node. These TCP/IP addresses you enter for each node must be unique and are only used for this node to identify the location of the other nodes. It does not configure the other nodes.

Now, save this data. Once you press the save button (or **F5**) it will take you back to the original form where you must also save it!

Press **ESC** to go back to the QNX prompt.

e) At the QNX prompt, type:

```
cd      <press enter>
cp /etc/config/sysinit /etc/config/sysinit.$NODE      <press enter>
vedit /etc/config/sysinit.$NODE      <press enter>
```

If there is a nettrap command line, remove the line or place a # in front of it.

Go to the end of the file and enter the following lines:

```
Net -d10 &                                     (Note: The number next to the -d should
                                                reflect how many ARES nodes.)
Net.ether1000 &                                (Note: The correct driver should be substituted.
                                                See Appendix N for a list of drivers.)
netmap -f
sleep 5
/usr/bin/netstart&NODE
```

Make sure there is a blank line at the end of the file.

Save the file and exit it by pressing **ALT X**.

f) Type *shutdown* to reboot the computer.

g) When the system reboots, login and at the QNX prompt type:

```
netalive
```

If node 1 is up, then you are ready to copy ARES from node 1 to this node. If node 1 is down, you must go back over all steps to ensure node 1 and this node have been set up correctly.

Important: When you ‘copy ARES’ to this node (not until **Section 4**), towards the end of the copy process, you will be asked if you wish to copy the sysinit file. Answer yes. You will then be asked if you wish to edit the sysinit file. Answer yes to this question too.

When you have answered yes, you will be in edit mode. Go to **Section 4** and remove the # in front of the line:

```
nameloc -s$NODE -e$NODE
```

Now, follow **Step E** of the ARES TCP/IP Setup Node 1 Only (Not Step E of this node) and modify sections A and B accordingly.

You can now reboot that node (NOT NODE 1). Once it restarts, ARES should be active.

For Imaging systems only:

On the FoxID machine (being Microsoft Windows), you must set up two network connections (permanent and automatically connects on start up) to the ARES Node 1 directories of:

```
/usr/Ares/User/export  
/usr/Ares/User/gif
```

You must also set up this machine to have the correct TCP/IP address.

All this is done on the Microsoft Windows PC running FoxID. You may need to seek information from the IT Administrator for the site.

Section 4

ARES INSTALLATION

ARES Initial Startup

From the previous command *shutdown* (from either **Section 1, 2, or 3**), the PC should reboot. If it does not after the countdown, press the reset switch.

As the system boots you will be asked if the databases are to be checked. The default is yes. Leave this option set and allow the databases to be checked.

Get your ARES license disk ready and wait until you are prompted for it as ARES boots.

Insert the license disk and click on "Continue".

When the drive light goes out, remove the disk and store it in a safe place.

Enter the default login code and password.

Login : master
Password : 4346

NOTE: You should change the password for your protection as the default login gives unlimited access to all of ARES features.

ARES INSTALLATION

ARES Initial Setup

Once in the ARES environment, the following steps must be carried out on node 1:

STEP A: Set the Timezone

From the main menu, select the **Administration** icon, then select **Configuration**.

Select **Set Timezone Daylight Saving** icon.

In the timezone field, click the right mouse button to display the timezone locations.

Select the location timezone where the PC will be located. Then, double click or press **enter**.

If the location selected has daylight savings, check the relevant box and fill in the correct details. Then press **SAVE**.

A message will appear to tell you the changes will not take effect until Node 1 is rebooted.

Click **OK** and then **ESC** and go back to the main menu.

NOTE: DO NOT reboot at this point!

STEP B:

From the main menu select the **Administration** icon.

Then select the **Set System Date/Time** icon.

Fill in the relevant details and then press **EXEC** and go back to the main menu.

STEP C:

NOTE: If there are NO OTHER nodes, please skip this step.

If there are other nodes, they will now need ARES to be installed on them as well.

You can do this all from Node 1.

DEFINE NODES FOR ARES USE

From the main menu, select the **Databases** icon.

Then select the **Equipment Database** icon.

Now select the **Computer** icon.

In the node number field enter the next node number, for example: 2.

Then enter an identification for the node, for example: NODE 2.

Then save your changes.

NOTE: You must repeat this procedure for each and every node in the network!

When complete, press **ESC** and return to the main menu.

Ensure the network is running correctly. From the main menu select **Administration**, then **QNX Shell**.

Type in *alive* press **enter**

This utility will display the status of each PC in the network.

eg 1:UP 2:UP 3:DOWN 4:UP

All nodes you wish to copy ARES to must be UP. If they are not, check if:

- all PCs have all licenses
- all cables are correctly configured
- review the steps in Multi Node Installation

If all is correct, from the main menu, select the **Administration** icon.

Then select the **Configuration** icon, followed by the **Copy ARES to Node** icon. Type in the node number and then press **Execute**.

NOTE: An error message screen will appear if communication with that node is not available or is down. If this is the case, please refer to the technical section on setting up the Network.

All ARES files will now be copied to the selected node.

Once the installation of a node is complete, a beep is heard and a question will appear:

Do you wish to copy the standard ARES sysinit file to Node 2? (y/n)

Type **y** and then press **enter**.

Another question will appear:

Do you wish to edit the sysinit file? (y/n)

Type **y** and press **enter**.

Modify the file to suit the PC requirements of that particular node. Such things will include the network start up commands if it is a multi-node system. **This is very important!**

Once you have modified the sysinit file, press ALT and X to save and exit.

A message will appear to press enter and exit. On pressing enter the window will disappear.

These steps must be followed for each node to which ARES is copied.

STEP D:

Note: Skip this step if you only have one node.

From the Main Menu, select the **Administration** icon, then **Configuration** icon, and then the **Set Timezone Daylight Saving** icon.

Select Node 2 (Node 1 should have already been done) and fill in the correct location and daylight savings information (if daylight savings is applicable). Press **save**.

A message will appear telling you that the changes will not take effect until the node is rebooted. DO NOT reboot at this stage!

Do this for every node now.

On setting each node's correct location timezone and daylight savings, go back to the main menu.

You should reboot at this point to enable the timezone information to take effect.

Therefore, shut down ARES on Node 1. From the main menu, select **Administration**, then **ARES Shutdown**.

Enter your login code and password to confirm the shutdown.

Now reboot all the other nodes too. Once restarted, ARES should be up and running on all nodes.

APPENDIX A

PC Requirements

These are the recommended minimum PC requirements to run ARES:

- Minimum Pentium 166 MHz with 64Mb of Ram
- VGA Card - 16 colors (If requiring 800x600 or 256 colors then S3 trio chipset required on VGA card)
- Minimum 2.0Gb HDD - EIDE or SCSI Adaptec 2940
- Minimum 14 or 15 inch monitor
- PS2 Mouse and STD 101 Keyboard
- Minimum 2 Serial Ports
- External Modem (Activated when on-line diagnostics are required) Node 1 only.
- EIDE or SCSI (Adaptec 2940) Iomega zip drive for backups. Node 1 only.
- UPS (For protection of databases on mains failure.)
- Recommended Filesystem Drivers (See Appendix N, Page 59)
- Recommended Network Drivers (See Appendix N, Page 59)
- SCSI or ATAPI CD-ROM drive

Optional:

- Touch Screen: MicroTouch is recommended.
- Watchdog Card Node 1 Only Model WDT501P (Current Supplier: Interworld Electronics
Ph: +61 3 9563 5011; Fax: +61 3 9563 5033)

Software Requirements:

- QNX Operating System on each node.
- QNX Windows on each node.
- TCP/IP (optional)

APPENDIX B

ARES Points System

- Every input is worth 1 point.
- Every RAS on the Challenger LAN is worth 4 points.
- Every 4 Door Controller (4DC) door (Doors 17-64) is worth 8 points.
 Note: If a 4DC door has an input contact, and a DOTL, then the points needed are 10 (8 for the door and 2 for the inputs)

Example: This system comprises of 2 Challengers.

Challenger 1 has 68 inputs, 6 RAS, and 10 4DC doors
 (the Door's input and DOTL have been included in the 68 inputs.)

Challenger 2 has 123 inputs, 4 RAS, and no 4DC.

Calculate as follows:

Chal 1: 68 inputs	x1	=	68
6 RAS	x4	=	24
10 Doors	x8	=	80
Chal 2: 123 inputs	x1	=	123
4 RAS	x4	=	16
Total Points	=		311

As a system, ARES is purchased in modules and upgrades.

- Standard ARES (TS9057) comes with 256 points and 1 node.
- Extra points come in blocks of 64 points (TS9058).
- Extra node modules can be purchased (TS9060). These node modules are needed if 2 or more PCs are required. One TS9060 is needed for each node other than the first node. Remember, QNX (TS9050) and QNX Windows (TS9051) is also needed for each node.
- CCTV interface license (TS9061) is required if interfacing with a CCTV switcher.
- Photo ID interface (TS9059) is required if interfacing with the Fox ID system.

APPENDIX C

ARES - Maximum Numbers

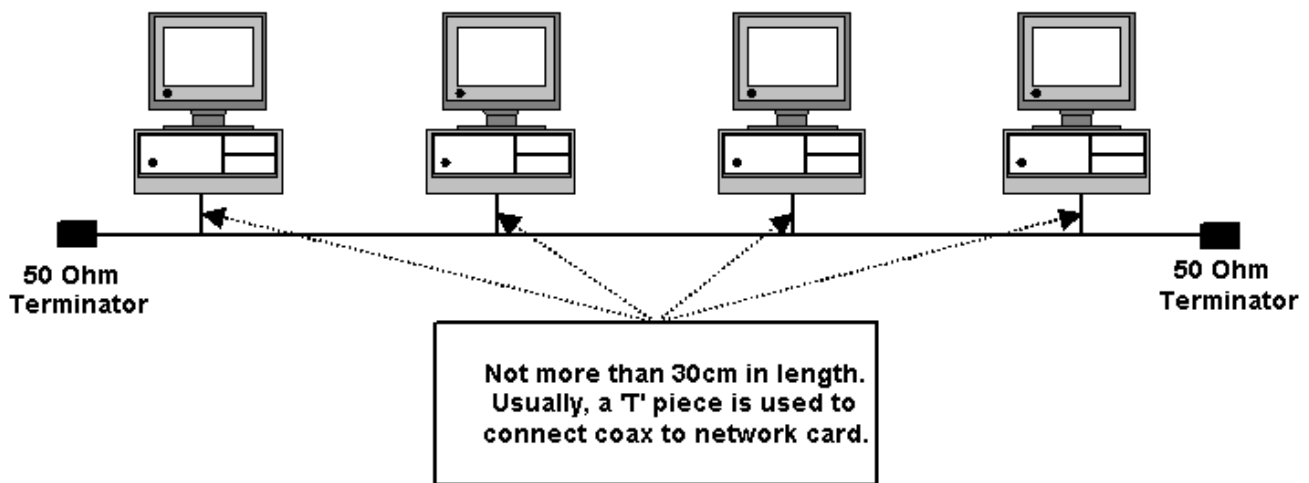
- Nodes - 40
- Challengers - 1022
- **Note:** Each node can only have a maximum of 128 Challengers. Of the 128 Challengers only 16 serial ports can be used for direct connection Challengers. (More than 16 direct connection Challengers can be achieved by multi-dropping.) The rest may be made up of TCP/IP Challengers or dialler Challengers.
- Printers - 8 serial : 1 parallel per node.
- **Note:** Only a maximum of 21 serial ports can be programmed per node. Any port types can be used, but a limit of 16 direct Challenger ports apply or a limit of 16 other serial ports - you must choose which.
- Maximum of 2 nodes using TCP/IP. Node 1 must be one plus any other node.
- Maximum of 40 TCP/IP hosts (used for Challengers connected to ARES via TCP/IP).
- Maximum number of Challengers that can be multi-dropped is 6. However, this will depend on the traffic level of each Challenger.

APPENDIX D

ARES Network Topologies

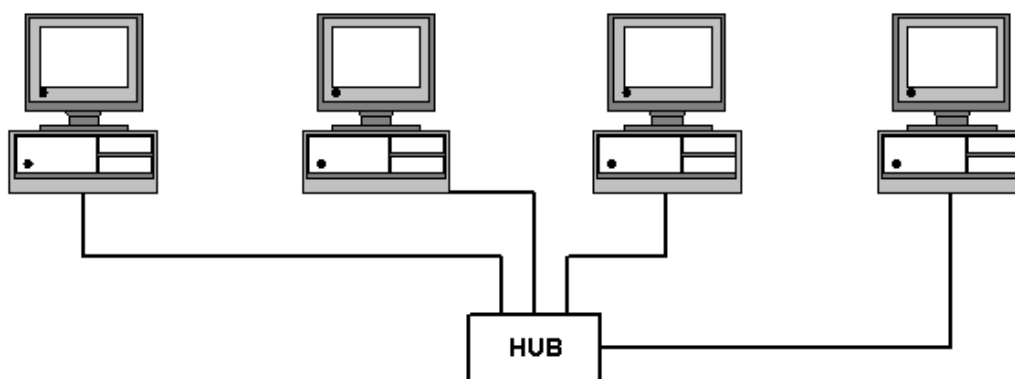
Ethernet Using Coax

ARES NODES



Ethernet Using a Hub (UTP)

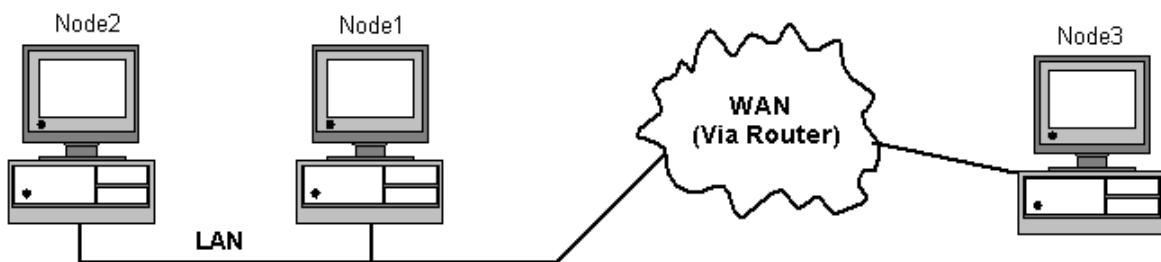
ARES NODES



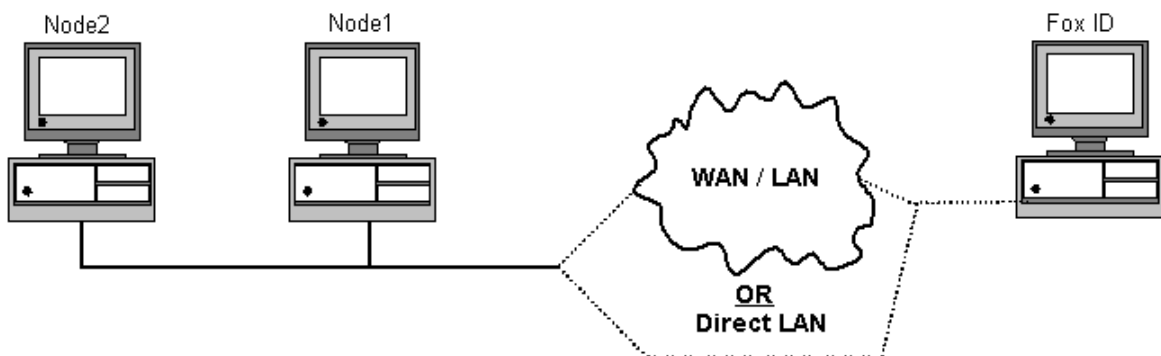
APPENDIX E

Usage & Configuration For TCP/IP

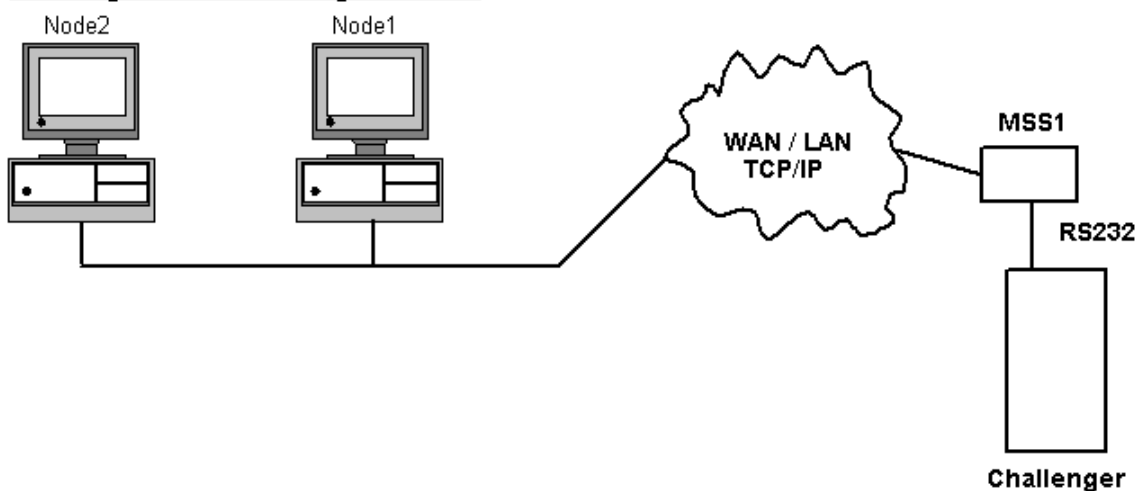
Node to Node using TCP/IP



Using FoxID Photo Imaging



Challenger Communicating Via TCP/IP



APPENDIX F

1) Direct Connection Challengers

- a) Go to the Challenger keypad (RAS) and set the options to enable it to communicate to ARES.

<i>Installer Menu 9 Communication</i>	-	<i>Computer Address</i>
<i>Installer Menu 29</i>	-	<i>Password initially set to 0000000000</i>
		<i>Security Attempts 255</i>

It is advisable to change the settings for the password and security attempts once ARES is communicating with the Challenger.

- b) Connect the cable from the Challenger to the ARES communication port. For wiring diagram, see next page. (You can use the 'stty' QNX command to ensure the wiring is correct.)
- c) Program a Challenger communications port in ARES. From the main menu, select **Databases / Equipment Databases / Ports**.
- d) Program a Challenger or if already programmed, select the type to '**direct**' and then allocate it to the port and save.

If all is correct, communication will begin.

2) Dialler Connection Challengers

- a) Set the Challenger to communicate via a Dialler. Then, via a keypad (RAS) set up the following options in communications (installer menu 9).
- | | | |
|--|---|-----------------------------------|
| - <i>Computer Phone No.</i> | - | <i>Compulsory</i> |
| - <i>Computer address</i> | - | <i>Compulsory</i> |
| - <i>Computer via modem</i> | - | <i>Compulsory</i> |
| - <i>Dial Alarm events instantly</i> | - | <i>Optional (recommended)</i> |
| - <i>Dial Access events instantly</i> | - | <i>Optional (not recommended)</i> |
| - <i>Dial via on board modem or Dial via computer port - Choose one.</i> | | |

- b) Connect the modem to a port on ARES.
- c) Program a port in ARES as a 'Challenger Dialler' port.

The port configuration depends on the type of dialler that is selected from Step 2a. If you selected *Dial Via on board modem*, the port configuration must be **300 Baud, 8 bits, no parity and no handshaking**. If you selected *Dial via Computer Port*, the port configuration should be **4800 Baud, 8 bits, no parity and no handshaking**.

Your modem **must** be set so cts is high when the modem is turned on and cd is low except when connection is established with the remote modem.

eg: for a Netcomm Smart Modem the string is: AT&C1 for cd.

- d) Program a Challenger and select the type as a 'Dialler'. Enter the AT command for ARES to dial the Challenger. An example would be **ATDT** and then the phone number. Now save the record.

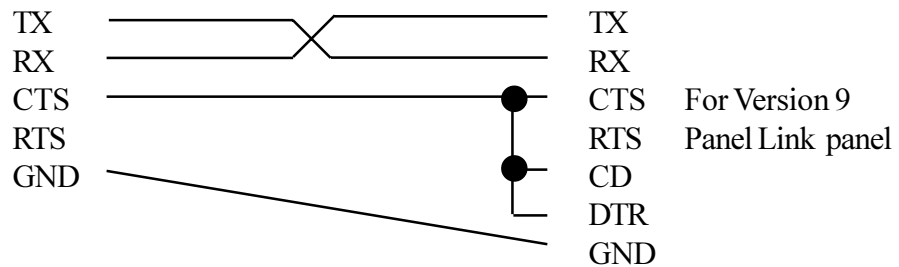
3) TCP/IP Challenger

- a) Follow step 1 a).
- b) Connect MSS1 to Challenger. (MSS1 **must** be programmed first. Refer to Appendix I)
- c) i. Goto **Section 3** and install TCP/IP on the node(s) that will be communicating with the Challenger(s).
ii. Set up TCP/IP for ARES: **Section 3** - Heading: **ARES TCP/IP Setup.**
- d) Program a TCP/IP host. This is done through **Databases / Equipment Databases / TCP/IP Hosts** from the ARES Main Menu.
- e) Program a Challenger and select the type as 'TCP/IP', then select the TCP/IP host and save.

4) Challenger Connections

CHALLENGER

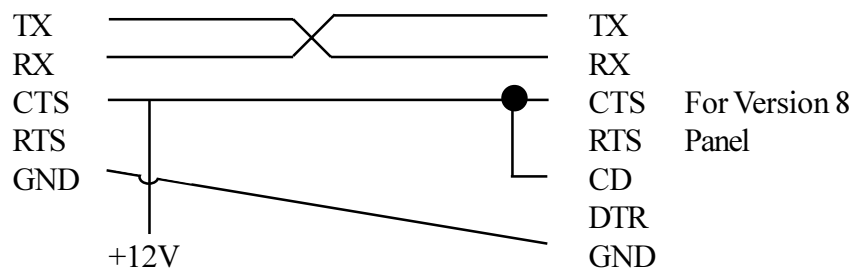
PC, Modem or MSS1 Serial Port



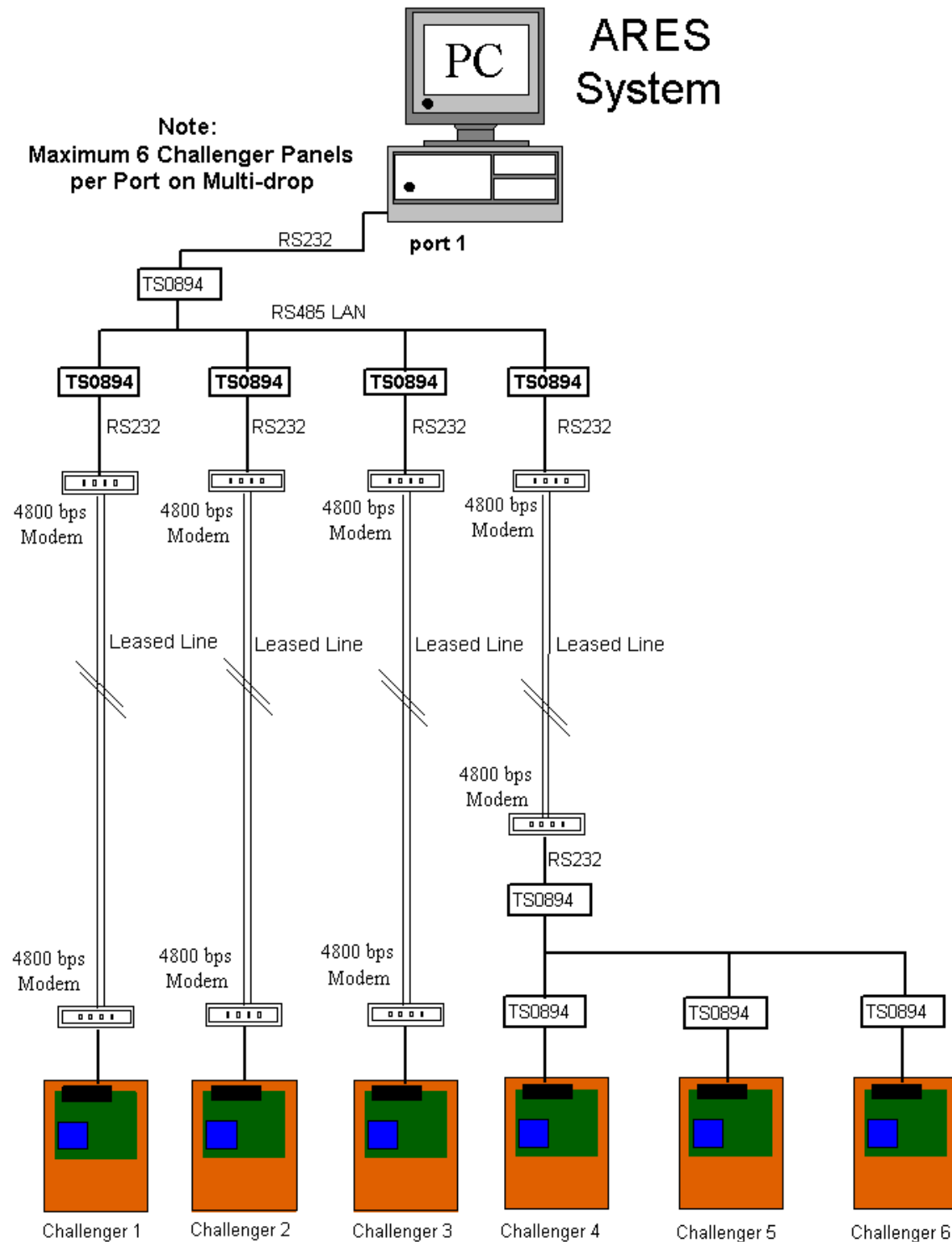
Refer to Appendix L on page 57 for DB Pin Connections.

CHALLENGER

PC, Modem or MSS1 Serial Port



Leased Line Multi-Drop Connection

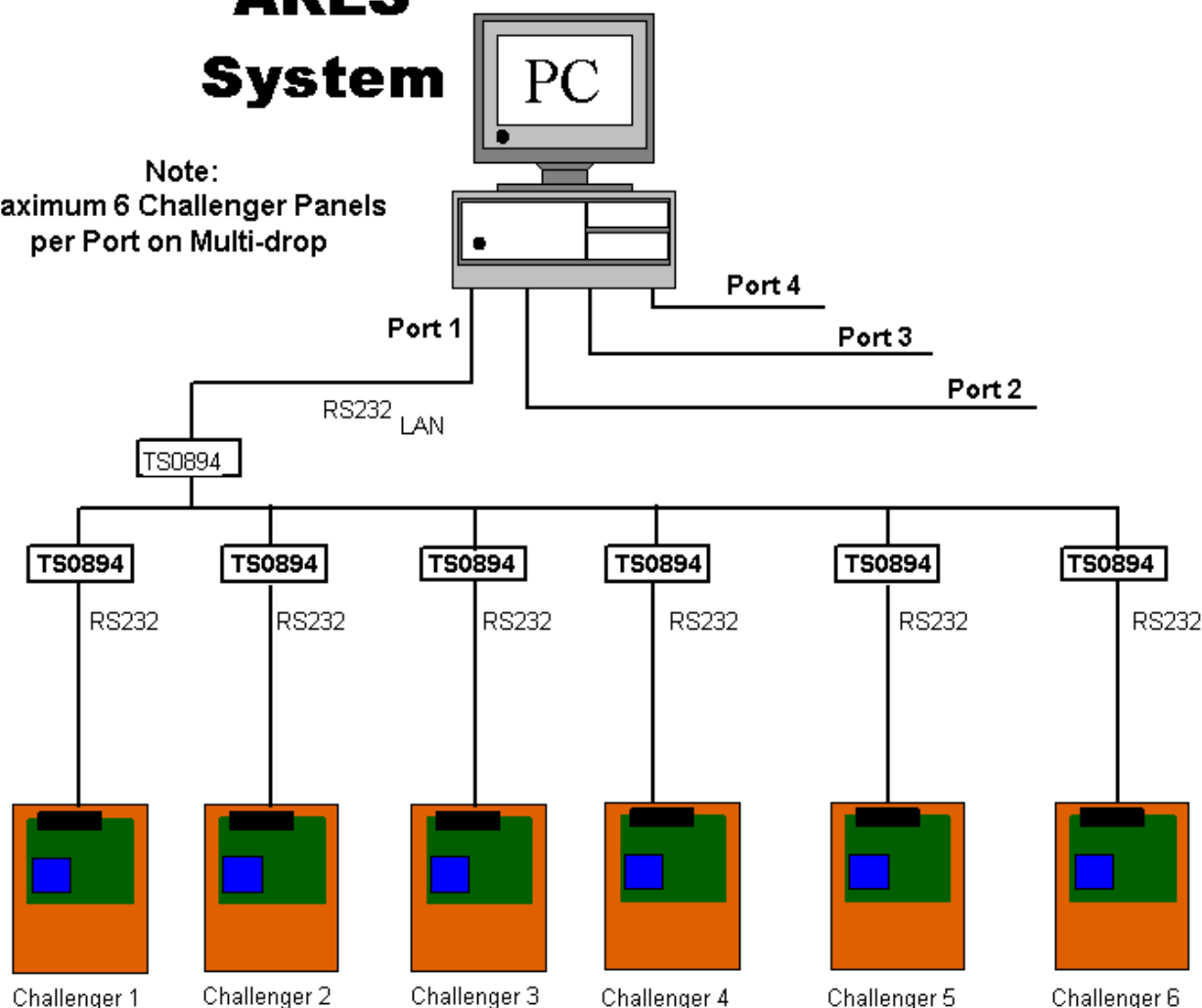


All Challengers to be fitted with Computer interface (TS0091)

Challenger/ARES Multi-Drop Connection

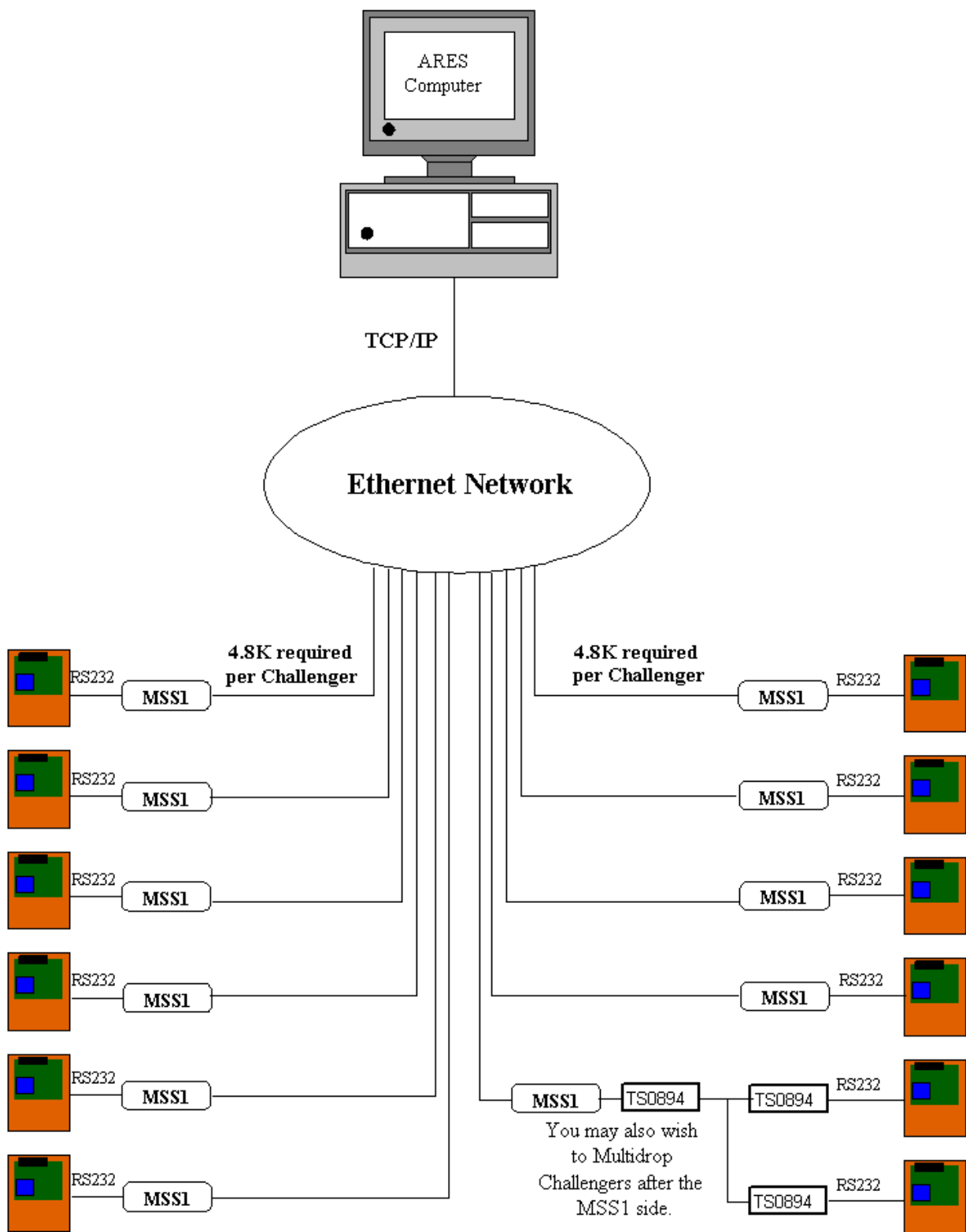
ARES System

Note:
Maximum 6 Challenger Panels
per Port on Multi-drop



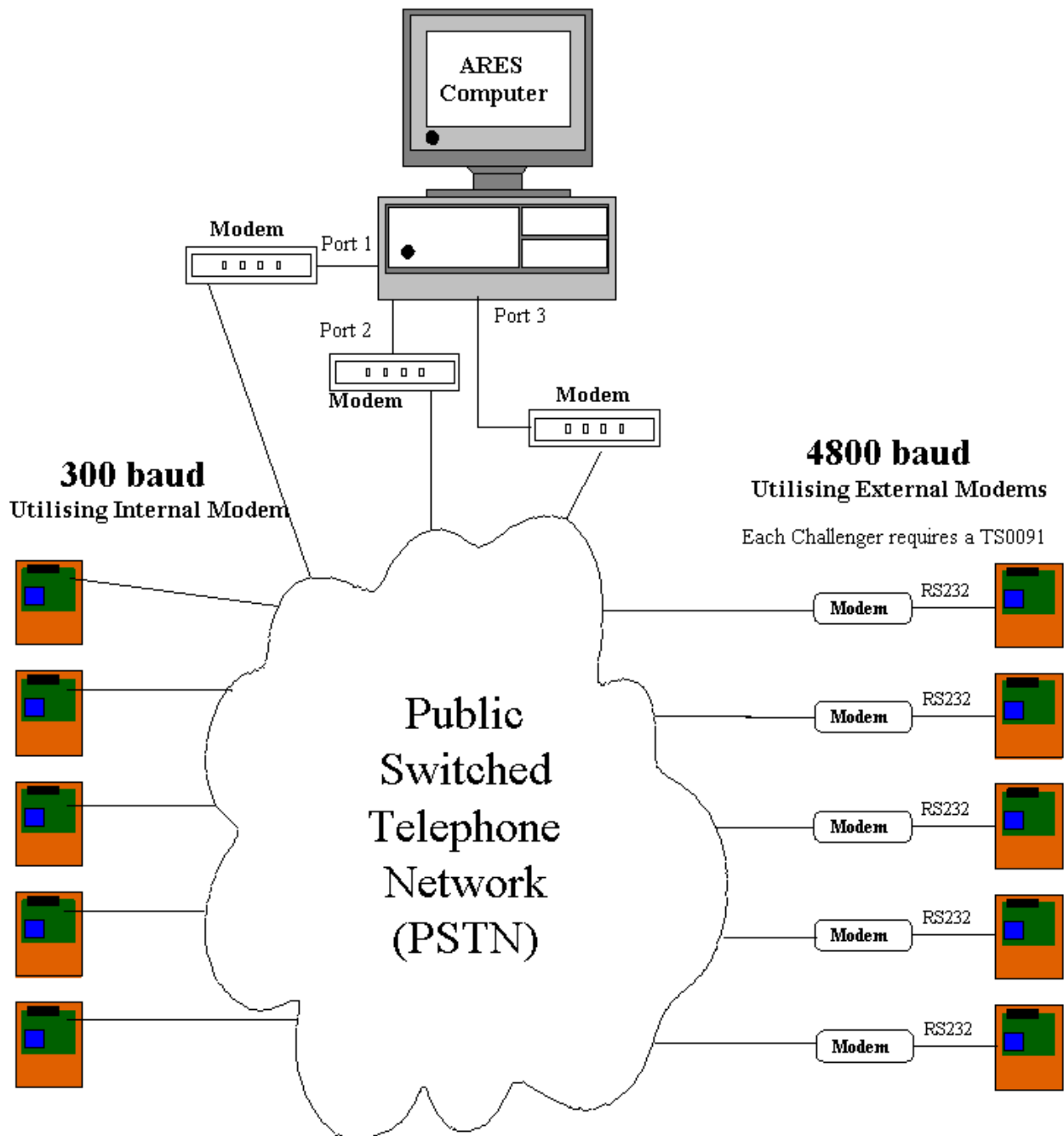
**Each Challenger to be fitted with a Computer interface
(TS0091)**

Remote TCP/IP Connection to ARES



MSS1 Module = RS232 to Ethernet Converter
 Each MSS1 will require a unique TCP/IP address.
Note: Each Challenger requires a TS0091

Remote PSTN Connection to ARES



The number of modems required to handle dial up Challengers will depend on several factors:

- * How many Challengers there are
- * How busy are each of the Challengers.

You may also have another node with more modems on it and decide certain Challengers will dial to Node x and other Challengers will dial Node y.

APPENDIX G

Setting up a VT100 Terminal Session.

1) Direct Connection

- a) Program a port for a 'Serial terminal type'. Recommendations are: speed 19200, hardware handshake, 8 bits no parity.
- b) Program an operator station. From the ARES main menu, go to **Databases / Equipment Databases / Operator Stations** and type in the new ID and allocate the port programmed in step a) to this operator station. Save the record.
- c) Shutdown ARES and reboot.
- d) Ensure the remote terminal is set up as a VT100 terminal and emulates the correct keyboard key sequences. If it does not, then set up the keys to do so. (Communication packages such as ProComm Plus and Koala Term do emulate VT100.) Also, ensure the baud rate is the same as set up in step a). If it is not, then problems will occur.

2) Dial up Connection

Follow the steps above. At step d), make sure the modem is connected.

3) Terminal Support

ARES provides limited support for the use of text terminals.

Currently, the only terminal supported is a VT100. No graphics or CCTV control is able to be performed via these text based terminals.

The terminal **must** generate the correct codes for the indicated keys.

(**Note:** "esc" is the **ESC** character/key and the code sequence is case sensitive.)

Terminal Support Key Codes

<u>KEY</u>	<u>CODE</u>	<u>KEY</u>	<u>CODE</u>
F1	esc O P	Page Down	esc O s
F2	esc O Q	Page Up	esc O y
F3	esc O R		
F4	esc O S	Left Arrow	esc O D
Shift - F4	esc S S	Right Arrow	esc O C
F5	esc O t	Up Arrow	esc O A
F6	esc O u	Down Arrow	esc O B
F7	esc O v		
F8	esc O l	Home	esc O w
F9	esc O T		
F10	esc O x		
F11	esc O U		
F12	esc O V		

Text Based VT100 Terminal Connections

Direct Connection

ARES Node1



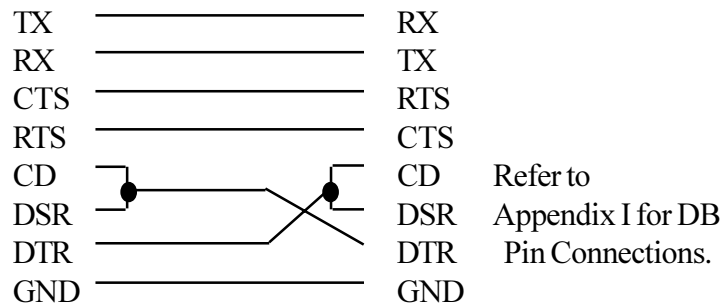
VT100 Terminal



Wiring Connections

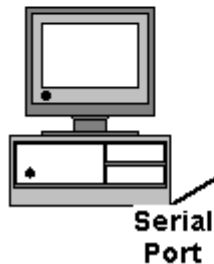
ARES NODE

VT100 Terminal



Via Modem

ARES Node1

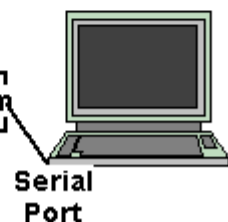


Modem



Modem

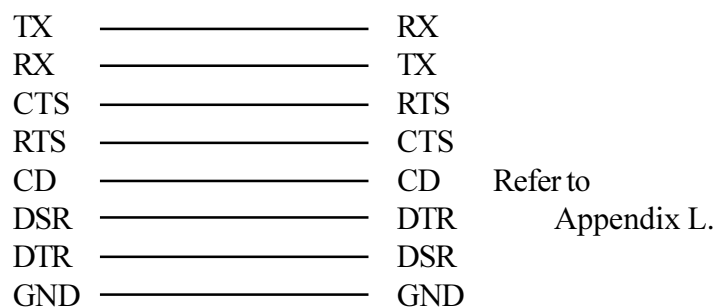
VT100 Terminal



Wiring Connections

ARES NODE or VT100

Modem



APPENDIX H

Printer Types.

All printers must be MSDOS compatible and able to handle ASCII text. Some modern printers only run MS Windows and are therefore not suitable for ARES and other operating systems.

Both serial and parallel printers are acceptable as long as they comply.

Wiring Connections

Parallel Printers - A standard Centronics cable is used.
ie: DB25 to Centronics connector.

Serial Printers - A standard Null modem cable is used.

Refer to Appendix L for DB Pin Connections.
--

COMPUTER

TX	_____
RX	_____
CTS	_____
RTS	_____
DTR	_____
DSR	_____
GND	_____

PRINTER

RX
TX
RTS
CTS
DSR
DTR
GND

APPENDIX I

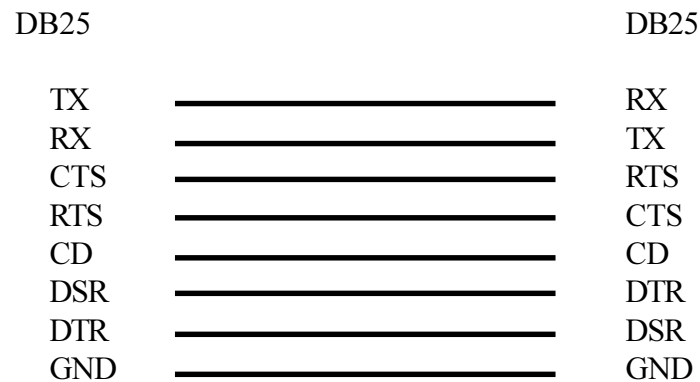
Setting up MSS1

- I) Power up MSS1
- II) Connect serial cable to a terminal session.

Initially set up as:

9600 8bit Non Parity 1 Stop

Connection Diagram:



- III) On the terminal sessions, hit **enter** and the following will appear on the screen:

Lantronix MSS1 Version V3.5/5 (980529)

Type **help** at the “Local_1>” prompt for assistance.

Username>

will now appear on the screen. Log into the MSS1 by typing: Master

The following prompt will appear:

Local_1>

Type the following:

set privileged press **enter**

system press **enter**

Local_1>>

Change IP address XXX.XXX.XXX.XXX

You must enter the same IP number that appears in the ARES Hosts database. The number can be found from the main menu **Databases / Equipment Databases / TCPIP Hosts**.

Logout

IV) **Install TCP/IP if not installed.**

APPENDIX J

Logging on to ARES using Prox Cards.

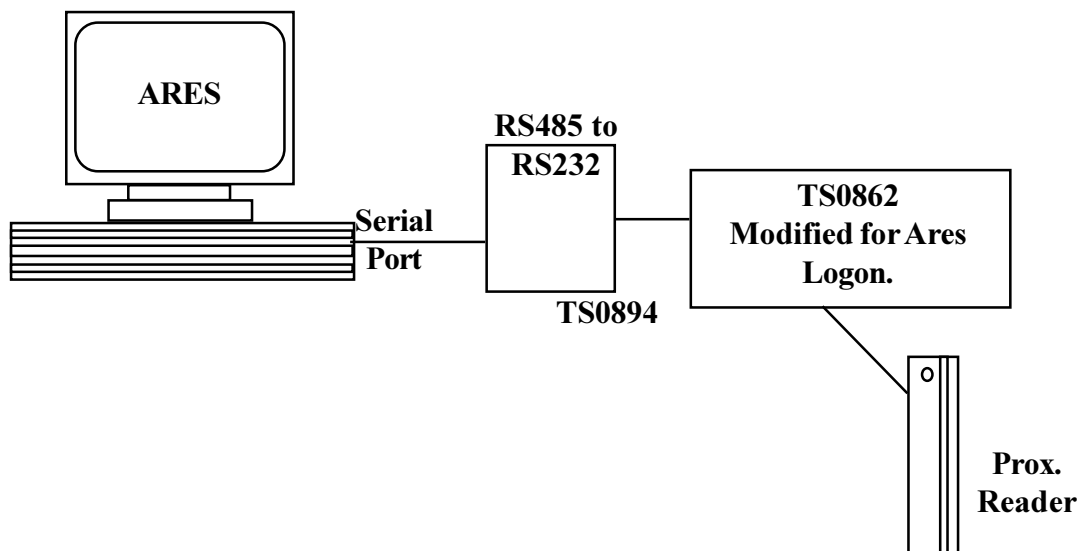
Requirements: Tecom Format or 26-bit Wiegand Format Cards.

- a) Program a port under **/Databases / Equipment Databases / Ports** as type 'serial other' with 4800, no handshaking, 8 bits and no parity.
- b) The node/s required to be used to log on via cards are found in **Databases / Equipment Databases / Operator Station** and select the 'card reader port' to the one set up in section a) above.
- c) Set up how you wish the card log on operation to work. This is set up under **/Administration / Configuration / ARES Configuration**. Select the node and then press **F3** or the **Login** button. Choose the required options and save.



Important Note: Ensure the steps are set up correctly! If they are wrong it may be difficult to access the menu again. For example, if you only have one node and you attempt to set it up as a card log on, but have not set the port correctly, it may not read the card properly and you will be unable to log on!

Wiring for logon through Prox card.



APPENDIX K

Installing a Network Card and Driver.

Each and every node must have one of the network cards listed in Appendix N to work. Once this is the case, a cable must be used to connect each node together. Refer to **Appendix D** for different network topographies using either coax or UTP.

For the network to work, each node must have a QNX and QNX Windows license for every node in the system. For example: if your network is a three node system, then node 1 must have 3 QNX licenses and 3 QNX Windows licenses. Node 2 is the same, as is Node 3. Once the licenses on each node are put in place, the Network commands for QNX need to be implemented.

Determining the Network Drivers & Network Addresses

You must know the ethernet address of each network interface card and the network driver required.

Follow the steps below to determine this information.

At the prompt, #, type: `nettrap query <enter>`

The screen will display the result of the auto-detect attempt. An example may be:

```
Net  &  
Net.tulip -I1 &  
netmap -f
```

This information tells you that it has found a Network Card and the suggested driver is Net.tulip.

Note: this has not started the driver, but only recommended what to use.

**If a network driver is unable to be detected by this process,
please check you have a compatible card.**

Once the driver has been determined, it must be started in verbose mode (-v) to find out the Ethernet Address. This is required for the netmap file (the file that tells the PC where all the nodes' addresses are).

To start the driver in verbose mode, type the following substituting your correct driver.

Note: Remember, if the driver is already running, then verbose mode will not work. Therefore **slay** the driver and then start it up again.

```
Net  &  
Net.tulip -v &
```

The ethernet address will be displayed. You should log this ethernet address onto the **ARES System Information Sheet**.

If the above steps produce an initialisation error, the driver has been unable to find the network card.

For an ISA card you will need to find the IO address of the card and then invoke the driver with the -p option.

eg: Net.ether1000 -v -pXXXX (where XXXX is the IO address in hex)

For a PCI card the show_pci utility may show the card's IO address.

Once again it will be necessary to start the driver with the -p option as well as the -v option.

Creating the Network Mapping File

The contents of the netmap file consist of three columns of data.

Column 1 is the node number
Column 2 is the logical LAN number - usually 1
Column 3 is the ethernet address

The columns must be separated by a TAB character.

The netmap file on each node must be identical unless your system is using TCP/IP communications between nodes. See **TCP/IP Installation**.

Example:

We have a three node system.

Node 1 has an ethernet address of 0034 EF43 C123
Node 2 has an ethernet address of 0034 EF43 123F
Node 3 has an ethernet address of 00C1 1BC8 AFD3

the /etc/config/netmap file on each node would be:

1	1	0034 EF43 C123
2	1	0034 EF43 123F
3	1	00C1 1BC8 AFD3

To produce the above file, the key sequence would be:

vedit /etc/config/netmap					<enter>
1	<tab>	1	<tab>	0034 EF43 C123	<enter>
2	<tab>	1	<tab>	0034 EF43 123F	<enter>
3	<tab>	1	<tab>	00C1 1BC8 AFD3	<enter>

Press ALT and X to save and quit. Remember to create the netmap file on all nodes.

You can use the 'alive' command to see what nodes are communicating. Refer to the **QNX Commands** section for more on the alive command.

To ensure the network always starts up when you turn the PC on, the three lines need to be put into the sysinit file - section A. Refer to **SYSINIT.1 File** section.

APPENDIX L

DB Pin Connections (Serial)

For PCs, Printers and Terminals (not modems)

	<u>DB25</u>	<u>DB9</u>
TX	2	3
RX	3	2
RTS	4	7
CTS	5	8
DSR	6	6
DTR	20	4
CD	8	1
GND	7	5

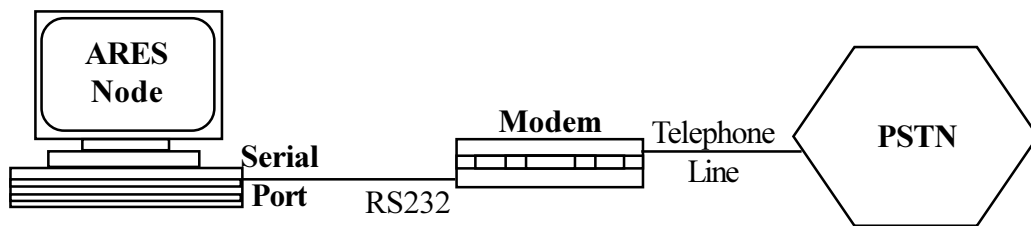
<u>MODEM</u>	<u>DB25</u>
TX	3
RX	2
RTS	5
CTS	4
DSR	20
DTR	6
CD	8
GND	7

APPENDIX M

Setting Up a Diagnostic Modem

- 1) Ensure one serial port is **not** used in the ARES database.
- 2) In the sysinit file section 'G' remove the # to enable the line where the word "modem" appears. Also, at the end of the same line, change the port to the port where the modem is connected. The default port is 'dev/ser2'.
- 3) Shutdown ARES via the menu and reboot for it to take effect.

WIRING



APPENDIX N

Filesystem and Network Drivers

The following Filesystem and Network Drivers have been tested by Tecom Systems and are approved to work with ARES.

FILESYSTEM DRIVERS

<u>NAME</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
Fsys.aha2scsi	driver	Adaptec AIC-6260/6360-based SCSI host adapters.
Fsys.aha4scsi	driver	Adaptec 154x and compatible SCSI host adapters.
Fsys.aha7scsi	driver	Adaptec AIC-7770/7870/7880-based SCSI host adapters.
Fsys.eide	driver	ATA/IDE disk interface and ATAPI CD-ROM.

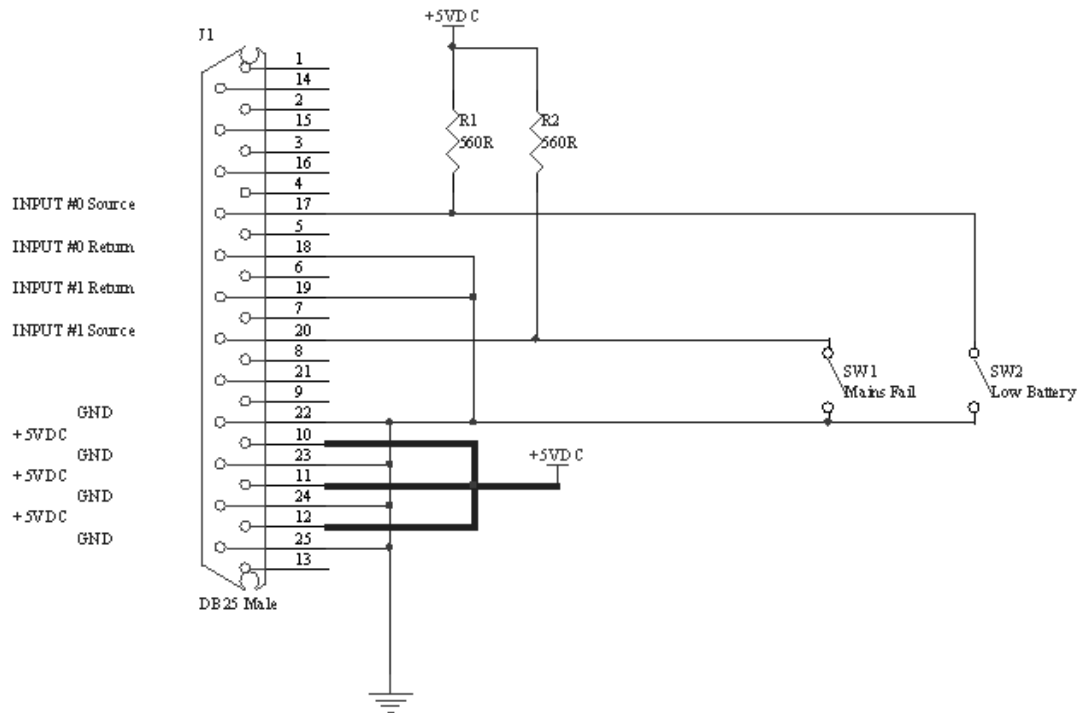
NETWORK DRIVERS

<u>NAME</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
Net.ether1000	driver	NE1000/2000 Ethernet network driver.
Net.ether2100	driver	NE2100/1500 Ethernet network driver & Chipset.
Net.ether8003	driver	WD/SMC 8003 Ethernet network driver.
Net.ether82557	driver	Intel 82557/8 Ethernet network driver.
Net.ether82595	driver	Intel82595 Ethernet network driver.
Net.tulip	driver	Digital (Dec) Chipsets 21040, 21041, 21140, 21142, 21143

APPENDIX O

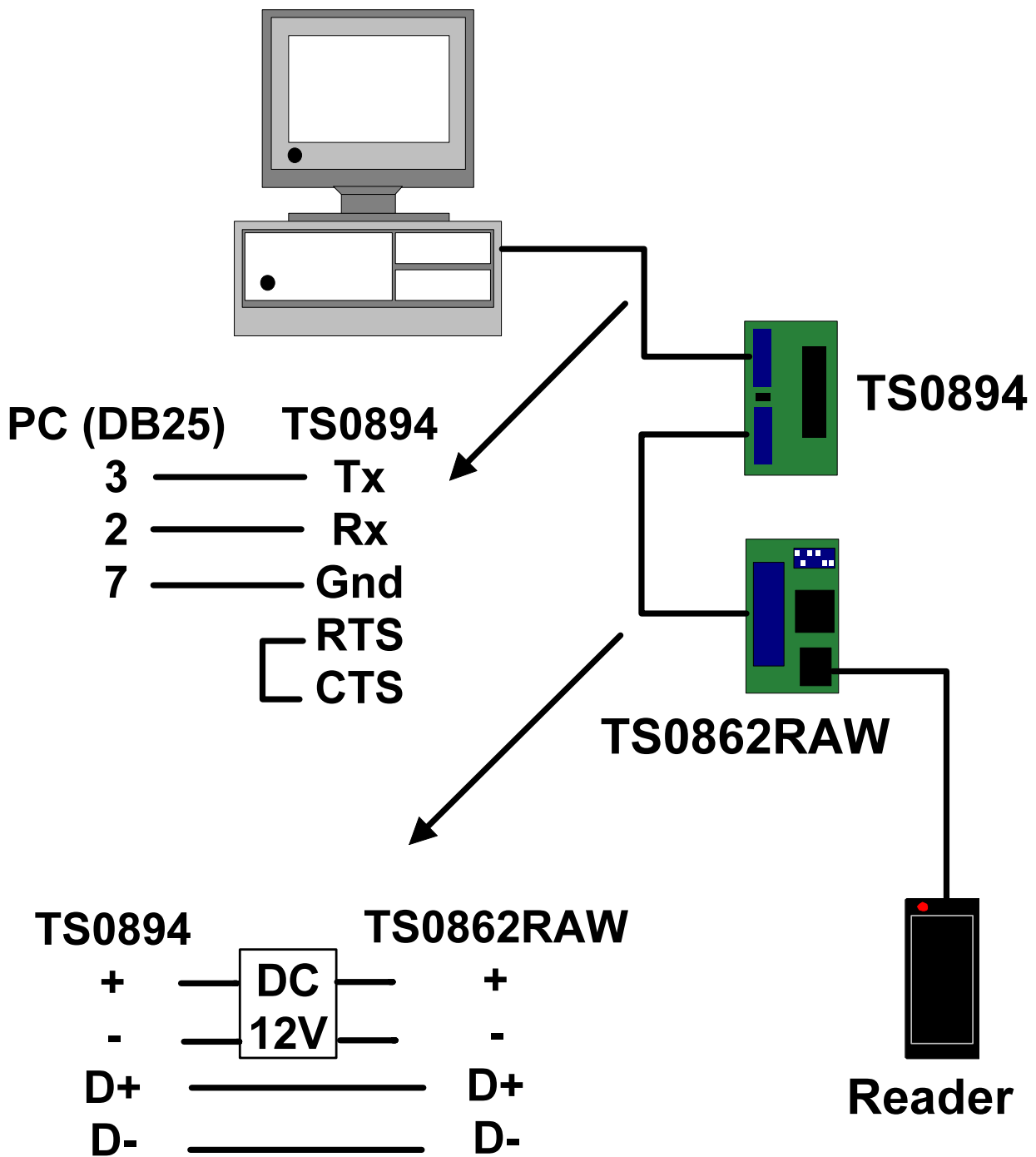
ARES UPS Wiring Loom

WDT-501P



APPENDIX P

Card Reader Wiring



APPENDIX Q

ARES System Information

Controller Type Step 1a	Node No. Step 4	LAN No.	Ethernet Address Step 6	IP Address (Fox)

APPENDIX R

ARES - CCTV Switcher Interface Check list

- 1) Ensure that the physical RS232 cable connecting the ARES Node and the switcher is wired correctly, and connected to the correct serial port on ARES.

Wiring Connection

ARES All switchers (except the Panasonic 616)

TXD	RXD
RXD	TXD
GND	GND

Panasonic 616 Wiring Connection

ARES Panasonic 616

TX	RX
RX	TX
CTS	RTS
RTS	CD
GND	GND

- 2) Ensure that the selected Port is configured for a Video Switcher, and that the baud rate etc is set correctly . This is done in **Database \ Equipment \ Ports** menu. The serial port must be set to “Video Switcher”. Also ensure the Port configuration matches the switcher configuration.
- 3) Ensure that the Switcher type is set to the correct protocol needed. This is done in “Video Monitoring \ Video Switchers”.
- 4) Once these settings are saved, ARES must be shut down and restarted.
- 5) For the Pacom 2030 Switcher, ensure that it is configured to the operator “9999” keyboard emulation password. (This **must** be the first operator in the Pacom.) This should be done by a qualified Pacom dealer/installer.

APPENDIX S

Programmable Keyboards

ARES can use a programmable keyboard - or any other keyboard capable of generating the required keystrokes - to implement keyboard “macro” functionality.

ARES recognises the key sequence and generates an event which may be acted upon by the Event Triggering System.

Key Sequence:

All key sequences **must** start with CTRL-F11 (Control & Function key 11) and end with CTRL-F12.

There may be up to 120 (0 to 119) sequences programmed consisting of the keys ALT-F1 to ALT-F10 where:

ALT-F1 represents the value 0
ALT-F2 represents the value 1
up to
ALT-F10 represents the value 9

For example:

To program event 0	-	CTRL-F11	ALT-F1	CTRL-F12		
To program event 1	-	CTRL-F11	ALT-F2	CTRL-F12		
To program event 10	-	CTRL-F11	ALT-F2	ALT-F1	CTRL-F12	
To program event 117	-	CTRL-F11	ALT-F2	ALT-F2	ALT-F8	CTRL-F12

and so on...

The keyboard must generate this sequence in less than 2 seconds for it to be recognised as a “hot key” and not just a sequence of keystrokes.

APPENDIX T

ARES Touch Screens

The use of touch Screens in QNX is described in the file: `/etc/readme/technotes/input-system.doc`

An overview is below:

To use a Touch Screen with ARES:

QNX must be version 4.2.4 or later
QNX Windows can be any version
and the Touch utility must be dated Dec 12, 1997

Before being used in ARES, the touch screen must be calibrated.

To do this, run:

1. `/bin/Touch &`
2. Then type: `Input -d/dev/touchin touchscreentype fd -d/dev/yourserialport &`

eg: `Input -d/dev/touchin MicroTch fd -d/dev/ser1 &`
for a MicroTouch touch screen connected to serial port 1

For a list of supported devices, invoke `Input -I`

3. `/windows/bin/gr.vga`
4. TCalib

And then perform the actions requested.

This will have to be performed on every ARES node where a touch screen is required. It must be done when ARES is not active on that node.

To activate the Touch Screen for ARES, it is necessary to uncomment the appropriate lines in section C of the **Sysinit** file.

Note that it is possible to use both a Mouse and a Touch Screen together.

QNX Commands

QNX basic rules.

- 1) QNX is case sensitive for all commands, file names, directories. (MSDOS is not).
- 2) File extensions do not exist in QNX. That is, the . (dot) does not have to be part of a file name.
QNX does not have an 8 character file name with a 3 character extension used by MSDOS. It is more flexible.
- 3) The / (forward slash) is used in QNX for directories where as MSDOS uses the \ (back slash).
- 4) When specifying a file or directory on another node (PC) on the network, the following is always used at the front of the path: **//3** This means node 3. For example, to list a directory contents on node 4 and the directory is /etc/config the you would use the following:
`ls //4/etc/config`
Otherwise, if the node path is not specified, then your node is assumed.
- 5) The default command prompt is the cross hash character - #
- 6) When using the floppy disk drive, you **must** wait for the light to go out before you remove the floppy. Even if you have a prompt back on the screen for the next command, the floppy may still be copying. So, please wait for the light to go out.

Floppy Disks

If running QNX Version 4.23 then the floppy will be known as /dev/fd0.

If running QNX Version 4.24 then the floppy may be known as /dev/fd0 OR /dev/fd1.

This will depend on whether there is a zip drive or something similar installed. If a zip drive or something similar is installed and QNX version 4.24 is running, then the floppy will be known as /dev/fd1. This is important particularly when you want to copy files to and from floppy disks.

Currently, this is done automatically. Refer to section 8 of the 'sysinit.1' file.

alive

This command shows a list of all the nodes that are communicating.

Example:

Nodes:

1: Up 2: Down 3: Up

cd

This command changes the current directory to a specified directory.

Example:

`# cd /usr/Ares/Graphics`

This will change the directory to : usr/Ares/Graphics

NOTE: QNX is case sensitive for all file names and directories.

Console Swapping:

If you are running a network and have more than one node, you can view any console by ‘swapping’ to the actual console number. Use the following key sequence:

Press and hold the {ctl} key and the {alt} keys down. Then press any number from 0 to 9 to switch to that console. Please note that this is not a command, but a key sequence.

cp

This is a copy command. It will copy a file to another name and/or location.

Example:

```
# cp -v /usr/fred /usr/john/
```

This copies the fred file in the /usr directory to the /usr/john directory. The -v (verbose) means to show on the screen what is happening. Otherwise you will not know what went on.

fdformat

dinit /dev/fd1

This formats floppy disks in a QNX format.

Example:

```
# fdformat /dev/fd1  
# dinit /dev/fd1
```

This formats the floppy disk in fd1 (Normally known as Drive A: in DOS). ARES has a utility that formats disks automatically. See the **Backups/Format Disk** menu from the main ARES menu.

date

This is a command to show or change the QNX date. To permanently store the date into the Real Time Clock on the PC, use the *rtc* command

Example: # *date*

Shows the current QNX time & date

```
# date yyyymmddhhmm
```

Where yyyy is the year, mm is month, dd is day of month, hh is hours (24 hour mode) mm is minute. eg: 200010271231.

This time and date example is: 12:31pm on 27th of January, 2000.

ditto

This command allows you to view other consoles on other nodes.

Example:

```
# ditto -n2 -t4
```

The -n is for what node you are referring to and the -t is what console on that node.

The above example is console 4 on node 2. To stop the session, use {CTL} {BREAK} key sequence.

killAres

This command shuts down Ares. It is recommended however to shutdown from the Ares menu. This method will shutdown ARES from within a QNX prompt. It is not a QNX command but a script file.

Example:

```
# killAres
```

Ares system will shutdown. Please wait for the ‘turn off’ message to appear.

less

Allows you to display information on the screen one page at a time (rather than scrolling) if the result of a command requires more than one screen.

Example:

```
# ls /dev |less
```

The | symbol is the pipe symbol. Scroll up and down to view the information and then press ‘Q’ to quit.

license

This command invokes the license and license refresh utilities.

Example:

```
# license
```

Reads the license of the floppy disk and stores it onto the hard drive.

```
# license -r
```

Allows QNX to read the license off the Hard Disk into QNX for refreshing.

```
# licinfo -a
```

Shows how many licenses you have. A response to the above command would be:

```
qnx 0/3
```

```
wintr 0/3
```

This would mean 3 licenses for QNX and 3 licenses for QNX Windows.

login

This allows you access to the QNX prompt.

Example:

```
Login: root
Password: *****
```

logout

This allows you to logout of the session.

Example:

```
# logout
```

ls

This lists the files in the directory.

Example:

```
# ls
```

The *-l* option allows you to see all relevant file details.

```
# ls -l
```

If the files go over more than one page then use the following syntax:

```
# ls -l |less
```

The *|* symbol is the pipe symbol.

mkdir

This command creates a new directory

Example:

```
# mkdir fred
```

A new directory under the current directory is made.

mount

This command allows QNX to access a device (hard disk, floppy disk, CDROM, Zip Drive).

Example 1:

```
# mount -p /dev/hd0 /dev/hd0t77 /
```

The above command makes the QNX partition (hd0t77) on the hard disk (HD0) the root directory (/).

Example 2:

```
# mount /dev/fd0 /fd0
```

The above command makes the floppy drive (/dev/fd0) called fd0 accessible by QNX.

Example 3:

```
# mount /dev/fd1 /fd0
```

The above command makes the floppy drive (/dev/fd1) called fd0 accessible by QNX.

mv

This command moves a file from one directory to another.

Example:

```
# mv fred /usr/
```

The file fred is now moved to the directory /usr. This can also be used to rename files.

Example:

```
# mv fred john
```

The file fred is now called john.

Net.ether1000

This is the NE2000 compatible network card driver that is needed if using more than one PC, i.e. more than 1 node. Without this driver the network will not work. Before the 'Net.ether1000' can work the 'Net' manager must be running. So the following sequence must be used.

Example:

```
# Net &  
# Net.ether1000 -p6300 &  
# netmap -f
```

Note: The '-p6300' may be different in each PC depending on the IO address of the card. The '-p' is used and the IO address of the card is put next to it as shown above. If the IO address was 5100 then use '-p5100'.

Remember: For more details on how to set up and configure a network, refer to the network section of this manual.

netmap -f

This command allows the script/text file to be read by QNX to establish the ethernet addresses of all the other PC Nodes. The netmap file contains the ethernet addresses of all the ethernet cards in the other nodes.

Example:

```
# netmap -f
```

QNX has now been updated with the latest ethernet addresses.

Example of the *netmap* file:

```
1 <tab> 1 <tab> 0034EF 34C123
```

```
2 <tab> 1 <tab> 012345 678165
```

```
3 <tab> 1 <tab> 002018 2E67F3
```

1st number: Node. 2nd number: Logical LAN number. 3rd number: ethernet address.

NOTE: The <tab> is the **TAB** key. Do not use the space bar. Also, make sure you hit the **enter** key after each line.

To find out the ethernet address of the network card, the following command is needed:

```
# Net.ether1000 -v -p4800 &
```

This command assumes the ‘Net &’ command has already been entered and the Net.ether1000 is NOT running. The ‘-v’ option prints the ethernet address on the screen. The ‘-v’ option for the command is not needed in the ‘sysinit’ file. Use the ‘vedit’ command editor to edit the contents of this file. See ‘vedit’ for more information.

Remember, the ‘4800’ specified here is only an example. The correct number will depend on the network card. See the ‘show-pci’ command.

passwd

This command changes your password. Recommended for a new system start up.

Example:

```
# passwd
```

QNX will now do the following:

New password for root

New password: ***** <enter>

Re-type new password: ***** <enter>

pwd

This displays the current directory you are in.

Example:

```
# pwd
```

QNX will reply with the directory you are in. Example:

```
/usr/Ares
```

rm

This command removes a file.

Example:

```
# rm john
```

The file *john* is now removed.

```
# rm *
```

All files in the current directory are removed

rmdir

This command removes a directory. Opposite to *mkdir*

Example:

```
# rmdir fred
```

The directory *fred* is now removed.

rtc

This command reads the date and time from the PC motherboard clock.

This command also writes the date and time to the PC motherboard clock.

Example:

```
# rtc hw
```

QNX has just read the PC motherboard clock. Use the *date* command to see it.

```
# rtc -s hw
```

QNX has just stored the date and time into the PC motherboard clock.

show_pci

This command will display the details of all the pci cards plugged in the PC. It will give the following: IO (Input/Output) address; the manufacturer; what type of card and other important information. Very useful in finding out what the PCI Network Card address is.

Example:

```
# show_pci
```

This is an example of what will be returned.

```
Class          = Display (VGA)
Vendor ID      = 5333h, S3 Inc.
Device ID      = 8a01h
```

PCI index = 0h
 MEM @ e0000000h
 PCI Int Pin = INT A
 Interrupt line = 11

Class = Network (Ethernet)
 Vendor ID = 10ech
 Device ID = 8029h
 PCI index = 0h
 IO @ 6300h
 PCI Int Pin = INT A
 interrupt line = 10

shutdown

This command resets the computer. It is important that ARES is not running first. Use the *killAres* command first to shut down ARES.

Example:

shutdown

sin

This command displays a list of all the processes that are currently running.

Example:

sin

QNX will come back with a list as shown in the example below.:

SID	PID	PROGRAM	PRI	STATE	BLK	CODE	DATA
—	—	Microkernel	—	—	—	11012	—
0	1	sys/Proc	30f	READY	—	54k	47k
0	3	/bin/Fsys	22r	RECV	0	68K	526K

SID : Session ID

PID : Process ID

PROGRAM : Name of the process which is the file name on the Hard drive

PRI : Priority number with computer scheduling

STATE : What state the process is in: Ready, Recv, Wait, Reply

BLK : What PID number it is referring to that is causing the STATE

CODE : How much ram the process is using for the code.

DATA : How much ram the process is using for data .

sin info

This command displays PC information.

Example:

sin info

QNX will come back with a list as shown in the example below.:

<i>Node</i>	CPU	Machine	Speed	<i>Memory</i>	Ticksize	Display	Flags
<i>1</i>	586/587	PCI	23604	<i>25556k/32254k</i>	9.9mS	VGA Colour	-3+-----8p

Heapp	Heapf	Heapl	Heapn	Hands	Names	Sessions	Procs	Timers	<i>Nodes</i>	Virtual
90k	155k	22776	0	64	100	64	500	125	<i>1</i>	18M/ 41M

Boot from Hard at 18 July 18.53 Locators : 1

#

The items above in bold and italic are the only items you need to be concerned with.

Node : The actual node the *sin info* command was operated on.

Memory : The 1st number is RAM used. The 2nd number is how much ram in total.

Nodes : How many licensed nodes on the network.

slay

This command removes a process from QNX.

Example:

slay CommsSvr

The CommsServer process has been taken out of the system.

To start a process up (the opposite to the slay) type the process name in followed by the ‘&’ symbol. Example

/usr/Ares/exec/*CommsSvr* &

If you don’t include the ‘&’ symbol, you will not get back your prompt until that process has stopped.

stty

This command allows you to get the settings of a communications port. The status of control lines ‘Carrier Detect’ (CD) and ‘Clear To Send’ (CTS) are important to make the PC communicate to the Challenger. They both should be +cd and +cts.

Example:

stty </dev/ser2

Name: //1/dev/ser2

Type: serial

Opens: 3 (RW)

Sigint Grp: 0, Sighup pid: 0

```
+raw
+ihflow+ohflow+lkhflow
start=^Q stop=^S min=01 time=00
par=none bits=8 stopb=1 baud=4800 rows=0,0
+DTR +RTS -BRK +cts -dsr -ri +cd
```

Ensure these are +cts and +cd or else ARES will not attempt to poll the Challenger.

umount

This command is the opposite to the *mount command*.

Example:

```
# umount /zip
# umount /hdt10
```

The zip drive has been unmounted.

use

This command informs you how to use the specified command in QNX.

Example:

```
# use ls
# use cp
```

Text will come back on how to use the option.

vedit

This command is the command editor to allow you to edit files such as 'netmap' and the 'sysinit'.

Example:

```
# vedit /etc/config/sysinit.1
```

You will now be in the editing mode. To exit, hold down the {alt} key and press 'x'. Save the file.

Important ARES Directories

Main Directories

Main directories under the root of the hard disk /

D16 bin boot cd0 dev dos etc home ram tmp usr

Important Sub Directories

All have full path names

/dev

Under this directory are all the devices such as floppy drives (fd), cdrom drives (cd), hard disk drives (hd), communication ports (ser) (par) (rkt), consoles (con). A suffix number will be after all these names to indicate different devices. For example, two serial ports would be:

ser1
ser2

This is a very important directory and the contents of this directory are the only real way to see what devices are connected and communicating to the QNX operating system. To see these devices, at the qnx prompt type:

ls /dev

Although the device may be connected and talking to the system, it does not necessarily mean that QNX can read the media (floppy disk, cdrom, zip cartridge etc). A file system driver may be necessary.

/etc/config

This directory contains the 'sysinit' and 'netmap' files. You can use the 'vedit' editor to edit the files.

/usr/Ares/Graphics

This directory contains all your graphic files used for graphic maps in the ARES application. The files reside in this directory only on node 1. Therefore the real directory for all graphic files is:

//1/usr/Ares/Graphics

Copy any graphic files you want to use to this directory.

SYSINIT.x FILE

If there is no cross hatch ‘#’ then the line will be executed (enabled).

Three cross hatches means that it is help text for your reference.

A row of numbers is used to indicate sections for ease of reading and locating

#

Section 2 - Extra serial ports

Section 4 - Name Locator (nameloc) & Miscellaneous

Section 6 - PCMCIA Cards

Section 8 - Floppy Disk Driver

Section A - Networking

Section C - Touch Screens

Section E - CDROM File System Driver

Section G - ARES Start Up Check

#####

set -i

```
export PATH=$PATH:./usr/Ares/tools
```

Dev &

```
reopen //0/dev/con1
```

Dev.par &

```
print " S @30 <"
```

```
print "R"
```

[illegible]

```
#####
#
### Extra on board Serial Ports added here.
### The port address and Interrupt must be unique !!!
### The -N option is a name which must also be unique.
#
### The next line is for serial port 3 and the following is for serial port 4.
#Dev.ser 3e8,5 -Nser3 &
#Dev.ser 2e8,6 -Nser4 &
#
#####
```

```
#####
#
### Select the appropriate mouse driver
### Usually mousetrap works well, but BUSS mice and IBM's need Mouse
#
mousetrap start
#
### PS2 style mice
#Mouse ps2 &
#
### MS Style mice.
#Mouse msoft </dev/ser1
#
#####
```

```
#####  
#  
### Name Locator (nameloc) & Miscellaneous  
#  
Pipe &  
emu87 &  
#  
### on Node 1 use the following line only.  
  
if test $NODE -eq 1  
then  
    nameloc &  
fi  
#  
### If this Node is using TCP/IP then enable this line (remove the '#').  
#nameloc -s$NODE -e$NODE &  
#
```

[illegible]

[illegible]

[illegible]

```
#####  
#  
### TOUCHSCREENS  
#  
### To use a TouchScreen the /bin/Touch utility must be dated 12th Dec 1997  
### and QNX Windows must be at level 4.23 or later and QNX must be at 4.24  
### or later  
#  
### The touchscreen must be calibrated first. See Technotes...#  
#  
#/bin/Touch &  
#sleep 1  
#Input -d/dev/touchin MicroTch fd -d/dev/ser2 &  
#  
###          ^          ^  
###          Type of touchscreen  Serial port used  
### (Type 'Input -l' for list of supported Touch screens )  
#  
#####  
  
#####  
#  
### Video Graphics Card Drivers  
#  
int10 &  
sleep 2  
#  
### Choose only 1 of the next 3 listed below.  
### By default 640x480x256 colour is selected.  
#  
### S3 800 x 600  
#/windows/bin/gr.s3mm -g800x600x256  
#  
### S3 640 x 480  
#/windows/bin/gr.s3mm -g640x480x256  
#  
### standard vga 640 x 480  
/windows/bin/gr.vga -g640x480  
#  
/windows/bin/qwslib &  
#  
#####
```

```

#####
#
### Mount CD-ROM ISO9660 file system
#
Iso9660fsys &
#
#####

#####
#
### NOTE.. A modem process may be started on a free serial port for diagnostic
### purposes. By default no modem processes are started. If you want a
### modem process started on this node, then remove the '#' from the
### line with the 'modem' word in it.
#
#
#tinit -c "modem -L -b38400 -r1 -i^~~AT&F! -a ATA" -m15 -t /dev/ser2 &
#
#####

#####
#
### ARES Start Up Check.
#
#
cp /windows/config/screen.cfg.win /windows/config/screen.cfg

let node1down=0
if test $NODE -eq 1
then
    /usr/bin/StartAres
else
    /usr/Ares/exec/IsNodeUp 1

    if test $? -ne 0
    then
        print "Did Not Wait for Ares"
        rtc net 1
        if test $? -ne 0
        then
            rtc hw
            ls //1/ 1> /dev/null 2> /dev/null

```


[illegible]



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