MicroComm DXI

System Administration

Manual

April, 2003

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Section 1 - Introduction

The "Family" of DXI *Manuals*

This manual is one of a set of manuals for the MicroComm DXI system:

Manual	Intended Users
Intercom Master Station Operating Instructions Manual	Control Room Operator
MicroComm DXI System Administration Manual	System Administrator/System Installer/Maintenance Staff
MicroComm DXI Maintenance Manual	System Administrator/ System Installer/Maintenance Staff
SAC Computer Installation Manuals	System Installer
Intercom System Equipment Installation Manuals	System Installer/Maintenance Staff
MicroComm DXI Troubleshooting Guide	System Installer

About This Manual

The purpose of this manual is to help you carry out system administration functions for the MicroComm DXI system.

Before you begin to read this manual it is strongly recommended that you read Sections 2 to 4 of the Intercom Master Station Operating Instructions Manual. This will give you a good understanding of how to use the MicroComm DXI system

The Manual is divided into seven Sections, each one deals with a key aspect of the system:

Section One	Introduction
Section Two	Getting Started
Section Three	Using the SAC Computer
Section Four	Procedures for Loading, Saving, Backing up and Restoring the Software Configuration
Section Five	Modifying or Changing the Software Configuration
Section Six	Data Logging
Section Seven	Setting Passwords, System Clock, and Screen Saver Time-out

The MicroComm DXI

The MicroComm DXI is an intercom system that is designed to help correctional officers communicate with inmates and other staff members. The system handles alarms as well as two-way voice communication between Intercom Stations and Master Stations.

Elements of the System

The DXI consists of:

- *intercom stations*,
- *master stations* to which stations are connected (a given intercom station is connected to only one master station, or a group of master stations). A master station can also be programmed to act as a *secondary master station* for a *primary master station*. Call requests not answered by a *primary master station* in a timely manner, and other alarms, may be annunciated at the *secondary master station*.
- a *SAC computer* (Service, Administration and Control computer), which drives the DXI system and is also used for system administration and maintenance,
- *paging outputs* from *PAB* (Paging Amplifier Board), *TAB* (Talk back Amplifier Board), and *AOB* (Audio Output Board) channels.
- *audio input/output* from *AIO* (Audio Input/Output Board), *AIB* (Audio Input Board), and *AOB* (Audio Output Board) channels,
- *card cages* and *power supplies*,
- hardware cards for card cages (*ACB, AIB, AIO, AOB, DIO, PAB, RDB, RRB, SAB, TLB, TSB*),
- Other hardware (*DIO, FTR, IMS's, ICM's, MAI, RRB, RRR, SPC/SPD*).

See Appendix 1 for a complete listing of acronyms used in the DXI manuals.

System Administration Functions

System administration functions include:

- the initial set up of the software configuration for your DXI installation,
- making changes to the software configuration as required, and
- using data logging features to observe or review system activity.

Software Configuration

The software configuration determines the way in which your DXI system operates. It consists of a specification of:

(i) which other parts of the system a given piece of hardware can communicate with, (e.g. which intercom stations a master station can call) and

(ii) operating parameters that determine how the system functions at the user level.

Examples of system operating parameters include:

- *call request time-outs* - the length of time before an unacknowledged or uncancelled call request is annunciated at the secondary master station,
- *priorities* - call requests are displayed on the Event Queue at the Master Station in the order of the priority assigned to the Station initiating the call request, and
- *event reminder rate* - the DXI may be set up so that a beep sounds at the Master Station if there is an unacknowledged call request. If so, the reminder rate determines how frequently that beep tone will sound.

Some of these parameters must be set for the system as a whole (i.e. they affect all stations equally); some must be set on a master station-by-master station basis; still others must be set for each intercom station.

The software configuration cannot be set up until the (initial) system hardware has been installed. Changes may be required if the hardware configuration is changed or whenever you want to change one of the system operating parameters.

Data Logging

The DXI logs all system activity at the SAC computer. These log messages may be reviewed through the SAC computer monitor. They may also be printed, so that a hard copy is available, or saved to text files for use on other computers.

System activity consists of a series of events such as:

- the beginning of a call,
- the end of a call, and
- a time-out alarm.

Each event occurs at a particular point in time. The log is a record of these events and the time at which they occurred.

Section 2 - Getting Started

In this Section...

We will discuss:

- system administration functions, and
- the service administration and control (SAC) computer.

Elements of the DXI system - from the user's point of view - are described in Sections 2 to 5 of the Intercom Master Station Operating Instructions Manual. You should read and fully understand this material before you begin to perform system administration functions.

System Administration Functions

System administration is a key aspect of the successful operation of your DXI system. The role of the System Administrator is:

- to specify the initial software configuration after the system hardware is installed,
- to make modifications to the software configuration as required, on an on-going basis,
- to set and maintain passwords, and
- to monitor the data logging.

The System Administrator will use the SAC computer to perform these functions.

SAC Computer

The *service, administration and control* (SAC) computer is the brain of the DXI system:

- it controls the operation of the DXI system, and
- it is used for installation, system administration and maintenance, and troubleshooting.

The SAC computer is a standard IBM-compatible PC with special operating software and network adapters for communication with other parts of the intercom system.

As an option, a redundant SAC computer can be added, so that 100% backup is assured. With this option the system can operate on either PC and will switch automatically from one to the other if the need arises.

Configuration Data

There are two major components to the DXI system -- the hardware and the software.

The hardware consists of specifying parameters for Exchanges, Cards, Master Stations, Stations, Doors, Switch Panels, Music, Signals, Radios and CEPT along with the associated wiring. Those items that are hardware-dependent (i.e., that depend on the type or number of components or the actual wiring) are controlled by the *hardware configuration.*

The software makes the system operate. Those items that can be changed without making physical changes to the system (i.e. without adding or removing components or rewiring) are controlled by the *software configuration.*

Both the hardware configuration and software configuration must be specified before the system will operate. Configuration data are entered into the SAC computer. The System Installer specifies the hardware configuration. The System Administrator specifies the software configuration.

The Software Configuration

The software configuration consists of a specification of items such as:

- what other devices a given device may communicate with (within limits set by the physical connections),
- the name by which each station will be known (the station identification number is specified as part of the hardware configuration when the system is installed), and
- parameters that affect the operation of master stations, intercom stations, other stations and logging.

Because the software configuration is programmable, it is relatively easy to modify when the need arises. This makes the DXI system highly flexible and responsive to changing requirements. The software configuration includes setting parameters for Master Stations, Stations, Doors, Pagezones, Special Events, Conferences, Holidays, Signals, Radios as well as Global parameters.

Let's look at the software configuration in more detail.

Parameters That Are Specified as Part of the Software Configuration

Parameters that are associated with the software configuration include three major components:

communications channels	specify how alarms, speech, etc. will be routed through the system (e.g., for a given alarm source which Master Station(s) will be alerted and able to acknowledge the alarm).
names	each Master Station, Station, Door, Music Source, Page Zone, Conference Setup, Signal, Radio or Special Event can be given a unique commonly used name that has relevance to that particular facility (e.g., West Door).
operating parameters	are a list of parameters associated with each specific device. They determine how the device will operate (e.g., the initial volume on a communications channel, whether or not an alarm will be annunciated at a Master Station). Operating parameters are further divided into two groups; global, which are parameters common to all devices, and parameters specific to each individual device.

For each device a complete list of all the programmable parameters that the System Administrator can set are given in Section 5, under the Modify Software heading.

Passwords

Access to the DXI system through the SAC computer is password-protected. The System Administrator will set and control passwords. The system uses five passwords:

- one for access to the "administration" module, which is used to specify and change the software configuration,
- one for access to the "maintenance" module, which is used for installation, troubleshooting and maintenance functions,
- one to regain access to the system after the screen-saver cuts in,

- one for access to the operating system (“system”) , and
- one to allow the names of Stations to be changed directly using the *Options* selection from the main DXI *Shell*.

Who Needs Passwords

The purpose of passwords is to ensure that only authorized personnel have access to the DXI system through the SAC.

- personnel who must access the *Administration module* will need to know the password for access to the administration module,
- personnel who must access the *Maintenance module* will need to know the password for access to the maintenance module,
- all personnel who use the system will need to know the screen-saver password,
- personnel who must access the *operating system* (QNX) will need to know the password for access to the system module, and
- personnel who need to change Station names (e.g. the name may correspond to the name of the client at that Station) will need access to the Stnnames password.

Note: Only qualified personnel should have access to passwords. It is important that all personnel who access the system protect the security of the system.

Guidelines for Managing Passwords

Passwords should only be issued on a “need-to-know” basis.

All personnel who know one or more of the passwords should follow these guidelines.

- Do not disclose passwords to unauthorized persons.
- Do not leave written passwords in places that are not secure. (It is better to commit passwords to memory.)
- When personnel change, new passwords should be established.
- Do not re-use old passwords.
- When your work is finished, log off the system completely.

Data Logging

For a full description of the data logging function, see Section Six of this manual.

Section 3 - Using the SAC Computer

In This Section...

We will discuss:

- the structure of the SAC computer software,
- start up procedures,
- how you may access the system and modules within the system,
- typical screen layout,
- the use of the *Options* menu if Auto start fails,
- how to access the Administration module, and
- screen-saver.

Structure of the SAC Computer Software

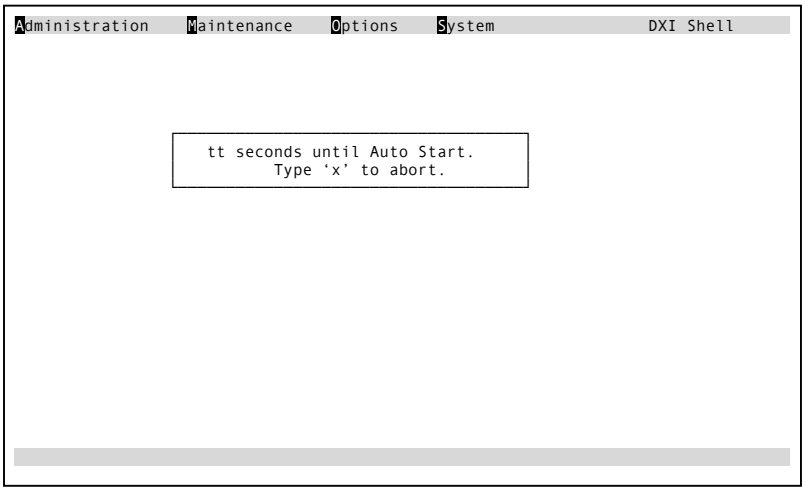
The DXI SAC computer software is modular in design. At the highest level is the "shell". Once you are in the shell, a main menu is presented with four options - *Administration*, *Maintenance*, *Options* and *System*. When you make your selection, further menus are presented, from which you go further into the system.

You go down the tree by selecting functions -- to select a function, press the letter key that is highlighted -- until you reach the screen that enables you to perform the desired function.

At any time you may retrace your path back up the tree by pressing the 'Escape' key or by using the *Exit* selection.

SAC Startup

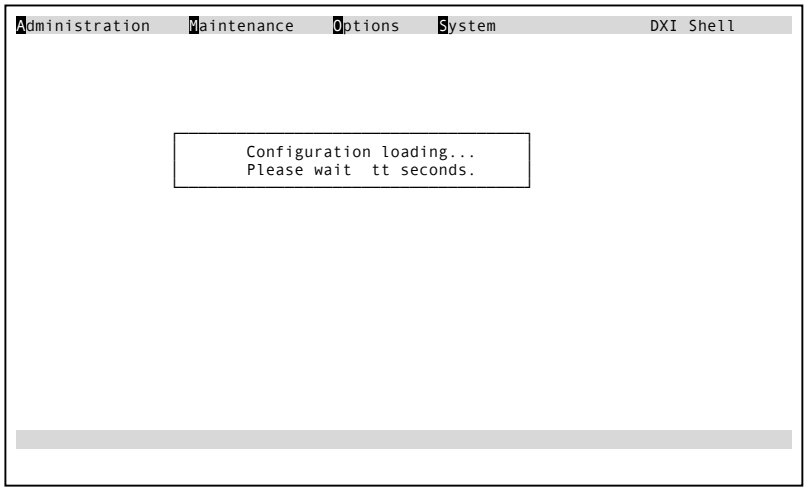
When you boot up the SAC computer, the following screen will appear on the monitor.



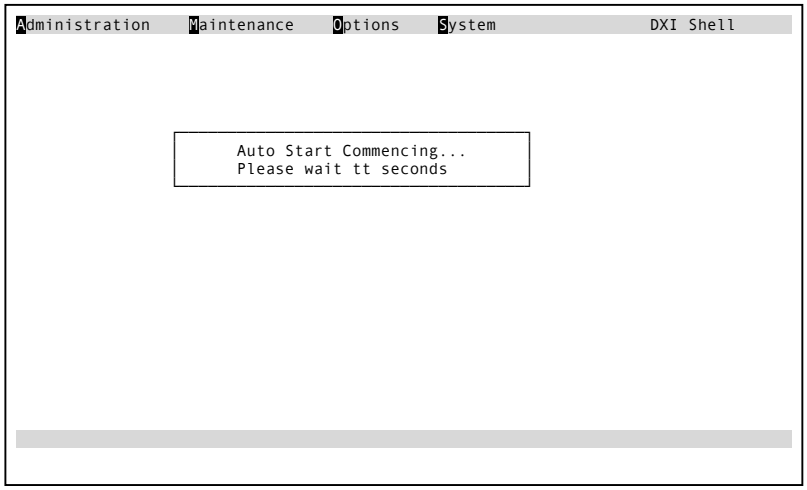
Normally, you would ignore this message, and, after the indicated time has elapsed, Auto Start will commence.

However, if the system will not re-boot (this might happen after you have made changes to the configuration), this gives you an opportunity to revert to a known good configurations. Key in 'x' and the start-up will abort. Now you can select *Options*. (For more information on this procedure, see *Default Configurations*, the next sub-Section.)

If you do not abort, after the indicated time ("tt") has elapsed, Auto Start begins by first loading the hardware and software configurations. The following screen is displayed.

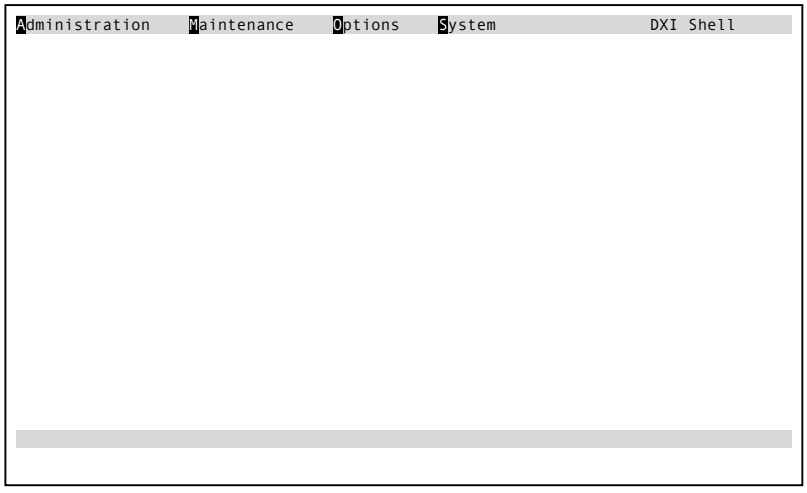


Once the configuration has been loaded the screen displays a message indicating that Auto Start is in progress.



When Auto Start is complete, the DXI *Shell* main menu is displayed.

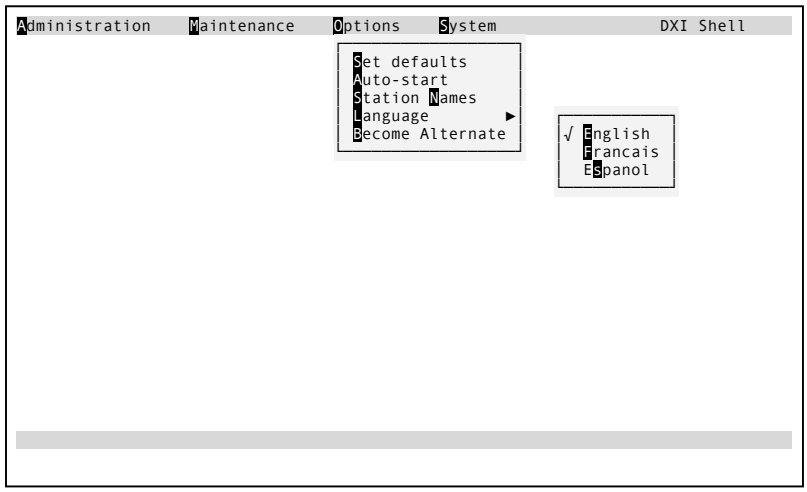
Most of the time, when you start to use the SAC computer, the DXI *Shell* menu will be displayed. From this menu we can move into the *Administration, Maintenance, Options* or *System* modules



Default Configurations

If the system will not boot up, the *Options* menu may be used to revert to a known good software and/or hardware configuration (the system will initially start up in the default hardware and software configurations).

Note: It is **extremely** unlikely that the computer will not boot up. This would occur only after you have made changes to the hardware or software configuration, and the changes cause an unrecoverable error.



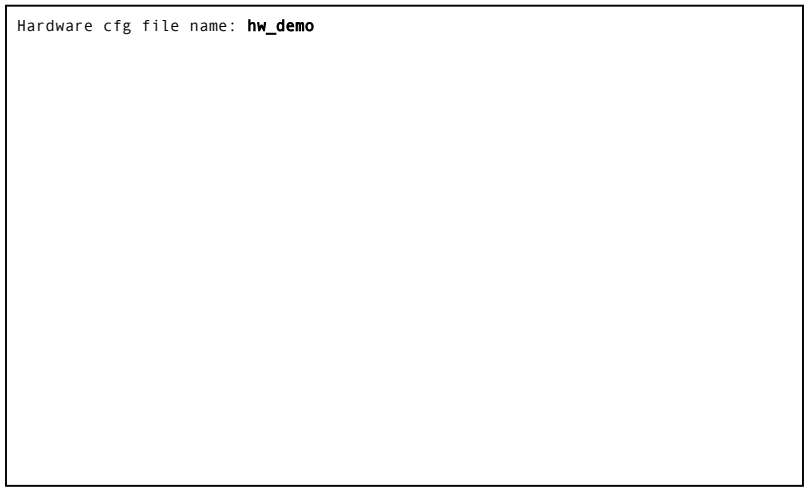
When you select *Options*, the following menu appears.

Set Defaults allows you to change the hardware and/or software configuration.

Auto-start takes you back to the boot-up process. You should change the configuration before you return to Auto-start.

Set Defaults

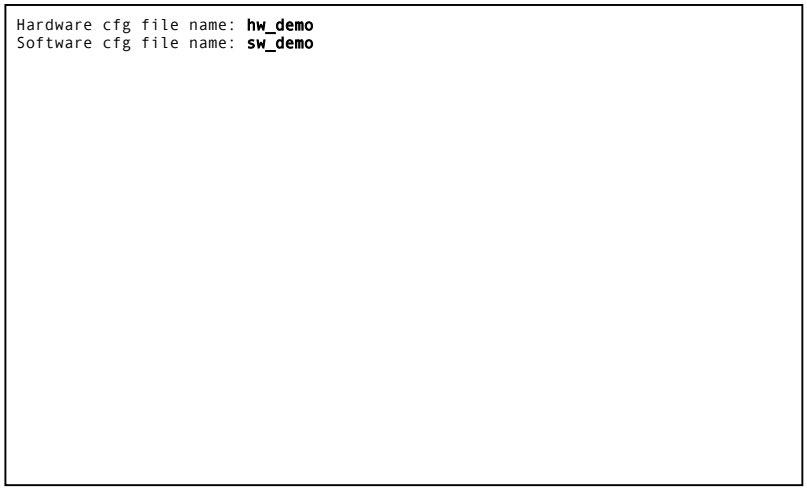
When you select this option, you will first be prompted for a hardware configuration.



"Hardware cfg file name" is the name of the current hardware configuration. The current default hardware configuration will be displayed. Key in the name of the hardware configuration you want to use and press 'Enter'. The hardware configuration you enter must be on the hard drive. (See the next sub-Section for recommended restrictions on File names.)

You will now be prompted for a software configuration.

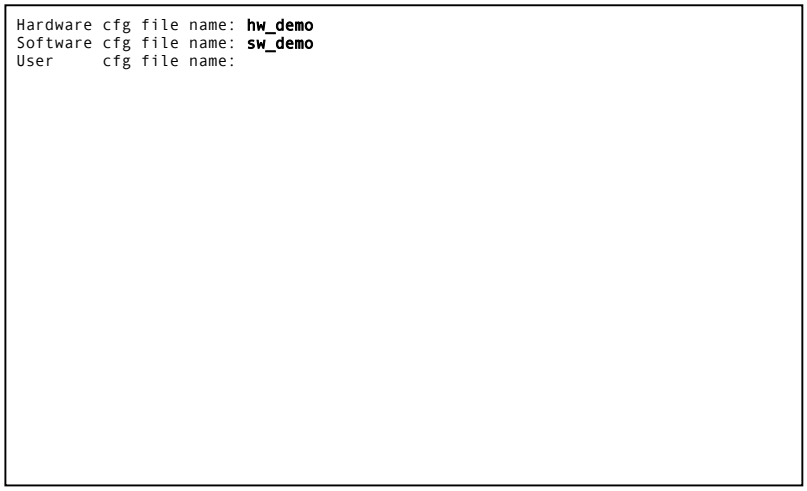
"Software cfg file name" is the name of the current software configuration. Key in the name of the software configuration you want to use and press 'Enter'. The software configuration you enter must be on the hard drive.



After you press 'Enter' the following message will appear.

"User cfg file name" is the name of the current user configuration. Key in the name of the user configuration file you want to use and press 'Enter'. (The user configuration you enter must be on the hard drive). If no user configuration file exists hit the 'Spacebar' followed by the 'Enter' key to continue.

The *Options* menu will re-appear, and you can select *Auto-start*.



File Names

Since the file used for a hardware or software configuration can be stored on floppy disks, it is recommended that the DOS restrictions be used for file names:

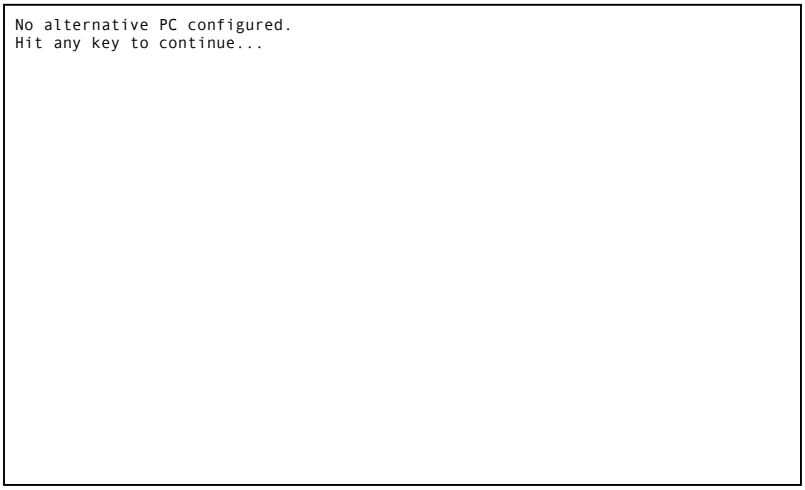
- no spaces,
- file names 8 characters in length (longer names are acceptable but they will be truncated if stored on a floppy disk),
- all alphanumeric characters are acceptable. Alphabetic characters are case sensitive,
- no control characters,
- can use underscore character "_",
- cannot use the characters "*" or "/", and
- it is recommended that for maximum transferability the character set be restricted to:

abcdefghijklmnopqrstuvwxyz

0123456789_

Become Alternate

The *Become Alternate* selection allows you to tell the active computer (the one you are using) to become dormant, causing the redundant SAC computer to become the active SAC computer. If you press 'B' in the Options selection and there is no redundant computer in the configuration you will obtain the following screen:



Using the DXI *Shell*

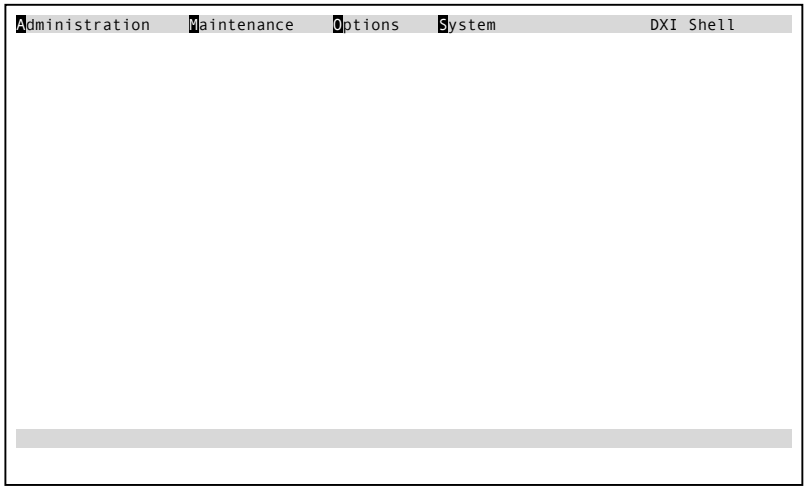
Now you may select the module that you wish to access. There are four options. Note that the message at top right of the screen (DXI *Shell*) tells you what part of the system you are in:

Module	User/Function
Administration	System Administrator
	to specify or modify the software configuration,
	to change system passwords,
	need a password to access.
Maintenance	Hardware installer and maintenance personnel
	to specify or modify hardware configuration,
	to troubleshoot,
	need a password to access.
	for more information, see the Maintenance and Troubleshooting Manuals.
Options	this allows you to specify different hardware or software configuration files,
	normally, this would be done when the system does not re-boot following changes to the configuration (you have aborted the start-up),
	review/change Station names (need a password to access),
	lets you choose the language of your choice,
	for more information, see previous sub-Section. *Default Configurations.*
System	this allows you to access the SAC computer operating system (QNX) for DXI system software maintenance.
	need a password to access.

Screen Layout

DXI system menu screens are laid out as follows:

- the bar at top of screen displays the main menu for the module that you have selected,
- the message at the upper right (on bar) shows where you are in the system, e.g. “DXI *Shell*”, and
- messages at bottom of screen are for prompts, errors, etc., e.g. “Enter DXI *Admin* password”.

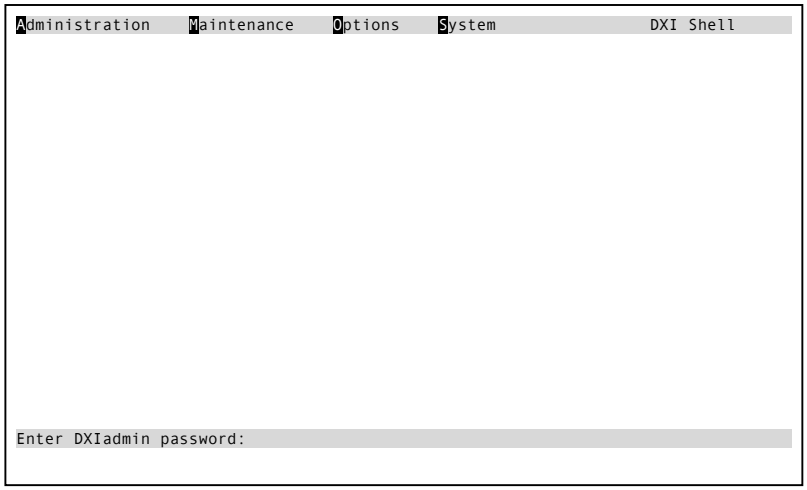


Accessing Modules

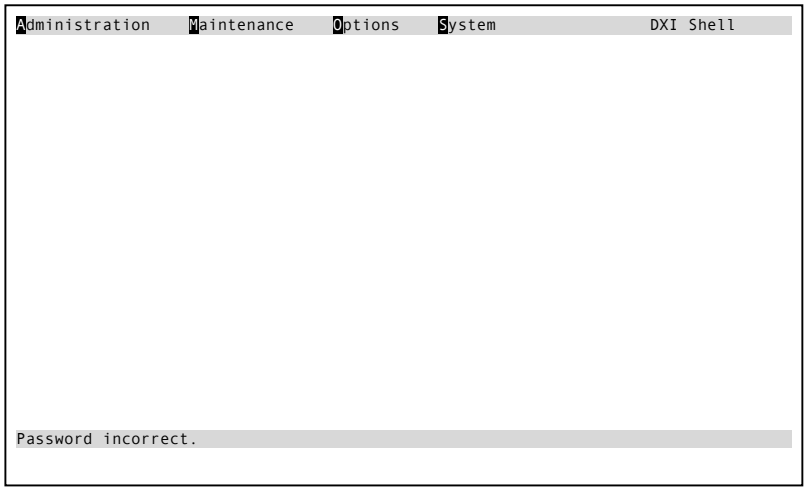
To select an option, key in the letter that is highlighted (e.g., for Administration, key in ‘A’ or ‘a’). If you are in the DXI *Shell* and select *Administration*, *Maintenance* or *System*, you will be prompted for a password.

If for example you select *Administration*, the system will prompt you for a password.

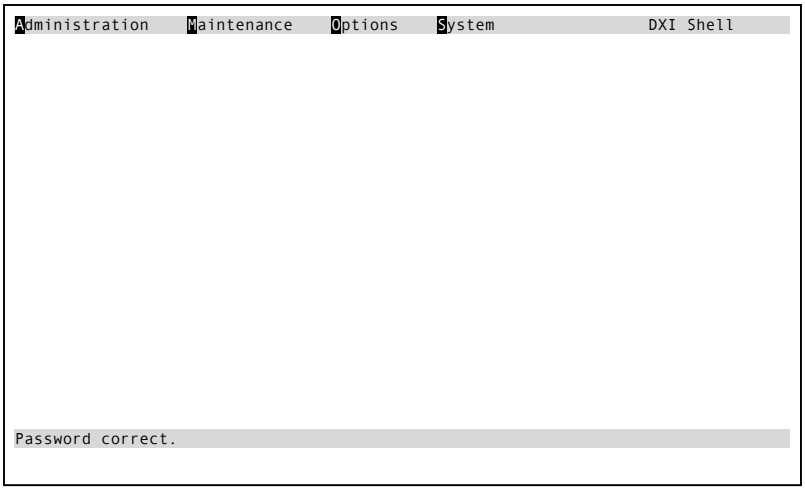
Key in the password and press ‘Enter’,



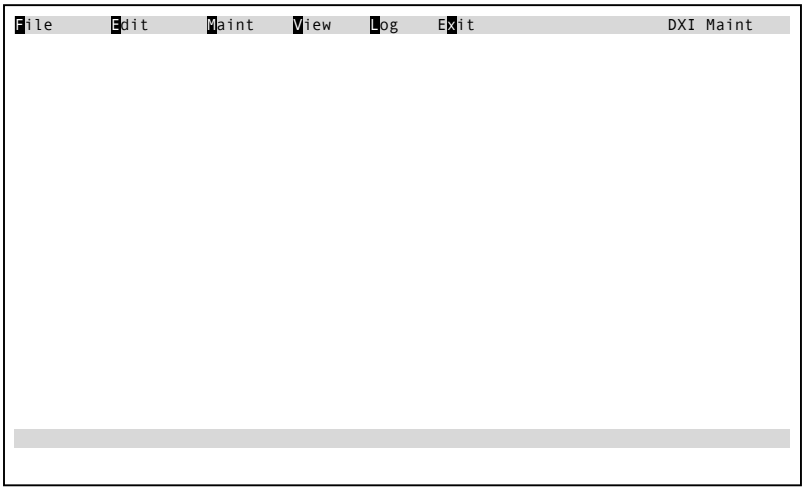
if the password you have entered is incorrect a message "Password incorrect” will appear.



however, if the password is correct, a message “Password correct” will appear briefly at the bottom of the screen,



followed by the menu screen for the Administration module.



Administration Module

The *Administration module* is used for configuration file functions; loading and saving the software configuration, editing (modifying) the software configuration; viewing, saving and/or printing log data; and miscellaneous setup functions. The Administration module menu will present you with optional selections *File*, *Edit*, *Log*, *Set* and *Exit.*

Select	**If you want to**
File	load, save, backup or restore a software configuration.
Edit	specify or modify the software configuration, or view the current software configuration.
Log	view, save and/or print log data.
Set	set or change the system clock, passwords, screen-saver time-out or screen-saver display.
Exit	return to the DXI *Shell*.

To select a function, press the highlighted key. A menu will be presented for the function you have selected.

The Default Software Configuration

When the system boots up, it loads the "default" software configuration (and the default hardware configuration) which is stored on the hard drive, into the memory of the SAC computer. This is the configuration that is used to operate the system.

The default configuration is the configuration that was most recently "saved" or "loaded",

- When you modify the software configuration (using the *Edit* function), the configuration that is in memory operating the system (the "current" configuration) is updated immediately, as you enter changes. However, the default configuration is not updated to reflect your changes until the current configuration is "saved". The system will prompt you to save the current configuration as you exit from the *Edit* function.

If you do not save the current configuration, and you have to restart the system, the default configuration will be loaded into the hard drive. The current configuration is lost.

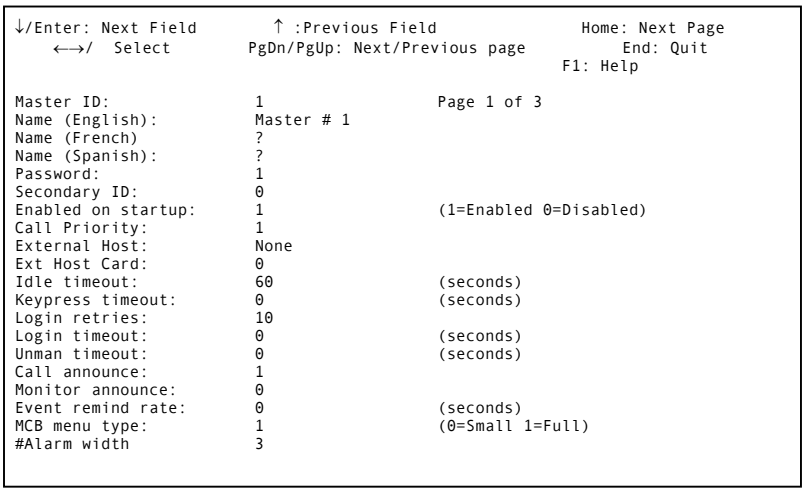
At any time, you may load a configuration from the hard drive into memory. The configuration that you load overwrites the current configuration and becomes the new default configuration.

On-line help

The DXI System Administration functions that are carried out with the aid of the SAC computer are documented with an on-line help information system

The on-line help is meant to make your job easier, allowing you to review a particular programming entry, without looking up the entry in a hard copy of the System Administration Manual. The on-line help is updated with every software update, while updates for the hard copies either rely on a new version of the manual or update sheets being included in the existing manuals.

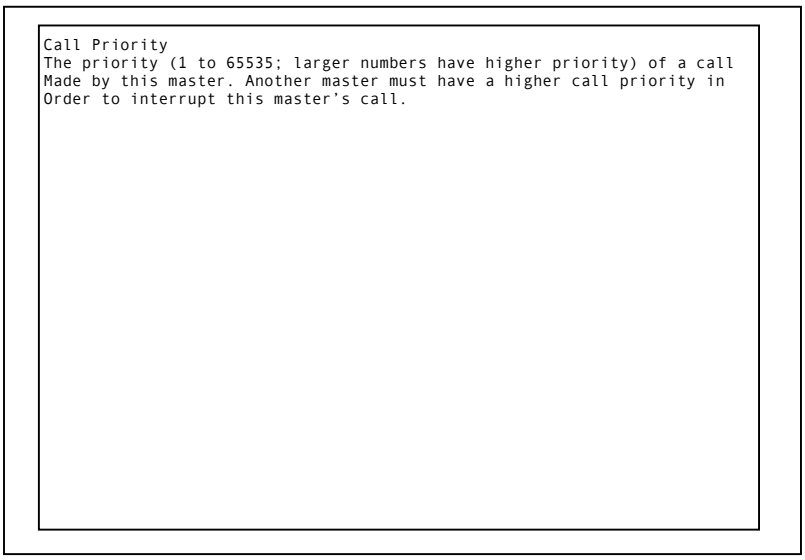
When on-line help is available, using the function key F1 can access it. As a typical example, if you are looking at a screen that allows you to view the settings for a Master Station and the cursor is at the entry for Call Priority as shown.



```
↓/Enter: Next Field        ↑ :Previous Field              Home: Next Page
    ←→/  Select        PgDn/PgUp: Next/Previous page          End: Quit
                                                          F1: Help

Master ID:               1                  Page 1 of 3
Name (English):          Master # 1
Name (French)            ?
Name (Spanish):          ?
Password:                1
Secondary ID:            0
Enabled on startup:      1                  (1=Enabled 0=Disabled)
Call Priority:           1
External Host:           None
Ext Host Card:           0
Idle timeout:            60                 (seconds)
Keypress timeout:        0                  (seconds)
Login retries:           10
Login timeout:           0                  (seconds)
Unman timeout:           0                  (seconds)
Call announce:           1
Monitor announce:        0
Event remind rate:       0                  (seconds)
MCB menu type:           1                  (0=Small 1=Full)
#Alarm width             3
```

Pressing the key ‘F1’ will bring up the following help message.

By pressing any key you will return to the previously displayed screen.

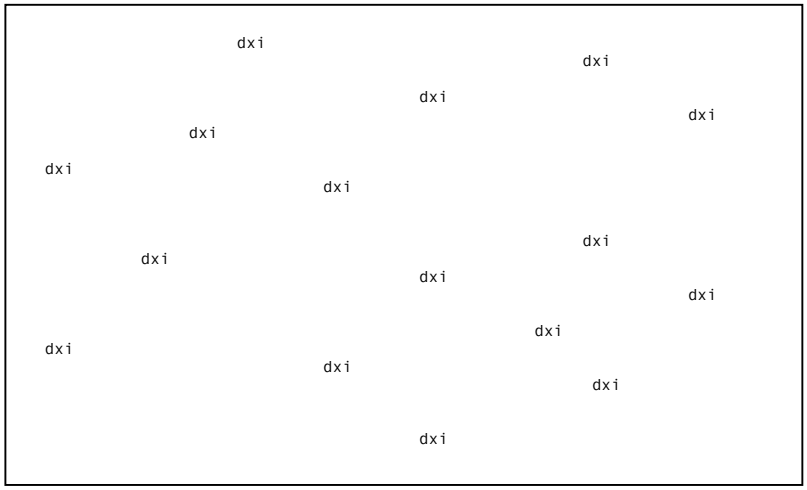


```
Call Priority
The priority (1 to 65535; larger numbers have higher priority) of a call
Made by this master. Another master must have a higher call priority in
Order to interrupt this master’s call.
```

Screen-saver

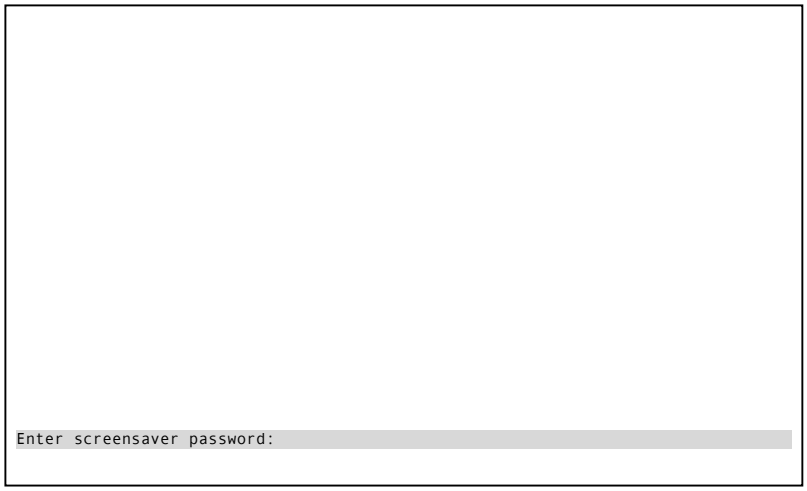
Normally, when you are working in the DXI system, you should exit as soon as you have completed the functions(s) you intended to perform.

If for some reason, you are in the system and you do not perform any keystrokes within a given time (“screen-saver time-out”), the system will revert to “screen-saver” mode. The screen will darken, and a message will appear that floats around the screen.



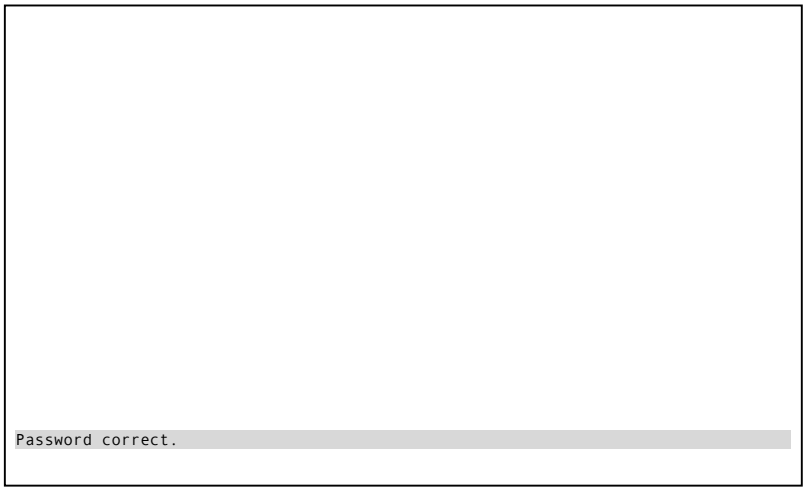
The main purpose of screen-saver is to protect the screen on the monitor. It also prevents access to the system by unauthorized people if the SAC computer is left unattended.

Once the system is in screen-saver mode, you are locked out. To re-access the system, press any key. You will be prompted for the screen saver password.



Key in the password and press'Enter'. If the password is accepted, you will have the following screen message appear.

Upon pressing the 'Enter' key you will return to the place where you were working when screen saver was activated.



Screen-saver Timeout

This is the elapsed time before the screen-saver is activated, if no keys are pressed. The System Administrator (see Section 7 of this Manual) sets this parameter.

Section 4 - Procedures for Loading, Saving, Backing up and Restoring the Software Configuration

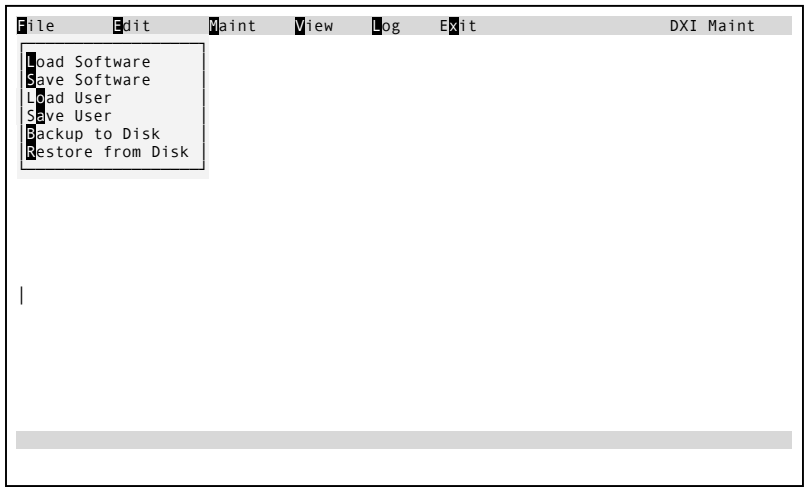
In This Section...

We will:

- examine the *File* menu selection in the *Administration module*, and
- examine the procedures for loading, saving, backing up and restoring a software configuration.

Configuration File Functions (FILE)

The DXI allows more than one software configuration to be stored on the hard drive. The *File* function is used to manage software configurations. When you select the *File* function, the following options will be presented.



To select *Load Software*, *Save Software*, *Load User*, *Save User*, *Backup to Disk*, or *Restore from disk*, press the highlighted key. The functions you may perform are:

Load Software	to load a software configuration from the hard drive into the SAC computer memory. The configuration that you load becomes the new default configuration.
Save Software	to save a software configuration. This function saves the current configuration as the new default configuration. The system will also prompt you to do this whenever you exit from the Edit function if you have made any changes.
Load User	to load a user configuration from the hard drive into the SAC computer memory.
Save User	to save the current user configuration onto the hard drive.
Back up to Disk	a configuration. This will copy the default software (and hardware) configuration(s) to a floppy disk.
Restore from Disk	a configuration. You may select a configuration from the floppy disk and store it on the hard drive. The configuration that you restore does not become the default configuration until it is loaded.

Load Software

Remember that when you load a software configuration, it becomes the default configuration.

When you select *Load Software* the following screen will appear (with the current default software configuration file name displayed).

Key in the name of the configuration file you want to load and press ‘Enter’.

```
Software cfg filee to load:   sw_demo
```

The following screen will appear.

```
DXI SW configuration compiler and downloader Version 1.0b1 (95-03-01)
                                    © 1994 Harding Instruments Co. Ltd.
Parsing input file…
Done.
Downloading records to exchange PC 1…
Hit any key to continue…
```

Hit any key to continue and a message that the “Sending configuration to nodes...” will appear at the bottom of the screen.

Once this operation is completed the software configuration you selected will now be operative. You will return to the Administration menu.

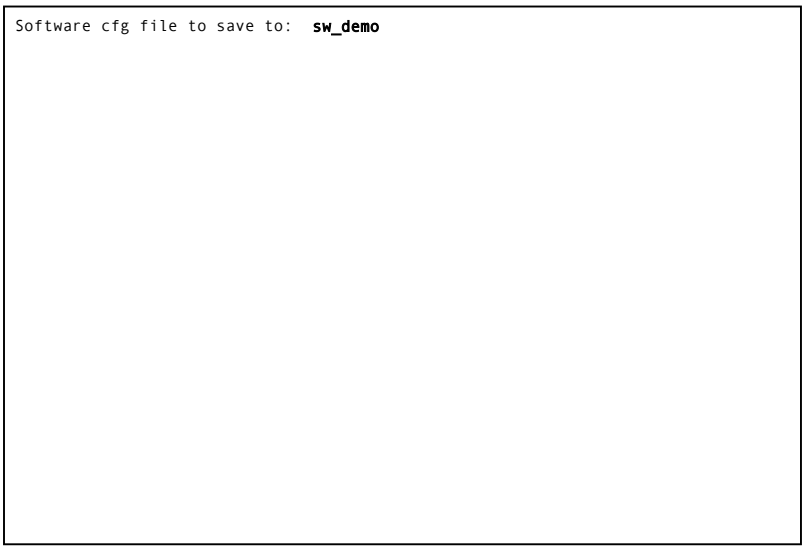
```
DXI SW configuration compiler and downloader Version 1.0b1 (95-03-01)
                                    © 1994 Harding Instruments Co. Ltd.
Parsing input file…
Done.
Downloading records to exchange PC 1…
Hit any key to continue…

Sending configuration to nodes…
```

Save Software

Remember that when you save a software configuration, it becomes the default configuration. Normally you will do this after you have made changes to the software configuration. You may also want to save the software configuration to permanently accept operator settings changed on the Master Stations (for example master and station volume settings). These settings are not saved to disk and will be reset to the previous saved default values upon a system reset unless the save software function is performed manually.

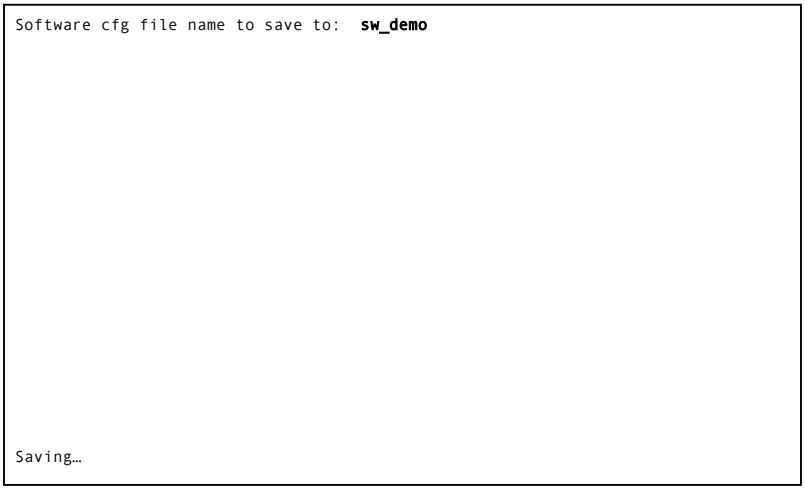
When you select *Save Software*, the following screen will appear (with the name of the current default software configuration file displayed).

Key in the name of the configuration file you want to save and press 'Enter'.



A message appears at the bottom of the screen indicating that the software configuration is being saved.

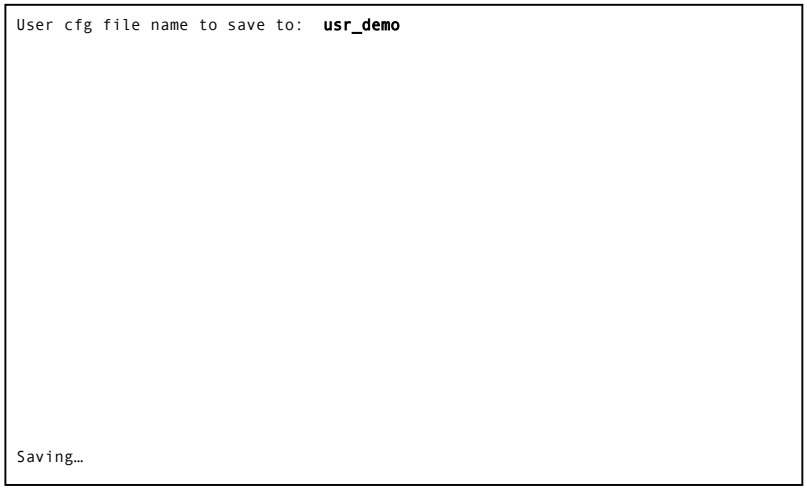
The current configuration is saved to the specified configuration file. It becomes the new default configuration. You will return to the Administration menu.



Load User

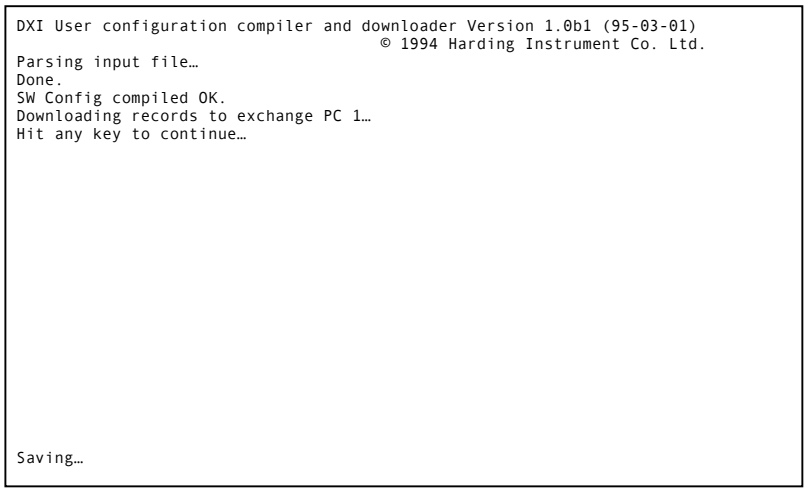
When you select *Load User* the following screen will appear.

If you have a default user configuration file loaded it will be displayed (if there is no user configuration file then the name area will be blank). Type in the name of the user configuration file you wish to load and press ‘Enter’, and



the following screen will appear.

After you press any key the message “Sending configuration to nodes...” appears at the bottom of the screen, then you will return to the Administration menu.



Save User

Although a menu will appear if you select *Save User* this feature (i.e. the concept of different users having different setups) has not been implemented at the present time. However, some of the shell software has been developed in anticipation that this feature will be available in future versions of the DXI system.

Backup to Disk

The backup to disk function will save the default software (and hardware) configuration(s) to a floppy disk.

When you select *Backup to disk*, the following screen will appear.

Select 'Y' (yes) or 'N' (no) and press return.

```
Insert formatted DOS floppy disk in drive A.
Copy config files to floppy? (y/n)     n
```

If you select 'Y', the default configurations are copied to disk, and the following message will appear on the screen.

Once the files have been copied to the floppy disc you will return to the Administration menu.

```
Insert formatted DOS floppy disk in drive A.
Copy config files to floppy? (y/n)     y

Zipping hw_demo to floppy drive A as hw_demo…
Zipping sw_demo to floppy drive A as sw_demo…
```

Restore from Disk

Remember that when you restore a software configuration from disk, it is stored on the hard drive. It does not become the default configuration unless it is loaded.

When you select *Restore from Disk*, the following screen will appear.

```
Insert formatted DOS floppy disk in drive A.
Hit Enter to continue: End to quit.
```

When you press ‘Enter’, the files on the floppy disk are displayed.

Type in the name of the configuration file you want to restore and press ‘Enter’.

```
Insert formatted DOS floppy disk in drive A.
Copy config files to floppy? (y/n)     n

List of files on this floppy…is:
HARDWARE.zip
SOFTWARE.zip
Hw_demo.zip
Sw_demo.zip


Enter name of file to restore (End to quit):
```

The following message will appear on the screen.

```
Insert formatted DOS floppy disk in drive A.
Copy config files to floppy? (y/n)     n

List of files on this floppy…is:
HARDWARE.zip
SOFTWARE.zip
Hw_demo.zip
Sw_demo.zip


Enter name of file to restore (End to quit):sw_demo.zip
Restoring fromfloppy drive A…
```

When the configuration has been restored, the message is repeated.

This gives you the opportunity to restore more than one configuration When you have finished, press ‘End’ and you will return to the Administration menu.

```
Insert formatted DOS floppy disk in drive A.
Copy config files to floppy? (y/n)     n

List of files on this floppy…is:
HARDWARE.zip
SOFTWARE.zip
Hw_demo.zip
Sw_demo.zip


Enter name of file to restore (End to quit):sw_demo.zip


Restoring fromfloppy drive A…
Exploding sw_demo.zip[ from floppy A.


Enter name of file to restore (End to quit):
```

Section 5 - Modifying or Changing the Software Configuration

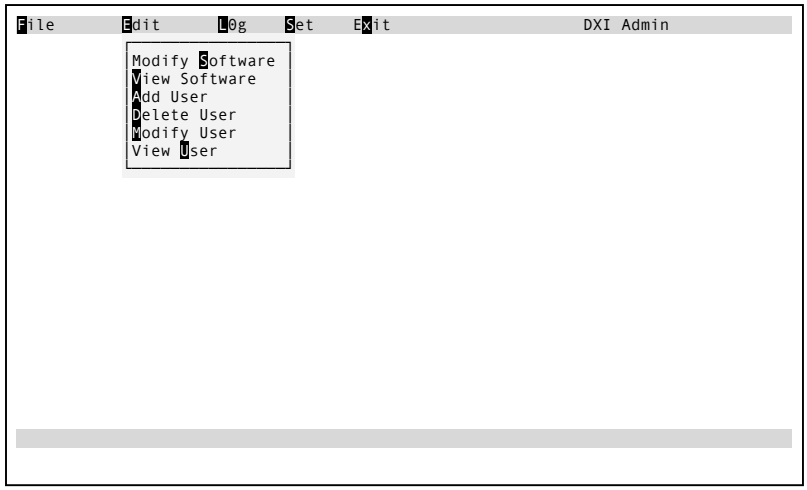
In this Section...

We will:

- examine the *Edit* function in the DXI *Admin* module,
- examine how to specify or change the software configuration for Master Stations, Stations, Doors, Page Zones, Signals, Conferences between Master Stations, Global settings, Radio, and
- examine how to set up and maintain a database for Special Events and Holidays.

Editing Functions (EDIT)

The editing functions are used to specify and modify the software configuration. When you select the *Edit* function, the following options will be presented.

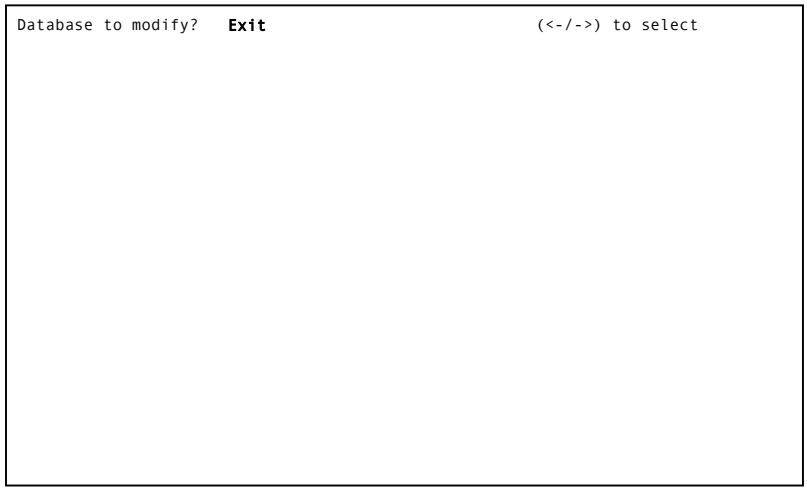


By pressing the highlighted letter a second menu will be presented related to the function you have selected. The *Modify Software* allows you to make changes to the software configuration, while *View Software* allows you to view the present settings without making changes. The *Add User*, *Delete User*, *Modify User*, and *View User* functions are not discussed in this manual. These functions are for implementation in future versions of the software.

Modify Software

You will need to use the *modify software* functions:

- during system setup, after the hardware has been installed,
- whenever the hardware configuration is changed, and
- to modify one of the programmable systems operating characteristics, e.g. station priority, call request time-out.



When you select *Modify Software*, the "database prompt will appear.

You may now use the left and right shift arrows to select *Master*, *Station*, *Door*, *PageZone*, *Globals*, *SpecialEvents*, *Conference*, *Holidays*, *Signal*, *Radio* or *Exit*. When you make your selection and press 'Enter' the data entry screen for the database you have selected will appear.

Master	allows you to specify or modify the software configuration for a Master Station.
Station	allows you to specify or modify the configuration for a Station.
Door	allows you to specify or modify the data field for a Door.
PageZone	allows you to add/delete or modify the database for PageZones.
Globals	allows you to specify or modify programmable features that affect operation of the whole system. These features affect all Master Stations equally.
SpecialEvents	allows you to add/delete or modify the database for the SpecialEvents.
Conference	allows you to set up a data field for a conference call between Masters.
Holidays	allow you to add/delete or modify the Holiday database.
Signals	allow you to add or delete signals, where each signal specifies the Stations where a specified sound tone will be broadcast.
Radio	allows you to add, delete or modify the database for Radios.

If you are installing the system, you must specify parameters for all of the above data fields. If you are modifying the software configuration you must specify parameters only for those items or globals that are affected by the change(s).

Function Keys

The following keys are used on the data entry screens to move from field to field, from database to database (of the same type of entry e.g. Station 1 to Station 2) and from page to page. Not all the keys are used for each particular type of database, in such cases the top banner for each database will be slightly different.

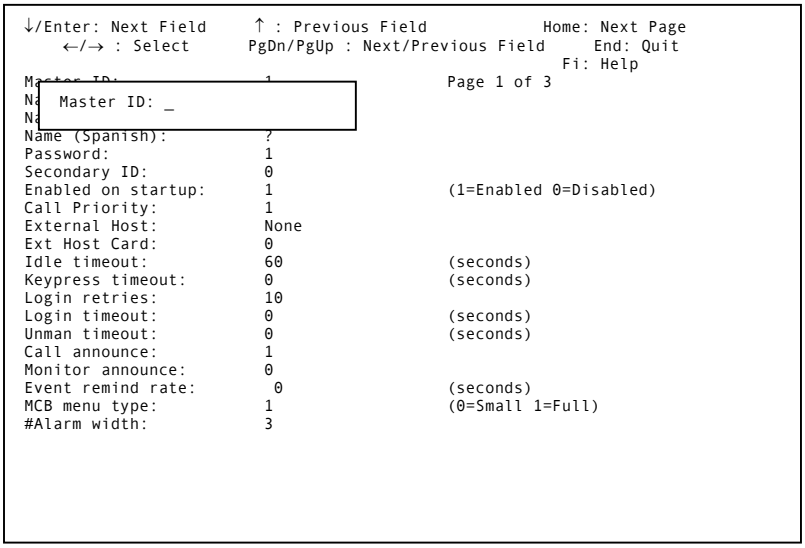
Down Arrow, Enter	will move you to the next field.
Up Arrow	will move you to the previous field.
Home	will take you to the next page of the database parameters (if there are more than one page of database parameters).
PgDn	will take you to the next database entry (ID number), same page.
PgUp	will take you to the previous database entry (ID number), same page.
End	Will take you back to the modify menu.
F2	will allow you to search for a database by ID number.
F3	will allow you to search for a database by name.
F9	will allow you to delete an item from the database.
F10	will allow you to add an item to the database.
F1	will provide you with help on the selected field

To Select a Different Entry

If for example you have selected Stations and you want to select a different Station, use ‘PgDn’ or ‘PgUp’ to page through the Stations until you find the one you want.

Quick Search for a particular device

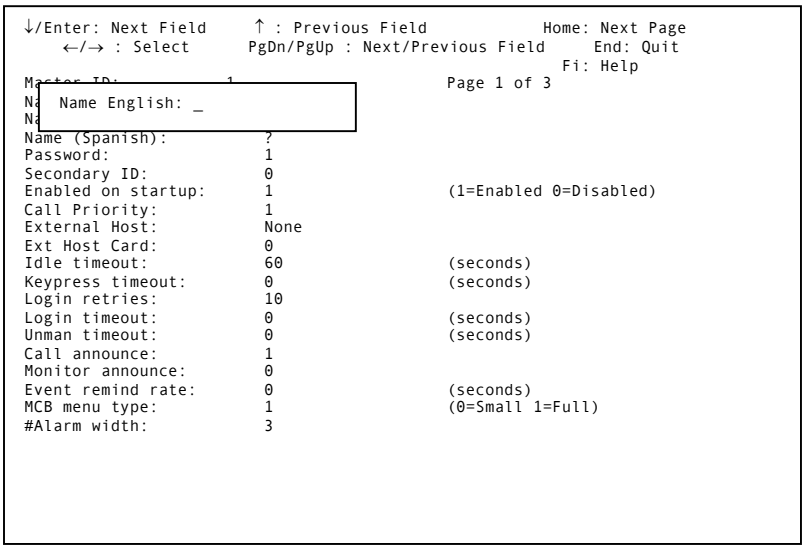
The function keys F2 and F3 can help you quickly select a particular item without paging through a long list of entries. The function key F2 makes an ID search while the function key F3 makes a name search. If for example you are viewing the Master Station database and you press ‘F2’ on the screen you are viewing a highlighted box will appear:



If you type in the Master Station ID number and press ‘Enter’ the system will immediately present the data field for that Master Station.

The operation of the function key F3 is similar except that you are now prompted to enter the name of the Master Station you wish to select. Again a highlighted box will appear on the screen you are viewing requesting that you type in the name of the Master Station you wish to select.

Once you have typed in the name and pressed ‘Enter’ you will be presented with the data field for that Master Station.



Master Station Configuration

Specification and changes to the Master Station configuration are made to the "Master Station" database. When you select *Master*, page one of the software configuration for the first Master Station in the system (the Master Station with the lowest ID) will be presented.

If you are specifying the software configuration for the first time, default values will be displayed.

If you are making changes to an existing configuration, the system will display current values.

Note that there are three pages of parameters that may be specified for a Master Station. To access page two, press 'Home'. The first screen page for the Master Station database is shown on the right.

```
↓ / Enter: Next Field.          ↑: Previous field.            Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry          End: Quit
                                                               F1: Help
Master ID:               1                  Page 1 of 4
Name (English):          Master # 1
Name (French):           ?
Name (Spanish):          ?
Password:                1
Secondary ID:            0
Enabled on startup:      1                  (1=Enabled 0=Disabled)
Call Priority:           1
External Host:           None
Ext Host Card:           0
Idle timeout:            60                 (seconds)
Keypress timeout:        0                  (seconds)
Login retries:           10
Login timeout:           0                  (seconds)
Unman timeout:           0                  (seconds)
Call announce:           1
Monitor announce:        0
Event remind rate:       0                  (seconds)
MCB menu type:           1                  (0=Small 1=Full)
#Alarm width:            3
```

Programming Page 1 of the Master Station database.

Master ID — unique identification number from 1 to 65535

This is the ID that is assigned to the master station during hardware installation. This value may not be changed.

Name — name for the Master Station

Master Station Name is the common name that is used when Master Station alarms are displayed. It also appears in log messages involving the master.

The name may be any string of alphanumeric characters up to 20 characters in length.

Password — set from 1 to 65535

A Password is a number that must be entered to enable a Master Station that has been disabled. The Password must be a unique decimal number between 1 and 65535.

If no Master Station has been designated as a Secondary to this Master then it cannot be disabled.

Secondary ID — the Secondary ID is the ID of another Master Station that will receive secondary alarms from this master.

An alarm is annunciated at the Secondary Master when a call request is not acknowledged or canceled within a specified time (see Call Request Time-out, under Global settings) at the Primary Master Station. If the Primary Master Station is disabled, all active, acknowledged and disabled alarms queues will be available to the Secondary Master Station.

	If the Primary Master Station's Annunciate Alarms entry is set to Secondary then all hardware and card faults assigned to the Primary Master Station will be annunciated at the Secondary Master Station.
	If set to 0, then this master has no secondary master, and this master cannot be disabled.
Enabled on startup	set to Enabled ("1") or Disabled ("0")
	If the master has a non-zero Secondary Master ID, then it can be enabled or disabled by other masters or hosts. The state this master is in after a reset is defined by the setting (Enabled=enabled after reset, Disabled=disabled after reset). The other controlling masters or host can later enable or disable this master.
Call priority	set from 1 to 65535
	This number sets the Call Priority level for the Master Station. The priority level can be set from 1 to 65535; higher numbers have higher priority. A Master Station with a higher priority can interrupt the call of another Master Station.
External host	select (None, Parallel, or Exclusive)
	Set to Parallel or Exclusive if this Master Station has an external Host which can send commands (Call station, End call, Set time, etc.) to the Master and can receive acknowledgments (OK, Fail, Busy) and commands from the Master.
	Parallel means that both the Host and the Master Station can operate concurrently, while Exclusive means that only the Master or the Host can be active at the same time. External Host may be set to None if no external Host exists for this Master.
Ext host card	the Card ID of the External Host.
Idle timeout	set to 0 or from 1 to 65535 seconds.
	If the Master Station is in the Idle menu, and no master keys have been pressed for the specified number of seconds (1 to 65535) then the menu will go to the Unmanned menu and the Master will become unmanned.
	If set to 0 then this feature is not implemented.
Keypress timeout	set to 0 or from 1 to 65535 seconds.
	'Keypress timeout' has different purposes, depending on the type of Master Station.
	For a desktop, panel mount or rack mount Master Station 'Keypress timeout' is used as follows:
	If no master keys have been pressed for this number of seconds (1 to 65535), the menu system will go to the previous menu, until it reaches the Idle menu or the Call Control menu.
	If set to 0 then the master will remain in the present menu.
	For a Telephone Set Master station 'Keypress timeout' is used as follows:
	This setting determines how long the DXI system waits for incomplete phone numbers to be completed. Once the operator has started dialing, and this time period has elapsed since the last keypress and the full phone number has not been entered, the DXI will

	attempt to dial the number entered by adding leading zeros. If dialing for example a three digit number, and the Intercom Station ID is 005, if you dial “#5” and wait for the ‘Keypress timeout’ to expire the system will automatically insert the two leading zeros as if you had dialed “#005”. If is highly recommended that you turn this feature off (set to 0) and always dial the three digits with the leading zeros. This will prevent dialing a wrong station if you dial too slow.
Login retries	set from 1 to 65535 If the master is in the Login or Password menu, and the number of attempts to login reaches the Login retries number (from 1 to 65535) a login alarm will be generated.
Login timeout	set to 0, or from 1 to 65535 seconds. A Master Station password must be entered within this time or it will return to the Login menu. If set to 0 no timeout limit is set.
Unman timeout	set to 0, or from 1 to 65535 seconds. If the Master is in the Unmanned menu and no keys have been pressed for the specified number of seconds (1 to 65535) the menu system will go to the Login menu and the Master will become disabled. If set to 0 no timeout limit is set.
Call announce	set to 0, 1, 2, or 3 This setting determines whether call announce tones are used when this master is called by another master. Set to 0 for no call announce tones. Set to 1 for call announce tone at the start and the end of call. Set to 2 for call announce tones at repeated intervals during a call. Set to 3 for call announce tone at the start and end of a call, as well as at repeated intervals during a call.
Monitor announce	set to 0, 1, 2, or 3 This setting determines whether monitor announce tones are used when this master is monitored from another master. Set to 0 for no monitor announce tones. Set to 1 for monitor announce tone at the start and the end of monitor. Set to 2 for monitor announce tones at repeated intervals during a monitor. Set to 3 for monitor announce tone at the start and the end of a monitor, as well as at repeated intervals during a monitor.
Default announce	set to 0, 1, 2, or 3 This is the Master’s default announce setting. This should be set to the same as the Call announce setting in the majority of stations that this master calls out to.

When calling a station with a different Call announce setting extra time and/or network traffic will be required to change settings on the fly.

Set to 0 for no call announce tones.

Set to 1 for call announce tone at the start and the end of call.

Set to 2 for call announce tones at repeated intervals during a call.

Set to 3 for call announce tone at the start and the end of a call announce, as well as at repeated intervals during a call.

Event remind rate — set to 0, or from 1 to 65535 seconds

When there are active alarms on the master station's queue, the master station's buzzer will sound at this rate.

If set to 0, no reminder tones will sound.

MCB menu type — set to Small ('0") or Full ("1").

Set to Full for complete menu system at the Master Station. This includes paging, monitoring, etc.

Set to Small for limited functionality menu system. The Small menu system is typically used for Masters with SMM audio, while the Full menu system is used for Masters with DSM (card cage) audio.

Alarm Width — integer value, usually set to 3.

This is the width of the field on the right hand side of the Master Station LCD display when it presents alarm, acknowledged or disabled lists. This width can be set by the System Administrator but cannot be changed at the Master Station. In order to insure proper formatting it is recommended that the '# Alarm Width' be set to 3 on regular Master Stations. This setting also effects the number of digits required to dial a number on telephone set masters.

This completes the first page of the database for a Master Station.

The second page of the Master Station database is shown on the following screen:

```
↓ / Enter: Next Field.          ↑: Previous field.            Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry          End: Quit
                                                               F1: Help
Master ID:              1                  Page 2 of 4
Annunciate alarms:      0                  (0=AtSecondary 1=AtPrimary)
External Buzzer:        0                  (0=NONE 1=Relay1 2=Rela2)
Ext call Q light:       0                  (0=NONE 1=Relay1 2=Rela2)
Stn call list:          1-100
Music zone list:
Master Enable list:     2
Card list:
Auxiliary fms:
Event Priorities:       0
Monitor ID:             0
Monitor Rate:           10                 (seconds)
Stn Monitor list:       0
PLC Out Register:       0                  (decimal)
PLC In register:        1                  (decimal)
PLC Queue reg:          0                  (decimal)
PLC Queue length:       1                  (decimal)
Radio Monitor list:
Panel LED in Call:
Can enable self:        1                  (1=Yes 0=No)
Can disable self:       1                  (1=Yes 0=N0)
```

Programming Page 2 of the Master Station database.

Annunciate Alarms	set to Primary (“1”) or Secondary (“0”). Set to Primary if hardware faults are to be annunciated at the Primary Master Station. Set to Secondary if hardware faults are to be annunciated at the Secondary Master Station.
External buzzer	set to None (“0”), Relay 1 (“1”) or Relay 2 (“2”). Set to None if no external buzzer is to be turned on when the internal buzzer is activated at the MCB. Set to Relay 1 or Relay 2 if one of these MCB relays is to be used to activate an external buzzer when the internal buzzer is activated. An external buzzer will alert the correctional officer when he is away from the master station, that a call request or other alarm has been received.
Ext call Q light	set to None (“0”), Relay 1 (“1”) or Relay 2 (“2”). Set to None if no external queue light is to be displayed when there are alarms on the active alarm queue. Set to Relay 1 or Relay 2 if these MCB relays are used to flash an external call queue light when there are alarms in the active alarm queue.
Station Call List	a string of Station IDs. The station call list is the list of all intercom stations that the Master station can call. The Station Call List can include individual IDs or range(s) of IDs. Each ID or range of IDs should be separated from the next by a comma. A string of station IDs might look like this: 52,89,105,5001-5048,6001-6048. If a station is included in this list it will appear in the list on the MCB when the Call Station menu and Monitor Station menu of the Full menu system is displayed, and in the All menu of the Small menu system.
Music zone list	a string of Page Zone IDs. List of Page Zones for which this Master Station can control the music station source.
Master enable list	a string of Master Station ID’s. List of Masters that this Master can enable or disable. If a Master has no Secondary Master, it cannot be disabled, since its queue list cannot be transferred to any other Master. Note that if a Master cannot enable itself, then another Master should be permitted to enable it.
Card list	string of Card IDs. List of cards whose faults affect the Master’s Trouble Light.
Auxiliary fns	selects the audio destination for music, paging, and monitoring at a Master. Audio may be received at either the Master Station’s main audio or at the Master Station’s monitor station audio, defined with the Monitor ID option.
Event priorities	set to a value from 1 to 65535 Sets the priority level of events which can be generated by the Master (e.g. Master CRQ) or a Station, as well as the priority of some events sent to a Master (e.g. Echelon communication alarms).

Monitor ID	this is the ID of the auxiliary station for the Master. This Station may be configured to receive music and pages, and to monitor audio and video from other Stations
Monitor rate	set from 1 to 65535 seconds This is the rate that monitoring is switched between Stations in the Station Monitoring List (Stn Monitoring list). Monitoring is done from the Master Station's menu system and uses the monitor rate selected in the Setup menu (which defaults to this monitor rate as well).
Stn Monitor list	string of Station IDs. List of Stations to monitor automatically. This monitoring can only be halted; using the Auto or Manual switches in the Master MCB menu, by selecting another Station or group of Stations to monitor from the MCB monitor menu, or by configuring a Monitor Hold switch on a Station through a DIO or SPC card and pressing this switch. For audio monitoring this is a list of Intercom Stations to monitor For video monitoring this is the list of video stations to monitor, or the list of video group Stations, if the monitor ID is a video group as well (in this way several video stations can be monitored at the same time).
PLC Out register	address of Modbus output register. When messages are sent to the Modbus host they will placed in the Modbus output register. The Modbus is normally a computer connection to a Programmable Logic Controller (PLC) that is commonly used as a door control system.
PLC In register	address of Modbus input register. When messages are read from the Modbus host they will read from the Modbus input register.
PLC Queue reg	address of the base Modbus queue register This specifies the first of the "queue" registers for a Modbus Plus Card. This along with the Modbus Queue Length field specifies which registers are used for the Modbus Plus queue. This queue is a paired list of Master Stations and Stations which have call requests queued on the Master. The lower register is 1 for a Station call request and 2 for a Master call request. The next register is the Station or Master identifier.
PLC Queue length	integer value This number specifies the length of the Modbus Plus Card queue. This is the number of registers that will be printed when a call request is queued at a Master Station or canceled at a Master. Since each queue entry requires two registers to store it the user should set the length to the actual number of events*2.
Radio Monitor list	string of Radio IDs This is a list of Radios that this Master Station will monitor automatically.
Panel LED in Call	select Output_On, Output_Wink, Output_Slow_Flash, Output_Flash, Output_Blink, Output_Off, Output_IPO, Unknown_Output

Can enable self — Set to Yes (“1”)” or No (“0”)

This is set to Yes (“1”) to allow the master to enable itself. Note that a master can only enable itself if there is a password specified. If this is set to Yes and there is no password, then the master can not enable itself. If this is set to No, then the master can only be enabled by some other master (by that master enabling the disabled master). If there is no secondary for this master, then it will not be able to disable or enable itself.

Can disable self — Set to Yes (“1”)” or No (“0”)

This is set to No (“0”) to prevent a master from disabling itself. If this is set to No, then only another master (i.e., the secondary) should be allowed to disable this master. If this is set to Yes (“1”), then this master can be disabled by itself (note that if this master can enable itself but there is no password, then this master must be enabled by some other master). If there is no secondary for this master, then it will not be able to disable or enable itself.

To access page three, press 'Home' once again.

```
↓ / Enter: Next Field.          ↑: Previous field.          Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry        End: Quit
                                                              F1: Help
Master ID:              1                   Page 3 of 4
Initial call vol:       2
Initial music vol:      4
Initial page vol:       5
Initial monitor vol:    0
Initial buzzer vol:     9
Initial sensitivity:    3
Initial backlight:      4
Caller ID list:         0                   (0=off 1=on)
Page call list:         1-3
Conf call list:
Signal call list:
ALA set list:
Master call list:       1-3
Radio call list:
Visiting call list:
PLC Out file num:                           (decimal)
PlC In file num:                            (decimal)
PLC Queue file num:                         (decimal)
Call Req timeout:                           (decimal)
PLCHshake register:                         (decimal)
PLC HS file num:                            (decimal)
```

Programming Page 3 of the Master Station database.

Initial call vol — set to a value from 0 to 7

This number determines the initial call volume at the Master Station. This volume can also be adjusted from the Master Station menu.

Initial Music vol — set to a value from 0 to 7

This value determines the music volume, either at the Master Station or the Monitor Station speaker. This volume can also be adjusted from the Master Station menu.

Initial Page vol — set to a value from 0 to 7

This value determines the page volume, either at the Master Station or the Monitor Station speaker. This volume can also be adjusted from the Master Station menu.

Initial Monitor vol — set to a value from 0 to 7

This value determines the Monitor volume, either at the Master Station or the Monitor Station speaker. This volume can also be adjusted from the Master Station menu.

Initial buzzer vol — set to a value from 0 to 7

	The buzzer volume at the Master Station MCB card. This volume can also be adjusted from the Master Station menu.
Initial sensitivity	set to a value from 0 to 7
	This number is used by DXI circuitry to determine the microphone sensitivity for a Master Station that use an AIB or AIO input.
	Note: In most of the systems presently installed, where all Master Stations are the same type, an adjustable sensitivity setting is not required and this feature has been disabled.
Initial backlight	set to a value from 0 to 9
	This parameter sets the backlighting on the LCD display of the Master Station. This value can also be adjusted from the Master Station menu.
Caller ID list	set to Off (“0”) or On (“1”)
	When a master station operator attempts to call a second master station and that call request is not acknowledged, the operator would normally remove the call request from the second master stations call request list. As a result the second master station operator would not know that he had been called. If the Caller ID list parameter is set to On (“1”) then the call request will remain on the second master station’s call request list. When the call request is acknowledged, then the call from the second master station to the first will be attempted.
	This feature is designed mainly for use with telephone set master stations.
Page call list	String of Page Zone ID numbers
	This master station can make page announcements to the Page Zones in this list.
Conf call list	string of conference call ID numbers
	This master station can initiate a conference call to any conference call identified in this list.
Signal call list	string of signal ID numbers
	List of signals that are available to this Master Station .
ALA set list	sting of station ID numbers
	List of stations where this Master Station can arm the Audio Level Alarms (ALA’s).
Master call list	sting of master station ID numbers
	List of Master Stations that this master can call. If a Master Station is included in this list it will appear in the list on the MCB when in the CALL MSTR menu.
Radio call list	string of radio ID numbers
	List of radios that this master station can call, or monitor.
Visiting call list	
PLC Out file num	

PLC In file num

This is the PLC register number for a PLC type host interface card. For Modbus PLC host cards, this is the Modbus 4x register number, between PLC base reg (see the Card database for setting this register) and PLC base reg+65535. If, for example, the PLC base reg is 400001 and this is set to 401006, then the modbus driver will output a WRITE_4X_REG at 1005. For other PLC host cards, the PLC base reg is ignored, and this register number is the direct equivalent of the PLC register number. Allen-Bradley host cards use the register number in conjunction with afile number setting, where the file number specifies which file number or page in the PLC memory these registers are located within. When messages are sent to a PLC host, they will be placed in thePLC output registers. When messages are read from a PLC host, they will be found in the PLC input registers.

PLC Queue file num

This specifies the first of the 'queue' registers for a Modbus or other PLC type host interface card. This, along with the PLC Queue length field, specify which registers are used for the PLC queue. This queue is a paired list of masters and stations which have call requests queued on the master. The lower register is 1 for a station call request, 2 for master call request. The next register is the station or masteridentifier.

Allen-Bradley host cards use the register number in conjunction with a file number setting, where the file number specifies which file number or page in the PLC memory these registers are located within.

Call Req timeout

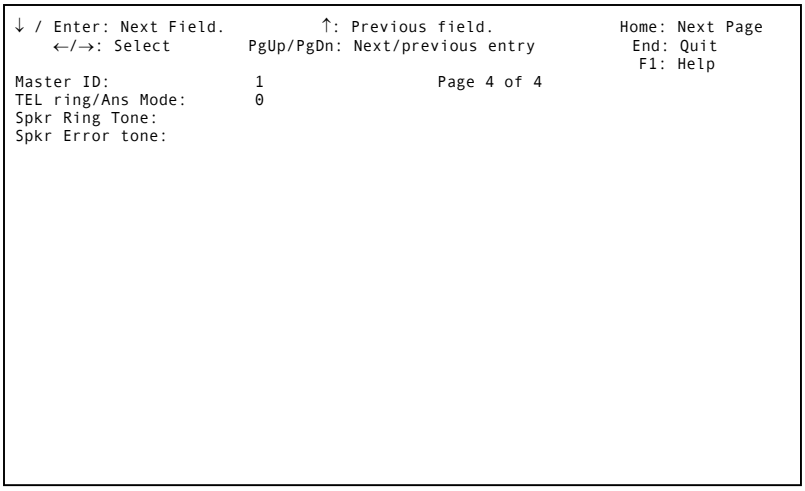
When a call request has been displayed at a master for this number of seconds (1 to 65535) without being answered, the system will notify the master's secondary master.

PLC Hshake register

PLC HS file num

When a PLC-based protocol such as the Modbus TCP/IP or Allen-Bradley DH+ host protocol is used, there must be a hand-shaking register to control when the DXI can overwrite the PLC's control registers. This is where the location of this register is filled in.Allen-Bradley host cards use the register number in conjunction with a file number setting, where the file number specifies which file number or page in the PLC memory these registers are located within.

The fourth page of the Master Station software data base appears as follows:



Programming Page 4 of the Master Station database

Tel Ring/Ans Mode — Set to 0, 1, 2 or 3

When this is set to 0, then the telephone will ring when a call request is queued at the master. When then telephone's receiver is lifted, then the telephone will be connected to the station. When this is set to 1, the telephone will ring when a call request is received. However, when the telephone's receiver is lifted, then the telephone will not connect to the station but will wait for dailing or the host to call a station. When this is set to 2, then call requests will not cause the telephone to ring but lifting the handset will connect to the highest priority station call. When this is set to 3, then the telephone will not ring and picking up the telephone's receive will not connect to the highest priority station call. Note that this setting only affects station call requests, not master call requests. Master call requests will be connected when the telephone's receiver is lifted.

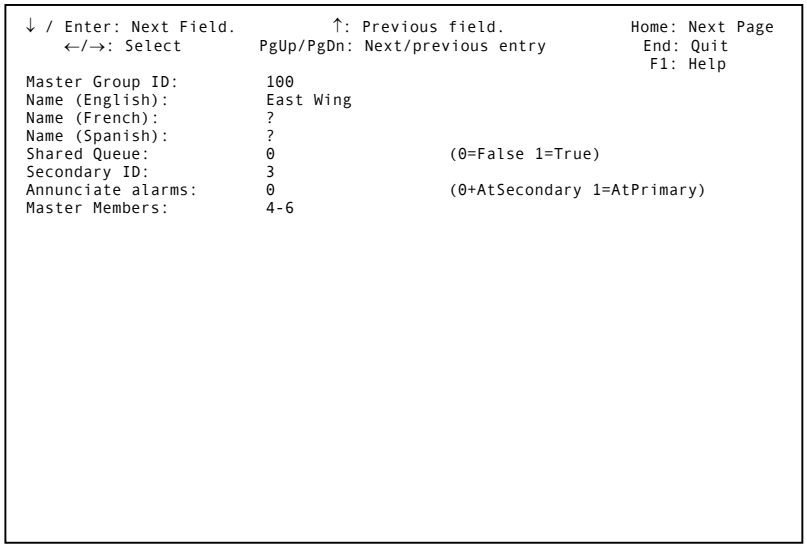
Spkr Ring Tone — Set to a Tone ID

This will be the tone which is output on the master's speaker to indicate that there are pending call requests. This allows us to annunciate calls at masters which have no internal (i.e., MCB) annunciator or external annunciator (i.e., an output LED). This will output the tone specified (from the tone database) when there are outstanding call requests.

Spkr Error Tone — Set to a Tone ID

This will be the tone which is output on the master's speaker to indicate that there was a problem making a call. This allows us to annunciate errors at masters which have no internal (i.e., MCB) annunciator or external annunciator (i.e., an output LED).

A Group of Master Stations can be set up so that all the Masters in the Group receive the same call alarms, fault alarms, etc. When for example one of the Masters in the Group answers a call request, that call request will be moved to the acknowledged list display at all the Master Stations in the Group. There is single page of data field entries for a Group of Master Stations (the Group Master Station ID must be first defined in the Maintenance module as a Group). The screen display for a Master that has been defined as a Group will appear as follows.

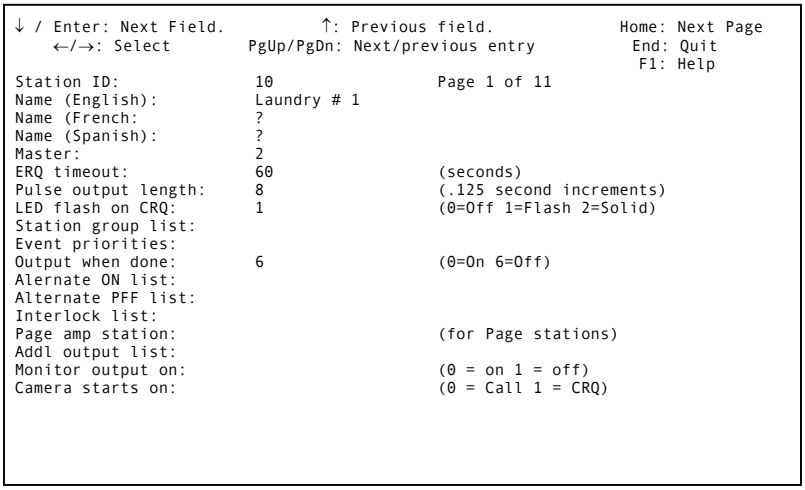


Programming Group Master Station Parameters

Master ID	set from 1 to 65535
	This is the ID of a Master that has been defined as a Group in the Maintenance Module.
Name	A common name used to describe the group of Masters.
Shared queue	set to False (“0”) or True (“1”)
	Set to True (“1”) if a group of master stations share the event queue (i.e. each master station in the group sees the same active, acknowledge, and disabled alarms and can process these alarms).
Secondary ID:	set to 1 to 65535
	This is the ID of a Master Station that will act as a secondary Master Station for this group.
Annunciate alarms	set to AtSecondary (“0”) or AtPrimary (“1”)
	If set to “0” fault alarms will be annunciated at the Secondary Master Station, if set to “1” then hardware faults will be annunciated at this Master Station.
Master members	sting of Master Station ID numbers
	The list of Master Station ID numbers that are in this Group.

Station Configuration

Specification of, and changes to, the Station configuration database are made to the "Station" database. When you select *Station*, the first page of the software configuration for the first Station in the system (the Station with the lowest ID) will be presented.



Note: There are 11 pages in total for each station. Only Pages 1, 2, 3, 4 and 11 are detailed here. Pages 5-6, 7-8, 9-10 is similar to Pages 3-4. They are programmable entries for additional switches.

If you are specifying the software configuration for the first time, default values will be displayed.

If you are making changes to an existing configuration, the system will display current values.

Programming Page 1 of the Station database.

Station ID — A unique identification number from 1 to 65535

This is the ID that is assigned to the Station during hardware installation. This value may not be changed in the Administration menus but it can be changed in the Maintenance menus.

Name — Station Name

This Station Name is the common name that will be used when the Station name is displayed by the system. Although later versions of the system will support three languages, only the "English" option is currently implemented. The name may be any string of alphanumeric characters up to 20 characters in length.

Master — set from 1 to 65535

The ID of the Master Station that will receive call requests from the Station.

ERQ timeout — set to a value of 1 to 65535 seconds.

This is the number of seconds that a Call Request switch must be held before the Call request queued at the Master Station becomes an Emergency Call Request. Typically, the priority of a the ERQ would be set higher than that of the CRQ alarm, so that ERQs go to the top of the Master Station's alarm queue.

Pulse output length — set to a value of 1 to 65535 1/8 second intervals.

The number of 0.125 second intervals that a DIO pulse output will remain high before going low.

Used for the partial opening of doors, and for sounding alarms without having to turn them off again.

LED flash on CRQ — set to Off (“0”), Flash (“1”) or Solid (“2”)

If set to Off (“0”), the output will be off when a call request is queued, steady when in call, and off when in hold.

If set to Flash (“1”) an Intercom Station’s output will flash when a call request is queued, steady when in a call, and blink when on hold (i.e. a call request has been acknowledged but not connected).

If set to Solid (“2”) an Intercom Station’s output will remain in steady during the time the call is queued, when in call and in hold.

Station group list — string of Intercom Station IDs.

List of Stations in this Station’s group. May be used for turning on several outputs at once or for monitoring a group of stations in order, or for monitoring a group of stations at once on a group video monitoring station.

Event priorities — set to a value from 1 to 65535

Sets the priority level of events (e.g. CRQ and ERQ) that can be generated by this Station. The priority level is used by the Master Station to place these events on the alarm queue of the Master station.

When Event priorities is selected a “Hit Enter to edit” message will appear. Pressing the ‘Enter’ key will bring up an entry at the bottom of the screen, which allows you to set the priority level for that entry. Each time you press ‘Enter’ a new entry will appear until you have cycled through all possible events. The list of events where the priority levels may be set include the following,

Intercom CRQ:

Intercom ERQ:

Cell Alarm:

Panic Alarm:

Tamper Alarm:

Security Alarm:

Audio Alarm:

Wiring Alarm:

Comm Alarm:

IO Alarm:

Serial Alarm:

HW Alarm:

Normally a particular Station will be capable of generating only a limited number of these possible events.

Output when done — set to On (“1”) or Off (“6”).

When set to “On” an output level is to be forced when an action has been completed. Rarely used.

Alternate ON list — a string of Station IDs.

List of Stations whose output must be High before performing an Output High action for this Station.

Alternate OFF list — a string of Station IDs.

List of Stations whose output must not be High before performing an Output Low action for this Station.

Interlock list — a string of Station IDs.

List of Stations to check for Output High before performing this Station’s action. If any of the Stations on this list have their output set to High, the action for this Station is not performed unless the Bypass switch is on.

Page amp station — Station ID number set to 1 to 65535

For a Page Station, this is the ID of the Station’s page amplifier station, through which the audio is channeled.

Addl output list — string of Station IDs

A list of Stations whose outputs are identical to this Station’s output. This is a means of generating multiple outputs for a Station.

Monitor output on — set to 0 (“on”) or 1 (“off”)

Camera starts on: — set to 0 (“Call”) or 1 (“CRQ”)

Page 2 of the database for a Station is shown on the right.

```
↓ / Enter: Next Field.          ↑: Previous field.            Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry          End: Quit
                                                               F1: Help

Station ID:              10                Page 2 of 11
Initial volume:          4                 (0 to 9)
Initial sensitivity:     7                 (0 to 9)
Input level:             0                 (0=Mic 1=Line)(for AIO)
Output level:            0                 (0=Mic 1=Line)(for AIO)
Auto PTT output:         0                 (0=Off 1=On)
Call announce:           1                 (0=Off 1=On)
Monitor announce         0                 (0=Off 1=On)
Call acknowledge:        0                 (0=Off 1=On)
```

Programming Page 2 of the Station Database

Initial Volume — set from 0 to 7

Sets the initial volume level of the audio signal transmitted by the Station. Settings 7,8 and 9 give the same volume.

Initial Sensitivity	set from 0 to 7 This number is used by the DXI circuitry to determine the microphone sensitivity for a station that uses an AIB or AIO input..
Input level	set to Mic (“0”) or Line (“1”) Sets the input level for microphone or line
Output level	set to Mic (“0”) or Line (“1”) Sets the output level for microphone or line level.
Auto PTT output	set to Off (“0”) or On (“1”) When this set to On (“1”) the relay associated with this output station turns on whenever audio is sent to this channel. Essentially this means this relay turns on whenever the PTT switch at the master connected to this station is pressed. This feature is available only on stations which are connected to the system via an AIO or AOB board.
Call announce	set to 0, 1, 2, or 3 These settings determine the type of call announce tones that are sent to this station. The rate and duration of the call announce tones are specified as part of the Globals database. Set to 0 for no call announce tones. Set to 1 for call announce tones at start and end of call. Set to 2 for call announce tones at repeated intervals during a call. Set to 3 for call announce tone at start and end of a call, as well as at repeated intervals during a call.
Monitor announce	set to 0, 1, 2, or 3 These settings determine the type of monitor announce tones that are sent to this station. The rate and duration of the monitor announce tones are specified as part of the Globals database. Set to 0 for no monitor announce tones. Set to 1 for monitor announce tone at start and end of monitor. Set to 2 for monitor announce tones at repeated intervals during a monitor. Set to 3 for monitor announce tone at start and end of a monitor, as well as repeated intervals during a monitor.
Call acknowledge	set to On (“1”) or Off (“0”) This feature provides a feedback signal to the station to indicate that the call request has been acknowledged by the system. Set to On (“1”) to output a periodic call acknowledge tone at the station when there is a call pending from this station to a master. Set to Off (“0”) for no tone.

The screen pages from 3 to 10 allow for the programming of up to 4 switches. These switch inputs can be programmed for both press and release actions. Page 3 and Page 4 of the screen database for the Stations are as follows:

```
↓ / Enter: Next Field.          ↑: Previous field.          Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry        End: Quit
                                                              F1: Help
Station ID:              10      Switch 1    Page 3 of 11
Press Action 1:          Unknown
ID1:                     0
ID2:                     0
Master:
Press Action 2:          Unknown
ID1:                     0
ID:                      0
Master:
Press Action 3:          Unknown
ID1:                     0
ID2:                     0
Master:
Press Action 4:          Unknown
ID1:                     0
ID2:                     0
Master:
```

```
↓ / Enter: Next Field.          ↑: Previous field.          Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry        End: Quit
                                                              F1: Help
Station ID:              10      Switch 1    Page 4 of 11
Release Action 1:        Unknown
ID1:                     0
ID2:                     0
Master:
Release Action 2:        Unknown
ID1:                     0
ID2:                     0
Master:
Release Action 3:        Unknown
ID1:                     0
ID2:                     0
Master:
Release Action 4:        Unknown
ID1:                     0
ID2:                     0
Master:
```

Programming Pages 3 and 4 of the Station database.

Press Action 1

Press Action 2

Press Action 3

Press Action 4

Release Action 1

Release Action 2

Release Action 3

Release Action 4

See Appendix 2 for a list of possible switch actions.

Each switch has a main action that is set in the hardware configuration. As well, another four actions may be defined for each switch. Note that latched switches report both press and release while MNC switches report only the press and MNO switches report only the

release. The actions described here will be sent to the specified Master immediately after the hardware configuration action.

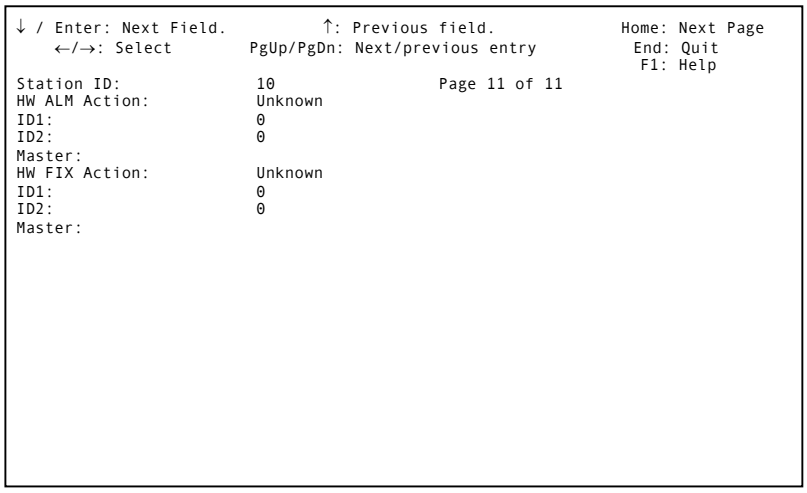
When the hardware configuration action is a Security Alarm, any alarm type actions listed here will not be performed until the security alarm is performed (note that security Alarms are queued, so that only one is active at a time, until it is fixed and the next security alarm is processed).

ID1 — the first ID depends on the action being sent. For serial alarms to the Pelco, it will be the ID of the alarm being generated.

ID2 — the second ID depends on the action being sent. For serial alarms to the Pelco, it will be the ID of the alarm being generated.

Master — the ID of the Master Station, which will receive the alarm if the indicated switch action has taken place

Page 11 of the database for a Station is shown to the right:



Programming Page 11 of the Station database

HW ALM Action — see Appendix 2 for a list of actions that can be selected.

A Station's switches, when faulted (either opened or shorted) will generate a hardware alarm (HW ALM), which is logged and displayed at either the Station's Master or at the Secondary Master Station.

An additional HW ALM may be configured and send another action to any Master, in the same way Station switches may have additional actions on press or release.

ID1 — depends on the switch action being sent.

ID2 — depends on the switch action being sent.

Master — the ID of the Master, which will receive the alarm.

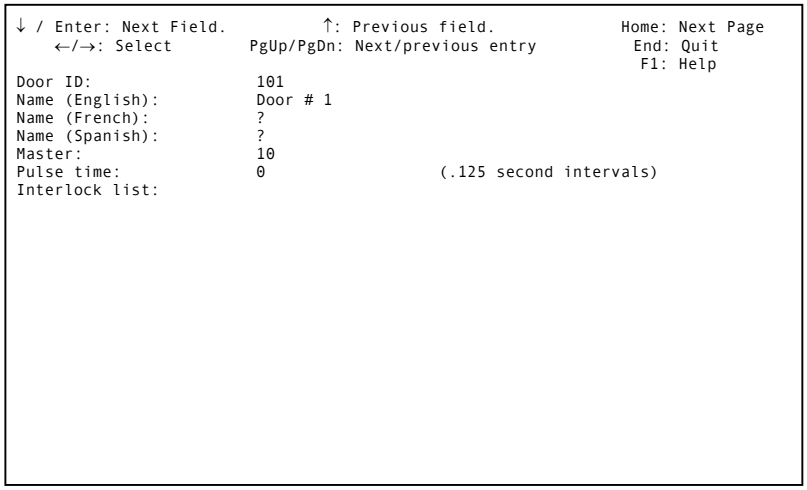
HW FIX Action — see Appendix 2 for a list of actions that can be selected

When an switch's fault has been cleared, the Station will generate a hardware fix (HW FIX), which is logged, and results in the removal of the HW ALM displayed at the Station's Master (or Secondary Master Station). An additional HW FIX action may be

	configured to send another action to any Master, in the same way as Station switches may have additional actions on press or release
ID1	depends on the switch action being sent.
ID2	depends on the switch action being sent.
Master	the ID of the Master that will receive the HW FIX message.

Door

When you select *Door* you will be presented with the following screen display.



Programming Door database

Door ID — an ID number between 1 to 65535.

A unique number from 1 to 65535 to identify the Door Station. Note that Doors and Stations may not have the same ID's. The Door ID is assigned at the time of the hardware installation. This value cannot be changed.

Name — A common name used to identify the door.

Master — set form 1 to 65535

This is the ID of the Master Station that can open or close the door.

Pulse time — Set from 1 to 65535 1/8 second intervals

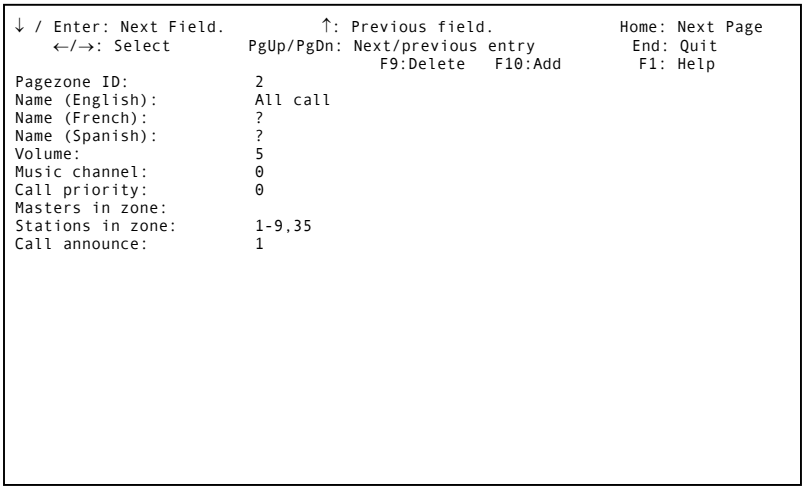
Time given as a number of .125 second increments. The time a pulse remains high before going low. Used primarily for partially opening doors.

Interlock list — String of Station IDs.

List of Stations to check for Output high before performing this Station's action. If any of the Stations (usually doors) in the list are not closed, the action for this Station will not be performed unless the Bypass switch is on.

Page Zone

The database for *Page Zone* entry is as follows:



Programming Pagezone

Pagezone ID — set from 1 to 65535.

A unique number identifying the Page Zone. A Page Zone is a group of Stations and/or Master Stations that can be sent a common message, all at the same time. The System Administrator can Add or Delete Page Zones to the system database.

Name — A common name given to a particular Page Zone.

Volume — set from 0 to 7

This number sets the initial volume level that the Page Zone message will be broadcast at. The Master Station operator can also change the volume level from the Master Station.

Music channel — this is the ID of the music channel that is to be played over the Page Zone when the Page Zone is idle. If set to 0 there will be no background music when the Page Zone is idle.

Call priority — set from 1 to 65535

Sets a priority level for the Page Zone. When a Master Station makes a call to a Page Zone the call connection has a priority level that is the maximum of the Page Zone priority level or the Master Station priority level. The call priority default value is 1. See Appendix 3 for an example of setting priority levels.

Masters in zone — string of Master Station ID numbers

Both Masters and Stations can be included in a Page Zone; this is the list of Master Stations in the Page Zone.

Stations in zone — string of Station ID numbers

List of Stations in the Page Zone.

Call announce — set to 0, 1, 2, or 3

Set to 0 for no call announce tones.

Set to 1 for call announce tone at the start and the end of call.

Set to 2 for call announce tones at repeated intervals during a call.

Set to 3 for call announce tone at the start and end of a call, as well as at repeated intervals during a call.

Globals Configuration

Globals are system-wide parameters (i.e.; they are the same for all Master Stations and for all Intercom Stations).

Specification of and changes to the Globals configuration are made from the "Globals" database. When you select *Globals*, the following screen will be presented:

There is only one page of globals parameters.

```
↓ / Enter: Next Field.          ↑: Previous field.            Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry          End: Quit
                                                                F1: Help
Staff check in T.O.      0        (seconds):
Monitor rate:            0        (seconds)
Announce rate:           0        (seconds)
Announce duration:       8        (milliseconds)
Call Req timeout:        30       (seconds)
Stop CRQ timer on:       1        (1=Cancel 2=Ack)
Timeout display:         1        (1=Station,2=Master,3=Event,4=Xfer,5=Cancel)
List Display:            Both ID and Name
Continuous logging:      None
FAAS Port:               0
Dialing by ID:           0        (0=Off 1=On)
#Alarm width:            3
English enabled:         1        (0=No 1=Yes)
French enabled:          1        (0=No 1=Yes)
Spanish enabled:         1        (0=No 1=Yes)
Master idle mode:        0        (Connect 0+If Idle 1=Always 2=Never))
Synch keypresses:        0        (0=No 1=Yes)
Can disable stns:        0        (0=No 1=Yes)
Auto-cancel HW alms:     0        (0=no 1=Yes)
Tel Ring/Ans Mode        0        (0=N0 1=Yes)
Repeat Host CRQs:        0        (0=No 1=Yes)
```

Programming Globals Parameters

Staff check in T.O. — set from 1 to 65535 seconds.

If a staff member has checked into a particular Master Station, he will be checked out automatically after this number of seconds (1 to 65535) has expired.

Monitor rate — set from 1 to 65535 seconds.

When monitoring a group of Stations or Masters in Auto mode, the monitor will observe a particular Station for this number of seconds (1 to 65535), before continuing to the next Station in the group. Note that for pre-configured automatic monitoring the step rate is set up in the Master's software configuration.

Announce rate — set to 0 or 1 to 65535 seconds

This value (1 to 65535) determines the time between periodic announce tones (either call or monitor tones).

If set to 0 no periodic announce tones are generated during a call or monitor.

Announce duration — set to 0 or 1 to 65535 milliseconds

This value (1 to 65535) determines the length of announce tones. Normally set to 250 milliseconds.

If set to 0 the DXI default values are used which corresponds to a start tone of 250 milliseconds and an end tone of 500 milliseconds.

Call Req timeout — Call request timeout. Set from 1 to 65535 seconds.

When a call request has been displayed at a Master Station for this number of seconds (1 to 65535) without being answered the system will notify the Secondary Master Station.

Stop CRQ timer on — set to Cancel ("1") or Acknowledge ("2")

If set to Acknowledge the system will notify the Secondary Master Station if the Master Station has failed to:

- acknowledge a call request, or
- cancel a call request within the specified time.

Timeout display — set to Station (“1”), Master (“2”), Event (“3”), Xfer (“4”), or Cancel (“5”)

If an incoming call is not answered within the ‘Call Req timeout’ the action taken will depend on the ‘Timeout display’ setting.

Station (“1”): The incoming call request will remain at this master and a time out alarm message will be sent to the secondary Master Station. The secondary Master Station alarm will indicate which Station made the call request. The secondary Master Station is not able to answer the call.

Maser (“2”): The incoming call request will remain at this master and a time out alarm message will be sent to the secondary Master Station. The secondary Master Station alarm will indicate which Master Station failed to acknowledge the call request. The secondary Master Station is not able to answer the call

Event (“3”): The incoming call request will remain at this master and a time out alarm message is sent to the secondary Master Station. The secondary Master Station alarm will indicate the Station ID and Name that made the call request. The secondary Master Station can answer or make a call to the Intercom Station by responding to the alarm. If the original Master Station answers the call it will be removed from the Event queue of both the original and secondary Master Stations. However if the Secondary Master Station answers the call request will still remain on the Event queue original Master Station. Until this call is answered by the original Master Station no further call requests from that Intercom Station will be reported.

Xfer (“4”): The incoming call request is removed from the master and a call is queued to the secondary Master Station.

Cancel (“5”): This is similar to Event (“3”) above, where the call request will remain on the Event queue of this Master Station and a time out alarm will be sent to the Secondary Master Station.. However if the Secondary Master Station answers the call, it will be removed from the Event queue of the bot the original and secondary Master Stations

List Display — select Both ID and name, ID only or Name only.

Name, ID, or both (name and ID) may display lists on the Master Station MCB. Selecting both allows less room for the name display. Names may be up to 20 characters and some space is required for alarm queue counters. If IDs are displayed as well, then less of the 20-character name can be displayed.

If ID numbers are not significant then it may be easier for the operator if only the names are displayed. (This will prevent the ability to dial by ID number).

Continuous logging — select None, FAAS, Printer or Both.

All Events occurring in the system will be automatically logged into a circular buffer in the SAC computer. (This buffer will hold the number of Events specified by the *No. Log Records* parameter set in the *Log* submenu.) If None is selected then the events will not

	be printed as they occur (They can still be printed later from the data stored in the circular buffer). If Printer is selected then all Events will be printed out as they occur.
	FAAS selections are not yet supported.
FAAS Port	this is a host card to which log messages can be sent. Typically this is a DXI host type card, although other cards may have support for logging messages. These are administration messages from the DXI log.
Dialing by ID	set to Off (“0”) or On (“1”)
	When set to On the operator may select a Station by typing in the Station number using the number keypad. This only applies to Small systems since the Full system always supports this feature. When set to Off the number keys will move through a certain percentage of the list (e.g. 7 moves 70% of the way through the list).
	Note that dialing by ID is useful only if the List display is set to ID or Both ID and name.
# Alarm width	integer, usually set to 3
	For a desktop, panel mount or rack mount Master Station the ‘# Alarm width’ setting controls the LCD display as follows:
	This is the number of columns on the MCB display that is used to display alarm, acknowledged and disabled lists. This setting can also be adjusted in the Master Station database. This setting is configurable but cannot be changed at the Master Station, therefore it is recommended that the setting be left at 3 (the default value), otherwise the MCB display will be improperly formatted.
	For a telephone set Master Station ‘# Alarm width’ controls the number of digits used in the telephone number .
	If ‘# Alarm width’ is set to 2 then Stations and Master Stations can be called with ID numbers from 01 to 99. If ‘# Alarm width’ is set to 3 then ID numbers from 001 to 999 can be called.
English enabled	set to No (“0”) or Yes (“1”)
French enabled	set to No (“0”) or Yes (“1”)
Spanish enabled	set to No (“0”) or Yes (“1”)
	Turns on/off the ability of a master station to change to this language. This only effects the language which the user can select from the MCB master. In an institution where only one language is used these settings can be used to prevent the operator from selecting a language that is not normally used.
Master idle mode:	set to Only connect when idle (“0”) or Always connect (“1”)
	When this is set to “1” the Masters are connected to the system similar to Stations, that is immediately, without regard to the current operation of the Master. If this is set to “0” then Masters will be connected to the system like Stations but only when in the idle mode (i.e., no MCB or host activity). This does not effect telephones – only MCB and host based masters.
Sync keypresses	set to No (“0”) or Yes (“1”)

When this is set to “1”, then we will purge all incoming keypresses acquired during the processing of the previous key function. If this is set to “0”, then we will not purge any incoming keypresses (this can cause problems due to system latency when a key takes a long time to be processed). This should normally be left at “1”.

Can disable stns — set to No (“0”) or Yes (“1”)

When this is set to “1”, then the operator will be able to disable call request and emergency call request switches from the Master Station console. This only effects the MCB menu structure, these switches can still be disabled from a host computer (i.e., touch screen)

Auto-cancel HW alms — set to No (“0”) or Yes (“1”)

When set to yes (“1”), then hardware alarms automatically appear and disappear regardless of whether or not the user has acknowledged them. If this is set to No (“0”) then hardware alarms must be acknowledged before they will disappear from the master. If an alarm is not acknowledged and the hardware fault clears itself, then the alarm will not disappear until the user attempts to acknowledge it. In this case, acknowledging the alarm will cancel it (i.e., it will not be added to the acknowledged list).

Tel Ring/Ans Mode — set to No (“0”) or Yes (“1”)

When this is set to 0, then the telephone will ring when a call request is queued at the master. When then telephone's receiver is lifted, then the telephone will be connected to the station. When this is set to 1, the the telephone will ring when a call request is received. However, when the telephone's receive is lifted, then the telephone will not connect to the station but will wait for dailing or the host to call a station. When this is set to 2, then call requests will not cause the telephone to ring but lifting the handset will connect to the highest priority station call. When this is set to 3, then the telephone will not ring and picking up the telephone's receive will not connect to the highest priority station call. Note that this setting only affects station call requests, not master call requests. Master call requests will be connected when the telephone's receiver is lifted.

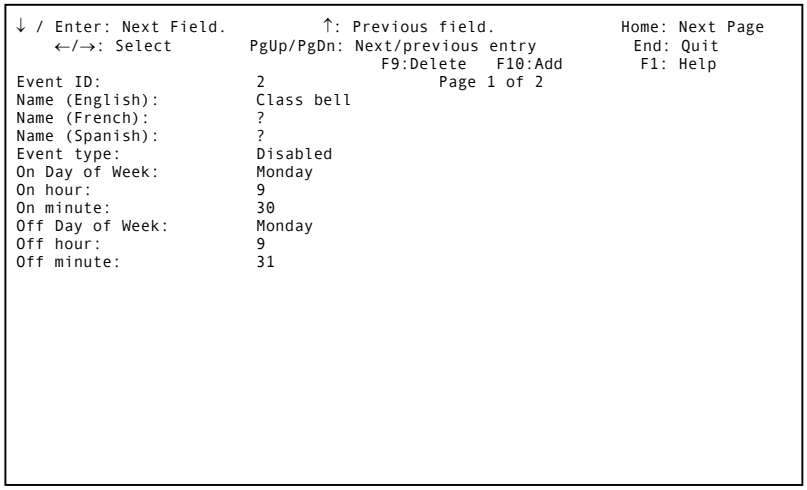
Repeat Host CRQs — set to No (“0”) or Yes (“1”)

When this is set to 1, then all intercom call request button presses will be reported to the host computer. This is mainly useful while debugging (i.e., to debug a touchscreen or host protocol) to prevent the touchscreen or host from missing messages. If this is set to 0, then the call requests are sent to the host only when the master queues the call request (i.e., subsequent call request button presses are not reported).

Special Events

The database for the *Special Events* is presented on the following screen.

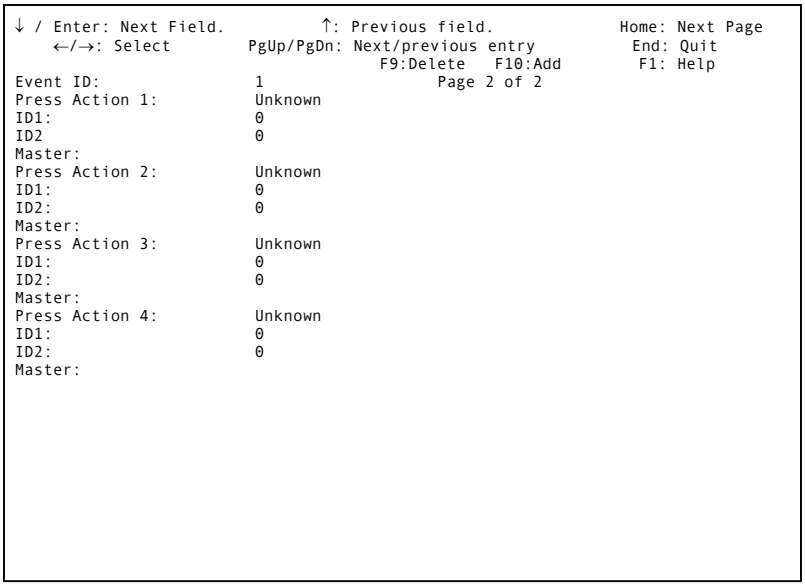
Note that there are two pages of parameters for the Special Events database



Programming Page 1 of the Special Event database

Event ID	a unique ID number from 1 to 65535.
	Number used to identify the event.
Name	A common name used to describe the event.
Event type	select from:
	Disabled, Daily_from, Daily_at,
	Weekday_from, Weekday_at
	Weekend_holiday_from, Weekend_holiday_at
	This is set to determine when a particular event is active. If the event ends with "_from", then it occurs between the On and Off times, if the event type ends with "_at". Then the event only looks at the On time to determine when the event is to be triggered.
On Day of Week	select from:
	Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday or Noday
On Hour	Set from 0 to 23
On Minute	set from 0 to 59.
Off Day of Week	Select from:
	Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday or Noday
Off Hour	set from 0 to 23
Off Minute	set from 0 to 59.

Page two of the database for a Special Event is given on the following screen.

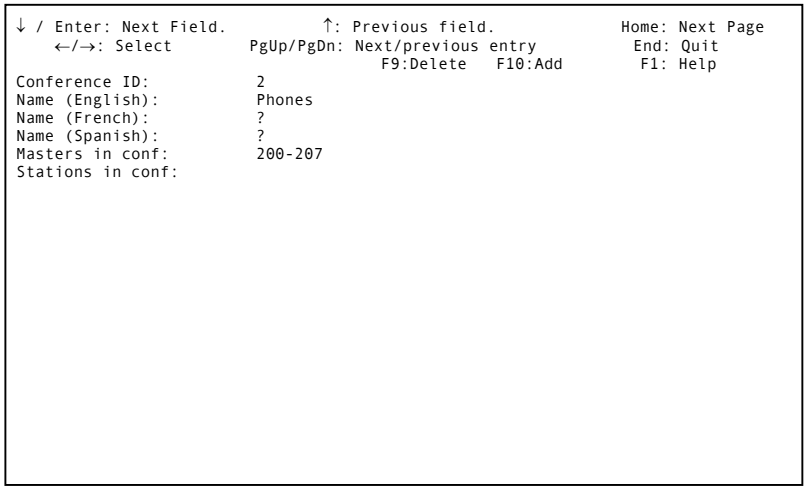


Programming Page 2 of the Special Event database

Press Action 1	See Appendix 2 for a list of possible switch actions. The action to perform at the specified time may be to send a tone or turn music on or off, etc.
ID1	the first ID depends on the action being sent. For serial alarms to the Pelco, it will be the ID of the alarm being generated.
ID2	the second ID depends on the action being sent. For serial alarms to the Pelco, it will be the ID of the alarm being generated.
Press Action 2	
Press Action 3	
Press Action 4	These switch actions follow the same format as the first switch action.
Master	the ID of the Master Station, which will receive the alarm if the indicated switch action has taken place.

Conference

A *conference* call can be set up between several Master Stations. While conference calls can be initiated from a Master Station, a set of "standard" conference calls can be set up for commonly used master station combinations. The screen to set up a conference call is shown on the right.

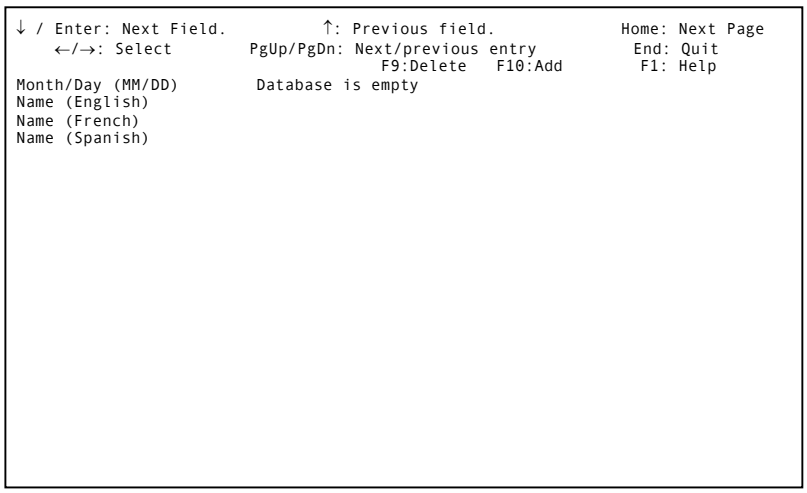


Programming Conference Setups

Conference ID	set from 1 to 65535
	The identification number for conference call setup.
Name	A name given to the Conference call setup.
Masters in Conference	a string of Master Station IDs.
	List of Master Stations that are to be included in the conference call.

Holidays

The *holidays* database is meant to keep track of scheduled holidays. Holidays are days that are counted as weekends when special events are triggered. The screen appears as follows:

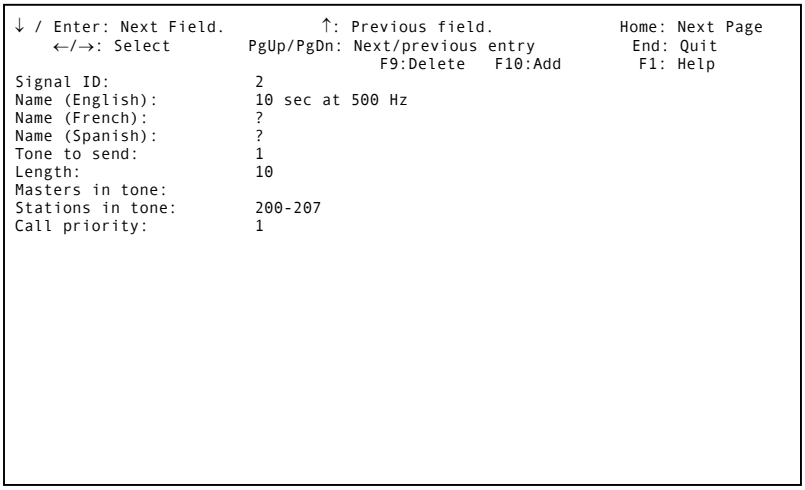


Programming Holiday database.

Month/Day (MMDD)	Dates of holidays
Name	Common name for Holiday e.g. Thanksgiving. This information is used with the Special Events database to program scheduled changes in daily routines.

Signal

A signal is a tone generated on a group of masters and/or stations, a periodic buzzer (school class change buzzer, shift change buzzer, etc.) and one-time tone (alarm, buzzer, warning time, etc.) are examples of signals. The database presented when *Signals* is selected is as follows:

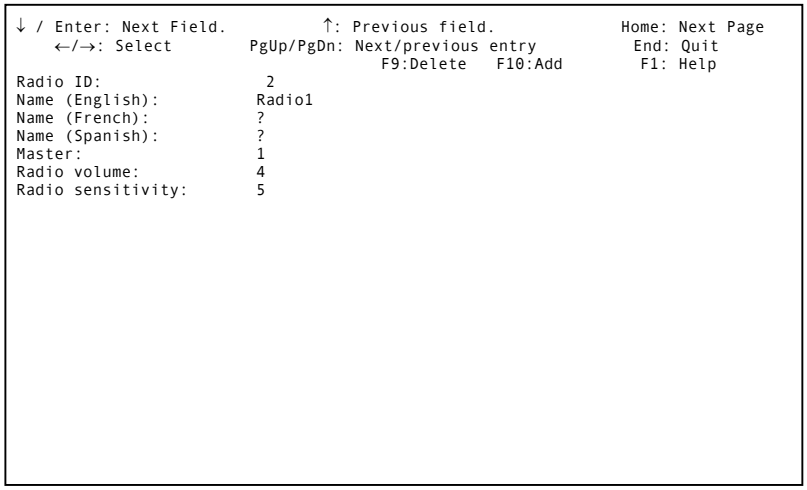


Programming Signals

Signal ID	set from 1 to 65535
	Identification number for a signal.
Name	A common name for the signal.
Tone to send	set from 1 to 65535
	This is the ID number of a sound tone that has been defined in the hardware configuration. Each tone can be defined as a unique and readily identifiable sound.
Length	set from 1 to 65535 seconds.
	This number determines the length of time the tone will be generated.
Masters in tone	string of Master Station ID numbers.
	Tones can be sent to both Master Stations and Stations. This is the list of Master Stations
Stations in tone	string of Station ID numbers.
	List of Stations that are to receive tone.
Call priority	set to 1 to 65535
	The priority (1 to 65535; larger numbers have higher priority) of a call made by this master. Another master must have higher call priority in order to interrupt this master's call.

Radio

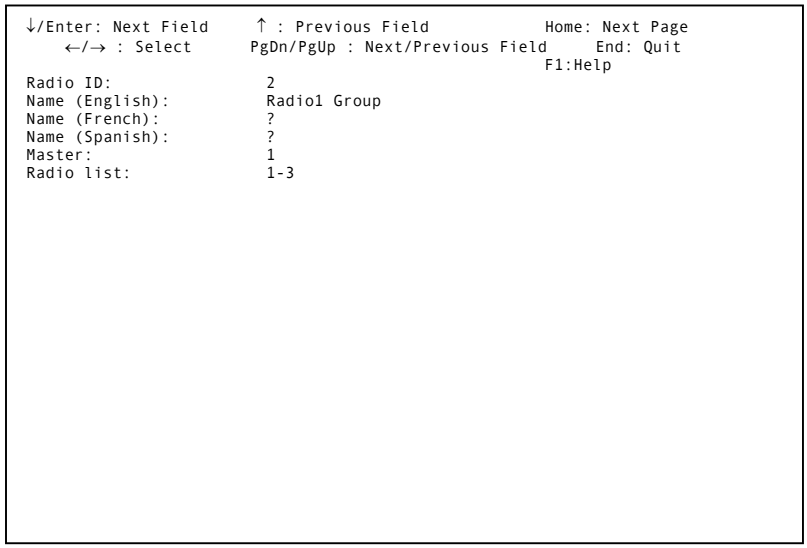
Radios are external two way communications devices such as walkie-talkies. These are always half-duplex devices. The programmable database is shown here. If the *Is Group* parameter in the hardware configuration for a *Radio* has been set to "Radio", then the database shown on the right will be presented.



Programming the Radio database:

Radio ID	set from 1 to 65535
	A unique identification number for the radio.
Name	A name for the radio.
Master	Set from 1 to 65535
	The ID of the Master Station that this radio calls.
Radio Volume	set from 0 to 7
	The transmitted volume level from the Master Station to the radio.
Radio Sensitivity	set from 0 to 7
	The sensitivity setting for the incoming radio signals, this setting will determine the volume level at the Master Station.

If the *Is Group* parameter in the hardware configuration for a *Radio* has been set to "Group", then the database shown on the right will be presented. A Radio Group is used when "conferencing" radios is required, for example, to make an announcement (and listen to) all the radios simultaneously, or monitor all of the radios simultaneously over one speaker.



Programming the Radio database for a Group Radio

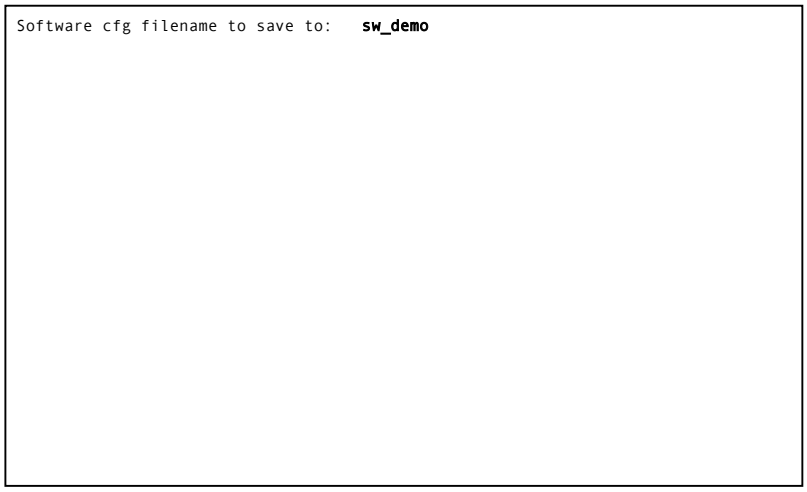
Radio ID	set from 1 to 65535
	A unique identification number for the Radio Group
Name	A name for the Radio Group.
Master	Set from 1 to 65535
	This is the ID number of the Master Station where the radio signals will be mixed together.
Radio list	string of Radio IDs
	List of Radios that are included in this group.

To Save Your Software configuration

Once you have completed the software configuration you will return to the database prompt:

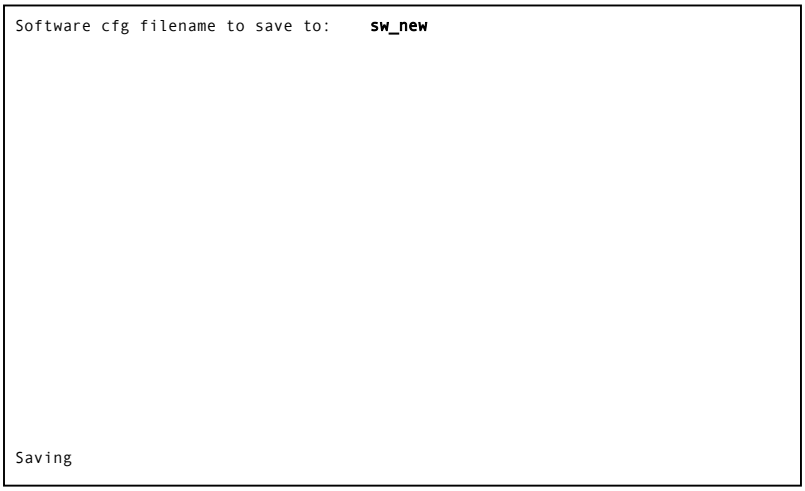
To exit, select Exit from the “Database to modify:” and press ‘Enter’. The message “Sending configuration to nodes...” will appear at the bottom of the screen.

When the configuration has been sent to nodes, the screen will clear, and you will be prompted to save the software configuration.



If you wish to change the software configuration file name, you may change the suggested name and press ‘Enter’. If you do not wish to change the software configuration file name, press ‘Enter’. The following message will appear on the screen.

When the (modified) software configuration has been saved, you will return to the Administration Menu



View Software

The software configuration of the DXI system can be viewed by selecting the *View Software* following the selection of *Edit* on the menu bar of the DXI *Admin* module. The operation of the *View Software* is similar to the operation of the *Modify Software* operations. The screen displays are similar. The main difference is that when you are in the *View Software* mode changes to the software configuration cannot be made, and you do not exit with an automatic save sequence. If you only want to determine the current setup you should use the *View Software* selection rather than *Modify Software*, and avoid the possibility of making an inadvertent change to the software configuration.

Add User, Delete User, Modify User and View User

These menu selections are not operative at the present time. They are included in the Shell Program in anticipation of future features that will be available for the DXI system

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Section 6 - Data Logging

In This Section...

We will discuss:

- the type of events that are logged by the system, and the log message content,
- log functions,
- options for continuous printing of log messages,
- how to view log messages, and
- how to print or save selected log messages.

Data Logging

The Service, Administration and Control (SAC) computer logs all significant events, including intercom activities and alarms.

For each event, the following information is recorded:

- the time at which the event occurred,
- exchange number, and
- a message that describes the event.

A typical log message looks like this:

Time	Message
09:51:07	*Call Request from Station #5006 [intercom station name] sent to Master #5 [master station name]*

Note: The exchange number is used for large systems with multiple exchanges.

The time appears at the bottom of the screen for the message line that the cursor is on.

For logging purposes, an “event” is an activity that occurs at a point in time. A call request would generate the following events:

When the call request is initiated, the first event is logged:

Call Request from Station [ID/name] sent to Master [ID/name]

When the call request is acknowledged i.e. a call is made, three more events are logged:

Connected Master [ID/name] to Station [ID/name]

Call Request from Station [ID/name] removed from Master [ID/name] Active queue

Call Request from Station [ID/name] added to Master [ID/name] Acknowledged queue

When the call request is canceled i.e. the call is ended, and two additional events are logged:

Disconnected Master [ID/name] from Station [ID/name]

Call Request from Station [ID/name] removed from Master [ID/name] Acknowledged queue

These logged messages form a historical record of all activities, which can be printed or reviewed at a later time.

Log Message File

The system's log message file has sufficient capacity to save approximately one month's messages, under normal conditions of operation. When the file's capacity is reached, the system will begin to overwrite messages. The oldest message is the first to be overwritten, so that the file always contains the most recent messages. The log file is a circular buffer that can be set to store up to a maximum of 99,9999,99 entries (for both the Admin and Maint log entries). The maximum size of the circular buffer will depend on the capacity of the hard drive. In older systems, with small capacity hard drives, the number of log messages in the circular buffer was set to 200,000.

Note that the user can access the log message files either from the Maintenance or the Administration menus. The screens shown for access to the log message files in this manual are from the Administration menu.

Log Functions

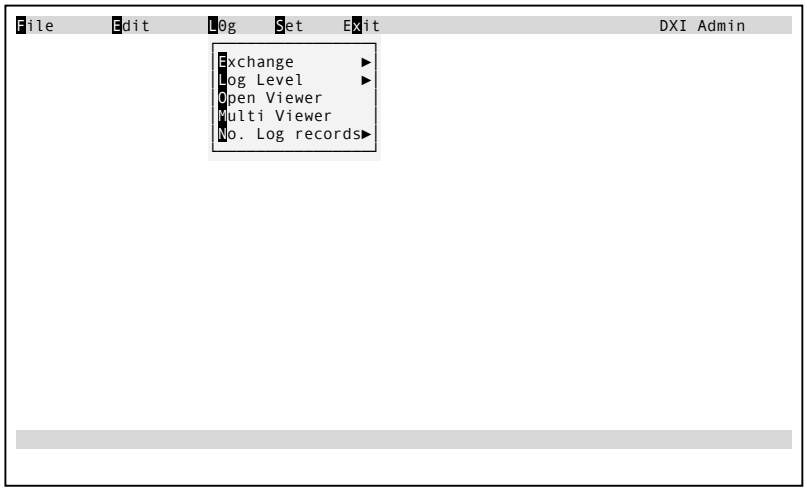
The Log Functions that are available - *Exchange*, *Log Level*, *Open Viewer*, *Multi Viewer* and *No. Log Records*

Exchange	for systems that have more than one exchange (computer) each exchange will have its own log file. You can select which exchange log file or files to view with the Multi Viewer selection
Log Level	allows you to select user information, debug information or both.
Open Viewer	allows you to view the log message file for the computer you are at. If you choose Open Viewer without first selecting log level the system will assume that you want user information only.
Multi Viewer	In systems with more than one exchange, each creating its own log file, the log files selected under Exchange can be viewed.
No. Log Records	The user can set the number of log records that will be maintained. Both the number of Maint and Admin records can be set. The maximum number of records that can be set is 99,9999,999.

Log Level

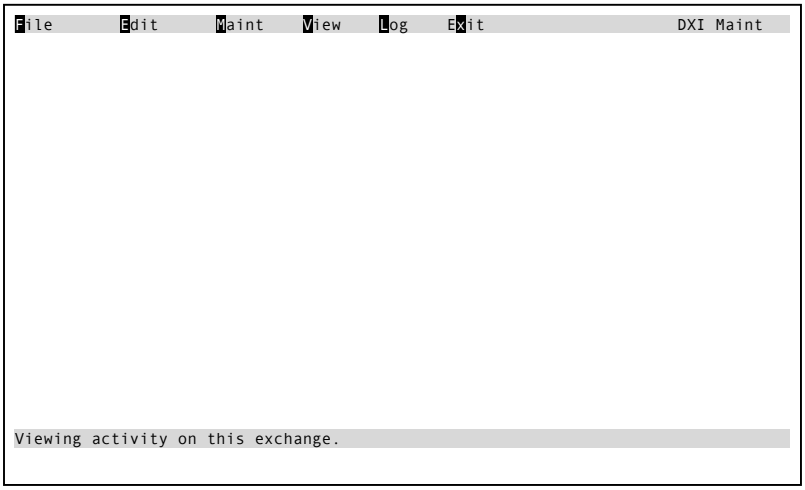
When you select *Log Level*, a second menu appears on the screen beside the log menu.

You may select user information and/or debug information. For operations purposes, you should select user information. Only the system manufacturer, system installer, or maintenance staff should need debug information for problem solving.

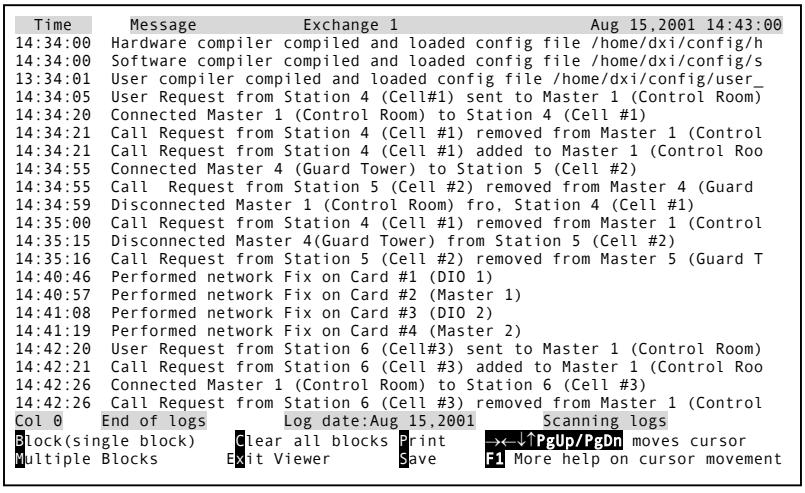


Open Viewer

You must select *Open Viewer* to view the log message file stored at the computer you are accessing the log data from. If you have not selected a log level the system will assume that you want to view User information. To open the viewer press ‘o’ for *Open Viewer*. A screen message “Viewing activity on this exchange.” Will appear on the bottom of the screen, followed by the message “Using User log levels.”

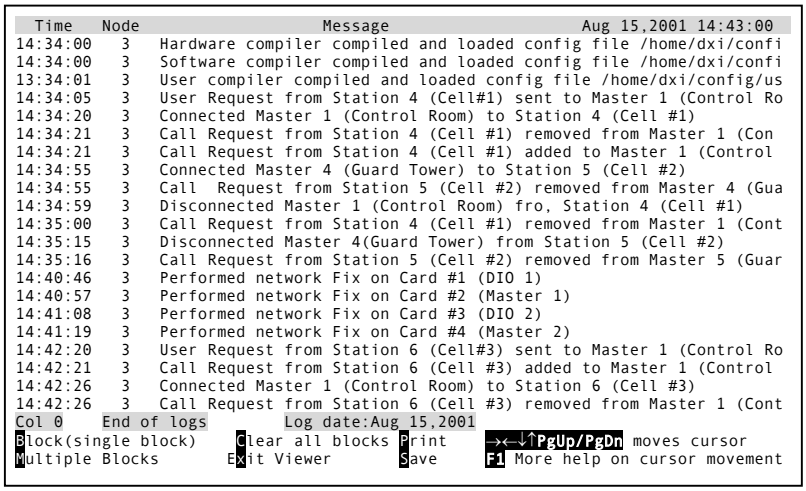


Log message data will be displayed on the screen. An example of the log screen is shown on the right.



Multi Viewer

The operation of *Multi Viewer* is similar to *Open Viewer* except that a column is displayed which indicates which Exchange (or node) logs are being viewed.

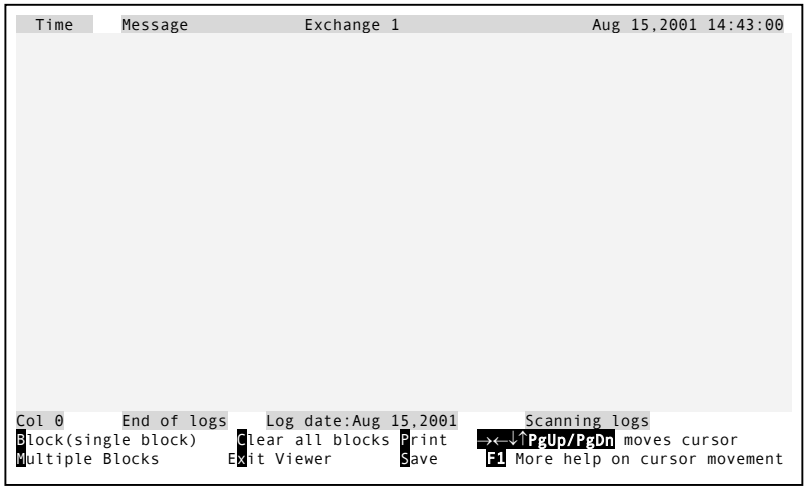


Log Data

You may view, print or save log data to a floppy disk.

When you select Open Viewer, log message data will appear on the screen in the shaded area of the following screen display. At present 21 log messages can be displayed at one time. Each page of log messages contains 21 messages; if we page back the top message will become the last message on the next screen.

A typical log record was shown previously.



The system will take you to the end of the log message file (the most recent log messages will be displayed). If you page back then the “End of logs” message will be replaced by the numbers indicating the count of the logs included on the displayed page (i.e. 40100 - 40121).

Function Keys

You may use the following function keys to view and select log data to save or print.

Right Arrow	Scroll right, will move the text to the left (if the message is longer than the width of the screen). The Col # will tell you how many columns are off screen to the left.
Left Arrow	Scroll left, will move the text to the right. (You cannot move the text Col # less than 1)
Down Arrow	Will move you to the next log line (towards newer entries).
Up Arrow	Will move you to the previous log line (towards older entries).
PgDn	Will move you to the next page of logs (towards newer entries).
PgUp	Will move you to previous page of logs (toward older entries).
+	Allows you to type in the number of pages to jump down, then will move you that number of pages down in the logs (toward newer entries).
-	Allows you to type in the number of pages to jump up, and then will move you that number of pages up in the logs (toward older entries).
Home	Jumps to the first log line (the oldest entry).
End	Jumps to the last log line (the newest entry).
/ (search down)	Allows you to type in a search string, then looks down in the logs (towards newer entries) until the string is found or until the newest entry is reached.
? (search up)	Allows you to type in a search string, and then looks up in the logs (towards older entries) until the string is found or until the oldest entry is reached.

N (search next)	Continues the previous search (started with / or ?) in the same direction, looking for the next occurrence of the search string.
X (Exit)	you will exit viewer
B (Block)	To select a block of log messages for saving or printing
M (Multiple blocks)	To select multiple blocks of log messages for saving or printing
C (Clear all blocks)	To de-select blocks that you have selected
P (Print)	To print selected blocks
S (Save)	To save selected blocks
F1	help on cursor movement

Viewing Log Data

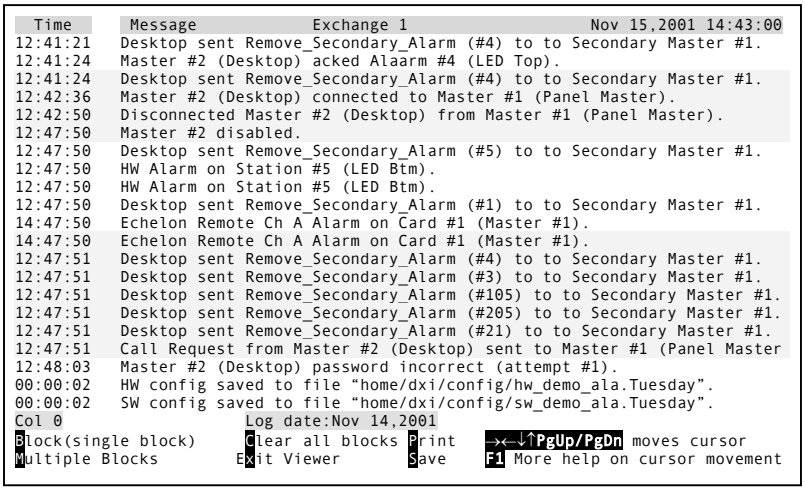
If the log message you are looking for is not displayed on the screen, you may scroll up or down, using Up-arrow and Down-arrow keys or PgUp and PgDn keys. Arrow keys will move the cursor one line at a time. Page keys will move the cursor one page at a time.

If the log message extends beyond the border of your screen, you may scroll across, using the Right-arrow and Left-arrow keys. The Col # will tell you how many columns you have scrolled off the screen to the left.

Printing or Saving Log Data

First you must select log data that you want to print or save.

The keys at the bottom of the screen will help you to select blocks for printing. A block is a set of log messages that are contiguous (listed one after the other).



To select a single block of log messages for printing or saving.

Move the cursor to the log message you want and press ‘B’ (Block). The line you have selected will be highlighted. Now move the cursor up or down (using arrow keys or page keys) to select additional messages. Each time you move the cursor additional messages are highlighted. When you reach the end of the block press ‘B’.

To select multiple blocks of log messages for printing or saving

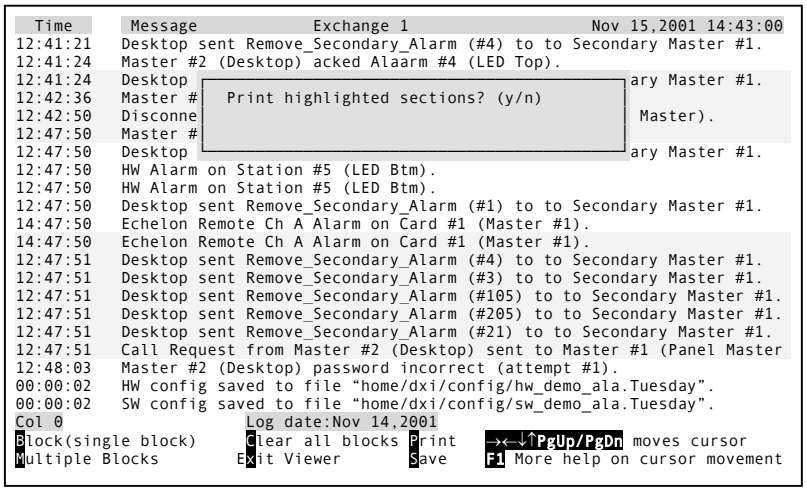
Sometimes the log messages you want to print or save are not altogether. In this case, you must Press ‘M’ (multiple blocks) at the beginning and end of each block that you want. This allows you to select more than one block without losing the ones you have already selected.

Now you can press ‘P’ (to print the block) or ‘S’ (to save the block to a floppy disk or to the hard drive).

Printing

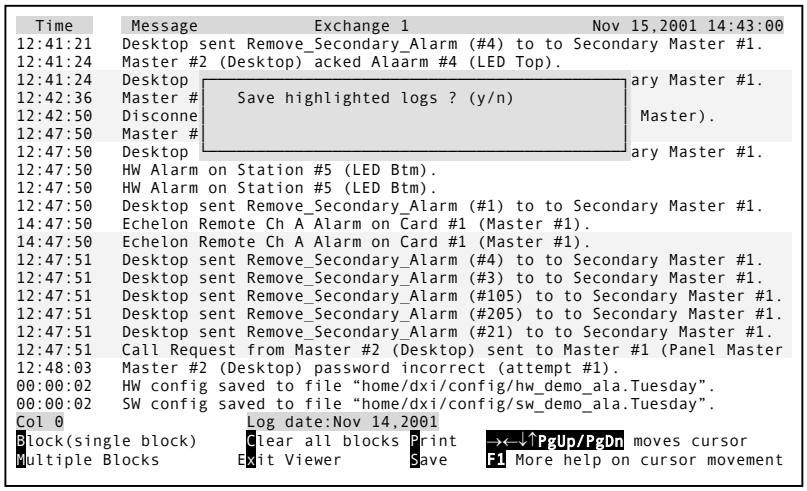
When you press ‘P’, you will be prompted to print.

If you type ‘y’ the block(s) you have elected will be printed at the log printer.

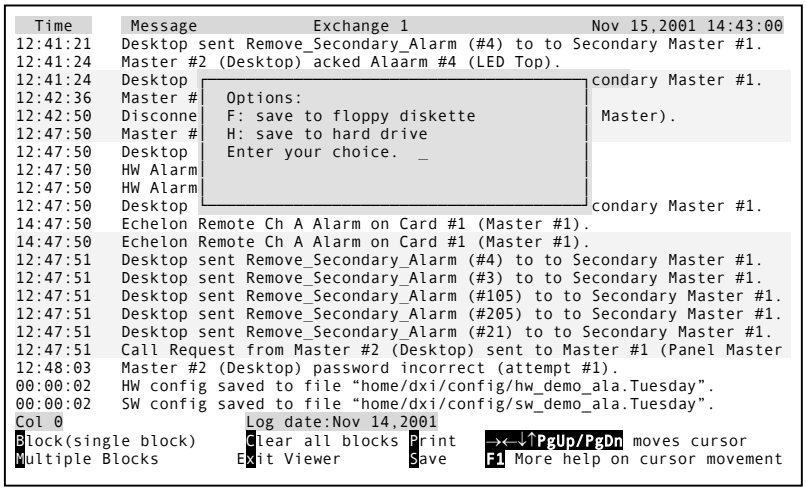


Saving

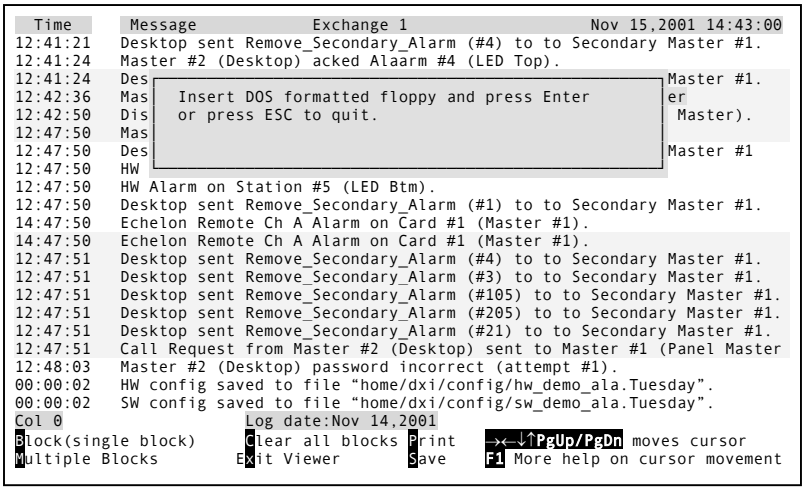
When you press ‘S’ (save), a series of messages will appear that enable you to save the log messages you have selected to a file on a floppy disk or to the hard drive.



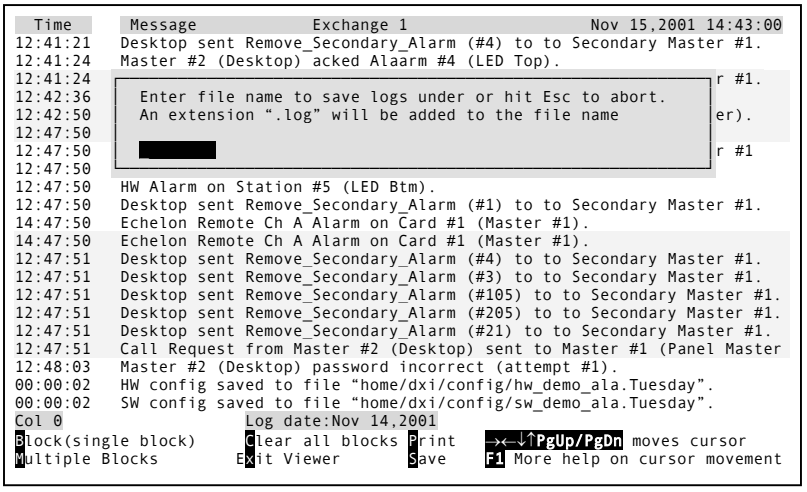
The first message is: “Save to floppy or to hard drive?”



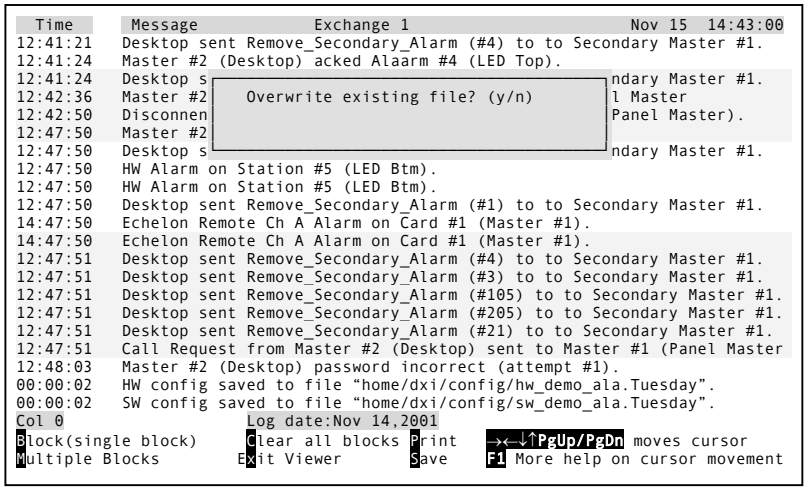
If you select “floppy”, you will be prompted to put a floppy disk in the indicated drive.



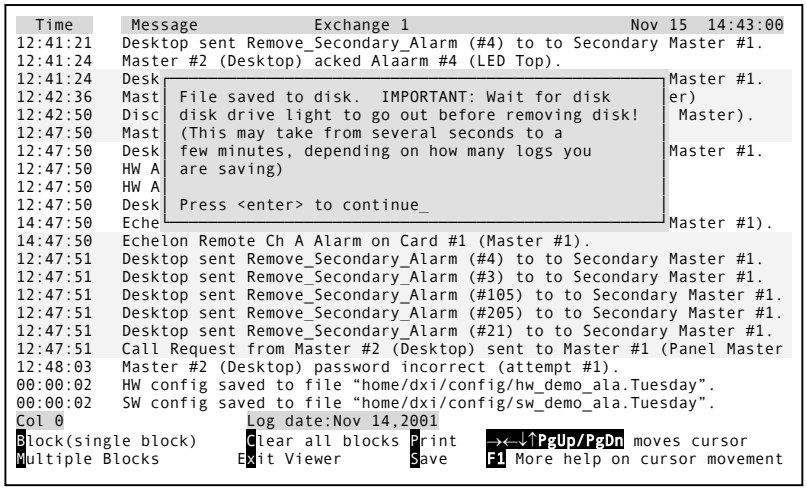
Once you have made your choice, the message “Enter File Name” will appear. Type in the file name and press ‘Enter’.



If the file you have specified exists, you will be asked if you want to overwrite the existing file.



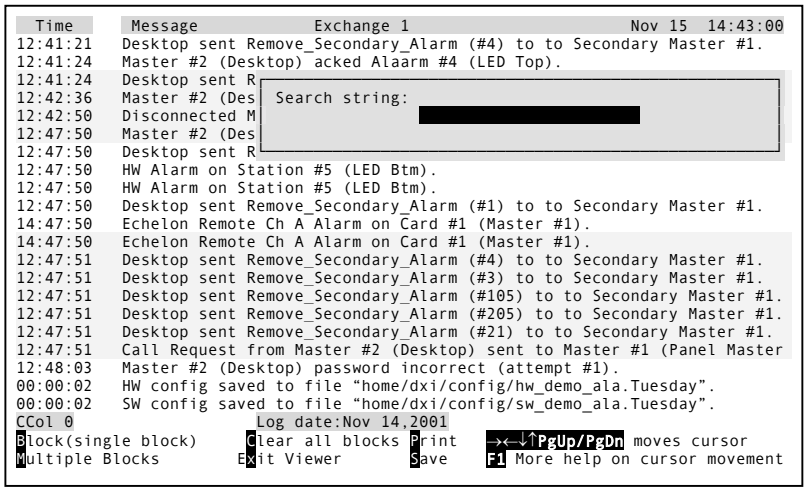
Now hit ‘Enter’ and your selected log messages will be saved.



Searching for Particular Log Messages

You can search for a particular log message using the /, ?, or n keys. The / key searches down (toward newer log messages), the ? key searches up (toward older log entries), and the n key searches in the current direction looking for the next occurrence of the current search string. The next (n) search function can only be started after you have specified a direction and string with the / or ? search keys

When you type in a ‘/’ or ‘?’ you will see the following display:

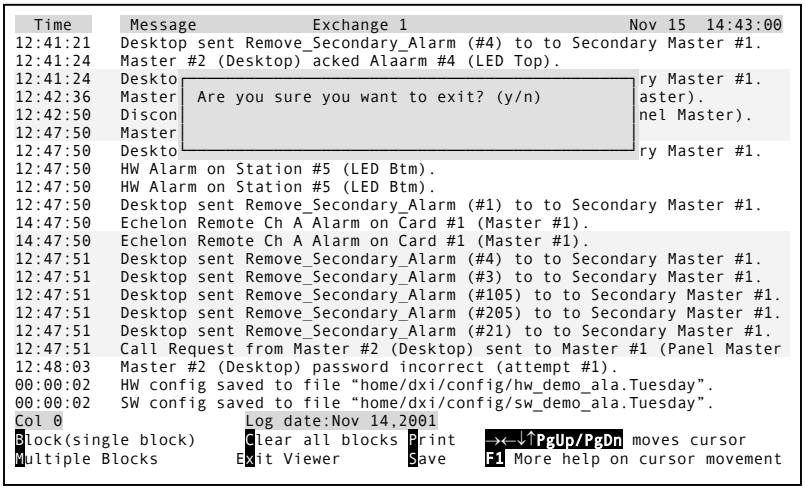


Type in the string you are looking for (this is case sensitive so only the exact case will be searched for), and then press ‘Enter’.

The log viewer will then scroll through the logs n the specified direction, and will stop when the search string is found anywhere in a log line, or until the top or bottom of the logs is reached.

When you have finished

Press ‘x’ (for *Exit*) and you will return to the Maintenance menu. You will be prompted to verify that you want to exit.



Continuous Printing of Log Messages

Continuous printing of log messages occurs at the log printer. It has no effect on log message file maintenance. As log messages occur, the log message file is update. Simultaneously, the log messages are sent to the log printer.

Printing of log messages that you have selected will also occur at the log printer.

- If you have selected the FAAS printer, printing of log messages that you have selected will be embedded in the continuous printing. A full line of asterisks will appear before and after the block of messages you selected.
- If you have selected another printer, log messages that you select for printing will start on a new page. When the printer finishes printing your selected message(s), it will skip to a new page to resume continuous printing.

Section 7 - Setting Passwords, System Clock, and Screen Saver Time-out

In This Section...

We will discuss:

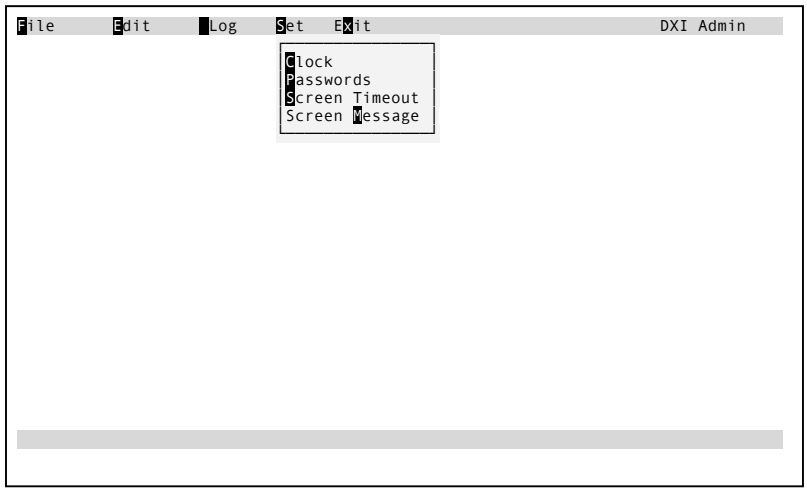
- how to set the system clock,
- how to set the various passwords, and
- how to set up the screen-saver.

The Set Selections

The *Set* menu item in the DXI *Admin* shell is used by the System Administrator to carry out the following functions:

- to set the system clock,
- to set passwords for the different segments of the system, and
- to set the screen-saver time-out time and the screen-saver message.

When *Set* on the menu bar is selected the following screen display is presented.



You may now select *Clock*, *Passwords*, *Screen Time-out* or *Screen Message*.

Clock is used to set the clock for the system - year, month, day, hour, minute and second. This determines the (current) time that is displayed at the master stations. You will need to adjust the clock periodically and for daylight saving.

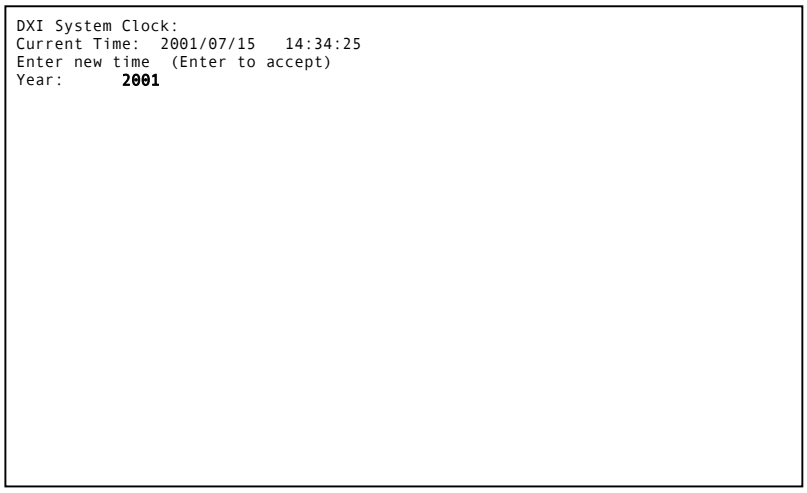
Passwords are used to specify passwords for access to Maintenance, Administration, and System, to return to the system from screen saver and to access Stations. You will need to set up passwords when the system is installed. You may change these at any time.

Screen Timeout is used to specify the time that elapses before screen saver is activated, if the SAC computer is idle.

Screen Message is used to set the word or phrase that will appear on the SAC monitor when screen saver is activated.

Clock

When you select *Clock*, the following screen will appear.

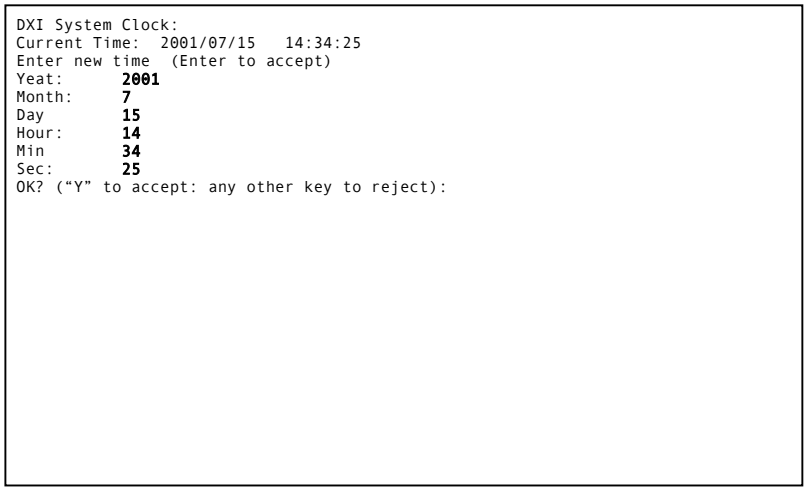


The time elements (year, month, day, hour, minute, second) are displayed one at a time, year first.

- If you want to change the time element that is displayed, key in your change and press ‘Enter’.
- If you do not want to change that time element press ‘Enter’, and the next element will appear.

When you have completed all elements, you will be prompted to accept the new time.

Press “Y" to accept the new time, any other key to reject.



If you press ‘Y’, the message “Updating all nodes...” will be displayed the bottom of the screen:

```
DXI System Clock:
Current Time:  2001/07/15   14:34:25
Enter new time  (Enter to accept)
Yeat:      2001
Month:     7
Day        15
Hour:      14
Min        34
Sec:       25
OK? (“Y” to accept: any other key to reject):









Updating all nodes…
```

When all nodes have been updated, the current time is displayed.

Press any key to continue. You will return to the Administration Menu. The system will now use the new time that you entered.

```
DXI System Clock:
Current Time:  2001/07/15   14:34:25
Enter new time  (Enter to accept)
Yeat:      2001
Month:     7
Day        15
Hour:      14
Min        34
Sec:       25
OK? (“Y” to accept: any other key to reject):

Current time:   2001/07/15  14:34:25
Hit any key to continue…
```

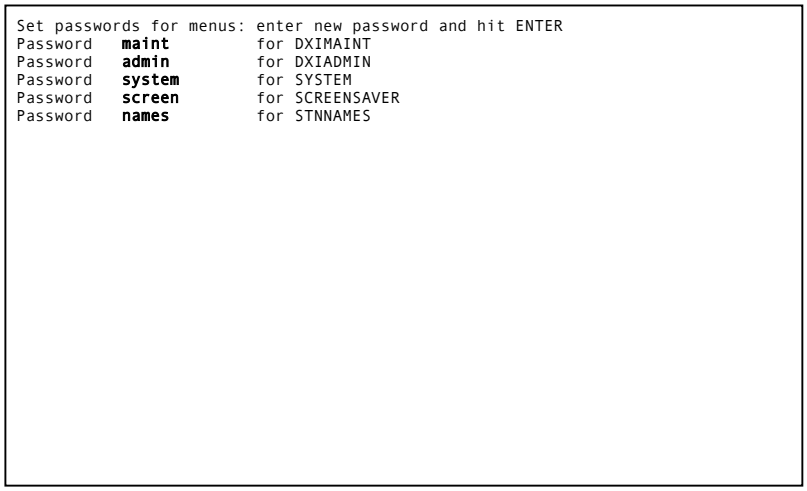
Passwords

When you select *Passwords* under the *Set* selection, the following screen will appear:

```
Set passwords for menus: enter new password and hit ENTER
Password   maint         for DXIMAINT
```

The passwords are displayed one at a time, maintenance password first.

- If you want to change the password that is displayed, key in your changes and press ‘Enter’. A password may be any combination of alphanumeric characters up to 20 characters in length.
- If you do not want to change the password, press ‘Enter’.



In either case, when you press ‘Enter’, the next password is displayed. Continue until you have reached the STNNAMES password.

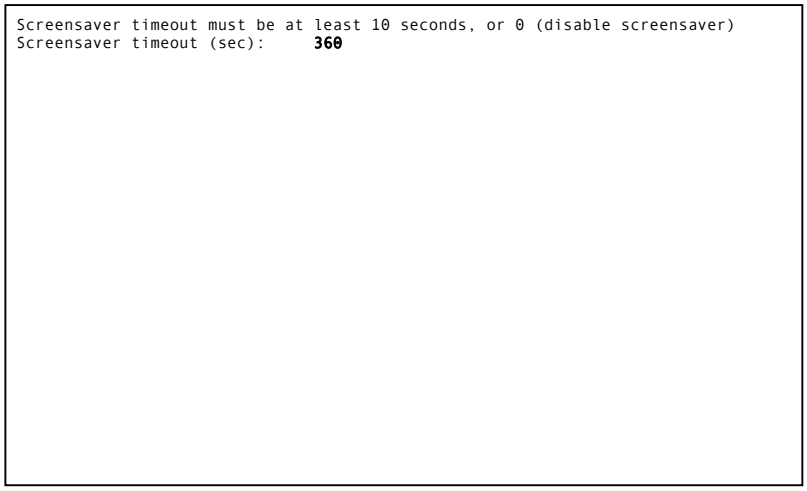
When you have made your changes press ‘Enter’. You will return to the Administration Menu. The passwords will be operative.

Screen-saver Time-out

When you select *Screen Timeout*, the following screen will appear:

Screen saver timeout is the amount of time that must elapse before the screen on the SAC monitor reverts to screen saver mode. It is specified in seconds.

The current value will be displayed.



Key in the value that you want and press ‘Enter’. The screen will be changed as follows:

```
Screensaver timeout must be at least 10 seconds, or 0 (disable screensaver)
Screensaver timeout (sec):     360
Entry accepted.
```

If your time selection is invalid instead of the message “Entry accepted” you will be prompted with the message “Time-out must be at least 10 seconds”. Press ‘Enter’ and you will return to the Administration Menu.

If you enter “0”, the screen saver will not activate.

Note: If the set screen saver time-out to less than 10 seconds you may not have sufficient time to access the system, therefore a time-out less than 10 seconds will not be accepted.

Screen-saver Message

When you select *Screen Message*, the following screen will appear.

```
Screensaver message:  dxiM
```

The current message is displayed.

The message may be any combination of alphanumeric characters up to 20 characters in length.

If you want to change the message, key in your change. When you have finished, press ‘Enter’ and the following screen will be displayed:

```
Screensaver Message:  dxi
Entry accepted.
```

Press ‘Enter’ and you will return to the Administration menu.

Appendix 1 - List of Acronyms

Hardware Components

ACB	Audio Control Board
AIB	Audio Input Board
AIO	Audio Input/Output Board
AOB	Audio Output Board
DIO	Discrete Input/Output Board
DSM	Desktop Speaker Microphone
FDH	Full Duplex Handset
FTR	Free Topology Repeater
ICM	Intercom Station
IMS	Intercom Master Station
IOC	Input/Output Card Cage
MAI	Master Audio Interface
PAB	Paging Amplifier Board
PSU	Power Supply Unit
RDB	Remote Driver Board
RIO	Remote Input/Output
RNS	Redundant Network Switch
RRB	Remote Receiver Board
RRR	Remote Receiver Rack (describes an RDB or RRB)
SAB	Station Audio Board
SAC	Service, Administration and Control
SPC	Switch Panel Controller
SPD	Switch Panel Driver
TAB	Talk back Amplifier Board
TIS	Tower Intercom Station
TLB	Telephone Line Board
TSB	Telephone Set Board
VBS	Visitor Booth Station

Appendix 2 - List of Possible Switch Actions

When selecting possible switch actions the following choices are available:

Side Effects Only, Call request, Call Request Cancel, Emerg Call Request, Music Button, Telephone CRQ, Cell Alarm, Cell Alarm Cancel, Panic Alarm, Door Alarm, Security Alarm, Audio Alarm, Wiring Alarm, Comm Alarm, IO Alarm, Serial Alarm, Wipe Request, Wipe End, Monitor Up, Monitor Down, Monitor Hold, Monitor Resume, Connect Stations, Connect Master & Stn, Connect Masters, Disc Stations, Disc Master & Stn, Disc Masters, Alarm: Connect Stn, Alarm: Connect Mstr-Stn, Alarm: Connect Mstrs, Alarm: Disc Stations, Alarm: Disc Mstr-Stn, Alarm: Disc Masters, Output On, Output Wink, Output Slow Flash, Output Flash, Output Blink, Output Off, Group Output On, Group Output Off, Alarm: Output On, Alarm: Output Wink, Alarm: Output Slow Flash, Alarm: Output Flash, Alarm: Output Blink, Alarm: Output Off, Door Partial Open, Cell Group Switch, Group Door Open, Group Door Close, Bypass Activate, Bypass Deactivate, Door Stop, Barrier Stop, Door Open Limit On, Door Open Limit Off, Door Close Limit On, Door Close Limit Off, Door Open, Door Close, Door Group, Battery Low, Connect to Conf, Disconnect from Conf, Master Call Request, Disable Master, Enable Master, Unman Master, Man Master, Send Tone CON, Send Tone DIS, Host Door OPN, Host Door CLS, Host Door STP, Host Set Output, Card ALA State, Stn ALA State, Connect Master & Rad, Disc Master & Stn, Connect Radios, Disc Radios, Audio Alarm CRQ, Audio Alarm MRQ, Host Cont CALL, Nurse Emerg Blue, Nurse Emerg LGreen, Nurse Emerg Yellow, Nurse Emerg Red, Nurse Emerg Ack, Nurse Emerg Can, Call Request Ack, Stn Ack Tone, Report to Host, Call Request Disable, Call Request Enable, Cell EnDis, Cell ACK, Unknown

Appendix 3 – Page Zone and Master Station Priority levels

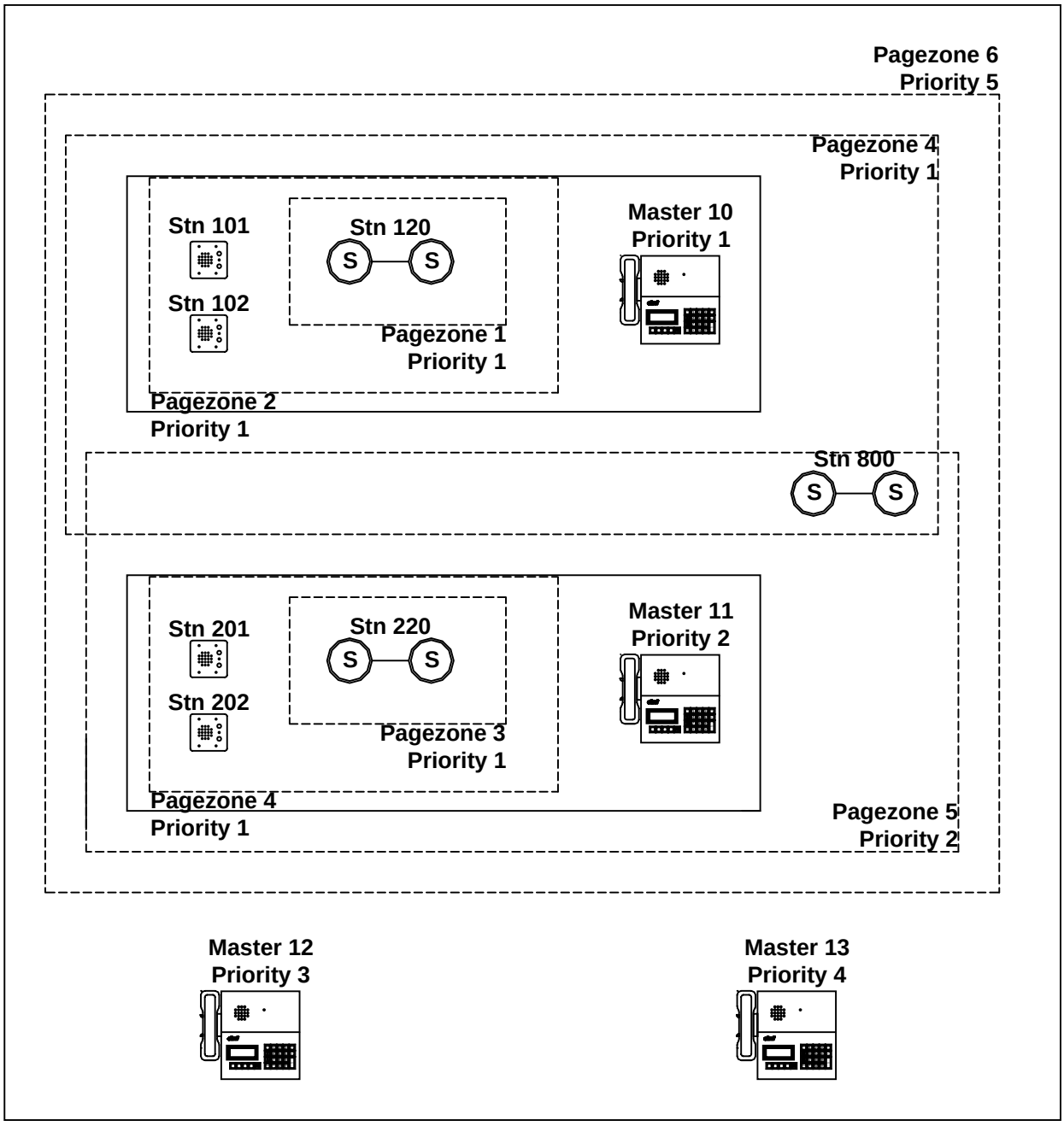
The following simple diagram shown on the next page represents an intercom system with 4 masters, 4 call type intercom stations and 3 sets of overhead speakers. When a call is made to a station the call priority is determined by the priority of the master station making the call. When a master station makes a call to a page zone the priority is determined by the higher of the two priorities i.e. the priority of the master station or the priority of the page zone. A call with a higher priority will disable a call with a lower priority. If the call with the higher priority is disconnected the connection to the lower priority call will be either connected or reconnected if it has not been terminated. If the priority level is the same then the first call connection will remain.

In the example shown if Master 13 is making a call to Stn 101 and Master 10 initiates a page announcement over Page Zone 2 the page will be broadcast to all the stations in the zone except Stn 101, which will remain connected to Master 13. If the call from Master 13 is terminated before the page is completed Stn 101 will be connected to the page announcement.

If Master 12 is making a page announcement over Page Zone 4, Master 13 initiates a page over Page Zone 5, Stn 800 will broadcast the message from Master 13 since Master 13 has the highest priority. If Master 13 terminates the paging call to Page Zone 5 before Master 13 has completed his page Stn 800 will be reconnected to the announcement being broadcast by Master 12.

When two masters attempt to call the same page zones the master with the highest priority will take over the page zone. For example if Master 12 is making an announcement over Page Zone 4 and Master 13 decides to make an announcement over the same page zone the message being broadcast by Master 12 will be disconnected and the announcement from Master 13 will be broadcast since Master 13 has a higher priority level than Master 12. When Master 13 has completed his announcement the connection will return to Master 12 (if he has not terminated his page).

If Master 12 is making a page over Page Zone 6 and Master 13 attempts to make a page zone announcement to any of the page zones shown (including Page Zone 6) it will not be able to make a connection until the page from Master 12 has been completed. The page from Master 12 to Page Zone 6 has a priority 5 in this example, which would be the same as a page from Master 13 to Page Zone 6.



Example system showing priority levels of Master Stations and Page Zones