Honeywell

# Universal Station X
# User Guide

**UX09-400**

Universal Station$^{X}$

# *Universal Station$^{X}$ User Guide*

**UX09-400**
**6/93**

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# About This Publication

This publication is provided to aid operation of Universal Station$^{X}$ hardware/software.

Use this publication to operate the Universal Station$^{X}$. If you are unfamiliar with the specific LAN configuration to which the station is attached, your Local Area Network Administrator will be needed to assist in initial operation.

# Table of Contents

# Acronyms

| | |
|---|---|
| AIA | Application Integration Architecture |
| CIM | Computer Integrated Manufacturing |
| IWSM | Industrial Work Space Manager |
| LCN | Local Control Network |
| LAN | Local Area Network |
| OSF | Open Systems Foundation |
| OSI | Open Systems Interconnection |
| TDC | Total Distributed Control |
| TPDG | Turbo Peripheral Display Generator |
| UCN | Universal Control Network |
| UNPX | Universal Personality X |
| $U^XS$ | Universal Station with Extensions |
| WSI | Workstation Interface |

# References

| Publication Title | Publication Number | Binder Title | Binder Number |
|---|---|---|---|
| *UXS User Guide* | UX09-400 | UXS | 2093 |
| *UXS System Administration Manual* | UX11-400 | UXS | 2093 |
| *A Beginners Guide to the X Window System* | 98594-90002 | | |
| *Using the X11 Window System* | 98794-90001 | | |
| *HP-UX System Security* | 92453-90029 | | |
| *A Beginners Guide to HP-UX* | 98594-90006 | | |
| *HP-UX Concepts and Tutorials: Text Editors and Processors* | 97089-90022 | | |
| *A Beginner's Guide to Text Editing* | 98594-90010 | | |
| *Quick Reference Card for vi Editor* | 98597-90000 | | |
| *HP-UX Concepts and Tutorials: Shells and Miscellaneous Tools* | 97089-90062 | | |
| *A Beginner's Guide to Using Shells* | 98594-90008 | | |
| *Laserjet III Printer User's Manual* | | | |
| *LaserJet 4 and 4M Printers User Manual* | C2001-90912 | | |

# Section 1 – U$^{X}$S User Documentation

## 1.1 Overview

**Available documentation**

The user documentation for the Universal Station$^{X}$ product, is comprised of the following manuals published by Honeywell and Hewlett Packard:

- *U$^{X}$S User Guide*, UX09-400
- *U$^{X}$S System Administration Manual*, UX11-400
- *HP-UX System Security*, 9253-90029
- *Using the X11 Window System*, 98794-90001

**Procedures**

This publication covers specific procedures to perform many tasks which include:

- Configuration of LCN window display behavior
- Adding/Deleting X host display access authorization
- Configuration of X Windows keyboard focus policy
- Performing routine backup
- Changing user passwords

# Section 2 – U$^{X}$S Concepts

## 2.1 What is U$^{X}$S

**Long term plan**

In today's competitive environment, maintaining control of costs and quality is paramount. Many process industry companies are formulating long-range plans to meet these objectives. The broad direction is to achieve low cost operations through the integration of process control and information system technologies. Honeywell's TDC (Total Distributed Control) system will be the foundation of the future CIM (Computer Integrated Manufacturing) system. This Honeywell system is called TotalPlant.

To meet these challenges, it is important to provide an evolutionary path of products, that preserve customer investments in hardware and training. The U$^{X}$S platform is the first step in implementing this long term strategy.

**Definition of U$^{X}$S**

An embedded open system environment provides support for display/import of data generated on non-LCN platforms. This TDC 3000$^{X}$/X Windows integrated platform enables software connections between the LAN (Local Area Network) and the LCN (Local Control Network). U$^{X}$S is the linking of open systems, X Windows, and Motif to produce a visually integrated display of TotalPlant information.

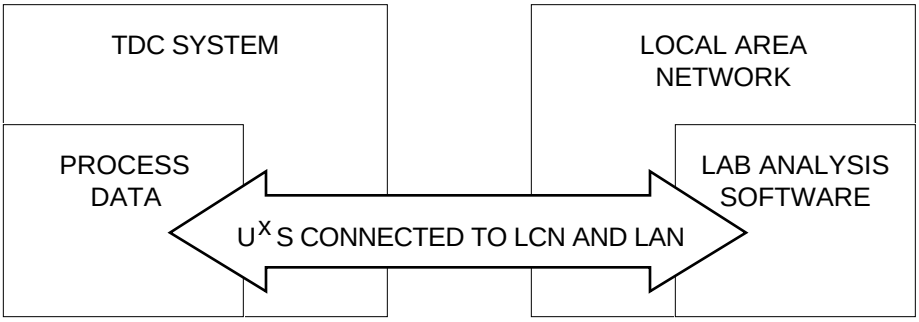
The initial introduction/release of the U$^{X}$S product provides visual integration of plant information. Visual Integration provides the following features/benefits:

| Features | Benefits |
|---|---|
| Dual Operating System Support | Power of TDC - flexibility of open systems |
| Window Management | Management of multiple displays |
| Single LCN window - Motif Environment | Ability to resize or move LCN window |
| Client/Server X Windows | Communication with non-TDC computer systems |
| Multiple LAN windows | Simultaneous access to multiple non-TDC computer systems |
| Fail Safe Fall Back | Ensures the *"view to the valve"* |
| System Security | Limits access to authorized users<br>TDC system isolated from open system |

*Continued on next page*

**UXS example**

The support for the open system, allows connection to a wide variety of hardware platforms.




Currently, information on the LAN can be displayed or updated at the UXS. This allows operators to view lab analysis data on the same screen as the process data. By integrating this data, the operator has less distractions and requires less training (only one computer system). A typical control room operator may have two or three computers to monitor (each holding some essential data). The potential for process upset increases when the operator's attention is diverted from the TDC display.

## 2.2 UXS Hardware

**US - UXS migration**

The UXS is available in two basic forms: upgrade kits (for a standard Universal Station), or as a complete station (with furniture). The upgrades are available in several versions to match your specific hardware configuration.

**Initial hardware**

The initial pre-release UXS deliveries are in a standard/current TDC 3000 Universal Station furniture.

**Components**

The UXS consists of a tightly integrated TDC 3000X Universal Station and an open system processor environment in a co-processor architecture. The UXS contains the following components:

- Standard US furniture cabinet
- Standard 5 slot module
- New electronics package
- New monitor
- Hard drive and DAT (Digital Audio Tape) drive

**New electronics package**

The electronics package consists of:

- Standard K2LCN-8 board
- Workstation Interface board (WSI board)
- Turbo Peripheral Display Generator (TPDG board)
- I/O boards for each of the boards above
- 8 ampere power supply

**New monitor**

A 1280 x 1024 monitor provides high resolution display.

**New co-processor media**

A hard drive and a DAT (Digital Audio Tape) drive have been added to contain these UXS files:

- Open system filesystem
- X Window files
- TPDG download code
- UXS (UNPX) personality download code

This media is connected to the Open system co-processor and is not accessible by the LCN filesystem.

**Specific details**

For more specific hardware information, refer to *UXS Service Manual*.

# Section 3 – Window Operations

## 3.1 Window Manager

**X Window system**

The X Window system provides standards by which computers of dissimilar types can exchange window displays. This allows computer systems to execute an application and send the display of that application to other computer systems which support the X Window graphical standard. This standard integrated the concept of a window manager. The window manager allows manipulation of the X Window displays.

**Consistent look**

The U$^{X}$S utilizes Motif Window Manager to provide a consistent look to all applications displayed on the U$^{X}$S. This software provides functions for opening, closing, moving, resizing, and indicating the active window. If you have used Microsoft Windows you will immediately recognize the similarities.

The Window Manager attributes are preset, and cannot be changed. Later versions will allow custom configuration of window attributes.

**Functions provided**

The Motif Window Manager applies the window interface attributes independent of the application running within a window. The window interface effects only the manner in which that window is displayed. It will provide such elements as: title bars, scroll bars, resizing, control of overlapping windows, and the ability to iconify a window. These elements allow manipulation of multiple windows, independent of their application or the underlying computer platform/operating system executing the application. This allows one window interface to display all windows appearing on the U$^{X}$S screen.

## 3.2 Cursor Usage

**Cursor types**

The Window Manager uses various cursor types to depict the type of operation being performed. The types are:

- pointing  or  or 
- working 
- moving 
- resizing  or  or  or  or  or  or  or 

## 3.3 Altering Window Size

**Changing window size**

Where you grab the window's frame determines how the window will be resized. The dimensions (width x height) of the window being resized is displayed in the center of the screen. The measurement is in characters (across) and lines (down) for terminal windows; other types are measured in pixels (dots on the screen).

NOTE: When resizing the LCN Native Window, it is necessary to click the bottom right corner of the window border to cause the LCN display to resize. The LCN processing continues without problem, but the display may be only partially visible.

Use the following to change the window size:

| If you want to stretch or shrink the window . . . | Point to . . . |
|---|---|
| vertically from the . . . | |
| top | top of the frame, above the title bar |
| bottom | bottom of the frame |
| horizontally from the . . . | |
| right | right side of the frame |
| left | left side of the frame |
| diagonally from the . . . | |
| bottom left corner | frame's lower left corner |
| top left | frame's upper left corner |
| top right | frame's upper right corner |
| bottom right | frame's lower right corner |

## 3.4 Minimizing/Maximizing Windows

**Minimize a window**

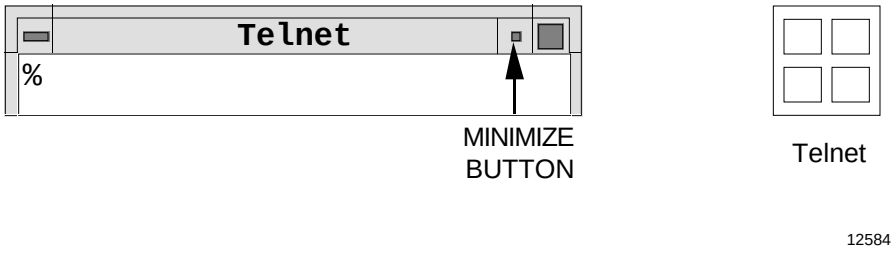
To reduce workspace clutter, you may change a window to an icon. An icon is a graphical representation of the application executing in that window. This reduction to an icon is called “minimizing” a window. Applications executing in a minimized window continue to execute until the task is completed, or until they require user input.

There are several methods to minimize a window:

- Use the Minimize button on the windows title bar
- Use the `Minimize` selection from the Window Menu

A window which has been minimized (iconified) may be returned to the window form using several methods.

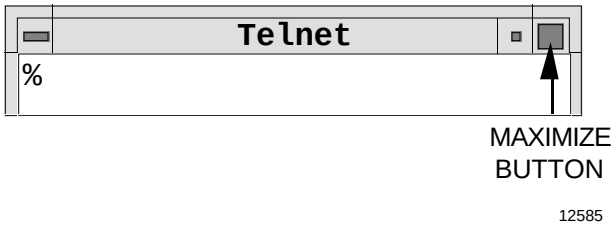
- Double-Click (click twice in rapid succession) the icon.
- Use the `Maximize` selection from the Window Menu




**Maximize a window**

Clicking on the Maximize button will enlarge the window to cover the entire monitor. Clicking on the button a second time will return the window size to the original dimensions.

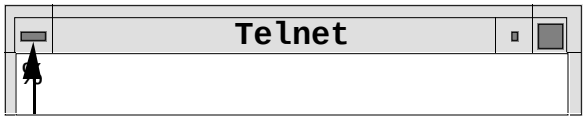
NOTE: When resizing the LCN Native Window, it is necessary to click on the bottom right corner of the window border to cause the LCN display to resize. The LCN processing continues without problem, but the display may be only partially visible.



## 3.5 Using the Window Menu

**Window menu**

Each window has a window menu containing functions for controlling the window. To access the window menu, point to the menu target and then press and hold the select button. The menu is displayed as long as the select button is held down. To select a menu item, drag the cursor down the list and release the select button when the appropriate item is highlighted.




MENU
BUTTON

12586

To perform the following, select the appropriate menu item:

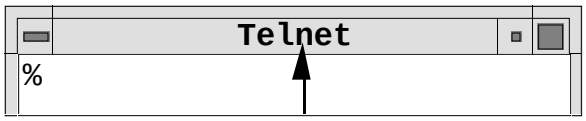
| To do this . . . | Select . . . |
|---|---|
| Restore a window from an icon or after maximizing. | Restore |
| Change the location of a window. | Move |
| Change the size of a window. | Size |
| Shrink the window to its icon representation. | Minimize |
| Enlarge the window to cover the entire root window. | Maximize |
| Send a window to the back or bottom of the window stack, the position closest to the root window. | Lower |
| Immediately close the window and make it disappear. | Close |

## 3.6 Repositioning Windows

**Moving windows**

Windows can be positioned anywhere on the screen, with one exception. The Native LCN window is configured (for all users except engineer group members) to inhibit its ability to be partially obscured or overlapped by other windows. This attribute can be configured and is covered in subsection 5.3, *Configure Native Window Behavior*.

To move a window, click and drag on the window's title bar. While moving, an outline of the window is shown for positioning purposes. The window will move to this new location if the select button is released at the current position.




TITLE BAR

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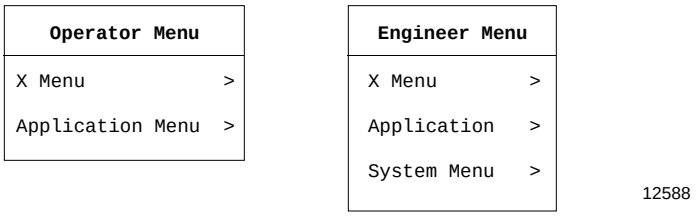
## 3.7 Workspace Menu Access

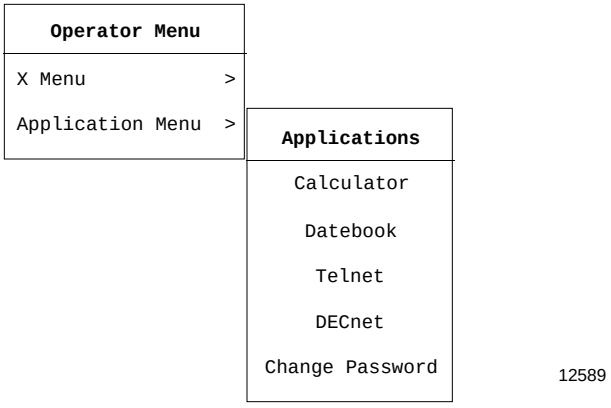
**Workspace menu**

To reduce the user interaction with the open system environment, a workspace menu (sometimes called the root menu) is included. This menu is accessed by holding down the select button within the workspace (outside all windows). You can select a menu item by dragging the pointer down the menu list and releasing the select button when that item is highlighted.




**Hierarchical menus**

The menu uses hierarchical (nested) menu items indicated by an arrow to the right of the item which has another level of menu. To access these nested menus, hold the select button and scroll to the appropriate menu; the nested menu item will appear. Moving the cursor onto this new menu will allow selections to be made from this newly visible list of items.




**Access levels**

The menu is preconfigured according to the access level, which is assigned by the system administrator. When a user is added to the co-processor, their user login name is associated to a group of users. This association provides security restrictions by displaying menus specific to that group's access authorization.

The access levels are:

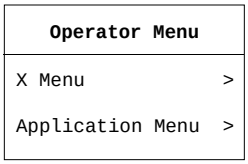
- Operator
- Supervisor
- Engineer
- View Only

## 3.8 Operator Workspace Menu

**Operator Menu items**

The `Operator Menu` contains the following:

- `X Menu` - a nested menu
- `Application` - a nested menu




**X Menu items**

The operator's `X Menu` contains the following:

- `Shuffle` - Shuffles the position (*`Up/Down`*) of the active window.
- `Native Window` - Changes the Native LCN Window attribute to (*`Allow/Disallow`*) the window to be Partially Obscured by other windows.
- `Keyboard Focus Policy` - Configures the X Windows attribute (*`Explicit/Pointer`*) to identify the active window. Either a mouse click (Explicit) or cursor within the window (Pointer) is required to identify the active window.
- `X Host Authorization` - Authorizes remote computing resources to display X applications on this station. Configured for each individual user.
- `Window Print` - Prints the contents of the selected window.
- `Refresh` - Performs a redraw of the X application windows.
- `Restart` - Restarts the Motif Window Manager; used to force a reset of Motif Window Manager.
- `Logout` - Sends a kill message to all X hosts to close open applications, logs the user out, and idles the co-processor.

**Application Menu**

The operator's `Application Menu` contains the following:

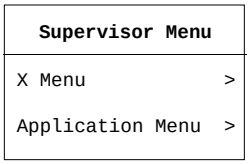
- `Calculator` - a full function calculator application
- `Datebook` - a calendar/datebook application
- `Telnet` - accesses the TELNET TCP/IP protocol
- `Decnet` - accesses the DECnet protocol
- `Change Password` - allows the user to change their login password

## 3.9 Supervisor Workspace Menu

**Supervisor Menu items**

The `Supervisor Menu` contains the following:

- `X Menu` - a nested menu
- `Application` - a nested menu




**X Menu items**

The supervisor's `X Menu` contains the following:

- `Shuffle` - Shuffles the position (*`Up/Down`*) of the active window.
- `Native Window` - Changes the Native LCN Window attribute to (*`Allow/Disallow`*) the window to be Partially Obscured by other windows.
- `Keyboard Focus Policy` - Configures the X Windows attribute (*`Explicit/Pointer`*) to identify the active window. Either a mouse click (Explicit) or cursor within the window (Pointer) is required to identify the active window.
- `X Host Authorization` - Authorizes remote computing resources to display X applications on this station. Configured for each individual user.
- `Window Print` - Prints the contents of the selected window.
- `Refresh` - Performs a redraw of the X application windows.
- `Restart` - Restarts the Motif Window Manager; used to force a reset of Motif Window Manager.
- `Logout` - Sends a kill message to all X hosts to close open applications, logs the user out, and idles the co-processor.

**Application Menu items**

The supervisor's `Application Menu` contains the following:

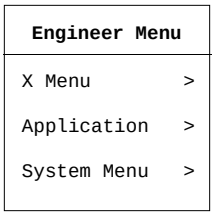
- `Calculator` - a full function calculator application
- `Datebook` - a calendar/datebook application
- `Telnet` - accesses the TELNET TCP/IP protocol
- `Decnet` - accesses the DECnet protocol
- `Change Password` - allows the user to change their login password

## 3.10 Engineer Workspace Menu

**Engineer Menu items**

The `Engineer Menu` contains the following:

- `X Menu` - a nested menu
- `Application` - a nested menu
- `System Menu` - a nested menu




**X Menu items**

The engineer's `X Menu` contains the following:

- `Shuffle` - Shuffles the position (*`Up/Down`*) of the active window.
- `Native Window` - Changes the Native LCN Window attribute to (*`Allow/Disallow`*) the window to be Partially Obscured by other windows.
- `Keyboard Focus Policy` - Configures the X Windows attribute (*`Explicit/Pointer`*) to identify the active window. Either a mouse click (Explicit) or cursor within the window (Pointer) is required to identify the active window.
- `X Host Authorization` - Authorizes remote computing resources to display X applications on this station. Configured for each individual user.
- `Window Print` - Prints the contents of the selected window.
- `Refresh` - Performs a redraw of the X application windows.
- `Restart` - Restarts the Motif Window Manager; used to force a reset of Motif Window Manager.
- `Logout` - Sends a kill message to all X hosts to close open applications, logs the user out, and idles the co-processor.

**Application Menu items**

The engineer's `Application Menu` contains the following:

- `UNIX Load` - a bar chart display of UNIX processor loading
- `Calculator` - a full function calculator application
- `Datebook` - a calendar/datebook application

*Continued on next page*

**Application Menu items, continued**

- `Telnet` - accesses the TELNET TCP/IP protocol
- `Decnet` - accesses the DECnet protocol
- `Change Password` - allows the user to change their login password

**System Menu items**

The engineer's `System Commands` menu contains the following:

- `Configuration` - a nested menu of configuration items
- `Update Software` - used to update co-processor software
- `Add/Remove Users` - a co-processor user registration application
- `Backup/Restore` - used to backup/restore the co-processor software

**Configuration Menu items**

The engineer's `Configuration Menu` contains the following:

- `IWSM Configuration` - shutdown WSI and Native Mode access
- `System Configuration` - used to configure the co-processor LAN environment
- `Set Time/Timezone` - sets the co-processor time, date, and timezone
- `Gated Daemon` - Turns *`ON/OFF`* dynamic LAN routing

## 3.11 View-Only Workspace Menu

**X Menu items**

The View-Only `X Menu` contains the following:

- `Shuffle` - Shuffles the position (*`Up/Down`*) of the active window.
- `Native Window` - Changes the Native LCN Window attribute to (*`Allow/Disallow`*) the window to be Partially Obscured by other windows.
- `Keyboard Focus Policy` - Configures the X Windows attribute (*`Explicit/Pointer`*) to identify the active window. Either a mouse click (Explicit) or cursor within the window (Pointer) is required to identify the active window.
- `X Host Authorization` - Authorizes remote computing resources to display X applications on this station. Configured for each individual user.
- `Window Print` - Prints the contents of the selected window.
- `Refresh` - Performs a redraw of the X application windows.
- `Restart` - Restarts the Motif Window Manager; used to force a reset of Motif Window Manager.
- `Logout` - Sends a kill message to all X hosts to close open applications, logs the user out, and idles the co-processor.

## 3.12 Using the Touchscreen

**Display resolution**

The high resolution display required a change to touchscreen operation. Software is provided to zoom the screen display at 2 times original size. This zoom touchscreen aids in the selection of small targets.

**Zoom touchscreen**

The touchscreen on the UXS is supplemented by software to aid in selecting small targets in high resolution display. On the initial touch a boundary is created approximately 3 inchs around the target area. This will show a zoomed-in view of the screen around your finger. As you move your finger, the image moves one half the distance.

**Zoom feature availability**

The zoom feature is only available when a user is logged into the co-processor environment. The software action is performed as part of the X Window environment and does not effect operation of the application within the window.

**Using zoom touch**

The proper method of using the zoom touchscreen is to place your finger on (or as close to) the desired target as possible. This is to reduce the amount of finger movement necessary allowing selection of targets close to the screen border. It is important to watch the zoomed view, as the 2:1 ratio of finger to image movement is confusing at first.

**Selecting with the touchscreen**

The touchscreen may be used to select targets in the LCN window by simply touching the appropriate target.

All other X Window menu or target selections are made using the space bar in conjunction with the touchscreen. To select a workspace menu item; touch the background (outside any windows) and press the space bar while moving your finger to select a menu item.

**Sticky menus**

When using the touchscreen and space bar to select workspace menu items, you will notice they function as sticky menus (staying visible without holding down the mouse button) and allow use of the arrow keys to navigate, return key to select, and ESCape key to cancel.

# Section 4 – UXS Operations

## 4.1 Power-On (Procedure)

**Apply power**

Apply power using the following steps:

| Step | Action |
|---|---|
| **1** | Open front access door to gain access to the circuit breaker. |
| **2** | Place the circuit breaker in the ON position. |
| **3** | Open the rear access door to gain access to the 5-slot module. |
| **4** | Apply power to the station, using the power switch on the 5-slot module face plate. |
| **5** | Observe the K2LCN board LEDs during the power on self-test. If no errors are detected, the appropriate LCN node address is displayed. |
| **6** | If the appropriate LCN node address is displayed:<br>Proceed with Step 7.<br><br>If another number is displayed:<br>Record the error number for maintenance personnel to assist in correcting the fault. Proceed with Step 9. |
| **7** | The Login banner should appear within 5 minutes. |
| **8** | If the Login banner does appear:<br>Proceed to subsection 4.2, *Accessing Co-Processor Functions.*<br><br>If the Login banner has not appeared:<br>Proceed with Step 14. |
| **9** | The Login banner should appear within 5 minutes. |
| **10** | If the banner does appear:<br>Proceed to Step 11 to shut down the co-processor.<br><br>If the Login banner has not appeared:<br>Proceed with Step 14. |
| **11** | Position the cursor in the Login box and type<br>*username* <RETURN><br><br>Note: The user must be authorized to shut down the WSI. |
| **12** | Position the cursor in the Password box and type<br>*password* <RETURN><br><br>Note: Replace *password* with your password. |
| **13** | Click the `Shutdown WSI` target. |
| **14** | Using the power switch located on the 5-slot module faceplate, remove power from the 5-slot module. Set the station circuit breaker to the OFF position. Contact maintenance to correct the error. |

## 4.2 Accessing U^XS Co-Processor Functions

**Co-processor access banner**

After power ON (3 to 5 minutes) the U^XS will display a banner on the lower portion of the screen.

This banner allows access to:

- X Windows environment (co-processor access)
- Shut down of the co-processor
- Universal Station Native Mode operation.

These items are user and password restricted to maintain security and restrict access to the co-processor or LAN environment.

**Using the access banner**

Using the touchscreen:

| Step | Action |
|---|---|
| **1** | Touch the `Login` field. |
| **2** | Type your *`username`* <RETURN> |
| **3** | Type your *`password`* |
| **4** | To Login:<br>Press <RETURN><br><br>To Shut down the Co-processor:<br>Touch the `Shutdown WSI` target and select it with the space bar.<br><br>To revert to Standard Universal Station Operation:<br>Touch the `Native Mode` target and select it with the space bar. |

Using the mouse or trackball:

| Step | Action |
|---|---|
| **1** | Select the Login field by placing the cursor over the field. |
| **2** | Type your *`username`* <RETURN> |
| **3** | Type your *`password`* |
| **4** | To Login:<br>Press <RETURN><br><br>To Shut down the Co-processor:<br>Select the `Shutdown WSI` target.<br><br>To revert to Standard Universal Station Operation:<br>Select the `Native Mode` target. |

## 4.3 Loading a Personality to the LCN Processor

**Capabilities**

The Universal Personality has been encapsulated in a "Windows environment" to form the UNPX Personality stored on the co-processor hard drive. This integration enables the UXS to function as either a UXS or a standard TDC 3000 Universal Station.

The X Window capabilities are available only when functioning as a UXS. As a UXS, the presentation of all displays will be controlled by the X Windows/Motif Window Manager to provide the addition of such items as: title bar, zoom box, and scroll bars.

**Hardware tests**

A fully operational UXS system can use the UNPX personality. When power is applied, the system performs a series of internal self-tests. These tests check the presence and condition of both the TDC and co-processor hardware. The results determine the loading action available, when <Load> is pressed.

| If test result is ... | then loading action available is ... |
|---|---|
| TDC and co-processor hardware OK | UNPX personality from hard drive or UNP, ENG, or OPR from History Module |
| TDC hardware OK/co-processor test failure | UNP, ENG, or OPR from History Module or Removable Media |
| TDC and co-processor hardware failure | No loading performed |

**Loading the personality**

The UXS may be loaded from several sources:

- History Module
- Removable Media (cartridge or floppy)
- Internal co-processor hard drive

The UXS may be loaded from other consoles (UXS or US) on the LCN. However, the hardware tests will control the appropriate prompt. For example, failure of the co-processor will inhibit the load prompt from displaying the appropriate choice (W).

The actual loading is achieved through the standard TDC loading procedures. However, when loading from the co-processor (W), only the Universal Personality is available. NOTE: For UXS functionality the LCN processor must be loaded from the co-processor. The following personality types are available from the History Module or Removable Media:

- OPR
- ENG
- UNP

*Continued on next page*

**Load the LCN processor**

Using the following, load the LCN processor:

| Step | Action |
|---|---|
| **1** | If the access banner is on the screen:<br>Press <Load> on the operator keyboard.<br><br>If you are already logged in:<br>Select the Native LCN Window, press <Load> on the operator keyboard. |
| **2** | At the prompt `W, N, 1, 2, 3, 4, X` type **`W <ENTER>`** |
| **3** | The load modules will be displayed as the LCN processor is loaded. |
| **4** | At the prompt `NCF?` type **`N <ENTER>`** |
| **5** | The station will complete the load process in 1 to 2 minutes. |

## 4.4 Printing from the UXS

**Two printers**

The UXS has two printer connections.

The standard LCN printer connection provided to print LCN displays and reports is configured as a standard Universal Station printer. This printer is functional whenever the station is in operation. The LCN printer can be connected directly to a UXS or assigned from another station in the console (US or UXS). Standard Universal Station operating procedures apply to the printing of reports, alarm summaries, configuration data, print displays, etc.

The co-processor has a printer connection provided to print window dumps of X Window applications. This printer is available only when the user is logged into the co-processor, however printing will still continue after logging out. This printer will not print the various Universal Station Printer functions of alarm summaries, reports, etc. The co-processor printer can be directly attached to this UXS or shared across the LAN from another UXS.

**Printing the LCN window**

The LCN processor must be active to print. The user can be logged into the co-processor but it is not required to print LCN data.

To print the LCN window on the LCN printer, use the following:

| Step | Action |
|---|---|
| **1** | If logged into the co-processor:<br>Select the LCN window. |
| **2** | Press the Print Display key. |

**Printing X Windows**

When the user is logged into the co-processor, the co-processor printer can be used to print any window contents. To print to a shared printer, the co-processor of the UXS sharing the printer must be active (login banner displayed or a user logged in).

To print any X Window on the co-processor printer, use the following:

| Step | Action |
|---|---|
| **1** | Select `Window Print` from the workspace menu.<br>Note: The cursor will change to a cross-hair pointer. |
| **2** | Position the cursor in the appropriate window to print. |
| **3** | Click the select button. |
| **4** | The printing of the display can take 5 to 10 minutes. |

## 4.5 Failsafe Operation

**Failsafe fall back**

The U$^{X}$S is designed to be failsafe. Should an error occur in the co-processor, the U$^{X}$S reverts to a standard TDC Universal Station hardware/software configuration. If this should occur, the LCN display will revert to full screen and the message `Co-processor has failed to start, Call maintenance` will be displayed in place of the Login banner.

When functioning as a standard Universal Station, you will be unable to access LAN (Local Area Network) resident applications.

**Native mode**

The U$^{X}$S may be configured as a standard Universal Station by selecting Native Mode from the Login banner. To enter Native Mode the user must be authorized using the procedures covered in *IWSM Configuration, U$^{X}$S System Administration Manual.*.

**Manual shutdown**

The co-processor can be shut down after power-on using the `Shutdown WSI` target located on the login prompt. This action can also be performed by logging out of the open system session and waiting for the login prompt to appear.

To invoke the failsafe condition:

- At the login prompt, enter your login name/password and select the `Shutdown WSI` target.

**Shutdown restriction**

To shut down the WSI, the user must be authorized using the procedures covered in *IWSM Configuration, U$^{X}$S System Administration Manual.*

**Restarting after shutdown**

After the co-processor has been shutdown, a status message will appear in the Login banner area. The message is:

```
The co-processor is idle, select the box to reset.
```

There is a red box to the right of the status message. Using the mouse, click on the box to reset the co-processor.

## 4.6 X Window Operation

**Background**

The UXS is configured to launch the X Windows environment upon login. Once the system has initialized, the primary LCN display window appears. At this time you can start an X Windows session with LAN resident computing resources.

**Pre-requisites**

The LAN computing resources must be configured to allow access from the UXS. In general terms, the following information is required by the LAN hardware and/or application software:

- UXS internet address
- System name
- User name/password for its login

**LAN access protocols**

To access LAN resident applications you will use one of these communication protocols:

| Protocol | Accessed by . . . | Access Level Required |
|---|---|---|
| DECNET | DECNET from root menu | Operator, Supervisor, Engineer |
| TELNET TCP/IP | TELNET from root menu | Operator, Supervisor, Engineer |

**Procedure**

LAN resident applications may not be Honeywell supplied; therefore, these access procedures are general in nature.

| Step | Action |
|---|---|
| **1** | Login with the appropriate access capabilities. |
| **2** | Select the appropriate communication protocol from the X Menu.<br>NOTE: If you cannot determine the appropriate protocol, consult your LAN administrator. |
| **3** | Place the cursor in the new communication window. |
| **4** | Type the commands provided by your LAN administrator. |
| **5** | The application is launched in this window. |
| NOTE: Follow the LAN administrators instructions on closing the application. | |

**Keyboard mapping**

The operator and engineer keyboards are both active and can be used for text entry.

When using xterm, the engineers keyboard mapping is altered to utilize the PF1 through PF17 keys. This alteration occurs only when the pointer is in a vt340 window and enhances DEC VAX emulation.

## 4.7 System Security

**TDC isolated**

The TDC operating system is isolated and inaccessible to the co-processor. This eliminates the possibility of misuse/tampering with the process control system by unauthorized personnel who may gain access to the Local Area Network.

System security is controlled through the configuration and login utilities.

**Login**

A password controlled login utility protects against unauthorized UXS co-processor usage. This utility configures access dependent on the user login identification. The system customizes the workspace menu as appropriate to the access level of the user.

**Access keylock versus co-processor login**

This login utility performs a function similar to the Access Level Keylock on the standard Universal Station; however, the co-processor login is entirely independent from the keylock mechanism. System security may be compromised if the user leaves the immediate area without logging out of the co-processor environment.

It is suggested to remove the key and logout to ensure security. This will eliminate unauthorized access to the LCN system and the co-processor.

**Security emphasis**

Users should be advised of the potential for security problems. A periodic review of the system security, security procedures, and system users will help to raise awareness. Remind users that the password is their computer signature. Emphasize the importance of periodically changing this password.

*Continued on next page*

**Co-processor access by group**

The restrictions placed upon access levels are:

- Operator - able to configure their own environment, use telnet, and the optional VT340 DECnet communications
- Supervisor - able to configure their own environment, use telnet, and the optional VT340 DECnet communications
- Engineer - able to configure their own environment, use telnet, the optional VT340 S/W, co-processor configuration (requires co-processor password), and perform periodic backups of the co-processor file system
- View Only - able to configure their own environment.

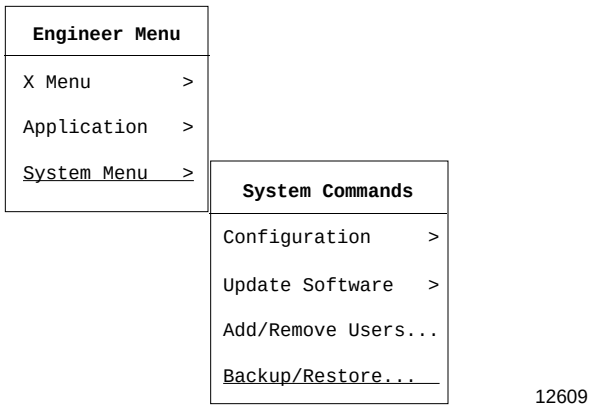
Note: User configurable items are: X Hosts, allowPartiallyObscured Native Window, and Keyboard Focus Policy.

# 4.8 Backup the Co-Processor Hard Drive

**Required access level**

The procedures must be performed while logged in as “engineer,” and the co-processor password is not required.

**Menu appearance**




**Backup co-processor**

Use the following procedure to backup the co-processor hard drive.

NOTE: This procedure currently performs only full backups. The contents of the DAT tape will be overwritten.

| Step | Action |
|---|---|
| **1** | Remove the appropriate tape from its protective case and gently insert it into the tape drive. Press gently on the edge of the tape cartridge while inserting it into the unit until you feel the unit pull on the tape. The unit will then load and position the tape. While positioning is being performed, both indicator lamps on the front of the unit will flash. When the right lamp shows a solid green, positioning is complete and the tape unit is ready to use.<br><br>If you are unable to successfully insert the tape, gently remove the cartridge and reinsert it again. If you are still unsuccessful, contact your Honeywell service representative for assistance. |
| **1** | Select `Backup/Restore...` from the workspace menu. |
| **2** | Select the BACKUP target. |
| **3** | To perform a backup of the entire UXS filesystem:<br><br>Select the `System Backup:` target.<br><br>To perform a backup of UXS user files only:<br><br>Select the `User Backup:` target. |

*Continued on next page*

**Backup co-processor, continued**

| | |
|---|---|
| **4** | To perform a FULL backup of all files within the scope:<br><br>Select the `FULL BACKUP` target.<br><br>To perform an INCREMENTAL backup of all files within the scope:<br><br>This feature is not available at this time. |
| **5** | Select the `START BACKUP` target.<br><br>Note: The backup operation will take 3 to 20 minutes to complete. If any errors occur, your response to the prompts must be typed into the Input Commands field. |
| **6** | Upon completion, the following message is displayed:<br><br>`fbackup: runtime: #### Seconds`<br>`End of Execution` |
| **7** | Select the `Close` target. |
| **8** | Select the `Exit Xsam` target.<br><br>Click `OK` at the message `Do you really want to exit?` |

## 4.9 Shut Down the UXS

**Background**

To prevent possible damage to the UNIX filesystem, the station must be shut down using a special sequence. The shutdown procedure must be followed before power is removed from the station.

Failure to perform the proper shutdown procedure could result in damage to the co-processor filesystem. The next time the station is powered up, it may take up to 5 minutes to perform automatic repairs of the co-processor filesystem. **Use caution in cycling power on and off.** If this is done while a repair is being made, the filesystem may be left in an unrepairable state. This would require reloading the filesystem backup from tape and possibly require reformatting or replacement of the hard drive.

**Procedure**

If you are currently logged into the UXS, use the following procedure:

| Step | Action |
|---|---|
| **1** | Select `Logout` from the root menu. |
| **2** | At the prompt `Quit Mwm?`, select the `OK` target. |
| **3** | When the login menu appears, enter your username and password. |
| **4** | Select `SHUTDOWN WSI` target. |
| **5** | Press the `CONSOLE STATUS` key. |
| **6** | Select the node number of the appropriate UXS. |
| **7** | Select the `SHUTDOWN` target. |
| **8** | Press `ENTER` to confirm the shutdown request. |
| Note: | The message `Co-processor is idle, select box to reset.` will appear. Reset the co-processor by selecting the box. |

If no user is logged into the UXS, use the following procedure:

| Step | Action |
|---|---|
| **1** | When login menu appears, enter your username and password. |
| **2** | Select the `SHUTDOWN WSI` target from the login menu. |
| **3** | Press the `CONSOLE STATUS` key. |
| **4** | Select the node number of the appropriate UXS. |
| **5** | Select the `SHUTDOWN` target. |
| **6** | Press `ENTER` to confirm the shutdown request. |
| Note: | The message `Co-processor is idle, select box to reset.` will appear. Reset the co-processor by selecting the box. |

## 4.10 UXS Restrictions

**Shutdown procedure**

Because to the co-processor operating system is incorporated into the UXS, the station must be turned off using a special sequence. The shutdown procedure must be followed any time power is to be removed from the station.

Failure to perform the proper shutdown procedure could result in damage to the co-processor filesystem. The next time the station is powered up it may take 5 minutes to perform automatic repairs to the co-processor filesystem. **Use caution in cycling power on and off.** If this is done while a repair is being made, the filesystem may be left in a unrepairable state. This would require reloading the filesystem backup from tape, and possibly require reformatting or replacement of the hard drive.

## 4.11 Problem Reporting

**Service contacts**

If you encounter any problems please contact:

Honeywell IAC - Technical Assistance Center
16404 North Black Canyon Highway
Phoenix, AZ 85023
**Phone (602) 863-5558**
**Phone (800) 822-7672**

# Section 5 – Co-Processor User Environment Configuration

## 5.1 User Configuration Overview

**Co-processor configuration**

The major difference, when compared to a Universal Station, is the UXSs ability to display non-TDC 3000 applications, generated by LAN (Local Area Network - Ethernet) computing resources.

There are several attributes new to the UXS display, which are necessitated by viewing in the X Windows environment:

- X Host Authorization—Controls remote access to the UXS display
- Native Window Behavior—Controls dominance of the LCN display
- Keyboard Focus Policy—Controls keyboard/mouse pointer interaction

**Required information**

The following information is required for configuration:

- The hostnames of any remote computing resources which will open an X display on this station. This access is granted on a user by user basis using subsection 5.2, *X Host Authorization*.

## 5.2 X Host Authorization

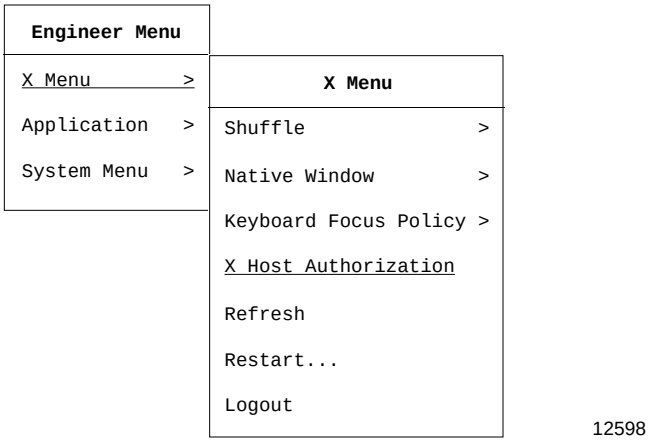
**What is it?**

The X host authorization application grants X display permission to remote systems on an individual-user basis. This allows other computer systems to open a window on the users UXS display.

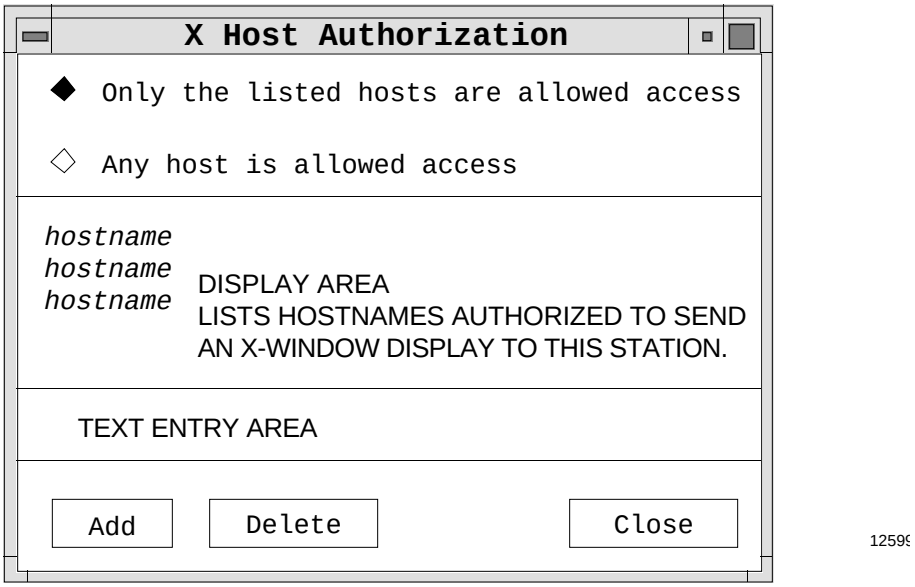
**Required access level**

The procedures can be performed by any authorized user. This authorization is granted/recorded on an individual-user basis.

**Menu appearance**




**X Host tool**




**X host addresses**

To authorize remote systems to display X Window applications on the UXS, the hostname and TCP/IP address must be entered prior to this step, using the LAN information entry procedure.

*Continued on next page*

## 5.2 X Host Authorization, Continued

**X host authorization scope**

The user can choose from two methods of granting access permission:

- Explicit host authorization—user must enter the hostnames of all systems requiring access
- Grant access to all hosts—user selects `Any host is allowed access`

**Explicit host authorization**

Use the following to authorize specific X hosts access:

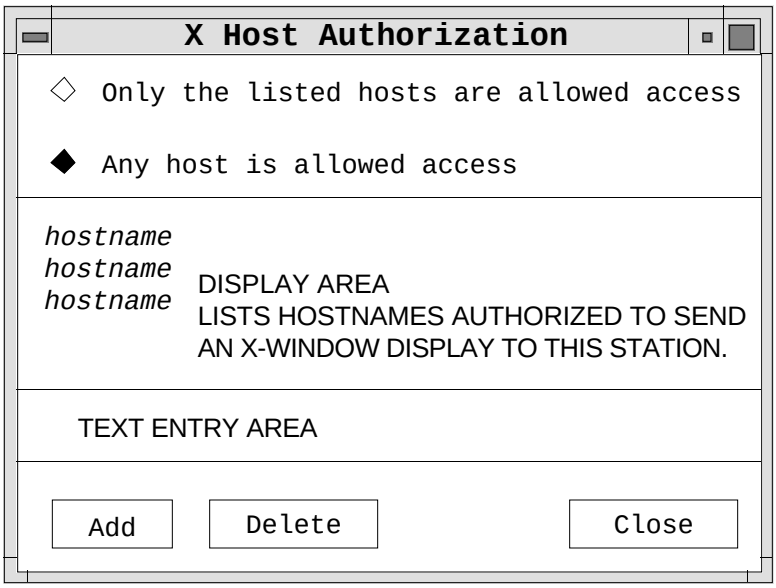
| Step | Action |
|---|---|
| **1** | Select `X Host Authorization` from the workspace menu. |
| **2** | Type the co-processor password and <RETURN> at the prompt. |
| **3** | Select `Only the listed hosts are allowed access` target. |
| **4** | Click on the text entry area of the IWSM Configuration Tool. |
| **5** | Type information using this syntax:<br><br>*hostname*<br>*hostname*<br>*hostname*<br>*hostname*<br>hostname = replace with a valid hostname<br><br>Use of spaces is not allowed. The tool does nothing if there are invalid characters in the text entry field. |
| **6** | Click on the `Add` target to authorize the remote host to display locally. |
| **7** | Repeat Steps 4 through 6 for each host requiring X host access. |
| **8** | To delete a host's X display authorization privileges, click on the hostname to be deleted. |
| **9** | Click on the `Delete` target. |
| **10** | Repeat Steps 8 and 9 for all hosts to be Deleted. |
| **11** | Select the `Close` target. |

*Continued on next page*

**Allowing all X-hosts access**

All LAN computing resources listed in the hosts file can be authorized to display X Window applications on this station using the following procedure.

| Step | Action |
|---|---|
| **1** | Select `X Host Authorization` from the workspace menu. |
| **2** | Type the co-processor password and <RETURN> at the prompt. |
| **3** | Select the `Any host is allowed access` target. |
| **4** | Select the `Close` target. |



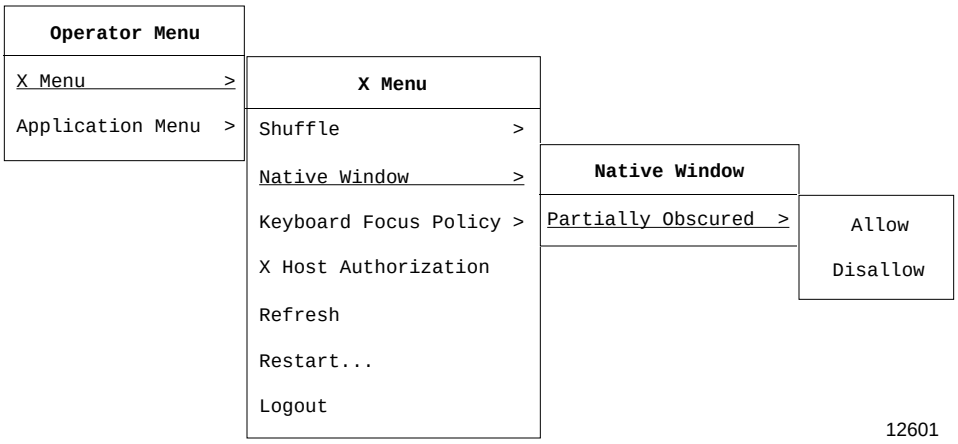
## 5.3 Configure Native Window Behavior

**Window dominance**

The dominance of the Native LCN Window is configurable on a user-by-user basis. The attribute allows the Native LCN Window to be partially obscured by another window.

The Native LCN Window behavior is initially configured to allow only engineering group members to partially obscure the LCN display. However, the individual users (all access levels) can set this attribute at their discretion.

**Menu appearance**




**Allow partial obscured**

Follow these steps to allow the LCN display to be partially obscured:

| Step | Action |
|---|---|
| **1** | Select `Native Window - Partially Obscured - Allow` from the workspace menu.<br><br>Note: The change will not take effect until the next login. |

**Disallow partial obscured**

Follow these steps to prevent obscuring the LCN display:

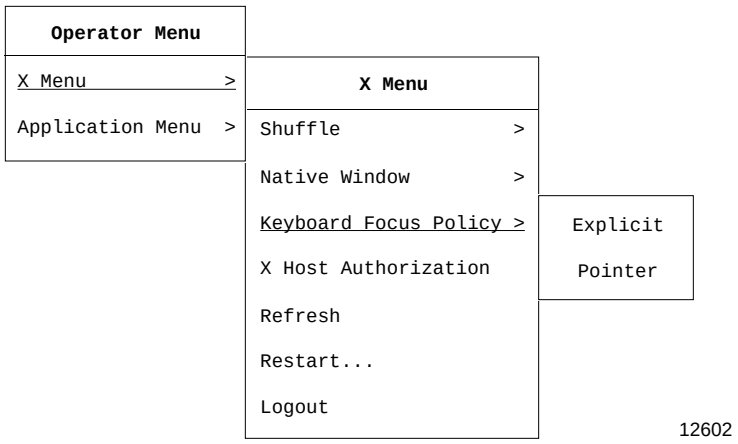
| Step | Action |
|---|---|
| **1** | Select `Native Window - Partially Obscured - Disallow` from the workspace menu.<br><br>Note: The change will not take effect until the next login. |

# 5.4 Configure Keyboard Focus Policy

**Required access level**

The procedures must be performed while logged in as the user.

**Menu appearance**




**Explicit vs. Pointer**

The keyboard focus policy allows two choices:

- Explicit focus—user must click on a window to make it active
- Pointer focus—user must point at the window to make it active

Note: Even small mouse movements may inactivate the window when using pointer focus. This may cause keyboard entries to be lost or directed to the wrong window.

**Explicit focus**

Use the following to set the focus policy to explicit:

| Step | Action |
|---|---|
| **1** | Select `Keyboard Focus Policy - Explicit` from the workspace menu.<br><br>Note: The change will not take effect until the next login. |

**Pointer focus**

Use the following to set the focus policy to pointer:

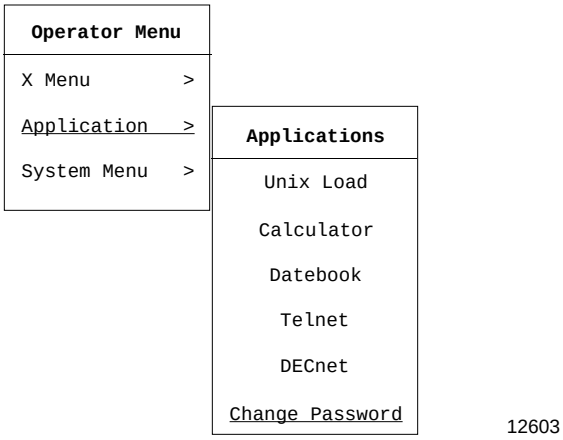
| Step | Action |
|---|---|
| **1** | Select `Keyboard Focus Policy - Pointer` from the workspace menu.<br><br>Note: The change will not take effect until the next login. |

# 5.5 Change User Password

**Required access level**

The procedures must be performed while logged in as the user. The current password is required.

**Menu appearance**

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**Change the user password**

Change the user password frequently to ensure security.

| Step | Action |
|---|---|
| **1** | Select `Change Password` from the workspace menu. |
| **2** | Type the old password and <RETURN> at the prompt.<br>Note: The new password must be at least 6 characters, containing at least two alpha characters and one numeric character. |
| **3** | Type a new password and <RETURN>. |
| **4** | Retype the new password and <RETURN> to confirm the entry. |

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