



Terminal Control Workstation (TCW) Controller

User Reference Guide

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User Reference Guide TCW Controller v12.4.2

JVN Communications Inc.
2511 Fire Rd.
Suite A-4
Egg Harbor Township, NJ 08234
609-569-9208

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1. Introduction

1.1. What is Terminal Control Workstation (TCW) Controller?

The TCW Controller includes our TCW Client and TCW Server installed on a chassis connected to a physical TCW. Capabilities include:

- FSL/EFSL Switchover Video and Buttons
- Audio In and Video In
- Connection via JVN's Simulation Driver Radar Recorder (SDRR) or via FAA's Secure-Open System Environment (S-OSE) (Preferred Method)
- Improved TCW Image
- Providing Real-Time STARS Audio Alerts
- Simultaneous remote and on-site usage

1.2. What is Terminal Control Workstation (TCW) Client?

The TCW Client provides an interactive display of a STARS TCW as well as any keyboards and mice connected.

All inputs within the program are sent to the TCW as if they were input with the physical keyboard onsite. When TCW Server is ran in the background, this allows for a seamless use of a TCW both remotely and in-person.

1.3. What is Terminal Control Workstation (TCW) Server?

TCW Server is a daemon that runs in the background of a TCW Controller-equipped machine that allows for the physical TCW keyboard and trackball feed to be active even when TCW Client is not running.

2. Basics

2.1. Configuration

One TCW Controller-equipped machine can support one TCW.

The TCW Controller requires the install and setup of a chassis which is connected directly to the TCW itself, using audio, video, and DB9 splitters.

2.2. Starting TCW Server

The TCW Server can be started from right-clicking the monitor icon on the TCW Controller tool bar or from the command line. There are also options to stop and restart the daemon, as well as a status option to verify the daemon is running properly.

To start the TCW Server from the command line, enter:

```
> /etc/rc.d/rc.tcw start
```

2.3. Starting TCW Client

The TCW Client can either be started by the icon on the TCW Controller or from the command line. The TCW Client GUI prompts the user to select a keyboard and keyboard style (ABC or QWERTY). If multiple keyboards are desired, the user can click on the icon once more to open up another keyboard without affecting the display.

To start TCW Client from the command line, enter:

```
> tcwClient tcpDevice --kb --fslVideo=device --eslVideo=device
```

To launch a TCW Client version that is not the default version, enter:

```
> /usr/local/jvn.x.x.x/bin/tcwClient tcpDevice --kb --fslVideo=device --
eslVideo=device
```

Note

TCW Client requires device names to be specified to run.

2.3.1. Parameters

TCW Client can be started with various options which control its operation.

Table 1. Parameters for TCW Controller

Parameter	Description
tcpDevice	Required parameter for the TCP device.
--kb	Parameter for keyboard and trackball

Parameter	Description
<code>--fslVideo=device</code>	Required parameter for the FSL video device.
<code>--eslVideo=device</code>	Required parameter for the EFSL video device.
<code>--audioInput=n</code>	Adds an audio input device.
<code>--title=TITLE</code>	Adds a title to the top of the TCW Controller window.
<code>--qwerty</code>	Displays a QWERTY keyboard.
<code>--listAudioInputs</code>	Lists the available audio inputs.
<code>--listAudioOutputs</code>	Lists the available audio outputs.
<code>--enableZoom</code>	Allows user to use mouse wheel to zoom in and out of the TCW display.
<code>--testMode</code>	Brings up the TCW in test mode.
<code>--kbButtonSize</code>	Adjusts the size of the keyboard buttons.
<code>--tbButtonSize</code>	Adjusts the size of the trackball buttons.

Example 1. Starting TCW Client with Extra Parameters

```
/usr/local/jvn.12.4.2/bin/tcwClient tcp:3100 --fslVideo=/dev/video0 --eslVideo=/dev/video1 --title=TCW-1 --kb --kbButtonSize=5 --tbButtonSize=5
```

3. Using TCW Client - Display

3.1. Display

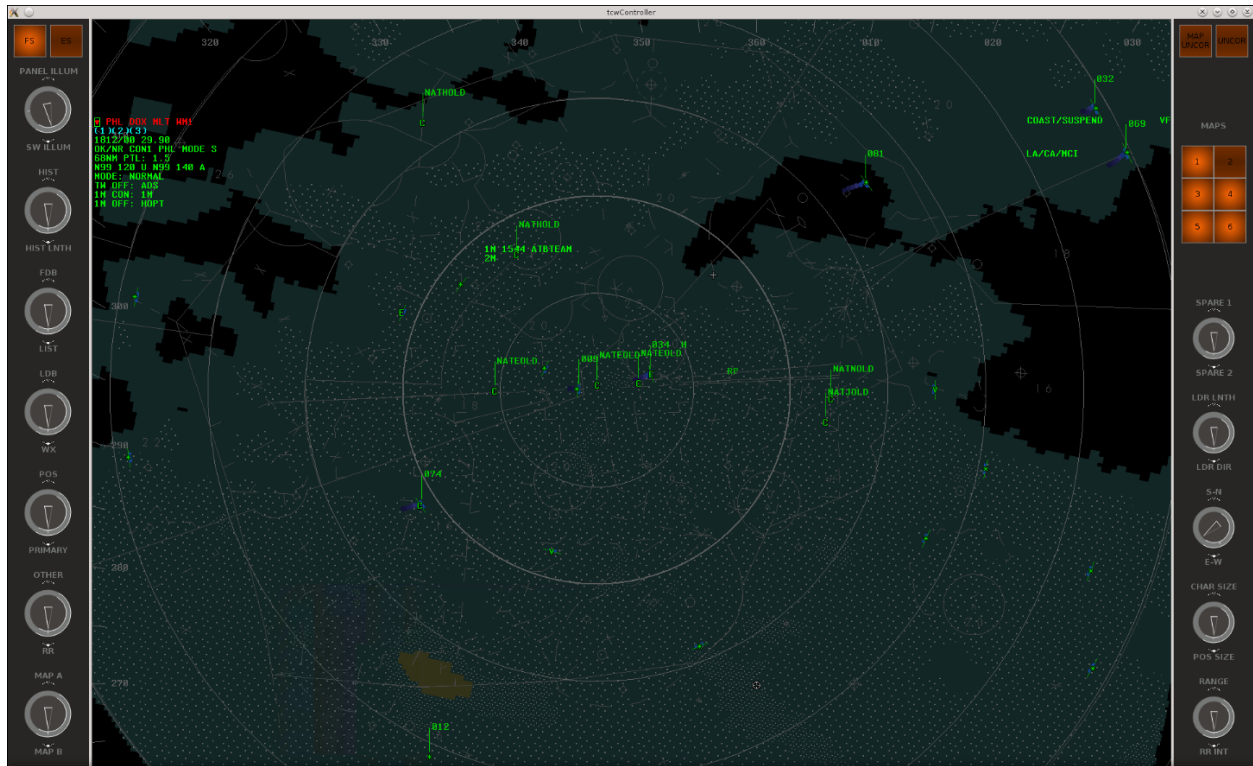


Figure 1. TCW Client Display

When TCW Client is opened, the TCW display will appear. This display is an exact replica of the front of the TCW, complete with viewer, dials, and buttons.

3.2. Buttons

The buttons function exactly as they would on the physical TCW. They will light up when clicked to activate and will return to unlit when clicked again to unactivate.

3.2.1. FS/ES

The service level of the TCW can be changed with the FS and ES buttons. The button of the active service level will be lit up. Click the other service level button to change between them.

3.2.2. Map Uncor/Uncor

The Map Uncor/Uncor buttons can be clicked to display search-only plots.

3.2.3. Maps

The Map buttons can be clicked to display various maps. When lit, the designated map will be visible. Click the button again to remove the map.

3.3. Dials

The dials are controlled by either left- or right-clicking on the dial and dragging to the desired setting which is identical to their physical counterpart.

3.3.1. Panel Illum/SW Illum

When left-clicked, this dial controls the brightness of the control panel text. When right-clicked, it adjusts the brightness of the control panel switches.

3.3.2. Hist/Hist Lnth

When left-clicked, this adjusts the brightness of the history trail. When right-clicked, it changes the amount of history tracks displayed.

3.3.3. FDB/List

When left-clicked, this dial adjusts the brightness of the data blocks of owned targets, cursor, and preview area. When right-clicked, it controls the brightness of list text.

3.3.4. LDB/WX

When left-clicked this dial adjusts the brightness of limited and partial data blocks and their position symbols. When right-clicked, it changes the weather brightness.

3.3.5. POS/Primary

When left-clicked, this dial controls the brightness for position symbols of Owned Full Data Blocks. When right-clicked, it adjusts the brightness of primary tracks, primary symbols, and fused symbols.

3.3.6. Other/RR

When left-clicked, this adjusts the brightness of unowned targets and their position symbols. When right-clicked, this dial sets the brightness of range rings.

3.3.7. Map A/Map B

When left-clicked, this adjusts the brightness of group A maps, and adjusts group B when right-clicked.

3.3.8. Spare 1/Spare 2

This is not typically used by the TCW.

3.3.9. LDR Length/LDR Dir

When left-clicked, this sets the track leader line length. When right-clicked, this adjusts the position of the leader line for owned tracks.

3.3.10. S-N/E-W

When left-clicked, the map position can be adjusted in the directions of north and south, and adjusts east and west when right-clicked.

3.3.11. Char Size/Pos Size

When left-clicked, this sets the font size for data blocks and previous area. When right-clicked, the font size of position symbols is changed.

3.3.12. Range/RR Int

When left-clicked, the display range is adjusted. When right-clicked, this dial sets the interval for range rings.

3.4. Additional Controls

The position of the map can be changed by clicking and dragging the display. The range of the display can be controlled by the scroll button on the mouse. The side panels containing the dials can also collapse by dragging the border.

4. Using TCW Client - Keyboard

When opened up, tcwClient also brings up a window for both the Keyboard and the Trackball. The actions taken in these windows affect the TCW Display both on the physical location and the TCW Client display. Multiple keyboards can be accessed by clicking the tcwClient icon.

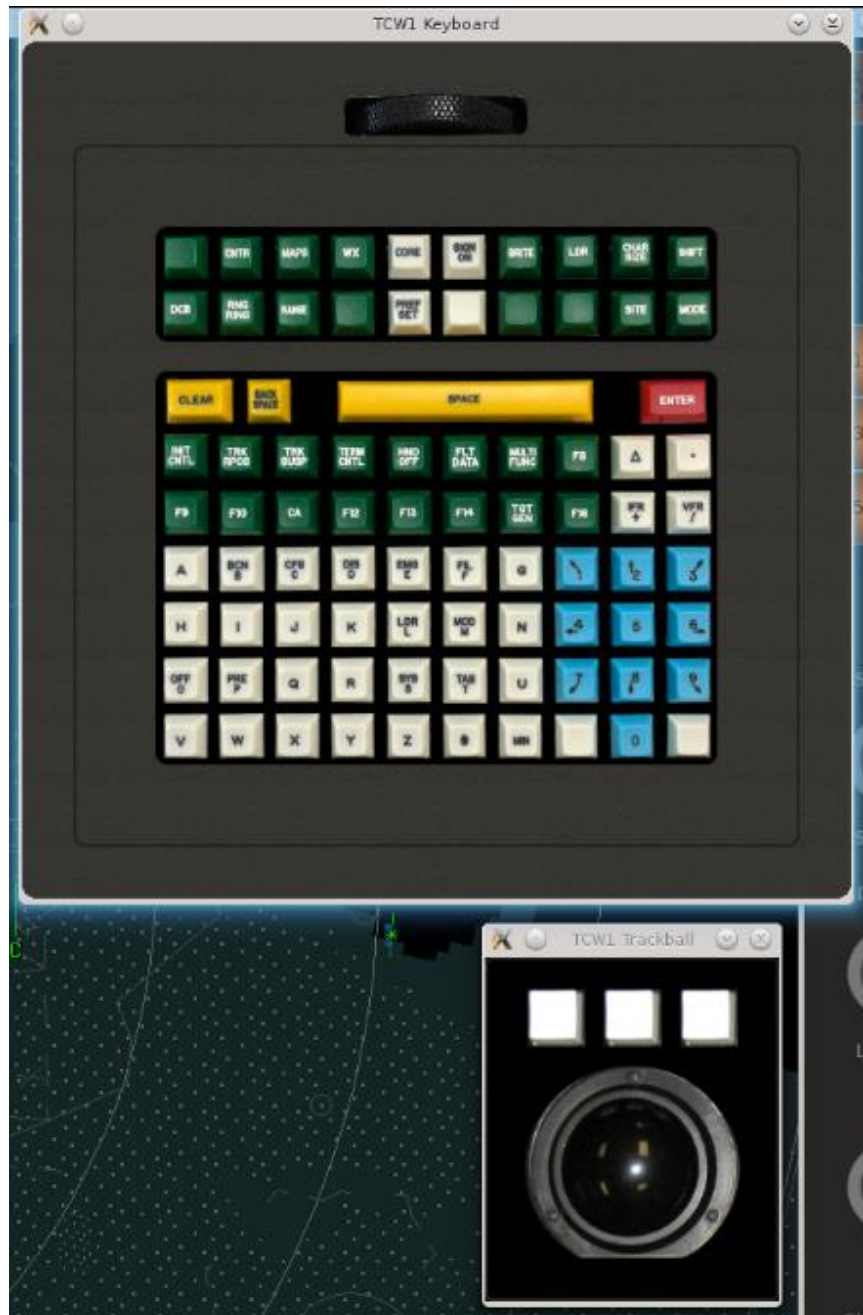


Figure 2. TCW Client Keyboard and Trackball

4.1. Keyboard

The tcwClient keyboard has identical usage to the physical keyboard. The buttons are activated by either clicking on them or typing them in with the keyboard in focus. Up to three keyboard positions can be active at once and will display accordingly.

4.1.1. QWERTY Keyboard

The tcwClient can alternatively show a QWERTY keyboard, identical to those used with the physical TCW. The parameter `--qwerty` must be used on startup to enable this mode.

4.1.2. Keyboard Shortcuts

Some buttons on the tcwClient keyboard are not available on a typical keyboard, so some keyboard shortcuts were put into place.

Table 2. Keyboard Shortcuts for TCW Client Keyboard

TCW Client Keyboard Button	Keyboard Shortcut
CNTR	Ctrl+Shift+F1
MAPS	Ctrl+Shift+F2
WX	Ctrl+Shift+F3
BRITE	Ctrl+Shift+F4
LDR	Ctrl+Shift+F5
CHAR SIZE	Ctrl+Shift+F6
SHIFT	Ctrl+Shift+F7
DCB	Ctrl+Shift+F8
RNG RING	Ctrl+Shift+F9
RANGE	Ctrl+Shift+F10
SITE	Ctrl+Shift+F11
MODE	Ctrl+Shift+F12
CORE	Insert

TCW Client Keyboard Button	Keyboard Shortcut
SIGN ON	Home
PREF SET	End
CLEAR	Delete
BACK SPACE	Backspace
SPACE	Space
ENTER	Enter
INIT CTRL	F1
TRK RPOS	F2
TRK SUSP	F3
TERM CNTL	F4
HND OFF	F5
FLT DATA	F6
MULTIFUNC	F7
F8	F8
F9	F9
F10	F10
CA	F11
F12	F12
F13	Shift+F1
F14	Shift+F2
TGT GEN	Shift+F3
F16	Shift+F4
Δ	Comma (,)

TCW Client Keyboard Button	Keyboard Shortcut
•	Period (.)
IFR +	Plus (+)
VFR /	Forward Slash (/)
A through Z	Mapped to A through Z
0 through 9	Mapped to 0 through 9
*	Asterix (*)
MIN	Question Mark (?)

4.2. Trackball

The tcwClient trackball has identical usage to the physical trackball. To slew, click the trackball and drag in the desired direction for the cursor. The buttons, when clicked, have the same functionality as the physical buttons.