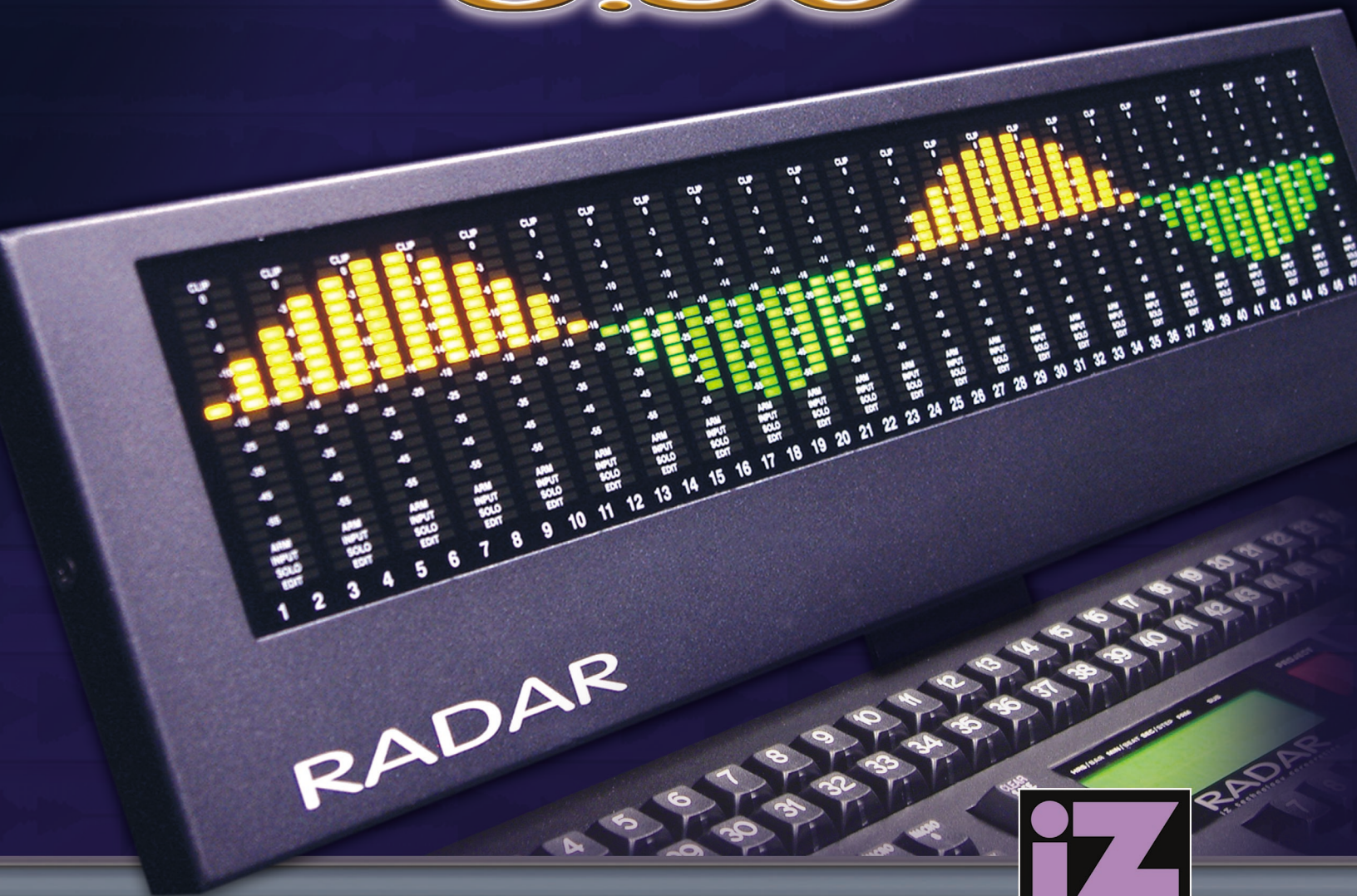


RADAR[®]

Operator's Manual

Software Version

3.50



RADAR[®]

Operator's Manual

Software Version

3.50

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RADAR SAFETY INSTRUCTIONS

1. READ AND RETAIN INSTRUCTIONS

Read, understand and follow all safety instructions. Keep safety and operating instructions for future reference.

2. HEED WARNINGS

Heed all warnings for the use of the RADAR® contained in the safety and operating instructions.

3. PREVENT OBJECT AND LIQUID ENTRY

To reduce the risk of electric shock, do not expose this device to dripping or splashing. Do not place bottles, cups, etc, containing liquids on or near the device.

4. ALLOW FOR VENTILATION

The device should be positioned so that proper ventilation can be maintained. There should be no objects or fabrics blocking any of the ventilation openings. Also, the device should not be placed inside a fully enclosed equipment rack or shelf unless the rack or shelf is well ventilated and the inside air temperature can be kept within the environmental conditions stated in the device specifications.

5. ABOUT SERVICING

The user should not attempt to service the device beyond what is described in the operating instructions. All other service should be referred to iZ Technology or performed under the guidance of qualified personnel.

6. REPLACING LITHIUM BATTERY (Motherboard CMOS Battery)

Replace only with the same or equivalent type.



CAUTION: Danger of explosion if battery is incorrectly replaced.

See www.izcorp.com Support Technical Memos for full instructions.

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SECTION 1

INTRODUCTION

Welcome to RADAR, the best multi-track in the business. Please take a few minutes to familiarize yourself with this manual. It is a valuable resource that will provide the information needed to get the most out of a RADAR.

HOW TO USE THIS MANUAL

This manual is organized into the following sections:

1. *INTRODUCTION*
2. *SYSTEM SETUP*
3. *CONFIGURATION*
4. *OPERATIONS*
5. *APPLICATIONS*
6. *TROUBLESHOOTING*
7. *REFERENCE*
8. *APPENDIX*
9. *ADDENDUMS*
10. *RELEASE NOTES*

The *SYSTEM SETUP* section goes through the physical placement and connection of the unit as well as any configuration work that may be required to integrate RADAR with additional equipment in a particular setup.

The *CONFIGURATION* section provides the necessary software settings required to integrate RADAR with the rest of a particular system setup.

The *OPERATIONS* section provides all of the information necessary to quickly become a RADAR power user.

The *APPLICATIONS* section provides instructions for using RADAR in various common scenarios.

The *TROUBLESHOOTING* section provides troubleshooting tips for RADAR.

The *REFERENCE* section gives detailed descriptions of the menu structure, menu functions and the direct access keys.

The *APPENDIX* section contains the *INDEX* and other sections that provide additional software information that may not apply to all RADARs.

The *ADDENDUMS* & *RELEASE NOTES* sections are for adding any Addendums, Release Notes and any other RADAR documents.

OTHER IZ TECHNOLOGY INFORMATION RESOURCES

WEBSITE

Additional resources are available at the iZ website, www.izcorp.com. Browse to the Support section for Support document downloads, software downloads and release notes, tech tips, etc.

IZ FORUM

Please join the iZ Forum. It is a dynamic group of RADAR users and iZ staff and is a medium which will provide timely and intelligent replies to questions. Connect to the iZ Forum by accessing www.izcorp.com and browsing to the Forum section of the site.

CONTACT IZ

For any questions about RADAR please contact iZ Technology Corporation Support department, toll-free:

Email support@izcorp.com

North America 1-800-776-1356

International 800-2747-2744

Please note that an International Direct Dialing prefix must be entered before dialing the International contact phone number. For a complete list of IDD prefixes, browse to the www.izcorp.com Contact page.

CONVENTIONS

The following text conventions are used throughout this manual. This information applies to both the **Session Controller** and the **KC-24** remote keyboard.

- Remote keys: **ENTER**
- Remote keys with a shifted function: **PASTE** (**LISTEN**), that is, press and hold modifier keystroke: **SHIFT** + **PASTE** (**LISTEN**)
- Menu paths: **MAIN MENU / PROJ MENU / SAMPLE RATE**
- Menu selections and dialogues: **SAMPLE RATE: 48 KHZ**
- Enter or type the following: *for example user name*
- Object Names: **Session Controller**
- Rear panel labels and connectors: **WORDCLOCK**
- Manual references: *OPERATIONS: ENTERING VALUES*

NOTE SYMBOLS



IMPORTANT NOTE: This symbol is followed by important information.



TIP / TRICK: This symbol is followed by a tip or trick.



WARNING NOTE: This symbol is followed by a warning.

RADAR OVERVIEW

RADAR is a 24-track hard disk recorder with a reputation for reliability, ease of use and exceptional audio quality. RADAR out of the box has instant functionality – simply turn on the power switch, arm the tracks and press record. Both the **KC-24** keyboard and the **Session Controller** professional remote provide rugged transport controls and intuitive, one-key access to most RADAR functions.

Features:

- Superb analogue I/O using the iZ Technology 24-channel Classic 48 kHz, Nyquist 96 kHz or S-Nyquist 192 kHz board sets.
- 24-channel digital I/O using the iZ Technology AES/EBU, TDIF, ADAT Lightpipe or MADI cards.
- Seamless/gapless punch-in and punch-out recording on all 24 tracks.
- Non-destructive audio recording and editing with up to 99 levels of undo.
- Degradation-free copy and transfer of digital audio.
- Import and export RADAR audio to the industry-standard BWAV (Broadcast Wave) format.
- Integrated SVGA video output **RADARView** provides important project information, project timeline overview and high-performance real-time audio waveforms.
- Integrated Gigabit Ethernet for server backup, export and file transfer.
- Factory installed backup device (Blu-ray/DVD Combo Drive, internal archive drive) for archiving RADAR projects.
- 2-channel AES/EBU, S/PDIF digital audio I/O.
- Full compliment of professional sync options including Wordclock/Video Sync, balanced LTC and Sony 9-pin.
- External USB drive support

FRONT PANEL

RADAR has a simple front panel layout due to the product's remote-control based design philosophy.



RADAR V Front Panel Controls & Indicators

POWER ON/OFF SWITCH

RADAR units manufactured prior to July 2007 have a marked on/off toggle power switch. To turn RADAR on, push the top of the power switch to the "1" position. To properly power down RADAR choose **SHUTDOWN RADAR** from the **MAIN MENU** and then push the bottom of the power switch to the "0" position.

RADAR units manufactured after July 2007 have an unmarked momentary soft power switch. To turn RADAR on, push and release the top of the power switch briefly. To properly power down RADAR choose **SHUTDOWN RADAR** from the **MAIN MENU** and then hold the top of the power switch for 5 seconds until RADAR powers off. This 5 second delay is a safety feature that prevents inadvertent power down.

DRIVE BAY 1

Holds a single high-capacity hard disk drive in a removable carrier.

DRIVE BAY 2

Holds a single high-capacity hard disk drive in a removable carrier.

DRIVE BAY 3

Holds a backup device such as a Blu-Ray or DVD multi-drive.

REMOVABLE MEDIA SLOT

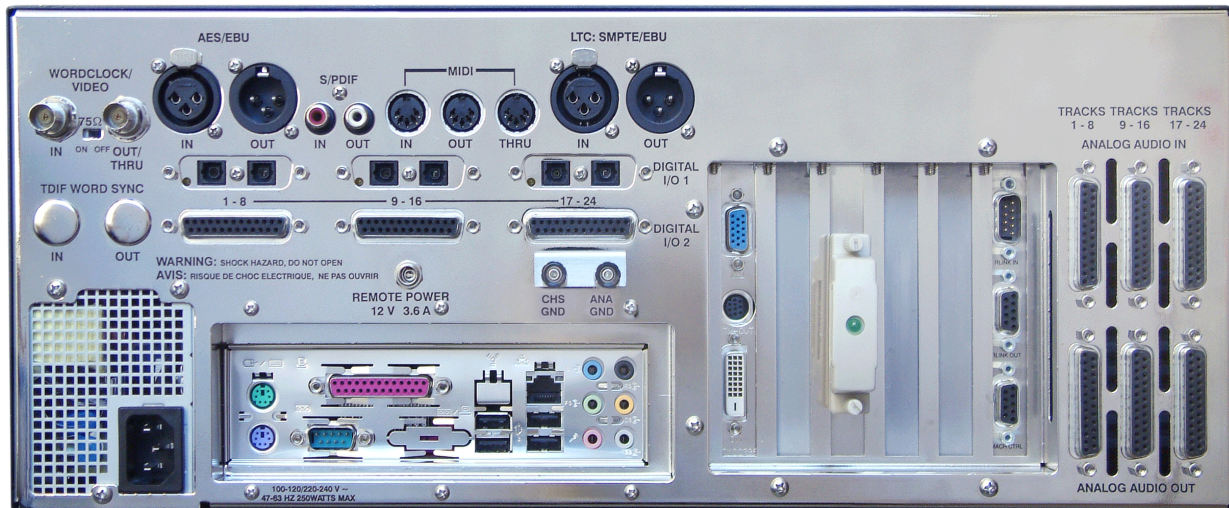
Holds floppy drive or eSATA port.



System software has been pre-installed on the internal hard disk. It is not necessary to put the supplied system software CD into the multi-drive. Please keep the supplied CD in a safe place in case it becomes necessary to re-install the system software in the future.

REAR PANEL

The rear panel of the RADAR provides a wealth of professional sync and audio I/O options.



RADAR Rear Panel Labeling

(unit shown with optional multi-channel AES/EBU, ADAT and analogue I/O boards)

SYNC REFERENCE	Sync reference signals are input via the WORDCLOCK/VIDEO , TDIF WORD SYNC , the 2-channel AES/EBU or S/PDIF connector or the connectors of any installed multi-channel digital I/O boards. See CONFIGURATION: SYNC REFERENCE for detailed information.
DIGITAL I/O	All RADAR units are equipped with 2 channels of digital audio I/O that can utilize either the AES/EBU or S/PDIF interface formats. Optional multi-channel I/O cards are available for the AES/EBU , TDIF , ADAT LIGHTPIPE and MADI formats. See CONFIGURATION: DIGITAL I/O for detailed information.
POSITIONAL (TIMECODE) SYNC	Both MTC (MIDI Timecode) and LTC (SMPTE) can be used for positional synchronization. See CONFIGURATION: TIMECODE for detailed information.
CARD CAGE	The card cage contains the SVGA, external SCSI, 9-pin and RADARLink connectors. See SYSTEM SETUP: MAKING CONNECTIONS for detailed information.
MOTHERBOARD I/O	The motherboard includes onboard Gigabit Ethernet, (4) USB 2.0, (2) PS/2 connectors and (1) Serial remote port.
ANALOGUE I/O	The optional analogue I/O boards use six female 25-pin D-Sub connectors to provide 24 channels of balanced audio I/O. See SYSTEM SETUP: MAKING CONNECTIONS for detailed information.

SECTION 2

SYSTEM SETUP

This section of the manual is designed to get RADAR up and running as quickly as possible.

INSTALLATION

Once the RADAR is unpacked please keep the box and all of the associated packaging materials. In the event that the unit needs to be returned for upgrade, service or repair, the use of the original shipping box will ensure that RADAR returns to iZ in good condition.

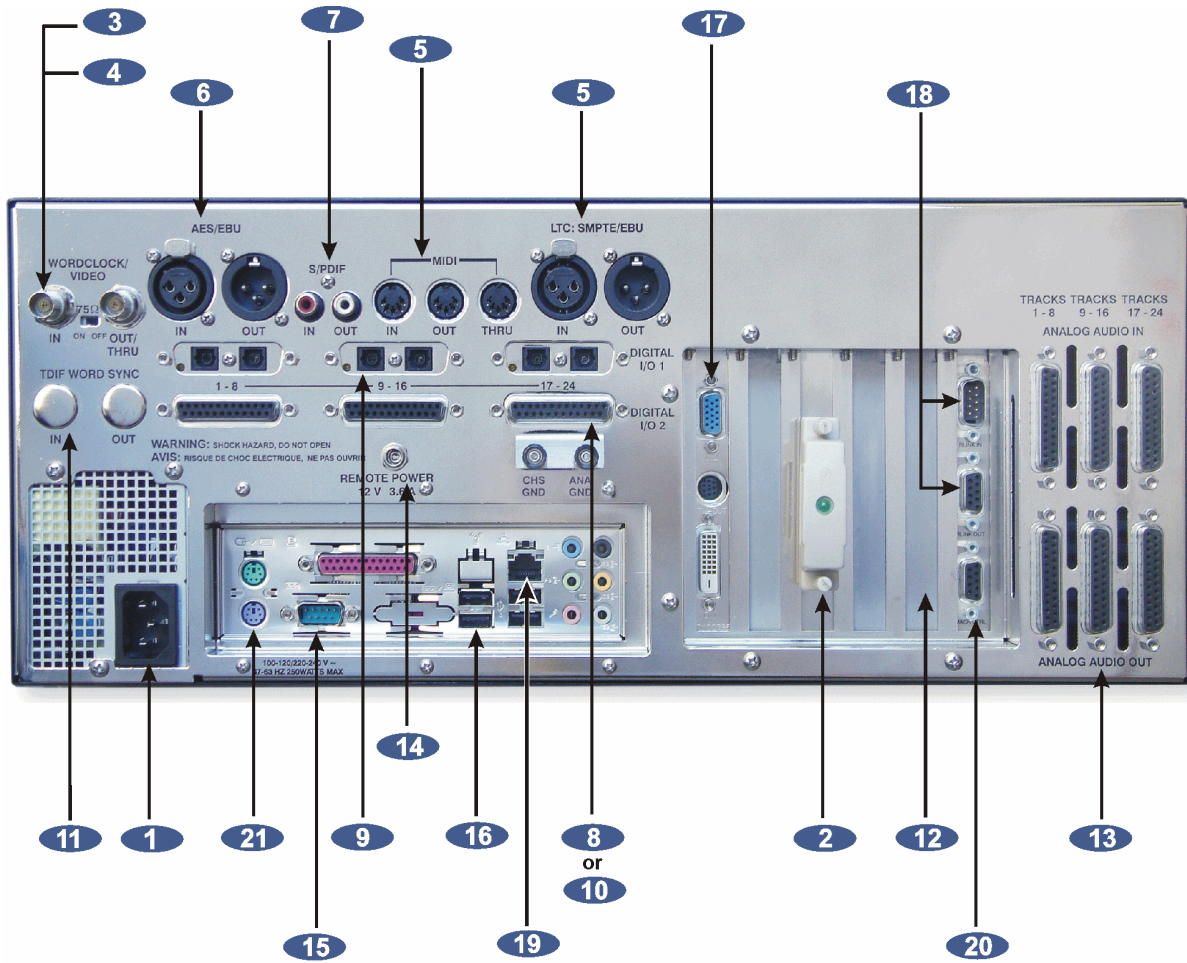
Make sure to consider the following before installing RADAR:

- Power supply fans and hard drives make a certain amount of noise; installing the main RADAR unit outside of the control room is ideal.
- Leave space around the front and the rear of the RADAR to allow adequate air circulation.
- AES/EBU digital lines and the **Session Controller** extension cable can be run at a length of approximately 33 meters.
- ADAT optical and TDIF digital audio connections will limit the distance between RADAR and the mixing console to approximately 10 meters.
- If using a monitor, an SVGA monitor will be required, as well as a high quality SVGA extension cable if the RADAR will be located in a machine room.
- Make sure that the RADAR has a reliable, properly grounded AC power source. An Uninterruptible Power Supply (UPS) is highly recommended.

MAKING CONNECTIONS

High quality cabling can be obtained through a local dealer or from iZ Technology. Wiring diagrams for interfacing RADAR are available on the Support section of the iZ Technology website at www.izcorp.com.

RADAR BACK PANEL



- | | | |
|---------------------|-----------------------------|-----------------------------------|
| 1 AC Power | 8 AES/EBU Multi-Channel | 15 Session Controller Data |
| 2 SCSI | 9 ADAT | 16 USB |
| 3 Wordclock | 10 TDIF | 17 VGA Video Monitor |
| 4 Video | 11 TDIF Word Sync | 18 RADARLink |
| 5 SMPTE/MTC | 12 MADI Slot | 19 Ethernet |
| 6 AES/EBU 2-Channel | 13 Analogue | 20 Machine Control |
| 7 S/PDIF 2-Channel | 14 Session Controller Power | 21 PS/2 Port for Mouse & Keyboard |

AC POWER

Connect RADAR to the AC mains using the supplied power cord. The power switch is located on the left side of the front panel. See [INTRODUCTION: OVERVIEW: FRONT PANEL](#).



The ATX Power Supply in the RADAR will internally auto switch depending on the voltage output in one's region.

SCSI

Ensure that the **Active Terminator** is attached securely to the external **SCSI connector** on the rear of the unit. If additional external SCSI devices are used, remove the terminator, connect the devices and place the terminator on the last device in the chain.



Make sure that the last device in the SCSI chain is terminated using the supplied active terminator. Incorrect termination can produce unpredictable results leading to problems with current and previously recorded material.

SYNC REFERENCE

Sync (clock) reference is one of the keys to reliable digital audio interfacing. There are 11 possible formats, determined by the installed multi-channel digital I/O card(s), that can be used as the clock source for the RADAR.

The current selection in **MAIN MENU / SYNC MENU / SYNC REFERENCE** determines which format will be used as the sync source.

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select a sync source and press the **ENTER** key.

WORDCLOCK

The **WORDCLOCK / VIDEO IN BNC** connector accepts either a wordclock or a video sync source using a coaxial cable.

Wordclock is a clock signal running at the same frequency as the sampling frequency of the digital audio being transferred or recorded. Syncing enables multiple digital devices to be locked together so that audio can be reproduced, transferred and recorded without any digital noise or interference.



The wordclock frequency value displayed in the **SYNC REFERENCE** dialogue will depend on the sampling rate of the current project **not** the rate of the incoming wordclock signal.

Wordclock signal supplied to the **WORDCLOCK/VIDEO IN** can be passed on to other devices using the **WORDCLOCK/VIDEO OUT/THRU** connector. In situations where RADAR should act as the clock master, wordclock can also be output from the **WORDCLOCK/VIDEO OUT/THRU** connector. The function of the **OUT/THRU** connector can be changed in the **MAIN MENU / SYNC MENU / SYNC REF OUTPUT** setting.

To switch between wordclock out and thru:

- 1 Use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REF OUTPUT** and press the **ENTER** key.
- 2 Use the **◀** and **▶** keys to select **WORDCLK** or **THRU** and press the **ENTER** key.

VIDEO

Video sync, also known as house sync or black burst, is used to ensure that a known and accurate synchronization relationship exists between RADAR and all other devices in the studio, particularly video equipment.

If syncing the RADAR to video, connect a proper 75-Ohm cable from the video source output to the **WORDCLOCK/VIDEO IN** connector at the rear of the RADAR.

The 75-Ohm switch provides video signal termination. This should only be **ON** if RADAR is the last device in a video signal chain where a video signal and video sync are in use on the same cable. Termination does **not** affect the video sync signal. If termination is **ON**, it is active even when the RADAR is powered off.



The video sync frequency value displayed in the **SYNC REFERENCE** dialogue will depend on the timecode rate setting of the **SYNC MENU** **not** the rate of the incoming video sync signal.

SMPTE / MTC

Although SMPTE and MTC are primarily positional synchronization references, in some situations it is necessary for RADAR to track less than ideal timing sources such as a 2" multi-track recorder or MIDI sequencer. In this instance RADAR uses the incoming timecode as a clock reference as well. When referenced to SMPTE or MTC the RADAR will flawlessly track any variations in the speed of the master.



The timecode frequency value displayed in the **SYNC REFERENCE** dialogue will depend on the timecode rate setting of the **SYNC MENU** **not** the rate of the incoming timecode signal.



MIDI Timecode is a high distortion, slow lock speed format and is not recommended as a sync reference.

AES/EBU 2-CHANNEL AND S/PDIF 2-CHANNEL

The **AES/EBU** connectors or the **S/PDIF** connectors on the rear panel are available for transferring digital audio. They can also be used to receive a clock signal from a master clock or another digital audio device as well as transmit the master clock signal. Only one set of connectors is enabled at a time.

To switch between AES/EBU 2-Channel and S/PDIF 2-Channel:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / DIG 2-CH OUTPUT** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **AES/EBU** or **S/PDIF** and press the **ENTER** key.

AES/EBU MULTI-CHANNEL

The optional AES/EBU multi-channel connectors on the rear panel are available for transferring digital audio. They can also be used to receive a clock signal from a master clock or another digital audio device, or to transmit the master clock signal.



If there are no AES/EBU cards installed an alert dialogue will state: **NO AES MULTI-CH CARD INSTALLED.**

ADAT

The optional ADAT optical connectors on the rear panel are available for transferring digital audio. They can also be used to receive a clock signal from a master clock or another digital audio device, or to transmit the master clock signal.



If there are no ADAT cards installed an alert dialogue will state: **NO ADAT CARD INSTALLED.**

TDIF

The optional **TDIF** connectors on the rear panel are available for transferring digital audio. They can also be used to receive a clock signal from a master clock or another digital audio device, or to transmit the master clock signal. The clock embedded in the TDIF audio signal is a different clock than TDIF Word Sync.



If there are no TDIF cards installed an alert dialogue will state: **NO TDIF CARD INSTALLED.** Purpose built TDIF cables must be used; pin-to-pin cables will **not** work.

TDIF WORD SYNC

The **TDIF WORD SYNC** 75-Ohm BNC connectors on the rear panel are available to provide a more reliable clock source when using TDIF to transfer digital audio between devices. This clock is similar to a wordclock but differs in its phase relationship to the data signal. It should not be confused with the embedded L/R data clock in the TDIF digital audio signal.

MADI

MADI is an optional I/O card available to transfer multi-channel audio through Coaxial or Optical interface. Either interface can be used to receive a clock signal from a master clock or another digital audio source. Both MADI Optical and MADI Coaxial will always output clock and data.

To switch between MADI Optical and MADI Coaxial Input format:

- 1 Use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / MADI SETTINGS / COAX/OPTICAL IN** and press the **ENTER** key.
- 2 Use the **◀** and **▶** keys to select **COAXIAL** or **OPTICAL** and press the **ENTER** key.

POSITIONAL REFERENCE

Positional (timecode) reference is the key to reliable positional (time line) synchronization of multiple devices.

SMPTE or MTC (MIDI Time code) formats are used for positional synchronization reference with RADAR. All the industry standard frame rates - 30 Non-drop, 30 Drop, 29.97 Non-drop, 29.97 Drop, 25, 24 and 23.976 - are supported.

The current selection in **MAIN MENU / SYNC MENU / TC SETTINGS / TC FORMAT** determines which format will be used as the timecode source.

- 1 Use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / TC FORMAT** and press the **ENTER** key.
- 2 Use the **◀** and **▶** keys to select a timecode format and press the **ENTER** key.

SMPTE

SMPTE, also known as LTC or Longitudinal Timecode, is connected using the XLR **LTC: SMPTE/EBU IN** and **OUT** connectors on the rear panel. The LTC inputs and outputs can be either balanced or unbalanced. The LTC input has a sensitivity ranging between 100mV and 20V. The output is 1V peak to peak. This will produce a -7 VU meter reading on a +4 device like a professional analogue tape machine.



When using unbalanced lines, pin 3 should be left floating.

MTC

MIDI timecode is input and output using the **MIDI IN** and **MIDI OUT** connectors on the rear panel of the RADAR.

AUDIO CABLING

iZ recommends using the highest quality cables with RADAR. High quality cabling can be obtained through a local dealer or from iZ Technology. Wiring diagrams for interfacing RADAR are available on the Support section of the iZ Technology website at www.izcorp.com.

ANALOGUE

Analogue cables for RADAR use the TASCAM format, and share the same wiring scheme as analogue cables for Digidesign's Pro Tools, and other popular modular digital multi-track recorders. The RADAR end of each analogue cable is a 25-pin D-sub connector that carries eight independent, balanced, line level audio signals. Altogether there are six cables are required - three for input and three for output - for 24 channels of ultra-high quality analogue audio I/O.

The other end of each analogue cable typically breaks out to individual XLR or TRS connectors for connection to a console's Tape Inputs and Buss Outputs. Another often-used approach is to wire directly into a patch bay for the ultimate in routing flexibility.

DIGITAL

There are several digital I/O options available for RADAR and each one has different cabling requirements.

AES/EBU 2-CHANNEL

The cable required for the AES/EBU 2-channel interface is an XLR terminated 110-ohm digital audio cable. One cable is required for 2 channels of input and an additional cable is required for 2 channels of output.

S/PDIF 2-CHANNEL

The cable required for the S/PDIF 2-channel interface is an RCA terminated 110-ohm digital audio cable. One cable is required for 2 channels of input and an additional cable is required for 2 channels of output.

AES MULTI-CHANNEL

The optional RADAR AES/EBU multi-channel I/O uses the same wiring scheme as the Digidesign Pro Tools and other popular modular digital multi-track recorders. Both ends of each AES/EBU multi-channel cable are terminated with 25-pin D-sub connectors. Each cable carries eight channels of input and eight channels of output. Altogether, three cables are required for 24 channels of digital I/O at sample rates up to 96 kHz. Another available cabling option breaks out to 4 male (8 outputs) and 4 female (8 inputs) XLR connectors. This type of cable is necessary for connecting to certain types of mixers and digital audio workstations.

ADAT

Lightpipe connections can be made with any optical fiber that has been approved for use with the Alesis ADAT system. Each fiber carries eight channels of digital audio. Three input and three output Lightpipe fibers provide 24 channels of ADAT I/O at 48 kHz. 96 kHz is also available in dual-wire mode for up to 12 tracks of transferable digital audio.

TDIF

Audio: The optional RADAR TDIF I/O uses the TASCAM wiring scheme – the same scheme used by other modular digital multi-track recorders. Both ends of each TDIF cable are terminated with a 25-pin D-sub connector. Each cable carries eight channels of input and eight channels of output. Altogether three cables are required for 24 channels of digital I/O at sample rates up to 48 kHz. 96 kHz is also available in dual-wire mode for up to 12 tracks of transferable digital audio.

Sync: In addition to the TDIF audio cabling requirements there is a **TDIF WORD SYNC** connection that may be necessary for interfacing under certain circumstances. This connection can be made using a 75-Ohm, BNC terminated cable.

MADI

The optional MADI (Multi-channel Audio Digital Interface) I/O Card has the ability to transfer 24 channels of digital audio at sample rates up to 96 kHz. Audio and clock information is transferable through either BNC or optical connectors. The Coaxial I/O uses a 75-Ohm, BNC terminated cable which has a maximum length of 200m. The Optical I/O uses a MADI Optical cable which has a maximum length of 2000m.

SESSION CONTROLLER



The Session Controller Professional Remote attaches to the RADAR back panel via two connectors:

Power: Insert the barrel plug of the **Session Controller** cable into the power receptacle labeled **REMOTE POWER** on the rear of the unit.

Data: Attach the 9-pin D-sub connector of the **Session Controller** cable to the 9-pin receptacle labeled **SERIAL PORT** on the Motherboard I/O.

KC-24



The KC-24 attaches to the RADAR using the keyboard's USB connector cable. The keyboard USB port is located on the left side of the RADAR back panel, labeled **USB**.

MONITOR (OPTIONAL)

Any standard SVGA monitor capable of either 800x600 or 1024x768 resolution can be attached directly to the RADAR. The monitor connection is a 15-pin D-sub connector located on the far left of the card cage section on the back panel.



The default resolution is 1024x768. Anytime the default resolution is switched, the RADAR must be rebooted for the change to take effect.



Only the VGA DB-15 and the DVI outputs are active. The s-video output is not active.

RADARLINK

RADARLink allows multiple RADAR units to be synchronized so that they can be operated together as a single machine. The 9-pin D-sub **RLINK IN** and **RLINK OUT** connectors used for **RADARLink** are located on the far right hand side of the card cage section at the rear of the unit. Connection between two units can be made using the cable supplied with a multiple unit purchase or by using any 9-pin D-sub cable that is wired pin-to-pin. These can be purchased from iZ Technology or from an electronics or computer retailer.



Make sure that the cable is wired fully populated and pin-to-pin. Some 9-pin cables have modified pin-outs and will not work for this application.

ETHERNET

RADAR ships with a Gigabit Ethernet connection built into the Motherboard. This can be used for backing up, restoring, importing and exporting files. The RADAR can connect to a server-based network, or directly to a PC or Mac.

MACHINE CONTROL

RADAR supports two formats of machine control, Sony 9-pin (RS-422) and MMC (MIDI Machine Control). These control protocols allow RADAR to be controlled from other equipment like synchronizers, video decks, mixers, computer workstations, etc.

Sony 9-pin uses a 9-pin D-sub terminated cable to transmit transport, record status and other control information. Use the **MACH CTRL** port located at the back of the RADAR and directly below the **RLINK IN/OUT** connectors to connect a proper Sony 9-pin cable to.

MMC uses the standard 5-pin DIN connection and only requires the **MIDI IN** to be connected in order to receive MMC commands from the controller.

SECTION 3

CONFIGURATION

This section is a guide to configuring system settings and ensuring they are set correctly. This can vary depending on the studio setup. The configuration settings covered in this section are; Operating Level, Sync Reference, DIG I/O, Timecode, Machine Control, Networking, Preferences, and Software.

OPERATING LEVEL

The input and output levels of RADAR can be matched with the input and output levels of other pieces of equipment in the studio. Although the inputs and outputs can be adjusted independently, all inputs share the same operating level. The same holds true for all of the outputs.

Because a zero meter reading on a digital recorder represents the absolute maximum level (dBFS – decibel Full Scale) that can be recorded, a much lower nominal level should be specified.

With analogue VU meters, 0 VU (+4dBu) represents this nominal level and above that is *headroom*, which allows for dynamic surges and peak transients.

Setting RADAR's analogue audio input and output levels can be done by setting the level in dBu at which RADAR will reach full scale (0 dBFS), **or** by setting the level in dBFS that a 0 VU (+4dBu) signal will meter on RADAR's meterbridge. The **ANALOG I/O LEVEL** dialogue in the **I/O MENU** will have a prompt of either **0 DBFS** or **+4 DBU** as the reference.

Choosing a reference of **0 DBFS** will display a prompt for setting the full scale input and output levels (0 dBFS), as a dBu value between +18 and +24 dBu.

Choosing a reference of **+4 DBU** will display a prompt for setting where a signal at +4dBu will register on RADAR's meters in dBFS. This will be a value between -14 and -20 dBFS. This value is commonly referred to as *headroom*.

To set the input and output operating levels:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / ANALOG I/O LEVEL** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to reference either **0 DBFS** or **+4 DBU**.
- 3 Use the **↑** and **↓** keys to select the desired input operating level and press the **ENTER** key.
- 4 Use the **↑** and **↓** keys to select the desired output operating level and press the **ENTER** key.



If a reference of **0 DBFS** is selected, the prompt will ask to set the full scale input and output levels as a dBu value between +18 and +24 dBu.

If a reference of **+4 DBU** is selected, the prompt will ask to set the value between -14 and -20 dBFS. This value is commonly referred to as headroom.

SYNC REFERENCE

The sync reference setting will vary widely depending on the application and the configuration of a system. It will also depend on whether or not RADAR is the master or slave in a particular setup. Access the sync settings using the **SYNC** key on the **Session Controller** and the **KC-24**.

To configure RADAR as the digital audio sync master using the wordclock output:

- 1 Ensure that a wordclock cable is connected to the **WORDCLOCK/VIDEO OUT/THRU** connector.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SYNC REFERENCE: INTERNAL** and press the **ENTER** key.
- 4 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REF OUTPUT** and press the **ENTER** key.
- 5 Use the **↑** and **↓** keys to select **WORDCLK** and press the **ENTER** key.

A reliable clock source is necessary for digital audio transfers to a digital mixer or other digital audio device. Without proper data synchronization digital audio will exhibit pops, clicks and other undesirable artifacts.

In a film or video post-production environment video sync is usually distributed to all the video, audio and clock devices in the studio to ensure that everything is synchronous with the video signal right down to the sample level.

When synchronizing with analogue tape decks that exhibit fluctuations in transport speed, RADAR can reference to the incoming SMPTE signal. In this configuration RADAR will fluctuate right along with the analogue master ensuring perfect synchronization at all times.

To slave RADAR to external wordclock:

- 1 Ensure that a wordclock source is connected to the **WORDCLOCK/VIDEO IN** connector.
- 2 Verify that the project sample rate in the **MAIN MENU / PROJECT MENU / SAMPLE RATE** dialogue matches the incoming wordclock frequency.
- 3 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 4 Use the **▲** and **▼** keys to select **SYNC REFERENCE: WORDCLCK: XX KHZ** and press the **ENTER** key.

If wordclock will be passing through the RADAR make sure that the function of the **OUT/THRU** connector is set to **THRU** in the **MAIN MENU / SYNC MENU / SYNC REF OUTPUT** dialogue.



The wordclock frequency value displayed in the **SYNC REFERENCE** dialogue will depend on the **SAMPLE RATE** of the current project **not** the rate of the incoming wordclock signal.

To slave RADAR to external video sync:

- 1 Ensure that a video sync source is connected to the **WORDCLOCK/VIDEO IN** connector. Make sure that the project's timecode rate in the **MAIN MENU / SYNC MENU / TC SETTINGS / TC RATE** menu matches the incoming video sync frequency.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **▲** and **▼** keys to select **SYNC REFERENCE: VIDEO: NTSC** or **PAL** and press the **ENTER** key.



The video sync frequency value displayed in the **SYNC REFERENCE** dialogue will depend on the **TC RATE** setting of the **SYNC MENU** **not** the rate of the incoming video sync signal.

To slave RADAR to SMPTE timecode or MTC:

- 1 Ensure that a valid SMPTE timecode source is connected to the **LTC: SMPTE / EBU** connector using a balanced or unbalanced XLR terminated cable. Connect an MTC source to the **MIDI IN** using a MIDI cable.
- 2 Use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / TC RATE** menu and make sure that the timecode rate matches the incoming timecode signal.
- 3 Press the **SYNC** key on the **Session Controller** or **KC-24** or go to **MAIN MENU / SYNC MENU / SYNC REFERENCE** and press the **ENTER** key.
- 4 Use the **▲** and **▼** keys to select **SYNC REFERENCE: SMPTE 30** or **SYNC REFERENCE: MTC 30** and press the **ENTER** key.



The timecode frequency value displayed in the **SYNC REFERENCE** dialogue will depend on the **TC RATE** setting of the **SYNC MENU** not the rate of the incoming timecode signal.



MIDI Timecode is a high distortion, slow lock speed format and is not recommended as a sync reference.

To slave RADAR to an external AES/EBU clock source:

- 1 Connect an AES/EBU source to the **AES/EBU IN** connector using an XLR terminated digital audio cable.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV**, the **▲** and **▼** keys and **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **▲** and **▼** keys to select **SYNC REFERENCE: AES 2CH SYNC** and press the **ENTER** key.

To slave RADAR to an external S/PDIF clock source:

- 1 Connect the S/PDIF source to the **S/PDIF IN** connector using an RCA terminated digital audio cable.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV**, the **▲** and **▼** keys and **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **▲** and **▼** keys to select **SYNC REFERENCE: S/PDIF 2CH SYNC** and press the **ENTER** key.

To slave RADAR to an external AES/EBU multi-channel clock source:

- 1 Connect the AES/EBU multi-channel source to the desired 25-pin D-sub **AES/EBU IN** connector using the appropriate digital audio cable.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SYNC REFERENCE: AES MULTI-CH** and press the **ENTER** key.



If AES/EBU cards are not installed, a dialogue will display **NO AES MULTI-CH CARD INSTALLED**.

To slave RADAR to an external ADAT clock source:

- 1 Connect the ADAT source to the desired optical **ADAT IN** connector using a light pipe cable.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SYNC REFERENCE: ADAT** and press the **ENTER** key.



If ADAT cards are not installed, a dialogue will display **NO ADAT CARD INSTALLED**.

To slave RADAR to an external TDIF L/R clock source:

- 1 Connect the TDIF source to the desired 25-pin D-sub **TDIF** connector using the appropriate digital audio cable.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SYNC REFERENCE: TDIF L/R IN** and press the **ENTER** key.



If TDIF cards are not installed, a dialogue will display **NO TDIF CARD INSTALLED**. Use purpose built TDIF cables - pin-to-pin cables will not work.

To slave RADAR to external TDIF Word Sync:

- 1 Connect the TDIF word sync source to the **TDIF WORD SYNC IN** connector using a 75-ohm, BNC terminated cable.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SYNC REFERENCE: TDIF WORD SYNC** and press the **ENTER** key.



If TDIF cards are not installed, a dialogue will display **NO TDIF CARD INSTALLED**.

To slave RADAR to an external MADI clock source:

- 1 Connect the MADI source to either **BNC** or **OPTICAL CABLE** connector using the appropriate digital audio cable.
- 2 Press the **SYNC** key on the **Session Controller** or **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SYNC REFERENCE: MADI** and press the **ENTER** key.



If MADI cards are not installed, a dialogue will display **NO MADI CARD INSTALLED**.

DIGITAL I/O

The digital I/O formats that are available will depend on the type and number of digital interface options installed in the RADAR. All units ship with built in AES/EBU and S/PDIF 2-channel interfaces. The 24 channel digital I/O options available include: AES/EBU, ADAT, TDIF and MADI.

It is important to note that once a digital format is selected, an appropriate clock source must be selected as well. Many times they are one and the same thing, but not always. For instance, an AES transfer may be required but the sync reference for all digital devices in the studio may be a wordclock generator referenced to video sync. The RADAR may also act as clock master and all other digital equipment will clock to the RADAR in which case **SYNC REFERENCE** would be set to internal.

To select a digital I/O format:

- 1 Make sure that all cabling is connected properly.
- 2 Press the **DIG IN** key on the **Session Controller** or **DIGI I/O** on the **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / DIG IN FORMAT** menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select the digital format of and press the **ENTER** key.



When a digital input format is specified one track must always be set to digital. To return all 24 tracks to analogue input select **NONE**.

NONE

This selection returns all 24 inputs to analogue input.

AES/EBU 2-CH

This 2-channel format uses a single cable for 2 channels of digital audio transmission. It is unidirectional so one cable is required for input and one for output.

S/PDIF 2-CH

S/PDIF also uses a single cable for 2 channels of digital audio transmission. It is unidirectional as well so one cable is required for input and one for output. It is essentially a consumer version of AES/EBU.

AES MULTI-CH

With multi-channel AES/EBU each cable carries eight channels. This format is bi-directional so only three cables are required for 24 channels of digital audio I/O.

TDIF

TDIF also uses three bi-directional cables carrying eight channels of audio each, for a total of 24 channels of digital I/O.

ADAT

Lightpipe optical fibers carry eight channels of digital audio. This format is unidirectional so three input and three output Lightpipe “cables” will be required for 24 channels of ADAT I/O.

MADI

Each BNC connector or Optical connector carries 24 channels of audio. Either **COAXIAL** or **OPTICAL** must be chosen in the **SYNC MENU** depending on the inputs/outputs of the external device.



If a particular card is not installed a dialogue will display: **NO _____ CARD INSTALLED.**

To select tracks for digital input:

- 1 Press **SHIFT+DIG IN (ROUTE)** key on the **Session Controller** or **SHIFT+DIGI I/O** on the **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / I/O ROUTING** menu and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select **DIGITAL INPUTS** and press the **ENTER** key.
- 3 Use the **←** and **→** keys to select **ALL** or **SELECT** and press the **ENTER** key.
- 4 Use the **Track Arm** keys to select digital inputs.

To select source and destination tracks for the digital 2-channel I/O:

- 1 Press **SHIFT+DIG IN (ROUTE)** key on the **Session Controller** or **SHIFT+DIGI I/O** on the **KC-24** or use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / I/O ROUTING** menu and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select **DIG 2-CH ROUTING** and press the **ENTER** key.
- 3 Use the **←**, **→**, **↑** and **↓** keys to select **IN L**, **IN R**, **OUT L** or **OUT R** fields, enter the desired track numbers in each one and press the **ENTER** key.

MADI FIRMWARE UPDATES

The **INSTALL FIRMWARE** feature allows MADI firmware to be upgraded. This option is found in the **MADI SETTINGS** list in the **I/O MENU**.

To update MADI Firmware:

- 1 Navigate to **MAIN MENU / I/O MENU / MADI SETTINGS / INSTALL FIRMWARE** and press the **ENTER** key.
- 2 At the **MADI FIRMWARE IS NOT CURRENT** prompt press the **ENTER** key.
- 3 At the **INSTALL FIRMWARE VERSION: 0X** dialogue use the **↑** and **↓** keys to select the desired version and press the **ENTER** key.
- 4 At the **INSTALL MADI FIRMWARE VER 0X?** prompt use the **←** and **→** keys to select **YES** and press **ENTER** key.
- 5 At the **ARE YOU SURE?** prompt use the **←** and **→** keys to select **YES** and press **ENTER** key.
- 6 The dialogue will display **INSTALLING** and show **+ 0% COMPLETE +**.
- 7 When installation completes **FIRMWARE INSTALLED** will display and **REBOOT TO ENABLE FIRMWARE**. If the display shows **FIRMWARE FAILED** then installation has not completed and must be restarted.



Do not interrupt a firmware update as this could cause irreversible damage to RADAR hardware.

TIMECODE

RADAR supports two distinct protocols of positional timecode: SMPTE/EBU and MIDI timecode (MTC). Both support all industry standard frame counts and rates. While chasing timecode it is normal practice to reference RADAR's clock either directly to the incoming timecode signal or to an external wordclock or video sync source. These clock sources are set separately in the [MAIN MENU / SYNC MENU / SYNC REFERENCE](#) menu.

Because there are many variables when synchronizing devices in a recording studio or broadcasting facility RADAR has been designed to be very flexible in this regard.

RADAR can chase either SMPTE or MTC (MIDI timecode) and synchronize its internal clock to video sync, wordclock, active digital I/O connections or even to an incoming SMPTE or MTC signal. This allows RADAR to synchronize with other audio recorders, video tape recorders and sequencers in the real world.

When slaved to an analogue tape machine it is critical that RADAR follow any deviation in speed introduced by the tape transport. In this scenario the incoming timecode is smoothed and averaged to create a stable reference signal for the internal clock of the RADAR. Because the internal clock will constantly match the incoming clock source in this configuration, RADAR will follow the master exactly, even if vari-speed is used.

In other applications where all the devices in a system are referenced to video sync i.e. black burst or house sync, RADAR can be referenced to video sync directly or to a wordclock generator that is in turn referenced to the video sync source. A system wide sync source is critical for video and film production and post-production work because it creates a known relationship between the positional timecode and the timing information present in the video signal. For more information on video sync refer to [APPLICATIONS: LIVE RECORDING: CHASING TIMECODE AND CLOCK SYNCHRONIZING](#) and [APPLICATIONS: PLAYBACK: CHASING TIMECODE AND CLOCK SYNCHRONIZING](#).

Offsets between RADAR and other machines can be captured or set manually.



For more information on sync reference, refer to [CONFIGURATION: SYNC REFERENCE](#) earlier in this section.

SYNC

One of the keys to accurate positional synchronization is reference synchronization. The reference sync signal provides a clock that enables RADAR to lock with other devices without drifting over time. Please refer to [CONFIGURATION: SYNC REFERENCE](#) for information on this important topic.

CHASE

The main function of this key is to enable or disable chase mode on the RADAR. When the **CHASE (TC PREF)** key is pressed on the **Session Controller** or the **CHASE** key is pressed on the **KC-24** the RADAR will locate to the current incoming timecode position, lock and then begin to play. Prior to using the chase function, make sure the proper **TC SETTINGS** have been set in the **SYNC** menu.

CHASE MODE

CHASE MODE determines the chase behavior of RADAR. When set to **RECHASE**, RADAR will locate, lock and begin playback, continually comparing its position with that of the incoming timecode. When set to **LOCK-AND-DROP**, RADAR will locate, lock, begin playback and immediately switch back to internal clock. When set to **NUDGE**, if the timecode drifts, the clock speed will temporarily adjust (override) to bring the timecode back in sync.

Both the **SYNC REFERENCE** and **POSITION** reference will switch to **INTERNAL (CHASE and SYNC LEDs will switch off)** if set to **SMPTE** or **MTC**. If the RADAR is required to stop manually and re Chase to the incoming timecode, the **CHASE** key must be pressed (and **SYNC** key if also using **SMPTE** or **MTC** as a **SYNC REFERENCE**) in order for RADAR to re Chase again (**SYNC** and **CHASE** LEDs flashing). This lock and release behavior is sometimes required for transfers from media with poor/damaged timecode or during a live recording etc.

There are three options for handling the situation where the clock (sync) source and the timecode (chase) are not in sync with each other:

- LOCK-AND-DROP** Chase to the incoming timecode initially, but once positional chase is established, stop looking at the timecode (turn **CHASE** off); therefore, rely only on the clock source and ignore any timecode drift (this is the former **RECHASE DISABLED** mode).
- RECHASE** If the timecode drifts, cue RADAR again and reestablish positional chase; therefore, rely on both the clock source and the timecode source.
- NUDGE** If the timecode drifts, this option will temporarily adjust (override) the clock speed to bring the timecode back in sync; therefore, rely primarily on the timecode source.

Timecode preferences can be accessed by pressing **SHIFT + CHASE (TC PREF)**. Changing these settings will have a direct effect on chase operation. These preferences can also be accessed using the **MAIN MENU / SYNC MENU / TC SETTINGS / TC FORMAT** dialogue.

TC PREFERENCES

To set RADAR timecode preferences for **CHASE**:

- 1 Press the **SHIFT+CHASE** (**TC PREF**) keys on the **Session Controller** or the **SHIFT+CHASE** keys on the **KC-24**. These preferences can also be accessed in the **MAIN MENU / SYNC MENU / TC SETTINGS / TC FORMAT** menu dialogue.
- 2 Use the **←** and **→** keys to select either **SMPTE** or **MTC** as the timecode format and press the **ENTER** key.
- 3 Select a timecode rate from the **TC RATE** dialogue. The **↑**, **↓**, **←** and **→** keys display the available rates. The available rates are:

23.976	
24	25
29.97ND	29.97DF
30ND	30DF

Use the **←** and **→** keys to make a selection from the current dialogue page and press the **ENTER** key.

SYNC DRIFT

When RADAR is required to **CHASE LTC** or **MTC**, it can display the amount of **SYNC DRIFT** between RADAR and the external timecode. When enabled, **DRIFT: X SMPLS** will be displayed in the **OFFSET** window on **RADARView**.

To enable/disable **SHOW SYNC DRIFT**:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / SHOW SYNC DRIFT** dialogue and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **ENABLE** or **DISABLE** and press the **ENTER** key.



In a situation when RADAR is required to chase **LTC** or **MTC** yet **SYNC REFERENCE** is set to **INTERNAL**, **SYNC DRIFT** will occur and, provided **RECHASE MODE** is **ENABLED**, RADAR will eventually lose **CHASE** (play/record will stop), re-cue and begin chasing again. Therefore, it is important to establish a proper Master for both timecode and clock rate. If possible, have RADAR act as master but, if the current setup doesn't allow for that, set both **SYNC REFERENCE** and **CHASE** to **SMPTE** or **MTC**.

SYNC THRESHOLD

The amount of sync drift that RADAR can accommodate during **CHASE** mode before dropping out and re-syncing can be determined by the **SYNC THRESHOLD**. This is to accommodate extremely wild, fluctuating incoming timecode. Normally, RADAR can maintain chase mode if the incoming timecode rate/position fluctuates between 0 and 128 samples relative to the sample clock rate.

To determine the sync drift threshold:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / SYNC THRESHOLD** dialogue and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **NORMAL** or **WILD** and press the **ENTER** key. **WILD** is 10x **NORMAL** mode.

OFFSET

When synchronizing machines that have differing timecode positions, an offset can be calculated and set on the RADAR to bring them into alignment. Offsets are in the HH:MM:SS:FF format and can be positive or negative.

To set an offset:

- 1 Press **SHIFT+SYNC (OFFSET)** on the **Session Controller** or **SHIFT+SYNC** on the **KC-24**.
- 2 Use the **↑** and **↓** keys, the **Jog/Shuttle Wheel** or the numeric keypad to enter the offset starting on the right hand side with the frames field (or subframes if enabled). Use the **←** and **→** keys to move between the fields.
- 3 Make the offset positive or negative using the **+** and **-** keys and press the **ENTER** key.

To clear an offset:

- 1 After pressing the **SHIFT+SYNC (OFFSET)** keys, pressing the **↑** and **↓** keys simultaneously will clear the offset.



Regardless of the offset, RADAR timecode output will always reflect the actual project time.

TC CAPTURE (Session Controller Only)

Timecode Capture allows the ability to automatically calculate an offset for the project using the incoming timecode.



For exact calculations of offsets, it is important that the device supplying the incoming timecode has the ability to generate a static frame location. A VITC reader, 9-pin machine control feed, static TC out from a non-linear video editor, DAW or other stand alone HDR will be required. For approximate offsets that will be tweaked, a static timecode feed is not required.

To capture an offset using the **TC CAP** (**CALC**) key:

- 1 Locate the timecode master to a specific timecode location.
- 2 Use any transport or locate method to position the RADAR at the desired point in the project.
- 3 Press the **TC CAP** (**CALC**) key on the **Session Controller**.
- 4 The offset is calculated and stored as a positive or negative number in the HH:MM:SS:FF format and displayed in the **RADARView** offset window. It can also be displayed in the **Session Controller** display by pressing **SHIFT**+**SYNC** (**OFFSET**).

Another feature that works well in conjunction with the **TC CAP** (**CALC**) key is the **INT/EXT SMPTE** display mode option. In this mode the display in the **Session Controller** will show the project's time on the top line and the external timecode position on the second line in place of the current locate point. A **+** or **-** sign in the display indicates a positive or a negative offset.

On the **RADARView** screen, only the incoming external timecode will be shown on the positional display. All range and locate points will still be displayed using internal project times.



The external time that is displayed is actually the project time plus the offset. This includes a sub-frame value that is not part of the incoming SMPTE signal. Since there is a small delay before RADAR drops out of **CHASE MODE** there may be a slight discrepancy between the times displayed on the master and slave units.

To change the display mode of a project to **INT/EXT**:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJ MENU / DISPLAY MODE** selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the **INT/EXT** option and press the **ENTER** key.

CALCULATOR (Session Controller Only)

This key brings up an offset calculator that can be very helpful when calculating an offset from a predetermined set of timecode locations such as an EDL (Edit Decision List). For example: If the timecode location of a visual event on a VTR and the timecode location of the corresponding audio event on RADAR are known, this feature can calculate the offset required.

To calculate and assign an offset using the **TC CAP (CALC)** key:

- 1 Press **SHIFT+TC CAP (CALC)** key on the **Session Controller** to display the following dialogue.

```
00:00:00:00:00
00:00:00:00:00 EX
```

- 2 The top line will display the current position of the RADAR. To enter a new timecode location use the **↑** and **↓** keys, the **Jog/Shuttle Wheel** or the numeric keypad. Use the **←** and **→** keys to move between the fields.
- 3 The bottom line, labeled **EX** will display an external timecode value if one has been captured. This value can be modified or cleared and entered manually.
- 4 Press the **ENTER** key and the offset between the two positional values will be calculated and stored as the current offset. The offset is displayed in the **RADARView** offset window and can also be displayed in the **Session Controller** display by pressing **SHIFT+SYNC (OFFSET)** keys.

CHASE ON POWERUP

When this feature is enabled, RADAR will automatically start chasing timecode when it is started up. This feature's default setting is **DISABLED**.

To set RADAR to chase on powerup:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / CHASE ON POWERUP** dialogue and press the **ENTER** key.
- 2 Use the **→** key to select **ENABLED** and press the **ENTER** key.

MACHINE CONTROL

RADAR can be configured to allow external control via Sony 9-pin or MMC (MIDI Machine Control). **9-PIN SETTINGS** and **MMC SETTINGS** are available to allow the RADAR to seamlessly integrate with a wide variety of professional products that provide 9-pin and/or MMC control protocols.

9-Pin Settings:

- 1 Use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / MACHINE CONTROL** and press the **ENTER** key.
- 2 Use the **▲** and **▼** keys to choose **SELECT TYPE** and press the **ENTER** key.
- 3 Use the **◀** and **▶** keys to select **9-PIN** and press the **ENTER** key.

To enable or disable 9-Pin Machine Control:

- 1 Press **SHIFT + RLINK (MCH CTL)** on the **Session Controller** or use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / MACHINE CONTROL** and press the **ENTER** key.
- 2 Use the **▲** and **▼** keys till **ENABLE/DISABLE** is displayed.
- 3 If machine control is disabled, pressing the **ENTER** key will enable it. If machine control is enabled, pressing the **ENTER** key will disable it.

MIDI Machine Control (MMC) Settings:

- 1 Use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / MACHINE CONTROL** and press the **ENTER** key.
- 2 Use the **▲** and **▼** keys to choose **SELECT TYPE** and press the **ENTER** key.
- 3 Use the **◀** and **▶** keys to select **MMC** and press the **ENTER** key.



The default **MMC DEVICE ID** is set to **127(7F) = ALL CALL**. This does not need to be altered unless advised by the MMC Manufacturer or iZ Support.

To enable or disable MIDI Machine Control:

- 1 Press **SHIFT + RLINK (MCH CTL)** on the **Session Controller**, or use the **MENU/PREV** key, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / MACHINE CONTROL** and press the **ENTER** key.
- 2 Use the **▲** and **▼** keys till **ENABLE/DISABLE** is displayed.
- 3 If machine control is disabled, pressing the **ENTER** key will enable it. If machine control is enabled, pressing the **ENTER** key will disable it.

NETWORKING

RADAR ships with a Gigabit Ethernet interface built onto the motherboard. With the appropriate hardware and with properly configured software, RADAR can backup, restore, export and import files using an Ethernet connection to a Windows, Linux, or Mac OS, FTP or CIFS (Common Internet File System) server. Once RADAR is configured for networking, it can also be controlled by RADAR Network Control software — a Java runtime program that can be installed on any standard computer.

The goal of RADAR networking is to configure the unit for integration into an existing network or for connection to a personal computer. The concept of networking is very extensive; this section of the manual only addresses the networking configuration settings to be used with RADAR. Please refer additional networking questions to the iZ Support department. For instructions on how to import/export files see [OPERATIONS: FILE MANAGEMENT: EXPORT](#) and [OPERATIONS: FILE MANAGEMENT: IMPORT](#) sections.



DISCLAIMER: iZ Technology cannot offer advice on networking and security issues that do not directly pertain to the RADAR system. For further assistance please consult a networking professional or make use of the extensive resource materials available on the Internet.

FTP

FTP stands for File Transfer Protocol. It is used to transfer data from one computer to another.







RADAR has a built in FTP (File Transfer Protocol) server. This feature enables the transfer of files between RADAR's internal IDE drive (e.g., **D:ARCHIVE**) and a network-connected computer via Ethernet. Any files on RADAR's audio drive must first be exported to the internal IDE drive (e.g., **D:ARCHIVE**). Once on the internal IDE drive, any Mac or PC FTP client software can be used to download/upload the files. For instructions on how to configure RADAR for FTP refer to **CONFIGURE RADAR FOR NETWORKING** below. For details on how to export/import files please refer to the [OPERATIONS: FILE MANAGEMENT: EXPORT](#) and [OPERATIONS: FILE MANAGEMENT: IMPORT](#) sections.

RADAR IP ADDRESS SETUP

RADAR can connect to a PC or Mac via Ethernet with the appropriate cabling and software.

To setup RADAR for FTP, CIFS and/or RADAR network control:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to **MAIN MENU / PREFERENCES MENU / NETWORK PREFS / INTERFACE PREFS** and press the **ENTER** key.
- 2 At the **INTERFACE PREFS:** dialogue, use the **↑** and **↓** keys to select **HOST NAME** and press the **ENTER** key.
- 3 At the **HOST NAME:** prompt, use the QWERTY keys to enter a unique name for the RADAR and press the **ENTER** key.

- 4 At the **DHCP SERVER:** dialogue, use the  and  keys to **ENABLE** or **DISABLE DHCP** and then press the  key. If **DHCP** is enabled then proceed to step 11. Do NOT enable **DHCP** when using a crossover cable to connect directly with a Mac or Windows-based computer.
- 5 At the **LOCAL IP ADDRESS** prompt, use the numeric keypad and the  and  keys to enter a unique IP address and press the  key. When using a crossover cable to connect directly with a Windows or Mac-based computer, the RADAR IP address should have the same first three numbers but the last number has to be different. E.g., Windows computer IP is 192.168.1.1 therefore the RADAR IP can be 192.168.1.2 or 192.168.1.3 or 192.168.1.4, etc.
















The Internet Assigned Numbers Authority has set certain IP address ranges for use in private networking applications:










Class A 10.0.0.0—10.255.255.255

Class B 172.16.0.0—172.31.255.255

Class C 192.168.0.0—192.168.255.255

In a self-contained peer-to-peer network that never sees the outside world any IP address range may be used. However, care should be taken when assigning IP addresses to avoid potential security risks and IP address conflicts. For further information visit the Internet Assigned Numbers Authority site at <http://www.iana.org>.

- 6 At the **SUBNET MASK:** prompt, use the numeric keypad and the  and  keys to enter a **SUBNET MASK** value and press the  key. The standard default is 255.255.255.0. The **SUBNET MASK** value **must** match the subnet mask value of the computer/server the RADAR is connecting to.
- 7 A **GATEWAY** entry is only required if when connected to a WAN (wide area network) such as the Internet. At the **GATEWAY:** prompt, use the numeric keypad and the  and  keys to enter a gateway IP address and press the  key.
- 8 The **PRIMARY DNS** address for the server is only required for connecting to a client-server network. At the **PRIMARY DNS:** prompt, use the numeric keypad and the  and  keys to enter a **PRIMARY DNS** value and press the  key.
- 9 The **SECONDARY DNS** address only applies if there is a secondary server on a client-server network. At the **SECONDARY DNS:** prompt, use the numeric keypad and the  and  keys to enter a **SECONDARY DNS** value and press the  key.
- 10 The **SMTP HOST** setting is sometimes required to allow email of debug logs via a specific Internet Service Provider. At the **SMTP HOST:** prompt use the QWERTY keyboard to type a **SMTP HOST** (i.e. *mail.smtp.com*). Use the  key on the **Session Controller/KC-24** or the  and  keys or **Jog Wheel** to select the period (.) key.

- 11 At the **FTP SERVER:** dialogue, use the  and  keys to **ENABLE** or **DISABLE FTP SERVER** and then press the  key. The menu items in steps 12 and 13 will only appear if **FTP** server is enabled.
- 12 The **FTP LOGIN NAME** is required for accessing RADAR's internal system drive (e.g., **D:ARCHIVE**) via FTP. At the **FTP LOGIN NAME:** dialogue, use the QWERTY keys and the  and  keys to enter a login name and press the  key. This login name will be required by the FTP client software installed on the computer networked to the RADAR.
- 13 The **FTP PASSWORD** is also required for accessing the RADAR via FTP. At the **FTP PASSWORD:** dialogue, use the QWERTY keys and the  and  keys to enter a **PASSWORD** and press the  key. This password will be required by the FTP client software installed on the computer networked to the RADAR.



If **FTP SERVER** is left enabled and the RADAR is connected to another computer or network it is possible for someone to gain unauthorized access to the machine. This would give an intruder the ability to modify or delete files on the RADAR.

FILE SHARING

RADAR has a built-in FTP (File Transfer Protocol) and CIFS client that can communicate with an FTP server or CIFS server to facilitate file sharing.

RADAR® FTP CLIENT NETWORK SETUP WITH WINDOWS 2000/XP/VISTA SERVER

For MAC setup instructions skip to the next section.

These instructions are for setting up a Network between RADAR and a PC (Windows).

RADAR has a built-in FTP Client and FTP Server. PC computers, however, do not generally come with installed FTP Client or FTP Server programs. In order to Network RADAR, 3rd party FTP Client and FTP Server software must be installed on the PC. Downloadable FTP software options include:

- FTP Client software: Smart FTP
- FTP Server software: FileZilla Server



Audio file transfers via FTP Network will not be possible unless FTP Server and FTP Client software is installed on the destination PC.

Once the PC has been equipped with an FTP Client and an FTP Server, connect an Ethernet *crossover cable* between RADAR and the PC. Crossover cables are available at most computer stores. A crossover Ethernet cable is different from a standard (straight through) Ethernet cable, as the crossover cable has different wiring. Crossover cables are usually yellow in colour. If the RADAR and PC are connected through a router, standard Ethernet cables may be used. RADAR can also be integrated into a network environment; contact the network administrator for specific settings.

PC IP Address and Firewall setup for Windows Vista:

- 1 Click the **START** menu and click **CONTROL PANEL**.
- 2 Click on **WINDOWS FIREWALL** then click the **GENERAL TAB** shut off the Firewall and click the **OK** button.
- 3 In the **CONTROL PANEL** click on **NETWORK AND INTERNET**, then **NETWORK AND SHARING CENTER** and click to select **MANAGE NETWORK CONNECTIONS** from the list of tasks.
- 4 Right click on **LOCAL AREA CONNECTION** and choose **PROPERTIES**.
- 5 Select **USE THE FOLLOWING IP ADDRESS** and enter a unique IP Address (*i.e. 192.168.12*)
- 6 For **SUBNET MASK** enter: *255.255.255.0*.
- 7 Leave all other fields blank.
- 8 Click the **OK** button.

PC IP Address and Firewall setup for Windows XP:

- 1 Click the **START** menu and click **CONTROL PANEL**.
- 2 Click on **WINDOWS FIREWALL** then click the **GENERAL TAB** shut off the Firewall and click the **OK** button.
- 3 Click on **NETWORK CONNECTIONS** in **CONTROL PANEL**.
- 4 Right click on **LOCAL AREA CONNECTION** and choose **PROPERTIES**.
- 5 Click on **INTERNET PROTOCOL (TCP/IP)** and then click **PROPERTIES**.
- 6 Click **USE THE FOLLOWING IP ADDRESS** and enter a unique IP Address (*i.e. 192.168.1.2*).
- 7 For **SUBNET MASK** enter: *255.255.255.0*
- 8 Leave all other fields blank.
- 9 Click the **OK** button.

PC FTP Server Username and Password:

- 1 Open FTP Server.
- 2 Click on **EDIT** then click **USERS**.
- 3 Click the **GENERAL** tab and then click **ADD**.
- 4 Type in a *username* and *password*.
- 5 Click the **SHARED FOLDERS** tab and add a drive or directory to import/export to.
- 6 Highlight the **DIRECTORY** added and check all the boxes under **FILES AND DIRECTORIES**.

RADAR FTP client setup:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to **MAIN/PREFERENCES MENU/NETWORK PREFS/SERVER PREFS** and press the **ENTER** key. Press the **ENTER** key again on **NETWORK PROTOCOL**
- 2 At the **NETWORK PROTOCOL:** prompt, press the **ENTER** key on **FTP**.
- 3 At the **SERVER IP ADDR:** prompt, use the numeric keypad and the **←** and **→** to enter the PC's server IP address and press the **ENTER** key. (*i.e.* 192.168.1.2)
- 4 At the **SERVER NAME:** prompt, use the QWERTY keyboard to enter a name for the FTP Server. (*i.e.* Win XP) (Note: This is display only, and should not impact functionality.)
- 5 At the **SAVE CHANGES:** prompt, press the **ENTER** key on **YES**.



Once FTP/CIFS server Information has been entered it is a good idea to test the connection. To do this, go to **MAIN MENU / DIAGNOSTICS MENU / PING IP ADDRESS**. This provides a way to test communication by sending small packets of data across the network. By default the **SERVER IP** will be entered in this field. Press **ENTER** at the **PING IP ADDRESS:** prompt. **REPLY RECEIVED** means the server is reachable. If the message **NO REPLY** is displayed, recheck the networking settings on both the RADAR and Server.

RADAR FTP client use:

- 1 When performing **IMPORT**, **EXPORT**, **BACKUP**, **RESTORE**, or **FILE BROWSER**, the **N:[SERVER NAME]** option will appear in the drive list.
- 2 Press the **ENTER** key on **N:[SERVER NAME]**
- 3 At the **USER NAME:** prompt, use the QWERTY keyboard to enter the FTP login user name (*case sensitive*).
- 4 At the **USER PASSWORD:** prompt, use the QWERTY keyboard to enter the FTP login password (*case sensitive*).
- 5 Use the **+** and **-** keys to go in and out of folders.
- 6 Press the **ENTER** key to select folder.

Windows FTP client use:

- 1 Perform a **FILE EXPORT** or **BACKUP** to **D:ARCHIVE** on RADAR.
- 2 Start the **FTP CLIENT**.
- 3 Enter the **RADAR'S IP ADDRESS...** 192.168.1.1
- 4 Enter the **LOGIN NAME...** radar (*lower case*).
- 5 Enter the **PASSWORD...** radar (*lower case*).
- 6 Click **CONNECT**.
- 7 The client should connect immediately (*less than 1 sec*). If the client fails to connect, check the PC and RADAR network settings and cabling..
- 8 Locate the RADAR folder were audio files were exported to. Drag and drop the files from the RADAR to the PC hard drive.
- 9 To transfer files using Window's Explorer; type: `ftp://radar:radar@192.168.1.1/.../Archive` in the **ADDRESS BAR**.

RADAR FTP CLIENT NETWORK SETUP WITH A MAC OS X SERVER

These instructions are for setting up a Network between RADAR and a MAC (OS X). To use RADAR's FTP client a 3rd party FTP Server is recommended such as *Pure FTP Manager*. This allows greater flexibility such as multiple users and unique paths.

If connecting from the MAC to the RADAR, an FTP client is recommended (*such as Fetch* www.fetchsoftworks.com)

Connect an Ethernet cable between the RADAR and Mac. RADAR can also be integrated into a network environment; contact the network administrator for specific settings.

Mac IP Address setup:

- 1 Open **SYSTEM PREFERENCES** and then click on **NETWORK**.
- 2 At **SHOW**, select **BUILT IN ETHERNET** and select the **TCP/IP** tab.
- 3 At **CONFIGURE IPV4**: choose **MANUALLY**.
- 4 On **IP ADDRESS** enter a unique **IP ADDRESS** (*i.e.* 192.168.1.2).
- 5 For **SUBNET MASK** enter: 255.255.255.0
- 6 Click **APPLY NOW** button.

Mac FTP Server setup:

- 1 Open **SYSTEM PREFERENCES**.
- 2 Click on **SHARING**.
- 3 Click on the **SERVICES** tab.
- 4 Click on the **FTP** check box.
- 5 Click on the **FIREWALL** tab.
- 6 Click the **STOP** button.

The Mac will use the Mac user account login short name and password for FTP access.

Mac FTP Server Username and Password:

- 1 Open **SYSTEM PREFERENCES**.
- 2 Click on **ACCOUNTS**.
- 3 The **FTP USER NAME** is the **MY ACCOUNT'S, SHORT NAME**.
- 4 The **FTP USER NAME** is the **MY ACCOUNT'S, PASSWORD**.

RADAR FTP client setup:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to **MAIN/PREFERENCES MENU/NETWORK PREFS/SERVER PREFS** and press the **ENTER** key. Press the **ENTER** key again on **NETWORK PROTOCOL**
- 2 At the **NETWORK PROTOCOL:** prompt, press the **ENTER** key on **FTP**.
- 3 At the **SERVER IP ADDR:** prompt, use the numeric keypad and the **←** and **→** to enter the Mac's server IP address and press the **ENTER** key. (*i.e.* 192.168.1.2)

- 4 At the **SERVER NAME:** prompt, use the QWERTY keyboard to enter a name for the FTP Server. (i.e. *Mac Pro*) (Note: This is display only, and should not impact functionality.)
- 5 At the **SAVE CHANGES:** prompt, press the **ENTER** key on **YES**.



Once FTP/CIFS Server Information has been entered it is a good idea to test the connection. To do this, go to **MAIN MENU / DIAGNOSTICS MENU / PING IP ADDRESS**. This provides a way to test communication by sending small packets of data across the network. By default the **SERVER IP** will be entered in this field. Press **ENTER** at the **PING IP ADDRESS:** prompt. **REPLY RECEIVED** means the Server is reachable. If the message **NO REPLY** is displayed, recheck the networking settings on both the RADAR and Server.

RADAR FTP client use:

- 1 When performing **IMPORT, EXPORT, BACKUP, RESTORE, or FILE BROWSER**, the **N:[SERVER NAME]** option will appear in the drive list.
- 2 Press the **ENTER** key on **N:[SERVER NAME]**
- 3 At the **USER NAME:** prompt, use the QWERTY keyboard to enter the Mac's login user name (case sensitive).
- 4 At the **USER PASSWORD:** prompt, use the QWERTY keyboard to enter the Mac's login password (*case sensitive*).
- 5 The Mac FTP Server will automatically connect to the default path of **/USERS/[ACCOUNT SHORT NAME]**. Use the **+** and **-** keys to go in and out of folders. All other drives mounted on the Mac will show in the Volumes folder.

Mac FTP client use:

- 1 Perform a File Export or Backup to **D:ARCHIVE** on RADAR.
- 2 Start the **FTP CLIENT**.
- 3 Enter the **RADAR'S IP ADDRESS...** 192.168.1.1
- 4 Enter the **LOGIN NAME...** radar (*lower case*).
- 5 Enter the **PASSWORD...** radar (*lower case*).
- 6 Click **CONNECT**.
- 7 The client should connect immediately (*less than 1 sec*). If the client fails to connect, check the PC and RADAR network settings and cable connections.
- 8 Locate the folder exported to. Drag and drop the files from the RADAR to the PC HD.
- 9 To transfer files using Safari; type: `ftp://radar:radar@192.168.1.1/.../Archive` in the **ADDRESS BAR**.

PREFERENCES

Every time a new project is created, this prompts RADAR to determine a variety of project settings such as sample rate, bit depth, TC format etc. In order to save time and effort, RADAR assigns these values automatically using the current values selected in the **PREFERENCES MENU**.

To set the preferences for newly created projects:

- 1 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / PROJ PREFS** and press the **ENTER** key.
- 2 Review and modify the settings in the sub-menus to desired specifications.

SOFTWARE

Although RADAR is shipped with the latest version of RADAR software, it can be kept up to date by downloading new versions of the software as they become available. iZ is constantly working to add new features and to improve the performance and reliability of RADAR. Software updates and downloading instructions are available from the iZ website at www.izcorp.com or can be obtained from an iZ authorized dealer, or iZ Technology.

INSTALL PROCEDURE

- 1 Make a backup copy of everything that is on the current recording drive. Upgrading software shouldn't affect the audio on the recording drive, however; everything should be backed up as a precautionary measure.
- 2 Insert the RADAR install CD into the RADAR CD-R/DVD-R Multi-drive or copy the *RADAR_v3.XX.X.zip* file to any media attached to RADAR (i.e., **N:NETWORK**, **D:ARCHIVE**, **CD-R**, **REV DISK** or **USB DRIVE**).
- 3 Use the **MENU/PREV** key, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYSTEM MENU / UPDATE SOFTWARE** and press the **ENTER** key.
- 4 At the **UPDATE S/W FROM:** prompt select either **WEB:IZCORP.COM** (WAN Access Required), **N:NETWORK**, **D:ARCHIVE**, **B:CD**, **4: REV** or **E:USB DRIVE** and press the **ENTER** key.
- 5 At the **INSTALL VER 3.XX?:** prompt use the **←** and **→** keys to select **YES** and press the **ENTER** key.
- 6 At the **REBOOT RADAR TO INSTALL SOFTWARE** prompt, power off RADAR and power back on.

- 7 When RADAR has finished rebooting, the iZ logo will appear on the screen with the following message below it:

**INSTALL RADAR
VX.XX? ENTR/CNCL**

To not proceed with the upgrade, press the **CANCEL** key. Press the **ENTER** key and RADAR will begin reading the software install file, and the message will change to:

**INSTALLING RADAR
VX.XX DISK 1**

Once the software is successfully installed RADAR will start up in the new version and all projects will automatically be upgraded to the new software version format. This operation may take a few seconds per project.

- 8 Power off RADAR and reboot to complete the setup of new drivers.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT** + **UNMNT** on the Session Controller.

RADAR NETWORK CONTROL SOFTWARE FOR PC

The RNC (RADAR Network Control) program allows the control of one or more RADAR machines over the Ethernet using a standard computer with Java Runtime Environment installed (version 1.4.2 or higher). A 30 day trial version of the RNC program is located on the software install CD included with RADAR. Please contact a local dealer or our sales department, izsales@izcorp.com or 1.800.776.1356, if you would like to purchase the full version.

Some of the RADAR features included in RNC are:

RWD	GOTO PROJECT	MARK IN/OUT/SYNC	SYNC REFERENCE
FFWD	NEW PROJECT	MARK/EDIT/RECALL LOC	TC PREFS
PLAY	NAME PROJECT	ENTER TIME	SYNC OFFSET
STOP	DELETE PROJECT	FILE MANAGEMENT BROWSE	CHASE
RECORD	TRACK NAME	FILE IMPORT	I/O ROUTING
CUT	TRACK SOLO	MOUNT/UNMOUNT	DIG IN FORMAT
COPY	TRACK MUTE/UNMUTE	RADARLINK	DIG IN TRACKS
PASTE	TRACK ARM	SHUTDOWN	ERASE ALL DISKS
ERASE	AUTO INPUT	SET TIME/DATE	

For instructions on using the RNC software, please refer to the help files located within the RNC folder on the software install CD.



If you are using a **KC-24** connected to your computer to control RNC, the left-of-spacebar **ALT** key = **FFWD** and the right-of-spacebar **ALT** key = **STOP**.

To enable RADAR Network Control software:

- 1 Configure the RADAR for networking using the **INTERFACE PREFS** within the **NETWORK PREFS** of the **PREFERENCES MENU**. Refer to *CONFIGURATION: NETWORKING* earlier in this section for detailed instructions.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / NETWORK PREFS / NETWORK CONTROL** and press the **ENTER** key.
- 3 Use the **→** key to move the cursor to **ENABLED** in the **NETWORK CONTROL** dialogue and press the **ENTER** key.
- 4 The confirmation prompt **NETWORK CONTROL SLAVE ID = X** indicates that the RADAR can now be controlled by using the slave id given.

To disable RADAR Network Control software:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / NETWORK PREFS / NETWORK CONTROL** and press the **ENTER** key.
- 2 Use the **←** key to move the cursor to **DISABLED** in the **NETWORK CONTROL** dialogue and press the **ENTER** key.
- 3 A confirmation prompt **NETWORK CONTROL SLAVE DISABLED** indicates that RADAR will no longer be controllable by RNC (RADAR Network Control).

SECTION 4

OPERATIONS

This section of the manual provides a quick reference to RADAR displays, key functionality, menus, value entry, project management, backup and restore.

RADAR is a robust, dependable and easy-to-use multi-track recorder. All aspects of RADAR performance are designed to meet and exceed the performance requirements of a professional recorder. All professional recorder functions are available such as the ability to record, punch in and out, jog/shuttle and vari-speed.

POWERING RADAR ON AND OFF

RADAR units manufactured prior to July 2007 have a marked on/off toggle power switch. To turn RADAR on, push the top of the power switch to the “I” position. To properly power down RADAR choose **SHUTDOWN RADAR** from the **MAIN MENU** and then push the bottom of the power switch to the “O” position.

RADAR units manufactured after July 2007 have an unmarked momentary soft power switch. To turn RADAR on, push and release the top of the power switch briefly. To properly power down RADAR choose **SHUTDOWN RADAR** from the **MAIN MENU** and then hold the top of the power switch for 5 seconds until RADAR powers off. This 5 second delay is a safety feature that prevents inadvertent power down.

When RADAR powers up, a power on self test (POST) is performed, and proceeds to load the RADAR application. During the RADAR application launch, the iZ logo will appear followed by a black screen for a few seconds, followed by the RADAR logo, then by the **RADARView** operating screen. When the **RADARView** screen appears, RADAR will automatically mount the previously mounted audio drive and load the previously loaded project.

DISPLAY

While most RADAR users connect an SVGA monitor to make use of the **RADARView** display, it is important to note that a monitor is not required with the *optional* **Session Controller**. The **Session Controller** makes RADAR exceptionally portable and ideally suited for remote applications

Both **RADARView** and the **Session Controller** display the current position within a project. This information can be viewed in several different ways:

- FEET/FRAMES** This is used for specific film applications.
- BARS/BEATS** The RADAR tempo setting is used to calculate and display positions based on musical notation. This can be handy when working with a locked MIDI sequencer.
- SMPTE** SMPTE (Society of Motion Picture and Television Engineers) is the most common format and is RADAR's default display. SMPTE is displayed in *Hours:Minutes:Seconds:Frames* plus sub-frames display.
- INT/EXT SMPTE** While in chase, the **Session Controller** will display the project's current time above the master machines current timecode position. The **RADARView** display shows only the master machine's timecode position in this mode.



RADAR Sub-frames are not SMPTE bits. Each sub-frame is a 100th of a frame. Sub-frames are only accessible if the **SHOW SUB-FRAMES** preference is selected in the **MAIN MENU / PREFS MENU / SHOW SUB-FRAMES** dialogue.

To change the display mode of a project:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / DISPLAY MODE** selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the format and press the **ENTER** key.

SCREEN SHOT IMAGE SAVED ON THE ARCHIVE DRIVE

To save a screen shot:

Press **SHIFT+X**, a screen shot will be saved to a file named **SCREENSHOT.BMP**. This file will be located in the **D:ARCHIVE/SYSTEM FILES/SCREEN SHOT** folder.



This function will overwrite the previous screen shot each time it is used.

RADARVIEW

With an SVGA monitor attached, RADAR gives users a substantial display of the following information (clockwise from top):

- 24 channels of metering with status and clip LED's.
- Large, easy to read positional display.
- RADAR Model and Software Version
- Sync Status Display:
 - Sample rate and bit depth.
 - Current timecode rate and incoming TC rate.
 - Sync status and reference sync source.
 - Chase status and TC format.
 - Sync offset.
- Transport Status Display:
 - Vari-speed indicator and percentage display.
 - Cycle, Auto Input, Auto Punch and Auto Play indicators.
 - Pre-Roll status and current value.
 - Post-Roll current value.
- Edit Status Display:
 - Crossfade value.
 - Last Edit display.
 - Undo/Redo Level setting.
- RADARLink/ Locator Display:
 - RADARLink ID and status.
 - Start, Mark In, Mark Sync, Mark Out, Range values.
 - Display (counter) format.
- Project Name
- Locate List

- Record time remaining.
- Disk Mode.
- SCSI activity indicator.
- Track display for audio waveform data.
- Track naming area, inputs, outputs.
- Current digital I/O format display.
- Date and Time Display

SESSION CONTROLLER DISPLAY

The **Session Controller** has a 2 x 16 character display that is used to display the current timecode position in the project, as well as all RADAR menus and dialogs. The default display shows the current timecode location in the standard *Hours:Minutes:Seconds:Frames* plus sub-frames format. When menu functions are accessed using the **MENU/PREV** key or by pressing a direct access key, the display becomes the central navigation system for RADAR. The contents of this display are mirrored on **RADARView** with the exception of the default display.

INDICATORS

Metering and other indicators are provided on the **RADARView** display and also on the optional **Meterbridge 24** and **Meterbridge 48**, either of which can be connected to the **Session Controller** professional remote.

METERING

Input signal is displayed on 20-segment LED meters with a scale ranging from below -55 to 0 dBFS (decibels Full Scale), the maximum input level. A clip LED with variable hold time is also provided to help warn of impending digital distortion. The clip LED hold time setting can be changed in the **MAIN MENU / PREFS MENU / CLIP HOLD TIME** dialogue.



Use **SHIFT + CANCEL** to clear clipped meters when **CLIP HOLD TIME** is set to **-1**.

STATUS

The additional LED indicators on each channel of the **Meterbridge 24** and **Meterbridge 48** include:

- ARM** Red-flashing LED indicators to identify tracks that are armed and ready for recording.
- INPUT** Steady-state yellow LED indicators to identify tracks currently in input monitoring mode.
- SOLO** Steady-state green LED indicators to identify tracks that are currently soloed.
- EDIT** Red-flashing LED indicators to identify tracks that are selected for the current editing operation.

WAVEFORM DISPLAY

There are several options for controlling the current view of the waveforms displayed on **RADARView**. These options are accessed via the **Session Controller** or the **KC-24** keyboard.

SESSION CONTROLLER

The **Session Controller** has dedicated buttons for horizontal zoom, vertical zoom, scrolling and a special function key called **ZOOM SOLO**.

- HORZ ZOOM IN** and **HORZ ZOOM OUT** Control the amount of time currently displayed.
- VERT ZOOM IN** and **VERT ZOOM OUT** Control the number of tracks currently displayed.
- SCROLL UP** and **SCROLL DOWN** Used to adjust the current track(s) displayed when using **VERT ZOOM IN**.
- ZOOM SOLO** Used to select viewable tracks using the track arming keys. The tracks will fill the track display in groups of one, two, four, eight, twelve or twenty-four, depending on the number of tracks selected.

KC-24 KEYBOARD

The **KC-24** uses different keystrokes for horizontal zoom, vertical zoom and scrolling.

- HORZ ZOOM IN** and **HORZ ZOOM OUT** Hold the **V** key and use the **+** and **-** keys to adjust.
- VERT ZOOM IN** and **VERT ZOOM OUT** Hold the **Z** key and use the **+** and **-** keys.
- SCROLL UP** and **SCROLL DOWN** Hold the **V** key and use the **↑** and **↓** keys to adjust.



ZOOM SOLO is not available with the **KC-24**.

ON SCREEN HELP

The **HELP** key or the **MAIN MENU / HELP** menu launches the PDF viewer and loads The Operator's Manual or the latest software Release Notes for viewing on the **RADARView** display.

To launch the help viewer:

- 1 Press the **HELP** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / HELP** menu and press the **ENTER** key.
- 2 Select either the Operator's Manual or the software Release Notes and press the **ENTER** key.

For PDF Viewer navigation keystrokes, please see **REFERENCE: RADAR PDF VIEWER**

ENTERING VALUES

NUMERIC KEYPAD

The numeric keypad has several key functions important to RADAR operation.

- Single keystroke recall of locates 0-9 using the numeric keys **0** – **9**.
- The **RECALL LOC** and numeric keys **0** – **9** for recall of locates 10-99.
- Numeric keys **0** – **9** and **ENTER** for entering times and values in menu dialogs.
- The **MENU/PREV** and the **ENTER** keys for menu navigation and dialogue selection.
- The **ENTER TIME** key, numeric keys **0** – **9** and **ENTER** key for entering an address and locating to it.
- The **+** and **-** keys for incrementing or decrementing times and values in RADAR dialogs as well as selecting next or previous directories at a **SELECT FOLDER:** dialogue.

ENTER TIME FUNCTION

When the **ENTER TIME** key is pressed, it will display the previously-entered time. This allows the user to return to the same time location by simply pressing **ENTER**.

For example:

1 Press the **ENTER TIME** key.

2 The RADARView will display:

```
00: 00: 00: 00.00
00: 00: 00: 00.00
```





3 Enter a time and press the **ENTER** key:

```
00: 00: 00: 00.00
00: 10: 30: 00.00
```

4 Press the **ENTER TIME** key will recall the previous time:

```
00: 00: 00: 00.00
00: 10: 30: 00.00
```





ARROW KEYS

The , , , and  are used for navigating the menu system. They also have special functions depending on the current state of the RADAR.



WITHIN A MENU

- Select menus and subsequent sub-menus.
- Move between fields or selections in menu dialogs.




WITHIN A NAME FIELD

- Use  and/or  for entering the following symbols:
/ . - , + *) (' & % \$ # ? ! **BLANK** { | } ? ? > = < ; :
as well as for scrolling through the numbers/letters.
- Use  and/or  for moving the cursor to the next/previous adjacent character field.




IN CONJUNCTION WITH A DIRECT KEY

- Certain direct key and menu dialogs use the  and  keys for incrementing and decrementing values.

AS AN EXTENSION OF THE TRANSPORT

-  Locates directly to the **MARK IN** point.
-  Locates directly to the **MARK OUT** point.
-  Auditions the audio between the selected **MARK IN** and **MARK OUT** points.

AS AN EXTENSION OF THE TRANSPORT WITH PRE ROLL ENGAGED

-  Locates directly to the **MARK IN** point with pre roll.
-  Locates directly to the **MARK OUT** point with pre roll.
-  Auditions the audio between the selected **MARK IN** and **MARK OUT** points **without** pre roll.

JOG/SHUTTLE WHEEL (SESSION CONTROLLER ONLY)

The **Jog/Shuttle Wheel** allows users to manually jog and shuttle audio. The **Jog/Shuttle Wheel** can also be used as an alternative to the numeric and arrow keys for navigation and data entry - this includes menu and sub-menu selection, selection of options and value entry.

NAVIGATING MENUS

For complete coverage of the menu system see the section of this manual entitled *REFERENCE: MENU TREE OVERVIEW* and *REFERENCE: MENU ITEM QUICK REFERENCE*.

MENU/PREV

The **MENU/PREV** key is used to enter **MAIN MENU MODE**, go to previous [/PREV] dialogs, menu and sub-menu selections and exit **MAIN MENU MODE**. The display on the **Session Controller** and/or the optional **RADARView** screen will indicate the current menu selection.

KEYBOARD SHORTCUTS

Once in **MAIN MENU MODE** the QWERTY keyboard can be used to quickly select menu items based on the first letter of the menu name. For example, in the **MAIN MENU**, pressing the **S** key repeatedly will cycle between the **SYSTEM MENU**, **SYNC MENU** and the **SHUTDOWN RADAR** selections.

CANCELLING A SELECTION

While in the menu system, pressing the **CANCEL** key will exit the current dialogue. The **Session Controller** LCD will return to the default time and locate display and the menu window in the **RADARView** display will disappear.

MENUS

Once the **MENU/PREV** key is pressed and **MAIN MENU MODE** is active any of the navigation and/or short cut keys can be used to scroll through the available selections in the top level of the menu structure. This level is called the **MAIN MENU**. To exit the **MAIN MENU MODE**, press either the **MENU/PREV** or **CANCEL** keys. To make a selection, locate the desired menu item using the **↑** and **↓** keys or the QWERTY keyboard and press the **ENTER** key. This will navigate to another level down in the menu structure to the **SUB-MENUS**.

SUB-MENUS

The **SUB-MENUS** are selected in a manner identical to the menus in the **MAIN MENU**. Each **MAIN MENU** item has a number of related **SUB-MENUS**. These **SUB-MENUS** may also have their own **SUB-MENUS** to choose from, depending on the selected item.

Example:

Press the **MENU/PREV** key once

MAIN MENU:
SYSTEM MENU

Then press the **ENTER** key to access the **SUB-MENUS** within **SYSTEM MENU**

MAINSYS MENU:
SYSTEM INFO

Finally, press the **ENTER** key to access the **SUB-MENU** selection

RADAR SOFTWARE
VERSION: X.XX

DIALOGUES

Upon arriving at the end of any given menu tree, the user will be presented with some sort of selection or a set of fields for entering values. Values can be entered using any of RADAR's data entry methods including the numeric keys, arrow keys and the **Jog/Shuttle Wheel**.

DIRECT ACCESS KEYS

Both the **Session Controller** and the **KC-24** have a wide range of keys that offer one-key access to a particular function. Most of the direct access keys provide short cuts to menu items but some provide functions that are not available via the menu.

DISK MANAGEMENT

RADAR uses SCSI, SATA or PATA hard disks in removable drive carriers for audio recording. Hard disks are a robust recording and storage medium, but proper care should be taken when handling, storing or transporting them. As drives are mechanical devices that wear over time, scheduled replacement is recommended for best reliability. Please take note of the following important points:

- Use only iZ drives and carriers which can be purchased directly from iZ or from one of our authorized dealers.
- Newly purchased drives are initialized for native BWAV recording, but can be initialized for a different format using the **MAIN MENU / DISK MENU / INIT DISK** menu dialogue before use.



Initializing a disk erases any existing data permanently. Use with caution.

- Properly initialized external SCSI backup drives connected via the 68-pin SCSI connector on the back of the RADAR must be connected and powered up before booting the system.
- Any valid recording drive on the default SCSI ID will automatically be mounted upon boot up.

MOUNTING, UNMOUNTING AND SELECTING DISKS

The RADAR mount and un-mount commands allow carriers containing recording drives to be exchanged, drives to be copied/cloned, and a different recording drive selected from the current mount volume.

To mount valid recording drives OR switch to a different valid recording drive:

- 1 Press the **MOUNT** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and **ENTER** key to go to the **MAIN MENU / DISK MENU / MOUNT/UNMOUNT** dialogue and press the **ENTER** key.
- 2 At the **FILESYSTEM:** dialogue, use the **←** or **→** key to select **MOUNT** and then press the **ENTER** key.
- 3 At the **SELECT DISK:** dialogue, use the **↑** and **↓** keys to choose the **X: RADAR_BWAV** disk (SCSI) ID to switch to and press the **ENTER** key.



To switch disk IDs using the **MOUNT** key a drive must be already mounted.



When a drive is already mounted press the **MOUNT** key to switch to a drive ID from 0 to 6.

To unmount the current recording drive:

- 1 Press the **SHIFT + MOUNT (UNMNT)** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / MOUNT/UNMOUNT** dialogue and press the **ENTER** key.
- 2 At the **UNMOUNT DRIVES:** prompt use the **←** or **→** key to select **AUDIO** and then press the **ENTER** key.

To unmount a USB drive:

- 1 Press the **SHIFT + MOUNT (UNMNT)** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / MOUNT/UNMOUNT** dialogue and press the **ENTER** key.
- 2 At the **UNMOUNT DRIVES:** prompt use the **←** or **→** key to select **OTHER** and then press the **ENTER** key.
- 3 At the **UNMOUNT:** prompt press the **ENTER** key on **E:USB DRIVE**.



Failure to unmount drives before removing them from the system may result in permanent data loss and damage to the RADAR system. Always unmount before hot swapping drives.

SHOW DISK SPACE

This menu item displays the remaining recording time left on the currently mounted recording drives in the hours, minutes and seconds format. This information is also available on the **RADARView** display but the calculated recording time remaining is displayed in minutes. These values are “track minutes”; in other words, the displayed time will vary depending on the number of tracks selected using the track arming keys.

To calculate the remaining time for a given number of tracks:

- 1 Press the **Track Arm** keys to select the number of tracks to be used in the remaining time calculation.
- 2 Consult the **REC TIME** display on the bottom right of **RADARView** to view the minutes remaining or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / SHOW DISK SPACE** dialogue and press the **ENTER** key to view the same information in the hours, minutes and seconds format.



SHOW DISK SPACE can also be displayed by simultaneously pressing the **←** and **→** keys on the **Session Controller** or the **KC-24**.



To display the remaining space in megabytes, hold **SHIFT** and press **B** then **BROWSE** to the appropriate drive and press the **SPACEBAR** (**SPACE** key on the **KC-24**).

RECLAIM SPACE

The **RECLAIM SPACE** function frees up disk space by deleting “orphaned” audio files that are no longer referenced by any RADAR project play list. There is also an additional option that allows the user to keep or delete any audio files that are referenced in the current undo lists.

RADAR also has an **AUTO RECLAIM** feature. This feature differs from **RECLAIM SPACE** in that it only frees up orphaned files in a particular project. In other words it will not delete any audio files that were previously shared between projects. **RECLAIM SPACE** is a global function that will examine **all** projects and delete any audio files that are no longer in use for any reason. **AUTO RECLAIM** is enabled by default and works automatically in the background to ensure the most efficient use of disk space. It can be disabled in the **MAIN MENU / PREFERENCES MENU / AUTO RECLAIM** dialogue.

To reclaim disk space:

- 1 Before reclaiming space ensure every project on the recording drive is backed up. **RECLAIM SPACE** is a global disk function and may affect audio in projects other than the current project.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / RECLAIM SPACE** dialogue and press the **ENTER** key.

- 3 Select **YES** at the **RECLAIM SPACE?** prompt and press the **ENTER** key.
- 4 Select the **NO** or **YES** option to keep or lose the **UNDO LIST** audio references and press the **ENTER** key. If selecting **YES**, all undo possibilities for every project currently on the drive will be lost. Proceed with **CAUTION**.
- 5 Select **YES** at the **ARE YOU SURE?** prompt and press the **ENTER** key.

MAKE DISK PORTABLE

This feature should be used when a Non-BWAV audio disk will be used on other RADAR units running previous versions of software or when using a Non-BWAV RADAR disk in a RADARII. **MAKE PORTABLE** can also be a request each time **SHIFT + MOUNT (UNMNT)** is pressed. This preference can be set in the **MAIN MENU / PREFERENCES MENU / UNMOUNT PORTABLE** dialogue.



Mounting a BWAV audio drive in a RADAR II or in a RADAR 24/V running software pre 3.35 will destroy all the data on that drive.



In order to allow audio disks to be accessible to RADARII and RADAR24 units running 3.26 or older software, verify that NO projects exist above number 99. Projects numbered 100 or greater may be lost. Renumber all projects to a number less than 100 and/or **BACKUP** before proceeding.

To make a disk portable:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / MAKE PORTABLE** dialogue and press the **ENTER** key.
- 2 At the **MAKE PORTABLE DISK?** prompt, select **YES** and press the **ENTER** key.

If the audio disk contains one or more projects greater than 99, the following dialogue will be displayed:

PROJ>99:USE ONLY
IN 3.30 OR ABOVE

After this display, press the **ENTER** key and the following will be displayed:

MAY LOSE AUDIO
IN 3.26 OR BELOW

Press the **ENTER** key to continue or **CANCEL** to stop the process.

- Depending on how many projects are on the audio disk, the **MAKE PORTABLE DISK** may take a while as this feature involves a conversion of each project to a RADAR software independent format. During this time, the LCD **RADARView** will display:

```

FILESYSTEM:
+ CONVERT PROJXX +
  
```

- Once complete, the drive will be unmounted and the display will indicate **DISK IS NOW PORTABLE**. Press any key to continue.

To disable/enable **MAKE PORTABLE** on **UNMOUNT**:

- Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / UNMOUNT PORTABLE** dialogue and press the **ENTER** key.
- At the **UNMOUNT PORTABLE NO ASK** prompt, use the **←** and **→** keys to select the appropriate response and press the **ENTER** key.

ERASE ALL AUDIO

Use **ERASE ALL AUDIO** to clear all of the recording drives connected to the system.

To erase all recorded audio:

- Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / ERASE ALL AUDIO** dialogue and press the **ENTER** key.
- Select **YES** at the **ERASE ALL AUDIO?** prompt and press the **ENTER** key.
- Select **YES** at the **LOSE ALL AUDIO?** prompt and press the **ENTER** key.
- Select **YES** at the **ARE YOU SURE?** prompt and press the **ENTER** key.



ERASE ALL AUDIO cannot be undone, use with caution.

INITIALIZE DISK

INIT DISK is used to completely erase a recording drive and re-write the file allocation table (FAT). Since this menu item will erase audio it must be used with extreme caution.

It is possible to export and import WAV and B WAV files to/from drives in FAT32 or Mac HFS Standard formats connected to the RADAR SCSI bus. For details on how to export/import files please refer to the *OPERATIONS: FILE MANAGEMENT: EXPORT* and *IMPORT* sections.

For waveforms of the recorded audio to appear on the **RADARView** display, the recording disk must be initialized for waves. This creates a special file on the disk that holds all of the waveform data for the recordings on the drive. If the disk is not initialized for waves **RADARView** will display recorded segments as blue bars.

Once initialized, the drive can be used for recording audio, archiving (backup/restore) or export/import (FAT32 or MAC HFS Standard).

To initialize a disk:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / INIT DISK** dialogue and press the **ENTER** key.
- 2 Select the SCSI ID number of the disk to initialize or, select **B** to initialize a DVD-RAM or Blu-ray disk.
- 3 When prompted with the question **INIT DISK X?** use the **←** and **→** keys to select **YES** and press the **ENTER** key.
- 4 At the **INIT VOLUME FOR:** dialogue, use the **↑** and **↓** keys to select one of the options and then press the **ENTER** key.

AUDIO: RADAR_BWAV This is a proprietary RADAR audio format for the recording drive.

AUDIO: !RADAR! This is the legacy proprietary RADAR audio format for the recording drive.

BACKUP: !ARCHIVE! This is a proprietary RADAR archive format for backup/restore.

EXPORT: FAT32 This standard FAT32 format allows file export/import between RADAR and a PC.








EXPORT: MAC HFS The Mac HFS (OS Standard) format allows file export/import strictly with Mac computers.

To initialize a drive as **AUDIO: RADAR_BWAV** proceed to step 1, for **AUDIO: !RADAR!** proceed to step 3 otherwise, skip to step 6.


Initializing disk for RADAR_BWAV:

- 1 At the **INIT FOR WAVES?** prompt, use the **←** and **→** keys to select **NO** or **YES** and then press the **ENTER** key. To see waveforms displayed in **RADARView** select **YES** otherwise select **NO**.
- 2 Before initializing takes place the **ERASE OLD DATA?** prompt appears as a last warning to confirm this operation. Select **YES** and press the **ENTER** key to proceed with the initialization.

Initializing disk for !RADAR!:

- 3 At the **INIT FOR CLUSTER SIZE:** dialogue, choose from the 3 cluster sizes **32, 64, OR 128K**. **128K** is the standard Pre-BWAV RADAR cluster size.
Use the  and  keys to select **32, 64** or **128K** and then press the  key.
- 4 At the **INIT FOR WAVES?** prompt, use the  and  keys to select **NO** or **YES** and then press the  key. To see waveforms displayed in **RADARView** select **YES** otherwise select **NO**.
- 5 Before initializing takes place the **ERASE OLD DATA?** prompt appears as a last warning to confirm this operation. Select **YES** and press the  key to proceed with the initialization.

Initializing disk for BACKUP:!ARCHIVE!/EXPORT:FAT32/EXPORT:MAC_HFS:

- 6 Choose the desired backup format.
- 7 Before initializing takes place the **ERASE OLD DATA?** prompt appears as a last warning to confirm this operation. Select **YES** and press the  key to proceed with the initialization.

DISK MODE

The **DISK MODE** menu is **potentially dangerous** and should only be used if the feature is completely understood. Use of this feature is **ONLY** necessary if recording in dual disk mode (**DUAL DISK**), spanning multiple drives during a recording (**SPAN ALL MODE**) and/or specifying the number of tracks that are recorded per hard disk (**CUSTOM MODE**). There are four possible **DISK MODE** configurations:

SINGLE DISK mode records 24 tracks per disk. This is the default mode for RADAR.

DUAL DISK recording is available with an Adrenaline Plus RADAR system. Recording drives can be initialized for mirrored (dual disk recording). In Dual Disk Mode, audio is recorded simultaneously to both disks.









If Adrenaline Plus is not installed when attempting to enable dual disk mode the RADAR will display the message: **DUAL DISK NEEDS ADRENALINE PLUS**.

SPAN ALL mode records 24 tracks per disk and allows audio to spill over to the next SCSI recording disk when the current recording drive is full.

CUSTOM mode allows the user to specify the number of tracks per disk. This enables the user to separate tracks across multiple disks. This was sometimes required to get the required performance from slower hard disks. With modern drive technology this is not necessary and unadvisable unless recommended by iZ Support.

To use disk mode (For **DUAL DISK** mode setup skip to the next section):

- 1 Use the **MENU/PREV**, the  and  keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / DISK MODE** dialogue and press the **ENTER** key.
- 2 At the **CONFIGURE DISKS:** dialogue, use the  and  keys to select **SINGLE DISK**, **DUAL DISK** (requires Adrenaline Plus), **SPAN ALL** or **CUSTOM** and press the **ENTER** key.
If **CUSTOM** is selected, proceed to step 3 otherwise skip ahead to step 6.
- 3 Choose the desired cluster size using the  and  keys and press the **ENTER** key.







Smaller cluster sizes result in faster cueing times but may also reduce system performance.

- 4 If additional drives are connected, choose the number of tracks to group together on each disk and press the **ENTER** key.



This number must equally divide into 24 e.g., 8, 12 etc.

- 5 Assign the grouped tracks to an individual disks SCSI ID by using the  and  keys to select the SCSI ID and the  and  keys or the QWERTY keyboard to select the group assignment letters. Once the selection(s) are made, press the **ENTER** key.

The following example shows three groups of 8 tracks, A, B and C, assigned to disks on SCSI ID's 0, 1, and 2. Use the letter X to denote un-assigned drive ID's.





```
SCSI IDS: 0123456
GROUPING: ABCXXX
```







- 6 To confirm the changes select **YES** in the **CHANGE MAY LOSE AUDIO** dialogue and press the **ENTER** key.

DUAL DISK MODE (ADRENALINE PLUS CARD ONLY)

DUAL DISK MODE is only available to RADAR systems with two recording drives and Adrenaline Plus. It allows audio to be recorded simultaneously to both recording drives.

To enable/disable **DUAL DISK MODE**:

- 1 Use the **MENU/PREV**, the  and  keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / DISK MODE / DUAL DISK** dialogue and press the **ENTER** key.
- 2 At the **MASTER DISK: 0** prompt use the  and  keys to select the disk ID of the master.

- 3 Use the  and  keys to select **SLAVE DISK: 0** then use the  and  keys to select the disk ID of the slave.
- 4 At the **ARE DISKS EXACT COPIES?** prompt, select **NO** and press the  key.
- 5 At the **INIT DRIVE X+Y** prompt, select **YES** and press the  key.




If using drives that are of different sizes, the smaller drive must be made the master.



Initializing drives will erase all data.

Entering **DUAL DISK MODE** without initializing both hard drives is only possible in two scenarios:

- a. The two drives were previously initialized and used in **DUAL DISK** mode and have not been mounted individually since that time;
- b. One drive is an exact clone of the other (i.e. it was made using the **SECTOR-BY-SECTOR COPY** option in the **CLONE RADAR DISK** menu). In both these cases, follow the same steps used to enable **DUAL DISK MODE** in the directions above except at the **ARE DISKS EXACT COPIES?"** prompt, select **YES** and press the  key.

After recording in **DUAL DISK MODE**, and performing an **UNMOUNT DISKS** or **SHUTDOWN RADAR**, RADAR will remember. To re-enable **DUAL DISK MODE**:

- 1 The next time disks are mounted, a prompt will ask to **CONFIG DISKS AS** either **SINGLE** or **DUAL**.
- 2 Provided the disks have not changed, select **DUAL**.
- 3 At the prompt: **ARE DISKS EXACT COPIES?** select **YES**.
- 4 At the prompt: **ARE YOU SURE?** select **YES**.



If dual disk mode is enabled with a pair of drives that don't fit either of these criteria, the audio on the secondary disk will be damaged.



Dual disk mode is for recording only. To edit, backup or flatten files, the disks must be remounted in single disk mode. To go back into dual disk mode at a later time, it is necessary to initialize or clone the drive so that it fits one of the criteria above.

RECORD 24 TRACKS AT 192 KHZ (ADRENALINE PLUS CARD ONLY)

With this mode enabled, 24 tracks can be recorded at 192 kHz, however crossfades will not be processed until the transport is stopped. During this time the LCD will display the **+WORKING+** message.

RADAR is able to process 12 tracks seamlessly (in real time) at 192 kHz. If real-time crossfades are required, disable the 24 track mode and select the 12 tracks to record.

To enable/disable **24 TRKS AT 192K**:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / 24 TRKS AT 192K DIALOG** and press the **ENTER** key.
- 2 Choose **ENABLE/DISABLE** and press the **ENTER** key.
- 3 If **DISABLE** is selected the RADAR will prompt to **SELECT TRACKS**. Choose from: **1-12 13-24 SELECTED** (using the **Track Arm** keys, select the desired tracks)
- 4 After making a selection, press the **ENTER** key.

SEAMLESS 64K

This function allows users to have 24 tracks of seamless recording during punch ins/outs when using a 64k cluster initialized drive. This mode will prevent any time delay between recordings.



With **SEAMLESS 64K** enabled, recording and punching in/out without editing requires a minimum 7200 RPM drive whereas a heavily edited project requires a minimum 10,000 RPM drive.

To enable or disable seamless 64k mode:







- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / SEAMLESS 64K** dialogue and press the **ENTER** key.
- 2 At the **SEAMLESS 64K:** dialogue, use the **◀** and **▶** keys to choose **ENABLE** or **DISABLE** and then press the **ENTER** key.

CLONE RADAR DISK

This function provides an easy way to copy data from one hard drive to another.

To clone a disk:

- 1 Unmount the drive by pressing **SHIFT + MOUNT (UNMNT)** key on the **Session Controller** or use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / MOUNT/UNMOUNT** dialogue and press the **ENTER** key.
- 2 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / CLONE RADAR DISK** dialogue and press the **ENTER** key.

- 3 Use the  and  keys to switch between the **SOURCE ID** and the **COPY ID** fields. Use the  and  keys to select the desired SCSI ID for both the source and destination drives and press the  key.
- 4 To clone a drive, select **YES** in the **SECTOR-BY-SECTOR COPY** dialogue and press the  key. Selecting **NO** will perform a file based disk copy (not recommended).





A sector-by-sector copy will copy the entire drive whether there is audio present or not. This may take a significant amount of time with large capacity hard drives. A file-based copy will duplicate the data and directory information to the new drive but will store the data in different physical sectors on the hard disk platters. This approach can be much faster for small amounts of data.

- 5 A final dialogue will prompt **ARE YOU SURE?** Select **YES** and press the  key to continue.


DISK NOTES

When an audio drive is mounted in RADAR, a disk info file will automatically be created in the *Disk Info File* folder on RADAR's system drive. This file will contain information about the drive capacity, the projects on the drive, and the contents of the **USER** folder.

When an audio drive is unmounted, the disk info file will be removed from the system drive, and placed in the **USER** folder on the audio drive itself. The disk info file is also included in the backup folder whenever a project is backed up.

The disk info file can be saved to another location using the **DISK NOTES** selection in the **DISK MENU**. This selection also gives the option to **VIEW** the disk notes on the **RADARView** screen. **DISK NOTES** may also be accessed by pressing  and then the  button.






ENABLE DISK ID

Each drive on RADAR has a disk ID, numbered between 0 and 6. The **ENABLE DISK ID** option allows the disk IDs of drives that are not in use to be easily disabled, thus speeding up access to file browsing, backup and other functions that scan for drives. For example, when an eSATA port is installed in place of a floppy drive but no eSATA drive is connected to the port, long timeouts can occur when RADAR scans for drives. To avoid these timeouts, the **ENABLE DISK ID** setting is available in the **DISK MENU** or can be accessed by pressing the letter  on either the **Session Controller** or **KC-24** keyboard.

To enable or disable a Disk ID:

- 1 Press the letter  to access the shortcut:

```
DISK ID: 0123456
ENABLE: YYNNYYY
```

- 2 Use the  and  keys to select an ID, the  and  keys to select **Y** for enabled and **N** for disabled. Once the options are set press the  key to exit the menu.

DISK DIAGNOSTICS

RADAR has a variety of diagnostic tools to help the user with trouble-shooting and configuration. If experiencing problems with the record drive, the first and best course of action is to call [iZ Support at 1-800-776-1356](tel:1-800-776-1356) or email us at support@izcorp.com.



Repairing or altering a disk directory structure in any way may result in the loss of audio data. Many of the following functions should only be used under the guidance of iZ Support. Exercise extreme caution when using them.

SCAN SCSI BUS

The **SCAN SCSI BUS** menu item displays all connected and recognized devices on the SCSI bus and will not alter the disk or data in any way.

To scan the SCSI bus:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DIAGNOSTICS MENU / SCAN SCSI BUS** dialogue and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to view the list of detected devices.
- 3 Press the **MENU/PREV** or **CANCEL** keys to return to normal operation.

CHECK DISK

The **CHECK DISK** routine performs a check of the selected SCSI ID drive and reports any errors found in the file system including the FAT and directory structure of the disk. This function is safe and will not alter the data on the selected disk at all. The resulting report can be viewed in either the **Session Controller** or **RADARView** displays and can also be output to a text file as a part of the debug file. See *OPERATIONS: DISK DIAGNOSTICS: RADAR DEBUG* for more details.

To check a disk on a SCSI ID:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DIAGNOSTICS MENU / CHECK DISK** dialogue and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the SCSI ID that corresponds to the drive and press the **ENTER** key.
- 3 Select **YES** to the **CHECK DISK X?** prompt, and press the **ENTER** key.
- 4 The check will proceed. The disk will be un-mounted and re-mounted and a report will be generated and displayed in the **DISK ERRORS:** dialogue. To view the details use the **↑** and **↓** keys to scroll through the list. This information will be stored in the debug file that can be saved and sent to iZ Support if required. See *OPERATIONS: DISK DIAGNOSTICS: RADAR DEBUG* for more details.

- 5 Press the **CANCEL** key to resume normal operation.



To check a DVD-RAM or BD-RE disk in the multi-drive, select **YES** to check **DISK B**.

REPAIR DISK

The **REPAIR DISK** function will correct any inconsistencies that were found in the FAT and/or directory structure on the selected disk after using the **CHECK DISK** function. If experiencing technical issues please call iZ Support at 1-800-776-1356 or email us at support@izcorp.com before using this feature.



Using this feature could result in audio data being lost - exercise caution.

To repair a SCSI or SATA disk:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DIAGNOSTICS MENU / REPAIR DISK** dialogue and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the SCSI ID that corresponds to the drive and press the **ENTER** key.
- 3 Select **YES** at the **REPAIR DISK X?** prompt to confirm and press the **ENTER** key.
- 4 The disk will be un-mounted and re-mounted and a report will be generated and displayed in the **DISK ERRORS:** dialogue. To view the details, use the **↑** and **↓** keys to scroll through the list. This information will be stored in the debug file that can be saved and sent to iZ Technical Support if required. See *OPERATIONS: DISK DIAGNOSTICS: RADAR DEBUG* for more details.
- 5 Press the **CANCEL** key to resume normal operation.



To repair a DVD-RAM or BD-RE disk in the multi-drive, select **YES** to repair **DISK B**.

CHECK PROJECT

The **CHECK PROJECT** function analyzes a selected RADAR project and checks for playlist errors.

To check a project for playlist errors:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DIAGNOSTICS MENU / CHECK PROJECT** dialogue and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the project to check and press the **ENTER** key.
- 3 The resulting dialogue will display the overall errors if any are found. Use the **↑** and **↓** keys to scroll through the results for each individual track.
- 4 Press the **ENTER** or **CANCEL** key to resume normal operation.

REALTIME ERRORS

There are several different types of realtime errors that can occur during recording and playback:

- READ** Indicates that requested data was not retrieved from the disk.
- WRITE** Indicates that data was not written successfully to the disk.
- PLAY** Indicates that a playlist error occurred during playback.
- RECORD** Indicates that a playlist error was experienced during recording.
- 486** Indicates that the host CPU is not responding fast enough. May indicate a large quantity of error messages.
- ASSERT** Indicates that, while RADAR was running, a condition that was expected to be true was found to be false. These Assert errors are stored in the debug file and can be of great help to iZ Support while trying to diagnose a problem. See *OPERATIONS: DISK DIAGNOSTICS: RADAR DEBUG* for more details on saving the debug file.

The causes of these errors can vary greatly and if they are experienced they should be diagnosed immediately by iZ Support staff. Critical errors will be indicated by a red flashing SMPTE counter in **RADARView** and/or a flashing **!ERR!** message in the **Session Controller** display.

VERIFY HARD DISKS

The **VERIFY DISKS** function does a check of all of the sectors on the selected hard disk(s). This diagnostic procedure is time consuming and **cannot be cancelled**. Make sure to allot a few hours for it to complete before a session starts.

To verify hard disks:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DIAGNOSTICS MENU / VERIFY HARD DISKS** dialogue and press the **ENTER** key.
- 2 Select **ALL** or the SCSI ID number of the connected disk to verify using the **↑** and **↓** keys and press the **ENTER** key to begin. For the multi-drive, select ID **B**.

- 3 The changing sector address display and the percentage indicator on both the **Session Controller** and the **RADARView** display will indicate this function's progress. Any errors will be displayed as they are encountered.
- 4 If errors are detected during the verify this indicates that RADAR is unable to read and/or write to one or more sectors of the hard drive. If encountering errors, it is recommended to backup all the data on the defective drive and replace it. This will avoid any problems during a critical recording.
- 5 Press the **CANCEL** key to resume normal operation.

RADAR DEBUG

RADAR creates a new debug log every time it is turned on. This log contains a significant amount of user and system information and is very useful when diagnosing a problem with the RADAR.

During the operation of the RADAR, the debug log can be displayed in **RADARView** by holding the **SHIFT** key down and pressing the **BACKSPACE** key. This will switch the waveform view to a text view displaying the debug lines. To scroll through the debug line by line, hold the **SHIFT** key down and press the **↑** and **↓** keys. To scroll through the debug page by page, hold the **SHIFT** key down and press the **+** and **-** keys. Hold the **SHIFT** key down and then press the **BACKSPACE** key to return to the waveform view.

CONFIGURE DEBUG

The **CONFIGURE DEBUG** dialogue has options to filter the data that is output to the **DEBUG** files. This is provided to isolate problems on the RADAR by filtering out unnecessary data.

The available filtering options are:

SYSTEM:Y	SCSI:N
LIN:020K	SYNC:N

- SYSTEM** Include or exclude system data (*default set to yes*).
- SCSI** Include or exclude SCSI data.
- LIN:020K** Set the maximum number of lines in the debug file. The default setting is 20,000 lines.
- SYNC** Include or exclude sync data.

To configure the debug output:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DIAGNOSTICS MENU / CONFIGURE DEBUG** dialogue and press the **ENTER** key.
- 2 Use the **←** and **→** keys to move between the fields and the **↑** and **↓** keys to change the field's value. Selecting **Y** for a filtering field includes that data in the debug file output.
- 3 Press **ENTER** or **CANCEL** to resume normal operation.

SAVE DEBUG - SAVING DEBUG LOGS

The **SAVE DEBUG** option in the **DIAGNOSTICS MENU** allows the user to select the current log, the last 5 logs, last 20 logs, all logs, or selections of logs. These logs can be saved in text format or as a zip file to any disk or network drive.

To **SAVE DEBUG**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU /DIAGNOSTICS MENU / SAVE DEBUG** dialogue and press the **ENTER** key.
- 2 At the **THE SAVE DEBUG:** prompt select **SELECTED, CURRENT LOG, LAST 5 LOGS, LAST 20 LOGS, ALL LOGS** and press the **ENTER** key.
- 3 At the **SAVE AS:** prompt select **TXT** or **ZIP** and press the **ENTER** key.
- 4 At the **SAVE TO:** prompt, use the **↑** and **↓** keys to select the device to save to, and press the **ENTER** key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **A:FLOPPY**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR.
- 5 At the **SELECT FOLDER:** prompt, select the destination folder using the **↑** and **↓** keys and press the **ENTER** key.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT+ UNMNT** on the Session Controller.

EMAIL DEBUG LOGS

If RADAR is connected to the internet, debug logs can be sent directly to iZ Technology Support using the **EMAIL DEBUG** option. To assist the support process, RADAR's serial number, current software version, and information about the installed memory and processor will automatically be included in the email.

To **EMAIL DEBUG**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU /DIAGNOSTICS MENU / EMAIL DEBUG** dialogue and press the **ENTER** key.
- 2 At the **EMAIL DEBUG:** prompt choose **SELECTED, CURRENT LOG, LAST 5 LOGS, LAST 20 LOGS, ALL LOGS** and press the **ENTER** key.
- 3 At the prompt for **DESCRIPTION** enter a description of the problem that occurred.
- 4 Follow the other prompts and fill in:

ENTER YOUR NAME
PHONE NUMBER
COMPANY NAME
LOCATION

- 5 At the prompt for **REPLY EMAIL** enter an email address that an iZ Support Agent can reply to.



When entering an email address, use the **#** and **&** keys to enter the '@' and '.'.

- 6 At the prompt for **SEND EMAIL NO/YES** prompt select **YES** and press the **ENTER** key.
- 7 A confirmation email will be sent to the **REPLY EMAIL** address that the email has been sent.

PROJECT MANAGEMENT

RADAR uses projects as a way to manage audio recordings. RADAR can store up to 999 projects depending on the available hard disk space. Each project has a 24 hour timeline.



Since the **Session Controller** only has a 2-digit LED display for the project number, it will only show the last two digits. The **SCROLL PROJ LED** can be enabled in the **PREFERENCES** menu.

To set the **SCROLL PROJ LED** preference:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / SCROLL PROJ LED** selection and press the **ENTER** key.
- 2 At the **SCROLL PROJ LED** prompt, use the **◀** and **▶** keys to select **3X** or **CONTINUOUS** and then press the **ENTER** key. **3X** will scroll a project number, 100 or higher, three times before remaining fixed on the last two digits and is the factory default.

SET STARTUP PROJ

The **DIAGNOSTICS MENU** contains a **SET STARTUP PROJ** setting. This will allow the user specify the project that will be loaded the next time a RADAR drive is mounted. This function may be useful in troubleshooting RADAR when certain projects are causing problems when mounting the drive.



All disks must be unmounted before using this function.

To **SET STARTUP PROJ**:

- 1 Navigate to **MAIN MENU / DIAGNOSTICS MENU / SET STARTUP PROJ** and press the **ENTER** key.
- 2 At the **AFTER MOUNTING, LOAD PROJECT:** prompt, type in a project number and press the **ENTER** key. If there isn't a project already at the project number selected, RADAR will automatically create one.
- 3 Navigate to **MAIN MENU / DISK MENU / MOUNT/UNMOUNT** and press the **ENTER** key.
- 4 Use the **←** and **→** keys to select **MOUNT** at the **FILESYSTEM:** prompt. RADAR will now **MOUNT** the selected startup project.

VIRTUAL TRACKS

Audio data can be freely copied and pasted between projects without using more disk space. This opens up many creative possibilities; for example, the powerful implementation of *virtual* or *comp* tracks.

To create project based virtual tracks:

- 1 Create a stereo or mono sub-mix of the tracks in a project.
- 2 Copy and paste the sub-mixed tracks into a brand new project.
- 3 Record multiple takes of an instrument or vocal, using the sub-mix as a reference.
- 4 Edit together a comp (composite track) of all the best overdub performances.
- 5 Copy the composite track or tracks back into the original project.









Older versions of RADAR software are not able to access projects beyond 99. If needing to downgrade software, or use an audio drive on RADARII and RADAR24 units running 3.26 or older software, all projects should first be renumbered to a number less than 100. Higher number projects may be lost when using pre-3.30 software.

PROJECT NOTES














With the **PROJ NOTES** key, general notes about the project and specific notes about each track can be entered and saved along with other project info (e.g., the locate list) as a printable text file.

To edit **PROJECT NOTES**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / PROJECT NOTES** dialogue and press the **ENTER** key or press the **PROJ NOTES** key on the **Session Controller**.
- 2 At the **PROJECT NOTES:** prompt select **EDIT** and press the **ENTER** key.
- 3 At the **NOTES LINE:XX** prompt, select a line to write to using the **↑** and **↓** keys.

- 4 Type information to be stored in the general notes, and then use the  key to go to the next line. Press the  key to exit **PROJECT NOTES**.
- 5 To enter track notes, press a **Track Arm** key  through  while in edit mode. At the **NOTES FOR TRK:XX** prompt, enter details about that specific track. Press  to return to the general notes, or  to exit **PROJECT NOTES**.


To save the **PROJECT NOTES**:

- 1 Use the , the  and  keys and the  key to go to the **MAIN MENU / PROJECT MENU / PROJECT NOTES** dialogue and press the  key or press the  key on the Session Controller.
- 2 At the **PROJECT NOTES:** prompt select **SAVE AS** and press the  key.
- 3 At the **SAVE TO:** prompt, use the  and  keys to select the device to save to, and press the  key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **A:FLOPPY**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR.
- 4 At the **SELECT FOLDER:** prompt, select the destination folder using the  and  keys and press the  key.













Project notes are also saved automatically on the audio drive. A project notes text file is automatically included whenever a File Flatten, backup or a mono export is executed.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing + **UNMNT** on the Session Controller.

GoTo PROJECT

To go to a new project:

- 1 Press the  key on the **Session Controller**, the  key on the **KC-24** or use the , the  and  keys and the  key to go to the **MAIN MENU / PROJECT MENU / GOTO PROJECT** menu item and press the  key.
- 2 Select the project number to go to using the numeric keys, the  and  keys or the **Jog/Shuttle Wheel** and press the  key.

PROJECT TEMPLATES

Using a template can simplify the process of creating new projects. Templates can take the settings and audio established in the current project and apply them to subsequent projects. Settings that can be applied to other projects via template include :

- track names
- bit depth
- sample rate
- locate points
- time-code rate
- start time

Use the following options to create and manage templates.

To create a new template based on the current loaded project:

- 1 Go to the **MAIN MENU / PROJECT MENU / TEMPLATE MENU/ MAKE TEMPLATE** selection and press the **ENTER** key.
- 2 At the **NAME TEMPLATE** prompt use the QWERTY keyboard to enter the template name and press the **ENTER** key.
- 3 At the **INCLUDE AUDIO IN TEMPLATE** prompt, choose **YES** to include the audio and press the **ENTER** key.
- 4 At the **INCLUDE UNDO IN TEMPLATE** prompt, choose **YES** to include the audio and press the **ENTER** key.

To set a default template to be used for all new projects:

- 1 Go to the **MAIN MENU / PROJECT MENU / PROJECT PREFS / NEW PROJ SETTINGS** selection and press the **ENTER** key.
- 2 At the **NEW PROJ SETTINGS** prompt, choose **TEMPLATE** and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys and choose from **CURRENT, DEFAULT** or a previously created template and press the **ENTER** key.

To set RADAR to **ASK** which template to use each time a project is created:

- 1 Go to the **MAIN MENU / PROJECT MENU / PROJECT PREFS / NEW PROJ SETTINGS** selection and press the **ENTER** key.
- 2 At the **NEW PROJ SETTINGS** prompt, choose **ASK** and press the **ENTER** key.
- 3 Create a new project and the prompt **SELECT TEMPLATE** will display. Use the **↑** and **↓** keys and choose from **CURRENT, DEFAULT** or a previously created template and press the **ENTER** key.

To export a template to be used on another RADAR:

- 1 Go to the **MAIN MENU / PROJECT MENU / TEMPLATE MENU** and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys, select **EXPORT TEMPLATE** and press the **ENTER** key.
- 3 At the **EXPORT TEMPLATE** prompt, choose **ALL TEMPLATES** or **SELECT TEMPLATES** and press the **ENTER** key. If selecting **ALL TEMPLATES** skip to step 5.
- 4 If choosing **SELECT TEMPLATES** use the **↑** and **↓** keys to select templates and the **+** to mark them to be exported. Once the desired templates are selected press the **ENTER** key.
- 5 At the **EXPORT TO:** prompt, use the **↑** and **↓** keys to select the device to save to, and press the **ENTER** key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **A:FLOPPY**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR.

To import a template from another RADAR:

- 1 Go to the **MAIN MENU / PROJECT MENU / TEMPLATE MENU** and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys, select **IMPORT TEMPLATE** and press the **ENTER** key.
- 3 At the **IMPORT FROM:** prompt, use the **↑** and **↓** keys to select the device to import from, and press the **ENTER** key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **A:FLOPPY**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR. Once the template folder is selected press the **ENTER** key.
- 4 At the **IMPORT TEMPLATE** prompt, choose **ALL TEMPLATES** or **SELECT TEMPLATES** and press the **ENTER** key. If selecting **ALL TEMPLATES** skip to step 6.
- 5 If choosing **SELECT TEMPLATES** use the **↑** and **↓** keys to select templates and the **+** to mark them to be exported. Once the desired templates are selected press the **ENTER** key.
- 6 At the **XX FLS/ XXMB PROCEED?** select **YES** and press the **ENTER** key.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT**+ **UNMNT** on the Session Controller.

To delete a template from RADAR:

- 1 Go to the **MAIN MENU / PROJECT MENU / TEMPLATE MENU** and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys, select **DELETE TEMPLATE** and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select templates and the **+** to mark them to be exported. Once the desired templates are selected press the **ENTER** key.
- 4 At the **XX FLS/ XXMB PROCEED?** select **YES** to confirm deletion and press the **ENTER** key.

NEW PROJECT

- 1 Press the **NEW PROJ** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / NEW PROJECT** selection and press the **ENTER** key.
- 2 A new project will be created at the next available location. Use the QWERTY keyboard to type a name for the new project and press the **ENTER** key. Change the sample rate and bit-depth of the project if required. See *REFERENCE: MENU ITEM QUICK REFERENCE: PROJECT MENU* for further information.



If the **NEW PROJECT** setting is set to **ASK** in the **PROJECT PREFS** menu, the prompt will display **SELECT TEMPLATE: DEFAULT** or **CURRENT**.

COPY PROJECT

To copy a project:

- 1 Press the **COPY PROJ** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / COPY PROJECT** selection and press the **ENTER** key.
- 2 At the **COPY PROJ XX TO XX?** prompt, name the file using the QWERTY keyboard or the **↑** and **↓** keys or accept the default file name and then press the **ENTER** key. If an identical project name already exists, the project name will automatically receive a version number at the end of the name (e.g., **SONG1 V-2**).

DELETE PROJECT

To delete a project:

- 1 Press the **DEL PROJ** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / DELETE PROJECT** selection and press the **ENTER** key.
- 2 Select the project number of the project to delete using the numeric keys, the **↑** and **↓** keys or the **Jog/Shuttle Wheel** and press the **ENTER** key.
- 3 Choose **YES** at the **DEL PROJ?** prompt and press the **ENTER** key.
- 4 To confirm this select **YES** at the **ARE YOU SURE?** prompt and press the **ENTER** key.



This function cannot be undone. Double check that all necessary projects have been backed up.

NAME PROJECT

To name or rename a project:

- 1 Press the **NAME PROJ** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / NAME PROJECT** selection and press the **ENTER** key.
- 2 Use numeric keys, the **↑** and **↓** keys or the **Jog/Shuttle Wheel** to select the project number to rename.
- 3 Use the **→** key to switch to the name field and type in a new name and press the **ENTER** key.

RENUMBER PROJECT

To renumber a project:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / RENUMBER PROJECT** selection and press the **ENTER** key.
- 2 Use the numeric keys, the **↑** and **↓** keys or the **Jog/Shuttle Wheel** to select the new project number and press the **ENTER** key.
 - a. If the new project number is already used for an existing project the prompt will display the following:

SWAP XXX WITH XXX
NO YES
 - b. If the new project number is unused the prompt will display the following:

RENUM XXX TO XXX
NO YES
- 3 Use the **N** and **Y** keys on the keyboard or the **←** and **→** keys to make the selection and press the **ENTER** key.

I/O MANAGEMENT

RADAR allows the input-track-output routing assignment to be user defined. Aside from the default one to one routing, the user may choose to route an input to a different track or multiple tracks, as well as route a specific track to a different output. However, routing multiple inputs to one track or multiple tracks to an output is not an option.

The I/O routing feature is saved on a per project basis; as a result the following menu options are also available through the **PROJECT MENU**.

INPUT ROUTING

To assign a specific input to a track(s):

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / I/O ROUTING / INPUT ROUTING** and press the **ENTER** key.
- 2 Use the numeric keys, the **▲** and **▼** keys or the **Jog/Shuttle Wheel** to select the physical input (source) number.
- 3 Use the **Track Arm** key(s) to select the destination track(s) and then press the **ENTER** key.



NOTE 1: Flashing Red on the **RADARView** track and meter LEDs as well as the **Session Controller TK ARM** and **Meterbridge EDIT** indicators reveal the designated track for the current selected input.

NOTE 2: Solid Red on the **RADARView** track and meter LEDs as well as the **Session Controller TK ARM** and **Meterbridge EDIT** indicators signify that a track has a different source input than the default **1:1**.

NOTE 3: Override a previous track input routing designation simply by pressing the **TK ARM** key. This will reassign the track to the current selected input.

OUTPUT ROUTING

To assign a track to a specific output:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / IO ROUTING / OUTPUT ROUTING** and press the **ENTER** key.
- 2 Use the numeric keys, the **▲** and **▼** keys or the **Jog/Shuttle Wheel** to select the track (source) number.
- 3 Use the **Track Arm** key(s) to select the destination physical output and then press the **ENTER** key.



NOTE 1: Flashing Red on the **RADARView** track and meter LEDs and on the **Session Controller TK ARM** and **Meterbridge EDIT** indicators show the designated output for the current selected track.

NOTE 2: Solid Red on the **RADARView** track and meter LEDs and on the **Session Controller TK ARM** and **Meterbridge EDIT** indicators illustrate that an output has a different source track than the default **1:1**.

NOTE 3: Override a previous track output routing designation simply by pressing the **TK ARM** key. This will reassign the output to the current selected track.

RESET ROUTING

To reset the I/O configuration back to the default **1:1**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / IO ROUTING / RESET ROUTING** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **IN**, **OUT** or **BOTH** and then press the **ENTER** key.

TRACK MANAGEMENT

Each RADAR project contains 24 discrete tracks for recording audio. Each track has its own user-defined input and output with the default set to **1:1**. There is no need to assign voices or assign recording directories. In fact none of the track management chores required by digital audio workstations apply at all. RADAR takes care of all the details so work can be done quickly and easily.

NAMING TRACKS

Track names are displayed in **RADARView** along the left-hand side beside each track number.

To name a track:

- 1 Press the **NAME TRACK** key or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJ MENU / NAME TRACK** selection and press the **ENTER** key.
- 2 Use the **Track Arm** keys or the **↑** and **↓** keys to select a track.
- 3 Use the **→** key to move to the name field and type in a name using the keyboard and press the **ENTER** key.

TRACK NOTES

With the **PROJ NOTES** key track-specific notes about each track can be saved along with other project info (e.g., the locate list) as a printable text file.

To edit **TRACK NOTES**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / PROJECT NOTES** dialogue and press the **ENTER** key or press the **PROJ NOTES** key on the Session Controller.
- 2 Press a **Track Arm** key **1** through **24** while in edit mode. At the **NOTES FOR TRK:XX** prompt, enter details about that specific track. Press **MENU/PREV** to return to the general notes, or **ENTER** to exit **PROJECT NOTES**.

FILE MANAGEMENT

File management is available to manage **BACKUP**, **RESTORE**, **EXPORT**, **IMPORT**, **MOVE**, **COPY**, **PASTE** and **ERASE** of files and projects.

FILE COMPATIBILITY

RADAR can **IMPORT** and **EXPORT** WAV, Broadcast WAV, HSF+, and Red Book (CD-DA) files. Broadcast WAV is an extension of the standard audio WAV file format in that additional information is embedded within the file such as the SMPTE time stamp. Red Book (CD-DA) is the Sony/Philips ECMA-130 standard that defines the CD Audio disc format.

SAMPLE RATE/BIT RESOLUTION CONVERSION

RADAR incorporates sample rate and bit resolution conversion when importing files as well as exporting stereo CD audio files. A **REFORMAT QUALITY** file preference enables a user to select the default conversion quality/speed. The three possible settings are **Q1**, **Q2** or **Q3**. **Q1** represents the fastest processing time and lowest quality conversion while **Q3** is the slowest and highest quality conversion. Regardless of the quality selected, dithering is always performed if bit reduction is required.

BACKUP

PREPARING TO BACKUP

To find out how long a backup will take or how much space it will use, choose to display either the backup time or the backup size in the **PREFERENCES MENU / FILE PREFS / SHOW SIZE** dialogue. With this dialogue activated, RADAR will prompt just before it begins the backup in case adjustments need to be made in order for the backup to fit into the time or space available.

To reduce back size or time required, the undo list can be cleared off the RADAR or the projects be grouped in a set. The undo list must be cleared **before** beginning a backup of a project or by selecting **BWAV (NO UNDO)** to achieve a reduction in backup size. This undo list may still reference audio that has been deleted from the project. When removing the undo list references to deleted audio, the RADAR archiving engine will ignore it. This will save back up time and disk space. When backing up several projects that share a lot of the same audio, space and time can also be saved by backing them up as a set. By grouping projects as a set any shared audio is only backed up once instead of being copied fresh for each individual project. Follow the backup instructions later in this section for more details on grouping projects.

To reduce project size by clearing the undo list:

- 1 Make sure that no recording or editing needs to be undone on the material being backed up.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to select the **MAIN MENU / PROJ MENU / UNDO LEVEL** and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to set the undo level to zero and press the **ENTER** key. This will instantly wipe out all undo information and reduce the project size accordingly.

- 4 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to immediately reselect the **MAIN MENU / PROJ MENU / UNDO LEVEL** and press the **ENTER** key.
- 5 Use the **↑** and **↓** keys to set the undo level back to the previous setting and press the **ENTER** key.



Clearing the Undo list is not necessary when using the **BWAV (NO UNDO)** backup type.

BACKING UP A PROJECT

When backing up RADAR projects there are 4 options available: **BWAV**, **RADAR**, **BOTH** or **DSET**. Projects backed up from an audio drive initialized for **RADAR_BWAV** cannot be restored on an audio drive initialized as **!RADAR!**.

If attempting to restore a non-BWAV project on a BWAV audio drive the RADAR will display: **CAN'T RESTORE NON BWAV AUDIO**.

If attempting to restore a BWAV project on a Non-BWAV drive the RADAR will display: **CAN'T RESTORE BWAV AUDIO**.

It is possible to restore backups from RADAR I or II onto a current generation RADAR. To do this the audio drive must be initialized for **!RADAR!** and **CLUSTER SIZE: 128K**.



To mount a Non-BWAV drive from a RADAR using 3.XX software onto RADAR I or II the **MAKE PORTABLE** option must be chosen before attempting to mount the drive.

Multiple backup devices can be connected to the RADAR simultaneously for the greatest level of flexibility and compatibility. This allows the ability to restore from one format and archive to another if needed. Follow the backup instructions below for details on selecting the current archival device.

BWAV (NO UNDO) Selecting **BWAV** at the **BACKUP TYPE:** prompt will back up the selected projects in Broadcast WAVE (BWAV) format. The BWAV files in the Audio Files sub-folder of the backup will be named according to the **FILE NAME FORMAT** specified in the **FILE PREFS**. Backing up in this format can also replace **FILE EXPORT** and useful when needing to backup multiple projects.

RADAR (WITH UNDO) Selecting **RADAR** at the **BACKUP TYPE:** prompt will back up the selected projects in RADAR's proprietary format and include all undo levels.

BOTH (BWAV & RADAR) Selecting **BOTH** at the **BACKUP TYPE:** prompt will perform 2 separate backups: **BWAV** and **RADAR**.

DSET (LEGACY) Backup in RADAR's legacy **DSET** format for compatibility with software versions 3.35 - 3.39.



Selecting **BOTH (BWAV & RADAR)** will approximately double the size of the backup.

To backup one or more projects:

- 1 Insert the archive media if necessary and press the **BACKUP** key on the **Session Controller** or **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / BACKUP** selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the device to use for backup in the **BACKUP TO:** dialogue and press the **ENTER** key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **B:** (DVD-RAM, DVD-R or CD-R, BD-RE), **REV DISK**, **E:USB DRIVE** and SCSI backup drives connected to the RADAR.
- 3 Select a destination folder in the **SELECT FOLDER** dialogue using one of the following methods:
 - a. Use the **↑** and **↓** keys to select **<ROOT DIRECTORY>** and press the **ENTER** key.
 - b. Use the **↑** and **↓** keys to select an existing folder name and press the **ENTER** key.
 - c. Use the **↑** and **↓** keys to select **<NEW FOLDER>** and press the **ENTER** key. At the **FOLDER NAME** dialogue use the QWERTY keyboard to type in a name for the folder and press the **ENTER** key. The **SELECT FOLDER:** dialogue will display the new folder name as the current selection. Press the **ENTER** key to accept this folder as the destination.



Backups of audio drives formatted as **RADAR_BWAV** cannot be restored on pre 3.40 software, unless a **DSET (LEGACY)** type of backup is done. However, the audio files from BWAV backups can be imported using version 3.30 or later. Backups of audio drives initialized as **!RADAR!** (**32**, **64** or **128K** clusters) always use the **DSET (LEGACY)** format and can be restored using any version of RADAR software.






After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT+UNMNT** on the Session Controller.









RADARII and older versions of RADAR software CANNOT restore backups within folders on DVD-RAM, Blu-ray and SCSI disks. If these backups need to be restored on a RADARII or RADAR24 running older software, they should be backed up to the **<ROOT DIRECTORY>**.





<ROOT DIRECTORY> must be selected at the **SELECT FOLDER:** dialogue within the **BACKUP** menu if using removable media (DVD-RAM or Blu-ray) and the backup size is larger than one side of the chosen media.

- 4 At the **BACKUP PROJ:** dialogue, use the  and  keys to select **ALL PROJECTS**, **CURRENT PROJECT** or **SELECTED PROJS** and press the  key.

If the **SELECTED PROJS** option is chosen, select the individual project or projects to back up by using the  and  keys and the  and  keys on the numeric keypad. Pressing the  key adds the selected project to the archiving list and places a + sign to the right of its name. It also increments the number of selected projects in the upper right hand corner of the menu display. Pressing the  key removes the selected project from the archiving list and removes the + sign to the right of its name. It also decrements the number of selected projects in the upper right hand corner of the menu display.




- 5 When using either the **SELECTED PROJS** or **ALL PROJECTS** option, the way in which the projects are organized within the backup must be chosen.
- Grouping archives by **PROJECT** means that each project will be backed up separately and can therefore be restored separately.
 - Grouping by **SET** means that all the projects selected will be backed up as a data set, and must be restored as a set. Backup size may be reduced if audio is shared between projects in the same group.

At the **BACKUP GROUPING:** dialogue, select **PROJECT** or **SET** and press the  key.

- 6 When using the **SET** option a name must also be chosen for the backup. At the **BACKUP NAME:** dialogue, use the keyboard to enter a new name in the name field or accept the default name and press the  key. Backups grouped as a **SET** will automatically use the **DSET** backup type.
- 7 Select **BWAV**, **RADAR**, **BOTH** or **DSET** at the **BACKUP TYPE:** prompt and press .
- 8 Select **ALL** or **MARK IN/OUT**. If **MARK IN/OUT** is selected, this will apply to all projects.



When **MARK IN/OUT** is selected, projects that only have a **MARK IN** point, will be backed up from the mark in point up to the end of the last piece of audio. Projects that only have a **MARK OUT** point will be backed up from the first piece of audio up to the mark out point.


- 9 At the **BACKUP NAME:** use the QWERTY keyboard to enter a name for the backup.
- 10 When backing up to removable media, the **BACKUP MODE:** dialogue will appear asking to **APPEND** or **OVERWRITE**. **APPEND** will add the new project backup data to the existing archive. **OVERWRITE** will erase all existing archive data on the disk and replace it with the new backup. If selecting to **OVERWRITE**, the **ERASE EXISTING DISK?** prompt will display. This prompt will also appear with **APPEND** if the disk is formatted with a different file system or cluster size. Use the  and  keys to select **APPEND** or **OVERWRITE** from the **BACKUP MODE:** dialogue and press the  key.



The **ERASE EXISTING DISK?** prompt means that the disk chosen for backup is formatted as an archive disk and may contain archived data. The **ERASE AUDIO DISK?** prompt means that the disk chosen for backup is formatted as an audio drive and may contain audio data. The **ERASE EXPORT DISK?** prompt means that the disk selected for backup is formatted as an export drive and may contain BWAV (Broadcast Wave) or .wav format files. Answer **YES** to confirm and erase everything that is currently on the disk. The overwrite option will reformat the disk and there is no way to recover previous data once it has been overwritten.

- 11 The **BACKUP TO DISK** dialogue will appear while RADAR processes the files. Next, a confirmation dialogue displaying either the backup time required or the size of the export in megabytes may appear asking to proceed. This estimate is based on the typical throughput of the backup device chosen. As the backup progresses, RADAR monitors the actual throughput and continuously updates the time and the number of megabytes remaining. After selecting yes the backup will proceed. When it is finished the **BACKUP COMPLETE PRESS ANY BUTTON** dialogue will appear. Press any key to dismiss the dialogue and return to normal operation.



A backup may be cancelled at any time by pressing the  key.

RESTORE

To restore a RADAR project :

- 1 Press the **RESTORE** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / RESTORE** selection and press the **ENTER** key.
- 2 At the **RESTORE FROM:** dialogue, use the **↑** and **↓** keys to select the device to restore from and press the **ENTER** key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and SCSI backup drives connected to the RADAR.
- 3 Use the **↑** and **↓** keys to select the folder containing the backup(s) to restore and press **ENTER**.
- 4 Use the **↑** and **↓** keys to select **ALL** or **SELECTED** from the restore menu and press **ENTER**.
- 5 With the **SELECTED** option use the **↑** and **↓** keys in conjunction with the **+** and **-** keys on the numeric keypad to add or remove individual projects from the restore list.
- 6 Press the **ENTER** key. If the restore cannot fit into the remaining disk space, the prompt will alert **AUDIO DRIVE FULL**.
- 7 When the restore is complete the display will read **RESTORE COMPLETE PRESS ANY BUTTON**.



To cancel a restore at any time press the **CANCEL** key. When canceling a project that is partially restored there will be the option to **SALVAGE PARTIAL PROJECT**. Choose **NO** for RADAR to automatically reclaim the disk space.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT**+ **UNMNT** on the Session Controller.

FLATTEN PROJECT

When initializing the recording drive for **AUDIO:RADAR_BWAV**, the drive will now be compatible with any Mac or PC computer. To access the audio from a mounted RADAR BWAV drive on a Mac or PC select **FLATTEN PROJECT** in the **FILE** menu. This function consolidates all of the punch ins into continuous files and puts them into a user folder that is easily accessed from a Mac or PC.

To flatten a project on a **RADAR_BWAV** disk:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FLATTEN PROJECTS** dialogue and press the **ENTER** key.

- 2 At the prompt **FILL SILENCE?**: The options will be:
 - **NO** (EACH region will be one file)
 - **GAP** (each track will be one file with potentially different start times)
 - **ALL** (each track will be one file with the same start time)
 Press the **ENTER** key to select an option.
- 3 At the **FLATTEN PROJ:** dialogue, use the **↑** and **↓** keys to select **ALL PROJECTS**, **CURRENT PROJECT** or **SELECTED PROJS** and press the **ENTER** key.

If the **SELECTED PROJS** option is chosen, select the individual project or projects to flatten by using the **↑** and **↓** keys and the **+** and **-** keys on the numeric keypad. Pressing the **+** key adds the selected project to the flattening list and places a **+** sign to the right of its name. It also increments the number of selected projects in the upper right hand corner of the menu display. Pressing the **-** key removes the selected project from the flattening list and removes the **+** sign to the right of its name. It also decrements the number of selected projects in the upper right hand corner of the menu display.
- 4 If **GAP** or **ALL** is selected and additional disk space will be consumed to fill the gaps, the prompt **XXX MB REQUIRED PROCEED?** will be displayed. Select **YES** and press the **ENTER** key.
- 5 The prompt **CANT CANCEL/UNDO PROCEED?** will be displayed to indicate that it is a destructive process. All undo levels of this project will be lost. Select **YES** and press **ENTER**.
- 6 The drive can now be mounted on a Mac or PC and the consolidated files and project notes will be located in a new folder titled after the project name within the **USER** directory.
- 7 Copy this project folder over to a DAW recording drive for DAW manipulation.



RADAR drives are read-only on Mac or PC.

Do not write, erase or modify any data on the RADAR drive with a Mac or PC. Performing this will corrupt the RADAR drive.



After flattening a project, if the original project within RADAR is deleted or any record punches or edits are made the project automatically becomes unflattened, and the corresponding folder in the **USER** directory will be automatically deleted.



On a PC or Mac, the flattened project's folder in the **USER** directory is locked. If this folder and/or files are deleted or changed, the corresponding RADAR project will lose audio and have errors.



Only projects that don't contain edits (e.g., paste, erase, loop, etc), can be flattened. **EXPORT** or use **BWAV** backup to the **Audio Recording Drive** for the same functionality as file flattening. The drive can be mounted on a Mac or PC and the files will be in its own project folder in the user directory.



Do not export to a flattened project's folder in the **USER** directory. Within the **USER** directory create a new folder called **EXPORTS** and export to this folder.

EXPORT

RADAR has the capability of exporting Wave, Broadcast Wave or Red Book (CD Audio) files or pieces of files (clips) to a variety of destinations. These include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK** a shared folder on a network, **E:USB DRIVE** (formatted as FAT32), **DVD-RAM**, **DVD-R**, **CD-R**, **HFS** (Mac OS Standard) and **FAT32** formatted drives.

To create a Red Book audio CD select **EXPORT** directly to the CD as a one-time burn or choose to **FINALIZE** later consequently allowing one to add additional tracks over time before closing (finalizing) the CD. Another option is to **EXPORT STEREO CDAUDIO** files to a folder on the internal IDE system drive (e.g., **D:ARCHIVE**). This folder can be used to store **CDAUDIO** files as the source for burning and finalizing an audio CD.




Exporting for the purpose of creating an audio CD requires selecting **STEREO** as the export format in order to access the **CDAUDIO** option. Also, if the project being exported has a sample rate and/or bit resolution other than 16 bit/44.1kHz, there will be an option to select a **RESAMPLE QUALITY**. The three **Q** settings determine the speed and quality of the conversion with **Q3** representing the slowest speed but highest quality.

There are two ways to initiate a file export from the RADAR:

- Using the **EXPORT MENU**, which is available using both the **Session Controller** and the **KC-24**.
- Using the **FILE EXPORT** or **CLIP EXPORT** keys on the **Session Controller**.









To export one or more files (tracks):




- 1 First, choose a project to export from as the current project. Use the **GOTO PROJ** key to load the project.
- 2 Press the **FILE EXPORT** key or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / EXPORT** selection and press the **ENTER** key.
- 3 At the **EXPORT:** dialogue, use the **←** and **→** keys to select **MONO** or **STEREO** and press the **ENTER** key.

- 4 At the **FILE FORMAT:** dialogue, use the  and  keys to select **WAV**, **BWAV** or **CDAUDIO** (**CDAUDIO** will only be available if **STEREO** was selected in the previous step) and press the  key.









To set the default as **WAV** or **BWAV** when exporting, change the **FILE FORMAT** preference. This will bypass the prompt when files are exported.

To set the file format preference:

- a. Use the , the  and  keys and the  key to go to the **MAIN MENU / FILE MENU / FILE PREFS / EXPORT FORMAT** selection and press the  key.
 - b. At the **FILE FORMAT:** prompt, use the  and  keys to select **WAV** or **BWAV** and then press the  key. The factory default setting is **ASK**.
- 5 If selecting **WAV** or **BWAV**, skip to step 7.

- 6 If selecting **CDAUDIO** and the project sample rate and/or bit resolution is **NOT** 16 bit/44.1kHz, it will prompt with a **REFORMAT QUALITY** dialogue. Use the  and  keys to select **Q1**, **Q2** or **Q3** and press the  key.

To set the **REFORMAT QUALITY** preference:








- a. Use the , the  and  keys and the  key to go to the **MAIN MENU / FILE MENU / FILE PREFS / REFORMAT QUALITY** selection and press the  key.
- b. Use the  and  keys to select **Q1**, **Q2** or **Q3** and then press the  key. The factory default setting is **Q3**.



Q3 represents the slowest speed but highest quality.




- 7 If the **FILL SILENCE** preference is set to **ASK**, a **FILL SILENCE** option will have to be chosen for each WAV/BWAV export or BWAV backup. If **CDAUDIO** is selected then all silence will be filled automatically in the selected audio.

To set the **FILL SILENCE** preference:

- a. Use the , the  and  keys and the  key to go to the **MAIN MENU / FILE MENU / FILE PREFS / FILL SILENCE** selection and press the  key.
- b. At the **FILL SILENCE** prompt, use the  and  keys to select:







ASK	Will prompt for fill silence option each export/BWAV backup.
FILL GAPS ONLY	FILL ALL GAPS without front or back fill.
FRONT FILL+GAPS	FRONT FILL and FILL GAPS without BACK FILL .
GAPS+BACK FILL	BACK FILL and FILL GAPS without FRONT FILL .
FRONT+GAPS+BACK	FRONT and BACK FILL and FILL GAPS
NO	Each export/BWAV backup will transfer with no fill options

Make a selection and press the  key. The factory default setting is **ASK**.



- 8 At the **EXPORT TO:** dialogue, use the  and  keys to select the device to export to and press the  key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **A:FLOPPY**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR.

If selecting **B:DVD BLANK DISK**, proceed to step 9.


Use one of the following methods to select a destination folder in the **SELECT FOLDER:** dialogue:

- a. Use the  and  keys to select an existing folder name and press the  key.
- b. Select **NEW FOLDER** and press the  key to create a new one. The RADAR will display a **FOLDER NAME:** dialogue. Type in a name for the folder and press the  key. This will return to the **SELECT FOLDER** dialogue with the new folder name as the current selection. Press the  key to accept this folder as a destination.

- 9 To create a folder within a folder, follow these steps:

- At any **SELECT FOLDER:** dialogue, select **<NEW FOLDER>** and press the  key.
- RADAR will display a **FOLDER NAME:** dialogue. Type in a name for the folder (e.g., **EXPORTS**) and press the  key.
- This will return to the **SELECT FOLDER** dialogue with the new folder name as the current selection. Using the previous example, the display would look like this:




```
SELECT FOLDER:
EXPORTS/
```

- Use the  key to access the next level of folders. This will enter the new folder just created.
- Repeat the previous four steps. For example, if the second new folder was Song 1, the display would look like this:

```
SELECT FOLDER:
SONG 1/
```

- Press the  key to display the complete **SELECT FOLDER:** directory. Using the previous examples, the display would look like this:

```
SELECT FOLDER:
EXPORTS/SONG 1/
```

- 10 At the **TIME RANGE:** prompt, use the  and  keys to select either **ALL** or **MARK IN/OUT** and press the  key. Selecting **ALL** selects the entire project from the project start time to the end of recorded audio. **MARK IN/OUT** uses the **MARK IN** and **MARK OUT** location markers to select a range of audio for export.

If exporting for the purpose of burning an audio CD, proceed to step 11.

- 11** At the **EXPORT: TRACKS** dialogue, select the tracks to export using **TRACK ARM** keys 1 through 24 or choose the **ALL** option and then press the **ENTER** key.

If exporting a stereo file for the purpose of burning an audio CD, use the **EXPORT:TRACKS LEFT:00 RIGHT:00** dialogue to define the two tracks to use to create the stereo [interleaved] audio track. When finished selecting the track(s), press the **ENTER** key.



To only burn one track, select the same track for both left and right.

If exporting for the purpose of burning an audio CD, proceed to step 13.

- 12** The **EXPORT TO DISK** dialogue will appear while RADAR marks the files. Next, a confirmation dialogue displaying the size or estimated time of the export may appear, depending on the **SHOW SIZE** preference in the **FILE PREFS** menu. Select **YES** and press the **ENTER** key to proceed.

To set the **SHOW SIZE** preference:

- a. Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE PREFS / SHOW SIZE** selection and press the **ENTER** key.
- b. Use the **←** and **→** keys to select **OFF**, **MBYTES** or **TIME** and then press the **ENTER** key. The factory default setting is **MBYTES**.

- 13** The final stages of the **CDAUDIO** export will contain the following:

- a. If burning directly to a CD, it will prompt the user at the **FINALIZE CD** dialogue. If finalize now is selected, additional tracks **CANNOT** be added at a later time. Use the **←** and **→** keys to select **NO** or **YES** and then press the **ENTER** key.
- b. If exporting to a folder/directory for the purpose of burning an audio CD at a later time, it will prompt the user at the **FILE NAME:** dialogue. Use the keyboard to type in a name and then press the **ENTER** key. The default file name given consists of **PROJECT NAME-STEREO.WAV**. For example: **THE DRUDDS-STEREO.WAV**. If the same file name exists within the folder/directory, the **OVERWRITE FILE? NO YES** dialogue will appear. If **NO** is selected, it will return to the **FILE NAME:** dialogue where the name can be changed in order to export the file. If **YES** is selected, the previous file will be overwritten and will **NOT** be recoverable.



To finalize (close) the CD at any time, use the **FINALIZE CD** option located at **MAIN MENU / FILE MENU / FINALIZE CD**.



When attempting to **BROWSE:** or **EXPORT TO:** a CD that hasn't been finalized but has had one or more tracks burned to it the display will indicate **B:CD-R OPEN**.



Once CD burn begins the procedure becomes a background task and cannot be cancelled. However, the RADAR can still be used for record/playback/edit.

- 14** The export is complete once the **EXPORT COMPLETE PRESS ANY BUTTON** dialogue appears or CD burn is finished. If finalize CD is selected, the CD will eject once the burn completes. If finalize the CD is not selected, the CD will remain in the drive.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT**+ **UNMNT** on the Session Controller.



Cancel a folder/directory export at any time by pressing the **CANCEL** key.

CLIP EXPORT

This feature is only available via the **Session Controller** and was designed to create a more efficient process for those who export quite often while working within one project. For example, this feature is useful during the comp of a lead vocal where pitch correction is being added via third-party software on a different workstation. After completing the first export, each subsequent clip export will bypass the **FILE FORMAT:**, **EXPORT TO:** and **SELECT FOLDER:** dialogs thereby eliminating redundant parameter selections.












To export a clip (region) of audio:

- 1 Press the **CLIP EXPORT** key on the **Session Controller**. If this is the first export since powering up the RADAR, proceed to step 2. Otherwise, skip ahead to step 5.







- 2 At the **FILE FORMAT:** dialogue, use the  and  keys to select **WAV**, **BWAV** or **CDAUDIO** and press the  key.


If always using **WAV** or **BWAV** when exporting, the **FILE FORMAT** preference can be set to avoid this prompt each time an export is done.

To set the **FILE FORMAT** preference:

- a. Use the , the  and  keys and the  key to go to the **MAIN MENU / FILE MENU / FILE PREFS / EXPORT FORMAT** selection and press the  key.
 - b. At the **FILE FORMAT:** prompt, use the  and  keys to select **WAV** or **BWAV** and then press the  key. The factory default setting is **ASK**.
- 3 At the **EXPORT TO:** dialogue, use the  and  keys to select the device to export to and press the  key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:** (network shares), **B:** (DVD-RAM, DVD-R, BD-RE or CD-R) and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR SCSI bus.

If selecting **B:DVD BLANK DISK**, proceed to step 5.

- 4 Use one of the following methods to select a destination folder in the **SELECT FOLDER:** dialogue:
- a. Use the  and  keys to select an existing folder name and press the  key.
 - b. Select **NEW FOLDER** and press the  key to create a new one. At the **FOLDER NAME** dialogue type in a name for the folder and press the  key. The menu will return to the **SELECT FOLDER** dialogue with the new folder name as the current selection. Press the  key to accept this folder as a destination.

- 5 Select a **FILL SILENCE** option. **FILL SILENCE** is a method that allows a track with gaps (blank spaces between recorded sections) to be exported as a single file. This is accomplished by filling the gaps with zero data thus creating a file that spans the length of the current project. This increases conversion and transfer time but it reduces effort when the files are imported in a DAW application as there will only be one file per track to *spot* to a start time. Most workstations have a *strip silence* option that can be used to remove any unwanted silence between recordings. If **NO** is chosen for the **FILL SILENCE** option, the directory will contain the individual recording files ordered by track and start time. Once the selection is made, press the  key.

Turn the fill silence option on or off by setting the **FILL SILENCE** preference to **YES** or **NO**.

To set the **FILL SILENCE** preference:

a. Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE Prefs / FILL SILENCE** selection and press the **ENTER** key.

b. At the **FILL SILENCE** prompt, use the **↑** and **↓** keys to select:

ASK Will prompt for fill silence option each export/BWAV backup.

FILL GAPS ONLY **FILL ALL GAPS** without front or back fill.

FRONT FILL+GAPS **FRONT FILL** and **FILL GAPS** without **BACK FILL**.

GAPS+BACK FILL **BACK FILL** and **FILL GAPS** without **FRONT FILL**.

FRONT+GAPS+BACK **FRONT** and **BACK FILL** and **FILL GAPS**

NO Each export/BWAV backup will transfer with no fill options

Make a selection and press the **ENTER** key. The factory default setting is **ASK**.

6 At the **EXPORT: TRACKS** dialogue, select the tracks to export using **Track Arm** keys **1** through **24** or choose the **ALL** option and then press the **ENTER** key.

7 The **EXPORT TO DISK** dialogue will appear while RADAR marks the files. Next, a confirmation dialogue displaying the size or estimated time of the export may appear, depending on the **SHOW SIZE** preference in the **FILE Prefs** menu. Select **YES** and press the **ENTER** key to proceed.

To set the **SHOW SIZE** preference:

a. Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE Prefs / SHOW SIZE** selection and press the **ENTER** key.

b. Use the **←** and **→** keys to select **OFF**, **MBYTES** or **TIME** and then press the **ENTER** key. The factory default setting is **MBYTES**.

8 The export is complete once the **EXPORT COMPLETE PRESS ANY BUTTON** dialogue appears or the CD burn is finished.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT**+ **UNMNT** on the Session Controller.

IMPORT



When importing, make sure that the DVD-R or CD-R being importing from has been written as an ISO 9660 format on a Mac or PC.

RADAR has the capability of importing WAV and/or Broadcast WAV files into the clipboard or into a new project from a variety of devices. These devices include **D:ARCHIVE** (RADAR internal IDE system drive), **N: NETWORK**, **DVD-R**, **CD-R**, **RED BOOK AUDIO CD**, **FAT32** formatted DVD-RAM and any Mac HFS or FAT32 drives internally and/or externally connected to the RADAR SCSI bus.

If the project sample rate and bit resolution do **NOT** match the incoming file(s), there is an option to convert the audio to the bit depth and sample rate of the current project based on the **REFORMAT QUALITY** preference. If the project sample rate and bit resolution match the incoming file(s) and reformatting won't be required to reformat.

To set the **REFORMAT QUALITY** preference:

- a. Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE PREFS / REFORMAT QUALITY** selection and press the **ENTER** key.
- b. At the **REFORMAT QUALITY:** prompt, use the **↑** and **↓** keys to select **Q1**, **Q2** or **Q3** and then press the **ENTER** key.



Q3 represents the slowest speed but highest quality.






There are two ways to initiate a file import from the RADAR:

- Using the **MAIN MENU / FILE MENU / IMPORT**, which can be accessed using both the **Session Controller** or the **KC-24**.
- Using the **FILE IMPORT** or **CLIP IMPORT** keys on the **Session Controller**.

FILE IMPORT








To import audio into a new project:

- 1 Press the **FILE IMPORT** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / IMPORT** selection and press the **ENTER** key.
- 2 At the **IMPORT FROM:** dialogue, use the **↑** and **↓** keys to select the device to import from and press the **ENTER** key.

- 3 At the **SELECT FOLDER:** dialogue, use the  and  keys to locate the folder or **<ROOT DIRECTORY>** to import from. Move in and out of a folder/directory using the  and  keys. Press the  key to select the folder/directory to import from.



When importing from a Red Book audio CD, there are two folders in the list to choose from: **CDDA**, or **WAV**. Select the **WAV** folder.

- 4 If using the  key on the **Session Controller**, skip to step 6.
- 5 If the import was started by selecting **IMPORT** from the **FILE MENU**, use the  and  keys to select **PROJECT** from the **IMPORT TO:** dialogue and press the  key.
- 6 Use the  and  keys to select either **ALL FILES** or **SELECTED FILES** from the **IMPORT FILES:** dialogue and press the  key.
- 7 When using either the **ALL FILES** or **SELECTED FILES** option, the RADAR will prompt with one of the following dialogs (the numbers and file names used are strictly for example):

PCM 48/24 FORMAT
REFORMAT ACCEPT

This prompt will follow the **ALL FILES** selection provided that every file contains the same sample rate/bit resolution format.

MULTIPLE FORMATS
REFORMAT VIEW

This prompt will follow the **ALL FILES** selection when the folder/directory contains varying sample rate/bit resolution formats.

PCM 48/24 TRK:
T01-KICK-00H01M32S2













This prompt will follow the **SELECTED FILES** selection from step 6 as well as the **VIEW** selection from the **MULTIPLE FORMATS** prompt.

PCM 48/24 Indicates the format (PCM stands for Pulse Code Modulation), sample rate and bit resolution for the files found in the selected directory. When scrolling through a list of files, the **??? FORMAT** will be displayed if one or more of the parameters aren't compatible.

REFORMAT Allows the user to define a new sample rate and bit resolution along with the conversion quality to be used during the import process.

ACCEPT Will import the file(s) into a new project using the original file(s) sample rate/bit resolution to define the project settings.

VIEW Will allow the user to scroll through the list of files selected for importing and deselect any file(s) that aren't appropriate for the current import.


- a. Use the  and  keys to select **REFORMAT**, **ACCEPT** or **VIEW** and then press the  key.
- b. If **SELECTED FILES** was chosen use the  and  keys in conjunction with the  and  keys, or the  and  keys, to add or remove individual files from the **PCM XX/XX TRK:** dialogue. The **Track Arm** keys  through  may also be used to select which track the file will import to. When finished making the selection(s) press the  key.




When importing stereo files, RADAR will split the file into two mono files to be placed on two adjacent RADAR tracks.

- 7 The **IMPORT** dialogue will appear while RADAR processes the files. When the operation is finished the **MAKING WAVES** dialogue will appear while RADAR processes the waveform files. When it is finished the **IMPORT COMPLETE** dialogue will appear. Press any key to dismiss the dialogue and return to normal operation.





















Cancel an import at any time by pressing the  key.






After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing  + **UNMNT** on the Session Controller.

CLIP IMPORT

To import audio into an existing project:

- 1 Press  +  key on the **Session Controller** or use the , the  and  keys and the  key to go to the **MAIN MENU / FILE MENU / IMPORT** selection.
- 2 At the **IMPORT FROM:** dialogue, use the  and  keys to select the device to import from and press the  key.
- 3 At the **SELECT FOLDER:** dialogue, use the  and  keys to locate the folder or **<ROOT DIRECTORY>** to import from. Move in and out of a folder/directory using the  and  keys. Press the  key to select the folder/directory to import from.
- 4 If using the  +  key on the **Session Controller**, skip to step 6.
- 5 If the import was started by selecting **IMPORT** from the **FILE MENU**, use the  and  keys to select **CLIP** from the **IMPORT TO:** dialogue and press the  key.

- 6 Use the  and  keys to select either **ALL FILES** or **SELECTED FILES** from the **IMPORT FILES:** dialogue and press the  key.
- 7 When using either the **ALL FILES** or **SELECTED FILES** option, the RADAR will prompt with one of the following dialogs (the numbers and file names used are strictly for example):

PCM 48/24 FORMAT
REFORMAT ACCEPT

This prompt will follow the **ALL FILES** selection provided every file contains the same sample rate/bit resolution format.

MULTIPLE FORMATS
REFORMAT VIEW

This prompt will follow the **ALL FILES** selection when the folder/directory contains varying sample rate/bit resolution formats.

PCM 48/24 TRK:
T01-KICK-0H01M32S2

This prompt will follow the **SELECTED FILES** selection from step 6 as well as the **VIEW** selection from the **MULTIPLE FORMATS** prompt.

PCM 48/24 Indicates the format (PCM stands for Pulse Code Modulation), sample rate and bit resolution for the files found in the selected directory. When scrolling through a list of files, the **??? FORMAT** will be displayed if one or more of the parameters aren't compatible.













REFORMAT Allows the user to define a new sample rate and bit resolution along with the conversion quality to be used during the import process.

ACCEPT Will import the file(s) into a new project using the original file(s) sample rate/bit resolution to define the project settings.

VIEW Will allow the user to scroll through the list of files selected for importing and deselect any file(s) that aren't appropriate for the current import.



The files are imported to an existing project so ensure the sample rate and bit resolution match the current project.

- a. Use the  and  keys to select **REFORMAT**, **ACCEPT** or **VIEW** and then press the  key.
- b. If **SELECTED FILES** was chosen use the  and  keys in conjunction with the  and  keys, or the  and  keys, to add or remove individual files from the **PCM XX/XX TRK:** dialogue. The **Track Arm** keys  through  may also be used to select which track the file will import to. When finished making the selection(s) press the  key.



When importing stereo files RADAR will split the file into two mono files to be placed on two adjacent RADAR tracks.

The **IMPORT** dialogue will appear while RADAR processes the files. When the operation is finished the **MAKING WAVES** dialogue will appear while RADAR processes the waveform files. When it is finished the **IMPORT COMPLETE** dialogue will appear. Press any key to dismiss the dialogue and return to normal operation. All of the imported files will be placed into the clipboard of the current project.



When importing BWAV(Broadcast WAV) format audio to the clipboard, if all the files are the same length and time stamp they may paste to the original time using the **ORIGINAL TIME PASTE** function. For more detailed information on using this feature see *OPERATION: EDITING: EDITING FUNCTIONS*.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT**+ **UNMNT** on the Session Controller.

IMPORT OPEN TL PROJECTS

This function enables RADAR to import MX2424 Projects with SDII file formats and TL Project formats on HFS+ formatted disks.

To import an Open TL Project:

- 1 With an MX2424 disk inserted into RADAR and a BWAV drive mounted press the **FILE IMPORT** button on the **Session Controller**, or select the **IMPORT** menu using the **KC24**. To import Open TL Projects navigate to the disk containing the TL project(s) and press the **ENTER** key.
- 2 RADAR will scan the volume to determine if TL projects exist, and if so, RADAR will present a scrollable list of projects by name, showing the .tl extension on the end of the project name.
- 3 Scroll through the list of projects, and press the **ENTER** key to select a project for importing. RADAR will then import, flatten the project and create the equivalent RADAR project including the project name, track names, sample rate, and bit resolution.

The following will be displayed during the importing of audio:

IMPORTING AUDIO
+ 100% COMPLETE +

Once the Audio is imported RADAR will display:

IMPORTING AUDIO
+ MAKE PROJECT +

- 4 The waveform file will be created during the import.

When the import is complete, RADAR will cue to the project start time and display the following:

IMPORT COMPLETE
PRESS ANY BUTTON

SET PROJECT START TIME WHEN IMPORTING

When importing files to a new project, the project start time will be based on the **IMPRT PROJ START** setting in the **FILE PREFS** menu. If this preference is set to **AUDIO**, then the project start time will be set to the time stamp of the earliest audio region imported to the project. If the preference is **DEFAULT**, then the project start time will be set to the **DEF START TIME** defined in the **PROJECT PREFS** menu.

To set the default **IMPRT PROJ START**:

- 1 Navigate to **MAIN MENU / FILE MENU / FILE PREFS / IMPRT PROJ START** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **DEFAULT** or **AUDIO** at the **IMPRT PROJ START** and press the **ENTER** key.



When 3.50 software is first installed this preference is set to **DEFAULT**. **DEFAULT** will **IMPORT** to the timeline set in **DEF START TIME** in the **PROJECT PREFS**. **AUDIO** will **IMPORT** to the earliest timeline set in the BWAV header of the earliest audio region.

FILE MANAGEMENT (BROWSE)

The **FILE MANAGEMENT** menu item allows extensive control over files on all drives connected to RADAR, including the ability to, **COPY**, **MOVE** and **PASTE** files from one drive to another.

For example, a project can be backed up to the internal system drive and later, the **COPY** and **PASTE** features can be used to create a second copy of the backup on **N: NETWORK**, **E:USB DRIVE**, **DVD-R**, **CD-R**, **FAT32** formatted DVD-RAM and any Mac HFS or FAT32 drives internally and/or externally connected to the RADAR SCSI bus

To browse files and folders:

- 1 Hold the **SHIFT** key and press the letter **B** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE MANAGEMENT** selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the drive to browse and press the **ENTER** key.



When scrolling through the list of drives, the size of the disk (if available) will be displayed.

BROWSE: 4.3 GB
B:DVD - RAM FAT32

- 3 Use the and keys to select the folder to browse and press the or key. Use the or key to go to the previous directory level.



If a folder name is shown, it will be followed by a / and **#=MB** will appear. This means pressing the key on the **Session Controller** or **KC-24** will calculate the size of the folder (this may take several seconds). Pressing the key a second time will indicate the number of files in the folder. If a file name is shown, the size will automatically be displayed. If the file contains WAV or BWAV PCM audio, then pressing the key will display the format, sample rate and bit resolution. The size will be remembered until the main menu is exited in case the user wishes to scroll back to that folder or file.

Use the and keys to view names that are too long to fit in the **Session Controller** LCD display and/or the menu window of **RADARView**.






Pressing the on the **Session Controller** or the key on the **KC-24** will indicate space available on the current drive.

- 4 At the file level (lowest directory), the following will be evident:
- The keyboard and numeric keys, the and keys or the **Jog/Shuttle Wheel** will browse the individual file(s).
 - Pressing the key or key will return a **NO MORE LEVELS, PRESS ANY BUTTON** prompt.

To copy and paste files and/or folders:

- Hold the key and press the letter or use the , the and keys and the key to go to the **MAIN MENU / FILE MENU / FILE MANAGEMENT** selection and press the key.
- Use the and keys to select the drive to browse (copy from) and press the key.
- Use the keyboard and numeric keys, the and keys, **Jog/Shuttle Wheel** as well as the , and keys to navigate to the file or folder to copy and then press the key. The top right corner of the **Session Controller** LCD and/or menu window of the **RADARView** display will specify the size. The + symbol indicates that it has been selected. For example:


COPY: 6.6MB+
MY SONG/

- 4 To add additional files and/or folders to the copy list, use the  and  keys to navigate to the file and/or folder and press the  key. The additional files and/or folders **must** reside within the current directory.










Pressing the  key on the **Session Controller** or **KC-24** will toggle between the following:

- a. number of files and size of the current folder or, file format, sample rate and bit resolution of the current file
- b. number of files/folders and size of the current copy selection(s)

- 5 When finished selecting the file(s) and/or folder(s) to copy, press the  key to complete the selection process. This will transfer the items to a clipboard at which point the display will show the number of files and size along with the prompt **BROWSE TO PASTE** before returning to the browse display.



If selecting only one folder with one file inside to copy, the display will indicate **2 FLS** at the **PROCEED?** dialogue since the folder and the file within are being copied.

- 6 Use the keyboard and numeric keys, the  and  keys, **Jog/Shuttle Wheel** as well as the ,  and  keys to navigate to the drive/directory to paste to and then press the  key.
- 7 A confirmation prompt will show the number of files/folders and the total size. Use the arrow keys to select **YES** and then press the  key to proceed. For example:

```
1 FLS/108MB
PROCEED? NO YES
```

Press  =

```
COPY FILES: D -> D
+ 1 OF 1 +
```

```
COPY FILES: D -> D
+ WORKING +
```

```
COPY COMPLETE
PRESS ANY BUTTON
```



The display shows the drive that the file(s) are being copied from and to. For example, if copying from **D:ARCHIVE** to a **DVD-RAM**, the display would show **COPY FILES D -> B**.

This process does not remove the file(s) and/or folder(s) from their original location. The file(s) and/or folder(s) can still be pasted to another location if needed. The file(s) and/or folder(s) will remain on the copy clipboard until either a different file(s) and/or folder(s) to copy is selected or the RADAR is shutdown.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT+ UNMNT** on the Session Controller.

To move files and/or folders:

- 1 Hold the **SHIFT** key and press the letter **B** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE MANAGEMENT** selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the drive that contains the file(s) and/or folder(s) to move and press the **ENTER** key.
- 3 Use the keyboard and numeric keys, the **↑** and **↓** keys, **Jog/Shuttle Wheel** as well as the **+**, **-** and **ENTER** keys to navigate to the file or folder to move and then press the **MOVE** key. The top right corner of the **Session Controller** LCD and/or menu window of the **RADARView** display will specify the size. The **+** symbol indicates that it has been selected. For example:

MOVE: D: 6.6MB+
MY SONG/

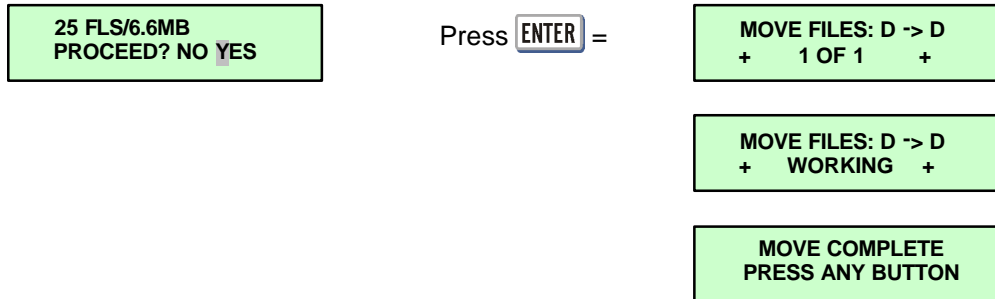
- 4 To add additional files and/or folders to the move list, use the **↑** and **↓** keys to navigate to the file and/or folder and press the **MOVE** key. The additional files and/or folders **must** reside within the current directory.



Pressing the **#** key on the **Session Controller** or **KC-24** will toggle between the following:

- a. number of files and size of the current folder or, file format, sample rate and bit resolution of the current file
- b. number of files/folders and size of the current copy selection(s)

- 5 When finished selecting the file(s) and/or folder(s) to move, press the **ENTER** key to complete the selection process. This will transfer the items to a clipboard at which point the display will show the number of files and size along with the prompt **BROWSE TO PASTE** before returning to the browse display.
- 6 Use the keyboard and numeric keys, the **↑** and **↓** keys, **Jog/Shuttle Wheel** as well as the **+**, **-** and **ENTER** keys to navigate to the drive/directory to move to and then press the **PASTE** key.
- 7 A confirmation prompt will show the number of files/folders and the total size. Use the arrow keys to select **YES** and then press the **ENTER** key to proceed. For example:







This process **removes** the file(s) and/or folder(s) from their original location.





After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT**+ **UNMNT** on the Session Controller.

To delete files and/or folders:

- 1 Hold the **SHIFT** key and press the letter **B** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE MANAGEMENT** selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the drive that contains the file(s) and/or folder(s) to delete and press the **ENTER** key.

- 3 Use the keyboard and numeric keys, the  and  keys, **Jog/Shuttle Wheel** as well as the ,  and **ENTER** keys to navigate to the file or folder to delete and then press the **ERASE** key. The top right corner of the **Session Controller** LCD and/or menu window of the **RADARView** display will specify the size. The **+** symbol indicates that it has been selected. For example:

DELETE: D: 6.6MB+
MY SONG/

- 4 To add additional files and/or folders to the erase list, use the  and  keys to navigate to the file and/or folder and press the **ERASE** key. The additional files and/or folders must reside within the current directory.
- 5 When finished selecting the file(s) and/or folder(s) to erase, press the **ENTER** key.
- 6 A confirmation prompt will show the number of files/folders and the total size. Use the arrow keys to select **YES** and then press the **ENTER** key to proceed. For example:

1 FLS/108MB
PROCEED? NO YES

Press **ENTER** =

CANNOT BE UNDONE
PROCEED? NO YES

- 7 The next prompt warns that this process **cannot** be undone. Use the arrow keys to select **YES** and then press the **ENTER** key to proceed.
- 8 The process is complete once the display reads:

DELETE COMPLETE
PRESS ANY BUTTON



The deletion **cannot** be undone. There is no way to recover file(s) and/or folder(s) once they have been erased.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT**+ **UNMNT** on the Session Controller.

BURN A DATA CD-R/DVD-R

This feature allows the user to burn backups and/or exports that have been stored on the internal system drive (e.g., **D:ARCHIVE**) to a **DVD-R** or **CD-R**. A multi-drive must be installed in the RADAR in order to make use of this feature.



Make sure that all projects/files to be burned are placed into the same folder on **D:ARCHIVE**.



These steps are not necessary unless burning files on the **D:ARCHIVE**. If burning current projects refer to the previous section *OPERATIONS: FILE MANAGEMENT*.



To backup and/or export projects/files to **D:ARCHIVE** refer to the *OPERATIONS: FILE MANAGEMENT* sections of the manual for the specific steps.

To burn backups and/or exports to DVD-R or CD-R:

- 1 Create the ISO image file for burning.
 - a. Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / MAKE DVD/CD IMAGE** and press the **ENTER** key.
 - b. Use the **↑** and **↓** keys and the **+** and **-** keys to navigate to the folder that contains the backup and/or export file(s) and press the **ENTER** key.
 - c. At the **XX MB CONTINUE? NO YES** prompt, confirm that the image MB size will fit the destination DVD-R or CD-R select **YES** and press the **ENTER** key. If the image file is too large, use the **FILE MANAGEMENT BROWSE:** feature along with **CUT**, **COPY**, **MOVE** and/or **PASTE** in order to create a folder that contains the appropriate projects/files that fits the destination DVD-R or CD-R.



Standard sizes are:	DVD-R	4.3 GB
	CD-R	700 MB

- d. At the **NAME IMAGE FILE** prompt, create an image name or use the default **UNTITLED** and press the **ENTER** key.



A **CREATING XXXX.IMG ISO FILE** background window will appear at the bottom of **RADARView** indicating the progress of the ISO image creation.

A **DISK IMAGES** folder is automatically added to the internal system drive the first time an **.IMG** file is created. Subsequent **.IMG** files will be stored in the same folder.

This process works in the background and the RADAR can be returned to normal use during this operation.

- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / BURN DATA CD/DVD** selection and press the **ENTER** key.
- 3 Press the **ENTER** key at the **BURN TO: B: CD-R BLANK** or **B: DVD BLANK** prompt.
- 4 At the **SELECT DVD IMAGE** prompt, use the **↑** and **↓** keys to navigate to the **.IMG** file to burn and press the **ENTER** key.
- 5 At the **XX.IMG PROCEED? NO YES** prompt, verify that this is the image file to burn by selecting **YES** and pressing the **ENTER** key. The burning process will begin and cannot be stopped until the image is written and the media finalized.



A background window will appear at the bottom of **RADARView** indicating the burn progress. During the finalizing process, the taskbar doesn't indicate progress but may take up to 15 minutes to complete. Finalizing time is dependant on the image file size and media format (DVD-R or CD-R). It is safe to continue working with RADAR while the DVD-R or CD-R image is written and finalized.

BURN AN AUDIO CD

With a multi-drive installed, one or more stereo exports can be burned as a Red Book CD-DA file that can be played in any CD player. RADAR will automatically convert the audio to 16 bit/44.1 KHz when selecting **CDAUDIO** at the **FILE FORMAT:** dialogue during an export. The quality of the conversion is based on the **REFORMAT QUALITY** option under the **FILE MENU / FILE PREFS**.

To set the **REFORMAT QUALITY** preference:

- a. Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE PREFS / REFORMAT QUALITY** selection and press the **ENTER** key.
- b. At the **REFORMAT QUALITY:** prompt, use the **↑** and **↓** keys to select **Q1**, **Q2** or **Q3** and then press the **ENTER** key.



Q3 represents the slowest speed but highest quality.

The order of the tracks will be determined by one of the following:

- The sequence that the **CDAUDIO** files were exported directly to the CD.
- The sequence that the **CDAUDIO** files were exported into the destination folder/directory.
- The list created at the **SELECT FILES:** submenu of **BURN AUDIO CD**.

See the *OPERATIONS: FILE MANAGEMENT: EXPORT* section of this manual for specific details.

The length of time between audio tracks is fixed at two seconds.

To create an audio CD:





- 1 Insert a blank CD-R into the multi-drive.
- 2 Use one of the following methods:
 - a. Export directly to **B:CD-R BLANK**. Do **NOT** proceed to step 3. Instead, refer to the *OPERATIONS: FILE MANAGEMENT: EXPORT* section of this manual for specific details.
 - b. Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / BURN AUDIO CD** dialogue and press the **ENTER** key. Proceed to step 3.



Either method allows the CD to be finalized immediately after the burn is complete or at a later time. If **NO** is selected at the **FINALIZE CD** prompt, RADAR will display the CD as **B:CD-R OPEN**.



- 3 At the **BURN FROM:** dialogue, use the **↑** and **↓** keys to select the drive that contains the folder/directory of **STEREO CDAUDIO** files and press the **ENTER** key.
- 4 At the **SELECT FOLDER:** dialogue, use the **↑** and **↓** keys and the **+** and **-** keys to locate the folder or **<ROOT DIRECTORY>** to burn from and then press the **ENTER** key.
- 5 At the **BURN FILES:** dialogue, use the **↑** and **↓** keys to select **ALL FILES** or **SELECTED FILES** and press the **ENTER** key. This step will determine the order of the tracks on the CD. If **ALL FILES** is selected, the CD track order will reflect the sequence that the files were exported. If **SELECTED FILES** is chosen, the track order will be based upon the selected list created under the **SELECT FILES:** dialogue.

If **ALL FILES** is selected, proceed to step 7.

- 6 At the **SELECT FILES:** dialogue, use the  and  keys in conjunction with the  and  keys, or the **MARK IN**/**MARK OUT** keys, to add or remove individual files. The track order will be displayed in the top right corner of the LCD. The first track of the CD would look like the following:

```
SELECT FILES: T01
PROJECT1_STEREO.WAV
```

When finished making the selection(s), press the **ENTER** key.

- 7 At the **FINALIZE CD** dialogue, choose to finalize now or later. If **YES** is selected, additional tracks **CANNOT** be added at a later time. If **NO** is selected, use the **MAIN MENU / FILE MENU / FINALIZE CD** option to close (finalize) the disk when finished exporting/burning all the audio tracks onto the CD. Use the  and  keys to select **NO** or **YES** and then press the **ENTER** key.







Once CD burn begins the procedure becomes a background task and cannot be cancelled. However, the RADAR can still be used for recording/playback/editing.

FINALIZE AN AUDIO CD

This feature allows the user to close (finalize) an audio CD in order for the disk to be played in a standard CD player. RADAR allows exporting of **STEREO CDAUDIO** (CD-DA) files for the purpose of creating a Red Book (audio) CD. If **CDAUDIO** files are added over time to a CD, the **FINALIZE CD** option will need to be used once all the tracks (**CDAUDIO** files) are added to the disk.

To finalize a CD:

- 1 Insert a CD into the multi-drive that already has **CDAUDIO** files exported/burned to it from RADAR.
- 2 Use the **MENU/PREV**, the  and  keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FINALIZE CD** dialogue and press the **ENTER** key.
- 3 At the **FINALIZE:** dialogue, use the **B:CD-R OPEN** display to verify that the correct disk is inserted and then press the **ENTER** key. If there is anything other than an **OPEN CD** inserted, the disk will be ejected and the error message **INSERT OPEN CD-R DISK** will be displayed.
- 4 The **FINALIZE CD?** prompt is the last prompt to confirm this task. Once the finalizing begins, it **CANNOT** be cancelled. Use the  and  keys to select **NO** or **YES** and then press the **ENTER** key.



Once CD burn begins the procedure becomes a background task and cannot be cancelled. However, the RADAR can still be used for recording/playback/editing. The CD will be ejected once the process is completed.

DELETE AN IMAGE FILE

DEL IMG FILE allows the user to permanently delete old and/or unwanted ISO image files from the internal system drive that had been created for the purpose of burning a DVD-R and/or CD-R.

To delete an image file:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / DEL IMG FILE** dialogue and press the **ENTER** key.
- 2 At the **DELETE DVD IMAGE** prompt, use the **↑** and **↓** keys to select the .IMG file to remove from the internal system drive and press the **ENTER** key.



The deletion **cannot** be undone. There is no way to recover file(s) and/or folder(s) once they have been erased.

MACROS (SESSION CONTROLLER ONLY)

RADAR macro keys allow users single keys to perform multi-step functions.

To record and use a macro:

- 1 Hold **SHIFT** and press a **MACRO** key.
- 2 Perform a key sequence on the **Session Controller**, the macro key will flash indicating the macro is being recorded.
- 3 Press the **MACRO** key to end recording of the sequence.
- 4 Press the **MACRO** key to trigger RADAR to perform saved key sequence.

LOAD

The **LOAD** feature allows the user to import macros from a file on a floppy disk, the internal hard drive or a connected SCSI drive.

To load a macro:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / MACROS** menu item and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **LOAD** from the **MACRO KEYS:** dialogue and press the **ENTER** key.
- 3 Use the **←** and **→** keys to select **FLOPPY**, **HARD** or **SCSI** in the **LOAD FROM:** dialogue and press the **ENTER** key.
- 4 Use the **↑** and **↓** keys to select the macro file to load in the **LOAD MACROS:** dialogue and press the **ENTER** key.
- 5 When the load is complete the display will read **MACROS LOADED PRESS ANY BUTTON**.

SAVE

The **SAVE** feature allows the user to export macros to a file on a floppy disk, the internal hard drive or a connected SCSI drive.

To save a macro:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / MACROS** menu item and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **SAVE** from the **MACRO KEYS:** dialogue and press the **ENTER** key.
- 3 Use the **←** and **→** keys to select **FLOPPY**, **HARD** or **SCSI** in the **SAVE TO:** dialogue and press the **ENTER** key.
- 4 Use the keyboard to type a name for the macro file to save in the **NAME THE MACRO:** dialogue and press the **ENTER** key.
- 5 When the save is complete the display will read **MACROS SAVED PRESS ANY BUTTON.**

DELETE

The **DELETE** feature allows the user to delete macro files on a floppy disk, the internal hard drive or a connected SCSI drive.

To delete a macro:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / MACROS** menu item and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **DELETE** from the **MACRO KEYS:** dialogue and press the **ENTER** key.
- 3 Use the **←** and **→** keys to select **FLOPPY**, **HARD** or **SCSI** in the **DELETE FROM:** dialogue and press the **ENTER** key.
- 4 Use the **↑** and **↓** keys in the **DELETE MACROS:** dialogue to select the macro file to delete and press the **ENTER** key.
- 5 When the save is complete the display will read **MACROS DELETED PRESS ANY BUTTON.**

MIX AUTOMATION SETTINGS

This option allows the user to store Sony DMX-R100 mixer automation settings with a RADAR project from a floppy disk, or restore those same settings to a floppy to get them back into the DMX-R100.

To save automation settings with a project:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / MIX AUTOMATION / DMXR100** menu item and press the **ENTER** key.
- 2 Insert a floppy disk with automation settings and use the **ENTER** key to select **PROJECT.**
- 3 When the save is complete the display will read **AUTOMATION FILE COPIED TO PROJECT.**

To copy automation settings to a floppy:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / MIX AUTOMATION / DMXR100** menu item and press the **ENTER** key.
- 2 Insert a floppy disk and use the **ENTER** key to select **FLOPPY**.
- 3 When the save is complete the display will read **AUTOMATION FILE COPIED TO FLOPPY**.

FILE PREFS

SHOW SIZE

This preference allows the user to choose the information displayed prior to a backup or export procedure.

To modify the information displayed prior to a backup or export:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE PREFS / SHOW SIZE** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **OFF**, **MBYTES** or **TIME** in the **SHOW SIZE:** dialogue and press the **ENTER** key.

EXPORT FORMAT

This preference allows the user to choose the default setting for the file format that will be used for exporting from the RADAR.

To select the default file format setting for export:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FILE PREFS / EXPORT FORMAT** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **WAV**, **BWAV** or **ASK** in the **FILE FORMAT:** dialogue and press the **ENTER** key. If selecting the **ASK** option then RADAR will prompt the user to choose the file format each export.

FILL SILENCE

This preference allows the user to choose the default setting for **FILL SILENCE**, which determines whether or not non-audio regions are filled with silence to create contiguous files for export or backup.

To select the default setting for **FILL SILENCE**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to **MAIN MENU / FILE MENU / FILE PREFS / FILL SILENCE** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **NO**, **GAPS**, **ALL** or **ASK** in the **FILL SILENCE:** dialogue and press the **ENTER** key. If selecting the **ASK** option then RADAR will prompt the user to choose the **FILL SILENCE** option each export or **BWAV** backup.

REFORMAT QUALITY

This preference allows the user to choose the default setting for **REFORMAT QUALITY**, which determines the speed and quality of any sample rate/bit resolution conversion required during import or export.

To select the default setting for **REFORMAT QUALITY**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to **MAIN MENU / FILE MENU / FILE PREFS / REFORMAT QUALITY** and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **Q1**, **Q2** or **Q3** in the **REFORMAT QUALITY:** dialogue and press the **ENTER** key. **Q3** is the slowest but highest quality conversion and is the factory default setting.

FILE NAME FORMAT TEMPLATES

The B WAV files in the **AUDIO FILES** sub-folder of a **B WAV** backup or export are named according to the **FILE NAME FORMAT** specified in the **FILE PREFS**. There are two options for file name format: **PRESET** and **CUSTOM**.

If **PRESET** is selected, choose from the following pre-defined naming conventions:

TRK-NAME-STAMP E.g. *T01-TrkName-01h22m36s12f00.WAV*

This format consists of the track number, up to 12 characters of the track name, and the time stamp. This is the default format.

TRK-PROJ-STAMP E.g. *T01-ProjName-01h22m36s12f00.WAV*

This format consists of the track number, up to 12 characters of the project name, and the time stamp.

TRK-REGION-NAME E.g. *T01-0001-TrackName.WAV*

This format consists of the track number, region number, and track name.

TRK-REGION-PROJ E.g. *T01-0001-ProjectName.WAV*

This format consists of the track number, region number, and project name.

PROJ-TRK-REGION E.g. *ProjectName-T01-0001.WAV*

This format consists of project name, track number and region.

TRK-REGION (DOS) E.g. *T01-0001.WAV*

This simple format containing the track and region number conforms to the DOS 8.3 file naming convention.

If **CUSTOM** is selected, choose from the following options to create and manage custom file name templates:

Create a new export template to be used on all exports or BWAV backups:

- 1 Go to **MAIN MENU / FILE MENU / FILE PREFS / FILE NAME FORMAT** and press the **ENTER** key.
- 2 Use the **←** and **→** keys, select **CUSTOM** and press the **ENTER** key.
- 3 At the **CUSTOM FORMAT:** prompt use the **↑** and **↓** keys, select **MAKE TEMPLATE** and press the **ENTER** key.
- 4 Use the **↑** and **↓** keys at the **CHOOSE SEPARATOR SELECT:** prompt to scroll through the options or use the **→** key to select **NONE** then press the **ENTER** key.
- 5 Use the **←** and **→** keys at the **CHOOSE EXTENSION:** prompt to choose **.WAV** or **OTHER**. If selecting other choose the desired extension and press **ENTER**.
- 6 Use the **↑** and **↓** keys at the **FIRST FIELD** prompt to scroll through the options and press the **ENTER** key.
- 7 If **FIXED TEXT** is selected, at the **TEXT:** prompt enter a name for the first field and press the **ENTER** key.
- 8 At the **ADD ANOTHER FIELD?** prompt use the **←** and **→** keys to choose **YES** or **NO** and press **ENTER**.
- 9 At the **NAME TEMPLATE:** prompt enter a name and press the **ENTER** key.
- 10 At the **SELECT TEMPLATE:** prompt use the **←** and **→** keys to choose **YES** or **NO** and press the **ENTER** key.

Edit an existing template:

- 1 Use the **MAIN MENU / FILE MENU / FILE PREFS / FILE NAME FORMAT / CUSTOM / EDIT TEMPLATE** and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys at the **CHOOSE SEPARATOR SELECT:** prompt to scroll through the options or use the **→** key to select **NONE** then press the **ENTER** key.
- 3 Use the **←** and **→** keys at the **CHOOSE EXTENSION:** prompt to choose **.WAV** or **OTHER**. If selecting other choose the desired extension and press **ENTER**.
- 4 Use the **↑** and **↓** keys at the **FIRST FIELD** prompt to scroll through the options and press the **ENTER** key.
- 5 If **FIXED TEXT** is selected, at the **TEXT:** prompt enter a name for the first field and press the **ENTER** key.
- 6 At the **ADD ANOTHER FIELD?** prompt use the **←** and **→** keys to choose **YES** or **NO** and press the **ENTER** key.

- 7 At the **NAME TEMPLATE:** prompt enter a name and press the **ENTER** key.
- 8 At the **SELECT TEMPLATE:** prompt use the **←** and **→** keys to choose **YES** or **NO** and press the **ENTER** key.

Select previously created template:

- 1 Use the **MAIN MENU / FILE MENU / FILE PREFS / FILE NAME FORMAT / CUSTOM / SELECT TEMPLATE** and press the **ENTER** key.
- 2 At the **SELECT TEMPLATE:** prompt use the **↑** and **↓** keys to select a template and press the **ENTER** key.

To export a template to be used on another RADAR:











- 1 Go to the **MAIN MENU / FILE MENU / FILE PREFS / FILE NAME FORMAT** and press the **ENTER** key.
- 2 Use the **←** and **→** keys, select **CUSTOM** and press the **ENTER** key.
- 3 At the **CUSTOM FORMAT:** prompt use the **↑** and **↓** keys, select **EXPORT TEMPLATE** and press the **ENTER** key.
- 4 At the **EXPORT TEMPLATE** prompt choose **ALL TEMPLATES** or **SELECT TEMPLATES** and press the **ENTER** key. If selecting **ALL TEMPLATES** skip to step 5.
- 5 If choosing **SELECT TEMPLATES** use the **↑** and **↓** keys to select templates and the **+** to mark them to be exported. Once the desired templates are selected press the **ENTER** key.
- 6 At the **EXPORT TO:** prompt use the **↑** and **↓** keys to select the device to save to, and press the **ENTER** key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **A:FLOPPY**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR.




After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing **SHIFT+ UNMNT** on the Session Controller.

To import a template from another RADAR:













- 1 Go to the **MAIN MENU / FILE MENU / FILE PREFS / FILE NAME FORMAT** and press the **ENTER** key.
- 2 Use the **←** and **→** keys, select **CUSTOM** and press the **ENTER** key.
- 3 At the **CUSTOM FORMAT:** prompt use the **↑** and **↓** keys, select **IMPORT TEMPLATE** and press the **ENTER** key.

- 4 At the **IMPORT FROM:** prompt, use the  and  keys to select the device to import from, and press the  key. This list will include **D:ARCHIVE** (RADAR internal system drive partition), **N:NETWORK**, **A:FLOPPY**, **B:** (DVD-RAM, DVD-R, BD-RE or CD-R), **REV DISK**, **E:USB DRIVE** and any FAT32 or HFS Standard formatted SCSI drives connected to the RADAR. Once the template folder is selected, press the  key.
- 5 At the **IMPORT TEMPLATE** prompt choose **ALL TEMPLATES** or **SELECT TEMPLATES** and press the  key. If selecting **ALL TEMPLATES** skip to step 6.
- 6 If choosing **SELECT TEMPLATES** use the  and  keys to select templates and the  to mark them to be exported. Once the desired templates are selected, press the  key.
- 7 At the **XX FLS/ XXKB PROCEED?** Select **YES** and press the  key.



After you have finished using a USB drive, make sure you unmount it before unplugging it from RADAR. You can access the **MOUNT/UNMOUNT** dialog via the **DISK MENU** or by pressing + **UNMNT** on the Session Controller.









To delete a template from RADAR:

- 1 Go to the **MAIN MENU / FILE MENU / FILE PREFS / FILE NAME FORMAT** and press the  key.
- 2 Use the  and  keys, select **CUSTOM** and press the  key.
- 3 At the **CUSTOM FORMAT:** prompt use the  and  keys, select **DELETE TEMPLATE** and press the  key.
- 4 Use the  and  keys to select templates and the  to mark them to be deleted. Once the desired templates are selected, press the  key.
- 5 At the **XX FLS/ XXKB PROCEED?** Select **YES** to confirm deletion and press the  key.

WRITE VERIFY

WRITE VERIFY is used during backup or export to removable media (e.g. DVD-RAM). This preference determines whether or not the backup process verifies the data after it is written. It is highly recommended that this preference is left set to **ENABLED** (factory default setting). However, with **WRITE VERIFY ENABLED** the backup time takes twice as long. To create an unverified DVD-RAM backup that will decrease the backup time, set this preference to **DISABLED**.

To select the default setting for **WRITE VERIFY**:


- 1 Use the , the  and  keys and the  key to go to **MAIN MENU / FILE MENU / FILE PREFS / WRITE VERIFY** and press the  key.
- 2 Use the  and  keys to select **DISABLED** or **ENABLED** in the **WRITE VERIFY** dialogue and press the  key.


TRANSPORT OPERATIONS

RADAR transport operation is based on a professional tape recorder. Transport RADAR applies the best features of the tape machine auto-locator and combined them with the incredible power of non-linear digital recording.









TRANSPORT KEYS

RADAR uses industry standard transport keys for both the **Session Controller** and the **KC-24** keyboard:




REWIND Simulates the transport rewind function of a tape machine. Double keying the  (**Rewind**) key enters a fast rewind mode that is 3 times the current rewind speed. The default speed for rewind is 8 times normal playback speed. Fast-forward and rewind speeds can be changed with the preferences listed below.

FAST FORWARD Simulates the fast forward transport function of a tape machine. Double keying the  (**Fast Forward**) key enters a fast forward mode that is 3 times the current fast forward speed. Default fast forward speed is 8 times playback speed. Fast forward and rewind speeds can be changed with the preferences listed below.

To change fast wind speeds:

- 1 Use the , the  and  keys and the  key to go to the **MAIN MENU / PREFERENCES MENU / FFWD & REW RATE** menu selection and press the  key.
- 2 Use the  and  keys to select a value and press the  key.




PLAY

Begins audio playback from current location. Pressing  (**Play**) while recording cancels record without stopping playback. Pressing  (**Play**) and  (**Rewind**) together enters reverse play mode.

STOP

Cancels all transport operations including record and puts RADAR into ready mode.

REC

Drops all record enabled tracks into record mode. The default mode requires both the  (**Play**) and  keys to be pressed simultaneously to enter record mode. If the **1-BUTTON RECORD** mode is enabled, pressing the  key is all that is required.

To change the operation of the transport controls for recording:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / RECORD PREFS** menu selection and press the **ENTER** key.
- 2 Use the **▲** and **▼** keys to select **1-BUTTON RECORD** and press the **ENTER** key.
- 3 Use the **◀** and **▶** keys to select either **DISABLED** or **ENABLED** and press the **ENTER** key.



This menu also contains the **TRACK ARM ACTION** preference setting for the track arming keys. See the *OPERATIONS: RECORDING: RECORD PREFS* section of this manual for more information on this feature.

JOG/ SHUTTLE WHEEL

The RADAR **Jog/Shuttle Wheel** provides a solid, responsive control suitable for professional audio editing and also functions as an intuitive data entry device.

Jogging is the equivalent of rocking recorded audiotape back and forth across the playback head of an analogue tape machine to locate an edit point. Shuttling is similar but once the audio is set “in motion” with the wheel, playback will continue at its current playback speed and direction indefinitely.

To engage the wheel for jogging audio simply press the **JOG (SHUTTLE)** key located to the upper left of the jog wheel. To engage the wheel for shuttling audio press **SHIFT + JOG (SHUTTLE)**.

MOUSE JOG (KC-24 ONLY)

To jog or shuttle with the mouse press either the **JOG** or **SHUTTLE** keys located in the numeric keypad grouping on the **KC-24** keyboard.

AUTO LOCATE MARKERS

One of the greatest features of a professional recorder transport is the Auto-Locator. RADAR's **AUTO-LOCATOR** provides the usual transport controls, a timecode based positional display and a number of preset locations that can be cued up automatically with a couple of keystrokes.

SETTING AND RECALLING

RADAR provides 99 location markers that can be set or “dropped” using the **MARK LOC** key on both the **Session Controller** and the **KC-24**. Once set, these location markers can be recalled, allowing the user to cue instantly to various points in the project. Location markers can be set and recalled regardless of the transport function. Locates cannot be set or recalled when the RADAR is in **MENU MODE**.

The first ten locates can be accessed with a single keystroke using the numeric keypad digits **0** through **9**. Locate **0** is always the project start time. The other ninety, two-digit locate points are addressable by using the **RECALL LOC** key, numeric keys **0** to **9** and the **ENTER** key.

To mark and recall a location using the **MARK LOC** key:

- 1 When the transport is located at the desired location press the **MARK LOC** key on the **Session Controller** or **KC-24**.
- 2 To recall the first ten locate markers use the **0** to **9** keys on the numeric keypad.
- 3 To recall locate markers 10 through 99, use the **RECALL LOC** key and the **0** to **9** keys on the numeric keypad to input the desired two-digit locate number. Press the **ENTER** key.

EDITING LOCATE MARKERS

Once a locate marker has been set it can be edited in several ways using the **EDIT LOC** key on the **Session Controller** or the **KC-24**.

EDIT

This option is used to select the location marker to edit and change its name or position.

To select a location marker for editing:

- 1 Press the **EDIT LOC** key on the **Session Controller** or **KC-24**.
- 2 Use the **←** and **→** keys to select **EDIT** and press the **ENTER** key.
- 3 Use the numeric keys, the **↑** and **↓** keys, the **MARK IN** key, the **MARK OUT** key, the **MARK SYNC** key or the **Jog/Shuttle Wheel** to select a location marker for editing.
- 4 At this point each attribute of the location marker can be modified. The **←** or **→** keys move the cursor from field to field and any of the data entry methods can be used to change the values. For example: A new **LOC** point will only have a number attached to it. To name the locate point, follow the previous three steps then press the **→** key once. The cursor should now be flashing in the field beside the **LOC** number. Type the name for the **LOC** point. Press the **ENTER** key to complete the edit.
- 5 It will return to the main **EDIT LOC** dialogue. To exit, press **CANCEL**, **MENU/PREV** or press the **EDIT LOC** key again.

DEL

The **DEL** option can be used to delete a single marker, a range of markers or all of the markers in a project.

To delete a single location marker:

- 1 Press the **EDIT LOC** key on the **Session Controller** or **KC-24**.
- 2 Use the **←** and **→** keys to select **DEL** and press the **ENTER** key.
- 3 Use the **←** and **→** keys in the **SELECT LOCATES** dialogue to select **ONE** and press the **ENTER** key.
- 4 Use the numeric keys, the **↑** and **↓** keys, the **MARK IN** key, the **MARK OUT** key, the **MARK SYNC** key or the **Jog/Shuttle Wheel** to select a location marker for deleting.

- 5 Press the **ENTER** key to permanently delete the selected location marker.
- 6 It will return to the main **EDIT LOC** dialogue. To exit, press **CANCEL**, **MENU/PREV** or press the **EDIT LOC** key again.

To delete a range of location markers between the **MARK IN** and **MARK OUT** locate points:

- 1 Press the **EDIT LOC** key on the **Session Controller** or **KC-24**.
- 2 Use the **←** and **→** keys to select **DEL** and press the **ENTER** key.
- 3 Use the **←** and **→** keys in the **SELECT LOCATES** dialogue to select **RANGE** and press the **ENTER** key.
- 4 A dialogue will ask **DEL BETWEEN MARK IN + OUT?** Select **YES** and press the **ENTER** key to continue.
- 5 The display will return to the main **EDIT LOC** dialogue. To exit, press **CANCEL**, **MENU/PREV** or press the **EDIT LOC** key again.

To delete all of the location markers in a project:

- 1 Press the **EDIT LOC** key on the **Session Controller** or **KC-24**.
- 2 Use the **←** and **→** keys to select **DEL** and press the **ENTER** key.
- 3 Use the **←** and **→** keys in the **SELECT LOCATES** dialogue to select **ALL** and press the **ENTER** key.
- 4 A dialogue will ask **DEL ALL LOCATE POINTS?** Select **YES** and press the **ENTER** key to continue.
- 5 The display will return to the main **EDIT LOC** dialogue. To exit, press **CANCEL**, **MENU/PREV** or press the **EDIT LOC** key again.



The deletion of location markers is a permanent operation and cannot be undone.

This option can be used to create location markers for a project. Location markers can also be set on the fly using the **MARK IN**, **MARK OUT**, **MARK SYNC** and **MARK LOC** keys on the **Session Controller** or the **KC-24**. See *OPERATIONS: TRANSPORT OPERATIONS: AUTO LOCATE MARKERS* for more information.

To create a new location marker:

- 1 Press the **EDIT LOC** key on the **Session Controller** or **KC-24**.
- 2 Use the **←** and **→** keys to select **NEW** and press the **ENTER** key.
- 3 Use the numeric keys, the **↑** and **↓** keys or the **Jog/Shuttle Wheel** to enter a time for the new location marker.
- 4 Use the **←** and **→** keys to move the cursor to the blank name field and type in a name using the keyboard. Press the **ENTER** key.
- 5 The display will return to the main **EDIT LOC** dialogue. To exit, press **CANCEL**, **MENU/PREV** or press the **EDIT LOC** key again.

AUTO PLAY

When the **AUTO PLAY** key is pressed RADAR automatically goes into play after a locate marker is recalled. Auto play can be used in conjunction with the **PRE ROLL** key for automatic playback with the additional amount of pre and post roll specified.

AUTO PUNCH

The **AUTO PUNCH** key is used to enable automatic recording between the **MARK IN** and **MARK OUT** location markers. In this operational mode recording will only occur once the **MARK IN** location has been reached. When the **MARK OUT** point is reached recording is automatically terminated. For more detailed information on using this feature see *OPERATIONS: RECORDING: AUTO PUNCH*.



When **AUTO PUNCH** is enabled manual recording is not possible.

CYCLE

When the **CYCLE** key is enabled, RADAR automatically locates to the **MARK IN** location marker and goes into play until the **MARK OUT** location marker is reached. After a small pause this cycle will be repeated indefinitely until cancelled by pressing one of the other transport keys. Cycle can be used in conjunction with the **PRE ROLL** key for automatic playback with the amount of pre and post roll specified.

PRE ROLL

The operation of the **PRE ROLL** key is somewhat unique because it must be pressed twice to engage its function. The first key press prompts the user to enter the pre and post roll values desired. Once modified, or if no change is required, a second key press will enable both pre and post roll. These functions can be used in conjunction with the **AUTO PLAY**, **AUTO PUNCH** and **CYCLE** functions.

FOOT SWITCHES

Foot switches can be used in conjunction with the **Session Controller** for hands free play/stop, last locate, punch in/out operation and macro assignment. The foot switches should be of the normally open, momentary type.

Up to three foot switches can be plugged in to the back of the **Session Controller**. Their default functions are **PLAY/STOP**, **LAST LOC**, and **PUNCH IN/OUT**. Use the **ASSIGN FT-SWITCH** setting in the **PREFERENCES MENU**, to assign macros to any of the foot switches.

To assign a macro to a footswitch port:

- 1 Go to **MAIN MENU / PREFERENCES MENU / ASSIGN FT-SWITCH** and press the **ENTER** key.
- 2 At the **ASSIGN FT-SWITCH** prompt use the **↑** and **↓** keys to select from **1: PLAY/STOP**, **2: LAST LOC**, **3: PUNCH IN/OUT**.
- 3 Once the footswitch to be changed is selected use the **→** to move the cursor to the function and use the **↑** and **↓** keys to select the function or **MACRO 1-8**. Once the function or macro function has been assigned press the **ENTER** key to confirm the selection.

RECORDING

With RADAR, recording is as easy as using a professional tape recorder. Arm the desired track(s) by pressing the corresponding track arm key(s) and press **▶ (Play)** and **REC**. Use the following preferences with RADAR to increase efficiency in your workflow.

RECORD PREFS

Because RADAR is used in many different professional applications, several recording options to customize RADAR operation for specific needs have been added.

ONE-BUTTON RECORD

With this feature disabled, press and hold **▶ (Play)** and then press **REC** on the **Session Controller** or the **KC-24** in order to begin recording. If this feature is enabled, just press **REC** to start recording.

To change the operation of the transport controls for recording:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / RECORD PREFS** menu selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select **1-BUTTON RECORD** and press the **ENTER** key.
- 3 Use the **←** and **→** keys to select either **DISABLED** or **ENABLED** and press the **ENTER** key.

TRACK ARM ACTION

The track arming keys on the **Session Controller** or the **KC-24** can engage either record **READY** or instant **RECORD** status per track. Instant **RECORD** allows the ability to drop in and out of record by pressing the **Track Arm** keys during playback.

To enable and disable instant **RECORD** via the **Track Arm** keys:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / RECORD PREFS** menu selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select **TRACK ARM ACTION** and press the **ENTER** key.
- 3 Use the **←** and **→** keys to select either **READY** or **RECORD** and press the **ENTER** key.

RECORD MK IN/OUT

This preference allows the **MK IN/OUT** locate points to be constantly updated to the last record drop-in/out. This can be especially useful during overdubs as it provide a very fast playback method of the last punch. Once an overdub is finished, simply press the **↓** key to audition the performance.

To enable and disable **RECORD MK IN/OUT**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / RECORD PREFS** menu selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select **RECORD MK IN/OUT** and press the **ENTER** key.
- 3 At the **UPDATE MK IN/OUT ON RECORD:** dialogue, use the **←** and **→** keys to select either **NO** or **YES** and press the **ENTER** key.

LOW DISK WARNING

This preference determines the amount of recording minutes, based on your current project sample rate, bit depth and number of tracks armed, remaining in order to produce the **LOW DISK WARNING**.

To set the threshold for the **LOW DISK WARNING**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / RECORD PREFS** menu selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select **LOW DISK WARNING** and press the **ENTER** key.
- 3 At the **LOW DISK LEVEL WARNING:** dialogue, use the **↑** and **↓** keys to set the number of recording minutes remaining and press the **ENTER** key. The factory default setting is **05** minutes.

RECORD VERIFY

This preference determines whether or not RADAR will operate in a **RECORD VERIFY** mode when recording. Record Verify is a low-level data verification option. It is not recommended that this option be enabled as it could slow down overall functionality. The **RECORD VERIFY** default preference is set to Disabled.

To enable or disable **RECORD VERIFY** during recording:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / RECORD PREFS** menu selection and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select **RECORD VERIFY** and press the **ENTER** key.
- 3 At the **RECORD VERIFY:** dialogue, use the **←** and **→** keys to select either **DISABLED** or **ENABLED** and press the **ENTER** key. The factory default setting is **DISABLED**.

MONITORING AND TRACK STATUS

During tracking and overdubbing there are two modes for audio that can be referenced, managed and monitored: input (record/input mode); and the recorded signal (repro mode). RADAR uses the **Track Arm** keys, the **AUTO INPUT** key and the **TRACK SOLO** key to create an easy to manage system for switching between these source modes.

TRACK ARM KEYS

These keys are used extensively in RADAR operations as track selection keys. While recording and overdubbing they are used to record enable and disable tracks 1-24 and switch them in and out of input monitoring mode.



The **KC-24** uses a **SHIFT** key to record enable and disable tracks 13-24.

To monitor an input signal using input mode:

- 1 Press the desired **Track Arm** keys on the **Session Controller** or **KC-24**.
- 2 View the input level to the RADAR using the **Meterbridge 24/48** or **RADARView** as a visual reference.

AUTO INPUT

AUTO INPUT allows the RADAR to automatically switch between monitoring the input signal and the recorded audio when playback begins and ends. This feature should be used when performing overdubs and punches.

To enable auto input:

- 1 Press the **AUTO INPUT** key on the **Session Controller** or **KC-24**.
- 2 While stopped, the RADAR will monitor the input signal on all tracks that are readied.
- 3 When playback begins, monitoring switches to reproduce mode and all tracks playback audio from the disk.
- 4 Entering record mode begins recording on all armed tracks. RADAR switches to input mode for monitoring the source signal that is being recorded.

TRACK SOLO

TRACK SOLO mutes the output of all tracks except the ones selected using the **Track Arm** keys. **TRACK SOLO** can also be automatically engaged in tandem with the **ZOOM SOLO** (**Session Controller** only) function, which is used to visually solo a track or group of tracks on the **RADARView** display. This preference can be set in the **MAIN MENU / PREFERENCES MENU / ZOOM SOLO AUDIO** dialogue.

To use **TRACK SOLO** mode:

- 1 Press the **TRACK SOLO** key on the **Session Controller** or **KC-24**.
- 2 Use the **Track Arm** keys to select the tracks to solo.

SAFE(CLEAR)

SAFE(CLEAR) puts all tracks into safe mode. In this state no recording can take place under any circumstances. By pressing **SHIFT+SAFE (CLEAR)** all tracks with record ready status can be cleared.

To use the **SAFE (CLEAR)** key:

- 1 Press the **SAFE (CLEAR)** key on the **Session Controller** or **KC-24**.
- 2 To clear record ready status on all tracks press **SHIFT+SAFE (CLEAR)**.



Pressing **SAFE** while recording prevents accidentally exiting record by ignoring all buttons except **▶ (Play)** and **■ (Stop)**.

AUTO PUNCH

The **AUTO PUNCH** key is used to enable automatic recording between the **MARK IN** and **MARK OUT** location markers. In this operational mode recording will only occur once the **MARK IN** location has been reached. When the **MARK OUT** point is reached recording is automatically terminated.

To use **AUTO PUNCH** mode:

- 1 Press the **AUTO PUNCH** key on the **Session Controller** or **KC-24**.
- 2 Use any locate or transport function to move to a position in the project prior to the current **MARK IN** point.
- 3 Enter record mode using the **(Play)+REC** or **REC** keys.



To enable the **1-BUTTON RECORD** function, use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / RECORD PREFS** dialogue, select **1-BUTTON RECORD** and press **ENTER** and then select **ENABLED** and press **ENTER**.



When **AUTO PUNCH** is enabled manual recording is not possible.

UNDO/REDO

The **UNDO** and **REDO** functions are a good example of the features that non-linear digital recorders such as RADAR have to offer. The undo level value set in the **PROJECT MENU** determines how many levels of undo are available in a project. This value may be set anywhere from 0 (**no** undo levels at all) to 99.

A small indicator window on the right hand side of the **RADARView** display gives a view of the current **UNDO/REDO** level. Beware of high values for the undo level settings. This could cause previously deleted audio to be saved and backed up with a project. This will cause backup files to be larger than necessary and may add significantly to archiving time. Temporarily setting this value to 0 will erase all of the undo information. In certain instances this can save significant time when archiving a project. See *OPERATIONS: FILE MANAGEMENT: BACKUP* for more information.



The redo levels are lost when switching to another project or creating a new one. This does not affect the undo levels, which are stored with the project.

To change the number of undo levels:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJECT MENU / UNDO LEVEL / UNDO LEVEL:** dialogue and select the desired undo level.
- 2 Enter a preferred number of undo levels and press the **ENTER** key.

Using **UNDO(REDO)**:

- 1 Press the **UNDO (REDO)** key to undo the last record or editing operation.
- 2 Press **SHIFT+UNDO (REDO)** to redo the last record or editing operation.



Not all operations are undoable. Only recording and editing operations can be undone and redone with the **UNDO (REDO)** key.

FOOT SWITCH (OPTIONAL)

A foot switch can be used in conjunction with the **Session Controller** for hands-free punch in and punch out. The foot switch should be a normally open momentary switch. See *OPERATIONS: TRANSPORT OPERATIONS: FOOT SWITCHES* for more information.

VARI-SPEED

VARI-SPEED is used to change the pitch of recording and playback by altering the sample clock. There are many uses for this feature including:

- Lowering the pitch of bed tracks during an overdub session so that a vocalist can sing in a more comfortable range.
- Thickening sounds by recording multiple tracks in altered pitches.
- Matching the tuning of recorded tracks with difficult to tune instruments such as a piano.

The RADAR **VARI-SPEED** control can be adjusted by a percentage of deviation from normal speed or by cents, which are equal to one hundredth of a semitone. The range is variable from minus 50% or 1200 cents to a maximum of plus 200% or 1902 cents at a sample rate of 48 kHz. The **VARI-SPEED** feature can be used in all transport modes including record.

USING VARI-SPEED WITH DIGITAL I/O





If using ADAT, TDIF, AES/EBU and MADI digital audio interfaces in a setup there are some limitations when using the **VARI-SPEED** feature. Since RADAR modifies its sample clock frequency to produce pitch changes with **VARI-SPEED** it is not possible to use this feature when slaved to another device's sample clock. If RADAR is made the clock master however, any devices slaved to the system should alter their clock rates accordingly.

The following table shows the cent changes of audio at specific sample rates:

SAMPLE RATE	PLUS		MINUS	
	%	CENTS	%	CENTS
192	+6.25%	105 cents	-50.00%	1199 cents
191.808	+6.35%	107 cents	-49.91%	1197 cents
176.4	+15.64%	252 cents	-45.57%	1052 cents
176.224	+15.76%	253 cents	-45.50%	1051 cents
128	+59.37%	807 cents	-25.00%	497 cents
96	+6.25%	105 cents	-50.00%	1199 cents
95.904	+6.35%	107 cents	-49.91%	1197 cents
88.2	+15.64%	252 cents	-45.57%	1052 cents
88.112	+15.76%	253 cents	-45.50%	1051 cents
64	+59.37%	807 cents	-25.00%	497 cents
48	+6.25%	105 cents	-50.00%	1199 cents
47.952	+6.35%	107 cents	-49.91%	1197 cents
44.1	+15.64%	252 cents	-45.57%	1052 cents
44.056	+15.76%	253 cents	-45.50%	1051 cents
32	+59.37%	807 cents	-25.00%	497 cents



Please note that this key is somewhat different due to its double keystroke operation.

- With **VARI-SPEED** off, the first press displays the **VARI-SPEED** dialogue for entering a value. Immediate changes to the pitch of playback audio can be made from this dialogue using either the **Jog/Shuttle Wheel** or the  and  keys. The numeric keys and the  and  keys can also be used to enter a value but the change will not be reflected in the playback audio until the **ENTER** key is pressed.
- The second keystroke returns the RADAR to ready mode with **VARI-SPEED** engaged.
- With **VARI-SPEED** on, once again the first press displays the **VARI-SPEED** dialogue for entering or changing a value. At this point the RADAR can return to ready mode with **VARI-SPEED** on using the **CANCEL** key or terminate **VARI-SPEED** operation by pressing the **VARI-SPEED** key once again.

To enter a value for **VARI-SPEED**:

- 1 Press the **VARI-SPEED** key on the **Session Controller** to display the following dialogue:

V-SPEED: 00.00%
UNITS: PERCENT

- 2 To change the units displayed use the **←** and **→** keys to move to the **UNITS** field and use the **↑** and **↓** keys to select either **PERCENT** or **CENTS**.
- 3 Use the **←** and **→** keys to return to the **V-SPEED** field and use the **↑** and **↓** keys, the **Jog/Shuttle Wheel** or the numeric keypad to enter a **VARI-SPEED** value. Use the **+** and **-** keys on the numeric keypad to toggle between positive and negative speed change values.
- 4 Press the **VARI-SPEED** key to return to ready mode with **VARI-SPEED** enabled.
- 5 To disable press the **VARI-SPEED** key twice.



The **↑** and **↓** keys and/or **Jog/Shuttle Wheel** will provide instant speed change. When using the numeric keypad the speed change will only occur upon pressing the **ENTER** key.

EDITING

RADAR provides a powerful array of non-linear editing tools. The editing functions are designed to allow editing that is easy to learn and easy to use.

RADAR editing differs from many digital audio workstations as it is based on a professional remote with dedicated keys and **Jog Wheel**, instead of a mouse and drop down menus. RADAR allows editing without the **RADARView** display. Some users familiar with workstation style editing might find the approach a little foreign at first, but using RADAR's editing interface allows editing to be done quickly and efficiently, even when in the middle of tracking a session.

OVERVIEW

Generally RADAR edits follow a similar pattern:

- Mark a time region for editing using the **MARK IN** and **MARK OUT** keys.
- Select an editing function using one of the editing keys or the **EDIT MENU**.
- Select the tracks to edited using the **Track Arm** keys.
- Follow the specialized prompts for each type of edit.

THE CLIPBOARD

The clipboard is a temporary storage area for digital audio that is used extensively in the editing process. Material on the clipboard does not take up extra disk space and it is retained after the system is shutdown. New selections placed on the clipboard will replace any previously stored material.

Audio can be placed on the clipboard using the **CUT**, **COPY** or **IMPORT** editing commands. Once stored in the clipboard, audio can be auditioned, reversed and pasted in place or to a new location.

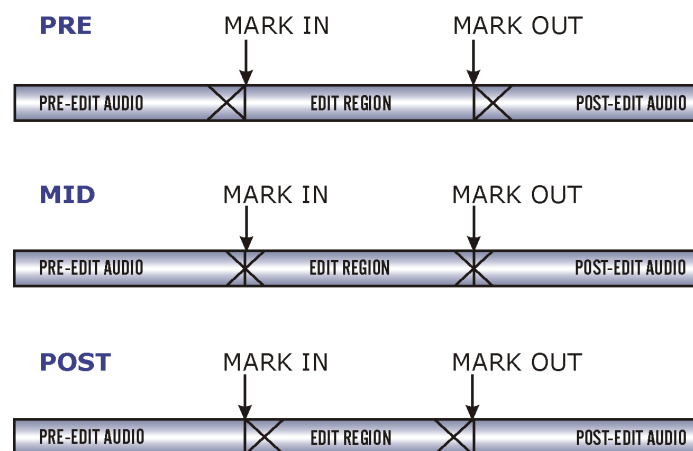
To audition the contents of the clipboard:

- After defining a track-region and using **CUT** or **COPY**, press **SHIFT+PASTE (LISTEN)** on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to select **LISTEN** from the **EDIT MENU**. The clipboard material will be played back and displayed in the **RADARView** display.

EDITING CROSSFADES

When punch-ins, punch-outs and edits are performed on RADAR small crossfade files are created to prevent clicks and pops from occurring at the punch/edit boundaries. The default setting is 5 milliseconds for recording and editing crossfades, but this value can be changed. The maximum crossfade time for recording and editing crossfades is 9 seconds and 999 milliseconds.

In addition to the crossfade time settings there is a menu for setting the crossfade type. There are three options for crossfade type: **PRE**, **MID** or **POST**. These options set the location of the crossfade point relative to the edit boundary. The default setting is **MID**. With this setting the crossfade straddles edit boundaries and affects audio equally on both sides. The **PRE** and **POST** settings position the crossfade before or after edit boundaries. Only **MOVE**, **ERASE** and **SLIDE** are affected by the **CROSSFADE TYPE** setting. These options were created to allow edits to be more accurate in relation to the mark points.



Example: Sometimes when doing an erase with the crossfade set to **MID**, the mark in point would have a tiny slice of audio waveform after it, which represented the last half of the **MID** crossfade. This can now be avoided by setting an erase edit to **PRE**.

To modify the record crossfade:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / REC XFADE TIME** menu item and press the **ENTER** key.
- 2 Use the **◀** and **▶** keys to select the **IN** crossfade time. Use the **▲** and **▼** keys, the numeric keys or the **Jog/Shuttle Wheel** to set the **IN** crossfade time.
- 3 Use the **◀** and **▶** keys to select the **OUT** crossfade time. Use the **▲** and **▼** keys, the numeric keys or the **Jog/Shuttle Wheel** to enter the desired value and press the **ENTER** key.

To modify the edit crossfade:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / EDIT XFADE TIME** menu item and press the **ENTER** key.
- 2 Use the **▲** and **▼** keys, the numeric keys or the **Jog/Shuttle Wheel** to set the edit crossfade time and press the **ENTER** key.

To modify the crossfade type:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / CROSS FADE TYPE** menu item and press the **ENTER** key.
- 2 Use the **◀** and **▶** keys to select the crossfade type and press the **ENTER** key.

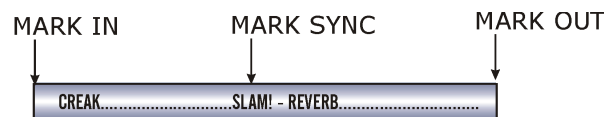


Only **MOVE**, **ERASE** and **SLIDE** are affected by the **CROSSFADE TYPE** setting.

MARKING A TIME REGION

Time regions are selected for editing using the **MARK IN** and **MARK OUT** keys on the **Session Controller** or the **KC-24** keyboard. A **SYNC** marker may also specify a particular event that is defined in the audio. This **SYNC** marker can be used as the anchor to paste a track-region. This is very useful for pasting sound effects to spotted video locations.

Example: A door creaks as it slams and is followed by reverberation.



To mark a region for editing:

- 1 Locate the **IN** point for an edit. Use the **Jog/Shuttle Wheel** or other transport/locate functions to locate and press the **MARK IN** key on the **Session Controller** or the **KC-24**.
- 2 If required, locate the **SYNC** point for the edit. Use the **Jog/Shuttle Wheel** or other transport/locate functions to locate and press the **MARK SYNC** key on the **Session Controller** or the **KC-24**.
- 3 Locate the **OUT** point for the edit. Use the **Jog/Shuttle Wheel** or other transport/locate functions to locate and press the **MARK OUT** key on the **Session Controller** or the **KC-24**.

The time region defined can now be edited using RADAR's powerful editing tools.

EDITING FUNCTIONS

Once a time region has been established, RADAR editing tools can be used to modify a project. The following editing functions are available:

CUT

CUT removes the defined time region in the same manner as cutting a section of tape and removing it completely. Audio following the cut section will be pulled ahead to join the audio that preceded it.



Edits occur on a track-by-track basis so use caution when cuts are done on fewer than 24 tracks.



To cut audio:

- 1 After marking a time region, press the **SHIFT + COPY (CUT)** key on the **Session Controller** or the **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / CUT** menu item and press the **ENTER** key.
- 2 Select the tracks to cut. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks.
- 3 Press the **ENTER** key to remove the track-region from the project and place it on the clipboard where it may be modified or pasted to another location.

COPY

Duplicates the defined track-region and places it on the clipboard.



To copy audio:

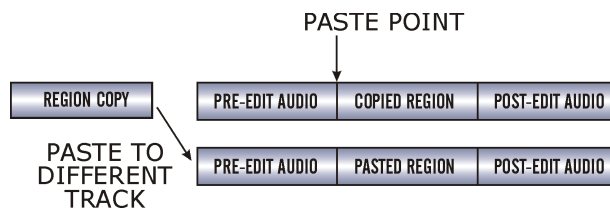
- 1 After marking a time region, select the **COPY** function by pressing the **COPY** key on the **Session Controller** or the **KC-24** or by selecting **COPY** from the **EDIT MENU**.
- 2 Select the tracks to copy. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks.
- 3 Press the **ENTER** key to copy the track-region from the project and place it on the clipboard where it may be modified or pasted to another location.

PASTE

This editing function pastes the defined time region from the clipboard into the project. As a default, the clipboard audio will be pasted at the current transport location. Use the transport keys, locate functions or the **Jog/Shuttle Wheel** to cue to the desired paste location or enter the paste position directly using the numeric keypad and press the **ENTER** key. Alternatively a paste point or points can be marked using the **MARK IN** and **MARK OUT** keys. See **MULTIPLE PASTE** and **BACK TIME PASTE** below.

There are many pasting options including:

- Paste to the same tracks or different tracks.



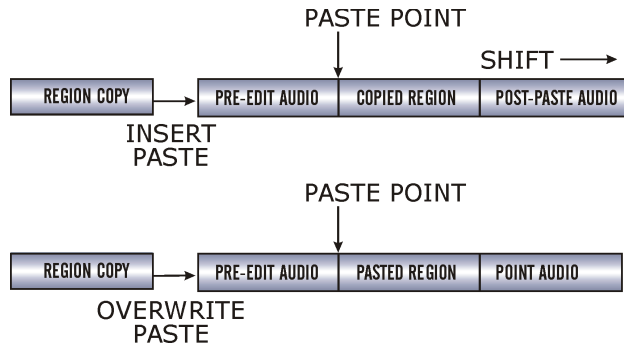
If the clipboard contains multiple tracks a corresponding number of destination tracks must be selected. The destination tracks do not need to be adjacent but the pasted tracks will always be mapped to their target tracks in a lowest-to-lowest, highest-to-highest order.

Example: Track-region copies from tracks 1 and 2 can be pasted to 7 and 13. Note that pasting track 1 to track 13 and track 2 to track 7 cannot be done in a single operation.

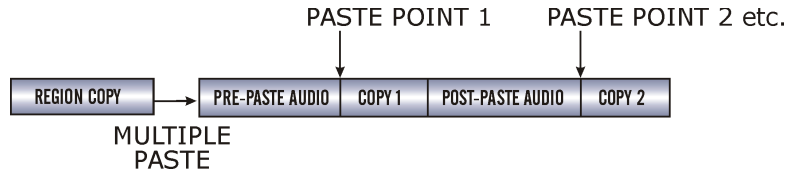


A track can be pasted to multiple tracks, e.g., track 1 to tracks 2, 3, 4 or tracks 1 & 2 to tracks 3 & 4, 5 & 6.

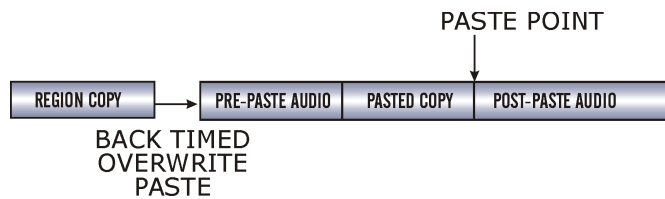
- Insert the paste or overwrite existing data.



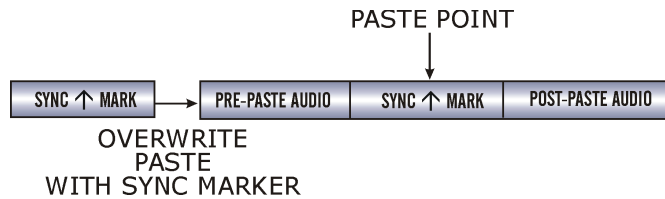
- Multiple paste points



- Back Time pasting



- Sync Marker pasting (pasted region must have sync marker)



To paste audio:

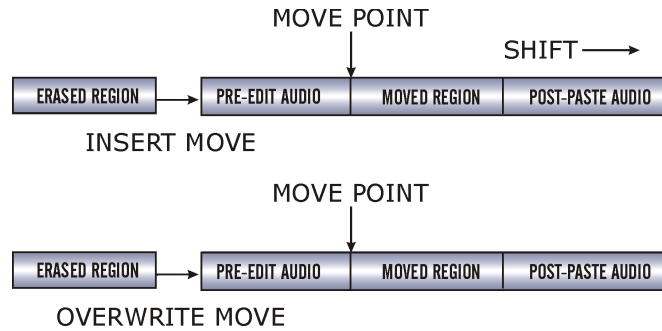
- 1 Press the **PASTE** key on the **Session Controller** or the **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / PASTE** menu item and press the **ENTER** key.
- 2 Select the tracks to paste to. Use the **←** and **→** keys to select either **SAME** or **OTHERS**. Use the **Track Arm** keys to select individual tracks. Press the **ENTER** key.
- 3 Use the **←** and **→** keys to select either the **INSERT** or **OVERWRITE** paste modes and press the **ENTER** key.
- 4 To set a **PASTE TO:** point (s) and paste the track-region, select one of the following methods:
 - Use any of the transport/locate functions or the **Jog/Shuttle Wheel** to move to the desired location. Press the **ENTER** key to paste.
 - For an **ORIGINAL TIME PASTE**, press the **RECALL LOG** key while in the **PASTE TO:** dialogue and select **ORIG TIME**. Press the **ENTER** key to paste. The audio will then be pasted back to its original time location.
 - For a **BACK TIME PASTE**, use any of the transport/locate functions or the **Jog/Shuttle Wheel** to move to the desired location and press the **MARK OUT** key to place a **PASTE TO:** point. Press the **ENTER** key to paste. The audio will be pasted so that the end of track-region lines up with the **PASTE TO:** point.
 - For **MULTIPLE PASTES**, use any of the transport/locate functions or the **Jog/Shuttle Wheel** to move to the desired location and press the **MARK IN**, **MARK OUT** or **MARK SYNC** key to place an initial **PASTE TO:** point. Reposition the transport and place additional **PASTE TO** points by pressing the **MARK IN**, **MARK OUT** and/or **MARK SYNC** key. Press the **ENTER** key to execute the multiple paste.
 - For a **SYNC MARKER PASTE**, use any of the transport/locate functions or the **Jog/Shuttle Wheel** to move to the desired location and press the **MARK SYNC** key to place a **PASTE TO:** point. Press the **ENTER** key to paste. Any clipboard material that contains a **MARK SYNC** point will automatically use it for reference and the **MARK SYNC** point will be aligned to the **PASTE TO** location.



Multiple paste markers can be set during playback.

MOVE

MOVE repositions the audio defined by the track-region. It can also be used to move audio from one track to another. The original audio location(s) of the track-region will be left blank just like in an erase procedure. Audio is not transferred to the clipboard during a **MOVE**, so clipboard material will not be replaced. Audio following the moved track-region will be affected differently depending on whether insert or overwrite is used to perform the move.

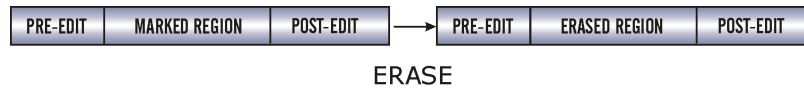


To move audio:

- 1 After marking a time region, pressing the **MOVE** key on the **Session Controller** or the **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / MOVE** menu item and press the **ENTER** key.
- 2 Select the tracks to move. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks. Press the **ENTER** key.
- 3 Select the destination tracks. Use the **←** and **→** keys to select either **SAME** or **OTHER**. When selecting **OTHER** use the **Track Arm** keys to select tracks. Press the **ENTER** key.
- 4 Select either the **INSERT** or **OVERWRITE** move modes using the **←** and **→** keys and press the **ENTER** key.
- 5 Use any of the transport/locate functions or the **Jog/Shuttle Wheel** to specify the **MOVE TO:** location.
- 6 Press the **ENTER** key to move the track-region to the new location.

ERASE

The **ERASE** function completely erases the audio defined by a track-region. Audio following the moved section will not be affected by this operation.

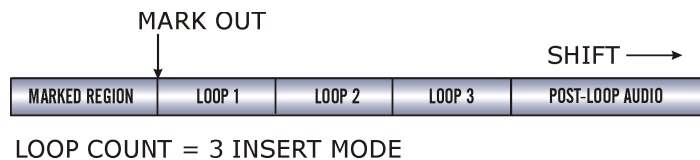


To erase audio:

- 1 After marking a time region, press the **ERASE** key on the **Session Controller** or the **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / ERASE** menu item and press the **ENTER** key.
- 2 Select the tracks to erase. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks.
- 3 Press the **ENTER** key to erase the track-region from the project.

LOOP

The **LOOP** function repeatedly pastes the selected track-region relative to the **MARK OUT** point. Audio following the looped section will be moved later in time using **INSERT** mode (shown below) and erased when using **OVERWRITE** mode.



To loop audio:

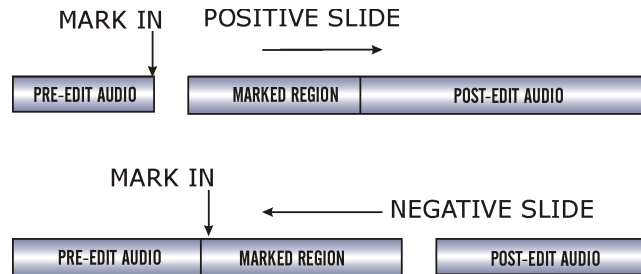
- 1 After marking a time region, press the **LOOP** key on the **Session Controller** or the **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / LOOP** menu item and press the **ENTER** key.
- 2 Select the tracks to loop. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks. Press the **ENTER** key.
- 3 Use the **←** and **→** keys to select either the **INSERT** or **OVERWRITE** loop modes and press the **ENTER** key.
- 4 Use the **↑** and **↓** keys or the numeric keypad to enter the number of loops of the track-region to create.
- 5 Press the **ENTER** key to create the loops and return RADAR to transport mode.



To loop back in the time line use a negative number of loops.

SLIDE

SLIDE repositions the audio defined by the track-region. Although similar to **MOVE**, **SLIDE** is designed for nudging audio in millisecond or SMPTE frame increments. **SLIDE TIME UNITS** can be set in the **PREFERENCES MENU**. **SLIDE** overwrites any previous audio data as it moves forward and backward and leaves empty space behind in its wake.



To slide audio:

- 1 After marking a time region, press the **SHIFT + MOVE (SLIDE)** key on the **Session Controller** or slide on the **KC-24** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / SLIDE** menu item and press the **ENTER** key.
- 2 Select the tracks to move. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks. Press the **ENTER** key.
- 3 Use the **↑** and **↓** keys, the numeric keys or the **Jog/Shuttle Wheel** to set the slide time and press the **ENTER** key.
- 4 Press the **ENTER** key to nudge the track-region to the new location.

INSERT SILENCE

The **INSERT SILENCE** function inserts a blank region into selected tracks. Audio following the moved section will be shifted in time like any other insert type edit.



To insert a section of silence:

- 1 After marking the insert start point using the **MARK IN** key, press the **SHIFT + ERASE (SILENCE)** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / INSERT SILENCE** menu item and press the **ENTER** key.
- 2 Select the tracks to insert silence on. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks. Press the **ENTER** key.
- 3 Use the numeric keys to enter the amount of silence to insert in the **HH:MM:SS:FF** format.
- 4 Press the **ENTER** key to insert the region of silence into the selected tracks.

REVERSE

Audio placed on the clipboard can be reversed before being re-pasted into the project. This makes “pre-verb” and reversed solo effects very easy to accomplish.

To reverse clipboard audio:

- 1 After marking a time region, **COPY** or **CUT** the track-region to be reversed on to the clipboard.
- 2 Press the **SHIFT+LOOP** (**REVERSE**) key on the **Session Controller** or select **REVERSE** from the **EDIT MENU**.
- 3 Paste the reversed audio to the desired location in the project.

GAIN/FADE

The **GAIN/FADE** functions allow the user to modify the gain of recorded audio. Individual start and end values allow for flexible gain manipulation including the creation of fade ins and fade outs.

To change the gain of recorded audio:

- 1 After marking a time region, press the **GAIN/FADE** button on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU / GAIN/FADE** menu item and press the **ENTER** key.
- 2 Select the tracks to modify. Use the **←** and **→** keys to select either **ALL** or **TRACK ARM**. Use the **Track Arm** keys to select individual tracks. Press the **ENTER** key.
- 3 Use the **↑** and **↓** keys, the numeric keys or the **Jog/Shuttle Wheel** to set the **START** gain and press the **ENTER** key.
- 4 Use the **↑** and **↓** keys, the numeric keys or the **Jog/Shuttle Wheel** to set the **END** gain.
- 5 Press the **ENTER** key to calculate the new gain and return the system to **READY MODE**.

UNDO

Undo allows the user to undo an edit or record. Undo levels can be set anywhere from 0 to 99. For more information see to [OPERATIONS: RECORDING: UNDO/REDO](#)

REDO

Allows the user to redo edits or records that were undone using the **UNDO** function. **REDO** maybe be done as many times as the **UNDO** function were performed. The ability to **REDO** will be lost upon performing new edits, entering record or switching to another project. For more information see [OPERATIONS: RECORDING: UNDO/REDO](#)

MODIFY EDIT

This function provides a quick way to tweak the parameters of the previous edit without having to **UNDO** and **REDO**. In addition, **MODIFY EDIT** allows for changes to the crossfade time of certain edits for an even greater degree of control. Parameters available for modification include:

- **MARK IN**
- **MARK OUT**
- **CROSSFADE TIME**
- **ORIGINAL TRACK (S)**
- **DESTINATION TRACK (S)**
- **INSERT OR OVERWRITE**
- **SLIDE TIME**
- **LOOP COUNT ETC.**

MACRO KEYS

The macro keys (**Session Controller** only) provide a way to memorize multiple keystrokes and recall them at the touch of a button. Macro sets can be stored and exported for use on other RADAR units. See *OPERATIONS: FILE MANAGEMENT: MACROS* for more information.

To store multiple keystrokes as a macro:

- 1 Press **SHIFT** and then press a **MACRO** key to program on the **Session Controller**. The **MACRO** key will begin to flash.
- 2 Perform the sequence of keystrokes to store and press the **MACRO** key once again.
- 3 The **MACRO** is now stored and ready for use.

QWERTY KEYBOARD

Both the **Session Controller** and **KC-24** remotes have QWERTY keyboards which makes managing tracks and projects significantly easier. In addition to naming tracks, projects and other data entry tasks, the keyboard keys provide handy shortcuts to menu items. Cycle through the menu items by pressing the corresponding key on the QWERTY keyboard of the first letter of the name of the desired menu.

RADARLINK

RADARLink allows multiple RADAR units to be linked together and controlled from a single **Session Controller**. All slaved RADAR units are locked to the internal clock of the Master RADAR so that all recordings made across multiple machines maintain a sample accurate relationship.

While in **RADARLink** mode, the following operations are available:

- All transport functions including **PLAY, RECORD, STOP, FFWD, RWD** and **JOG/SHUTTLE**
- Cue functions including **LOCATE** and **ENTER TIME**
- Synchronization
- Editing
- System parameters and preferences
- Mount/Unmount of Record drives
 - When selecting **MOUNT** or **UNMOUNT** on a **RADARLink** master, the slave unit will also **MOUNT** or **UNMOUNT**.
- Shutdown/power up of master and slave
 - When selecting **SHUTDOWN RADAR** from the **MAIN MENU** on the **RADARLink** master, both the master and slave will be prepared for shutdown. When a **RADARLink** master is restarted, it will wait 30 seconds (for the slave to be ready) then automatically attempt to go back into **RADARLink** mode.

RADARLink hookup requires standard, fully populated pin to pin, 9-pin, male to female cables, which are available at most computer stores.

Connect units together with the 9-pin cable running from the master unit's **RLINK OUT** connector to the **RLINK IN** connector on the slave RADAR. If more slave connections are required connect the **RLINK OUT** on the first slave unit to the **RLINK IN** connector on the second slave and so on. The **RLINK** connectors are located on the right side of the back panel.



The entire length of cabling between the RADAR units must be less than 10 meters (30 feet).



All RADAR units in the **RADARLink** system must all use the same RADAR software version and RADAR recording engine (Adrenaline or Adrenaline Plus).

SOFTWARE VERSIONS

All units in a **RADARLink** configuration should be running identical versions of software. It is always recommended to use the latest version of RADAR software. The latest software releases can be downloaded from the SUPPORT section of our website at www.izcorp.com.

ID NUMBERS

All units connected using the **RADARLink** protocol must have an ID number. The unit that initiates **RADARLink** communication is automatically designated the master machine and assigned **M** as its **RADARLink** ID. Each slave must be manually assigned a unique ID.

To assign a RADARLink ID number to a slave machine:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / RADARLINK** menu and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the **RADARLINK ID** dialogue from the menu and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select a unique **RADARLink** ID between 1 and 7 and press the **ENTER** key.

RADARLINK ENABLE/DISABLE

To enable or disable **RADARLink**:

- 1 Press either the **RLINK** or **L** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / RADARLINK** menu and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to locate the **ENABLE / DISABLE** dialogue and press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **ENABLE** or **DISABLE** and press the **ENTER** key.
- 4 Select **YES** at the prompt and press the **ENTER** key.

The system will respond by automatically assigning an ID of **M** to the master unit and scanning for the ID numbers of any connected slave units. The RADAR will notify of any ID conflicts between slave units. ID conflicts must be resolved by changing slave ID numbers on each unit. See *OPERATIONS: RADARLINK: ID NUMBERS* for more information.



When RADARLink is disabled then re-enabled all undo levels are cleared. Ensure all edits, punch-ins are correct before Re-linking.

If **RADARLink** has just been established, all slave units will cue to the current location of the master machine. If **RADARLink** is re-established following a **RLINK SOLO MODE** operation all slaves will be cued to the current position of the last soloed unit.



If there is an ID conflict re-enter **RADARLink** mode after changing the conflicting slave ID number to enable any changes.

It is possible to remove just one machine from **RADARLink** but it requires that a remote be connected to the unit being unlinked. Pressing the **CANCEL** key on the connected remote will initiate the **CANCEL RADARLINK** dialogue. Note that disabling **RADARLink** on a slave machine in this way only applies to that specific unit and has no effect on the rest of the chain.

LINK MODE

In **LINK MODE** - the main mode of operation when using **RADARLink** - the master RADAR has control over all other RADAR units in the configuration. **LINK MODE** commands are sent from the master unit to all slave units for simultaneous execution.

When this mode is engaged the master unit forces all slave units to conform to its current settings and system parameters including:

- Sample Rate
- TC Rate
- Crossfade Time
- Pre/Post Roll Time
- Auto-Input, Auto-Play, Auto-Punch, Cycle, Record Safe
- System Preferences, Time/Date
- Project Number
- Locate Points and Labels
- File Flattening

RLINK SOLO MODE

RLINK SOLO MODE allows the user to select any single RADAR unit in the **RADARLink** chain and operate it independently from all of the others.

The following functions will only operate on slave machines when **RLINK SOLO MODE** is engaged:

- Disk functions (diagnostic operation, upgrade system, reclaim space etc.)
- Backups and Restores
- Importing and Exporting
- Digital I/O parameter adjustment

To solo **RADARLink** slave:

- 1 Press either the **RLINK SOLO** or the **S** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / RADARLINK / RADARLINK SOLO** dialogue and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys or the numeric keys to select the desired **RADARLINK ID** number and press the **ENTER** key. The master can also be selected by pressing the **M** key on the QWERTY keyboard.



The display will indicate if any machines are offline.

During **RADARLink** solo operation the ID number of the soloed unit flashes in the upper right hand corner of the display.

To exit **SOLO MODE**:

- 1 Press either the **RLINK** or **L** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / RADARLINK / ENABLE DISABLE** dialogue and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **ENABLE** and press the **ENTER** key.
- 3 Select **YES** at the prompt.

PROJECT NUMBERS MUST MATCH

In **LINK MODE** all units must be set to the same **PROJECT NUMBER** at all times. Because of this it may be necessary to manually renumber projects on the slave machines to match the master.

To renumber a project on a slave unit:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PROJ MENU / RENUMBER PROJECT** menu and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select a project number that matches the current project number of the master RADAR.
- 3 If the new project number is already assigned to an existing project it will prompt to swap to project numbers. Use the **←** and **→** keys to select **YES** to confirm and swap the project numbers. Press the **ENTER** key.



Renumber a project on a slave RADAR by entering solo mode if **RADARLink** is already enabled.

SYNCHRONIZATION

When synchronizing a **RADARLink** configuration to an external source such as SMPTE timecode, only the master RADAR is involved. The master in turn sends its clock data to each of the slave units providing sample accurate synchronization information to the entire system. Because the sample clock is sent through the **RADARLink** cabling, no extra cabling is required between the master and connected slave units.

EDITING IN LINK MODE

When in **LINK MODE**, connected RADAR units act as a single multi-track recorder. There are, however, some exceptions. Because the **Session Controller** only has 48 track-arming keys, performing edits using more than 48 tracks requires entering solo mode.

To edit in **LINK MODE**:

- 1 Select the **MARK IN** and **MARK OUT** points.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / EDIT MENU** or use the direct access keys on the **Session Controller** or the **KC-24** keyboard to select the desired editing function.
- 3 Use the **Track Arm** keys to select the tracks to include in the edit. In **RADARLink** configurations with more than 48 tracks, each additional RADAR unit must be soloed to select the tracks that will be included in the edit.



It is not possible to move or paste audio from one RADAR to another.

SECTION 5

APPLICATIONS

This section of the manual provides setup instructions and suggested RADAR configurations settings in various scenarios and applications. The scenarios and applications covered here are: Post Production; Live Recording; Playback; Studio Recording; and Standalone Converters.

POST PRODUCTION

CONNECTING TO A 9-PIN SYNCHRONIZER

9-pin is ideal for applications requiring multiple machines to be in sync and controlled from a single interface. RADAR locks to 9-pin commands solidly and quickly, which is why RADAR is a top choice in Professional Post Production environments.

Connect a 9-pin cable to RADAR on the **Sync Processor** card labeled **MACH CTRL** to a synchronizer or 9-pin controller. This is the only connection required between RADAR and the 9-pin synchronizer.

To select 9-pin:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / MACHINE CONTROL / SELECT TYPE** dialogue and press the **ENTER** key.
- 2 Use the **←** and **→** keys to select **9-PIN** and press the **ENTER** key.

To enable 9-pin:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / MACHINE CONTROL / ENABLE** dialogue and press the **ENTER** key.

A flashing **S** will appear in the **Session Controller Window** to show that Sony 9-pin is enabled and waiting for commands. A solid **S** will appear once RADAR is receiving valid 9-pin communication.

FILE FLATTENING

When using RADAR as a dubber, thousands of punch-ins and overdubs can be generated. By using File Flattening each track can be quickly consolidated into one file. With RADAR's Native BWAV recording file format and Instant File Flattening, transfers to workstations are quick and easy.

When the recording drive is initialized for **AUDIO:RADAR_BWAV**, the drive can be read by any Mac or PC computer. To access the audio on a Mac or PC first select the **FLATTEN PROJECT** menu item in the **FILE** menu. This function consolidates all punch ins into continuous files and puts them into a user folder that is easily accessed from a computer.

To flatten a project on a **RADAR Broadcast WAV** disk:

1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FLATTEN PROJECT** dialogue and press the **ENTER** key.

2 At the **FILL SILENCE?:** prompt the options will be:

- **NO** (each region will be one file)
- **GAP** (each track will be one file with potentially different start times)
- **ALL** (each track will be one file with the same start time)

Then press the **ENTER** key.

3 At the **FLATTEN PROJS?:** prompt the options will be:

- **SELECTED PROJS** (select multiple projects using **+** key)
- **CURRENT PROJ** (select current project)
- **ALL** (select all projects)

Then press the **ENTER** key.

4 If **GAP** or **ALL** is selected and the regions contain gaps or different start times, RADAR will need additional drive space. At the **XXX MB REQUIRED PROCEED?** prompt, select **YES** and press the **ENTER** key.

5 The **CANT CANCEL/UNDO PROCEED?** prompt indicates that it is a destructive process. All undo levels will be lost on this project. Select **YES** and press the **ENTER** key.

6 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / UNMOUNT** dialogue and press the **ENTER** key.

7 Remove the recording drive from RADAR and plug the drive into a receiver connected to a Mac or PC.

8 The workstation computer will mount the drive and the consolidated files and project notes will be located in a new folder titled after the project name within the **USER** directory.

- 9 Copy this project folder over to a DAW recording drive or USB/Firewire drive for DAW manipulation.
- 10 After file copy is complete, safely unmount the drive from the workstation.



Do not write or delete any files on the RADAR recording drive when mounted on the Mac or PC. This drive is read only, and any modification will possibly destroy any data on the RADAR drive.



DON'T WRITE TO RADAR BWAV DRIVES USING NON-RADAR SOFTWARE

Mount/unmount RADAR BWAV audio drives in systems running MacOS, Unix, Windows, Linux, etc, then browse directories and copy files or folders from the RADAR BWAV drive to the other system. Subsequently the RADAR BWAV drive can be used in RADAR without risk of RADAR recorded data loss or corruption. However, if any of the following is done to RADAR BWAV disks in another system, there is a risk of loss or corruption of RADAR recorded data:

1. Mount/Unmount RADAR BWAV disks that had been clones in a RADAR recorded dual disk session and subsequently attempt to mount them as a cloned pair in RADAR. These disks, having been mounted in another system, are no longer clones. Attempted subsequent Dual Disk use in RADAR of such disks may cause data loss or corruption.
2. Write files into any directory on a RADAR BWAV drive while mounted on another system.
3. Delete, rename, or modify any existing files or folders on a RADAR BWAV disk or modify the disk in any way using another system. These operations may only be done in RADAR.








LIVE RECORDING

DUAL DISK MODE

With a 3-bay RADAR system and Adrenaline® Plus record drives can be initialized for mirrored (dual disk) recording. In **DUAL DISK MODE**, audio is recorded simultaneously to both disks.

To enable **DUAL DISK MODE**:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / DISK MODE / DUAL DISK** dialogue and press the **ENTER** key.
- 2 At the **MASTER DISK: 0** prompt use the **↑** and **↓** keys to select the disk ID of the master.


- 3 Use the  and  keys to select **SLAVE DISK: 0** then use the  and  keys to select the disk ID of the slave then press the  key.
- 4 At the **ARE DISKS EXACT COPIES?** prompt, select **NO** and press the  key.
- 5 At the **INIT DRIVE X+Y** prompt, select **YES** and press the  key.



If using drives that are of different sizes, the smaller drive must be the master.

Entering **DUAL DISK MODE** without initializing both hard drives is only possible in two scenarios:

- a. The two drives were previously initialized and used in **DUAL DISK** mode and have not been mounted individually since that time;
- b. One drive is an exact clone of the other (i.e. it was made using the **SECTOR-BY-SECTOR COPY** option in the **CLONE RADAR DISK** menu.

In both these cases, follow the same steps used to enable **DUAL DISK MODE** in the directions above except at the **ARE DISKS EXACT COPIES?** prompt, select **YES** and press the  key.

When recording in **DUAL DISK MODE**, and **UNMOUNT DISKS** or **SHUTDOWN RADAR**, RADAR will remember that fact. In this case, to re-enable

Dual Disk Mode:

- 1 The next time disks are mounted, the prompt will ask to **CONFIG DISKS AS** either **SINGLE** or **DUAL**.
- 2 Provided the disks have not changed, select **DUAL**.
- 3 At the prompt: **ARE DISKS EXACT COPIES?** Select **YES**.
- 4 At the prompt: **ARE YOU SURE?** Select **YES**.



If entering dual disk mode with a pair of drives that don't fit either of these criteria, the audio on the secondary disk will be damaged.



Dual disk mode is for recording only. To edit, backup or flatten files, the drive must be remounted in single disk mode. To go back into dual disk mode at a later time, the drive must be initialized or cloned so that it fits one of the criteria above.

CHASING TIMECODE AND CLOCK SYNCHRONIZING

For audio recorded on RADAR to line up with video, a time location reference (timecode) is required. Since RADAR will be chasing an external timecode source, RADAR should be clocked to the same clock reference (Sync) as the timecode generator. RADAR will also be in external Chase and external Sync, so for stable live recording the following settings are recommended:

LOCK-AND-DROP

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / CHASE MODE** dialogue and press the **ENTER** key.
- 2 At the **CHASE MODE** prompt use the **↑** and **↓** keys to select **LOCK-AND-DROP** and press the **ENTER** key.

LOST SYNC IN RECORD

Under this setting, RADAR will lock to timecode and then ignore it. RADAR will stay in sync, since the internal clock will be synced to the same video clock source as the timecode generator. This prevents RADAR from dropping out of record from unstable or loss of timecode.

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / LOST SYNC IN RECORD** dialogue and press the **ENTER** key.
- 2 At the **LOST SYNC IN REC** prompt use the **←** and **→** keys to select **CONTINUE** and press the **ENTER** key.

Under this setting if the external sync source is lost, RADAR will keep on recording, switch to internal clock, and place a locate marker in the timeline.

To set RADAR to chase external timecode:

- 1 Connect a timecode source to the input on RADAR.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / TC FORMAT** press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SMPTC** or **MTC** and press the **ENTER** key.
- 4 Press the **CHASE** key on the session controller to go into chase.

To set RADAR to slave to an external clock source:

- 1 Connect clock reference (sync) to the input on RADAR.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** press the **ENTER** key. (Pressing the **SYNC** key on the session controller will go to the same menu.)
- 3 Use the **↑** and **↓** keys to select the clock source and press the **ENTER** key.

- 4 The **Sync light** on the **Session Controller** and **RADARView™** screen will flash while awaiting incoming clock, and stay solid when locked to an external sync source.



For externally clocking a **RADARLink™** system, only the master machine needs to be synced to an external clock source as all slave machines are clocked to the master machine via the **Rlink** cable.

FILE FLATTENING

For long straight multi-track live recordings a quick transfer to a workstation or backup may be required. With RADAR's Native BWAV recording file format and Instant File Flattening transfers to workstations are quick and easy.

When initializing the recording drive for **AUDIO:RADAR_BWAV**, the drive will now be compatible to be read only with any Mac or PC computer. To access the audio with a Mac or PC first select the **FLATTEN PROJECT** menu item in the **FILE** menu. File Flattening consolidates all punch ins into continuous files and puts them into a user folder that is easily accessed from a Mac or PC.

To flatten a project on a **RADAR Broadcast WAV** disk:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FLATTEN PROJECT** dialogue and press the **ENTER** key.
- 2 At the **FILL SILENCE?:** prompt the options will be:
 - **NO** (each region will be one file)
 - **GAP** (each track will be one file with potentially different start times)
 - **ALL** (each track will be one file with the same start time)

Then press the **ENTER** key.

- 3 At the **FLATTEN PROJS?:** prompt the options will be:
 - **SELECTED PROJS** (select multiple projects using **+** key)
 - **CURRENT PROJ** (select current project)
 - **ALL** (select all projects)

Then press the **ENTER** key.

- 4 If **GAP** or **ALL** is selected and the regions contain gaps or different start times, RADAR will need additional drive space. At the **XXX MB REQUIRED PROCEED?** prompt, select **YES** and press the **ENTER** key.
- 5 At the **CANT CANCEL/UNDO PROCEED?** prompt will indicate that is a destructive process. All undo levels will be lost on this project. Select **YES** and press the **ENTER** key.
- 6 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / UNMOUNT** dialogue and press the **ENTER** key.

- 7 Remove the recording drive from RADAR and plug the drive into a receiver connected to a Mac or PC.
- 8 The workstation computer will mount the drive and the consolidated files and project notes will be located in a new folder titled after the project name within the **USER** directory.
- 9 Copy this project folder over to a DAW recording drive or firewire drive for DAW manipulation.
- 10 After file copy is complete, safely unmount the drive from the workstation.



Do not write or delete any files on the RADAR recording drive when mounted on the Mac or PC. This drive is read only, and any modification will possibly destroy any data on the RADAR drive.



DON'T WRITE TO RADAR BWAV DRIVES USING NON-RADAR SOFTWARE

Mount/unmount RADAR BWAV audio drives in systems running MacOS, Unix, Windows, Linux, etc, then browse directories and copy files or folders from the RADAR BWAV drive to the other system. Subsequently the RADAR BWAV drive can be used in RADAR without risk of RADAR recorded data loss or corruption. However, if any of the following is done to RADAR BWAV disks in another system, there is a risk of loss or corruption of RADAR recorded data:

1. Mount/Unmount RADAR BWAV disks that had been clones in a RADAR recorded dual disk session and subsequently attempt to mount them as a cloned pair in RADAR. These disks, having been mounted in another system, are no longer clones. Attempted subsequent Dual Disk use in RADAR of such disks may cause data loss or corruption.
2. Write files into any directory on a RADAR BWAV drive while mounted on another system.
3. Delete, rename, or modify any existing files or folders on a RADAR BWAV disk or modify the disk in any way using another system. These operations may only be done in RADAR.

RECORD RECOVERY MODE

Record Recovery mode is designed for live recording only and therefore is disabled by default on RADAR. While recording, RADAR writes all the data to the recording drive constantly, but a save state is required once the transport is in stop to update the file lengths and header information. If power is lost during recording, and a save state is not performed, it can be a lengthy procedure to retrieve and rebuild the project. If RADAR's **RECORD RECOVERY MODE** is enabled, RADAR will constantly update the file lengths and header information. Writing this data to the system drive allows a quick procedure to rebuild the project.

To enable record recovery:

- 1 Go to **MAIN MENU / PREFERENCES MENU / RECORD PREFS / RECORD RECOVERY** and press the **ENTER** key.
- 2 At the **RECORD RECOVERY** prompt use the **←** and **→** keys to select **ENABLED** and press the **ENTER** key.
- 3 At the **SHUTDOWN TO ENABLE CHANGES** press the **ENTER** key.
- 4 At the system shutdown proceed? prompt use the **←** and **→** keys to select **YES** and press the **ENTER** key. RADAR will unmount all drives and display **YOU MAY SAFELY TURN OFF POWER**. Reboot from the power switch on RADAR to enable changes.



When **RECORD RECOVERY** is enabled each time RADAR mounts a drive the message **RECORD RECOVERY ENABLED** will be displayed. Press the **ENTER** key to continue mounting drives.

If power is lost during recording, upon a reboot:

- 1 At the **UNSAVED DATA RECOVER IGNORE** prompt use the **←** and **→** keys to select **RECOVER** and press the **ENTER** key.
- 2 At the **SAVE TO** prompt select the volume to save the Record Recovery Information Files to (please note, this is **not** the audio being saved).
- 3 After the files are saved on the selected volume, the user will be prompted to: **CONTACT SUPPORT FOR INSTRUCTIONS**

Do not mount the disk again. The audio drive along with the media that contains the Record Recovery Information Files will need to be sent to iZ Technology for recovery. Call iZ Support for instructions.

PLAYBACK

CHASING TIMECODE AND CLOCK SYNCHRONIZING

For audio recorded on RADAR to match up with video, a time location reference (timecode) is required. Since RADAR will be chasing an external timecode source, RADAR should be clocked to the same clock reference (Sync) as the timecode generator. Since RADAR will be in external CHASE and external SYNC, for stable live recording the following settings are recommended:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / CHASE MODE** dialogue and press the **ENTER** key.
- 2 At the **CHASE MODE** prompt use the **↑** and **↓** keys to select **LOCK-AND-DROP** and press the **ENTER** key.

Under this setting, RADAR will lock to timecode and then ignore it. RADAR will stay in sync, since the internal clock will be synced to the same video clock source as the timecode generator. This prevents RADAR from dropping out of record because of timecode issues.

THEATER MODE PREFERENCES AND LOCATE POINTS

There are a number of preferences in RADAR to assist with live playback.

ARROW KEY GOTO

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES / ARROW KEY GOTO** dialogue and press the **ENTER** key.
- 2 At the **ARROW KEY GOTO:** prompt use the **←** and **→** keys to select **IN/OUT** or **LOC LIST** and press the **ENTER** key.




When **LOC LIST** is selected, the **←** key will locate RADAR to the previous locate in the list and the **→** key will go to the next locate in the list not including **MARK IN/OUT** markers. If **PREROLL** is enabled, it will add and preset offset to the locate. If **AUTOPLAY** is enabled, then RADAR will enter **PLAY** mode after locating.

STOP AT LOCATE

The **STOP AT LOCATE** option can be enabled on a per project basis. When **ENABLED** RADAR will automatically stop playing when it reaches a locate point.



To **ENABLE** or **DISABLE STOP AT LOCATE** on the current opened project:

- 1 Navigate to **MAIN MENU / PROJECT MENU / STOP AT LOCATE** and press the enter key.
- 2 Use the **←** and **→** keys to select **DISABLED** or **ENABLED** at the **STOP AT LOCATE** and press the **ENTER** key.









- 3 If **ENABLED** is selected use the  and  keys to select **STOP** or **CUE NEXT** from the **AT LOCATE POINT** prompt and press the  key. If **CUE NEXT** is selected RADAR will jump to the next locate point and stop.












When installing software onto 3.41 and below this preference is set to **DISABLED**.

- 4 If **ENABLED** is selected: At the **AT LOCATE POINT** prompt use the  and  keys to select **STOP** or **CUE NEXT**.
- Selecting **STOP** will cause RADAR to stop during play when encountering the next locate on the timeline.
 - Selecting **CUE NEXT** will cause RADAR to skip to the next locate and stop when encountering the next locate on the timeline.
 - If **PREROLL** is enabled, it will add and preset offset to the locate.
 - If **AUTOPLAY** is enabled, then RADAR will enter **PLAY** mode after locating. The status of this setting will not affect the operation of other play commands with defined ending points such as down arrow or cycle.

ASSIGN FT-SWITCH FUNCTION

- 1 Use the , the  and  keys and the  key to go to the **MAIN MENU / PREFERENCES / ASSIGN FT-SWITCH** dialogue and press the  key.
- 2 At the **ASSIGN FT-SWITCH:** prompt use the  and  keys to select the **FOOT SWITCH INPUT**, and then the  key to select the function or macro the footswitch will perform.

ASSIGN MMC LOC FUNCTION

- 1 Use the , the  and  keys and the  key to go to the **MAIN MENU / PREFERENCES / ASSIGN MMC LOC** dialogue and press the  key.
- 2 At the **ASSIGN MMC LOC:** prompt use the  and  keys to scroll through the list of **MMC LOCATE INFORMATION FIELD NAMES, 08, 09, 0A, 0B, 0C, 0D, 0E, and 0F** and then  and scroll to select an item from the list of **8 MACRO BUTTONS**, the **GOTO PREV LOC** or **GOTO NEXT LOC** function, or the **GOTO SYNC MRK** function (default) to select the **MMC LOCATE ASSIGNMENT** and press the  key.

MIDI MACHINE CONTROL (MMC)

MMC is an option for applications requiring multiple machines to be in sync, and controlled from a single interface.

Connect a MIDI cable to RADAR on the **Sync I/O** card labeled **MIDI IN** to a synchronizer or **MIDI Controller** controller.

To select **MMC**:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / MACHINE CONTROL / SELECT TYPE** dialogue and press the **ENTER** key.
- 2 Use the **◀** and **▶** keys to select **MMC** and press the **ENTER** key.

To enable **MMC**:

- 1 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / SYNC MENU / MACHINE CONTROL / ENABLE** dialogue and press the **ENTER** key.

STUDIO RECORDING

CONNECTING TO A CLOCK MASTER

When RADAR is not the only digital device in a studio environment, all digital components must run from the same clock (sync) to avoid pops and clicks. Even though RADAR has a superior internal clock, it might be required for RADAR to clock (sync) to an external clock.

RADAR can clock (sync) to Word Clock, Video Sync, TDIF Word Clock, TDIF Multi-channel, AES 2 Channel, SPDIF, AES Multi-channel, ADAT, MADI Optical, MADI Coaxial, SMPTE, and MTC. When clocking many digital devices together, verify each device is set to the same sample rate.

To set RADAR to slave to an external clock source:

- 1 Connect one of the above formats to the input on RADAR.
- 2 Use the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** press the **ENTER** key. (or press the **SYNC** key on the **Session Controller**.)
- 3 Use the **▲** and **▼** keys to select the clock source and press the **ENTER** key.
- 4 The **Sync light** on the **Session Controller** and **RADARView™** screen will flash while awaiting incoming clock, and stay solid when locked to an external sync source.

To use RADAR as the master clock source:

- 1 Connect a clock cable from RADAR's output into the other device's input.
- 2 Set the other device to clock (sync) to external clock.
- 3 Now the other device will be using RADAR's internal clock for clocking.



RADAR always outputs all clock formats, except 2-Ch AES and SPDIF.



For externally clocking a **RADARLink™** system, only the master machine needs to be synced to an external clock source as all slave machines are clocked to the master machine via the **Rlink** cable.



Try using the sync box as a slave distribution box for RADAR's clock to improve the sound of the other digital gear.

SYNCHRONIZATION WITH A DAW

To expand the number of total tracks with another recorder or to include Sequencer tracks, a common time location reference (timecode) between devices is required.

RADAR AS THE MASTER

- 1 Connect a SMPTE or MTC cable and clock cable from RADAR's output into the other device's input.
- 2 Set the other device to chase external timecode and its clock to external clock.
- 3 Now the other device will follow RADAR's location and position can be controlled using RADAR's transport.

RADAR AS THE SLAVE

Since RADAR will be chasing an external timecode source, RADAR should be clocked to the same clock reference (Sync) as the timecode generator.

RADAR to chase external timecode

- 1 Connect SMPTE or MTC cable to the input of RADAR.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / TC SETTINGS / TC FORMAT** press the **ENTER** key.
- 3 Use the **↑** and **↓** keys to select **SMPTE** or **MTC** and press the **ENTER** key
- 4 Press the **CHASE** key on the **Session Controller** to go into chase.

RADAR to slave to an external clock source

- 1 Connect a clock reference format input on RADAR.
- 2 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / SYNC MENU / SYNC REFERENCE** press the **ENTER** key. (Pressing the **SYNC** key on the session controller will go to the same menu.)
- 3 Use the **↑** and **↓** keys to select the clock source and press the **ENTER** key.
- 4 The **Sync light** on the **Session Controller** and **RADARView™** screen will flash while awaiting incoming clock, and stay solid when locked to an external sync source.

Now the RADAR will follow the other device's location and RADAR's position can be controlled using the other device's transport.



For externally clocking a **RADARLink™** system, only the master machine needs to be synced to an external clock source as all slave machines are clocked to the master machine via the **Rlink** cable.

VOCAL COMPS

Audio data can be freely copied and pasted between projects without using extra disk space. This opens up a lot of creative possibilities, for example, a powerful implementation of *virtual* or *comp* tracks:

To create project based virtual tracks:

- 1 Create a stereo or mono sub-mix of the tracks in a project.
- 2 Copy and paste the sub-mixed tracks into a new project.
- 3 Record multiple takes of an instrument or vocal, using the sub-mix as a reference.
- 4 Edit together a comp (composite track) of all the best overdub performances.
- 5 Copy the composite track or tracks back into the original project.

MARK SYNC EDITING

To paste a specific point from one track to a specific point in another track use **MARK SYNC EDITING**.

To have a specific note in a phrase on Track 1 start on the downbeat of Track 2:

- 1 Listening to track 2, use the **Jog/Shuttle Wheel** to locate the downbeat and press the Mark Loc button. Name this locate *Downbeat*
- 2 On track 1, use the **Jog/Shuttle Wheel** to locate the desired note in a phrase on track 1 and press the **MARK SYNC** button.
- 3 Press the **MOVE** button.
- 4 Select the track to move. Use the **←** and **→** keys to select **TRACK ARM**. Use the **Track Arm** keys to select track 1. Press the **ENTER** key.
- 5 Select the destination track (track 2). Use the **←** and **→** keys to select **OTHER**. Use the **Track Arm** keys to select track 2. Press the **ENTER** key.
- 6 Select **OVERWRITE** by using the **←** and **→** keys and press the **ENTER** key.
- 7 At the **MOVE TO** prompt, press the **RECALL LOC** key.
- 8 Using the **↑** and **↓** keys to select the locate point *Downbeat* and press the **ENTER** key.
- 9 At the **MOVE TO** prompt, RADAR will now display the time location (e.g., *00:02:34:01*) of the locate point *Downbeat*.
- 10 Press the **MARK SYNC** key.

DAW COMPATIBILITY

RADAR can read and write audio in industry standard BWAV file format.

TRANSFERRING OUT OF RADAR®

Once recording is complete on RADAR, the project can be transferred to a DAW.

Select a File Name Format:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / PREFERENCES MENU / FILE PREFS / FILE NAME FORMAT** and press the **ENTER** key.
- 2 Using the **←** and **→** keys select a **CUSTOM FILE NAME FORMAT** to be compatible with a DAW and press the **ENTER** key.

To transfer the project to a DAW:

- 1 Press the **BACKUP** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / BACKUP** and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the device in the **BACKUP TO:** dialogue press the **ENTER** key. For direct transfers to the DAW, select **N: NETWORK**.
- 3 Select the DAW recording drive in the **SELECT FOLDER** dialogue and press the **ENTER** key.
- 4 At the **BACKUP PROJ** dialogue use the **↑** and **↓** keys to select **CURRENT PROJECT** and press the **ENTER** key.
- 5 Select **BWAV** at the **BACKUP TYPE:** prompt and press the **ENTER** key.
- 6 Select **ALL** or **MARK IN/OUT** and press the **ENTER** key.
- 7 At the **BACKUP NAME:** type the name of the backup using the QWERTY keyboard and press the **ENTER** key. (This will be the name of the folder written to the DAW recording drive.)
- 8 Use the **←** and **→** keys to select **YES** at the backup confirmation prompt and press the **ENTER** key.
- 9 Once the RADAR backup is complete, on the DAW, open a new session and import the files from the DAW recording drive (**N:DAW RECORDING DRIVE/BACKUPNAME/AUDIO FILES/**) into a project with the option of the DAW to locate each audio file to the time stamp in the BWAV header.



In the folder **/BACKUPNAME/PROJECT INFO FILES/** there is a RADAR Project Notes text file which contains useful information.



If the project is being sent to another studio with an unknown system, backup directly to a DVD-R disk as a BWAV backup, as this format can be restored to a RADAR system or imported into any DAW program.

If the RADAR project does not contain edits or if undos are not required, the project can be File Flattened.

To flatten a project on a **RADAR Broadcast WAV** disk:

- 1 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / FLATTEN PROJECT** dialogue and press the **ENTER** key.
- 2 At the **FILL SILENCE?:** prompt the options will be:
 - **NO** (each region will be one file)
 - **GAP** (each track will be one file with potentially different start times)
 - **ALL** (each track will be one file with the same start time)

Then press the **ENTER** key.

- 3 At the **FLATTEN PROJS?:** prompt the options will be:
 - **SELECTED PROJS** (select multiple projects using **+** key)
 - **CURRENT PROJ** (select current project)
 - **ALL** (select all projects)Then press the **ENTER** key.
- 4 If **GAP** or **ALL** is selected and the regions contain gaps or different start times, RADAR will need additional drive space. At the **XXX MB REQUIRED PROCEED?** prompt, select **YES** and press the **ENTER** key.
- 5 The **CANT CANCEL/UNDO PROCEED?** prompt indicates that a destructive process is about to be selected. All undo levels will be lost on this project. Select **YES** and press the **ENTER** key.
- 6 Use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / DISK MENU / UNMOUNT** dialogue and press the **ENTER** key.
- 7 Remove the recording drive from RADAR and plug the drive into a receiver connected to a Mac or PC.
- 8 The workstation computer will mount the drive and the consolidated files and project notes will be located in a new folder titled after the project name within the **USER** directory.
- 9 Copy this project folder over to a DAW recording drive or firewire drive for DAW manipulation.
- 10 After file copy is complete, safely unmount the drive from the workstation.



Do not write or delete any files on the RADAR recording drive when mounted on the Mac or PC. This drive is read only, and any modification will possibly destroy any data on the RADAR drive.



DON'T WRITE TO RADAR BWAV DRIVES USING NON-RADAR SOFTWARE

Mount/unmount RADAR BWAV audio drives in systems running MacOS, Unix, Windows, Linux, etc, then browse directories and copy files or folders from the RADAR BWAV drive to the other system. Subsequently the RADAR BWAV drive can be used in RADAR without risk of RADAR recorded data loss or corruption. However, if any of the following is done to RADAR BWAV disks in another system, there is a risk of loss or corruption of RADAR recorded data:

1. Mount/Unmount RADAR BWAV disks that had been clones in a RADAR recorded dual disk session and subsequently attempt to mount them as a cloned pair in RADAR. These disks, having been mounted in another system, are no longer clones. Attempted subsequent Dual Disk use in RADAR of such disks may cause data loss or corruption.
2. Write files into any directory on a RADAR BWAV drive while mounted on another system.
3. Delete, rename, or modify any existing files or folders on a RADAR BWAV disk or modify the disk in any way using another system. These operations may only be done in RADAR.

TRANSFERRING INTO RADAR

RADAR imports BWAV or WAV files and auto-places them to the time location in the BWAV header.

To transfer audio into RADAR:

- 1 Press the **FILE IMPORT** key on the **Session Controller** or use the **MENU/PREV**, the **↑** and **↓** keys and the **ENTER** key to go to the **MAIN MENU / FILE MENU / IMPORT / PROJECT** and press the **ENTER** key.
- 2 Use the **↑** and **↓** keys to select the device in the **IMPORT FROM:** dialogue and press the **ENTER** key. For direct transfers from the DAW, select **N:NETWORK**.
- 3 Select the DAW's consolidated **PROJECT'S AUDIO FILES** folder in the **SELECT FOLDER** dialogue and press **ENTER** key.
- 4 Use the **↑** and **↓** keys to select **ALL FILES** from the **IMPORT FILES** dialogue and press the **ENTER** key.
- 5 Use the **↑** and **↓** keys to select **ACCEPT** at the **PCM XX/XX FORMAT** dialogue and press the **ENTER** key.

The DAW's audio files will now be imported into a new RADAR project at the time stamp location.

STANDALONE CONVERTERS

ANALOGUE TO DIGITAL CONVERTERS

RADAR's world class converters can be used as a front end to a DAW system. RADAR can be equipped with AES, TDIF, ADAT, or MADI digital I/O.

For best quality use RADAR's clock as the master clock.

To use RADAR as an Analogue to Digital converter for a DAW system, first set RADAR as the master clock source:

- 1 Connect a clock cable from RADAR's output into the DAW's input.
- 2 Set the DAW to clock (sync) to external clock.
- 3 Now the DAW will be using RADAR's internal clock for clocking.

To transfer digital audio:

- 1 Connect digital audio cables between RADAR's outputs and the DAW's digital inputs.
- 2 Set the DAW to input these digital inputs
- 3 Input the source into RADAR's analogue inputs
- 4 Press the **Track Arm** keys on RADAR.
- 5 Enable the DAW to record.



RADAR always outputs all formats, it is not required to set the output, except for 2 ch AES and SPDIF.



It is not required to have a drive mounted in RADAR to pass audio.



Make sure both the DAW and RADAR are set to the same sample rate.

DIGITAL TO ANALOGUE CONVERTERS

RADAR's world class converters can be used as an output converter for a DAW system. RADAR can be equipped with AES, TDIF, ADAT, MADI digital I/O.

For best quality use RADAR's clock as the master clock.

To use RADAR as a Digital to Analogue converter for a DAW system, first set RADAR as the master clock source:

- 1 Connect a clock cable from RADAR's output into the DAW's input.
- 2 Set the DAW to clock (sync) to external clock.
- 3 Now the DAW will be using RADAR's internal clock for clocking.

To transfer digital audio:

- 1 Connect digital audio cables between RADAR's inputs and the DAW's digital outputs.
- 2 Set the DAW to output these digital outputs.
- 3 Press the **DIG IN** key on the **Session Controller** or the **MENU/PREV**, the **▲** and **▼** keys and the **ENTER** key to go to the **MAIN MENU / I/O MENU / DIGITAL INPUTS** press the **ENTER** key.
- 4 Use the **▲** and **▼** keys to select the digital format and press the **ENTER** key.
- 5 Press the **Track Arm** keys on the RADAR **Session Controller**.
- 6 Enable the DAW to play.
- 7 Route or monitor RADAR's analogue outputs with a console.



RADAR always outputs all formats – it is not required to set the output.



It is not required to have a drive mounted in RADAR to pass audio.



Make sure both the DAW and RADAR are set to the same sample rate.

SECTION 6

TROUBLESHOOTING

Below are some basic troubleshooting tips for RADAR systems. Please contact iZ Support or your iZ Dealer if you are having any problems with your RADAR system. RADAR does not contain any user serviceable parts. Do not remove the lid or attempt to repair or replace any components without authorization from iZ Technology.

CONDITION	CAUSE	SOLUTION
RADAR does not power on	<ul style="list-style-type: none"> - AC power cable unplugged - Power not switched on - No power to outlet 	<ul style="list-style-type: none"> - Check AC cable, connection, and outlet
No display on Video Monitor	<ul style="list-style-type: none"> - Check video cable and monitor - Not using the correct video ports 	<ul style="list-style-type: none"> - Connect a different monitor and cable - Plug video monitor into the VGA input, and not the S-Video or Composite - If the session controller is working, it is a monitor problem
Session Controller does not display but is powered	<ul style="list-style-type: none"> - Session Controller cable not plugged into Session Controller - Session Controller cable not plugged into the correct port on RADAR 	<ul style="list-style-type: none"> - Check Session Controller cable is plugged into the port on RADAR labeled SERIAL PORT
No signal on Analogue Input	<ul style="list-style-type: none"> - Faulty Cable or incorrect pin out - Tracks are not armed - RADAR Sync not locked - Input format not set - RADAR Configured in Dual/Quad wire mode 	<ul style="list-style-type: none"> - See Wiring Diagrams on www.izcorp.com - If Sync light is flashing, check sync source, or set RADAR as master - Press DIG IN and select format NONE - MAIN MENU/IO MENU/DIG IO SDQ is set to SINGLE

CONDITION	CAUSE	SOLUTION
No signal on Digital Input	<ul style="list-style-type: none"> - Faulty Cable or incorrect pin out - Tracks are not armed - RADAR Sync not locked - Input format not set - RADAR Configured in Dual/Quad wire mode 	<ul style="list-style-type: none"> - See Wiring Diagrams on www.izcorp.com - If Sync light is flashing, check sync source, or set RADAR as master - Press DIG IN and select format NONE - MAIN MENU/IO MENU/DIG IO SDQ is set to SINGLE
No Signal on Analogue Output	<ul style="list-style-type: none"> - Faulty Cable or incorrect pin out - RADAR Sync not locked 	<ul style="list-style-type: none"> - See Wiring Diagrams on www.izcorp.com - If Sync light is flashing, check sync source, or set RADAR as master
No signal on Digital Output	<ul style="list-style-type: none"> - Faulty Cable or incorrect pin out - RADAR Sync not locked 	<ul style="list-style-type: none"> - See Wiring Diagrams on www.izcorp.com - If Sync light is flashing, check sync source, or set RADAR as master
Pop and Clicks on Ins/Outs	<ul style="list-style-type: none"> - RADAR Sync not locked or faulty - Not enough ventilation for RADAR 	<ul style="list-style-type: none"> - If Sync light is flashing, check sync source, or set RADAR as master - Allow adequate airflow and cooling for RADAR
Can't mount Recording Drive	<ul style="list-style-type: none"> - Drive not inserted - Drive not locked - RADAR not set to mount that SCSI ID - Drive has failed 	<ul style="list-style-type: none"> - Check to see that LED beside the drive is a solid 0 or 1, and lock the key - Check the MODE display ID # on RADARView is set to the same ID # as the drive - MAIN MENU/DIAGNOSTICS/SCAN SCSI BUS Is the hard drive detected on the correct ID#?
Flashing Red Timecode or ERR in Session Controller Display	<ul style="list-style-type: none"> - Recording drive is not rated for high sample rate - External SCSI device faulty - Drive is failing 	<ul style="list-style-type: none"> - Verify using an iZ Technology recording drive for the project sample rate - Remove all other SCSI devices except for current recording drive - Replace drive

CONDITION	CAUSE	SOLUTION
XXX kHz Illegal Message	<ul style="list-style-type: none"> - The incoming AES source doesn't indicate the sample rate which causes RADAR to mistakenly display a XXX kHz ILLEGAL error message 	<ul style="list-style-type: none"> - MAIN MENU / PREFS MENU/IGNORE AES FLAGS Enabling the IGNORE AES FLAGS will remove this error message
Can't Mount Network Drive	<ul style="list-style-type: none"> - Bad or incorrect Ethernet cable - Incorrect Networking Settings - Firewall or other security blocking access 	<ul style="list-style-type: none"> - Verify using correct cable by checking that LEDs on network card is lit - See Support Documents on www.izcorp.com for setup - Turn off firewall or other security programs

SECTION 7

REFERENCE

MENU TREE OVERVIEW

This section provides an overview of the RADAR menu structure.

SYSTEM MENU ▼

- SYSTEM INFO ▼
 - RADAR SOFTWARE VER
 - SERIAL NUMBER
 - RECORDING ENGINE
 - SYNC ENGINE
 - INSTALLED RAM
 - CPU TYPE
 - CPU SPEED
 - IP ADDRESS
 - MAC ADDRESS
 - ETHERNET TYPE
 - ANALOG I/O
 - DIGITAL I/O 1
 - DIGITAL I/O 2
 - DIGITAL I/O 3
 - IDE 0 MASTER
 - IDE 1 MASTER
 - SCSI ID 0
- SET TIME & DATE
- SET SERIAL NUM
- UPDATE SOFTWARE

DISK MENU ▼

- MOUNT/UNMOUNT
- SHOW DISK SPACE
- RECLAIM SPACE
- MAKE PORTABLE
- ERASE ALL AUDIO
- INIT DISK
- DISK MODE
- 24 TRKS AT 192K
- SEAMLESS 64K
- CLONE RADAR DISK
- DISK NOTES
- ENABLE DISK ID

SYNC MENU ▼

- TC SETTINGS ▼
 - TC FORMAT
 - TC RATE
 - SMPT LOCK SPEED
 - FREEWHEEL TIME
 - STATIC TC OUT
 - CHASE MODE
 - SHOW SYNC DRIFT
 - SYNC THRESHOLD
 - CHASE ON POWERUP
- SYNC REFERENCE
- RADARLINK ▼
 - ENABLE/DISABLE
 - RADARLINK SOLO
 - RADARLINK ID
- MACHINE CONTROL ▼
 - ENABLE/DISABLE
 - SELECT TYPE
 - 9-PIN SETTINGS ▼
 - DEVICE ID
 - 9-PIN CHASE MODE
 - TRACK ARM MODE
 - VARSPEED MODE
 - SHUTTLE-0 MODE
 - TC OUT MODE-CUE
 - TC OUT MODE-PLAY
 - MMC SETTINGS ▼
 - DEVICE ID
- SYNC REF OUTPUT
- LOST SYNC IN REC

I/O MENU ▼

- I/O ROUTING ▼
 - INPUT ROUTING
 - OUTPUT ROUTING
 - RESET ROUTING
 - DIG 2-CH ROUTING
 - DIGITAL INPUTS
 - 8-BUS MODE
- ANALOG I/O LEVEL
- DIG IN FORMAT
- DIG I/O SDQ
- DIG 2-CH OUTPUT
- AES SETTINGS ▼
 - (IF AES CARD PRESENT)
 - SAMPLE RATE IN
 - EMPHASIS IN
 - EMPHASIS OUT
 - MULTI-CHNL TYPE
- ADAT SETTINGS ▼
 - (IF ADAT CARD PRESENT)
 - ADAT IN CLOCK
 - ADAT IN WIDTH
 - ADAT IN SMPL PT
 - ADAT OUT WIDTH
 - ADAT OUT USERBIT
 - FACTORY DEFAULTS
- TDIF SETTINGS ▼
 - (IF TDIF CARD PRESENT)
 - IN SAMPLE POINT
 - SAMPLE RATE IN
 - EMPHASIS IN
 - EMPHASIS OUT
 - CARD TYPE
- MADI SETTINGS ▼
 - (IF MADI CARD PRESENT)
 - SAMPLE RATE IN
 - EMPHASIS IN
 - EMPHASIS OUT
 - LEGACY MODE (96K)
 - INTERLACE (48CH)
 - COAX/OPTICAL IN
 - INSTALL FIRMWARE

FILE MENU ▼

- BACKUP
- RESTORE
- EXPORT
- IMPORT
- FLATTEN PROJECTS
- FILE MANAGEMENT
- MAKE DVD/CD IMAGE
- BURN DATA CD/DVD
- BURN AUDIO CD
- FINALIZE CD
- DEL IMG FILE
- MACROS
- MIX AUTOMATION
- FILE PREFS ▼
 - SHOW SIZE
 - IMPRT PROJ START
 - EXPORT FORMAT
 - FILL SILENCE
 - REFORMAT QUALITY
 - WRITE VERIFY
 - FILE NAME FORMAT ▼
 - PRESET ▼
 - TRK-NAMESTAMP
 - TRK-PROJ-STAMP
 - TRK-REGION-NAME
 - TRK-REGION-PROJ
 - PROJ-TRK-REGION
 - TRK-REGION (DOS)
 - CUSTOM ▼
 - SELECT TEMPLATE
 - MAKE TEMPLATE
 - IMPORT TEMPLATE
 - EXPORT TEMPLATE
 - EDIT TEMPLATE
 - DELETE TEMPLATE
- DVD BURN MODE
- DVD BURN SPEED

PROJECT MENU ▼

- GOTO PROJECT
- NEW PROJECT
- COPY PROJECT
- DELETE PROJECT
- NAME PROJECT
- RENUMBER PROJECT
- SAMPLE RATE
- BIT RESOLUTION
- TC FORMAT
- TC RATE
- START TIME
- SYNC OFFSET
- DISPLAY MODE
- MIDI TEMPO MAP
- VARIASPEED
- UNDO LEVEL
- STOP AT LOCATE
- WAVE NOISE FLOOR
- NAME TRACK
- RENUMBER LOCATES
- REBUILD WAVES
- IO ROUTING ▼
 - INPUT ROUTING
 - OUTPUT ROUTING
 - RESET ROUTING
 - DIG 2-CH ROUTING
 - DIGITAL INPUTS
 - 8-BUS MODE
- PROJECT NOTES
- PROJECT PREFS ▼
 - NEW PROJ SETTINGS
 - NEW PROJ NUMBER
 - DEF SAMPLE RATE
 - DEF BIT RES
 - DEF TC FORMAT
 - DEF TC RATE
 - DEF START TIME
 - DEF UNDO LEVEL
 - DEF WAVE NS FLR

TEMPLATE MENU ▼

- MAKE TEMPLATE
- IMPORT TEMPLATE
- EXPORT TEMPLATE
- DELETE TEMPLATE

EDIT MENU ▼

- UNDO EDIT
- REDO EDIT
- MODIFY EDIT
- CUT
- COPY
- PASTE
- MOVE
- ERASE
- LOOP
- SLIDE
- INSERT SILENCE
- REVERSE
- GAIN/FADE
- LISTEN
- EDIT XFADE TIME
- REC XFADE TIME
- CROSSFADE TYPE
- MUTE TRACKS
- RECORD SAFE

PREFERENCES MENU ▼

- DEF SMPTE FIELD
- SHOW SUBFRAMES
- SCROLL PROJ LED
- TRACK SOLO MODE
- ZOOM SOLO AUDIO
- SLIDE TIME UNITS
- FFWD & REW RATE
- MAX JOG RATE
- PEAK HOLD TIME
- CLIP HOLD TIME
- SAVE STATE DELAY
- SCRN-SAVER MENU ▼
 - SAVER DELAY
 - IMAGE EFFECTS
- AUTO RECLAIM
- TRK ARM GROUPING
- IGNORE AES FLAGS
- UNMOUNT PORTABLE
- RADARVIEW RES
- CLOCK MODE
- MUTE IO ON STOP

PREFERENCES MENU (CONT) ▼

- ARROW KEY GOTO
- ASSIGN FT-SWITCH
- ASSIGN MM LOC
- RECORD PREFS ▼
 - 1-BUTTON RECORD
 - TRACK ARM ACTION
 - RECORD MK IN/OUT
 - LOW DISK WARNING
 - RECORD VERIFY
 - RECORD ON CHASE
 - PROJECT PER TAKE
 - RECORD RECOVERY
- FILE PREFS ▼
 - SHOW SIZE
 - IMPRT PROJ START
 - EXPORT FORMAT
 - FILL SILENCE
 - REFORMAT QUALITY
 - WRITE VERIFY
 - FILE NAME FORMAT ▼
 - PRESET ▼
 - TRK-NAMESTAMP
 - TRK-PROJ-STAMP
 - TRK-REGION-NAME
 - TRK-REGION-PROJ
 - PROJ-TRK-REGION
 - TRK-REGION (DOS)
 - CUSTOM ▼
 - SELECT TEMPLATE
 - MAKE TEMPLATE
 - IMPORT TEMPLATE
 - EXPORT TEMPLATE
 - EDIT TEMPLATE
 - DELETE TEMPLATE
 - DVD BURN SPEED
 - DVD BURN MODE
- PROJECT PREFS ▼
 - NEW PROJ SETTINGS
 - NEW PROJ NUMBER
 - DEF SAMPLE RATE
 - DEF BIT RES
 - DEF TC FORMAT
 - DEF TC RATE
 - DEF START TIME
 - DEF UNDO LEVEL
 - DEF WAVE NS FLR
- NETWORK PREFS ▼
 - INTERFACE PREFS ▼
 - HOST NAME
 - DHCP SERVER
 - LOCAL IP ADDRESS
 - SUBNET MASK
 - GATEWAY
 - PRIMARY DNS
 - SECONDARY DNS
 - SMTP HOST
 - FTP SERVER
 - FTP LOGIN NAME
 - FTP PASSWORD
 - SERVER PREFS ▼
 - NETWORK PROTOCOL
 - SERVER IP ADDR
 - SERVER NAME
 - SERVER SHARE
 - CLIENT WORKGROUP
 - EMAIL PREFS ▼
 - COMPANY NAME
 - LOCATION
 - REPLY EMAIL
 - NETWORK CONTROL
- REMOTE PREFS ▼
 - REMOTE PORT

DIAGNOSTICS MENU ▼

- SCAN SCSI BUS
- INIT DISK
- CHECK DISK
- REPAIR DISK
- CHECK PROJECT
- SET STARTUP PROJ
- REAL TIME ERRORS
- VERIFY DISKS
- SHOW AUDIO LEVEL
- PING IP ADDRESS
- CONFIGURE DEBUG
- SAVE DEBUG
- EMAIL DEBUG
- RESTART DESKTOP
- FACTORY SETTINGS
- INSTALL PREV VER

HELP MENU ▼

- RELEASE NOTES
- MANUAL

SHUTDOWN RADAR

MENU ITEM QUICK REFERENCE

MAIN MENU

Pressing the **MENU/PREV** key on the **Session Controller** or the **KC-24** accesses the **MAIN MENU**. To enter the sub-menu structure of the currently selected menu item or to accept a selection or value in a menu dialogue press the **ENTER** key. To exit from any level of the menu system, press the **MENU/PREV** key repeatedly or press the **CANCEL** key.

SYSTEM MENU

MAIN/SYS MENU: SYSTEM INFO	This menu displays RADAR's hardware and software information.
RADAR SOFTWARE VER: X.XX	Displays the currently installed version of RADAR software.
SERIAL NUMBER: iZRXXXXXXXXX	Displays RADAR's serial number.
RECORDING ENGINE Adrenaline Plus	Displays RADAR's installed Recording Engine.
SYNC ENGINE: SYNC PROC II	Displays RADAR's installed Sync Engine.
INSTALLED RAM: 768 MB	Displays the amount of RAM installed on RADAR.
CPU TYPE: Intel (R) Pentium	Displays the CPU type.
CPU SPEED: 1131 MHz	Displays the speed of the installed CPU.
IP ADDRESS: 192.168.XXX.XXX	Displays RADAR's IP Address.
MAC ADDRESS: XXXX.XXX.XXXX	Displays RADAR's Ethernet card's MAC address.
ETHERNET TYPE: GIGABIT	Displays Ethernet card and Ethernet card type.

ANALOG I/O: S-NYQUIST	Displays RADAR's installed Analogue card(s)
DIGITAL I/O 1: ADAT (TYPE II)	Displays RADAR's installed optional Digital I/O.
DIGITAL I/O 2: AES	Display RADAR's installed second optional Digital I/O card.
DIGITAL I/O 3: MADI	Displays RADAR's optional MADI card installed. If a MADI card is not installed, this will display NONE .
IDE 0 MASTER: Radar 24 Be 5GB	Displays RADAR's system drive, volume name(s), and size(s) on the IDE 0 bus.
IDE 1 MASTER: DVD-RAM XX-XXXX	Displays RADAR's multi-drive backup device model number.
SCSI ID 0: XXXXXXXXXX	Displays RADAR's SCSI drive model number(s) for each SCSI ID.
MAIN/SYS MENU: SET TIME & DATE	Allows the user to specify local time and date. The time should be set to local time upon receiving the RADAR.
MAIN/SYS MENU: SET SERIAL NUM	Allows the user to set the serial number designated on the back of the RADAR. <i>This is only necessary if installing new software onto a version prior to 3.36.</i>
MAIN/SYS MENU: UPDATE SOFTWARE	Allows the user to update RADAR software from any media attached to RADAR (CD, Network or the Web). Follow the prompts to verify a proper installation disk before rebooting RADAR.

DISK MENU

MAIN/DISK MENU: MOUNT/UNMOUNT	Allows mounting and unmounting of record drives, e.g., exchanging carriers containing recording drives, or switching the current recording drive to a different drive on the SCSI bus.
MAIN/DISK MENU: SHOW DISK SPACE	Displays the remaining recording time left on the currently mounted recording drives in hours, minutes and seconds.

MAIN/DISK MENU: RECLAIM SPACE	Frees up disk space by deleting audio files that are no longer referenced by any RADAR project play list.
MAIN/DISK MENU: MAKE PORTABLE	Converts files on the audio disk for use on other RADAR units running older versions of software.
MAIN/DISK MENU: ERASE ALL AUDIO	Clears all of the recording drives connected to the system.
MAIN/DISK MENU: INIT DISK	<p>This function selects and initializes DVD-RAM and hard disks as one of the five following options:</p> <p>AUDIO (RADAR_BWAV) RADAR Native Broadcast Wave audio format for the recording drive.</p> <p>AUDIO (!RADAR!) Legacy RADAR audio format for the recording drive.</p> <p>BACKUP (ARCHIVE) RADAR archive format for backup/restore.</p> <p>EXPORT (FAT32) FAT32 format for import/export to a PC and/or Mac.</p> <p>EXPORT (MAC-HFS) HFS format for import/export to a Mac computer.</p> <p>See <i>OPERATIONS: DISK MANAGEMENT: INITIALIZE DISK</i> for more information.</p>
MAIN/DISK MENU: DISK MODE	<p>Allows user to select the disk mode for recording. Choose from the following options:</p> <p>DUAL DISK mode: audio will be recorded simultaneously to both drives</p> <p>SPAN ALL mode: span multiple drives during a recording.</p> <p>CUSTOM mode: specify the number of tracks that are recorded per hard disk. See <i>OPERATIONS: DISK MANAGEMENT: DISK MODE</i> for more information.</p>

<p>MAIN/DISK MENU: 24 TRKS AT 192K</p>	<p>Ability to record all 24 tracks at sample rates up to and including 192 KHz. Seamless punching (real-time crossfades) can be done 12 tracks at a time at 192 KHz, or on all 24 tracks at 96KHz. See OPERATIONS: DISK MANAGEMENT: RECORD 24 TRACKS AT 192 KHZ (ADRENALINE PLUS CARD ONLY) for more information.</p>
<p>MAIN/DISK MENU: SEAMLESS 64K</p>	<p>Allows users to have 24 tracks of seamless recording during punch ins/outs when using a 64k cluster initialized drive.</p>
<p>MAIN/DISK MENU: CLONE RADAR DISK</p>	<p>Provides an easy way to copy data from one hard drive to another for backup or dual disk mode.</p>
<p>MAIN/DISK MENU: DISK NOTES</p>	<p>Save or view track information, project name/number, sample rate, bit depth, sync rate, locate points.</p>
<p>MAIN/DISK MENU: ENABLE DISK ID</p>	<p>When using external SATA this is used to enable or disable the designated disk ID. See OPERATIONS: DISK MANAGEMENT: ENABLE DISK ID more information.</p>

SYNC MENU

<p>MAIN/SYNC MENU: TC SETTINGS</p>	<p>The TC Settings menu provides synchronization options that allow RADAR to easily integrate into any studio, post or broadcast environment.</p>
<p>TC SETTINGS: TC FORMAT</p>	<p>Shortcut keys (sets format and rate):</p> <p>Session Controller SHIFT + CHASE (TC PREF) KC-24 SHIFT + CHASE</p> <p>The TC FORMAT dialogue allows the selection of either SMPTE or MTC as a timecode format. SMPTE is input and output via the LTC connectors on the back panel. MTC is input and output using the MIDI IN and OUT connectors on the rear panel.</p>

<p>TC SETTINGS: TC RATE</p>	<p>Shortcut keys (sets format and rate):</p> <p>Session Controller SHIFT + CHASE (TC PREF) KC-24 SHIFT + CHASE</p> <p>Use the TC RATE dialogue to select a frame rate for the current project.</p> <p>RADAR supports all standard timecode rates including:</p> <ul style="list-style-type: none"> ● 30 fps ● 30 fps drop frame ● 29.97 fps ● 29.97 fps drop frame ● 25 fps ● 24 fps ● 23.976 fps
<p>TC SETTINGS: SMPTE LOCK SPEED</p>	<p>From this dialogue, choose a fast or slow lock speed when chasing timecode. In most situations the FAST setting will be the best choice. However, with jittery or poor quality timecode, the SLOW setting provides smoother tracking of the incoming timecode at the expense of lock time.</p>
<p>TC SETTINGS: FREEWHEEL TIME</p>	<p>SMPTE FREEWHEEL time is the number of frames of bad or missing timecode that will be tolerated before dropping out of chase mode. The possible values for this dialogue range between 0 and 10 frames.</p>
<p>TC SETTINGS: STATIC TC OUT</p>	<p>This dialogue enables and disables the output of a static timecode value when the RADAR transport is stopped. STATIC TC OUT is useful in certain situations where other machines need to know the position of the RADAR at all times.</p>

<p>TC SETTINGS: CHASE MODE</p>	<p>The CHASE MODE setting determines the behavior of RADAR when in chase. The following options are available:</p> <p>In RECHASE mode RADAR will locate, lock and begin playback, continually comparing its position with that of the incoming timecode.</p> <p>In LOCK-AND-DROP mode RADAR will locate, lock, begin playback and release. Lock and Drop behavior is recommended when chasing poor or damaged timecode, and for line recording.</p> <p>In NUDGE mode, if the timecode drifts, the clock speed will be temporarily adjusted to bring the timecode back in sync, and therefore relies primarily on the timecode source. This setting is recommended when chasing MTC and set to internal sync.</p>
<p>TC SETTINGS: SHOW SYNC DRIFT</p>	<p>Displays the number of samples of drift between RADAR's clock and the incoming timecode in the offset window of RADARView.</p>
<p>TC SETTINGS: SYNC THRESHOLD</p>	<p>This feature determines the default amount of sync drift that RADAR can accommodate during CHASE mode before dropping out and re-syncing. WILD is 10X NORMAL mode.</p>
<p>TC SETTINGS: CHASE ON POWERUP</p>	<p>Enables RADAR to automatically start chasing timecode once RADAR is powered up and a project is loaded.</p>

**MAIN/SYNC MENU:
SYNC REFERENCE**

Shortcut keys:

Session Controller 
KC-24 

Digital devices need a clock to operate. For stand-alone operation the device itself usually derives the clock signal from an internal master clock. However, when interconnecting with other digital devices it becomes necessary to have a master clock that provides timing information to all the connected devices so that they can communicate properly. RADAR provides the following digital synchronization options:.

Possible clock reference sources are:

- INTERNAL
- WORDCLOCK
- VIDEO
- SMPTE
- MTC
- AES 2-CH SYNC
- S/PDIF 2-CH SYNC
- AES MULTI-CH
- ADAT
- TDIF L/R IN
- TDIF WORD SYNC
- MADI (Coaxial or Optical)

One of these options can be selected in the **SYNC REFERENCE** dialogue and will remain selected until the unit is powered down or rebooted. For further information refer to *CONFIGURATION: SYNC REFERENCE*.

**MAIN/SYNC MENU:
RADARLINK**

A 9-pin cable allows two or more RADAR units to be connected and operated as a single unit. See *OPERATIONS: RADARLINK* for further information.

**RADARLINK:
ENABLE/DISABLE**

Shortcut keys:

Session Controller  or 
KC-24 

This dialogue is used to enable or disable **RADARLink** operation.




<p>RADARLINK: RADARLINK SOLO</p>	<p>Shortcut keys: Session Controller RLINK SOLO or S KC-24 S</p> <p>RADAR LINK SOLO operation is required for editing with more than 48 tracks and certain other machine specific functions like backup, restore, mount and unmount. This dialogue allows the selection of a particular slave machine by entering its RADAR LINK ID number.</p>
<p>RADARLINK: RADARLINK ID</p>	<p>Each slave unit in a RADARLink configuration must have a unique ID number between 1 and 7. The RADARLink master is automatically assigned an ID of M.</p>
<p>MAIN/SYNC MENU: MACHINE CONTROL</p>	<p>RADAR supports both 9-pin serial (RS-422) and MMC, which is the MIDI implementation of machine control. These menus configure RADAR for use as a machine control slave in a variety of applications.</p>
<p>MACHINE CONTROL: ENABLE/DISABLE</p>	<p>Shortcut keys: Session Controller SHIFT + RLINK (MCH CTL) KC-24 N/A</p> <p>This dialogue is used to enable or disable 9-PIN or MMC, depending on which type of machine control is selected and whether it is currently enabled or disabled.</p>
<p>MACHINE CONTROL: SELECT TYPE</p>	<p>This dialogue allows switching between 9-PIN and MMC.</p>
<p>MACHINE CONTROL: 9-PIN SETTINGS</p>	<p>These settings can be used to adjust 9-pin preferences.</p>
<p>9-PIN SETTINGS: DEVICE ID</p>	<p>The device ID setting allows RADAR to appear as one of the following to the machine control master:</p> <ul style="list-style-type: none"> ● RADAR ● RADAR 24 ● DVR-1000 ● APR-24 ● BVU-950 <p>With these various emulations it is possible to control RADAR from virtually any 9-pin controller.</p>



9-PIN SETTINGS: 9-PIN CHASE MODE	<p>This dialogue determines whether transport commands will be derived locally or from machine control master via 9-pin (RS-422)</p>
9-PIN SETTINGS: TRACK ARM MODE	<p>This dialogue determines whether track-arming commands will be derived locally or from a machine control master via 9-pin (RS-422).</p>
9-PIN SETTINGS: VARISPEED MODE	<p>This dialogue determines whether vari-speed commands will be derived locally or from a machine control master via 9-pin (RS-422).</p>
9-PIN SETTINGS: SHUTTLE-0 MODE	<p>This dialogue determines whether a SHUTTLE-0 command from a 9-pin controller will put RADAR in STOP or SHUTTLE-0.</p>
9-PIN SETTINGS: TC OUT MODE-CUE	<p>This setting allows the timecode output while cueing to respond differently for different applications.</p> <p>In NORMAL mode, RADAR will cue to a new location and begin outputting timecode upon playback, based on the new position in the project. The small gap in timecode output that occurs when cueing can cause problems with some older synchronization systems that are expecting an immediate ramp up in timecode output from a slave machine (i.e. tape machine) when a machine control PLAY command is sent.</p> <p>In TAPE mode, RADAR will immediately begin sending timecode even before the cueing operation is complete. This emulates the behavior of a tape machine and prevents confusion with certain machine control systems.</p>

<p>9-PIN SETTINGS: TC OUT MODE-PLAY</p>	<p>This setting is almost identical to TC OUT MODE-CUE in that it allows the timecode output on playback to respond differently for different applications.</p> <p>In NORMAL mode, RADAR will begin outputting timecode only when in play, based on the new position in the project and will reflect any delay introduced by cueing audio. This delay may cause problems with some older synchronization systems that are expecting a ramp up in timecode output from a slave machine (i.e., tape machine) immediately after a machine control PLAY command is sent.</p> <p>In TAPE mode, RADAR will immediately begin sending timecode even if cueing is required. This emulates the behavior of a tape machine and prevents confusion with older machine control systems.</p>
<p>MACHINE CONTROL: MMC SETTINGS</p>	<p>This setting can be used to adjust the MMC preferences.</p>
<p>MMC SETTINGS: DEVICE ID</p>	<p>This feature allows RADAR to have a specific DEVICE ID for MIDI Machine Control. RADAR will then respond to MMC commands that contain this DEVICE ID. The default setting is 127 (7F in Hex) which is the broadcast setting (all call). If running a studio/system where multiple devices are being controlled via MMC, RADAR will need to be set to a DEVICE ID other than 127 (7F).</p>
<p>MAIN/SYNC MENU: SYNC REF OUTPUT</p>	<p>The SYNC REF OUTPUT dialogue determines whether the WORDCLOCK/VIDEO – OUT connector on the rear of the unit functions as a thru connector for any incoming wordclock signal or as an output for wordclock generated by the internal clock of RADAR. To use the clock of RADAR to drive other devices in the studio choose the WORDCLK option in this dialogue.</p>
<p>MAIN/SYNC MENU: LOST SYNC IN REC</p>	<p>This feature allows RADAR to automatically switch to internal sync (clock) and continue recording after losing an external sync (clock) source.</p>



I/O MENU

<p>MAIN/I/O MENU: I/O ROUTING</p>	<p>This allows the user to define the analogue and digital input-track-output routing assignment. Aside from the default routing of one to one, it is possible to route an input to a different track or multiple tracks, as well as route a specific track to a different output or multiple outputs. The inputs can also be set to all analogue or digital or a combination of both.</p>								
<p>I/O ROUTING: INPUT ROUTING</p>	<p>Select which track(s) to route the current input to</p>								
<p>I/O ROUTING: OUTPUT ROUTING</p>	<p>Select which output to route the current track to</p>								
<p>I/O ROUTING: RESET ROUTING</p>	<p>Resets input, output or both configurations to the standard default of 1:1</p>								
<p>I/O ROUTING: DIG 2-CH ROUTING</p>	<p>This dialogue allows the ins and outs of the 2-channel digital I/O to be assigned on tracks 1 through 24. The inputs do not have to be the same as the outputs.</p>								
<p>DIG IN L: 01 R:02 OUT L: 03 R:04</p>									
<p>I/O ROUTING: DIGITAL INPUTS</p>	<p>This dialogue allows the ability to select which tracks will be fed by the multi-channel digital I/O card defined in the DIG IN FORMAT menu.</p>								
<p>I/O ROUTING: 8-BUS MODE</p>	<p>Disables inputs 9-24 and mirrors inputs 1-8 to tracks 9-16 and 17-24 while overriding the input routing option.</p>								
<p>MAIN/I/O MENU: ANALOG I/O LEVEL</p>	<p>This setting determines the ANALOG I/O LEVEL relative to the reference of 0 DBFS or +4DBU. Below are the level settings available depending on reference selection.</p>								
<p>REFERENCE TO: 0 DBFS +4 DBU</p>	<table> <tr> <td>0 dBFS = +24 dBu</td> <td>+4 DBU = -20 dBFS</td> </tr> <tr> <td>+22 dBu</td> <td>-18 dBFS</td> </tr> <tr> <td>+20 dBu</td> <td>-16 dBFS</td> </tr> <tr> <td>+18 dBu</td> <td>-14 dBFS</td> </tr> </table>	0 dBFS = +24 dBu	+4 DBU = -20 dBFS	+22 dBu	-18 dBFS	+20 dBu	-16 dBFS	+18 dBu	-14 dBFS
0 dBFS = +24 dBu	+4 DBU = -20 dBFS								
+22 dBu	-18 dBFS								
+20 dBu	-16 dBFS								
+18 dBu	-14 dBFS								

<p>MAIN/O MENU: DIG IN FORMAT</p>	<p>Shortcut keys:</p> <p>Session Controller  KC-24 </p> <p>This dialogue determines if RADAR will use digital or analogue audio inputs and also allows selection of the digital I/O format. The currently selected digital I/O format is displayed above the track numbers in the RADARView display. The selections in this dialogue are:</p> <ul style="list-style-type: none"> ● NONE (ANALOG) ● AES/EBU 2-CH ● S/PDIF 2-CH ● AES MULTI-CH ● ADAT ● TDIF ● MADI
<p>MAIN/O MENU: DIG I/O SDQ</p>	<p>SDQ is an acronym for Single, Dual, and Quad wire. It refers to the way RADAR handles high sample rate digital audio going to and from external sources via the digital multi-channel I/O. The choices in this menu will vary depending on the sample rate of the current project. At a sample rate of 192 kHz the selections will be:</p> <ul style="list-style-type: none"> ● SINGLE ● DUAL ● QUAD <p>It is important to select the appropriate SDQ setting so that RADAR will display and reproduce the recorded audio correctly.</p> <div style="border: 1px solid gray; padding: 10px; margin-top: 10px;">  <p>Selecting DUAL or QUAD disables the RADAR's analogue I/O. Once the audio is recorded, however, the project can be played back using the analogue outputs by selecting an SDQ setting of SINGLE.</p> <p>This only applies when recording from external dual or quad wire sources at 96 or 192 kHz.</p> </div>
<p>MAIN/O MENU: DIG 2-CH OUTPUT</p>	<p>RADAR supports both the AES/EBU and S/PDIF 2-channel I/O formats. Use this dialogue to switch between the two formats.</p>

<p>MAIN/O MENU: AES SETTINGS</p> <p>(IF AES CARD PRESENT)</p>	<p>These settings allow verification of incoming AES-specific data, and set output emphasis to On or Off.</p>
<p>AES SETTINGS: SAMPLE RATE IN</p>	<p>This dialogue reads the indicator flag for the selected input pair. Use the  and  keys to select an AES/EBU input pair with a valid signal and the sample rate will be displayed in the dialogue.</p>
<p>AES SETTINGS: EMPHASIS IN</p>	<p>In the early days of digital, emphasis was used to artificially boost the level of high frequency signal content so that it could be quantized at a higher resolution. The EMPHASIS IN dialogue indicates if the incoming AES signal is using emphasis or not.</p>
<p>AES SETTINGS: EMPHASIS OUT</p>	<p>Use this dialogue to turn the emphasis flag on and off for the AES output signal. When it is turned on it indicates to the receiving device that the digital audio stream has been recorded with emphasis and it should be decoded accordingly.</p> <p>Since RADAR does not decode emphasis nor store the emphasis flag for audio recorded with emphasis, the emphasis flag should be turned ON if the digital audio recorded has previously been encoded with emphasis.</p> <p>Emphasis is rarely, if ever, used in the industry today and these options are included primarily for dealing with legacy recordings.</p>
<p>AES SETTINGS: MULTI-CHNL TYPE</p>	<p>The number of channels supported by the installed card. For RADAR this value will always be 24 channels.</p>

<p>MAIN/I/O MENU: ADAT SETTINGS (IF ADAT CARD PRESENT)</p>	<p>These settings allow verification of incoming ADAT-specific data, and set output emphasis to On or Off.</p>
<p>ADAT SETTINGS: ADAT IN CLOCK</p>	<p>This dialogue sets the input group that the ADAT clock information will be derived from. The settings are:</p> <ul style="list-style-type: none"> ● AUTOMATIC ● FIBER C ● FIBER B ● FIBER A <p>For most situations the AUTOMATIC setting will be the best choice. RADAR will detect any incoming clock from the fiber ports and will automatically make the ADAT IN CLOCK assignment.</p>
<p>ADAT SETTINGS: ADAT IN WIDTH</p>	<p>These settings can be used to compensate for poor quality optical transceivers that alter the usable pulse width of the digital audio signal. Compensation can be set independently for each fiber port. Increments are displayed in positive and negative hexadecimal units 0 through F.</p>
<p>ADAT SETTINGS: ADAT IN SMPL PT</p>	<p>Used in conjunction with ADAT IN WIDTH and ADAT OUT WIDTH, ADAT IN SMPL PT can help establish a solid link using Lightpipe by shifting the point in the recovered waveform where RADAR interprets the data value. Increments are displayed as hexadecimal units, with each unit delaying the sample point by 10 nanoseconds.</p>
<p>ADAT SETTINGS: ADAT OUT WIDTH</p>	<p>As in ADAT IN WIDTH, these settings can be used to compensate for poor quality optical transceivers that alter the usable pulse width of the digital audio signal. Compensation can be set independently for each fiber port. Increments are displayed in positive and negative hexadecimal units 0 through F.</p>
<p>ADAT SETTINGS: ADAT OUT USERBIT</p>	<p>The default setting, ENABLED, conforms to the ADAT output specification regarding the userbit (U2) when 96kHz or 192 kHz are selected. However, if experiencing noise when outputting ADAT from RADAR, try the DISABLED setting.</p>

<p>ADAT SETTINGS: FACTORY DEFAULTS</p>	<p>Use this function to return all of the RADAR's ADAT SETTINGS to the factory default.</p>
<p>MAIN/O MENU: TDIF SETTINGS (IF TDIF CARD PRESENT)</p>	<p>These settings allow verification of incoming TDIF-specific data, and set output emphasis to On or Off.</p>
<p>TDIF SETTINGS: IN SAMPLE POINT</p>	<p>Interfacing with some makes and models of TDIF equipped audio gear can be challenging at times, especially with older equipment. The IN SAMPLE POINT dialogue allows shifting of the position in the waveform where RADAR interprets the incoming TDIF digital signal. The choices are:</p> <ul style="list-style-type: none"> ● ¼ BIT ● ½ BIT ● ¾ BIT <p>If experiencing difficulties interfacing with another digital audio device using TDIF, it may be beneficial to experiment with these settings.</p>
<p>TDIF SETTINGS: SAMPLE RATE IN</p>	<p>This dialogue reads the indicator flag for the selected input pair. Use the  and  keys to select a TDIF input pair with a valid signal and the sample rate will be displayed in the dialogue.</p>
<p>TDIF SETTINGS: EMPHASIS IN</p>	<p>In the early days of digital, emphasis was used to artificially boost the level of high frequency signal content so that it could be quantized at a higher resolution. The EMPHASIS IN dialogue indicates if the incoming TDIF signal is using emphasis or not.</p>
<p>TDIF SETTINGS: EMPHASIS OUT</p>	<p>Use this dialogue to turn the emphasis flag on and off for the TDIF output signal. When it is turned on it indicates to the receiving device that the digital audio stream has been recorded with emphasis and it should be decoded accordingly.</p> <p>Since RADAR does not decode emphasis nor store the emphasis flag for audio recorded with emphasis, the emphasis flag should be turned ON if the digital audio recorded has previously been encoded with emphasis.</p> <p>Emphasis is rarely, if ever, used in the industry today and these options are included primarily for dealing with legacy recordings.</p>

<p>TDIF SETTINGS: CARD TYPE</p>	<p>The number of channels supported by the installed card. For RADAR this value will always be 24 channels.</p>
<p>MAIN/O MENU: MADI SETTINGS</p>	<p>These settings allow verification of incoming MADI-specific data, and set output emphasis to On or Off.</p>
<p>(IF MADI CARD PRESENT)</p>	
<p>MADI SETTINGS: SAMPLE RATE IN</p>	<p>This dialogue reads the indicator flag for the selected input pair. Use the  and  arrow keys to select a MADI input pair with a valid signal and the sample rate will be displayed in the dialogue.</p>
<p>MADI SETTINGS: EMPHASIS IN</p>	<p>In the early days of digital, emphasis was used to artificially boost the level of high frequency signal content so that it could be quantized at a higher resolution. The EMPHASIS IN dialogue indicates if the incoming MADI signal is using emphasis or not.</p>
<p>MADI SETTINGS: EMPHASIS OUT</p>	<p>Use this dialogue to turn the emphasis flag on and off for the MADI output signal. When it is turned on it indicates to the receiving device that the digital audio stream has been recorded with emphasis and it should be decoded accordingly.</p> <p>Since RADAR does not decode emphasis nor store the emphasis flag for audio recorded with emphasis, the emphasis flag should be turned ON if the digital audio recorded has previously been encoded with emphasis.</p> <p>Emphasis is rarely, if ever, used in the industry today and these options are included primarily for dealing with legacy recordings.</p>
<p>MADI SETTINGS: LEGACY MODE (96K)</p>	<p>Allows the user to select MADI modes. NON-LEGACY mode is true 96 kHz.</p>
<p>MADI SETTINGS: INTERLACE (48CH)</p>	<p>Allows the user to select channels 1-24 or 25-48 from the incoming MADI stream.</p>
<p>MADI SETTINGS: COAX/OPTICAL IN</p>	<p>This dialogue is for setting the MADI digital-in format. RADAR will accept clocking information on either format regardless of this setting.</p>
<p>MADI SETTINGS: INSTALL FIRMWARE</p>	<p>This option is for updating MADI firmware. For further instructions refer to CONFIGURATION: DIGITAL I/O: MADI FIRMWARE UPDATES</p>

FILE MENU









<p>MAIN/FILE MENU: BACKUP</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p> <p> </p> <p>Selecting this menu item and pressing the  key scans for all attached devices. When the scan is complete all valid drives will be listed in the BACKUP TO: dialogue. For more information on backing up projects refer to <i>OPERATIONS: FILE MANAGEMENT: BACKUP</i>.</p>
<p>MAIN/FILE MENU: RESTORE</p>	<p>Selecting this menu item and pressing the  key scans for all attached devices. When the scan is complete all valid drives will be listed in the RESTORE FROM: dialogue. For more information on restoring projects refer to <i>OPERATIONS: FILE MANAGEMENT: RESTORE</i>.</p>
<p>MAIN/FILE MENU: EXPORT</p>	<p>Selecting this menu item and pressing the  key scans for all attached devices. When the scan is complete all valid drives will be listed in the EXPORT TO: dialogue. For further information on exporting projects refer to <i>OPERATIONS: FILE MANAGEMENT: EXPORT</i>.</p>
<p>MAIN/FILE MENU: IMPORT</p>	<p>Selecting this menu item and pressing the  key scans for all attached devices. When the scan is complete all valid drives will be listed in the IMPORT FROM: dialogue. For further information on importing audio refer to <i>OPERATIONS: FILE MANAGEMENT: IMPORT</i>.</p>
<p>MAIN/FILE MENU: FLATTEN PROJECTS</p>	<p>This feature allows projects to be “flattened” and mounted on a PC or Mac system. For more information on restoring projects refer to <i>OPERATIONS: FILE MANAGEMENT: FLATTEN PROJECT</i>.</p>
<p>MAIN/FILE MENU: FILE MANAGEMENT</p> <p>BROWSE: #=MB D:ARCHIVE</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p> <p> </p> <p>The FILE MANAGEMENT section of the FILE MENU has been created to allow extensive control over files on all drives connected to RADAR.</p>



<p>MAIN/FILE MENU: MAKE DVDCD IMAGE</p>	<p>This feature is for creating a data CD/DVD. It creates an image file of a folder/directory on the internal system drive (e.g., D:ARCHIVE) and places the file in a DISK IMAGES folder also on the internal system drive. For more information refer to <i>OPERATIONS: FILE MANAGEMENT: BURN A DATA CD-R/DVD-R</i>.</p>
<p>MAIN/FILE MENU: BURN DATA CD/DVD</p>	<p>This feature allows the user to burn an image file containing backups and/or exports onto a CD-R or DVD-R. For more information refer to <i>OPERATIONS: FILE MANAGEMENT: BURN A DATA CD-R/DVD-R</i>.</p>
<p>MAIN/FILE MENU: BURN AUDIO CD</p>	<p>RADAR can burn one or more stereo exports as a Red Book CD-DA file that can be played in any CD player. RADAR will automatically convert the audio to 16 bit / 44.1 KHz when CDAUDIO is selected at the FILE FORMAT: dialogue during an EXPORT. The quality of the conversion is based on the REFORMAT QUALITY option under the <i>MAIN MENU / FILE MENU / FILE PREFS</i>.</p>
<p>MAIN/FILE MENU: FINALIZE CD</p>	<p>This feature allows an audio CD to be closed (finalized) in order for the disk to be played in a standard CD player. If adding CDAUDIO files over time to a CD, use the FINALIZE CD option when finished adding tracks (CDAUDIO files) to the disk.</p>
<p>MAIN/FILE MENU: DEL IMG FILE</p>	<p>This feature allows deletion of old and/or unwanted ISO image files from the internal system drive that had been created for the purpose of burning a DVD-R and/or CD-R.</p>
<p>MAIN/FILE MENU: MACROS</p>	<p>The macro keys (Session Controller only) provide a way to memorize multiple keystrokes and recall them at the touch of a button. Macro sets can be loaded, saved and deleted to allow use with other RADAR units. See <i>OPERATIONS: FILE MANAGEMENT: MACROS</i> for more information.</p>
<p>MAIN/FILE MENU: MIX AUTOMATION</p>	<p>This option allows Sony DMX-R100 mixer automation settings saved to a floppy disk to be stored within a RADAR project. This feature also allows those same settings to be restored onto a floppy to get them back into the DMX-R100.</p>

MAIN/FILE MENU: FILE PREFS	<p>These dialogues are for creating preferences for file related functions. The EXPORT FORMAT and FILL SILENCE preferences are also used when using the CLIP EXPORT shortcut key.</p>
FILE PREFS: SHOW SIZE	<p>When set to MB or TIME, a XXXMB PROCEED? or XXXMIN PROCEED? dialogue will be added during the backup and export procedures.</p>
FILE PREFS: IMPRT PROJ START	<p>When importing files to a new project, the project start time will be based on this setting.</p>
FILE PREFS: EXPORT FORMAT	<p>This sets the preference for the export file format. The choices are WAV, BWAV or ASK. When ASK is selected as the preference the prompt will ask to choose a file format each time files are exported.</p>
FILE PREFS: FILL SILENCE	<p>During export, FILL SILENCE pads blank audio regions with zeros to create either one file per track or one file per region. When ASK is selected as the preference the prompt will ask to choose a fill silence option each time files are exported.</p>
FILE PREFS: REFORMAT QUALITY	<p>This dialogue sets the default quality and speed of sample rate and bit resolution conversion for importing files as well as exporting STEREO CDAUDIO files.</p>
FILE PREFS: WRITE VERIFY	<p>This option is to ENABLE or DISABLE WRITE VERIFY for various removable media. With this preference enabled, the data writing ensures a more accurate process however it also increases the overall completion time.</p>

<p>FILE PREFS: FILE NAME FORMAT</p>	<p>BWAV files are created in the Audio Files sub-folder of flat backups or exports. They are named according to the FILE NAME FORMAT specified in the FILE PREFS. Two options for file name format are: PRESET and CUSTOM.</p> <p>If PRESET is selected, the following pre-defined naming conventions are available:</p> <ul style="list-style-type: none"> ● TRK-NAME-STAMP ● TRK-REGION-NAME ● PROJ-TRK-REGION ● TRK-PROJ-STAMP ● TRK-REGION-PROJ ● TRK-REGION (DOS) <p>If CUSTOM is selected, use the following menu options to create and manage custom file name templates.</p> <ul style="list-style-type: none"> ● SELECT TEMPLATE ● IMPORT TEMPLATE ● EDIT TEMPLATE ● MAKE TEMPLATE ● EXPORT TEMPLATE ● DELETE TEMPLATE
<p>FILE PREFS: DVD BURN MODE</p>	<p>If the BUFFER UNDERRUN error is being displayed frequently when attempting to burn a DVD-R, the mode can be changed to lower these error instances.</p> <p>Setting the DVD BURN MODE to SAFE will set the DVD multi-drive to use the PROGRAMMED I/O MODE which is more reliable for burning. After changing the setting, reboot RADAR for SAFE mode to take effect.</p>
<p>FILE PREFS: DVD BURN SPEED</p>	<p>This dialogue sets the speed for burning DVD-R disks. Choose speeds from 1X through 8X, or select MAX to let the DVD drive burn at its maximum possible speed. If the DVD drive or disk is not capable of burning at the speed selected, it will automatically use the closest available speed.</p>

PROJECT MENU

<p>MAIN/PROJ MENU: GOTO PROJECT</p>	<p>Shortcut keys:</p> <p>Session Controller  KC-24 </p> <p>Allows quick switching of projects. Select a project and press .</p>
<p>MAIN/PROJ MENU: NEW PROJECT</p>	<p>Shortcut keys:</p> <p>Session Controller  KC-24 N/A</p> <p>Allows for creation of a new project. When selecting NEW PROJECT a new project is created and is assigned the next available unused project number. Type a name for the project on the QWERTY keyboard and press the  key.</p>
<p>MAIN/PROJ MENU: COPY PROJECT</p>	<p>Shortcut keys:</p> <p>Session Controller  KC-24 N/A</p> <p>To keep the original project intact, COPY PROJECT allows duplications of the current project to be made. The copied project will be assigned the next available unused project number and be named automatically using the original project's name and an appended version number.</p> <div data-bbox="756 1276 1430 1430" style="border: 1px solid gray; padding: 5px;">  COPY PROJECT does not use more disk space. </div>
<p>MAIN/PROJ MENU: DELETE PROJECT</p>	<p>Shortcut keys:</p> <p>Session Controller  KC-24 N/A</p> <p>Use this option to delete selected projects.</p> <div data-bbox="756 1654 1430 1808" style="border: 1px solid gray; padding: 5px;">  A project cannot be recovered once it has been deleted. </div>

<p>MAIN/PROJ MENU: NAME PROJECT</p>	<p>Shortcut keys:</p> <p>Session Controller NAME PROJ KC-24 N/A</p> <p>Used to name a selected project. The dialogue cursor defaults to the project number field.</p>
<p>MAIN/PROJ MENU: RENUMBER PROJECT</p>	<p>Used to renumber a project (1 – 999) quickly. This is often required to give restored projects the same number for RADARLink operation.</p>
<p>MAIN/PROJ MENU: SAMPLE RATE</p>	<p>Sets the sample rate for the selected project.</p> <div style="border: 1px solid gray; padding: 5px; display: flex; align-items: center;">  <p>This option can only be changed before audio is recorded.</p> </div>
<p>MAIN/PROJ MENU: BIT RESOLUTION</p>	<p>Sets the bit depth for the selected project. The available bit depths are 16 and 24-bit PCM.</p> <div style="border: 1px solid gray; padding: 5px; display: flex; align-items: center;">  <p>This option can only be changed before audio is recorded.</p> </div>
<p>MAIN/PROJ MENU: TC FORMAT</p>	<p>Shortcut keys (sets format and rate):</p> <p>Session Controller SHIFT + CHASE (TC PREF) KC-24 SHIFT + CHASE</p> <p>The TC FORMAT dialogue allows the selection of either SMPTE or MTC as a timecode format. SMPTE is input and output via the LTC connectors on the back panel. MTC is input and output using the MIDI IN and OUT connectors on the rear panel.</p>

<p>MAIN/PROJ MENU: TC RATE</p>	<p>Shortcut keys (sets format and rate):</p> <p>Session Controller SHIFT + CHASE (TC PREF) KC-24 SHIFT + CHASE</p> <p>Use the TC RATE dialogue to select a frame rate for the current project.</p> <p>RADAR supports all standard timecode rates including:</p> <ul style="list-style-type: none"> ● 30 fps ● 30 fps drop frame ● 29.97 fps ● 29.97 fps drop frame ● 25 fps ● 24 fps ● 23.976 fps
<p>MAIN/PROJ MENU: START TIME</p>	<p>This dialogue is for entering a start time for the current project.</p>
<p>MAIN/PROJ MENU: SYNC OFFSET</p>	<p>Shortcut keys:</p> <p>Session Controller SHIFT + SYNC (OFFSET) KC-24 SHIFT + SYNC</p> <p>It is often necessary to set an offset between two synchronized machines when timecodes differ. When the two machines are parked at the appropriate location to be synchronized, the offset can be calculated by subtracting the master machines timecode from the slave machines timecode. See CONFIGURATION: TIMECODE for information on how RADAR can capture an offset automatically.</p>
<p>MAIN/PROJ MENU: DISPLAY MODE</p>	<p>RADAR can display its current position in the following units:</p> <ul style="list-style-type: none"> ● FEET/FRAMES ● BARS/BEATS ● SMPTE ● INT/EXT SMPTE <p>Choose the desired format and press the ENTER key. For bars and beats operation, set the reference tempo in the MIDI TEMPO MAP (see the following menu reference).</p>
<p>MAIN/PROJ MENU: MIDI TEMPO MAP</p>	<p>Use this dialogue to set the reference tempo and time signature for BARS/BEATS display mode.</p>

<p>MAIN/PROJ MENU: VARISPEED</p>	<p>Shortcut keys:</p> <p>Session Controller VARI-SPEED KC-24 N/A</p> <p>VARI-SPEED is stored independently for each project, but must be manually engaged each time the project is loaded. See <i>OPERATIONS: VARI-SPEED</i> for more details on using this feature.</p>
<p>MAIN/PROJ MENU: UNDO LEVEL</p>	<p>RADAR supports up to 99 levels of undo. The factory default setting is 10. Use this dialogue to customize the number of undo levels in the current project. This setting can be changed at any time, however setting this value to a lower value will delete any undo information that existed in the higher undo levels. For example: changing the undo level setting from 10 to 0 and then back to 10 will erase all undo information.</p> <div data-bbox="753 888 1430 1150" style="border: 1px solid gray; padding: 10px;">  <p>Too many levels of undo can waste disk space. Disk space cannot be automatically reclaimed by the system until deleted audio regions are no longer accessible via UNDO.</p> </div>
<p>MAIN/PREFS MENU: STOP AT LOCATE</p>	<p>With this option enabled RADAR will automatically stop playing when it reaches a locate point.</p>
<p>MAIN/PROJ MENU: WAVE NOISE FLOOR</p>	<p>This dialogue sets the signal level threshold for waveform drawing. Noise and other signals below the noise floor setting will not be drawn. The threshold value can be modified in 5-decibel increments between -90.0 and -60.0.</p>







<p>MAIN/PROJ MENU: NAME TRACK</p>	<p>Shortcut keys:</p> <p>Session Controller NAME TRACK KC-24 N/A</p> <p>Enter a name using the QWERTY keyboard. Upon pressing the ENTER key, the new track name will appear to the left of the track numbers in the RADARView display and the dialogue will automatically select the next track number for naming. Track names can be 16 characters in length. For more information refer to <i>OPERATIONS: TRACK MANAGEMENT: NAMING TRACKS</i>.</p>
<p>MAIN/PROJ MENU: RENUMBER LOCATES</p>	<p>This dialogue allows automatic renumbering of locates into chronological order. Selecting RENUMBER LOCATES and pressing the ENTER key displays the prompt: RENUMBER ALL? A YES response will renumber locates sequentially from the beginning of the project arranging them in chronological order. A NO response will cancel the renumber function.</p>
<p>MAIN/PROJ MENU: REBUILD WAVES</p>	<p>This dialogue allows waveforms to be rebuilt for a particular project if the waveforms are missing or corrupt. Selecting REBUILD WAVES and pressing the ENTER key displays the prompt: REBUILD WAVES? A YES response will rebuild all of the waveforms within the current project. A NO response will cancel the rebuild WAVES function.</p>
<p>MAIN/ PROJ MENU: I/O ROUTING</p>	<p>This allows the analogue and digital input-track-output routing assignment to be user defined. Aside from the default routing of one to one, it is possible to route an input to a different track or multiple tracks, as well as route a specific track to a different output or multiple outputs. The inputs can also be set to all analogue or digital or a combination of both.</p>
<p>I/O ROUTING: INPUT ROUTING</p>	<p>Select which track(s) to route the current input to.</p>
<p>I/O ROUTING: OUTPUT ROUTING</p>	<p>Select which output to route the current track to.</p>



<p>I/O ROUTING: RESET ROUTING</p>	<p>Resets input, output or both configurations to the standard default of 1:1.</p>
<p>I/O ROUTING: DIG 2-CH ROUTING</p>	<p>This dialogue allows the ins and outs of the 2-channel digital I/O to be assigned on tracks 1 through 24. The inputs do not have to be the same as the outputs.</p>
<p>DIG IN L: 01 R:02 OUT L: 03 R:04</p>	
<p>I/O ROUTING: DIGITAL INPUTS</p>	<p>This dialogue allows the ability to select which tracks will be fed by the multi-channel digital I/O card defined in the DIG IN FORMAT menu.</p>
<p>I/O ROUTING: 8-BUS MODE</p>	<p>Disables inputs 9-24 and mirrors inputs 1-8 to tracks 9-16 and 17-24 while overriding the input routing option.</p>
<p>MAIN/PROJ MENU: PROJECT NOTES</p>	<p>This option is used to edit, view and save information about a particular project. The following information is included in the Project Notes:</p> <ul style="list-style-type: none"> • RADAR TYPE • SERIAL NUMBER • SOFTWARE VERSION • PROJECT NUMBER • PROJECT NAME • START TIME • LAST RECORDING/EDIT DATE • BIT DEPTH • SAMPLE RATE • SMPTE RATE • SMPTE OFFSET • VARI-SMPTE RATER • TRACK NAME(S) • MARK IN/OUT POINTS • TEMPO AND TIME SIGNATURE
<p>MAIN/PROJ MENU: PROJECT PREFS</p>	<p>These project preferences define the parameters that will be used every time a new project is created.</p>
<p>PROJ PREFS: NEW PROJ SETNGS</p>	<p>This preference has the following options:</p> <p>TEMPLATE will use the settings of a selected template.</p> <p>ASK will prompt the user to choose a template each time a new project is created.</p>





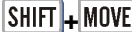

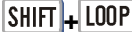
PROJECT PREFS: NEW PROJ NUMBER	This feature controls how new projects are to be numbered. If FROM 1 is selected, RADAR will assign the lowest available project number whenever a new project is created. If FROM CUR is selected, then RADAR will use the next available number starting at the current project number.
PROJECT PREFS: DEF SAMPLE RATE	Sets the sample rate for newly created projects. Valid values range from 32kHz to 192 kHz, depending on the I/O cards installed.
PROJECT PREFS: DEF BIT RES	This preference determines the default bit-depth or bit resolution for newly created projects.
PROJECT PREFS: DEF TC FORMAT	This preference determines the default tc format, SMPTE or MTC, for newly created projects.
PROJECT PREFS: DEF TC RATE	This preference determines the default tc rate for newly created projects. All standard SMPTE/EBU formats are supported.
PROJECT PREFS: DEF START TIME	Sets the start time that will be automatically assigned to new projects.
PROJECT PREFS: DEF UNDO LEVEL	This allows a default undo level to be set for all new projects.
PROJECT PREFS: DEF WAVE NS FLR	This preference sets the wave-drawing noise floor for all new projects.
MAIN/PROJ MENU: TEMPLATE MENU	These options are used to create and manage templates. See <i>OPERATIONS: PROJECT MANAGEMENT: PROJECT TEMPLATES</i> for more information.
TEMPLATE MENU: MAKE TEMPLATE	Use this option to create a new project template.
TEMPLATE MENU: IMPORT TEMPLATE	Use this option to import a project template.

<p>TEMPLATE MENU: EXPORT TEMPLATE</p>	<p>Use this option to export a project template to a specified destination.</p>
<p>TEMPLATE MENU: DELETE TEMPLATE</p>	<p>Use this option to delete project templates.</p>








EDIT MENU

<p>MAIN/EDIT MENU: UNDO EDIT</p>	<p>Shortcut keys:</p> <p>Session Controller  KC-24 </p> <p>Undo an edit or record. Undo levels can be set anywhere from 0 to 99. For more information see OPERATIONS: RECORDING: UNDO/REDO</p>
<p>MAIN/EDIT MENU: REDO EDIT</p>	<p>Shortcut keys:</p> <p>Session Controller  (REDO) KC-24 </p> <p>Redo an edit or record that was undone using the REDO function. REDO can be done as many times as the undo function was performed. The ability to REDO will be lost upon performing new edits, entering record or switching to another project. For more information refer to OPERATIONS: RECORDING: UNDO/REDO.</p>
<p>MAIN/EDIT MENU: MODIFY EDIT</p>	<p>Shortcut keys:</p> <p>Session Controller  KC-24 </p> <p>This function allows modification of any or all of the parameters of the previous edit. Parameters available for modification include:</p> <ul style="list-style-type: none"> ● MARK IN ● MARK OUT ● CROSSFADE TIME ● ORIGINAL TRACK (S) ● DESTINATION TRACK (S) ● INSERT OR OVERWRITE ● SLIDE TIME ● LOOP COUNT <p>For more information see OPERATIONS: EDITING: EDITING FUNCTIONS.</p>

<p>MAIN/EDIT MENU: CUT</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p> <p></p> <p>Cuts the defined track-region to the clipboard and removes it from the project. Audio after the edit point on affected tracks will be slid backwards in the timeline to fill the space left by the cut function. For more information refer to <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>
<p>MAIN/EDIT MENU: COPY</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p> <p></p> <p>Copies the defined track-region to the clipboard. Project audio is not affected in any way. For more information refer to <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>
<p>MAIN/EDIT MENU: PASTE</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p> <p></p> <p>Pastes the defined track-region into the project from the clipboard. The PASTE function has many variables that will affect project audio in several different ways, including:</p> <ul style="list-style-type: none"> ● PASTE TO SAME OR DIFFERENT TRACKS ● INSERT OR OVERWRITE ● MULTIPLE PASTE POINTS ● PASTE TO ORIGINAL TIME ● BACK TIME PASTING ● SYNC MARKER PASTING <p>For detailed information on pasting audio see <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>
<p>MAIN/EDIT MENU: MOVE</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p> <p></p> <p>Moves the defined track-region to another location without using the clipboard. Project audio will either INSERT or OVERWRITE at the MOVE TO: point. For more information refer to <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>





<p>MAIN/EDIT MENU: ERASE</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p>   <p>Erases the defined track-region from the project. Post-edit point audio is not affected in any way. For more information refer to <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>
<p>MAIN/EDIT MENU: LOOP</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p>   <p>Creates consecutive loops of the defined track-region starting from the track-regions MARK OUT point. Loops may set to INSERT or OVERWRITE. For details refer to <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>
<p>MAIN/EDIT MENU: SLIDE</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p>  (SLIDE)  <p>Slides the defined track-region in frames or milliseconds. Sliding leaves behind empty space and will overwrite post-edit project audio. For details refer to <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>
<p>MAIN/EDIT MENU: INSERT SILENCE</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p>  (SILENCE) N/A <p>Inserts a user-definable amount of silence into the project at the current MARK IN point. Silence is an INSERT type of edit and post-edit project audio on affected tracks will be moved later in time. For more information see <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>
<p>MAIN/EDIT MENU: REVERSE</p>	<p>Shortcut keys:</p> <p>Session Controller KC-24</p>  (REVERSE) N/A <p>Reverses the audio on the clipboard. For details see <i>OPERATIONS: EDITING: EDITING FUNCTIONS</i>.</p>


MAIN/EDIT MENU: GAIN/FADE	<p>Shortcut keys:</p> <p>Session Controller  KC-24 N/A</p> <p>Changes the gain of the current track-region. Start and End gain settings are independent so fade ins and fade outs can be made. For details refer to OPERATIONS: EDITING: EDITING FUNCTIONS.</p>
MAIN/EDIT MENU: LISTEN	<p>Shortcut keys:</p> <p>Session Controller  (LISTEN) KC-24 </p> <p>Auditions the audio on the clipboard.</p>
MAIN/EDIT MENU: EDIT XFADE TIME	<p>Sets the crossfade time for edits. Possible values range from 1 millisecond to 9 seconds 999 milliseconds. The factory default is 5 milliseconds. For details see OPERATIONS: EDITING: EDITING CROSSFADES.</p>
MAIN/EDIT MENU: REC XFADE TIME	<p>Sets the recording crossfade time. Recording crossfades occur whenever recording mode is entered or exited, including punch-ins and punch-outs. Possible values range from 1 millisecond to 9 seconds 999 milliseconds. The factory default is 5 milliseconds. For details see OPERATIONS: EDITING: EDITING CROSSFADES.</p>
MAIN/EDIT MENU: CROSSFADE TYPE	<p>Sets the crossfade type for the MOVE, SLIDE and ERASE edits. The possible crossfade types are PRE, MID and POST. The factory default is MID. For more information refer to OPERATIONS: EDITING: EDITING CROSSFADES.</p>
MAIN/EDIT MENU: MUTE TRACKS	<p>This is a legacy feature that was used to disabled unused tracks to free up disk bandwidth in the days of slower hard disks. The selections are NONE and TRACK ARM. The default is NONE. Mute tracks by selecting TRACK ARM and using the Track Arm keys to temporarily disable selected tracks.</p>


<p>MAIN/EDIT MENU: RECORD SAFE</p>	<p>Shortcut keys: Session Controller  KC-24 </p> <p>This key puts the system in safe mode. No recording can take place while  is engaged.</p> <p>Pressing  while recording enables record lock. Pressing  (Stop) or  (Play) will disable record lock. No other key press can disable recording once record lock mode has been engaged.</p> <p>The shifted  (CLEAR) function resets all tracks in record ready mode.</p>
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PREFERENCES MENU

<p>MAIN/PREFS MENU: DEF SMPTE FIELD</p>	<p>This setting determines the default position of the cursor when entering SMPTE times into the RADAR. The preference choices are:</p> <ul style="list-style-type: none"> • SECONDS • FRAMES <p>Cursor defaults to the selected field.</p>
<p>MAIN/PREFS MENU: SHOW SUBFRAMES</p>	<p>This item controls whether or not sub-frames (hundredths of a frame) will be displayed during normal transport operation. Sub-frames are always displayed when Jog is enabled.</p>
<p>MAIN/PREFS MENU: SCROLL PROJ LED</p>	<p>This option sets the default Session Controller LED project number scrolling for project numbers 100 or higher. 3x will cause the project number to scroll three times before displaying only the last two numbers. CONTINUOUS will constantly scroll the project number.</p>

MAIN/PREFS MENU: TRACK SOLO MODE	<p>There are three different modes of operation for TRACK SOLO, which is a playback-monitoring feature available from the Session Controller and the KC-24. The three TRACK SOLO MODE settings are:</p> <p>ADDITIVE mode adds to any others currently being soloed each time a Track Arm key is pressed.</p> <p>INTERLOCK mode, which is the system default, replaces any previously soloed track(s) every time a track is soloed using a Track Arm key. To solo more than one track while in INTERLOCK SOLO mode, simply press and hold the currently selected Track Arm key and select additional tracks to be soloed.</p> <p>MOMENTARY mode keeps track(s) in solo only as long as their corresponding Track Arm keys are held down.</p>
MAIN/PREFS MENU: ZOOM SOLO AUDIO	<p>This preference determines whether or not audio is soloed along with the zoom solo display function. When enabled, visually soloed tracks on the display will determine the solo status of audio tracks as well.</p>
MAIN/PREFS MENU: SLIDE TIME UNITS	<p>Use this option to select the units used for the SLIDE TIME editing function.</p>
MAIN/PREFS MENU: FFWD & REW RATE	<p>This preference item is used to select the speed of both the  (Fast Forward) and  (Rewind) fast-wind transport modes. The value range is from 1 to 99 times normal play speed. The default setting is 8 times normal. RADAR also provides a super fast-wind mode when the  (Fast Forward) or  (Rewind) keys are pressed twice in a row. The super fast-wind speed is 3x faster than the regular fast-wind speed set in this preference dialogue.</p>
MAIN/PREFS MENU: MAX JOG RATE	<p>With an Adrenaline Plus card installed, use this option to control the jog rate. Select PLAY to limit the jog speed to normal play speed, or MAXIMUM to allow jogging at speeds up to 192 KHz.</p>

<p>MAIN/PREFS MENU: PEAK HOLD TIME</p>	<p>This preference determines how long the meters will hold a peak level indication. The duration is specified in seconds, with a maximum value of 999 seconds. To hold level peaks indefinitely, enter a value of -1 for this setting. To disable the feature altogether, enter a value of 0.</p>
<p>MAIN/PREFS MENU: CLIP HOLD TIME</p>	<p>This preference determines how long the clip LED's will hold a clip indication. The duration is specified in seconds, with a maximum value of 999 seconds. To hold clip indications indefinitely, enter a value of -1 for this setting. To disable the feature altogether, enter a value of 0.</p>
<p>MAIN/PREFS MENU: SAVE STATE DELAY</p>	<p>This preference item specifies how long RADAR waits after an operation before it performs its periodic SAVE STATE, which commits the current state of the system to the hard disk. The delay is set in seconds with a value ranging between 1 and 99. The SAVE STATE feature cannot be disabled.</p>
<div style="border: 1px solid gray; padding: 5px;">  <p>The default save state delay is 1 second. It is recommended to leave it on this setting.</p> </div>	
<p>MAIN/PREFS MENU: SCRN-SAVER MENU</p>	<p>Hold the SHIFT key and press S to immediately activate the screen saver lock mode. Hold the SHIFT key and press S again to release this mode.</p>
<p>SCRN-SAVER MENU: SAVER DELAY</p>	<p>The default screen saver delay is 60 seconds. Delays up to 999 seconds are possible. Setting the value to 0 will disable the screen saver feature.</p>
<p>SCRN-SAVER MENU: IMAGE EFFECTS</p>	<p>This enables and disables the image effects applied to the RADAR screen saver.</p>

<p>MAIN/PREFS MENU: AUTO RECLAIM</p>	<p>This preference setting enables and disables the AUTO RECLAIM function. AUTO RECLAIM automatically frees up disk space when deleted audio “falls off” the UNDO list.</p>
<p>MAIN/PREFS MENU: TRK ARM GROUPING</p>	<div data-bbox="753 384 1430 541" style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;">  <p>It is recommended to leave AUTO RECLAIM ENABLED.</p> </div> <p>When using multiple RADAR units at higher sample rates, this feature allows all of the metering to be grouped together on the master machine. For example two non-Adrenaline Plus RADARs operating at 96 kHz with 12 tracks per unit could have all 24 tracks of metering displayed on a single MeterBridge 24. The selections are:</p> <ul style="list-style-type: none"> ● NORMAL ● COMPACT <p>NORMAL refers to 12 tracks of metering available per Meterbridge for 96 kHz RADARLink projects and 6 tracks of metering available per Meterbridge for 192 kHz projects.</p> <p>COMPACT refers to 48 tracks of metering available per single 48-channel Meterbridge for 96 kHz and higher RADARLink projects.</p>
<p>MAIN/PREFS MENU: IGNORE AES FLAGS</p>	<p>The incoming AES digital signal has the capability of indicating the sample rate of the source. RADAR is capable of interpreting this indicative flag. There are some cases where the incoming AES source doesn't indicate the sample rate which causes RADAR to mistakenly display a XXXXKHZ ILLEGAL error message. Enabling the IGNORE AES FLAGS will remove this error message.</p>
<p>MAIN/PREFS MENU: UNMOUNT PORTABLE</p>	<p>This preference will activate/deactivate the MAKE DISK PORTABLE prompt when unmounting a disk.</p>
<p>MAIN/PREFS MENU: RADARVIEW RES</p>	<p>This preference allows selection between 800 X 600 or 1024 X 768 graphics resolution. The default is set to 1024 X 768 high resolution. RADAR will need to be rebooted for the changes to take effect.</p>



<p>MAIN/PREFS MENU: CLOCK MODE</p>	<p>Switch the clock mode to 24-HR or 12-HR (AM/PM) or switch the clock OFF.</p>
	<div style="border: 1px solid gray; padding: 5px;">  <p>The clock cannot be displayed in 800 X 600 resolution.</p> </div>
<p>MAIN/PREFS MENU: MUTE I/O ON STOP</p>	<p>When this preference is enabled, audio will not be monitored (even on input-readied tracks) when the transport is stopped.</p>
<p>MAIN/PREFS MENU: ARROW KEY GOTO</p>	<p>The  and  keys can be used to locate to the MARK IN and MARK OUT points respectively. This option allows them to be used to locate the previous and next points in the locate list (not including the MARK IN and MARK OUT points).</p>
<p>MAIN/PREFS MENU: ASSIGN FT-SWITCH</p>	<p>Up to three foot switches can be plugged in to the back of the Session Controller. Their default functions are PLAY/STOP, LAST LOC, and PUNCH IN/OUT. Using this option assigns any of the macros (recorded using the MACRO keys on the Session Controller) to any of the foot switches.</p>
<p>MAIN/PREFS MENU: ASSIGN MMC LOC</p>	<p>This option controls how RADAR will respond to locate commands received via MIDI Machine Control.</p>
<p>MAIN/PREFS MENU: RECORD PREFS</p>	<p>These record preferences define several recording options to help customize RADAR operation for specific situations.</p>
<p>RECORD PREFS: 1-BUTTON RECORD</p>	<p>With this feature disabled, hold  and then press  (Play) on the Session Controller or the KC-24 in order to begin recording. If this feature is enabled, pressing only  will start recording.</p>
<p>RECORD PREFS: TRACK ARM ACTION</p>	<p>The track arming keys on the Session Controller or the KC-24 can engage either record READY or instant RECORD status per track. Instant RECORD allows tracks to be dropped in and out of RECORD by pressing the Track Arm keys during playback.</p>


RECORD PREFS: RECORD MK IN/OUT	This preference is used to enable or disable the automatic mapping of record in and out times as MARK IN and MARK OUT points.
RECORD PREFS: LOW DISK WARNING	This preference allows a low-disk space alarm to be set that will alert the user when the available recording time gets below the specified amount. The default setting for this level is 5 minutes. Values for the warning threshold range between 0 and 99 minutes. To disable the low disk space warning set the value to 0 minutes.
RECORD PREFS: RECORD VERIFY	This preference determines whether or not RADAR will operate in a RECORD VERIFY mode when recording to the audio disk. This data verification option will slow down functionality.
RECORD PREFS: RECORD ON CHASE	When Record is pressed while the chase light is blinking, RADAR will automatically go into record when chase is established and exit record when chase lock is lost. When RADAR is set to CONTINUOUS in the RECORD ON CHASE setting it will go back into record whenever chase is reestablished.
RECORD PREFS: PROJECT PER TAKE	When PROJECT PER TAKE is enabled, RADAR will automatically create a new project whenever it is punched out of record. This allows subsequent takes to be recorded in new projects.
RECORD PREFS: RECORD RECOVERY	This preference enables record recovery mode for live recording. This feature is disabled by default. For more information refer to <i>APPLICATIONS: LIVE RECORDING: RECORD RECOVERY MODE</i> .
MAIN/PREFS MENU: FILE PREFS	These dialogues are for creating preferences for certain file related functions. The EXPORT FORMAT and FILL SILENCE preferences are also used when using the CLIP EXPORT shortcut key.
FILE PREFS: SHOW SIZE	When set to MB or TIME , a XXXMB PROCEED? or XXXMIN PROCEED? dialogue will be added during the backup and export procedures.

<p>FILE PREFS: IMPRT PROJ START</p>	<p>When importing files to a new project, the project start time will be based on this setting.</p>
<p>FILE PREFS: EXPORT FORMAT</p>	<p>This sets the preference for the export file format. The choices are WAV, BWAV or ASK. When ASK is selected as the preference the prompt will ask to choose a file format each time files are exported.</p>
<p>FILE PREFS: FILL SILENCE</p>	<p>During export and backup, FILL SILENCE pads blank audio regions with zeros to create either one file per track or one file per region. When ASK is selected as the preference the prompt will ask to choose a fill silence option each time files are exported.</p>
<p>FILE PREFS: REFORMAT QUALITY</p>	<p>This dialogue sets the default quality and speed of sample rate and bit resolution conversion for importing files as well as exporting STEREO CDAUDIO files.</p>
<p>FILE PREFS: WRITE VERIFY</p>	<p>This option is to ENABLE or DISABLE WRITE VERIFY for various removable media. With this preference enabled, the data writing ensures a more accurate process however it also increases the overall completion time.</p>
<p>FILE PREFS: FILE NAME FORMAT</p>	<p>BWAV files are created in the Audio Files sub-folder of flat backups or exports. They are named according to the FILE NAME FORMAT specified in the FILE PREFS. Two options for file name format are: PRESET and CUSTOM.</p> <p>If PRESET is selected, the following pre-defined naming conventions are available:</p> <ul style="list-style-type: none"> ● TRK-NAME-STAMP ● TRK-REGION-NAME ● PROJ-TRK-REGION ● TRK-PROJ-STAMP ● TRK-REGION-PROJ ● TRK-REGION (DOS) <p>If CUSTOM is selected, use the following menu options to create and manage custom file name templates.</p> <ul style="list-style-type: none"> ● SELECT TEMPLATE ● IMPORT TEMPLATE ● EDIT TEMPLATE ● MAKE TEMPLATE ● EXPORT TEMPLATE ● DELETE TEMPLATE

FILE PREFS: DVD BURN MODE	<p>If the BUFFER UNDERRUN error is being displayed frequently when attempting to burn a DVD-R, the mode can be changed to lower these error instances.</p> <p>Setting the DVD BURN MODE to SAFE will set the DVD multi-drive to use the PROGRAMMED I/O MODE which is more reliable for burning. After changing the setting, reboot RADAR for SAFE mode to take effect.</p>
FILE PREFS: DVD BURN SPEED	<p>This dialogue sets the speed for burning DVD-R disks. Choose speeds from 1X through 8X, or select MAX to let the DVD drive burn at its maximum possible speed. If the DVD drive or DVD-R disk is not capable of burning at the speed selected, it will automatically use the closest available speed.</p>
MAIN/PREFS MENU: PROJECT PREFS	<p>These project preferences define the parameters that will be used every time a new project is created.</p>
PROJ PREFS: NEW PROJ SETTNCS	<p>This preference has the following options:</p> <p>TEMPLATE will use the settings of a selected template.</p> <p>ASK will prompt the user to choose a template each time a new project is created.</p>
PROJECT PREFS: NEW PROJ NUMBER	<p>This feature controls how new projects are to be numbered. If FROM 1 is selected, RADAR will assign the lowest available project number whenever a new project is created. If FROM CUR is selected, then RADAR will use the next available number starting at the current project number.</p>
PROJECT PREFS: DEF SAMPLE RATE	<p>Sets the sample rate for newly created projects. Valid values range from 32kHz to 192 kHz, depending on the I/O cards installed.</p>
PROJECT PREFS: DEF BIT RES	<p>This preference determines the default bit-depth or bit resolution for newly created projects.</p>
PROJECT PREFS: DEF TC FORMAT	<p>This preference determines the default TC format, SMPTE or MTC for newly created projects.</p>



PROJECT PREFS: DEF TC RATE	This preference determines the default TC rate for newly created projects. All standard SMPTE/EBU formats are supported.
PROJECT PREFS: DEF START TIME	Sets the start time that will be automatically assigned to new projects.
PROJECT PREFS: DEF UNDO LEVEL	This allows a default undo level to be set for all new projects.
PROJECT PREFS: DEF WAVE NS FLR	This preference sets the wave-drawing noise floor for all new projects.
MAIN/PREFS MENU: NETWORK PREFS	For detailed information on networking please refer to CONFIGURATION: NETWORKING .
NETWORK PREFS: INTERFACE PREFS	The following interface preferences allow the RADAR to be configured for FTP and/or file sharing.
INTERFACE PREFS: HOST NAME	Create a network name for the RADAR
INTERFACE PREFS: DHCP SERVER	Enable or disable DYNAMIC HOST CONFIGURATION PROTOCOL .
INTERFACE PREFS: LOCAL IP ADDRESS	Define the local IP ADDRESS of the RADAR (if DHCP disabled).
INTERFACE PREFS: SUBNET MASK	Define the local SUBNET MASK of the RADAR (if DHCP disabled).
INTERFACE PREFS: GATEWAY	Enter the IP ADDRESS of the router (if DHCP disabled).
INTERFACE PREFS: PRIMARY DNS	Enter the PRIMARY DNS ADDRESS (if DHCP disabled).
INTERFACE PREFS: SECONDARY DNS	Enter the SECONDARY DNS ADDRESS (if DHCP disabled).
INTERFACE PREFS: SMTP HOST	In some situations, this setting is required to allow email of debug logs via a specific Internet Service Provider.

INTERFACE PREFS: FTP SERVER	This enables the internal system drive (e.g., D:ARCHIVE) to act as an FTP server.
INTERFACE PREFS: FTP LOGIN NAME	Create an FTP Login Name that will be required by any FTP client software (Mac or Windows) to log on to the internal system drive (e.g., D:ARCHIVE) once FTP is enabled.
INTERFACE PREFS: FTP PASSWORD	Create an FTP password that will be required by any FTP client software (Mac or Windows) to log on to the internal system drive (e.g., D:ARCHIVE) once FTP is enabled.
NETWORK PREFS: SERVER PREFS	Before RADAR can share files via Ethernet it must be configured with information about the computer/server it will be connected to. Use the following preferences to input the required information.
SERVER PREFS: NETWORK PROTOCOL	Select the NETWORK PROTOCOL as either FTP or CIFS .
SERVER PREFS: SERVER IP ADDR	Enter the unique IP address of the server/computer RADAR is connecting to.
SERVER PREFS: SERVER NAME	<p>If Using FTP: Enter the unique computer name of the server/computer.</p> <div data-bbox="753 1188 1430 1350" style="border: 1px solid gray; padding: 5px;">  This name is for indicative purposes only and will not affect connectivity. </div> <p>If using CIFS: Enter the unique computer name of the server/computer RADAR is connecting to.</p> <div data-bbox="753 1451 1430 1612" style="border: 1px solid gray; padding: 5px;">  This is a case sensitive parameter. </div>

<p>SERVER PREFS: SERVER SHARE</p>	<p>If using CIFS: Enter the unique shared folder name found on the server/computer RADAR is connecting to.</p>
	<div style="border: 1px solid gray; padding: 5px;">  <p>This is a case sensitive parameter.</p> </div>
<p>SERVER PREFS: CLIENT WORKGROUP</p>	<p>If using CIFS: Enter the client workgroup of the server/computer RADAR is connecting to.</p>
<p>NETWORK PREFS: EMAIL PREFS</p>	<p>The following email preferences are for designating the reply information when emailing debugs directly from the RADAR.</p>
<p>EMAIL PREFS: COMPANY NAME</p>	<p>Enter the company name to be included with all emailed debug logs.</p>
<p>EMAIL PREFS: LOCATION</p>	<p>Enter the location name to be included with all emailed debug logs.</p>
<p>EMAIL PREFS: REPLY EMAIL</p>	<p>Enter the reply email to be included with all emailed debug logs.</p>
<p>NETWORK PREFS: NETWORK CONTROL</p>	<p>This preference allows RADAR to be controlled over Ethernet via RNC (RADAR Network Control) software. The RNC program allows control of one or more RADAR machines over the Ethernet using a standard PC computer running Windows 98, NT, 2000, XP, or Vista.</p>
<p>MAIN/PREFS MENU: REMOTE PREFS</p>	<p>This preference allows RADAR's COM port settings to be modified.</p>
<p>REMOTE PORT: COM1 COM2 BOTH</p>	<p>This preference allows the COM port for the Session Controller to be designated. The REMOTE PORT can be set to COM1, COM2, or BOTH.</p>

DIAGNOSTICS MENU

MAIN/DIAG MENU: SCAN SCSI BUS	<p>This function scans the SCSI bus and gives a report detailing the attached devices and their SCSI ID's.</p>
MAIN/DIAG MENU: INIT DISK	<p>This function selects and initializes attached SCSI hard disks. See OPERATIONS: DISK MANAGEMENT: INITIALIZE DISK for more information.</p>
MAIN/DIAG MENU: CHECK DISK	<p>This function selects and checks attached SCSI hard disks. See OPERATIONS: DISK DIAGNOSTICS: CHECK DISK for more information.</p>
MAIN/DIAG MENU: REPAIR DISK	<p>This function selects and repairs attached SCSI hard disks. See OPERATIONS: DISK DIAGNOSTICS: REPAIR DISK for more information.</p>
MAIN/DIAG MENU: CHECK PROJECT	<p>This function selects and checks projects for errors. See OPERATIONS: DISK DIAGNOSTICS: CHECK PROJECT for more information.</p>
MAIN/DIAG MENU: SET STARTUP PROJ	<p>This option allows the user to specify the project that will be loaded the next time a RADAR drive is mounted. See OPERATIONS: PROJECT MANAGEMENT: SET STARTUP PROJECT for more information.</p>
MAIN/DIAG MENU: REALTIME ERRORS	<p>This function displays and clears any real time errors that are experienced by the system during playback or record. See OPERATIONS: DISK DIAGNOSTICS: REALTIME ERRORS for more information.</p>
MAIN/DIAG MENU: VERIFY DISKS	<p>This function selects and verifies attached SCSI hard disks. See OPERATIONS: DISK DIAGNOSTICS: VERIFY HARD DISKS for more information.</p>
MAIN/DIAG MENU: SHOW AUDIO LEVEL	<p>This function provides an accurate digital read-out of the dBFS audio level on any selected tracks.</p>

<p>MAIN/DIAG MENU: PING IP ADDRESS</p>	<p>This provides a way to test network communication by sending small packets of data across the network.</p>
	<div style="border: 1px solid gray; padding: 5px;">  <p>The default IP address is the server ID address set in the SERVER PREFS.</p> </div>
<p>MAIN/DIAG MENU: CONFIGURE DEBUG</p>	<p>This function determines the information included in the debug log. See <i>OPERATIONS: DISK DIAGNOSTICS: RADAR DEBUG</i> for more information.</p>
<p>MAIN/DIAG MENU: SAVE DEBUG</p>	<p>This option allows the user to save debugs to be forwarded to iZ Support. Select from CURRENT LOG, THE LAST 5 LOGS, LAST 20 LOGS, ALL LOGS, or SELECT which logs to be saved. These logs can be saved in text format or as a zip file to any disk or network drive.</p> <p>See <i>OPERATIONS: DISK DIAGNOSTICS: RADAR DEBUG</i> for more information.</p>
<p>MAIN/DIAG MENU: EMAIL DEBUG</p>	<p>This function allows the debug log to be emailed directly to iZ Support. See <i>OPERATIONS: DISK DIAGNOSTICS: RADAR DEBUG</i> for more information.</p>
<p>MAIN/DIAG MENU: RESTART DESKTOP</p>	<p>This function restarts the background BeOS Desktop which can then be accessed via the KC-24 by holding down the ALT key and pressing the F2 key. At the BeOS Desktop, access debug logs, rename/copy/delete folders/files on the D:ARCHIVE partition, etc. Essentially typical computer desktop operations.</p>
	<div style="border: 1px solid gray; padding: 5px;">  <p>The BeOS desktop also gives access to the system partition (RADAR24BE) which contains the software required to run RADAR. Do NOT tamper with this partition unless given implicit instructions from iZ Technology Support personnel.</p> </div>
<p>MAIN/DIAG MENU: FACTORY SETTINGS</p>	<p>This function resets RADAR settings to the factory defaults.</p>

MAIN/DIAG MENU:
INSTALL PREV VER

This will option will give a list of all software versions that have been previously installed, or select **OTHER** to install an older version from a CD or through the network.





HELP MENU

MAIN/HELP MENU:
RELEASE NOTES

Shortcut keys:

Session Controller  or 
KC-24 

Launches the PDF viewer and displays the current release notes




To use the **FIND** function within the on-board manual or release notes press  +  (**FIND**) on the **Session Controller** or  +  on the **KC-24**. For complete details refer to *OPERATIONS: DISPLAY: ON SCREEN HELP*.

MAIN/HELP MENU:
MANUAL

Shortcut keys:

Session Controller  or 
KC-24 

Launches the PDF viewer and displays the current manual

To use the **FIND** function within the on-board manual or release notes press  +  (**FIND**) on the **Session Controller** or, once the manual is launched, continually press the  key on the **KC-24** until the search field is selected. For complete details refer to *OPERATIONS: DISPLAY: ON SCREEN HELP*.

MAIN MENU/SHUTDOWN

MAIN MENU:
SHUTDOWN RADAR

Performs a final **SAVE STATE**, which saves the current project and system information to the disk and displays a prompt in the display confirming that it is safe to power down the unit.



This function is required every time the RADAR is powered off.

RADAR PDF VIEWER

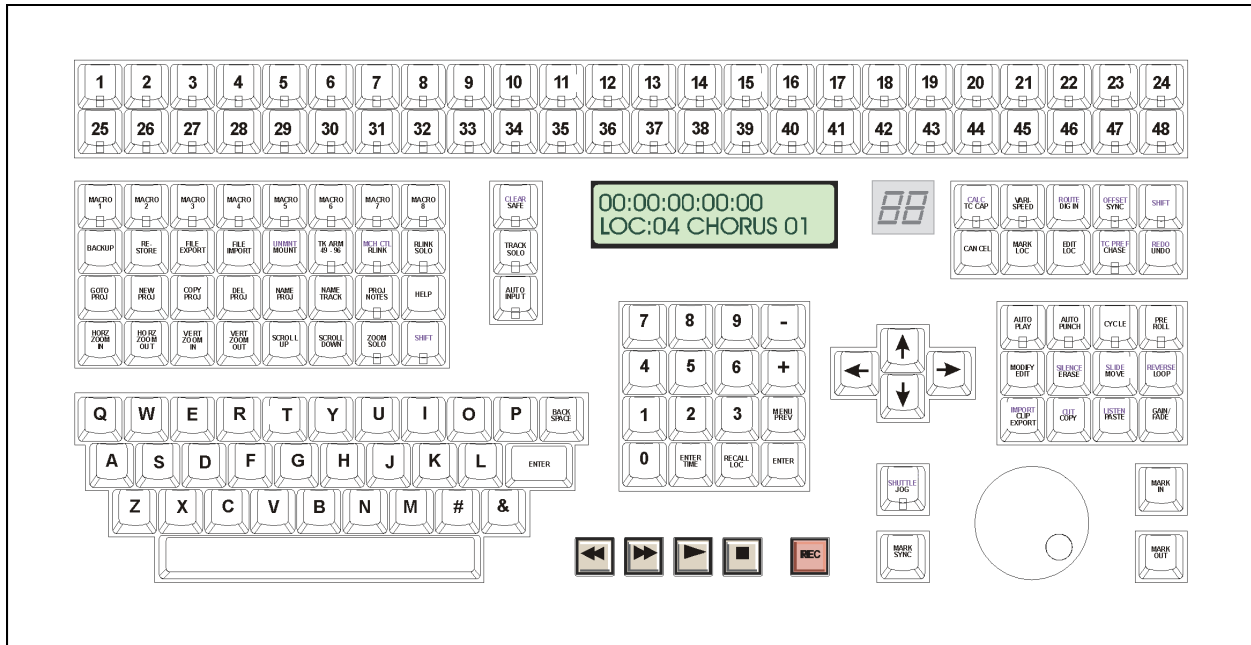
The following table shows the keystrokes for controlling and navigating the RADAR PDF viewer.

ACTION	KC24	SESSION CONTROLLER
Start Viewer		or
Return to RADARView	(to highlight iZ logo), then press (Play) or mouse click iZ logo	or Track Arm
Select different PDF file (in Viewer)	None, select from RADARView	
Start Viewer (focus on find Control)	None	+
Change Focus (Bookmarks -> Text -> Bookmarks)	or +	
Change items in Bookmarks	or	or
Change Views (Bookmarks -> Page Numbers -> None)	+ , + , +	Track Arm , , and
Expand Bookmark	+	
Collapse Bookmark	+	
Zoom in viewer	+	or or Track Arm
Zoom out viewer	+	or or Track Arm
Forward 10 pages	None	(Fast Forward) or Track Arm
Back 10 pages	None	(Rewind) or Track Arm
Scroll page forward		
Scroll page backward		

ACTION	KC24	SESSION CONTROLLER
Next Page	MARK OUT	▶ (Play) or Track Arm 10
Previous Page	MARK IN	■ (Stop) or Track Arm 11
Last Page	None	SHIFT + ▶▶ (Fast Forward) or Track Arm 9
First Page	None	SHIFT + ◀◀ (Rewind) or Track Arm 6
Back in page History	ALT + ◀	Track Arm 12
Forward in Page History	ALT + ▶	Track Arm 13
Fit to page width	ALT + SHIFT + SHUTTLE	Track Arm 14
Fit to page	ALT + ENTER TIME	Track Arm 15
Rotate document clockwise	None	Track Arm 16
Rotate document counter clockwise	None	Track Arm 17
Focus on Find Control	REDO	Qwerty Keys or Track Arm 20
Focus on Goto Page Control	REDO	Numeric Keys or Track Arm 22
Find – Search	ENTER	ENTER or Track Arm 21
Find – Search Again	ALT + F	ENTER or Track Arm 21
About Dialogue	None	Track Arm 23
Goto Page	ALT + G	ENTER
Dismiss dialogs or popup messages	▶ (Play) (with focus)	CANCEL

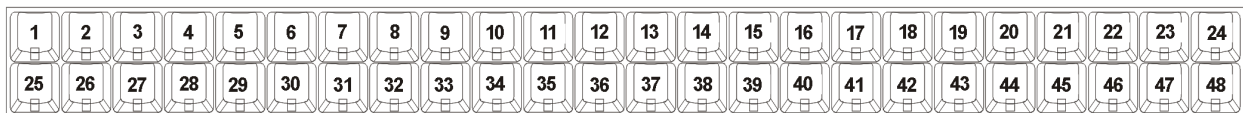
REMOTE KEYBOARD KEYS

SESSION CONTROLLER



The **Session Controller** is a feature rich, professional control surface loaded with powerful features designed to help users be efficient and productive. The following section breaks the **Session Controller** keys into logical groupings and provides references to detailed information in the manual.

TRACK ARM KEYS



These keys perform two basic functions:

TRACK ARMING These keys provide up to 96 tracks of direct track arming when used in conjunction with the **TK ARM 49-96** key.

TRACK SELECTION These keys are also used to select individual tracks when editing, exporting, soloing etc.

Refer to *OPERATIONS: RECORDING: MONITORING AND TRACK STATUS* for more information.

MACRO KEYS



With a single key press, a macro key can recall multiple keystrokes. To store a new macro press **SHIFT** + **MACRO 1-8** and the selected macro key will begin flashing. Perform the keystrokes to record and then press the selected **MACRO** key again to store it.

Refer to *OPERATIONS: FILE MANAGEMENT: MACROS* for more information.

FILE AND RADARLINK RELATED SHORTCUT KEYS



These keys are direct access shortcuts to frequently used menu items with the exception of the **TK ARM 49-96** key, which is not accessible from the menu system. For reference information please refer to the section covering the menu item accessed by the shortcut.

- BACKUP** Shortcut to **MAIN MENU / FILE MENU / BACKUP** menu item.
- RESTORE** Shortcut to **MAIN MENU / FILE MENU / RESTORE** menu item.
- FILE EXPORT** Shortcut to **MAIN MENU / FILE MENU / EXPORT** menu item.
- FILE IMPORT** Shortcut to **MAIN MENU / FILE MENU / IMPORT** menu item.
- MOUNT (UNMNT)** Shortcut to **MAIN MENU / DISK MENU / MOUNT/UNMOUNT** dialogue.
- TK ARM 49-96** Switches metering and track arm keys for direct control of **RADARLink** units 3 and 4.
- RLINK (MCH CTL)** Shortcuts to **MAIN MENU / SYNC MENU / RADARLINK / ENABLE/DISABLE** and **MAIN MENU / SYNC MENU / MACHINE CONTROL / ENABLE/DISABLE**
- RLINK SOLO** Shortcut to **MAIN MENU / SYNC MENU / RADARLINK / RADARLINK SOLO** menu item.

PROJECT RELATED SHORTCUT KEYS



- GOTO PROJ** Shortcut to **MAIN MENU / PROJECT MENU / GOTO PROJECT** menu item.
- NEW PROJ** Shortcut to **MAIN MENU / PROJECT MENU / NEW PROJECT** menu item.
- COPY PROJ** Shortcut to **MAIN MENU / PROJECT MENU / COPY PROJECT** menu item.
- DEL PROJ** Shortcut to **MAIN MENU / PROJECT MENU / DELETE PROJECT** menu item.
- NAME PROJ** Shortcut to **MAIN MENU / PROJECT MENU / NAME PROJECT** menu item.
- NAME TRACK** Shortcut to **MAIN MENU / PROJECT MENU / NAME TRACK** menu item.
- PROJ NOTES** Shortcut to **MAIN MENU / PROJECT MENU / PROJECT NOTES** menu item.
- HELP (FIND)** Shortcut to **MAIN MENU / HELP** menu item.

VIEW MANAGEMENT KEYS



- HORZ ZOOM IN** Zooms in horizontally in increments to a maximum width of 5 seconds displayed across the screen.
- HORZ ZOOM OUT** Zooms out horizontally in increments to a maximum width of 24 hours displayed across the screen.
- VERT ZOOM IN** Zooms in vertically in increments to a maximum width of 1 track displayed on the screen.
- VERT ZOOM OUT** Zooms out vertically in increments to a maximum width of 24 tracks displayed on the screen.
- SCROLL UP** Scrolls the display upward vertically when fewer than 24 tracks are displayed.
- SCROLL DOWN** Scrolls the display downward vertically when fewer than 24 tracks are displayed.
- ZOOM SOLO** When engaged the **Track Arm** keys may be used to visually solo tracks in the display.
- SHIFT** This secondary **SHIFT** key is a duplicate of the **SHIFT** key located above the **UNDO** key.

QWERTY KEYS



These keys are used to enter names and other information into RADAR. They are also used as shortcuts in both transport and menu mode.

TRANSPORT MODE SHORTCUTS

H = Launch **HELP**

L = RADARLink **ENABLE/DISABLE**

M = Display the **MUTE TRACKS** dialogue

N = Display the **NAME TRACK** dialogue

S = RADARLink **SOLO**

Hold the **SHIFT** key and press **B** = File Management Browse

Hold the **SHIFT** key and press **S** = Screen Saver Lock (RADAR will immediately go into screen saver mode and stay there until **SHIFT** key and **S** are pressed again.)

Hold the **SHIFT** key and press **BACKSPACE** = Toggles between debug log and waveform display

MENU MODE SHORTCUTS

QWERTY Keys = Cycle through menu selections starting with that letter.

Example: While in the **MAIN MENU**, repeatedly pressing **S** cycles through the **SYSTEM MENU**, **SYNC MENU** and **SHUTDOWN RADAR** selections.

Refer to *OPERATIONS: QWERTY KEYBOARD* for more information.

TRACK STATUS KEYS

These keys control several aspects of RADAR recording and monitoring status:



SAFE (CLEAR) This key puts the system in safe mode. No recording can take place while **SAFE** is engaged.

Pressing **SAFE** while recording enables record lock. Pressing **■** (**Stop**) or **▶** (**Play**) will disable record lock. No other key press can disable recording once record lock mode has been engaged.

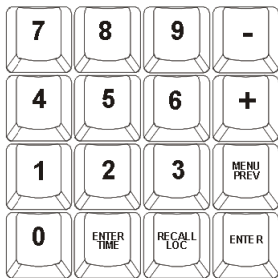
The shifted **SAFE (CLEAR)** function resets all tracks in record ready mode.

TRACK SOLO When **TRACK SOLO** is engaged, selecting a **Track Arm** key places that track in solo mode.

AUTO INPUT When the **AUTO INPUT** key is engaged, the system automatically switches monitoring from **INPUT** to **PLAYBACK** when playback begins and returns it to **INPUT** when playback stops.

Refer to *OPERATIONS: RECORDING: MONITORING AND TRACK STATUS* for more information.

NUMERIC KEYS



The numeric keypad is used to enter times and other values into RADAR. It is also used for recalling single digit locate points 0 - 9.

The plus and minus are multi-function keys, used for different purposes in different situations.

The remaining keys are used for locating and navigating through the RADAR menu structure as outlined below.

0 - 9 One key recall of locate points in transport mode. Used to enter numerical data.

- - + Used for incrementing/decrementing, adding/subtracting and indicating positive or negative values.

ENTER TIME Enter a time value and press **ENTER** to locate the current position to that time.

RECALL LOC Use this key in conjunction with the numeric keys, **MARK IN** / **MARK SYNC** / **MARK OUT** keys and **ENTER** to recall locate points.

ENTER Use **ENTER** in conjunction with functions, menus and dialogs to accept selections and values.

MENU/PREV Use this key to step in and out of the menu system.

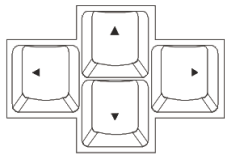
TRANSPORT KEYS



The transport keys also have special alternate functions including:

- (Rewind) + (Play) plays the audio in reverse.
- + (Rewind) locates to the previous recorded audio boundary in a project.
- + (Fast Forward) locates to the next recorded audio boundary in a project.
- Pressing the (Rewind) or (Fast Forward) key twice in rapid succession engages **SUPER FAST-WIND MODE**.
- When in **HELP** mode, the transport keys are used to navigate the PDF viewer.

ARROW KEYS

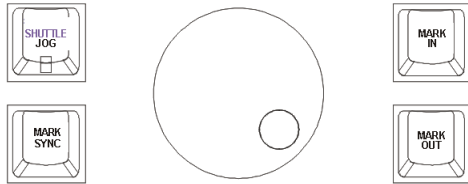


The arrow keys are multi-function keys that have many uses depending on the current context.

Uses include:

- Menu and dialogue navigation (all arrow keys).
- Value increment and decrement (and keys).
- Sub-frame positional nudge in Jog mode (and keys).
- Locate to **MARK IN** and **MARK OUT** in transport mode (and keys).
- Audition current **MARK IN - MARK OUT** region (key).
- Display remaining recording time (and keys simultaneously).

JOG, SHUTTLE, MARK IN/OUT KEYS



JOG (SHUTTLE) This key engages the **JOG** function and the ability to scrub to an edit point using the **Jog/Shuttle Wheel**. The shifted **SHUTTLE** function initiates playback with variable speed in either forward or reverse. The **Jog/Shuttle Wheel** dynamically controls playback speed and direction.

MARK SYNC The **MARK SYNC** key places a special sync marker in a region defined by the **MARK IN** and **MARK OUT** points. See *OPERATIONS: EDITING: MARKING A TIME REGION* for more information.

MARK IN This key is used to define the starting point of a track-region. See *OPERATIONS: EDITING: MARKING A TIME REGION* for details.

MARK OUT **MARK OUT** defines the end point of a track-region. See *OPERATIONS: EDITING: MARKING A TIME REGION* for further information.

SYSTEM AND SYNC KEYS

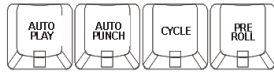


Some of the keys in this grouping are not accessible from the menu system. For reference information please refer to the section covering the item accessed by the key.

TC CAP (CALC) Used to automatically set an offset when receiving static SMPTE from a device that is in the correct position relative to RADAR. For more information see *CONFIGURATION: TIMECODE*. The shifted **TC CAP (CALC)** function brings up an offset calculator that can be a big help if an offset needs to be calculated from a predetermined set of timecode locations like an EDL (Edit Decision List).

- VARI-SPEED** This is a dual press activation/de-activation key. The first key press displays the **VARI-SPEED** value and the next key press engages **VARI-SPEED**. Pressing the key while **VARI-SPEED** is engaged once again displays the speed value and pressing it a second time disengages **VARI-SPEED**. To change the speed while the function is engaged, press the **VARI-SPEED** key once to display the speed dialogue, change the value and hit the **CANCEL** key to return to transport mode. This setting may be changed while in **PLAY** mode. For further information please refer to *OPERATIONS: VARI-SPEED*.
- DIG IN (ROUTE)** This shortcut key allows for quick selection of digital I/O format or routing. The shifted **ROUTE** function sets the 2-channel I/O source and destination tracks and determines whether track inputs are analogue or digital. For more information see *CONFIGURATION: DIGITAL I/O*.
- SYNC (OFFSET)** The **SYNC** shortcut key allows for quick selection of an external digital sync source for digital I/O formats. The shifted **SYNC (OFFSET)** allows for a SMPTE time to be entered to create an offset with other LTC synchronized devices. For details refer to *CONFIGURATION: DIGITAL I/O* and *CONFIGURATION: TIMECODE*.
- SHIFT** This **SHIFT** key is one of 2 on the **Session Controller**. The **SHIFT** function can be used for capitalization when entering information or to select the shifted key functions on the remote.
- CANCEL** When **CANCEL** is pressed the system will abort any current operations and return to transport ready mode. **CANCEL** can also be used to completely exit the menu tree or to abort a file I/O operation such as backup or restore.
- MARK LOC** The **MARK LOC** key is used to drop locate markers along the project timeline. Markers can be dropped while playback is stopped or in any transport mode including fast-forward or rewind.
- EDIT LOC** The **EDIT LOC** key is used to modify locate markers that have been placed along the project timeline. See *OPERATIONS: TRANSPORT OPERATIONS: AUTO LOCATE MARKERS* for detailed information.
- CHASE (TC PREFS)** When pressed, this key puts the system into **CHASE** mode using the parameters set in the **MAIN MENU / SYNC MENU / TC SETTINGS** menu. The shifted function **CHASE (TC PREFS)** acts as a direct access shortcut to these settings. For further information please consult *CONFIGURATION: TIMECODE*.
- UNDO (REDO)** The number of **UNDO** and **REDO** levels is dependent on the setting in the **MAIN MENU / PROJECT MENU / UNDO LEVELS** dialogue. See *OPERATIONS: RECORDING: UNDO/REDO* for further information.

ADVANCED TRANSPORT KEYS



These keys provide access to advanced transport operations.

AUTO PLAY When used in conjunction with any **RECALL LOCATE** functions **AUTO PLAY** initiates playback automatically once the specified timeline location has been cued.

AUTO PUNCH **AUTO PUNCH** uses the **MARK IN** and **MARK OUT** locate points to automatically initiate and terminate recording. Please see *OPERATIONS: RECORDING: AUTO PUNCH* for further information.

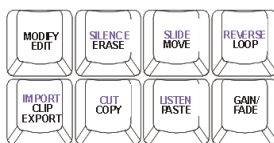
CYCLE The **CYCLE** key initiates a playback cycle using the **MARK IN** and **MARK OUT** points as a reference. Playback cycling will continue until the cycle key or any transport key is pressed again.



There is a pause between playback cycles. This is not intended as a loop previewing function.

PRE ROLL This key activates and de-activates the **PRE ROLL** function. For detailed information please refer to *OPERATIONS: TRANSPORT OPERATIONS: PRE ROLL*.

EDIT KEYS



The editing keys provide direct access to almost all of the functions contained in the **EDIT MENU**.

MODIFY EDIT This function allows quick and easy fine-tuning of the current edit. For details refer to *OPERATIONS: EDITING: EDITING FUNCTIONS*.

ERASE (SILENCE) Use **ERASE** to eliminate audio without affecting post-edit audio on the project timeline. See *OPERATIONS: EDITING: EDITING FUNCTIONS: ERASE* for further information.

The shifted function **SILENCE** can be used to insert a silent region into the project timeline. Refer to *OPERATIONS: EDITING: EDITING FUNCTIONS* for more information.

MOVE (**SLIDE**) **MOVE** and **SLIDE** both reposition the audio defined by the selected track-region. While **MOVE** prompts to enter a new destination in the HH:MM:SS:FF format, **SLIDE** uses frames or millisecond to provide a way to easily nudge audio regions. For more information please refer to *OPERATIONS: EDITING: EDITING FUNCTIONS*.

LOOP (**REVERSE**) The **REVERSE** function reverses the audio currently stored on the clipboard. See *OPERATIONS: EDITING: EDITING FUNCTIONS* for more information.

LOOP automatically pastes multiple copies of a track-region using the **MARK OUT** point as a starting reference. Please refer to *OPERATIONS: EDITING: EDITING FUNCTIONS* for details.

CLIP EXPORT (**IMPORT**) This shortcut key allows for quick exporting of audio clips defined by the **MARK IN** / **MARK OUT** keys using the current preferences set in the **MAIN MENU / PREFERENCES MENU / FILE PREFS** menu. For more information see *OPERATIONS: FILE MANAGEMENT: CLIP EXPORT* and *REFERENCE: MENU ITEM QUICK REFERENCE: PREFERENCE MENU*.

The shifted **IMPORT** function allows audio to be imported directly to the clipboard. Once complete, the clipboard data can then be pasted to into the current or any existing project. For more information see *OPERATIONS: FILE MANAGEMENT: IMPORT*.

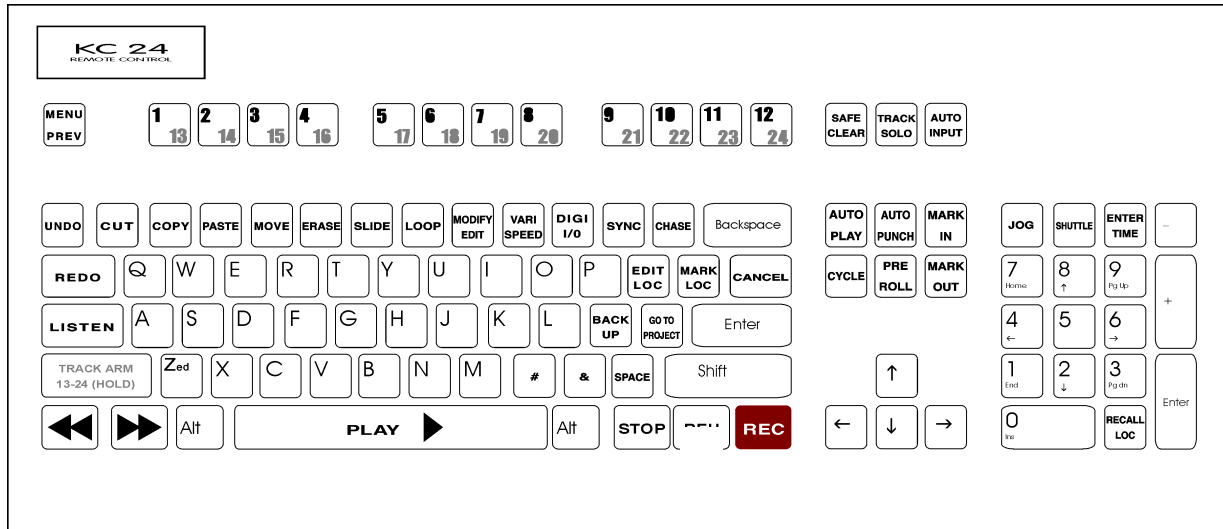
COPY (**CUT**) **COPY** moves a duplicate of the defined track-region to the clipboard. The shifted **CUT** function removes the defined track-region from the project timeline and creates a duplicate of the defined track-region to the clipboard. For further information see *OPERATIONS: EDITING: EDITING FUNCTIONS*.

PASTE (**LISTEN**) The **PASTE** function places a copy of the audio currently stored on the clipboard into the project at the specified paste point. See *OPERATIONS: EDITING: EDITING FUNCTIONS* for details.


The shifted **LISTEN** function allows the audition of audio currently stored on the clipboard. For details see *OPERATIONS: EDITING: EDITING FUNCTIONS*.

GAIN/FADE This key provides a shortcut to the **GAIN/FADE** edit menu. For details on **GAIN/FADE** operations please refer to *OPERATIONS: EDITING: EDITING FUNCTIONS*.

KC-24 KEYBOARD



The **KC-24** is a full-featured control surface that is included with RADAR units sold without the optional **Session Controller**. The following section gives an overview of the **KC-24** and provides references to related functions in the manual.



The **KC-24** or a standard PC keyboard may be required for certain RADAR diagnostic procedures.

Certain functions like **ZOOM SOLO** are not available using the **KC-24**.

MENU/PREV KEY

The **MENU/PREV** key accesses the RADAR menu system. Pressing this key either enters the menu system, steps back to the previous menu level, or exits the menu system completely depending on the current mode of operation. Refer to *OPERATIONS: NAVIGATING MENUS: MENU/PREV* for more information.

TRACK ARM KEYS

The track arming keys perform two basic functions:

TRACK ARMING These keys provide up to 24 tracks of direct track arming when used in conjunction with the **TRACK ARM 13-24** key.

TRACK SELECTION These keys are also used to select individual tracks when editing, exporting, soloing etc.

Refer to *OPERATIONS: RECORDING: MONITORING AND TRACK STATUS* for more information.

EDITING KEYS

The editing keys provide direct access to the most commonly used functions contained in the **EDIT MENU**.

- UNDO** The **UNDO** function will undo the last record or editing operation. For details refer to *OPERATIONS: RECORDING: UNDO/REDO*.
- REDO** The **REDO** function will redo the last record or editing operation. See *OPERATIONS: RECORDING: UNDO/REDO* for further information.
- LISTEN** The **LISTEN** function allows the audition of audio currently stored on the clipboard. For details see *OPERATIONS: EDITING: EDITING FUNCTIONS*.
- CUT** The **CUT** function removes a defined track-region from the project timeline and creates a duplicate of the defined track-region on the clipboard. For further information see *OPERATIONS: EDITING: EDITING FUNCTIONS*.
- COPY** The **COPY** function moves a duplicate of a defined track-region to the clipboard. For further information see *OPERATIONS: EDITING: EDITING FUNCTIONS*.
- PASTE** The **PASTE** function places a copy of the audio currently stored on the clipboard into the project at the specified paste point. See *OPERATIONS: EDITING: EDITING FUNCTIONS* for details.
- MOVE** The **MOVE** function repositions the audio defined by the selected track-region and prompts to enter a new destination in the HH:MM:SS:FF format. For more information please refer to *OPERATIONS: EDITING: EDITING FUNCTIONS*.
- ERASE** Use **ERASE** to eliminate audio without affecting post-edit audio on the project timeline. See *OPERATIONS: EDITING: EDITING FUNCTIONS: ERASE* for further information.
- SLIDE** The **SLIDE** function repositions the audio defined by the selected track-region and uses frames or millisecond to provide a way to easily nudge audio regions. For more information please refer to *OPERATIONS: EDITING: EDITING FUNCTIONS*.
- LOOP** The **LOOP** function automatically pastes multiple copies of a track-region using the **MARK OUT** point as a starting reference. Refer to *OPERATIONS: EDITING: EDITING FUNCTIONS* for details.
- MODIFY EDIT** The **MODIFY EDIT** function allows quick and easy fine-tuning of the current edit. For details refer to *OPERATIONS: EDITING: EDITING FUNCTIONS*.

QUICK ACCESS AND UTILITY KEYS

Several keys on the **KC-24** provide one touch access to frequently accessed menu functions. These include:

- VARI-SPEED** This is a dual press activation/de-activation key. The first key press displays the **VARI-SPEED** value and the next key press engages **VARI-SPEED**. Pressing the key while **VARI-SPEED** is engaged once again displays the speed value and pressing it a second time disengages **VARI-SPEED**. To change the speed while the function is engaged, press the **VARI-SPEED** key once to display the speed dialogue, change the value and hit the **CANCEL** key to return to transport mode. This setting may be changed while in **PLAY** mode. For further information please refer to *OPERATIONS: VARI-SPEED*.
- DIGI I/O** This shortcut key allows for quick selection of digital I/O format or routing. For more information see *CONFIGURATION: DIGITAL I/O*.
- SYNC** The **SYNC** shortcut key allows for quick selection of an external digital sync source for digital I/O formats. For details refer to *CONFIGURATION: DIGITAL I/O* and *CONFIGURATION: TIMECODE*.
- CHASE** When pressed, this key puts the system into **CHASE** mode using the parameters set in the **MAIN MENU / SYNC MENU / TC SETTINGS** menu. For further information please consult *CONFIGURATION: TIMECODE*.
- EDIT LOC** The **EDIT LOC** key is used to modify locate markers that have been placed along the project timeline. See *OPERATIONS: TRANSPORT OPERATIONS: AUTO LOCATE MARKERS* for detailed information.
- MARK LOC** The **MARK LOC** key is used to drop locate markers along the project timeline. Markers can be dropped while playback is stopped or in any transport mode including fast-forward or rewind.
- BACKUP** Shortcut to **MAIN MENU / FILE MENU / BACKUP** menu item.
- GOTO PROJ** Shortcut to **MAIN MENU / PROJECT MENU / GOTO PROJECT** menu item.
- SAFE CLEAR** This key puts the system in safe mode. No recording can take place while **SAFE CLEAR** is engaged.
- Pressing **SAFE CLEAR** while recording enables record lock. Pressing **■ (Stop)** or **▶ (Play)** will disable record lock. No other key press can disable recording once record lock mode has been engaged.
- The shifted **SAFE CLEAR** function resets all tracks in record ready mode.
- TRACK SOLO** When **TRACK SOLO** is engaged, selecting a **Track Arm** key places that track in solo mode.

- AUTO INPUT** When the **AUTO INPUT** key is engaged the system automatically switches monitoring from **INPUT** to **PLAYBACK** when playback begins and returns it to **INPUT** when playback stops.
- ENTER TIME** Enter a time value and press **ENTER** to locate the current position to that time.
- RECALL LOG** Use this key - located at the bottom right of the numeric keypad - in conjunction with the numeric keys, **MARK IN** / **MARK SYNC** / **MARK OUT** keys and **ENTER** to recall locate points.

QWERTY KEYS AND NUMERIC KEYPAD

The QWERTY keys are used to enter names and values into the system. Please note that keys in use as transport or custom controls will not work like their counterparts on a conventional keyboard. Use the **SPACE** and **SHIFT** keys provided on the right hand side of the keyboard.

The Numeric keypad is used to enter values and to recall locate points in the project.

TRANSPORT CONTROLS

Standard transport controls are provided: **◀◀ (Rewind)**, **▶▶ (Fast Forward)**, **▶ (PLAY)**, **■ (STOP)**, and **REC**.

The **JOG** key is at the top of the numeric pad. Press **JOG** and use the **◀** and **▶** keys to scrub the audio. If a mouse is attached to the rear of the RADAR, the mouse can be used as an alternative method for scrubbing audio.

The **SHUTTLE** key is next to the **JOG** key at the top of the numeric pad. Press **SHUTTLE** and use the mouse to begin shuttling audio either forwards or in reverse.


LOCATE/TRANSPORT FUNCTION KEYS

This key grouping is located above the arrow keys and contains the following keys:

- AUTO PLAY** When used in conjunction with any **RECALL LOCATE** functions **AUTO PLAY** initiates playback automatically once the specified timeline location has been cued.
- AUTO PUNCH** **AUTO PUNCH** uses the **MARK IN** and **MARK OUT** locate points to automatically initiate and terminate recording. Please see *OPERATIONS: RECORDING: AUTO PUNCH* for further information.
- MARK IN** **MARK IN** defines the starting point of a track-region. See *OPERATIONS: EDITING: MARKING A TIME REGION* for details.
- MARK OUT** **MARK OUT** defines the end point of a track-region. See *OPERATIONS: EDITING: MARKING A TIME REGION* for further information.

PRE ROLL This key activates and de-activates the **PRE ROLL** function. For detailed information please refer to *OPERATIONS: TRANSPORT OPERATIONS: PRE ROLL*.

CYCLE **CYCLE** initiates a playback cycle using the **MARK IN** and **MARK OUT** points as a reference. Playback cycling will continue until the cycle key or any transport key is pressed again.




There is a pause between playback cycles. This is not intended as a loop previewing function.

STANDARD KEYBOARD CONVERSION TABLE

The following table indicates the standard keyboard function and the equivalent **KC-24** function:

Keyboard Layout	KC-24 Layout
ESC	MENU/PREV
F1	TK ARM 1 / 13
F2	TK ARM 2 / 14
F3	TK ARM 3 / 15
F4	TK ARM 4 / 16
F5	TK ARM 5 / 17
F6	TK ARM 6 / 18
F7	TK ARM 7 / 19
F8	TK ARM 8 / 20
F9	TK ARM 9 / 21
F10	TK ARM 10 / 22
F11	TK ARM 11 / 23
F12	TK ARM 12 / 24
PRINT SCRn (SysRq)	SAFE CLEAR
SCROLL LOCK	TRACK SOLO
PAUSE BREAK	AUTO INPUT

Keyboard Layout	KC-24 Layout
-	SYNC
=	CHASE
BACKSPACE	BACKSPACE
TAB	REDO
Q	Q
W	W
E	E
R	R
T	T
Y	Y
U	U
I	I
O	O
P	P
[EDIT LOC
]	MARK LOC

Keyboard Layout	KC-24 Layout
NOTE: LOS = Left of Spacebar	
ROS = Right of Spacebar	
NK = Numeric Keypad	
~	UNDO
1	CUT
2	COPY
3	PASTE
4	MOVE
5	ERASE
6	SLIDE
7	LOOP
8	MODIFY EDIT
9	VARI-SPEED
0	DIGI I/O
Z	Z
C	C
V	V
~	UNDO
B	B
N	N
M	M
⌣ (Comma)	#
⌘ (Period)	&
/	SPACE
LOS SHIFT	TRACK ARM 13-24
LOS CTRL	◀ (Rewind)
LOS 	▶▶ (Fast Forward)
LOS ALT	LOS ALT
SPACEBAR	PLAY ▶

Keyboard Layout	KC-24 Layout
\	CANCEL
CAPS LOCK	LISTEN
A	A
S	S
D	D
F	F
G	G
H	H
J	J
K	K
L	L
;	BACKUP
"	GOTO PROJECT
ENTER	ENTER
END	PRE ROLL
PAGE DOWN	MARK OUT
NUM LOCK	JOG
NK /	SHUTTLE
NK *	ENTER TIME
NK -	NK -
NK 7	NK 7
NK 8	NK 8
NK 9	NK 9
NK +	NK +
NK 4	NK 4
NK 5	NK 5
NK 6	NK 6
NK 1	NK 1
NK 2	NK 2

Keyboard Layout	KC-24 Layout
ROS	ROS
ROS	STOP
ROS	REC
ROS	ROS
	AUTO PLAY
	AUTO PUNCH
	MARK IN
	CYCLE

Keyboard Layout	KC-24 Layout
NK	NK
NK	NK
NK	NK
NK	RECALL LOC

APPENDIX A

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APPENDIX B

iZOS FILE MANAGEMENT WORKSPACE

This section provides an overview of the iZOS File Management Workspace and describes how to:

- Connect & Mount External Drives
- Mount Network Drives
- Copy Files to Destination Drives

OVERVIEW

iZOS includes the iZOS File Management Workspace, a mouse-driven, dedicated file management system. The iZOS File Management Workspace provides the same functions as the RADAR® Application Menu item labeled File Management (**MAIN MENU/ FILE MENU/ FILE MANAGEMENT**), however its interface offers a larger viewing area and easy drag and drop functionality. With the iZOS File Management Workspace, RADAR® users can:

- Drag and drop files for transfer or backup purposes between the RADAR® Archive drive, an External drive connected via USB, or a Network drive.
- Manage files in the RADAR® Archive drive.



GETTING TO AND FROM THE IZOS FILE MANAGEMENT DESKTOP

The iZOS File Management Workspace's features are accessed via its mouse-driven, desktop-style interface.

To access the iZOS File Management desktop:

- 1 From **RADARView™**, press **ALT+F2** on the **KC-24** or **W+1** on the **Session Controller**. The **System** and **Archive** drives will appear on the desktop as icons.



Do not modify or delete any content from the System drive unless instructed by iZ Support.

To access **RADARView™** from the iZOS File Management desktop:

- 1 Press **ALT+F1** on the **KC-24** or **W+1** on the **Session Controller**.

CONNECTING & MOUNTING AN EXTERNAL DRIVE

Use the following steps to connect an External drive:

- 1 Connect an External drive to the RADAR®'s USB port – only FAT 32 formatted drives are supported.
- 2 Power on the External USB drive, then right click the iZOS File Management Workspace desktop and select **MOUNT**. Choose the USB volume to mount.

The External USB drive is now mounted and a drive icon will be visible on the desktop.



USB drives must be unmounted before being physically disconnected. See **UNMOUNTING USB DRIVES**, below.

MOUNTING A NETWORK DRIVE

Use the following steps to mount a Network drive:

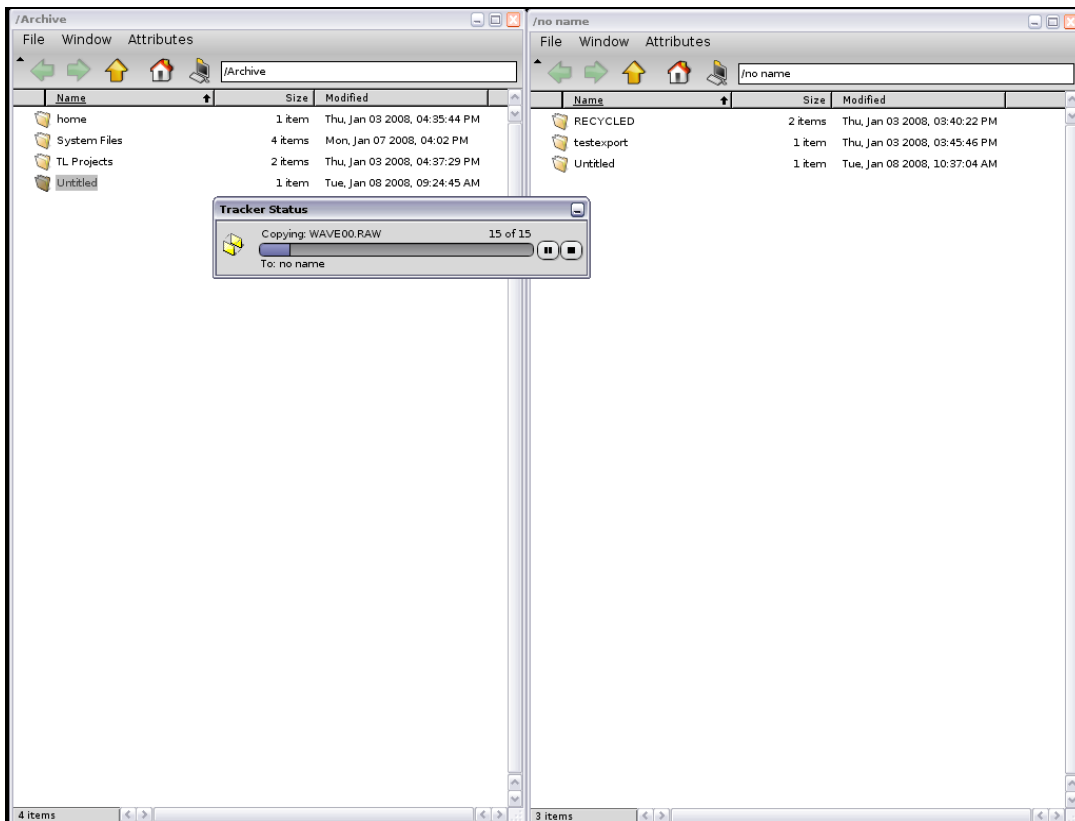
- 1 From **RADARView™** press **SHIFT+B** and use the **↑** and **↓** keys to select: **N:NETWORK**, and then press the **ENTER** key.
- 2 At the login prompt, type in the user name and password.
- 3 Once connected to the Network drive press **ALT+F2** on the **KC-24** or **W+1** on the **Session Controller** to switch to the iZOS File Management Workspace desktop.

The network drive is now mounted and a drive icon will be visible on the desktop.

COPYING FILES TO A DESTINATION DRIVE

Use the following steps to copy files to or from an External USB drive or Network drive:

- 1 Open the source drive folder by double clicking on the source drive's icon.
- 2 Open the destination drive folder by double clicking on the destination drive's icon.
- 3 In the source drive folder, highlight the files/folders to be copied then drag them to the destination drive folder.



UNMOUNTING USB DRIVES

Use the following steps to unmount an External USB drive before physically removing it from the RADAR®:

- 1 Right click on the USB drive icon on the desktop and select **UNMOUNT**.
- 2 Once the volume is unmounted it is safe to remove the drive from RADAR®.



Failure to unmount a USB drive correctly can cause damage to the data on the drive.

