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# T2

## INTELLIGENT DIGITAL DISK RECORDER

Maintenance Manual

F0951006112
JUNE, 2010

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http://www.thomsongrassvalley.com.

## Revision Status

| Rev Date | Description |
|---|---|
| March 01, 2010 | Release F0951003082 for software version 1.0 |
| June 11, 2010 | Release F0951006112 for software version 1.1 |

# Table of Contents

# Safety Summaries

## General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

While using this product, you may need to access other parts of the system. Read the *General Safety summary* in other system manuals for warnings and cautions related to operating the system.

### Injury Precautions

#### Use Proper Power Cord

To avoid fire hazard, use only the power cord specified for this product.

#### Ground the Product

This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

#### Do Not Operate Without Covers

To avoid electric shock or fire hazard, do not operate this product with covers or panels removed.

#### Do Not operate in Wet/Damp Conditions

To avoid electric shock, do not operate this product in wet or damp conditions.

#### Do Not Operate in an Explosive Atmosphere

To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.

#### Avoid Exposed Circuitry

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

### Product Damage Precautions

#### Use Proper Power Source

Do not operate this product from a power source that applies more than the voltage specified.

#### Provide Proper Ventilation

To prevent product overheating, provide proper ventilation.

#### Do Not Operate With Suspected Failures

If you suspect there is damage to this product, have it inspected by qualified service personnel.

### Battery Replacement

To avoid damage, replace only with the same or equivalent type. Dispose of used battery according to the circuit board manufacturer's instructions.

# Safety Terms and Symbols

### Terms in This Manual

These terms may appear in this manual:

⚠ ***WARNING:*** Warning statements identify conditions or practices that can result in personal injury or loss of life.

⚠ ***CAUTION:*** Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

### Terms on the Product

These terms may appear on the product:

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

WARNING indicates a personal injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

### Symbols on the Product

The following symbols may appear on the product:

 DANGER high voltage

 Protective ground (earth) terminal

 ATTENTION – refer to manual

# Certifications and Compliances

### Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

### FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley can affect emission compliance and could void the user's authority to operate this equipment.

### Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

### EN55103 1/2<br>Class A Warning

This product has been evaluated for Electromagnetic Compatibility under the EN 55103-1/2 standards for Emissions and Immunity and meets the requirements for E4 environment.

This product complies with Class A (E4 environment). In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

# Laser Compliance

## Laser Safety Requirements

The device used in this product is a Class 1 certified laser product. Operating this product outside specifications or altering its original design may result in hazardous radiation exposure, and may be considered an act of modifying or new manufacturing of a laser product under U.S. regulations contained in 21CFR Chapter 1, subchapter J or CENELEC regulations in HD 482 S1.

People performing such an act are required by law to recertify and reidentify this product in accordance with provisions of 21CFR subchapter J for distribution within the U.S.A., and in accordance with CENELEC HD 482 S1 for distribution within countries using the IEC 825 standard.

## Laser Safety

Laser safety in the United States is regulated by the Center for Devices and Radiological Health (CDRH). The laser safety regulations are published in the "Laser Product Performance Standard," Code of Federal Regulation (CFR), Title 21, Subchapter J.

The International Electrotechnical Commission (IEC) Standard 825, "Radiation of Laser Products, Equipment Classification, Requirements and User's Guide," governs laser products outside the United States. Europe and member nations of the European Free Trade Association fall under the jurisdiction of the Comité Européen de Normalization Electrotechnique (CENELEC).

## Safety Certification

This product has been evaluated and meets the following Safety Certification Standards:

| Standard | Designed/tested for compliance with: |
|---|---|
| IEC 60950 | Information technology equipment - Safety - (2001. First edition) |
| EN 60950 | Information technology equipment - Safety - (2001) |
| J60950(H19) | Electrical Appliance and Material Safety Law |

# Finding Information

This Maintenance Manual provides procedures for assessing and solving technical problems and performing routine maintenance on your T2.

The T2 has two types of operation: Front Panel Mode and Workstation Mode. Front panel mode allows you to operate the T2 using the touch screen or a mouse while looking at LCD display. Workstation Mode allows you to operate the T2 using a mouse or keyboard while looking at VGA monitor connected to the T2.

This Maintenance manual mainly documents procedures of the Front Panel Mode using a mouse unless otherwise documented, procedures for operations with the Workstation Mode are also the same as for the Front Panel Mode.

This manual is common for the T2 standard model, the T2 RAID model, and the T2 SSD model. The screens and illustrations used as examples in this manual may vary from those in the final product.

## How this manual is organized

This Maintenance Manual consists of the following:

Chapter 1, *Product Description*:

Describes the key features, system components, and status indicators of the T2.

Chapter 2, *Maintenance Procedures*:

Contains procedures for periodic maintenance.

Chapter 3, *Troubleshooting Problems*:

Contains problem descriptions with steps for diagnosing and correcting the cause of the problem. Use this information if you are having trouble with your T2.

# Grass Valley Product Support

To get technical assistance, check on the status of a question, or to report new issue, contact Grass Valley Product Support via e-mail, the Web, or by phone or fax.

## Web Technical Support

To access support information on the Web, visit the product support Web page on the Grass Valley Web site. You can download software or find solutions to problems by searching our Frequently Asked Questions (FAQ) database.

**World Wide Web:** http://www.grassvalley.com/support/
**Technical Support E-mail Address:** gvtechsupport@grassvalley.com

## Phone Support

Use the following information to contact product support by phone during business hours. Afterhours phone support is available for warranty and contract customers.

| | | | |
|---|---|---|---|
| United States | (800) 547-8949 (Toll Free) | France | +33 (1) 34 20 77 77 |
| Latin America | (800) 547-8949 (Toll Free) | Germany | +49 6155 870 606 |
| Eastern Europe | +49 6155 870 606 | Greece | +33 (1) 34 20 77 77 |
| Southern Europe | +33 (1) 34 20 77 77 | Hong Kong | +852 2531 3058 |
| Middle East | +33 (1) 34 20 77 77 | Italy | +39 06 8720351 |
| Australia | +61 1300 721 495 | Netherlands | +31 35 6238421 |
| Belgium | +32 2 3349031 | Poland | +49 6155 870 606 |
| Brazil | +55 11 5509 3440 | Russia | +49 6155 870 606 |
| Canada | (800) 547-8949 (Toll Free) | Singapore | +656379 1390 |
| China | +86 106615 9450 | Spain | +34 91 512 03 50 |
| Denmark | +45 4047 22 37 | Sweden | +46 87680705 |
| Dubai | +971 4 299 64 40 | Switzerland | +41 (1) 487 80 02 |
| Finland | +35 9 68284600 | UK | +44 870 903 2022 |

## Authorized Support Representative

A local authorized support representative may be available in your country. To locate the support representative for your country, visit the product support Web page on the Grass Valley Web site.

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Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.

For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.thomsongrassvalley.com/environment

Chapter 1

# Product Description

This chapter consists of the following:

# Overview Description

The T2 is a multi-channel video disk recorder that allows simultaneous record and playback of media stored on internal data drives. The T2 features a single record channel (R1) and 2 play channels (P1/P2). Hours of storage depends on the video compression settings selected.

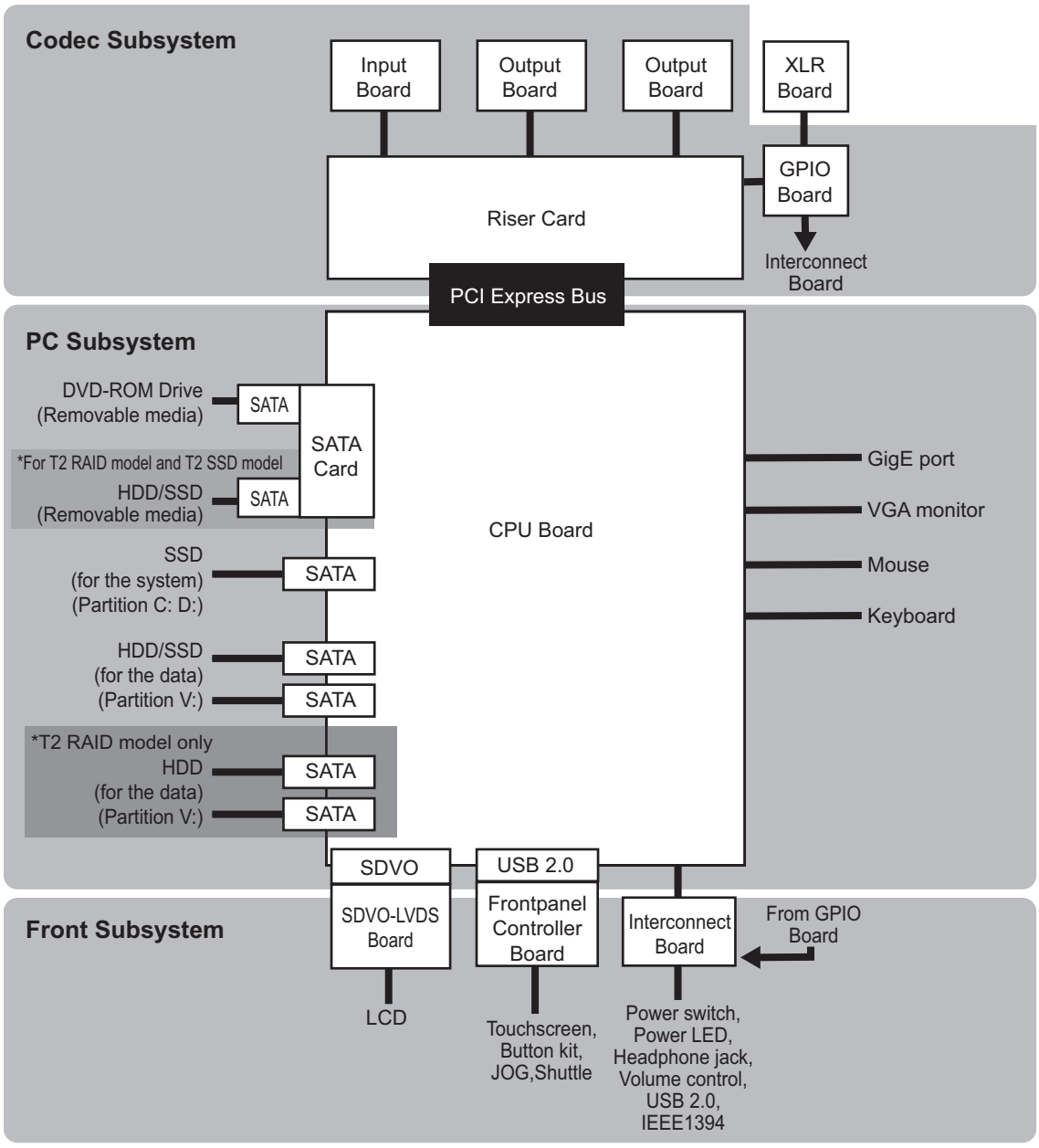
The T2 includes a built in disk recorder application that tasks - record, edit, play, and create/play Playlists. The front panel includes an LCD display with touch screen and transport controls to allow easy operation with minimal external connections.

Refer to the *T2 User Manual* for other high-level descriptions of features, controls, and applications.

# System Description

The T2 is a video disk recorder based an a standard Windows computer with extensive enhancements.

This section explains the major architectural blocks.



## PC Subsystem

The PC subsystem is intended to run application software running on top of a Windows OS.
This subsystem includes the following components:

- Mechanical Chassis
- Industry micro ATX motherboard
- Core 2 Quad class processor
- 2GB DDR 3 memory
- 2 GigE ports
- 6 rear panel / 2 front panel accessible USB 2.0 ports
- SATA ports (5 on the motherboard, 2 on the SATA card)
- PS/2 keyboard and mouse ports
- VGA display interface
- Power supply unit
- Windows XP Embedded (32bit)

## Codec Subsystem

Codec Subsystem is composed of one Input board, two Output boards, and one GPIO board. It is connected to the motherboard via the riser card. These boards are interconnected. For example, the Input/Output boards process the command from the GPIO board, and synchronize the clocks on Output boards.
Codec Subsystem includes the following components:

- Riser card
  The riser card just bridges PCI express bus and passes communication signals between boards.
- Input board
  This board provides the video input and is responsible for encoding Canopus HQ.
- Output board
  This board provides the video output.
- GPIO board
  This board has the GPIO interface, IEEE1394 port, analog audio interface, and reference input.
- RS422
- IEEE1394 port

## Front Subsystem

The front subsystem provides user interfaces such as LCD, touch screen, JOG/Shuttle switch and control buttons.

This subsystem includes the following components:

- Interconnect board
  The interconnect board interconnects power switch, power LED, headphone jack, volume dial, two USB 2.0 ports, and one IEEE1394 port.
- SDVO-LVDS board
  This board transfers SDVO signals from motherboard to LVDS signaling for LCD.
- Frontpanel Controller board
  This board has USB-interface, adjusts LCD backlight/illuminated buttons, and detects the touch screen/illuminated buttons/rotary encoder.

## XLR board

The XLR board provides XLR audio connectors.

## Fuse board

It provides power to each module from the power supply unit.

# Status indicators

The following sections describe the visual indicators that communicate the current operating status and system health of the T2.

## Power LED

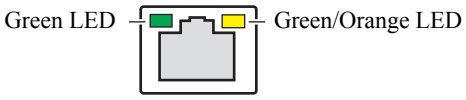
The Power LED indicates status as follows:

| LED behavior | Status Condition |
|---|---|
| Off | The power is set to Off and the T2 is not operational. |
| Green steady on | The power is set to On and the T2 is operational. |

⚠ ***WARNING: The power switch does not turn off power to the system. To turn power off, the system must be disconnected from the power source.***

## LAN connector indicator codes

The RJ-45 LAN connector includes integrated status LEDs. The LEDs oriented as follows:




The meanings of the LED states are described in the following table:

| LED | Color | LED state | Status Condition |
|---|---|---|---|
| Left | Green | Off | LAN link is not established. |
| | | On (steady state) | LAN link is established. |
| | | On (brighter and pulsing) | The computer is communicating with another computer on the LAN. |
| Right | Green | Off | 10 Mbit/sec data rate is selected. |
| | | On | 100 Mbit/sec data rate is selected. |
| | Orange | On | 1000 Mbit/sec data rate is selected. |

If the LAN adapter is faulty, you must replace the motherboard. Contact Grass Valley Support.

Chapter 2

# Maintenance Procedures

This chapter consists of the following:

# Cleaning the touch screen LCD

Build up of foreign objects (such as soil, dust, or fingerprints) on the touch screen LCD may cause malfunction. Perform cleaning of the touch screen LCD periodically, noting the following points:

- The surface of the touch screen LCD must be wiped with a clean cloth dampened with a mild detergent. Do not apply a detergent directly onto the touch screen LCD.
- Do not use any detergent containing abrasives. Abrasives may scratch the surface of the display and decrease its visibility.
- Avoid getting water on the surface of the touch screen LCD. Moisture entered into the system will cause a failure.

# Starting and exiting the maintenance mode

The T2 has the following startup modes: normal and maintenance modes. Start up your system in the appropriate mode depending on the purpose of use.

- Normal mode
  The CommandCenter is launched automatically allowing you to perform operations such as recording, playback, or editing.
- Maintenance mode
  The Maintenance Tools is launched automatically allowing you to perform maintenance operations of the T2. In the maintenance mode, you can also perform operations such as using the Windows OS (such as configuring the Date/Time), or restoring your T2 to the factory default condition.

⚠ ***CAUTION: The T2 is not a general purpose Windows workstation. The T2 is designed so that a user can start it up without an administrator privilege to log on to the system automatically. Do not modify any system settings unless approved by Grass Valley. A partial or total system failure may result.***

- Do not use the User Manager on the T2.
- Do not use the Disk Administrator on the T2.
- Do not install any third party software not provided by Grass Valley on the T2.
- Do not install any Windows updates on the T2.

## Starting the maintenance mode

Restart the T2 in the maintenance mode from CommandCenter to run the maintenance mode. This section mainly describes the procedures using the touch screen LCD.

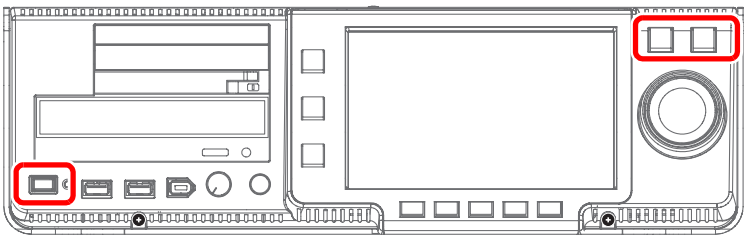
⚠ ***CAUTION: You must finish all of the playback and recording operations to stop the media access prior to performing operations.***

1. Switch to **1ch View**, touch **Menu**, and then touch **Tools** → **Maintenance**.
   - When operating in the workstation mode, click **System** from the menu bar and then click **Maintenance...**.
2. Touch the entry field on the password entry screen.
3. Enter "admin", and touch **OK**.
4. Touch **OK**.
5. Touch **Yes** when the confirmation message is displayed.
   - The CommandCenter is closed and the system restarts in the maintenance mode.
   - Connect a mouse or keyboard, if necessary.
   - After the restart, the Maintenance Tools is launched automatically.

### Forcing startup of the maintenance mode

If you cannot start the maintenance mode with procedures above, perform the following steps.

1. Turn on the power of the T2 while pressing the **Shuttle/Jog** and **VAR** buttons at the same time.
   - Keep pressing the **Shuttle/Jog** and **VAR** buttons until a message "Now switching to Maintenance mode. The system is rebooting..." is displayed in the touch screen LCD.



   - The T2 will start in the maintenance mode.

## Exiting the maintenance mode

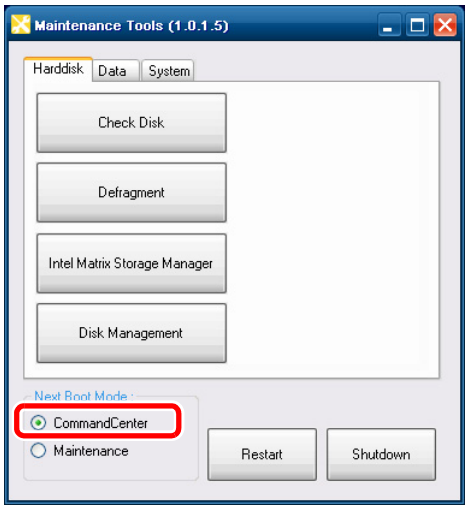
⚠ ***CAUTION: You must finish a diagnosis using the Maintenance Tools prior to exiting the maintenance mode.***

### Restarting from the maintenance mode to the normal mode

The operation to switch from the maintenance mode to the normal mode is performed from the Maintenance Tools main screen.

***NOTE: You need to launch the Maintenance Tools beforehand. For more information, refer to "Launching the Maintenance Tools" on page 24.***

1. In the Maintenance Tools main screen, select **CommandCenter** under "Next Boot Mode".



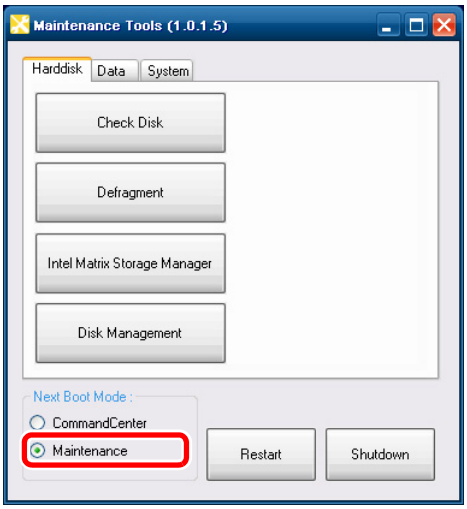

2. Click **Restart**.
   - After the restart, the CommandCenter is launched automatically.

### Starting up the system without exiting the maintenance mode

This section describes the procedure to restart your system in the maintenance mode from the Maintenance Tools main screen.

***NOTE: If the Maintenance Tools is not running in the maintenance mode, performing the normal restart operation from the Windows desktop will restart your system without exiting the maintenance mode.***

1. In the Maintenance Tools main screen, select **Maintenance** under "Next Boot Mode".



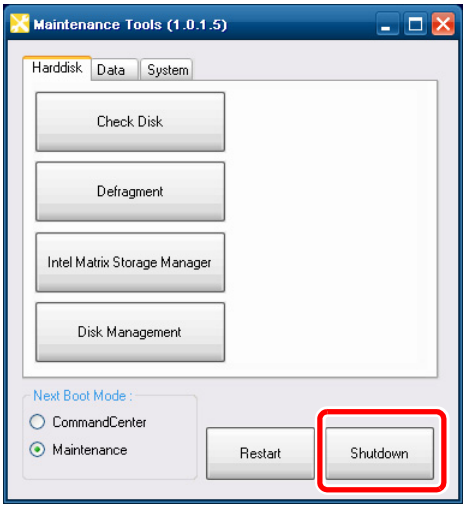

2. Click **Restart**.
   - After the restart, the Maintenance Tools is launched automatically.

## Exiting the maintenance mode to shut down

You can exit the maintenance mode from the Maintenance Tools main screen to shut down the T2.

***NOTE: If the Maintenance Tools is not running in the maintenance mode, performing the normal shutdown operation from the Windows desktop will shut down your system. The T2 will restart in the maintenance mode.***

1. In the Maintenance Tools main screen, click **Shutdown**.
   - You can select the next boot mode. Select **CommandCenter** to startup the T2 in the normal mode. Select **Maintenance** to startup the T2 in the maintenance mode.



# Using the Maintenance Tools

The Maintenance Tools is software for performing maintenance procedures such as running a failure diagnosis on the T2 or backing up data.
You can perform the following procedures using the Maintenance Tools. Refer to the specific topics for more information.

- Media drive maintenance
  - "Media disk error checks" on page 25
  - "Defragmentation of media disk" on page 26
- Data maintenance
  - "Checking the data consistency" on page 28
  - "Initializing the data" on page 30
  - "Backing up the data" on page 31
  - "Restoring the data" on page 33
- System related maintenance
  - "Acquiring the system information" on page 35
  - "Exporting log files" on page 36

## Launching the Maintenance Tools

The Maintenance Tools is launched automatically when you start the maintenance mode. This section describes the procedure to the launch the Maintenance Tools again when the Maintenance Tools is closed in the maintenance mode (from the Windows desktop).

For more information on how to start the maintenance mode, refer to "Starting the maintenance mode" on page 21.

***NOTE: A mouse must be connected to your T2 beforehand.***

1. Double-click the Maintenance Tools icon on the Windows desktop.
   - You can also launch the Maintenance Tools by double-clicking C:/Eiger/Eiger.Mainte.ToolMain.exe.
   - The Maintenance Tools is launched.

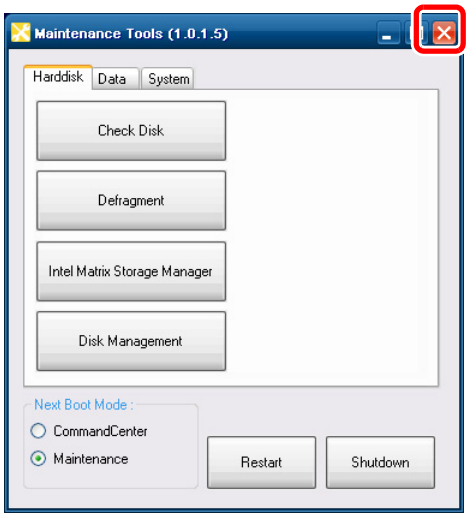
## Closing the Maintenance Tools

This section describes the procedure to close the Maintenance Tools and to display the Windows desktop.

For more information on how to exit the maintenance mode, refer to "Exiting the maintenance mode" on page 22.

⚠ ***CAUTION: You must finish a diagnosis using the Maintenance Tools prior to closing the Maintenance Tools.***

1. In the Maintenance Tools main screen, click **X**.
   - The Maintenance Tools is closed and the Windows desktop appears.

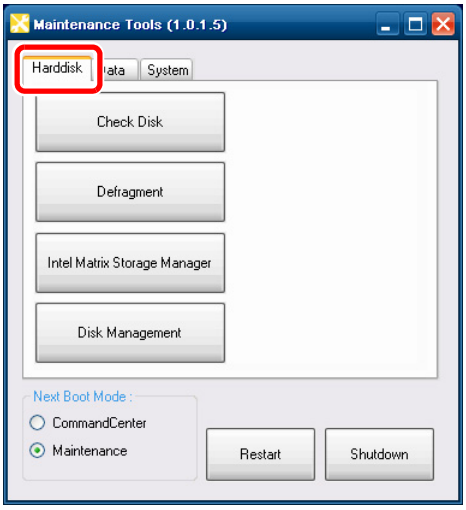



# Media drive maintenance

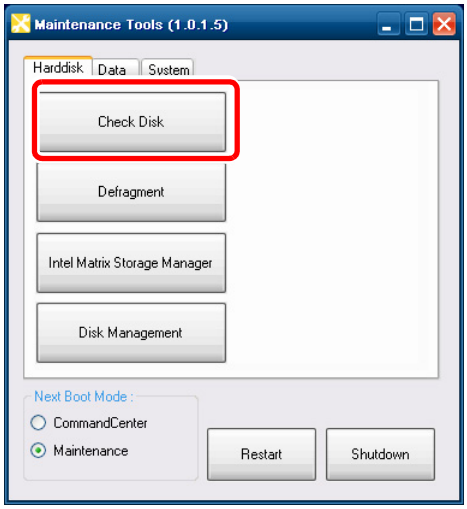
## Media disk error checks

You can scan the media disk to check it for any file system errors and bad sectors, targeting the data drive (V: drive). If any error is found, the system attempts to fix the media disk.

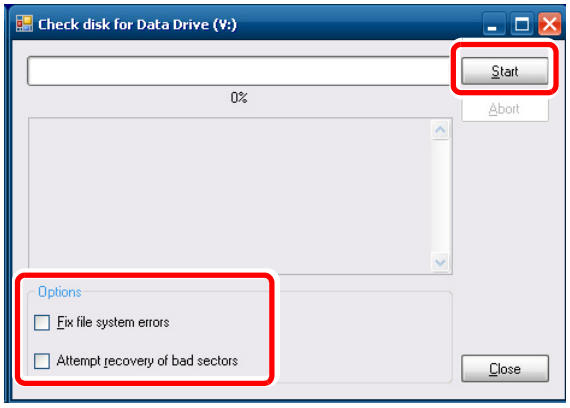
1. In the Maintenance Tools main screen, click the **Harddisk** tab.



2. Click **Check Disk**.




3. Check the items under "Options" as necessary, and then click **Start**.




- If **Fix file system errors** is checked, the system fixes errors automatically without scanning for bad sectors.
- If **Attempt recovery of bad sectors** is checked, the system scans for bad sectors and recovers readable information.
- To abort a check in the middle of performing it, click **Abort**.

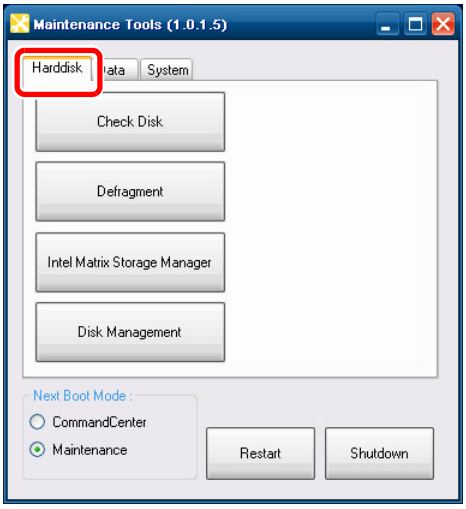
4. When you see the completion message, click **OK**.
5. Click **Close**.
   - "Check disk for Data Drive" screen is closed.

### Defragmentation of media disk

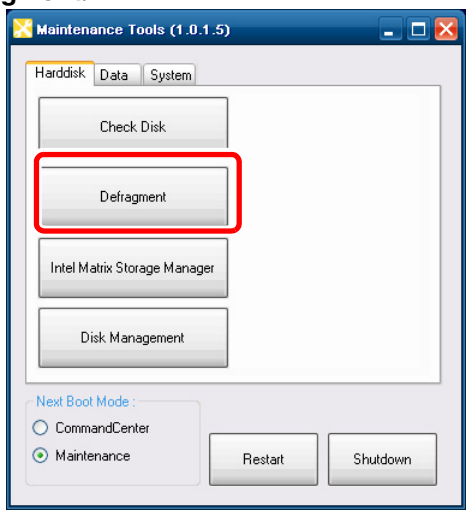
You can defragment the media disk, targeting the data drive (V drive).

⚠ ***CAUTION: Do not defragment the media disk of the T2 SSD model. Defragmentation could shorten the life of an SSD.***

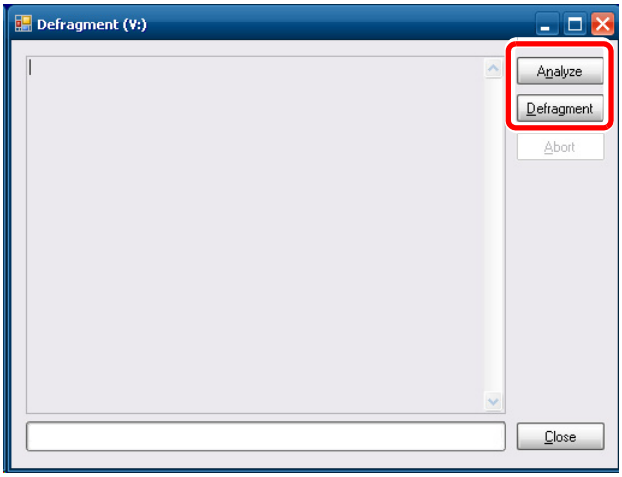
1. In the Maintenance Tools main screen, click the **Harddisk** tab.




2. Click **Defragment**.




3. Click either **Analyze** or **Defragment**.



- Clicking **Analyze** performs only a defragmentation analysis. The analysis result is displayed on the screen.
- Clicking **Defragment** performs defragmentation. The progress of defragmentation is displayed on the screen.
- To abort a process in the middle of performing it, click **Abort**.

4. When you see the completion message, click **OK**.
5. Click **Close**.
   - "Defragment" screen is closed.

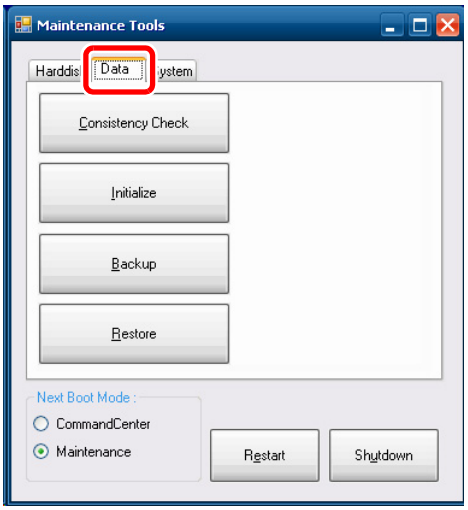
# Data maintenance

## Checking the data consistency

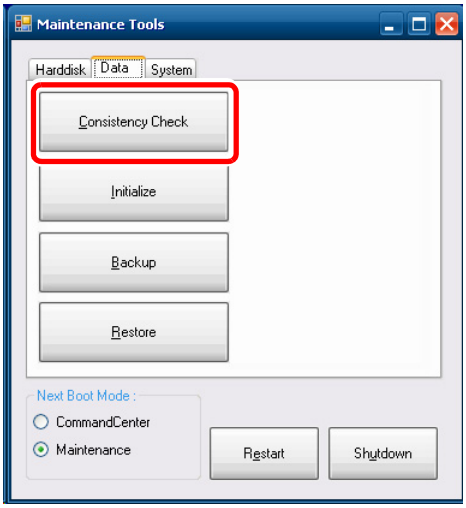
You can check the consistency between the database information and the actual media files. This allows you to list information or media files that exist in only either of them and to delete them.

***NOTE: Data in the Recycle Bin is not subject to this data consistency check.***

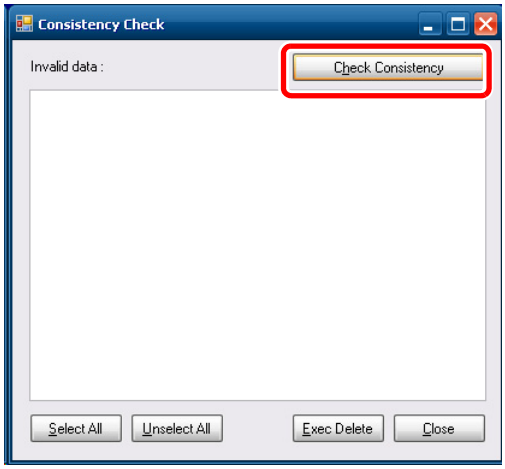
1. In the Maintenance Tools main screen, click the **Data** tab.



2. Click **Consistency Check**.

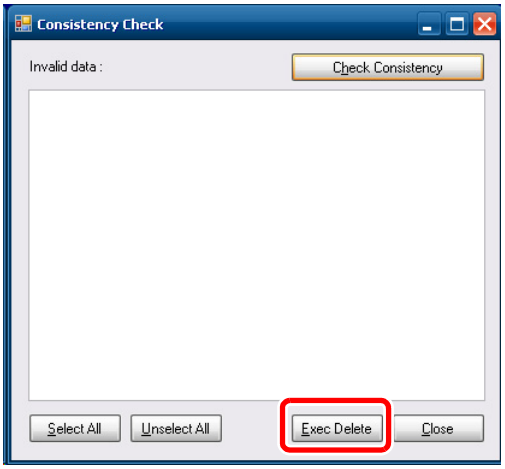



3. Click **Check Consistency**.




- A data consistency check begins and any inconsistent information is listed on the screen.

4. Check the inconsistent information you want to delete, and then click **Exec Delete**.




- You can select all of the listed information by clicking **Select All**.
- You can deselect all of the listed information by clicking **Unselect All**.

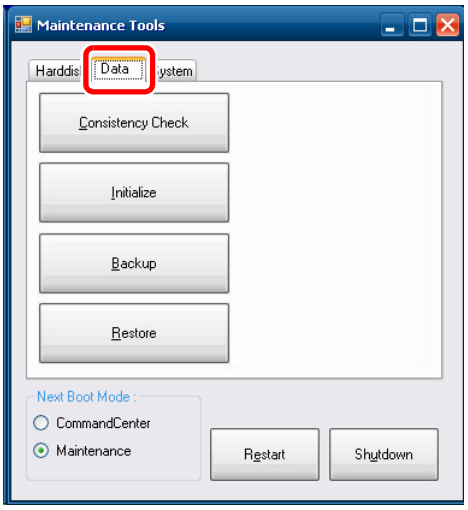
5. Click **Close**.
   - "Consistency Check" screen is closed.

### Initializing the data

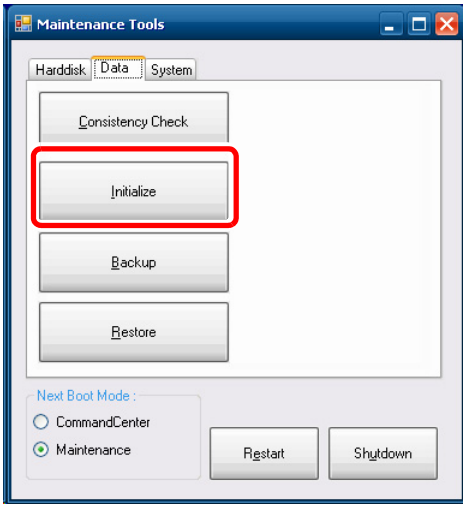
You can initialize the database, the data drive (V: drive), and the Config settings.

⚠ ***CAUTION: Initializing your data will delete all of the current data. You should back up your data beforehand as necessary.***

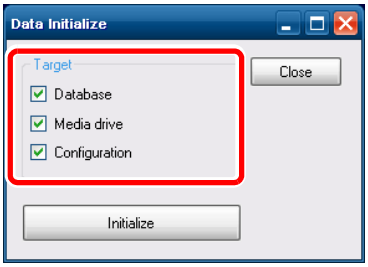
1. In the Maintenance Tools main screen, click the **Data** tab.



2. Click **Initialize**.




3. Check the items you want to initialize under "Target".



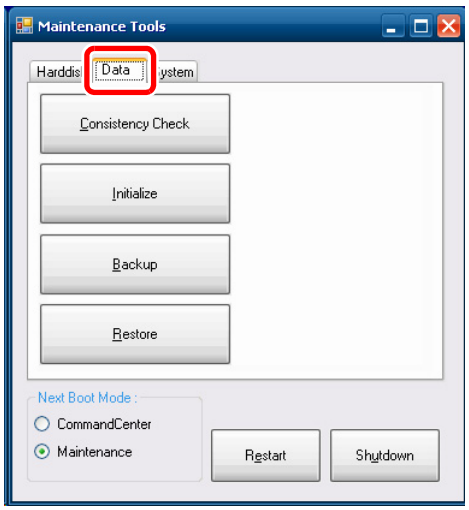

- Check **Database** to delete the contents of the database.
- Check **Media drive** to format the data drive and initialize the folder structure.
- Check **Configuration** to initialize the settings of Config.

4. Click **Initialize**.
   - The initialization is performed.
5. Click **Close**.
   - "Data Initialize" screen is closed.

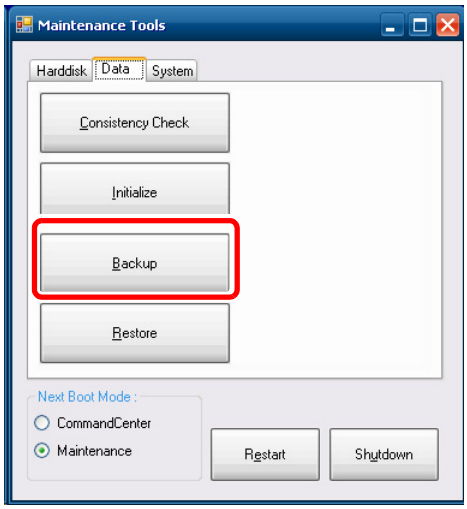
## Backing up the data

You can back up the database, the media files in the data drive (V: drive), and the Config settings.

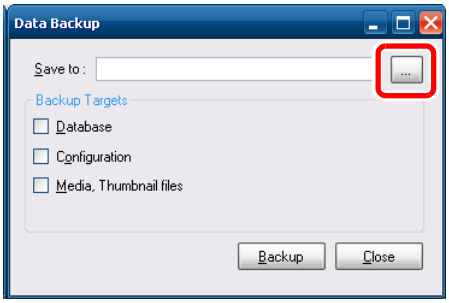
1. In the Maintenance Tools main screen, click the **Data** tab.




2. Click **Backup**.




3. Click **...** to specify the destination to save your backup data.




4. Check the target item(s) you want to back up under "Backup Targets".
   - Checking **Database** will back up the database.
   - Checking **Configuration** will back up the Config settings.

- Checking **Media, Thumbnail files** will back up the media files including the thumbnails.
- Multiple items can be selected.

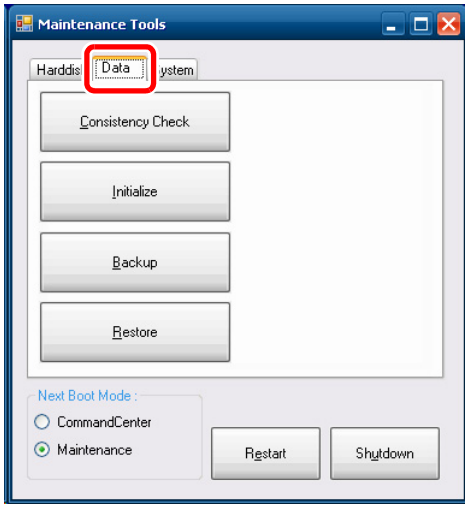
5. Click **Backup**.
6. Click **Yes** when the confirmation message is displayed.
   - The backup begins and the progress is displayed.
7. When you see the completion message, click **OK**.
   - A folder, that stores an XML file containing the backup information and the backup data, is created in the specified destination. The folder name will be the saved date (yyyymmdd).
8. Click **Close**.
   - "Data Backup" screen is closed.

### Restoring the data

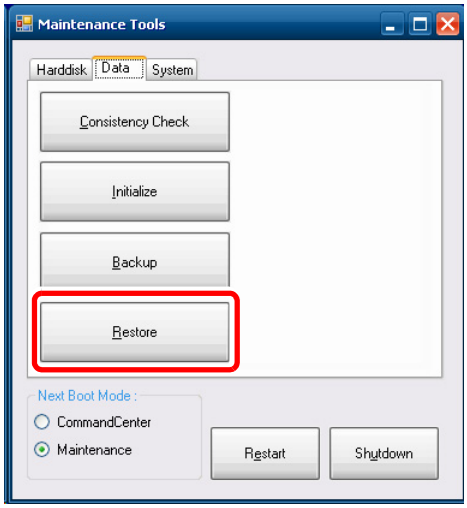
You can restore the data of your backed up database, media files, and Config settings.

⚠ ***CAUTION: Restoring your data will delete all of the current data overwriting it with the source data for the restore.***

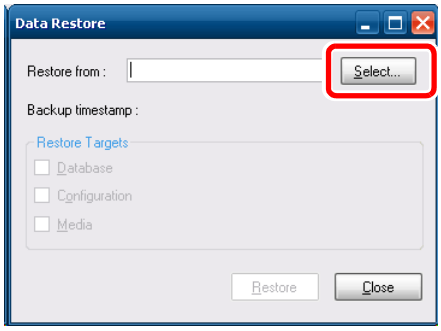
1. In the Maintenance Tools main screen, click the **Data** tab.



2. Click **Restore**.




3. Click **Select** to specify the XML file created upon the backup.




- "Backup timestamp" shows the backup date.
- Among the items under "Restore Targets", any item(s) that exist in the same folder where the XML file is located will be checked.

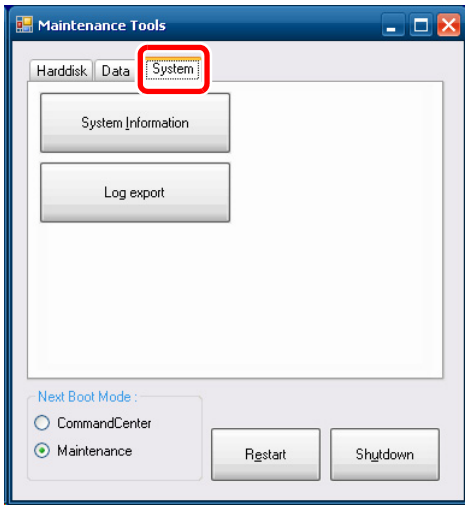
4. Make sure that the data you want to restore are checked under "Restore Targets".
   - Uncheck any item that does not need to be restored.
5. Click **Restore**.
6. Click **Yes** when the confirmation message is displayed.
   - The restore begins.
7. When you see the completion message, click **OK**.
8. Click **Close**.
   - "Data Restore" screen is closed.

# System related maintenance

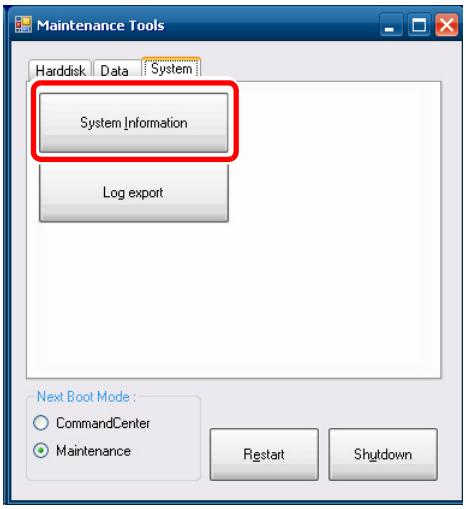
## Acquiring the system information

You can acquire the system information of the Windows OS (such as the hardware information, components, and software environment) and save it in text format.

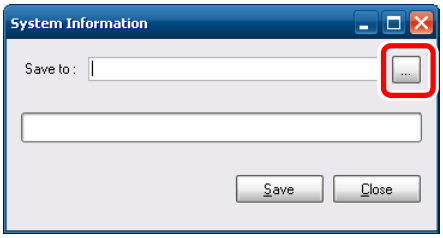
1. In the Maintenance Tools main screen, click the **System** tab.




2. Click **System Information**.




3. Click **...** to specify the destination to save the system information and a file name.



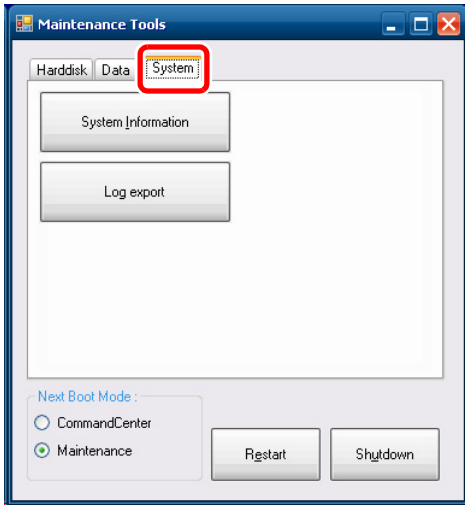

- The progress bar shows the status of the system information acquirement.

4. When you see the completion message, click **OK**.
   - A text format file containing the system information is created in the specified destination.
5. Click **Close**.
   - "System Information" screen is closed.

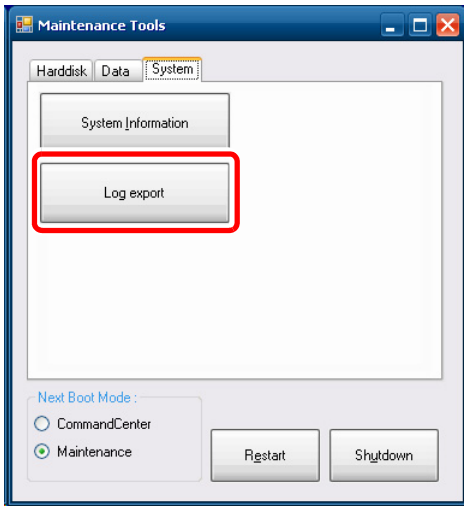
### Exporting log files

You can export an operation log, Windows OS internal event log, database log, and Dr. Watson message log.

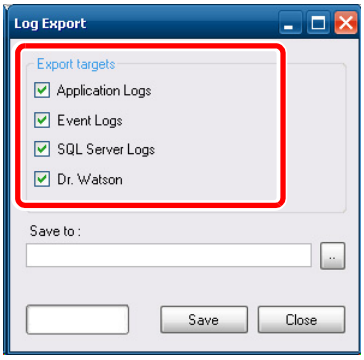
1. In the Maintenance Tools main screen, click the **System** tab.




2. Click **Log export**.



3. Check the log(s) you want to export under "Export targets".




   - Checking **Application Logs** will export an operation log.
   - Checking **Event Logs** will export a Windows OS internal event log.
   - Checking **SQL Server Logs** will export a database log.
   - Checking **Dr. Watson** will export a Dr. Watson message log.
   - Multiple items can be selected.
4. Click **...** to specify the destination to save the log and a file name.
   - The progress bar shows the exporting status.
5. When you see the completion message, click **OK**.
   - A ZIP file containing the log files is created in the specified destination.
6. Click **Close**.
   - "Log Export" screen is closed.

***NOTE: You can check the operation log while the T2 is running in the workstation mode. Click Option from the menu bar, and then click Log → Show Log....Once the "Log Viewer" screen appears, select the desired log file to view the operation log.***

# Using the Windows desktop

In the maintenance mode, you can use the standard Windows OS functions, such as configuring the clock, using the Windows desktop.

The Windows desktop will become available when the Maintenance Tools is closed after starting up the system in the maintenance mode. For more information, refer to "Starting the maintenance mode" on page 21 and "Closing the Maintenance Tools" on page 24.

# Restoring to the factory default condition

This section describes the procedure to restore your T2 to the factory default condition using the recovery disk "T2 Series Recovery Software DVD" shipped with the product.

***NOTE: A mouse and keyboard must be connected to your T2 beforehand.***

***NOTE: A recovery does not initialize the contents of the data drive (V: drive). If you want to initialize the data drive, refer to "Initializing the data" on page 30.***

⚠ ***CAUTION: Do not connect any external storage device via USB or IEEE 1394 when restoring to the factory default condition.***

⚠ ***CAUTION: A recovery will initialize all of the data below. You should back up your data to an external storage device beforehand as necessary.***

- Database
- Config settings
- Logs (the operation log, Windows OS internal event log, database log, and Dr. Watson message log)

1. Turn the T2 on.
   - Turn on the power switch of the front panel.

***NOTE: For the T2 RAID and T2 SSD model, confirm that no removal media drive is inserted in the lower 2.5 inch removable drive bay.***

2. Set your T2 Series Recovery Software DVD into the DVD drive.
3. Restart the T2 and press [F10] on the keyboard a few times when POST screen is displayed.
   - If you are restarting your system from the maintenance mode, refer to "Exiting the maintenance mode" on page 22.
   - If you are restarting your system from the normal mode, refer to "Starting the maintenance mode" on page 21.
   - The Boot Menu appears.
4. Select "2. PCI BEV: XX:XX-0 ATAPI XXXXXXX" using the [←] or [→] key, and then press the [Enter] key.
5. When you see "Press any key to boot from CD or DVD." message, press any key and then press the [Enter] key.
6. When "About Symantec Ghost" screen is displayed, click **OK**.
7. Click **Local**, and then click **Disk → From Image**.
   - The Image file name to restore from screen appears.
8. Choose the drive "E:[CD_ROM] CD Rom/DVD drive" that contains the recovery image.
9. Select a GHO format file located directly under the E drive, and then click **Open**.
   - "Select local destination drive by clicking on the drive number" screen appears.
10. Select "XXXXX --- 02", and then click **OK**.
    - "Destination Drive Details" screen appears.
11. Click "New Size" for the C: drive and enter the same value as in "Old Size" for the C: drive.

12. Click "New Size" for the D: drive and enter the same value as in "Old Size" for the D: drive.
13. Click **OK**.
14. Click **Yes** when the confirmation message is displayed.
    - The writing process of the recovery image is performed. This process will take a while.
15. When you see the completion message, remove the T2 Series Recovery Software DVD from the DVD drive, and then click **Reset Computer**.
    - The T2 restarts and a batch process for SID generation, the drive letter assignment, and virtual memory allocation will run.
16. When you see the completion message, click **OK** and restart the T2.
    - The T2 will restart in the maintenance mode.
    - If you want to start up the T2 system in the normal mode, switch to the normal mode after starting up the maintenance mode. For detailed instructions, refer to "Restarting from the maintenance mode to the normal mode" on page 22.

***NOTE: It is recommended to initialize the data after the recovery is completed. For detailed instructions, refer to "Initializing the data" on page 30.***

***NOTE: Media files in the data drive (V: drive) cannot be used as they are even after the recovery is completed. Copy the media files to the external storage device, and then import them using the CommandCenter. For detailed instructions, refer to the T2 User Manual.***

Chapter 3

# Troubleshooting Problems

If you think there is something wrong (broken) with your T2, go through the following preliminary steps:



Then use the following topics to troubleshoot specific problem areas:

# Step 1: Check configurations

Many times what appears to be a T2 fault is actually an easy-to-fix configuration problem. Refer to the *T2 Quick Start Guide* for operator tips that help you verify basic configuration and correct common record/play problems.

# Step 2: Check connections and external equipment

Loose or improperly connected cables are the most likely source of problems for the system, monitor, or other external equipment. A quick check of all the cable connections can easily solve these problems. Refer to the *T2 Quick Start Guide* for help with making connections. Refer to the troubleshooting topic "Checking external equipment" on page 42 if you suspect a failure in a device connected to the T2.

# Shutdown/restart problems

If the T2 is inoperable due to a software error it can effect the operation of the power switch. If pressing the power switch does not shut down the T2, press and hold the switch for 10 seconds. This forces the T2 to execute a hard power down. If that does not work, turn off the main power switch on the rear panel and disconnect the power cord.

# Checking external equipment

This section provides troubleshooting procedures for external devices that connect to the T2.

## VGA display problems

The VGA is displayed during BIOS startup with VGA resolution.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Screen turns on, but nothing from the T2 is displayed. | VGA connector or cable is faulty. | Replace VGA monitor. Make sure, the VGA monitor can display at least SXGA resolution. |
| | BIOS settings have been tampered with. | Enter the BIOS setting menu. And run "Load Setup Default". |
| | The T2 system settings have been tampered with. | Restore default settings using the Recovery Software DVD. Refer to "Restoring to the factory default condition" on page 37. |

## Keyboard problems

The keyboard is detected during BIOS startup. The USB keyboard is detected with plug-and-play.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| The T2 does not respond correctly when one or more of the keys on the keyboard are pressed. | • The keyboard is faulty.<br>• The motherboard level problem. | 1. When you connect a keyboard via a USB port, try another USB port.<br>2. If the problem persists, proceed with the next step.<br>When you use a PS/2 keyboard, try a USB keyboard. When you use a USB keyboard, try a PS/2 keyboard.<br>3. If the problem persists, the motherboard is faulty. Contact Grass Valley Support. |
| | The T2 system settings have been tampered with. | Restore default settings using the Recovery Software DVD. Refer to "Restoring to the factory default condition" on page 37. |

## Mouse problems

The mouse is detected during BIOS startup. The USB mouse is detected with plug-and-play.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| The T2 does not respond correctly when one or more of the buttons on the mouse are clicked. | • The mouse is faulty.<br>• The motherboard level problem. | 1. When you connect a mouse via a USB port, try another USB port.<br>2. If the problem persists, replace a mouse.<br>When you use a PS/2 mouse, try a USB mouse. When you use a USB mouse, try a PS/2 mouse.<br>3. If the problem persists, the motherboard is faulty. Contact Grass Valley Support. |
| | The T2 system settings have been tampered with. | Restore default settings using the Recovery Software DVD. Refer to "Restoring to the factory default condition" on page 37. |

# Motherboard/BIOS startup

A few seconds after startup, on the VGA monitor a black screen is displayed with system information messages. This is the BIOS Power On Self Test (POST). Press [F2] on the keyboard during this time to enter the BIOS settings pages. When the BIOS POST completes, the Grass Valley Logo appeared on the screen. At that point the Windows operating system begins to load.

If during the BIOS POST time a message appears that requires your input or if the T2 does not progress to Windows startup, it indicates a problem at the HDD/SSD (for data), the SSD (for the system) or the motherboard level. To correct problems of this nature, please try the followings.

Run "Load Setup Default" in the BIOS startup menu to recover BIOS.

When the names of HDD or SSD (for data) are not displayed in POST screen after restart, check a status. Refer to "Media disk problems" on page 50.

If the problem persists, contact Grass Valley Support.

# Windows startup

After the motherboard startup processes complete the Windows operating system starts up. Normally the Windows operating system completes its processes automatically without the need to press keys or respond to messages. The T2 is set to automatically log on without any input.

If the Windows startup screen does not proceed automatically or if a message appears that requires your input, it indicates a problem at the operating system level. If the problem cannot be corrected with a supported procedure (such as networking), the Windows operating system is not operating as it should. To correct problems of this nature, restore your system software. Refer to "Restoring to the factory default condition" on page 37.

# T2 system startup

After the Windows operating system startup processes complete, the T2 system startup processes begin. At first, message "preparing" appears. Following that, the T2 logo image appears. After this logo image, the CommandCenter is launched in the normal mode.

These startup processes will take about 20 seconds.

If the system does not startup correctly, restore default settings using the Recovery Software DVD. Refer to "Restoring to the factory default condition" on page 37.

# I/O board unit problems

To test the I/O board unit, do the following:

1. Configure an output (P1/P2 channel) and input (R1 channel) to the same video and audio type.
2. Load a correct clip to P1 or P2 channel.
3. Start the loop play of this clip.
4. Connect (loop) the configured output channel of the loop play directly to the configured input.
   - So this for both video and audio. This provides a verified good signal to the inputs.
5. Record a short clip.
6. Verify the I/O board unit's recording functionality as follows:
   (1) Check the thumbnail of the recording clip.
   (2) Listen to the clip's audio with headphones from the front panel headphone output.
7. Using the other play channel, play back the clip.
8. Verify the I/O board unit's play out functionality as follows:
   (1) Check the video on a verified good output device.
   (2) Listen to the audio output.
9. Repeat this procedure for each video and audio type.

If you get the expected results, the I/O board unit is good and any problems you are experiencing are due to some other cause.

If you get faulty results it indicates a problem with the I/O board unit. Investigate the problem further as described in the following table. If the problem persists, contact Grass Valley Support.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| A message "Board not found" appears in the preview area. | The device driver is not working properly. | Restore default settings using the Recovery Software DVD. Refer to "Restoring to the factory default condition" on page 37. |

# Front panel problems

## Touch screen LCD and control buttons problems

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| The touch screen LCD image is faulty.<br><br>No response against touch control. | • The software or operating system on the T2 has a fault.<br>• The touch screen LCD itself is faulty. | 1. Make sure CommandCenter is up and running.<br>2. If the problem persists, connect a mouse, keyboard, and VGA monitor to the T2 and test functionality. Compare this functionality to that of the touch screen LCD. If everything works fine with the VGA monitor but not the front panel, there could be a software problem on the touch screen LCD. Restore the T2 system. Refer to "Restoring to the factory default condition" on page 37. |
| The control buttons operates not at all. | • The control buttons or front board are broken.<br>• The software or operating system on the T2 has a fault. | 1. Make sure CommandCenter is up and running.<br>2. When the control buttons do not operate with CommandCenter launched, make sure the button kit device is present. Enter the maintenance mode. Open the device manager. And confirm "HID-compliant game controller" is present under the "Human Interface Devices" category.<br>3. Restore default settings using the Recovery Software DVD. Refer to "Restoring to the factory default condition" on page 37. |

# DVD drive problems

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| There is no access to a disk in the DVD drive. This can be accompanied by an error message from the Windows operating system. | There is a problem with the disk currently inserted in the drive, the Windows operating system is not recognizing the drive, pickup lens of the drive is dirty or the drive itself is faulty. | 1. Make sure a correctly formatted disk is inserted correctly. Try another disk if necessary. If the problem persists with a correctly formatted and inserted disk, proceed with the next step.<br>2. Watch the DVD drive access lights while you attempt access to the disk. If the lights do not flash correctly, restart the T2 and try disk access again. |

# 2.5 inch removable drive bay problems

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| There is no access to a drive in the Removable drive bay. This can be accompanied by an error message from the Windows operating system. | There is a problem with the SSD/HDD currently inserted in the drive, or the drive bay itself is faulty. | 1. Unlock the lock switch and remove the SSD/HDD. Insert it again and lock the lock switch. Watch the drive lights turned on.<br>2. Try another SSD/HDD and watch the drive lights turned on. |

# Video problems

For the corrective actions in this section, refer to the *T2 User Manual* for detailed instructions.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| A channel displays black at the end of the clip. | The channel is in E to E mode and there is no video signal present at the input. | Verify that you have a valid input signal. |
| P1/P2 channels have a dissimilar video display when no clip is playing. | One channel is in E to E and the other channel is not. | If similar display is required, configure P1/P2 channels the same. |
| The picture level modulates at a particular frequency. | There is excessive hum riding on the video input signal. The automatic gain control (AGC) circuits will tend to modulate the picture level at that frequency in an attempt to compensate for the problem. | Check the video input signal for excessive hum. |

# Audio problems

For the corrective actions in this section, refer to the *T2 User Manual* for detailed instructions.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| No audio. | Wrong audio input set. | Set the correct audio input. |
| Both E to E and playback audio output are distorted. | Audio input signal clipping caused by excessive audio input level. | Check for input audio clipping. Adjust the audio input trim. Adjust the P1/P2 channel audio level. Reduce the source audio input level. |
| Analog audio level is too low. | Audio level needs to be adjusted. | Adjust the audio input trim. Adjust the P1/P2 channel or R1 channel audio level. Increase the source audio input level. |
| Audio level is too low. | Audio level needs to be adjusted. | Adjust the P1/P2 channel or R1 channel audio level. Increase the source audio input level in the workstation mode. |
| Audio level meters do not display the correct reference level used in my system. | Incorrect audio reference level. | Select the correct audio reference level. |
| R1 audio via the MONITOR port or the headphone jack has periodic noise. | Video input signal is out of sync with the audio clock. | Check the current setting of R1 channel for video standard. Verify that the video input signal is the correct standard. |

# Timecode problems

For the corrective actions in this section, refer to the *T2 User Manual* for detailed instructions.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Recorded timecode reads --:--:--;--. | No timecode source for the channel. | Set the timecode source. |
| A clip shows no mark-in/mark-out timecode, the current timecode display shows --:--:--;--, or the last valid timecode is displayed. | The selected timecode source was missing or intermittent during recording. | Check that you have the right R1 channel timecode source selected, verify that timecode is present in the source, and record the clip again. You can also stripe the timecode on an existing clip. |

# Operational problems

For the corrective actions in this section, refer to the *T2 User Manual* for detailed instructions.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| A clip does not play, even though similar clips play on the same channel. | The clip does not match current channel settings or the clip is corrupt. | If the clip appears grayed-out it means it does not match current channel settings. Check the clip's properties and verify they are correct for the video standard, and other current settings. Compare properties with those of a clip that plays correctly. If properties are correct the clip is corrupt. Delete and re-record the clip. |
| A clip can not be edited. | The clip is locked. | Unlock the clip. |
| Cannot load and play a list. | The playlist does not match current channel settings or the playlist is corrupt. | If the playlist appears grayed-out it means it does not match current channel settings. Check the video standard in the property of the source clip for each event in the playlist. Compare properties with those of a playlist that plays correctly. If properties are correct the playlist is corrupt. Delete and re-make the playlist. |
| Cannot control a channel from the local T2. Controls are disabled. | The channel and the channel's control mode is set to Remote. | Turn off the Remote mode. |

# System problems

For the corrective actions in this section, refer to the *T2 User Manual* for detailed instructions.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| R1 channels does not record. | R1 channel is configured for incorrect video standard. | Check the current setting of R1 channel for video standard. Verify that the video input signal is the correct standard. |

# Storage problems

Use the following sections if you suspect problems with your T2's storage system.

## Media File System problems

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| One or more clips do not play or record correctly. | The media database is out of sync with the media files or there is a corrupt media file. Also see "Checking the storage system" on page 51 for causes related to certain usage patterns. | 1. If the problem is only associated with a specific clip or clips, delete the problem clips.<br>2. If the problem persists, run the Maintenance Tools and check disk error. Refer to "Media disk error checks" on page 25. If the problem persists, run the database consistency check. Refer to "Checking the data consistency" on page 28. |

## Media disk problems

On the Windows desktop open **My Computer** for a quick check of the SATA drives. You should see C:, D:, and V: drives. The C: and D: drives are in the SSD (for the system) of the 2.5 inch removable drive bay. The V: drive is striped back of the touch screen LCD.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| The message "Media disks getting full..." appears. | The media disks are reaching maximum capacity. | Delete unused clips and empty the Recycled Bin to make space on the media drives. |

## Checking the storage system

The following section provides guideline for investigating problem areas related to the storage system. Use this section if you have problems with media input and/or output that are intermittent or seem to be related to certain usage patterns.

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Symptoms can include the video recording stop or black video at playout, frozen video, slow performance, or inconsistent media access. | • The following causes can occur on their own or in combination to produce the problem:<br>Disk oversubscription - This occurs when requests to the media disk exceed the disk's bandwidth capabilities. This generally occur in extreme cases when a combination of high-bandwidth operations are taking place, such as JOG/shuttle, record/play on multiple channels.<br>• High CPU activity in Windows - This occurs when activities on the Windows operating system over-tax the capabilities of the motherboard processor. This commonly happens when unsupported software has been installed that competes with the T2 applications. Virus scanners and screen savers can cause this type of problem, since they can start automatically and consume system resources.<br>• Disk faults - This occurs when a media disk is severely fragmented or has a bad blocks that interfere with some, but not all, media operations. For example, a particular clip can be written on a bad block, so the problem occurs only on that clip. | 1. When you install the unsupported application software, uninstall them.<br>2. If the problem persists, try to re-create the problem. Identify all the interactions that affected the system and run all the same operations as when the error occurred. Investigate the functions that seem to push the system into the error state. If you determine that certain simultaneous operations cause the problem, re-order your workflow to avoid those situations. If you determine that the problem is only on certain clips, investigate disk faults. |

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