PROMISE®
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Intel® Modular Server
to
VTrak E-Class
CONNECTION GUIDE

Version 0.81

Modular Server-to-VTrak Connection

This document contains the following topics and tasks:

This Guide describes how to connect an Intel® MFSYS25 Modular Server System (Modular Server) to a VTrak E610s or E310s subsystem (VTrak) to expand the Modular Server's data capacity. These instructions are limited to the making the Modular Server-to-VTrak connection and related settings.

For information about setting up your VTrak, see the printed *VTrak Quick Start Guide* or the *VTrak Product Manual* on the software CD that came with your subsystem.

For information about setting up your Modular Server, see the *Intel® Modular Server System MFSYS25 Quick Start User's Guide*, the *Modular Server System MFSYS25 User Guide*, and other related documents.

IT managers want the ability to assign LUNs to individual servers. On Modular Server, you can do that easily in the Intel® Module Server Control GUI. But the GUI was not designed to work with an external storage device such as VTrak. As a result, the GUI does not report the World Wide Number (WWN) of each Compute Module (blade server). The WWN is used for the SAS initiator name, and you need the initiator name to associate a LUN with a blade server.

The tasks in this document enable you to identify the WWN of each Modular Server blade server and associate a LUN with the blade server using Promise WebPAM PROe, the GUI that runs on VTrak.

Logical Drive and LUN Numbering Strategy

A suggested strategy is to create a logical drive for each blade server. Each logical drive has its own LUN. The LUN is 0 so the blade server can boot from it.

Blade Server	Logical Drive	LUN
Slot 1	LD1	LUN0
Slot 2	LD2	LUN0
Slot 3	LD3	LUN0
Slot 4	LD4	LUN0
Slot 5	LD5	LUN0
Slot 6	LD6	LUN0

This strategy is followed throughout this document. You are free to use a different strategy that better meets your needs.

Prerequisites

The Modular Server-to-VTrak connection requires:

- Modular Server, setup and running with a network connection
- VTrak, setup and running with a network connection
- Networked PC workstation running Windows OS, to access Module Server Control and WebPAM PROe
- SAS cable with SFF-8088 Mini-SAS external connectors. The cable must be long enough to reach from your Modular Server to your VTrak.
- RJ11-to-DB9 serial data cable supplied with the VTrak. This cable is required to verify the VTrak's IP address

Task 1: Log into Modular Server Control

1. On your PC workstation, open Internet Explorer.
2. In the Address field, type **https://** followed by the IP address of your Modular Server, then press Enter.

   The Modular Server Control (MSC) log-in screen appears.
3. In the MSC log-in screen:
   - Type **admin** in the Username field.
   - Type **admin** in the Password field.
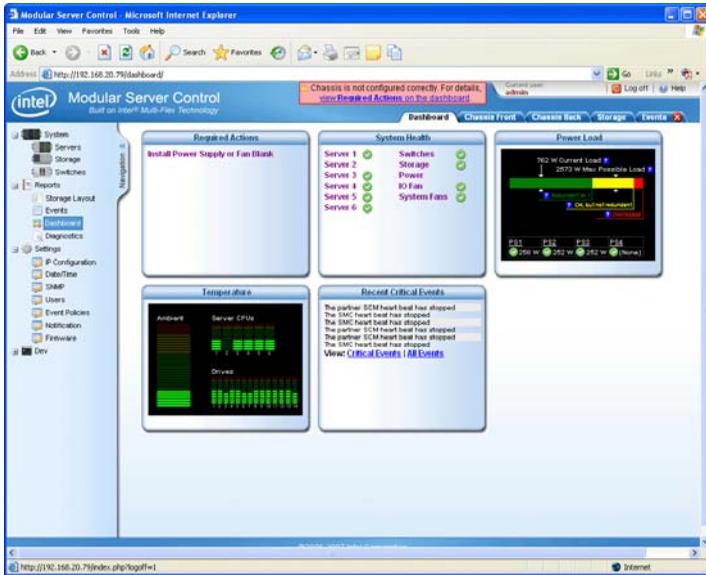   - Click the **Log In** button.

   The Username and Password are case sensitive.

Figure 1. MSC login screen
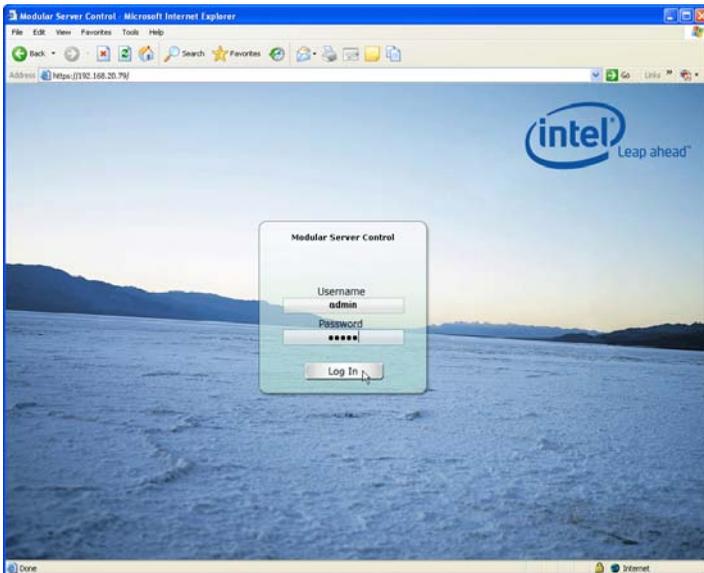
After log-in, the MSC Dashboard screen appears.

Figure 2. MSC Dashboard screen

Task 2: Enabling External Ports

The Modular Server has external ports that each blade server can access. The port numbers correspond to the slot number of each blade server. To enable a port is to enable the external data connection, in this case, to access a LUN on the VTrak.

To enable the external ports:

1. In the MSC screen, click the **Chassis Back** tab.
2. Click the **SCM 1** component in the enclosure graphic.
3. Click **Expansion Port** in the SCM 1 Actions menu.

Figure 3. MSC Chassis Back screen

SCM 1   SCM 1 Actions menu   Chassis Back tab
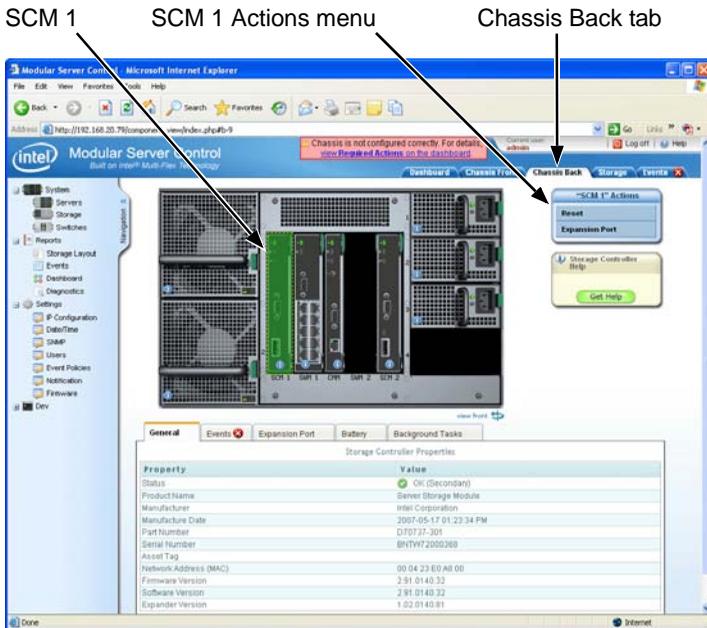
4. Check the box for **Server 1** and click the **Apply** button.

Later in the process, you will return to this Task to enable another external port, until all the ports are enabled. Enable just one port at a time.

Figure 4. MSC Expansion Port dialog box

Server 1's external port is now enabled. It will appear as a SAS initiator in WebPAM PROe. In "Task 7: Associating LUNs and Initiators" on page 16, you will associate this port or initiator with a LUN.

What to do next

- If you are working through the *Connection Guide* for the first time, continue with "Task 3: Attaching the SAS Cable" on page 8.
- If you are in the process of associating LUNs and initiators, go to "Adding an Initiator" on page 16.

Task 3: Attaching the SAS Cable

1. Power off the VTrak.

2. Insert the SAS cable connector into the SAS port on Storage Controller 1.

3. Insert the other end of the SAS cable into one of the SAS data ports (diamond icon) on the VTrak.

   If you plan to attach a SAS cable to Storage Controller 2, be sure you connected the other end of the cable to one of the SAS data ports (diamond icon) on the *other* VTrak controller. See Figure 5.

Figure 5. Modular Server-to-VTrak SAS connections
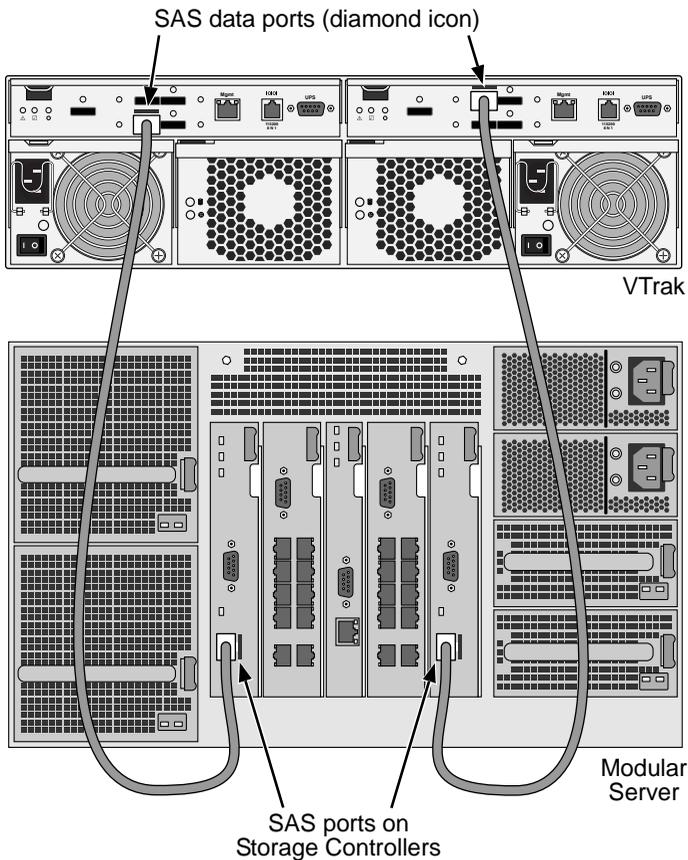
4. Power on the VTrak.

   Flip the switch on both power supplies to the ON position.

Task 4: Finding the VTrak's IP Address

You must first set up a serial connection between the VTrak and your PC. Then you can run Microsoft HyperTerminal to access the VTrak's command line interface (CLI) to find the IP address.

This procedure requires the RJ11-to-DB9 serial data cable supplied with the VTrak and includes the following actions:

- Setting up a Serial Connection (page 9)
- Accessing the VTrak's CLI (page 9)

Setting up a Serial Connection

To set up a serial connection:

1. Attach the RJ11 end of the serial data cable to the RJ11 serial connector on one of the controllers.
2. Attach the DB9 end of the serial data cable to a serial port on the PC.

Figure 6. The VTrak serial connector
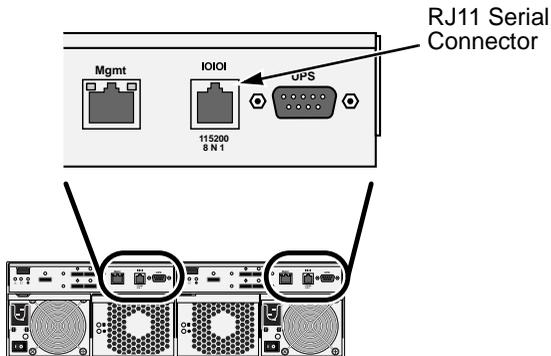
Accessing the VTrak's CLI

To access the VTrak's CLI:

1. Change your terminal emulation program settings to match the following specifications:
   - Bits per second: 115200
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: none
2. Start your PC's terminal VT100 or ANSI emulation program.

3. Press Enter once to launch the CLI.

4. At the Login prompt, type **administrator** and press Enter.

5. At the Password prompt, type **password** and press Enter.

    At this point, you are in the CLI.

6. To view the IP address, type **net** and press Enter.

    administrator@cli> **net**

    ```
    =========================================
    CId Port Type   IP            Mask           Gateway       Link
    =========================================
    1   1    Mgmt   192.168.10.85 255.255.255.0  192.168.10.1  Up
    ```

    In this example, the VTrak's IP virtual address is **192.168.10.85**. Use this address to log into WebPAM PROe.

Task 5: Logging into WebPAM PROe

To log into WebPAM PROe:

1. Launch your Browser.

2. In the Browser address field, type in the virtual IP address of the VTrak.

   Use the virtual IP address you obtained in Step 4 (see page 9). Note that the IP address shown below is only an example. The IP address you type into your browser will be different.

Regular Connection

- WebPAM PROe uses an HTTP connection. . . . . .http://
- Enter the VTrak's IP address. 192.168.10.85

Together, your entry looks like this:

   http://192.168.10.85

Secure Connection

- WebPAM PROe uses a secure HTTP connection. . . . . .https://
- Enter the VTrak's IP address. 192.168.10.85

Together, your entry looks like this:

   https://192.168.10.85

3. When the log-in screen (Figure 21) appears:

- Type **administrator** in the User Name field.
- Type **password** in the Password field.
- Click the **Login** button.

The User Name and Password are case sensitive.

Figure 7. WebPAM PROe log-in screen
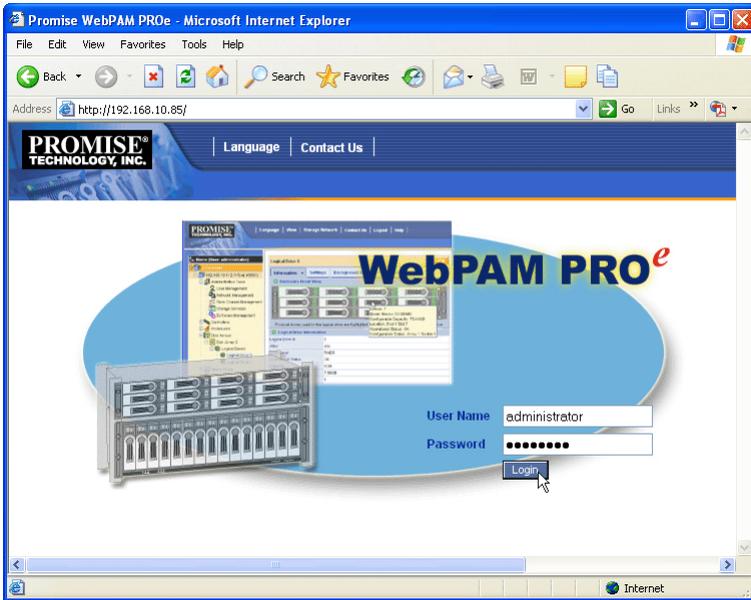
After sign-in, the WebPAM PROe opening screen appears. You are ready to create your disk arrays and logical drives.

Task 6: Creating Logical Drives

WebPAM PROe offers three methods of creating disk arrays and logical drives. Two of these methods are suitable for Modular Server because they can create multiple logical drives:

- **Express** – You choose the RAID characteristics and type of application. Creates a disk array and logical drives based on your input. Faster.
- **Advanced** – You specify all parameters for the disk array and logical drives. One logical drive will be created automatically. You can create additional logical drives now or later.For more options please see page 14.

Express

To create a disk array and logical drives:

1. Click the Subsystem 📕 icon in Tree View.
2. Click the Disk Arrays 📚 icon.
3. Click the **Create** tab in Management View.
4. From the **Create** tab dropdown menu, choose *Express*.
5. Check the boxes to choose any one or combination of:
   - **Redundancy** – The array will remain available if a physical drive fails
   - **Capacity** – The greatest possible amount of data capacity
   - **Performance** – The highest possible read/write speed
   - **Mixing SATA/SAS Drive** – Check this box if you want to use both SATA and SAS drives in the same disk array

     If the box is unchecked, and you have both SATA and SAS drives, different arrays will be created for each type of drive.
6. In the Number of Logical Drives field, enter the number of logical drives you want to make from this disk array.
7. From the Application Type menu, choose an application that best describes your intended use for this disk array:
   - File Server
   - Video Stream
   - Transaction Data
   - Transaction Log
   - Other
8. Click the **Update** button.

   Or check the Automatic Update box and updates will occur automatically.

The following parameters display:

- **Disk Arrays** – The number of physical drives in the disk array, their slot numbers, configurable capacity, and the number of logical drives to be created
- **Logical Drives** – The slot number of the logical drive(s), their RAID level, capacity, and stripe size

For Modular Server, create six logical drives. Rename them LD1 through LD6

- **Spare Drives** – The physical drive slot number of the dedicated hot spare assigned to this disk array (all RAID levels except RAID 0)

If you accept these parameters, proceed to the next step.

If you do NOT accept these parameters, review and modify your selections in the previous steps.

9. When you are done, click the **Submit** button.

The new disk array appears in the Disk Array List in the Information tab.

Advanced

To create a new disk array and logical drives:

1. Click the Subsystem 📑 icon in Tree View.
2. Click the Disk Arrays 📚 icon.
3. From the Create tab dropdown menu, choose *Advanced*.

Step 1 – Disk Array Creation

4. Enter an alias for the disk array in the field provided.
5. Check the box if you want to enable Media Patrol.

    For more information, see the VTrak E310S Dual manual

    "Media Patrol" on page 267.
6. Check the box if you want to enable PDM.

    For more information, see the VTrak E310S Dual manual

"Predictive Data Migration (PDM)" on page 268.

7. Highlight physical drives you want in the disk array from the Available list and press the **>>** button to move them to the Selected list.

    You can also double-click them to move them.
8. When you are done, click the **Next** button.

Step 2 – Logical Drive Creation

Logical Drive Creation enables you to specify logical drives under the new disk array. Enter the information for a logical drive, then click the **Update** button. If

there is free capacity remaining, you can specify another logical drive now or wait until later.

For Modular Server, create six logical drives. Name them LD1 through LD6.

9. Enter an alias for the logical drive in the field provided.

10. Choose a RAID level for the logical drive from the dropdown menu.

    The choice of RAID levels depends the number of physical drives you selected.

11. RAID 50 and 60 only – Specify the number of axles for your array.

    For more information on axles, see the VTrak E310S Dual manual"RAID 50 Axles" on
    60 Axles" on page 248.

12. Specify a Capacity and the unit of measure (MB, GB, TB).

    This value will be the data capacity of the first logical drive in your new disk array. If you specify less than disk array's maximum capacity, the remainder will be available for additional logical drives which you can create later.

13. Specify a Stripe size from the dropdown menu.

    64 KB, 128 KB, 256 KB, and 1 MB are available. 64 KB is the default.

14. Specify a Sector size from the dropdown menu.

    512 B, 1 KB, 2 KB, and 4 KB are available. 512 B is the default.

15. Specify a Read (cache) Policy from the dropdown menu.

    Read Cache, Read Ahead Cache, and No Cache are available. Read Ahead is the default.

16. Specify a Write (cache) Policy from the dropdown menu.

    Write Back and Write Through (Thru) are available. Write Back is the default.

17. From the Preferred Controller ID dropdown menu, choose a controller.

    The choices are Controller 1 or 2, or Automatic. This feature is only available on subsystems with two controllers and LUN Affinity enabled.

18. Click the **Update** button.

    A new logical drive is displayed under New Logical Drives.

    Repeat the above steps to specify additional logical drives as desired.

19. When you are finish specifying logical drives, click the **Next** button.

Step 3 – Summary

The Summary lists the disk array and logical drive information you specified.

20. To proceed with disk array and logical drive creation, click the **Submit** button.

The new disk array appears in the Disk Array List the Information tab.

Task 7: Associating LUNs and Initiators

A LUN represents a logical drive on the VTrak. An initiator represents a blade server in the Modular Server. Each blade server uses LUN0 for booting and storage. This task includes the following actions:

- Enabling LUN Masking (page 16)
- Adding an Initiator (page 16)
- Adding a LUN Map (page 17)
- Editing a LUN Map (page 17)

Enabling LUN Masking

LUN masking is the process of applying a LUN Map so that each initiator can only access the LUNs specified for it. You only have to perform this action one time.

To enable the LUN Masking:

1. Click the Subsystem 📕 icon in Tree View.
2. Click the Administrative Tools 🖪 icon.
3. Click the Storage Services 🎴 icon.
4. Click the **LUN Map** tab in Management View.
5. Click the **LUN Masking Enabled** box.
4. Click the **Submit** button.

Adding an Initiator

You must add an initiator to the VTrak's initiator list before you can associate the initiator with a LUN. You must repeat this action for each initiator.

To add an initiator:

1. Click the Subsystem 📕 icon in Tree View.
2. Click the Administrative Tools 🖪 icon.
3. Click the SAS Management 🔲 icon.
4. In Management View, click the **Initiators** tab.

    A list of all currently logged-in initiators appears the screen.
5. Check the box to the left of the initiator you want to add.
6. Click the **Add to Initiator List** button.

    The initiator is added to VTrak's list.

What to do next

- If you do not have a LUN Map, continue with "Adding a LUN Map" below.
- If you have a LUN Map, continue with "Editing a LUN Map" below.

Adding a LUN Map

A LUN map associates LUNs and initiators.

To add the LUN Map:

1. Click the Subsystem 📑 icon in Tree View.

2. Click the Administrative Tools 🛠 icon.

3. Click the Storage Services ▥ icon.

4. Click the **LUN Map** tab in Management View and from the dropdown menu, choose *Add a LUN Map*.

5. Choose the initiator from the Initiator dropdown list.

    An initiator takes its name from the WWN of the blade server.

6. In the LUN Mapping & Masking list, enter LUN0 for logical drive LD1.

7. Click the **Submit** button.

    The blade server in slot 1 is now associated with logical drive LD1.

What to do next

- Go back to "Task 2: Enabling External Ports" on page 6 and enable one more External Port.

Editing a LUN Map

This action associates LUNs and initiators.

To edit the LUN Map:

1. Click the Subsystem 📑 icon in Tree View.

2. Click the Administrative Tools 🛠 icon.

3. Click the Storage Services ▥ icon.

4. Click the **LUN Map** tab in Management View.

5. From the LUN Mapping & Masking Information list, choose the new initiator that just appeared and click its link.

6. In the LUN field, enter LUN0 for each logical drive.

    Specify logical drives LD2 though LD6, in order, one logical drive for each initiator.

7. Click the **Submit** button.

This action completes the association of the blade servers in slots 2 through 6 with logical drives LD2 through LD6, respectively.

What to do next

* Go back to "Task 2: Enabling External Ports" on page 6 and enable one more External Port until all the ports have been enabled.

Task 8: Installing an OS on a Blade Server

In this case, the phrase *installing an OS on a blade server* refers to installing the OS onto the VTrak LUN assigned to the blade server.

Connections required to boot the blade server and install the OS are made through the 15-pin video connector and two USB connectors on the front panel.

This procedure requires a monitor, keyboard, mouse, and an external CD drive with a USB 2.0 interface.

To install an OS on a blade server:

1. Power off the blade server.

    Press the power button on the front panel. See Figure 8.

2. Attach a monitor, keyboard and mouse, and CD drive to the blade server.

3. Power on the monitor, CD drive, and blade server.

    To power on the blade server, press the power button on the front panel. See Figure 8.

4. Insert the OS installer CD in the CD drive.

5. Follow the prompts for OS installation.

    Be sure you install the OS onto LUN 0.

6. Reboot the blade server.

7. Enter BIOS setup and set the boot order to boot from LUN 0 first.

8. Exit the BIOS setup.

This completes OS installation on this blade server. Repeat the installation on your other blade servers as required.

Within Windows, you might have to bring the physical drives online to enable them.

Figure 8. Modular Server blade server

USB connectors   Video connector   Power button