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ASL

SECURITY - VIDEO - FIRE - NETWORKING

Video Management Server Hardware Assembly and Configuration Manual

Version 1.0

Document Revision History

This table contains the revision history of this document.

Document Revision History

Version	Author	Date	Comments
1.0	P. Rose Primeau	December 3, 2025	first complete draft

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Introducing This Manual

This manual includes detailed instructions to help a technician set up the server for intelligent car wash camera systems and ensure its integration with other system components.

Who Should Read This Manual

This manual is for installation technicians, maintenance technicians, and managers providing oversight. The documentation addresses the needs of installation technicians, who require step-by-step, task-oriented guides with clear diagrams and equipment lists.

What is the Purpose of This Manual

This installation manual allows Access Security Logistix (ASL) employees to build and install information technology (IT) systems for surveillance and intelligent car wash applications. The manual also supports preventative maintenance and compliance of these systems.

Who are the Subject Matter Experts

Table 1 lists the subject matter experts (SMEs) and contributors to this manual.

Table 1. List of Contributing Subject Matter Experts

Name	Marc Primeau	Ethan Primeau
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Preparing for Installation

This section provides checklists of requirements for installation:

- site specifications
- tools and reference material
- input and output (IO) devices
- supplies

It also contains the procedures for organizing, attaching, and configuring the components and IT systems.

Conditions and Equipment

Table 2 lists the conditions and equipment that the technician requires to begin installation.

Table 2. Installation Checklist

Requirements	Detailed Items
site specifications	open workspace
	good lighting
	accessible power outlets (120 volts)
	Internet and private network access
tools and reference material	motherboard manual
	Phillips screwdrivers (normal and precision)
IO devices	mouse and keyboard
	monitor
	high-definition multimedia interface (HMDI) or display port cable
	universal serial bus (USB) device (empty and at least 8 gigabytes [GB] of storage)

Supplies

Table 3 lists the supplies that the technician requires to begin installation, in the order the technician needs to use them.

Table 3. Supplies Checklist

Supply Types	Detailed Items
chassis package	chassis with preinstalled power supply
	motherboard tray
	24-port and 8-port power cables
	hard drive bay power cables
	chassis IO cables
	serial advanced technology attachment (SATA) cables
	accessories bag
motherboard package	motherboard
	IO cover
central processing unit (CPU) package	CPU
	CPU cooling fan
memory and storage	random-access memory (RAM) sticks
	M.2 solid state drive (SSD)
	M.2 heatsink
networking devices	network card

Prepare the USB Device and Windows Licence

Ensure that Windows 11 is available on a USB device. Also, acquire a licence for Windows 11 Pro from ASL.

> **Caution**
>
> Before applying power to the assembled server, complete the following procedure:
>
> 1. Download the Windows 11 installation tool.
> 2. Use the downloaded file to prepare the external USB device.
> 3. Acquire a Windows 11 Pro activation code.
>
> The USB device is now ready to install Windows 11 Pro on site.

Prepare and Organize the Chassis Components

To prepare and organize the chassis components for the server, complete the following procedure. Preparing the chassis by completing the following steps:

1. Unpack the server chassis.
2. Remove the 2 thumb screws on the rear to release the cover.
3. Organize the chassis components:
   a) Release the motherboard tray by taking out the 2 Phillips screws at the back.
   b) Remove the power cable and accessories bag.
   c) Remove the adhesive cable clip and the motherboard screws from the accessories bag.
   d) Release the hardware power cables and the chassis IO cables.
4. Set aside the cables required for further installation.

   Note: The server will require the following cables for installation:

- 24-port and 8-port motherboard power cables
- 2 hard drive bay power cables
- hard drive (green), power button (brown), power light-emitting diode (blue), reset switch (orange), and USB 3.0 IO cables

The chassis and its components are now ready to receive the system components.

Prepare and Organize the System Components

To prepare and organize the system components for the server, complete the following procedure to prepare the motherboard.

1. Unpack the motherboard:
   e) Extract the motherboard from the box.
   f) Remove the anti-static plastic cover from the motherboard.
   g) Set aside the packaged M.2 screw and motherboard IO shield.
   h) Set aside the M.2 heatsink (if present).
   i) Set aside the motherboard manual (if present).

Warning

If the motherboard package does not include an M.2 heatsink, the technician must provide a third-party heatsink for the SSD. The SSD will overheat and damage the system if there is no heatsink.

Important: If the motherboard package does not include a manual, the technician must download the appropriate manual from the manufacturer's website.

2. Unpack and set aside the central processing unit (CPU) and cooling fan.

Warning

Do not touch the thermal paste on the cooling fan, or proper contact with CPU will not occur.

Caution

Keep the CPU in its plastic seal until installation.

3. Extract and set aside the RAM sticks.
4. Unpack the M.2 solid state drive (SSD):
   a) Extract and set aside the M.2 storage device.
   b) Prepare third-party heatsink (including M.2 enclosure and thermal pads).

5. Unpack the network card:
   a) Extract the network card and remove its anti-static plastic cover.
   b) Set aside the network card and any additional mounting brackets.
6. Unpack and set aside 4 serial advanced technology attachment (SATA) cables.

The system components are now ready for assembly.

Attaching Components to the Motherboard

Once all components are ready, complete the following procedure to attach them to the motherboard. This section explains how to attach the following:

- CPU
- cooling fan
- RAM
- SSD

Install the CPU and Cooling Fan on the Motherboard

To install the CPU and cooling fan on the motherboard, complete the following procedure:

1. Remove the plastic cover from the CPU socket. Figure 1 shows the socket with the plastic cover in place. Figure 2 shows the socket with the plastic cover removed.

Figure 1: CPU Socket with Plastic Cover

Source: Primeau 2025a

Figure 2: CPU Socket with Plastic Cover Removed

Source: Primeau 2025b

2. Release the lever to open the CPU socket cover on the motherboard (see Figure 3).

Figure 3: CPU Socket in Open Position

Source: Primeau 2025c

3. Remove the CPU from the plastic seal and carefully place it in the CPU socket of the motherboard.

Warning

The triangle on the CPU must align with a small triangle on or around the socket. The triangle is small, and it may be difficult to see.

Attempts to insert the CPU in an incorrect alignment will damage the socket or the CPU itself.

4. Close the CPU socket cover with the lever and push it into the locked position.

5. Place the cooling fan on top of the CPU so that the thermal paste touches the CPU and the 4 prongs line up with the holes on the motherboard (see Figure 4).

Figure 4: CPU in Position, Showing Thermal Paste from First Contact with Fan

Source: Primeau 2025d

Note: Ensure that the 4 prongs align with the holes on the motherboard throughout the next step.

6. Press each prong through its hole until a click sounds and it locks on the back of the motherboard.
7. Consult the diagram in the motherboard manual and attach the fan connector to the motherboard in the location labelled **CPU_FAN**.
8. Tuck the fan connector wires away safely.

The motherboard, CPU and cooling fan are now ready for additional components.

Install the RAM and SSD on the Motherboard

After attaching the CPU and cooling fan, complete the following procedure to install the RAM and SSD on the motherboard. Complete the following steps:

1. Unlock the RAM slots by flipping the levers open.
2. Install the RAM sticks in the slots.

Important: The RAM will only function in the correct orientation; the gap in the RAM stick must align with the divider in the RAM slots. The levers will only close fully with the RAM installed correctly. Figure 5 shows the gap for the socket divider.

Figure 5: RAM Stick Showing Gap for Socket Divider

Source: Primeau 2025e

3. Close the levers to secure the RAM sticks to the motherboard (see Figure 6).

Figure 6: RAM Stick in Position

Source: Primeau 2025f

> **Important:** When using the third-party heatsink, insert the M.2 SSD in the heatsink before installation.

4. Install the assembled M.2 SSD and heatsink in the appropriate slot on the motherboard using the M.2 screw that came with the motherboard.

The motherboard and its components are now ready for network card installation.

Install the Network card on the Motherboard

After installing the RAM and SSD, complete the following procedure to attach the network card to the motherboard. Complete the following steps:

1. Take the network card out of its static-resistant bag.
2. Insert the network card in a bracket, if necessary.
3. Attach the network card to the motherboard.

The motherboard and its components are now ready for chassis assembly.

Inserting the Motherboard into the Chassis

After connecting the components to the motherboard, complete the following procedure to insert the motherboard into the chassis. Complete the following steps:

1. Attach the motherboard to the motherboard tray.
2. Attach the cables to the motherboard and close the chassis.

The following sections outline the procedures for both steps.

Attach the Motherboard to the Motherboard Tray

Complete the following procedure to attach the motherboard to the motherboard tray:

1. Install the motherboard's IO shield to the motherboard tray.
2. Place the prepared motherboard onto the motherboard tray.

> **Important:** Ensure that all the IO connections are visible through the IO shield. Also, the screw holes on the motherboard must align with the screw standoffs on the motherboard tray.

3. Install all of the motherboard screws that came with the chassis into the screw standoffs, so that the motherboard is secure.
4. Place the tray in the designated grooves in the chassis.

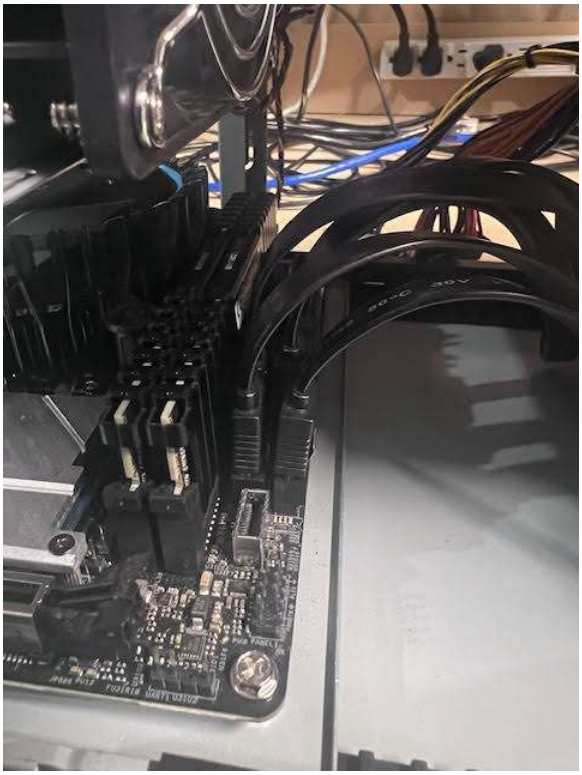
The motherboard and motherboard tray are now ready for cable attachment.

Connect Cables to the Motherboard

After attaching the motherboard to the motherboard tray, complete the following procedure to connect the cables:

1. Install all the hard drive SATA cables connecting the hard drive bay to the motherboard (see Figure 76).

Figure 7: SATA Cables

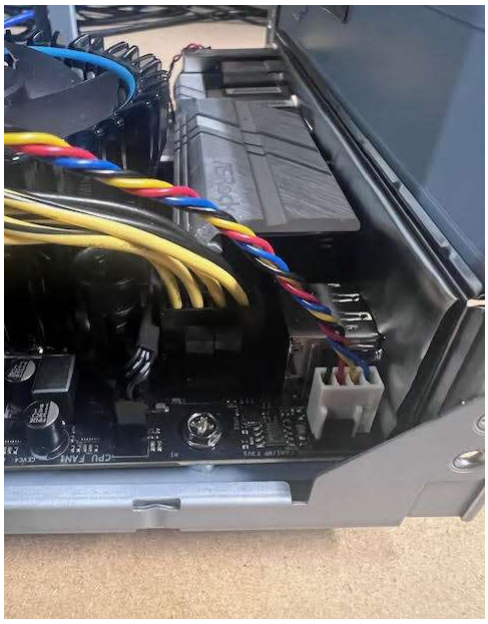


Source: Primeau 2025g

2. Consult the diagram in the motherboard manual to identify the locations for the following connectors:
   - chassis fan
   - USB 3.0 cable
   - 24-port (motherboard power) cable
   - 8-port (CPU power) cable
   - system panel header

3. Attach the chassis fan connector to the motherboard in the location labelled **CHA_FAN.**
4. Plug the USB 3.0 into the **USB 3.0** header on the motherboard (see Figure 8).

Figure 8: Chassis Fan Connector



Source: Primeau 2025h

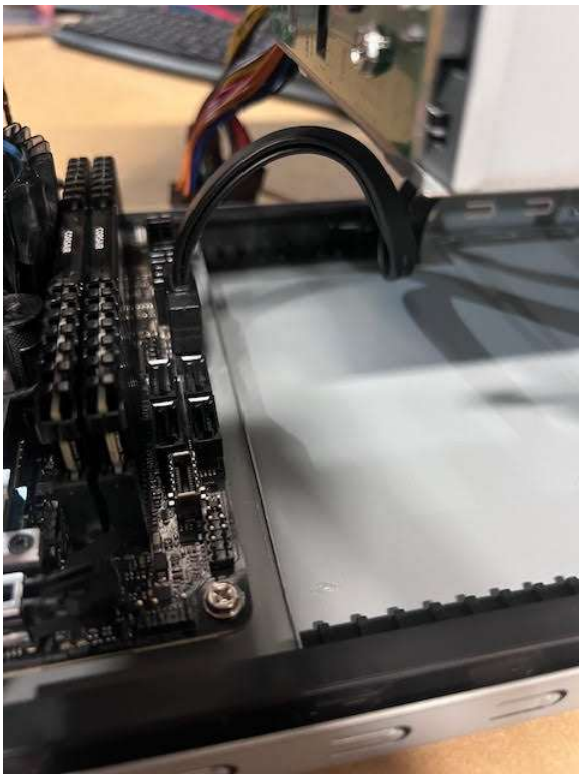
5. Plug the 24-port (motherboard power) and 8-port (CPU power) cables into the correct ports on the motherboard (see Figure 9).

Figure9: Power Cables Attached to Motherboard

Source: Primeau 2025i

6. Plug the IO cables into the system panel header according to the motherboard' onboard headers (see Figure 10).

Figure 0: IO Cables



Source: Primeau 2025j

7. Insert the SATA power cables into the top of the hard drive bay of the chassis.

The motherboard and its components are now ready for cable management and chassis closure.

Clean Up the Cables and Close the Chassis

After attaching the cables to the motherboard, complete the following procedure for proper cable management before closing the chassis:

1. Organize and manage the cables in the chassis.
2. Push the motherboard tray back into the chassis until a click sounds and it locks into place.
3. Inspect all connections and ensure that the cables do not show tension, strains, or pinching (see Figure 11).

Figure 51: Chassis with Cables Organized

Source: Primeau 2025k

4. Install the cover of the chassis and ensure that all sides are smooth and align with the screw holes in the rear of the chassis.
5. Secure the motherboard tray to the chassis with the 2 Phillips screws.
6. Secure the chassis cover to the chassis with the 2 thumb screws.

The server hardware is now ready for Windows installation.

Installing and Configuring Windows

After assembling the server hardware, complete the following procedures to configure the basic input output system (BIOS), install Windows, and configure various settings in the Windows operating system. This section describes the procedures for this process.

Configure BIOS and Prepare for Windows Installation

Note: Ensure that the server has access to the following:

- power
- internet
- monitor
- mouse
- keyboard

Complete the following procedure to configure the BIOS and prepare the server for Windows installation:

1. Click the power button to power on and wait for the motherboard's bios to boot.
2. Once the server has booted into its bios, activate the following:
   c) Activate the RAM's XMP profile.
   d) Turn on **Boot After A/C Power Loss**.

   Note: The navigation and names of these settings may vary depending on the brand of the server's motherboard.
3. Select **Save** once you have made the changes.

> **Important:** The server will reboot and return to BIOS. When it does, verify that the BIOS shows the correct settings, and reset and save them if needed.

4. Power down the server after verifying that the changes have been saved.
5. Plug a USB device with the Windows installation files into the back of the server.
6. Turn the server's power on.

The server is now ready to begin Windows installation.

Warning

Ensure that power to the server is off before inserting the USB device for Windows installation.

Install Windows

Note: Follow the steps presented on each screen of the installer.

Complete the following procedure to install the Windows operating system on the server:

1. Select **Windows 11 Pro** for the type of operating system.
2. Click **I do not have a product key** when prompted to enter one.
3. Create a new email address: **VMS**[chassis' serial number]**@hotmail.com**.
4. Create a new password for the server: **VMSAdmin1234**.
5. Select **Personal Use** when prompted for the type of setup.
6. Set the PIN as **16987**.
7. Select **Required only** for each set-up option as it is presented.
8. Decline all offers from Microsoft (such as MS Office, cloud storage, mobile access, and Xbox game pass).
9. Allow the server to update the operating system and continue installation until the monitor displays the Windows home screen.

The server is now ready for Windows activation and updating.

Activate and Update Windows

Complete the following procedure to activate and update the Windows operating system:

1. Open the Settings app, then:
   a) Select **System**
   b) Select **Activation**
2. Install the Windows 11 Pro activation key in the appropriate field.
3. Navigate to the main menu of the Settings app, then:
   a) Select **Windows Update**.
   b) Select **Download and Install**.
4. Install each required update.
5. Restart the server as needed.

Note: Repeat steps 2 and 3 until there are no updates.

The Windows installation is now ready for configuration.

Configure Windows Settings

Complete the following procedure to configure the server's settings in Windows:

1. Open the Settings app, then:
   a) Select **System**.
   b) Select **Power**.
   c) Set the screen off/sleep time to **Never**.
2. Navigate to the main menu of the Settings app, then:
   a) Select **Time & language**.
   b) Ensure the time zone is **(UTC-05:00) Eastern Time**.
3. Navigate to the main menu of the Settings app, then:
   a) Select **Accounts**.
   b) Select **Sign-in Options**.
   c) Ensure **Windows Hello sign-in** is **OFF**.
4. Press the **Windows button + R**.
5. Type **NETPLWIZ** in the pop-up window to open the **User Accounts** menu.
6. Select the server's account so it is highlighted in blue, then:
   a) Set **Users must enter a username and password to use this computer** to **OFF**.
   b) Select **Apply**.
7. Enter the server's password **VMSAdmin1234** and select **OK**.

The basic Windows configuration is now complete. The server is now ready to unlink from OneDrive.

Unlink the Server from OneDrive

Complete the following procedure to unlink the server account from OneDrive:

1. Open the OneDrive app.
2. Select **Help & Settings**.
3. Select **Unlink this PC** if any account is linked to OneDrive.
4. Close the OneDrive app.

Windows installation and configuration are now complete.

Testing the Server

Verifying these server functions while consulting Table 5:

- server's automatic login
- power restoration
- power button
- reset button
- hard drive light status

The server should behave according to the following table. If the server does not respond as expected, the technician must take corrective action. Return to the section with relevant instructions and carefully repeat the necessary steps.

> **Note:** Ensure that power to the server is off before performing any tests.

Table 4 is a troubleshooting guide for the technician to test the new server.

Table 4. Server Actions and Expected Behaviour

Action	Expected Behaviour
Press the power button.	The server should power on and automatically boot into Windows.
Press the reset button.	The server should restart and automatically boot into Windows.
Unplug A/C power for 10 seconds and plug it back in.	The server should automatically power on and boot into Windows.
Confirm server status light.	The power button glows blue and hard drive status light flickers green.

List of Components

Main Processor: https://a.co/d/dDnBbXE

Memory RAM: https://a.co/d/4R8WyF3

Mini Server Chassis: https://a.co/d/hcfIa0t

Motherboards: https://a.co/d/bPjMlzT

SSD Main Drive: https://a.co/d/1j72Ou1

SSD Heatsink: https://a.co/d/146F8hq

Secondary Ethernet Card: https://a.co/d/jihC4pL

Storage Bay Drives (Requires 3): https://a.co/d/cDJ9M2O

Style Guide

Based on consultations with the project owner, this documentation project follows certain principles that differ from the Simon Fraser University style guidelines, including:

- title case for headings instead of sentence case
- title case for numbered lists and lowercase for bulleted lists
- numerals for numbers
- official branding for the client company logo (for example, text is presented in all uppercase lettering)
- all bolded letters for these signal words:
  - **Caution**
  - **Important**
  - **Note**
  - **Warning**
- all bolded letters for these elements:
  - **labelled motherboard connectors**
  - **selections in the user interface**
  - **user input in dialog boxes**
- motherboard connectors and user interface selections in **ALL CAPS** match diagram labels or user interfaces content

The document follows these principles:

- topics in modules for easy updating
- whitespace and graphics to organize information into chunks
- Arial 11 font and line spacing of 1.15 inches for the main body of text
- graphics that are gender and culturally neutral
- annotations for graphics to clarify procedures and concepts
- accessible colours that are visually appealing and offer contrast when in printed form

References

Primeau, M. 2025a. *CPU Socket with Plastic Cover*. Photograph.

Primeau, M. 2025b. *CPU Socket with Plastic Cover*. Photograph.

Primeau, M. 2025c. *CPU Socket in Open Position*. Photograph.

Primeau, M. 2025d. *CPU in Position, Showing Thermal Paste from First Contact with Fan*. Photograph.

Primeau, M. 2025e. *RAM Stick Showing Gap for Socket Divider*. Photograph.

Primeau, M. 2025f. *RAM Stick in Position*. Photograph.

Primeau, M. 2025g. *SATA Cables*. Photograph.

Primeau, M. 2025h. *Chassis Fan Connector*. Photograph.

Primeau, M. 2025i. *Power Cables Attached to Motherboard*. Photograph.

Primeau, M. 2025j. *IO Cables*. Photograph.

Primeau, M. 2025k. *Chassis with Cables Organized*. Photograph.