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DSV3-SP User's Manual

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1 Overview

The DSV3 is a family of mobile hand-held biometric terminal products designed for a wide-range of identification and ID management applications. The DSV3 is able to read a wide variety of credentials containing biometric data, and to compare this information with the biometric data collected by its on-board biometrics sensors (fingerprint and cameras). It allows an operator to capture biometrics and to perform quick, remote ID verification or identification while in the field. The DSV3 can operate totally standalone, or it can coordinate with centralized systems via a rich set of communications interfaces. It is available with remote communications capabilities that include: 802.11/WiFi, Bluetooth, and GSM mobile cellular.

Operators can acquire a fingerprint image and remotely perform 1-to-many identifications against a watch list, or perform 1-to-1 comparisons for identity verification.

Superior matching accuracy is achieved through AFIS-quality biometric matching algorithms and rugged biometric sensors.

The DSV3 mobile terminal is a rugged and environmentally sealed unit that can be used in harsh and hostile environments. It is shock resistant (Mil STD 810 compliant) and can withstand a fall of four feet to a concrete surface. The DSV3 mobile terminal exceeds IP 54 specifications for resistance to dust and water.

The DSV3 is an open platform that comes with a powerful software programming SDK (Software Developer Kit) that enables customers and system integrators to readily customize the unit for specific applications and missions. Industry standard interfaces and technologies are used extensively to facilitate the integration with other systems and to expedite the delivery best of breed solutions to the market. This approach allows customers to select the technologies and components that are the most appropriate for their applications and environments.

The flexibility and ruggedness of the DSV3 make it an ideal solution for ID verification and ID management projects in markets and applications such as:

• Homeland Security	• Immigration Control
• Law Enforcement	• Airports
• Military Bases and Ships	• Transportation
• Travel & Border Control	• Financial Institutions
• Seaports	• Schools and Universities



Figure 1: DSV3-SP Mobile Terminal

2 Unpacking & Inventory

Depending on the number of terminals ordered, your DSV3 units and accessories may be shipped in either a single-pack box or a multi pack-box. Carefully open the shipping box and use the following Shipping Box Inventory list to verify the contents.

Shipping Box Inventory:

- DSV3 Mobile Biometric Terminal
- Universal (90-240 VAC input) DC power/charging adapter.
- AC power cord for DC power/charging adapter. (Plug depends on country of destination)
- Documentation, including: User Manual (on CD), End User License Agreement, and Quick-Reference Guide.



Please retain the shipping box in the event you need to return your product for service.

3 Initial Setup

- Each unit is shipped with one Lithium Polymer battery installed as shown below.
- It is recommended that you fully charge the internal battery before use to maximize operating time before recharging is required. The DSV3 contains an integrated charging circuit that allows the batteries to be charged inside the unit whenever the unit is properly connected to the AC adapter.
- The unit may be operated when connected via the AC adapter, regardless of the charge state of the internal battery.



Please refer to Section 4.44.4“Battery Charging and Replacement”, for additional instructions and safety information.

4 System Overview

The standard DSV3 product comes from the factory with a Windows CE .NET, Version 5.00 operating system, software utilities, and some demo and sample applications. When the unit is activated, a standard Windows CE desktop is presented that allows users to launch demonstration programs. The primary human interface is the touch screen, stylus, and function keys.

4.1 Powering Up the System and System Startup Sequence

The Power Button is located to the top left of the QWERTY keypad as shown in the diagram below. The power switch has an adjacent tri-color (red/green/yellow) LED indicator, which identifies whether the system is on, charging, or running low on battery power (see section 4.2).

- To power on the mobile terminal, press the Power button and hold it down until one beep is heard (approx 2 seconds). When the button is released, a rising tone (mid tone followed by a higher frequency tone) is produced. The unit will not boot up if the button is held for more than 15 seconds.
- The unit takes approximately 30 seconds to boot up. The display will indicate that the system is booting. During this time the BIOS is loaded and diagnostic testing is performed.
- When the unit finishes powering up, the Windows CE.NET desktop will appear on the display.



4.2 Power Status LED Indicators

Shown below are the states for the Power Status LED Indicator depending on the charge state of the battery, and whether or not the AC adaptor is connected.

- If red is included in the LED display sequence, this indicates that the battery charge level is very low or that the battery is charging.
- If yellow is included in the LED display sequence, this indicates that the system is in suspend mode.
- Note that the LED will be active (very slow blink) even when the unit is powered off. This signals to the operator that the battery is installed and the unit can be powered up.)
- See section 5.3 for a description of the battery gauge available via WinCE.
- See section 5.3.1 for a description of the available power management states.

External Power Connected?	Battery Charge State	Power Status LED Color	Power Status LED Blink Rate
System Powered Off			
no	extremely low	Red	Lit Only When Power Button Pressed
no	not low	Green	Very Slow
no	low	Red / Green	Very Slow with Color Blink
yes	no battery	Green	Very Slow
yes	charging	Green / Red	Continuous with Very Slow Color Blink
yes	fully charged	Green	Very Slow
OS Running			
no	not low	Green	Slow
no	low	Red / Green	Continuous with Color Toggle
yes	no battery	Green	Solid
yes	charging	Green / Red	Continuous with Slow Color Blink
yes	fully charged	Green	Solid
System in Suspend Mode			
no	not low	Yellow	Slow
no	low	Red / Yellow	Continuous with Color Toggle
yes	no battery	Yellow	Solid
yes	charging	Yellow / Red	Continuous with Slow Color Blink
yes	fully charged	Yellow	Solid

Definitions

- **Lit Only When Power Button Pressed:** On continuously when Power Button Pressed.
- **Very Slow:** Mostly dark with quick blink approx every 5 seconds (~1% duty cycle).
- **Very Slow with Color Blink:** Mostly dark with quick blink approx every 5 seconds. Color changes while lit from Color 1 to Color 2.
- **Continuous with Very Slow Color Blink:** LED is On continuously with a 5 sec period, where color 1 is On for 4.9 sec and color 2 is On for 0.1 sec.
- **Continuous with Slow Color Blink:** LED is On continuously, with a 2 sec period, where color 1 is On 1.9 sec, and color 2 is On 0.1 sec.
- **Slow:** LED is On 50% of the time, blinking every 3 seconds (50% duty cycle, 3 sec period).
- **Solid:** LED is On continuously.
- **Continuous with Color Toggle:** LED is On continuously, alternating **evenly** between the two colors each second.

4.3 Power Status Tone Indicators

Unit is Off	Tone Type	Notes
Button depressed (within 300 ms of press)	Beep	Signals ok to release button
Button released ($0 < x < 15$ sec)	Rising Tone	Start system turn on sequence
Button released ($x > 15$ sec)	Deep Sleep Tone	Deep sleep not yet implemented
Unit is On		
Power button press to enter suspend mode	Blip Tone	Signals ok to release button
Button released ($0 < x < 2$ sec)	None	Go to suspend mode
Button released ($2 < x < 15$ sec)	Falling Tone	Turn off the system
Button released ($x > 15$ sec)	Emergency Shutdown	Ungraceful shutdown
WinCE launched	Microsoft launch tone	Signals the launch of the OS
Battery enters an extremely low state	Warning Tone	System needs attention
Unit is in Suspend		
Power button press to resume	Blip Tone	Signals ok to release button
Button released ($0 < x < 2$ sec)	None	Go to resume mode
Button released ($2 < x < 15$ sec)	Falling Tone	Turn off the system
Button released ($x > 15$ sec)	Emergency Shutdown	Ungraceful shutdown
Entering off state via power management	Falling Tone	see section 5.3

Definitions

- **Beep:** Mid frequency tone
- **Rising Tone:** Mid followed by a higher frequency tone
- **Falling Tone:** Mid followed by a lower frequency tone
- **Warning Tone:** Slightly longer low frequency tone
- **Blip Tone:** Slightly shorter high frequency tone
- **Deep Sleep Tone:** ???

4.4 Battery Charging and Replacement

The DSV3 uses one 5000 mAH Lithium Polymer battery pack. Under normal operating conditions, the battery does not need to be removed. The DSV3 has an internal charging circuit that will charge the battery whenever the unit is connected to the external AC power adapter.

If the user does want to replace the battery, it may be replaced when the unit is off, or the battery may be hot swapped when the unit is in Suspend mode. To hot swap the battery, save any work in progress and put the DSV3 into Suspend by tapping the power button (or via the Suspend command on the Start Menu). Turn the quick release (quarter-turn) bails on the battery access cover on the rear of the unit. Remove the old battery and replace it with a charged battery within 30 seconds to prevent the unit from shutting down. Replace the battery-access cover and re-fasten it by tightening the quick release bails.



4.4.1 Battery Capacity and Charging

1. The capacity estimates in the following table are for a healthy new battery and are worse case results that reflect continuous use with all power saving options turned off. Actual capacity performance will be much better if the power management features are enabled.
2. The battery capacity (hours of use) can be extended significantly by using the power savings options such as: System Idle or Suspend. These power settings are user programmable and details can be found in Section 5.3 Power Management.
3. The charge time is approximately the same whether the battery is charged with the unit “On” or “Off”.
4. **When a DSV3 terminal is left on the shelf in the “Off” state, the battery will maintain its charge for over 1 month.**

Description	DSV3-SP Capacity (hours of use)	DSV3-EP Capacity (hours of use)	Charge Time for fully depleted battery
One 5000 mAH battery	6 hours	5.0 hours	3 hours

There is also an internal, rechargeable coin cell battery that powers the Real Time Clock for more than 6 months while the unit is off. This battery is automatically recharged by the system and does not require any operator service.



CAUTION! Use ONLY approved replacement batteries and power adapters as provided by Datastrip.



CAUTION! Battery has a risk of FIRE, EXPLOSION, or BURNS. DO NOT: short-circuit the battery terminals; crush, puncture, disassemble or otherwise damage the battery’s case; operate or charge at temperatures above 40°C or store the battery at temperatures above 100°C; incinerate or immerse in water.



DISPOSAL: Always consult and obey all international, federal, provincial/state, and local hazardous waste disposal laws. Certain jurisdictions require recycling of this spent product.

4.5 Keypad and Function Buttons

The DSV3 includes a backlit extended QWERTY keypad, and two groups of four backlit function buttons that are vertically aligned along the left side and right side of the LCD display. These two groups of function buttons operate identically and are initially programmed as standard “F1” through “F4” keys (mapped as cursor / arrow keys). The control of the function buttons are exposed in the SDK to allow system integrators to define their usage in custom software applications.

The Navigation Button is located in the center of the unit just under the LCD display and above the QWERTY keypad. The Navigation Button is not a mouse control; however, it allows an operator to navigate through menus and select menu items.

4.6 Software Input Panel / Keyboard

The DSV3 has both an extended QWERTY keyboard and a Virtual Input Keyboard (Software Input Panel) that can be used to enter alpha-numeric information. Tap the **Software Input Panel** icon in the bottom right hand corner of the screen to show or hide the Virtual Input Keyboard / Software Input Panel.



4.7 LCD Display & Touch Screen

The LCD is a color-TFT (Thin Film Transistor) active-matrix display, and features white-LED backlighting. There is a resistive touch panel overlay, which should only be operated with the included stylus to help prevent scratching or other damage.

4.8 Fingerprint Sensor

4.8.1 Fingerprint Sensor –NIST FIPS 201/SP 800-76 Compliant

The integrated fingerprint sensor is an 8-bit, grayscale, solid-state, capacitive-touch device that can capture fingerprint bitmap images measuring 256 pixels wide by 360 pixels high at 508 dpi. Images from this sensor can be used for a variety of card holder ID validation purposes, including matching, storage, and extraction of fingerprint minutia templates.

The DSV3 mobile terminal is compliant with fingerprint matching algorithms from a variety of the industry leading vendors such as: Identix, Cogent, Bioscrypt, Motorola, and NEC. However, the Identix algorithm is the only algorithm directly available from Datastrip for the DSV3 terminal at this time.

4.8.2 Fingerprint Sensor Calibration

The fingerprint sensor is factory calibrated and tested on every DSV3 terminal, however, if recalibration is required for some reason, follow these steps:

- Double tap My Computer and Select Storage Card / DSVII.
- Double tap the PPCalFt41 utility and press the “Calibrate” button to re-calibrate the fingerprint sensor. This process may take up to a minute and then a “green” window with a number “1” should appear to indicate the sensor was successfully calibrated.
- Double tap the DsVerifyFpCaptureTest application. In the lower right hand corner select “UPEK” and click “OK”.
- Use the “Scan” button to test the fingerprint image quality.

4.8.3 Finger Placement Guidelines

It is important to place the finger properly on the sensing area to enable the DSV3 to more quickly capture a good fingerprint image. Listed below are the guidelines for proper finger placement.

- Finger placement icons: These two icons pictorially indicate the correct (green) and incorrect (red) way to align the cuticle of your finger with the points of the finger-placement guide arrows.
- Finger placement guide arrows: These arrows should be used as a guide for alignment of the cuticle part of the finger as described above.

4.9 Cleaning the LCD Touch Screen and Fingerprint Sensor

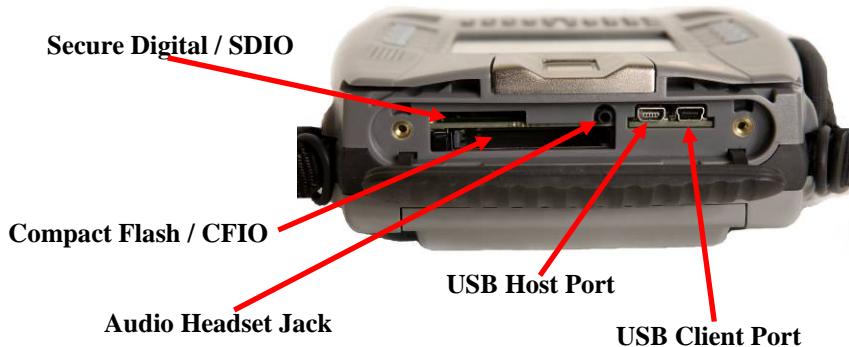
The LCD touch screen and fingerprint sensor require periodic cleaning to remove dirt, oils, grease, dust, and foreign matter.

- Ensure that the DSV3 power is OFF and unplugged from any external power source.
- Using standard alcohol wipes, gently wipe the surface of the LCD screen and fingerprint sensor until it appears clear.
- Allow the cleaning solvent to dry completely before turning the unit on again.

4.10 I/O Port Access

The top rubber end cap on the DSV3 snaps open to reveal the CFIO, SDIO, and onboard wired I/O ports. To open the top rubber end cap, pull up from the back edge using the two finger indents. The rubber cap is tethered at two points to prevent it from being lost or misplaced. To close the cover, simply press the cover into place.

Shown below is the I/O connector panel located on the top of the unit. It contains one mini-USB host port, one mini-USB client port, one external Compact Flash (CFIO) slot, one Secure Digital module (SDIO) slot, and the Audio Headset jack.



4.10.1 USB Ports

There is one USB Host port and one USB client port on the DSV3 mobile terminal that are accessible under the rubber I/O port cover. These are USB 2.0 High Speed (480 Mbps) ports; however, they are also backwards compatible with USB 1.1 Full Speed (12 Mbps) and Low Speed (1.5 Mbps). Additional USB ports are available on the DSV3 Docking Station (see section 12).

The USB Host port is used to connect with USB peripheral devices such as a keyboard, a mouse, or flash memory drives.

The USB Client port enables the DSV3 mobile terminal to connect and communicate with devices such as PCs and servers using Active Sync. The USB Client port on the top of the DSV3 is disabled when the unit is placed in the docking station. There is an alternate USB Client port available on the docking station for use during this situation.

4.10.2 Compact Flash (CFIO) Slot

The DSV3 has a Type-I/II Compact Flash slot that is accessible under the rubber I/O port cover. It is compatible with a range of CF memory and peripheral devices.

4.10.3 Secure Digital Memory Card (SDIO) Slot

The DSV3 has a SD slot that is accessible under the rubber I/O port cover. It is optimized (recessed) for Datastrip's 802.11 peripheral; however, it is a standard SD slot, so a range of SD memory and SDIO peripheral devices may be used.

4.10.4 Audio Headset Jack

The audio headset jack is a 2.5 mm jack that supports stereo headset and microphone.



4.11 Contactless Smart Card Reader

The DSV3 has an integrated Contactless Smart Card reader subsystem (transceiver and antenna). The antenna is positioned around the QWERTY keypad as shown below. Place the smart card to be read in the center of the antenna for the best read performance. The typical operating range is at least 30 mm.



4.12 Digital Still Camera Peripheral Module

The Digital Still Camera (DSC) is an optional module for the DSV3 mobile terminals. It is a 3.2 Megapixel camera that can be installed in the Integrated Peripheral bay. The DSC is designed for use in a variety of applications and markets such as facial recognition, law enforcement, mobile enrollment, and other scenarios.



4.12.1 Digital Still Camera Installation Instructions

To install the digital still camera (DSC) peripheral in the integrated peripheral bay:

Step 1: Remove the cover to the integrated peripheral bay by removing the 2 Philips-head screws.



Step 2: Remove (unscrew) the rubber stylus holder from the old bay door, and fasten (screw) it to the rear of the mobile terminal.



Step 3: Align the connector on the camera peripheral module with the edge connector in the bay and gently press the camera module into place.



Step 4: Secure the module by re-fastening the 2 Philips-head screws.



4.13 Point & Shoot Scanner Peripheral Module

The Point & Shoot Scanner is an optional module for the DSV3 mobile terminals. It is a 1.1 Megapixel camera that provides high resolution scanning (image capture) for decoding numerous optical symbologies. It contains enhanced scanning and decoding algorithms and can decode all standard 1 dimensional and common 2 dimensional barcodes. The point & shoot design combined with a wide angled lens that covers a large scanning area provides quick and easy targeting. There is a comprehensive SDK that enables rapid custom application development.

The Point & Shoot Scanner is designed for a variety of applications and markets such as:

- Law Enforcement / Public Safety
- Military Base Security / Border Control
- Government / Military ID Processing
- Seaport Security and Access Control
- Emergency First Responders

The supported optical symbologies are listed below:

<u>1D Codes</u>	<u>2D Codes</u>	<u>OCR</u>
Code 39 Code 93 Code 128 UPC/EAN/JAN Hong Kong 2 of 5 Interleaved 2 of 5 NEC 2 of 5 Matrix 2 of 5 Straight 2 of 5 Code 11 Codabar MSI Plessey Pharmacode DataBar™	PDF417 (standard) QR Code (optional) Data Matrix (optional) Aztec Code (optional) Maxicode (optional) Micro QR Code (optional) Codeblock (optional) Composite Code (optional)	OCR A (optional) OCR B (optional) MICR (optional)

4.13.1 Point & Shoot Scanner Installation Instructions

To install the Point & Shoot Scanner peripheral in the integrated peripheral bay, follow the same steps as for the Digital Still Camera (DSC) peripheral module (see section 4.12.1).

5 Basic Operation

The following sections describe some of the features and functions that are available on the DSV3 family of products.

5.1 Stylus Usage

The DSV3 provides a stylus to use with the touch screen for selecting items and entering information (the unit may also be operated with a standard USB mouse). The DSV3 stylus can be found in the stylus holder on the back of the DSV3-SP and the front of the unit the DSV3-EP. The following actions are available with the stylus:

- **Tap:** Lightly touch the screen once with the stylus to select an object. Tapping is equivalent to clicking an item with the mouse on your personnel computer.
- **Double-Tap:** Lightly touch the screen twice with the stylus to open folders and applications. Double-Tapping is equivalent to Double-clicking an item with the mouse on your personnel computer.
- **Drag:** Hold the stylus on the screen and drag it across the screen to select text and images. Drag within a list to select multiple items.
- **Tap-and-hold:** Tap and hold the stylus on an item for a short period until a menu displays a list of actions available for that item. Tapping and holding is equivalent to right-clicking your personnel computer mouse button. When you tap and hold, a circle of red dots appears around the stylus to indicate that the menu will soon pop up. Tap the action you want to perform on the pop-up menu that appears.

5.2 Touch Screen Adjustments

The touch screen on DSV3 terminals is calibrated during factory acceptance tests. If you wish to recalibrate these setting to suit your personnel preferences, the following options are available:

- **Calibration:** If your device is not responding properly to your screen taps, you may need to recalibrate your screen. Go to the Control Panel, select Stylus Properties and under the "Calibration" tab, click the "Recalibrate" button and follow the on screen instructions. When you are told to "press enter" to accept the setting, just tap the screen anywhere, then click the "OK" button.
- **Double-Click Sensitivity:** Go to the Control Panel and select Stylus Properties. Double-tap the checkerboard grid to set the double-tap sensitivity for both speed and physical distance between the taps. Then double tap the icon below the checkerboard to verify your settings. Click the "OK" button when done.
- **Brightness and Contrast:** The display brightness and contrast can be adjusted for different operating environment lighting conditions. Go to the Control Panel, select Display and under the "Backlight" tab adjust the slider control then click the "OK" button.

5.3 Power Management

The DSV3 Power Properties can be configured and monitored by double clicking the Power icon in the WinCE Control Panel. The Battery Tab displays the battery gauge / charge status, and the Schemes Tab allows the user to configure the timeout for each of the Power States defined below.

5.3.1 Power Management States

Clicking the Schemes tab allows you to configure when the system enters into the various power management modes available to maximize battery life. You can configure the time the system must be idle before entering each of the available power management states.

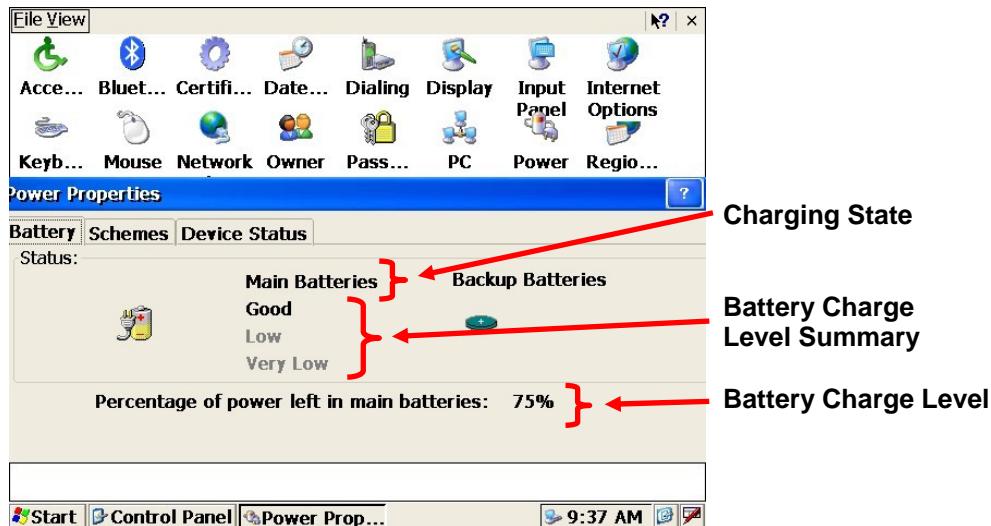
Note: The times configured by the user for each state are cumulative! For example, the time required for the system to suspend is the sum of the time configured to go to User Idle + the time to go to System Idle + the time to go to Suspend.

The power management states are:

- **Fully On**
 - Every subsystem in the mobile terminal is on and operational
- **User Idle**
 - This state is entered when the touch screen or function keys have not been used for some amount of time (user configurable).
 - The backlight is dimmed to save power.
 - All other internal subsystems are on.
 - Tap the screen or give the power button a quick tap to wake up the unit to a Fully On condition.
- **System Idle**
 - This state is entered when no major background software tasks are running and the touch screen or function keys have not been used for some amount of time (user configurable).
 - In this state, the backlight is dimmed to save power.
 - All other internal subsystems are on.
 - Tap the screen or give the power button a quick tap to wake up the unit to a fully on condition.
- **Suspend**
 - This state is entered when no major background software tasks are running and the touch screen or function keys have not been used for some amount of time (user configurable). Suspend mode is indicated by flashing power LED Indicator (see section 4.2).
 - In this state, the LCD is turned off and backlight is turned off.
 - USB subsystem is turned off.
 - CF cards are turned off.
 - The Processor is put in low power sleep mode.
 - Tap the screen or give the power button a quick tap to wake up the unit to a fully on condition.
- **Fully Off**
 - Everything in the system is off (except the embedded controller).
 - Push the power button to start the unit and return to a Fully On state.

5.4 Battery Gauge

A battery gauge is available in the Control Panel under Power Properties. It provides information about the about the battery charge level and charging status. Clicking the Battery tab displays the DSV3 battery gauge. The battery charge level (percentage power remaining) is shown at the bottom of the Power Properties / Battery tab window.



5.4.1 Charging States

The Power Properties / Battery tab window also shows that state of the internal battery charger. There are three charging states.

- **Main Battery:** The terminal is operating on battery power and no external AC adapter is connected.
- **External:** External AC adapter is connected and the battery is fully charged.
- **Charging:** External AC adapter is connected and the battery is charging. The unit operates normally while simultaneously charging the battery.

5.4.2 Battery Charge Level States

The charge level state of the battery is also listed in the Power Properties / Battery tab window. There are three charge level states. When the battery gauge is “Very Low”, the battery should be immediately charged by connecting the unit to an AC adapter or the unit will automatically shut down when the voltage level drops below the minimum threshold.

- **Good:** Battery charge is Good
- **Low:** Battery charge is Low (<10% remaining)
- **Very Low:** Battery charge is Very Low / Critical (<5% remaining)

5.4.3 Other Indicators

There are three user warnings that occur when the battery level is “Very Low”: See section 4.2 and section 4.3 for the LED and tone indicator states that also provide user feedback regarding battery charge levels and charging states.

- The power LED alternately flashes Red and Green (see section 4.2)
- A “Warning” message pops up “Main Battery Very Low”. This warning will repeat itself periodically until the condition clears or the unit automatically shuts down.
- An error beep sounds when the battery charge level is critical.

5.5 Creating Desktop Shortcuts

Find the application for which you want to create a shortcut. Tap and hold the stylus on the application until the options menu pops up. Select copy and go to the directory where you want to put the shortcut. Tap and hold the stylus until the options menu pops up and select “Paste Shortcut”.

5.6 Safe Boot Mode

The DSV3 provides a mechanism that permits the recovery of lost or damaged operating system files via a “Safe Boot” mode. This mechanism is similar to Microsoft Windows Safe Mode that is available on PCs. If one or more operating system files have been damaged or inadvertently deleted, when the unit is turned on it will automatically boot-up into a smaller, limited function version of Windows CE that will permit the recovery of the files or allow them to be replaced or overwritten. This permits the unit to be repaired, and then subsequently rebooted using the full version of Windows CE. Safe Boot mode can also be accessed on demand by holding down the F1 key while turning on the power to the unit. A special bitmap will appear indicating that the unit is booting-up in Safe Boot mode.



6 Software Utilities

All of the utilities listed below except “DsVerify2About” are located in the “\My Device\Hard Disk\DSV3” directory. The “DsVerify2About” is a hidden file in the Windows directory. There are additional demonstration programs available as source code for custom software development in the Datastrip MT SDK (sold separately).

6.1 Software Version Utility (DatastripDSVerify2About.exe)

This utility reports the Operating System (OS) Version, the versions of all Datastrip specific drivers and components, software license settings, the unit serial number, and the HW Configuration. To run this utility:

- Click Start \ Run
- Click Browse then Double tap the Windows folder
- Scroll over and double tap the application: DatastripDSVerify2About.exe
- Click “OK”

This version information can be saved to a file by clicking on the “Send to File” button.



6.2 DsVerify Registry Install Utility (DsVerifyRegInst.exe)

This application registers all of the Datastrip specific components of the DSV3 that are needed to read/write Smart Cards, scan documents, operate the Fingerprint sensor, and so forth. It is typically run after a software update to register the components in sequence, and it reports any errors if it does not succeed. If it finishes successfully, there will be a pop-up message box indicating “Finished Registration”. It can take up to a minute or two to complete this process.

Internally, this program calls regsvrce.exe to register each ActiveX control so that the interface presented by the ActiveX control will be available for application use. This is usually followed by RegistrySaver.exe (or Suspend) to make sure that the altered registry is written to flash memory for future use. When this application is invoked, it queries the user for the specific mobile terminal type (DSVII-SC, DSVII-SW, DSVII-PA, DSV3-SP, or DSV3-EP) and writes the appropriate platform type information into the registry along with the other registration information.

6.3 DsVerify Registry Saver Utility (*RegistrySaver.exe*)

This application is used to save the current registry settings to flash memory. This is very useful after adding applications (or applications components such as ActiveX controls) to DSV3 products that require some aspect of the behavior to be registered. When the DSV3 terminal is powered-on, the saved registry is read and used as part of WinCE startup. Datastrip ActiveX components are registered (see DsVerifyRegInst application) and then the registry settings are saved using this application. The registry can also be saved by hitting “Suspend” function that is located under the Start menu button, but this application is provided to save the registry to the Storage Card without having to warm-start the unit.

6.4 Fingerprint Capture Utility (*DsVerifyFpCaptureTest.exe*)

This application demonstrates the capabilities of the fingerprint image sensor on the DSV3, and it provides a means of exercising the fingerprint imaging system. The application has several buttons that allow a user to Scan to the display or Scan to File. Since this application is provided as source code in the SDK, it is often used as an example for developers to observe how typical application software can interface to the fingerprint subsystem. *The source code for this application is provided in the SDK for developer use.*

7 Loading Software and Firmware

7.1 Loading DSV3 Software Updates

The DsVerify2SoftwareUpdate application permits the user to download software updates from several source locations are as list below:

- CAB files located on a CF memory card: call Storage Card
- CAB files located on a USB flash drive: call Hard Disk 2
- CAB files loaded from an FTP server, (requires a username and password to a valid account).

7.1.1 DSV3 Software Update Procedure: Using a CF Card

NOTE: It is recommended that upgrades be done with the unit operating on the AC adapter to ensure that the unit does not lose power during this procedure. This upgrade process should take approximately 3.5 minutes to complete.

- Insert the CF Card containing the new CAB file into the external CF slot.
- Power up the DSV3 terminal.
- When the device is finished booting, double tap *My Device* and select *Hard Disk \ DSV3*.
- Double tap the **DsVerify2SoftwareUpdate** utility.
- Scroll through the options on the *Server* scroll box and select the *Storage Card* entry (you must scroll down to make selection).
- Username and Password are not necessary for this procedure
- Select most recent appropriate source file
- Click *Update* (This step will take approximately 2.5 minutes).
- Click *Reboot* (The registry will be cleared prior to shutdown).
- Power up the unit
- The DSV3 registration program will automatically open. Select the button for the device that you are registering (*DSV3-SP* or *DSV3-EP*). Select [OK] and wait. (This process will take a few seconds).
- Click [*Ok*] in the “*Hurray!*” box when it appears, then close the application window.
- Double tap *My Device* and select *Hard Disk \ DSV3*.
- Double tap the Registry Saver program (**RegistrySaver.exe**) to launch it.

- Double tap the **PPCalFt41** utility and press the “*Calibrate*” button to initialize the fingerprint sensor. This process may take up to a minute and then a “green” window with a number “1” should appear to indicate the sensor was successfully calibrated.
- Double tap the **DsVerifyFpCaptureTest** application. Look in the lower right hand corner to ensure that the *UPEK* button is selected. You can use the *Scan* function to test the fingerprint image. DO NOT use the *Calibrate* button on this screen since it does not work with the fingerprint sensor in the DSV3. When done, click “*OK*” to exit the program.

7.1.2 DSV3 Software Update Procedure: Using a USB Flash Drive

To load a software update from a USB flash memory device, follow the procedure from section 7.1.1 with the following changes:

- Insert a USB Flash drive into the USB Host port on the DSV3 terminal.
- Inside the **DsVerify2SoftwareUpdate** utility, select *Hard Disk 2* option from the *Server* scroll box.

7.1.3 DSV3 Software Update Procedure: Using an FTP site

NOTE: It is recommended that upgrades be done with the unit operating on the AC adapter. This upgrade process should take approximately 13 minutes to complete.

- Power up the DSV3 terminal.
- When the device is finished booting, double tap *My Device* and select *Hard Disk \ DSV3*.
- Double tap the **DsVerify2SoftwareUpdate** utility.
- Scroll through the options on the *Server* scroll box and:
 - Select *datastrip.servftp.net* if you have access to the Datastrip FTP server
 - Select *ftpserv2003* if you are using another valid FTP site.
- Enter a valid *Username* and *Password*
- Click *Connect*
- Select most recent appropriate source file
- Click *Download* and wait for message “Download complete”
- Click *Update*
- Click *Reboot*
- Power up the unit
- The DSV3 registration program will automatically open. Select the button for the device that you are registering (*DSV3-SP* or *DSV3-EP*). Select [*OK*] and wait. (This process can take from a few seconds to up to 45 seconds).
- Click [*Ok*] in the “*Hurray!*” box when it appears, then close the application window.
- Double tap *My Device* and select *Hard Disk \ DSV3*.
- Double tap the Registry Saver program (**RegistrySaver.exe**) to launch it.
- Double tap the **PPCalFt41** utility and press the “*Calibrate*” button to initialize the fingerprint sensor. This process may take up to a minute and then a “green” window with a number “1” should appear to indicate the sensor was successfully calibrated.
- Double tap the **DsVerifyFpCaptureTest** application. Look in the lower right hand corner to ensure that the *UPEK* button is selected. You can use the *Scan* function to test the fingerprint image. DO NOT use the *Calibrate* button on this screen since it does not work with the fingerprint sensor in the DSV3. When done, click “*OK*” to exit the program.

7.2 Loading Smartcard Firmware Updates

The procedure for updating the smartcard firmware is as follows:

- In the directory *My Device \ Hard Disk \ DSV3* folder, run the utility “*DsVerifyCleanUp*” and select the option “*Clear SCM Firmware*”. Answer “*OK*” to the question “Are you REALLY sure”
- Reboot the DSV3 terminal.
- When the device is finished booting, go to the *My Device \ Hard Disk \ DSV3* folder.

- Open the *DSV3_SCM_Firmware* folder.
- Double tap the utility **FlashIt**
- Tap the button “*Open bin file*” and navigate to: *Hard Disk \ DSV3 \ DSV3_SCM_Firmware*
- Select the version of firmware that you are changing to and click “*OK*”.
- Status should read “*Binary file is valid*”.
- Tap the button “*Download*”
- Reboot the DSV3 terminal to complete update.

7.3 Loading Digital Still Camera Firmware Updates

The **DSC Firmware Update Utility** is a “stand-alone” program which can be used to update the firmware in the DSC camera module. The procedure for updating the Digital Still Camera firmware is as follows:

- In the directory *My Device \ Hard Disk \ DSV3*, run the utility **DSC_Firmware_update.exe**.
- The application displays the current version number of the camera firmware and asks the question, “*Do you want to update the camera firmware?*”
- If you answer “*Yes*”, then browse to the directory “*My Device \ Hard Disk \ DSV3 \ DSV3_DSC_Firmware*”, select the latest firmware version, and double-click on it, or select it and hit “*OK*”.
- Wait for the camera to update its firmware (approx 15 seconds). Note: After the firmware is updated, the camera illumination LED will blink 10 times.
- Reboot the DSV3 terminal to activate the new firmware.

7.4 Loading Embedded Controller (EC) Firmware Updates

The procedure for updating the EC firmware is as follows:

- In the directory “*Storage Card/DSVII*” run the utility *DatastripDsVerify2PICUpdate.exe*.
- When the dialog box opens that reads “*Select valid PIC HEX File*” click the small box and navigate to the directory */Storage Card/DSVII/DSVII_PIC_Firmware*
- Double tap the latest release e.g. “*PIC_FW_V401.hex*” to select it.
- Click the button “*Update PIC Firmware*”.
- Reboot to complete update.

8 DSV3-SP Product Specifications

Physical Characteristics

Dimensions: 156(W) x 185(H) x 53(D) mm,
(6.2 x 7.3 x 2.1 in)
Weight: 0.95 Kg (2.1 lbs) with battery

User Interface

Display: 3.7" color LCD, transreflective TFT,
VGA, 640 (H) x 480 (V), landscape
Indoor/Outdoor viewable (backlit)
Touch Screen: Integrated resistive touch panel
Keypad: 37 key extended QWERTY keypad (backlit)
Function Buttons: 2 x 4 function keypad (backlit)
Navigation Joystick: 5 position: up, down, left, right, enter (backlit)
Power Button: Recessed (backlit)
Stylus: Integrated stylus holder
Optional tethered stylus

Hardware/Software

Processor: AMD LX800 Geode (x86),
500 MHz, Integrated FPU
Flash Memory: 256MB, expandable to greater than 1GB
DRAM Memory: 256MB 64-bit DDR, expandable to 1GB
Operating System: Microsoft® WinCE.Net V5.0

Power Systems & Management

Battery: 5000 mAH Smart Battery, Field Replaceable
Rechargeable Li Ion Polymer 7.4 V,
Integral Charging and Protection Circuitry
Charging
External DC Power: 11.4 to 19VDC
AC Adapter: Out:12VDC; In:100-240VAC, 30W, 50-60Hz

I/O, Audio, & Peripherals

Interfaces and *Onboard (under top cap)*
Wired I/O: USB 2.0 Host: mini-A (x1)
USB 2.0 Client mini-B (x1)
CF Type I/II external interface (x1)
SDIO internal interface (x1) - for 802.11
via Docking Station
USB 2.0 Host: standard A (x2)
USB 2.0 Client: standard B (x1)
Ethernet: 10/100 RJ45 (x1)
RS-232 DB9 (x1)
Audio: Speaker (750 mW)

Environmental Characteristic

Temperature: *Operation:* 0° to +40° C (32° to 104° F)
Storage: -20° to +60° C (-4° to 158° F)
Relative Humidity: < 90% at +40° C Non-condensing
Drop Resistance: Exceeds MIL-STD 810F
Weather Resistant: Ingress Protection: IP54

Contactless Smartcard Reader

Specification: ISO 14443 A/B
Operating Frequency: 13.56 MHz

Contact Smartcard Reader (optional)

Specification: ISO 781
Connector: 8X Landing Style Contacts
100K Min Insertion Cycles

Biometric Sensors

Fingerprint Sensor: FIPS 201 / SP 800-76 Compliant
Capacitive solid-state sensor, 8 bit grayscale
Resolution: 508 dpi (256 x 360 pixels)
Sensor Area: 12.8 x 18.0 mm; ESD: 15 KV

Digital Still Camera: 3.2 M pixel, 24-bit full color
Depth of Field: 0.6 to 5.1 meters
Illumination: Preview and Flash
Full SDK Support

Iris Camera: 1.3 M pixel sensor , NIR illuminators,
Image Resolution: VGA: 640(W) x 480(H)
Full SDK Support

Wireless LAN (optional)

Specification: IEEE 802.11b/g, 2.4 to 2.5 GHz , DSSS
Security Protocols: WEP, WPA, WPA2, LEAP, EAP-FAST,
EAP-TLS, EAP-TTLS, PEAP 0
(PEAP-MSCHAP),PEAP 1 (PEAP-GTC)

Antenna: Internal

Bluetooth® Wireless (optional)

Specification: Bluetooth® Version 1.2 Class 2
Antenna: Internal

Mobile Wireless (optional)

GSM: Quad Band GSM: 850/900/1800/1900 MHz
EDGE (E-GPRS) multi-slot class 12
(max 236.8 Kbps)
GPRS class 12 (max 86 Kbps)
Antenna: internal; AT Command Interface

Global Positioning System (optional)

GPS: 16 channel, L1=1575.42 MHz
Protocols: NMEA-0183, RTCM V2.2, UBX binary
SDK Support: GPS dedicated AT commands

Security Access Module (optional)

SAM Slots: 0 or 1

Optical Scanner: Point & Shoot (optional)

Symbologies: All Standard 1D / 2D bar codes,
OCR (A, B, MICR)
Viewing Angle: 50° (horizontal) x 37.5° (vertical)

PROXIMITY Card Reader (optional)

Frequency: 125 KHz

Docking Station (optional)

Wired I/O: USB 2.0 Host: standard A (x2)
USB 2.0 Client: standard B (x1)
Ethernet: 10/100 RJ45 (x1)
RS-232 DB9 (x1)
Battery Charging: Supplies power to charge batteries inside the
mobile terminal
Power Input: 12 VAC, 1.7 mm DC power jack
Dimensions: Footprint: 162(W) x 178(L) mm
[6.6"(W) x 7.0"(L)]

9 Regulatory Compliance Statement

The DSV3 product is in conformity with the requirements of the Low Voltage Directive (72/73/EEC) and the EMC directive (89/336/EEC) as amended by (93/68/EEC).

FCC Declaration:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modification to Datastrip DSV3 not expressly approved by the party responsible for assuring compliance could void the user's authority to operate the equipment in a safe or otherwise regulatory compliant manner.



10 Software Demo Applications

10.1 Digital Still Camera Demo Application (DsVerifyStillCameraTest.exe)

This application is used in conjunction with the optional Digital Still Camera (DSC) module to demonstrate the capabilities of the camera subsystem.

After starting the application, the LCD displays preview images which are used to align the subject in preparation of taking a snapshot. After aligning the subject in the display, pressing F1 will turn on the preview illumination (if selected in the settings), and then pressing F1 a second time will capture and save the target image. If the preview illumination is not configured, pressing F1 once will capture and save the target image.

Digital zoom can be controlled via the “Settings” menu or by using the F2 and F3 buttons:

- F3 = X2 digital zoom
- F2 = X1 digital zoom

Snapshots taken and stored by the camera may be viewed on the display via the menu selection “FILE->Display latest Snapshot”. This will display the last snapshot acquired by the camera. The user can then navigate to previous and next snapshots via the “FILE->Previous Snapshot” and “FILE->Next Snapshot” menu selections. Once the user is done reviewing snapshots, selecting “FILE->Exit snapshot display mode” will return the camera to the previewing state.

It is recommended that an external Compact Flash Storage Card be used for storing snapshots since there is a limited amount of memory available on the internal Storage Card. All captured images are stored in 24-bit color depth (full color) BMP files and are stored in the folder \Storage Card2\DSVII\My Documents if an external Compact Flash card is inserted, or \Storage Card\DSVII\My Documents if no card is inserted.

To ensure that an adequate amount of internal memory (RAM) is allocated for the camera when capturing the highest quality images, it is recommended that a minimum amount of internal memory be used by other applications, and the proper amount of program memory is allocated in the DSV3. To set the internal DSV3 memory allocation for camera use, select “Start” → “Settings” → “Control Panel” → “System”, select the “Memory” tab, then slide the memory allocation bar to the left until approx. 3456 KB is allocated to storage memory.

Changes to the camera settings can be made via the “Settings” menu selection, and the settings are stored in the registry and restored the next time the application is run. The Digital Still Camera settings include:

Setting	Selections Available	Description of Setting
Brightness	-2.0 F-stops to +2.0 F-stops	Controls the amounts of light during exposure. The larger the F-stop, the more bright the image will appear.
Capture Size	2048 x 1536 (3.2M pixels) 1632 x 1232 (2.0M pixels) 1280 x 1024 (1.3M pixels) 800 x 600 (480K pixels) 640 x 480 (307K pixels)	Used to select the size of the snapshot image to acquire. Values indicate the height and width of the image in pixels.
Contrast	Automatic, OFF, 10% - 100% in increments of 10%	This setting is used to adjust the visual properties of an image that makes an object in an image distinguishable from other objects and the background.
Flash Mode	Automatic, OFF, Always ON	Used to specify the flash (illumination) operation when taking snapshot images.
Flash Intensity Still Mode	25% to 100% in increments of 25%	Controls the intensity of the flash when taking snapshots.
Flash Intensity Preview Mode	25% to 100% in increments of 25%	Controls the intensity of the flash when previewing a scene prior to taking a snapshot.
Flicker Cancellation	OFF, 50 Hz, 60 Hz	Improves image quality when the camera is used in an environment containing fluorescent lighting. Flickering of fluorescent lighting is caused by alternating current reversals occurring 50 to 60 times a second.
Preview Illumination Mode	ON, OFF	Specifies whether or not to use flash illumination during preview mode.

Preview Size	320 x 240, 160 x 120	Used to select the size of the preview image displayed on the DSV3 screen. Values indicate the height and width of the preview image.
Sharpness	Normal, Less Sharp, More Sharp	This setting softens or sharpens areas in the image where an edge changes from one brightness level to another.
White Balance	Automatic, Sunlight, Outdoor shadow, Fluorescent, Tungsten, LED	Controls the process of removing unrealistic color casts, so objects which appear white in the scene being captured are rendered white in the photograph. Specify the setting closest to the environment in which the snapshot is being taken.
Zoom	x1, x2	Used to provide the equivalent of two lenses with different focal lengths. X1 is normal operation, X2 is the “zoomed” mode.

10.2 Smart Card Reader & Scanner Demo (SuperViewer.exe)

This application demonstrates the primary features of the DSV3 products: reading optical or smart card media and performing one-to-one fingerprint matching. The types of documents supported include the following document types or symbology that contains Datastrip-formatted information:

- ISO 7816 Contact Smart Cards
- ISO 14443 Contactless Smart Cards

The following symbologies are supported on DSV3 units equipped with an optional optical scanner.

- Datastrip2D and 2DSuperscript Two-Dimensional Barcodes
- PDF417
- OCRB
- Linear Barcodes

When SuperViewer application is launched, the *Main Screen* is displayed and the unit is ready to scan a document or read a smart card. The application automatically reads and decodes a submitted document and the result is displayed in the Photo, Text, and Fingerprint windows. If the default icon or text is displayed, the document did not contain that type of data.

If a fingerprint was stored on the document, the application will also perform a one-to-one match of a fingerprint stored on the document to the fingerprint captured by the on-board fingerprint sensor. This demonstrates a typical scenario of verifying that a card holder is the same person whose fingerprint is stored on the document.

Main Screen

Clicking the Datastrip logo will return the user to the Main Screen and will reset the scanner subsystem (if the unit is a DSV3 scanner model). On the *Main Screen*, a user can perform the following operations:

- Clicking on the ‘toolbox’ button will open the *Configuration Screen*.
- Clicking on the ‘OK’ or ‘X’ will exit the application.
- Clicking on the **Photo**, **Text**, or **Fingerprint** windows expands that window



Configuration Screen

On the *Configuration* screen, the following operations are available:

- Clicking on the ‘FP Settings’ button will open the fingerprint threshold setting screen. Refer to the **Fingerprint Settings Screen** section below for details.
- Clicking on the ‘Scan Settings’ button will open the scanner settings screen. Refer to the **Scanner Settings Screen** section below for details.
- Clicking on the ‘Timer Settings’ button opens the “Display Timer Diagnostics” screen. To use

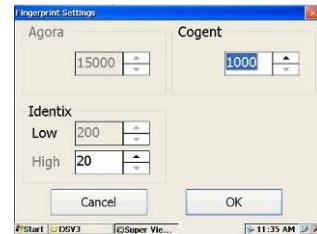


this feature, you must first “Auto hide” the windows task bar by clicking “Run” settings/taskbar. Now check the “Display Timer Diagnostics” box and return to the main screen. The next document scanned will be timed and recorded on the bottom line of the display as (Scan: Find: Decode: Total). e.g. S:5.3 F:0.1 D:0.6 T:6.0.

- Clicking on the ‘Decode Settings’ button will open the Find Decode Settings screen. Refer to the **Find Decode Settings Screen** below for details.
- Clicking on the ‘General Settings’ button will open the General Settings screen. To use the feature, check the “Use GUI Buttons” box, and return to the Main Screen. The GUI buttons **“Photo”**, **“Text, and “Fingerprint”** will be displayed above the windows.
- Clicking on the “Datastrip” logo button will bring the application back to the Main Screen.
- Clicking on the ‘Toolbox’ has no effect.
- Clicking on the ‘OK’ or ‘X’ will exit the application.

Fingerprint Settings Screen

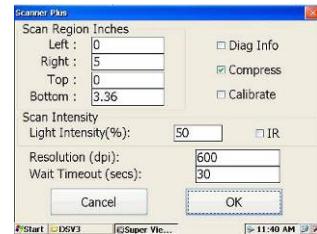
On the *Fingerprint Settings* screen, a user can configure the thresholds used by the fingerprint matching algorithms. A higher number tells the system to require a better match of the fingerprints. Agora, Cogent, and Identix are different fingerprint algorithms that can be licensed for use on the DSV3.



- Clicking on the ‘OK’ will save the settings and return the application to the Configuration Screen.
- Clicking on the ‘Cancel’ or the ‘X’ will abort any changes to the settings and return the application to the Configuration Screen.

Scanner Settings Screen

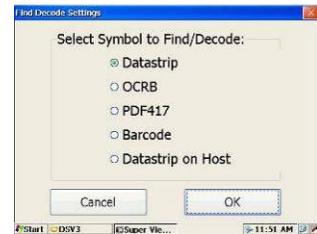
On the *Scanner Settings* screen, a user can configure parameters for the optical scanner. This is only necessary for mobile terminals equipped with an optical scanner.



- The scanner parameters that can be changed from this screen include: Scan Region (Window size), Scan Intensity for both IR and RGB, resolution and timeout. The example shown to the right shows the default settings for a **DSVII-PA**.
- Clicking on the ‘OK’ will save the settings and return the application to the Configuration Screen.
- Clicking on the ‘Cancel’ or the ‘X’ will abort any changes to the settings and return the application to the Configuration Screen.

Find Decode Settings Screen

On the Find Decode Settings screen, a user configures the type of optical symbology the system will look for to decode. Only one symbology at a time can be selected.



- Select the type of ‘symbol’ that the DSV3 will Find and Decode from this screen. The choices are Datastrip, OCRB, PDF417, or Barcode.
 - Datastrip: Datastrip2D and 2DSuperscript two-dimensional barcodes
 - OCRB: OCRB text
 - PDF417: PDF417 two-dimensional barcode
 - Barcode: a variety of linear (1 dimensional) barcodes
- Clicking on ‘OK’ will save the settings and return the application to the Configuration Screen.
- Clicking on the ‘Cancel’ or the ‘X’ will abort any changes to the settings and return the

application to the Configuration Screen.

10.3 PIV Card and CHUID Verifier (DatastripPIVCard_CHUIDVerifier.exe)

The DSV3 CHUID software allows an operator to read and authenticate PIV cards as defined by “SP 800-73, Section 1.8.3”. The application is located in the “\Storage Card\DSVII” directory in the folder PIVCardApps. Double tap on DatastripPIVCard_CHUIDVerifier and the Main Menu will open:

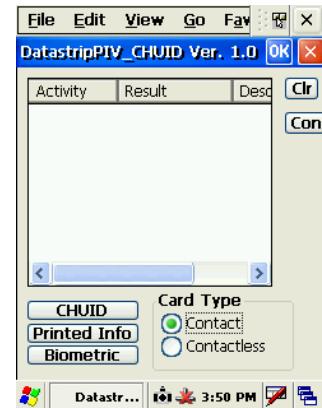
The Main Menu:

The main menu is divided into sections: The first section is the Activity Log window. In this window data sent and retrieved from the cards is captured for Auditing and diagnostic purposes.

There are 5 Buttons in the Main Menu, as well as 2 radio buttons, and the OK/Exit controls as seen below

The usage of each button is as follows:

The OK or X buttons: These buttons located in the upper right corner of the application are used to close or terminate the application. Clicking either of these buttons will shut down the application.



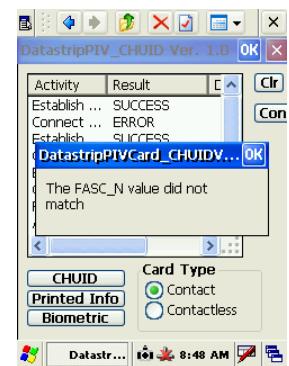
The CHUID Button: The CHUID button will perform a number of tests on the card and extract the CHUID details. Additionally it will check the configuration settings of the program and determine if the information stored in the card is to be accepted at this particular station or not. It will also ensure that the card has not expired.

The process to read/verify the PIV card is as follows:

1. Insert the CHUID card into the unit as shown (Contact facing up.)
2. Click the CHUID Button.



3. The reader will attempt to parse the data from the PIV Card and look for the following error conditions.
 - a. Expired or Abnormal Expiration Data.
 - b. Non Authorized or incorrect data in the following fields
 - i. FASC-N
 - ii. Agency Code
 - iii. Organization Code



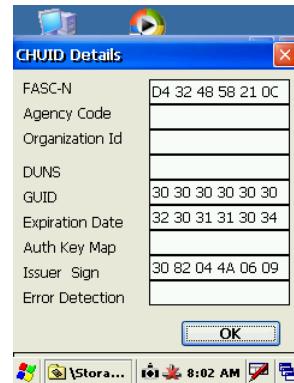
PIV Card Rejected - Error Conditions:

If either error condition is met, the application will display an error message on top of the Activity Log Window and notify the operator of a non acceptable PIV card.

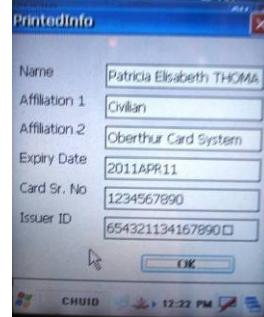
PIV Card Accepted - No Error Conditions:

If there are no errors, the display will change to the CHUID details screen which displays some of the data elements on the card and no errors will be reported. This would mean the presented PIV card is acceptable in this situation.

- Clicking OK at this point will return you to the Activity Log Window and the Main Menu
- Clicking the Clr Button at this point will clear out all of the data from Activity Log Window.
- At this point, the application is ready to process the Next PIV Card or move to the Printed info or Biometric Steps on the existing card.



Printed Info Button: The Printed Info button will, after PIN authentication display the stored printed personalization information on the card. This data can be used as necessary for auditing, logging, or advanced determination of qualifications. Tapping the Printed info button will initiate the PIN procedure and after authentication provide the Printed info Display in the application.

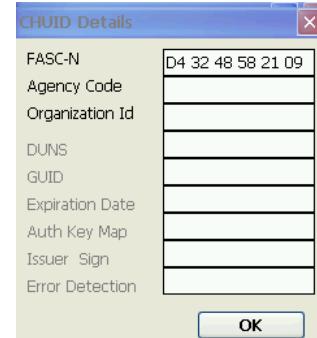


Biometric Button: This button is used (after pin authentication) to extract the biometric template from the card. This is for future expansion on the system and allows for custom integration into a biometric access control system if required by an individual organization. Tapping the Biometric button will initiate the PIN procedure and after authentication provide the Biometric Data Display in the application. This additional functionality is included for systems integrators to add biometric capabilities at some future point using the DSVII CHUID SDK.

Clr Button: Pressing the Clr Button will clear the data from the Activity Log Window.

Con Button: The Con or Configure button is used to setup the configuration for acceptance of a PIV card based on the following fields:

- FASC-N
- Agency Code
- Organization Code



The default is that all values are accepted in any of these fields. If the value in any field is blank, the CHUID application accepts any correctly formatted value read from the PIV card as acceptable. The system integrator or operator can set restrictions on the acceptance by placing values in these fields. If there is a Value in any of these fields, it will be compared against the data read from the PIV card and if it does not match the card will be rejected. Pressing the Con button brings up the CHUID Detailed Configuration screen.

To set the configuration an operator does the following actions:

1. Press the Con button
2. Enter the filter data into the appropriate field.
3. Click the OK button.

Card Type Radio Buttons: These buttons are used to select Contact or Contactless Cards to be read.

The contactless setting is there to allow system integrators to add contactless functionality if required at some point in the future using the CHUID SDK, as well as for diagnostic testing purposes. The default setting for this application is Contact and a user would have to change this setting manually to move into contactless mode.

10.4 Data Capture Enrollment Application (DataCapture.exe)

The Data Capture enrollment application is used to collect data records that can be stored on a memory card and transferred to a PC. **You Must Have a Digital Still Camera installed for this application.**

New Record: Enter the User Data: Name, Doc #, Date, Location, and Type.

Record Composer:

PHOTO: Clicking on the Photo will open the camera application in preview mode. Press the F4 key to “Capture” the image. You can then accept the photo or cancel and recapture a new image.

FINGERPRINT: Clicking on the fingerprint window will open the fingerprint screen. Click the “Capture” button and place your right index finger on the fingerprint scanner. You can then accept the fingerprint image or cancel and recapture a new image.

STORE OR CANCEL: Review the record data and “Store” the record or “Cancel” the record. Stored records will be saved in the DSV3 folder named “Enrollment_Data”. The file name structure will be: month:day:year:hour:minute:lastname:doc#.

View Records: From this screen, you can scroll through the stored records using the; First, Previous, Next, and Last buttons. When a record has been selected, you can then “Edit” or “Discard” that record.

Store: Memory Card: The memory card must have a folder named “Enrollment_Data”. When you click Store: Memory Card, the data from the StorageCard/Enrollment_Data folder will be copied to the StorageCard2/Enrollment_Data folder.

Troubleshooting

11 Active Sync

The flowing sub-sections describe both wired and wireless methods of establishing ActiveSync communications between the DSV3 (which runs WinCE) and a PC/Laptop with Windows XP. Some typical operations you can perform via ActiveSync are:

- Synchronize, backup, and restore information on the DSV3
- Add and remove files from the DSV3
- Copy data between the DSV3 and the PC
- Use the connection to debug programs you develop.

11.1 ActiveSync via USB 2.0 Client Port

11.1.1 Hardware/Software Requirements

The following is required to establish an ActiveSync connection via the USB 2.0 Client Port:

- ActiveSync version 3.7.1 or later installed on the host PC (Version 4.5 recommended)
- A DSV3 terminal.
- USB 2.0 to Mini B Cable (Datastrip sales code DSVOSCAUSB).
- Datastrip DSV3_Turbo_USB Sync Setup utility found on the DSV3 User Manual CD.

11.1.2 PC Configuration for USB 2.0 ActiveSync (First Time Only)

- Run the “DSV3_Turbo_USB Sync Setup” utility found on the DSV3 User Manual CD
- After running the Sync setup you will be prompted to connect your DSV3 terminal to the PC. Turn your DSV3 terminal on and connect it to any one of the host PC USB ports using the USB 2.0 to Mini B cable. After the DSV3 terminal has been connected, Windows will notify you that it has “Found New Hardware”. You will then be asked “Can Windows Update search for new software?” Answer: NO, not this time.
- The Wizard will then ask how you want to install software. Answer: Install the software automatically (Recommended).



11.1.3 Establishing a Connection

- Each time you connect the DSV3 terminal to the host PC you will be asked if you would like to set up a Partnership. If you will be using this DSV3 terminal on this PC regularly then answer “Yes”. If this is a one time use on this PC, answer “No”. In either case you will be connected and can transfer files between the PC and the DSV3 terminal.

11.1.4 Troubleshooting the Connection

If a connection is not automatically established check the following:

- The DSV3 will not connect while it is in Suspend mode. Wake the DSV3 from Suspend prior to connecting the USB cable.
- Verify that USB 2.0 is enabled on your terminal and that USB via COM3 is selected. Go to the Control Panel and double click “PC Connection”. On this screen you should see “USB via COM3”. If not then click “Change Connection”. Click the scroll bar arrow. If you see the option for “USB on COM3” then select it and click “OK”. Click “OK” again to close the PC Connection screen. Re-insert your USB cable to get connected. If you did not see the option for “USB on COM3” your terminal is not USB 2.0 enabled.

11.2 ActiveSync via the Docking Station

11.2.1 Software/Hardware Requirements and Setup

- ActiveSync version 3.7.1 or later installed on the host PC.
- Docking station, docking station serial cable and Datastrip power adapter.
- Connect the DB9 end of the Docking station serial cable to the PC COM1.

11.2.2 Establishing the Connection

- Turn on the DSV3 and when it has finished booting, place it in the docking cradle.
- Each time you connect the DSV3 terminal to the host PC you will be asked if you would like to set up a Partnership. If you will be using this DSV3 terminal on this PC regularly then answer “Yes”. If this is a one time use on this PC answer “No”. In either case you will be connected and can transfer files between the PC and the DSV3 terminal.

11.2.3 Disconnect

- Disconnecting the ActiveSync cable or removing the DSV3 terminal from the docking cradle will disconnect the session on the PC side, but not on the DSV3. Manually disconnect the DSV3 by clicking on the ActiveSync icon in the system tray and clicking “Disconnect” or do nothing and the session will timeout after one minute. Both ends of the connection must be disconnected before you can reconnect the cable and start another ActiveSync session.

11.2.4 Troubleshooting the Connection

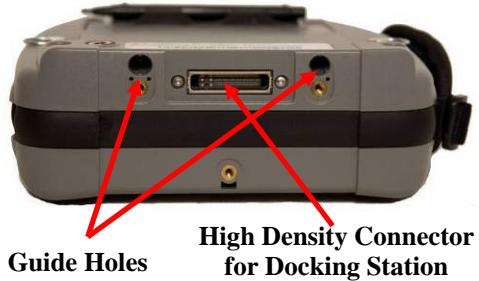
If a connection is not automatically established, check the following:

- The DSV3 will not connect while it is in Suspend mode. Wake the DSV3 from Suspend prior to placing it in the docking station.
- Verify that “Serial via COM1” is selected on your terminal. Go to the Control Panel and double click “PC Connection”. On this screen, you should see “Serial via COM1”. If not, then click “Change Connection”. Click the scroll bar arrow. Select “Serial via COM1” and click “OK”. Click “OK” again to close the PC Connection screen. Re-insert your DSV3 into the docking cradle to get connected.
- Place the DSV3 in the docking cradle. On the PC, open the ActiveSync application and select “File/Connection Settings”. Then select “Connect”. This will initiate a connection with the DSV3 from the PC side.

12 Docking Station

The docking station is an optional peripheral available for the DSV3 mobile terminal, and it has the following attributes:

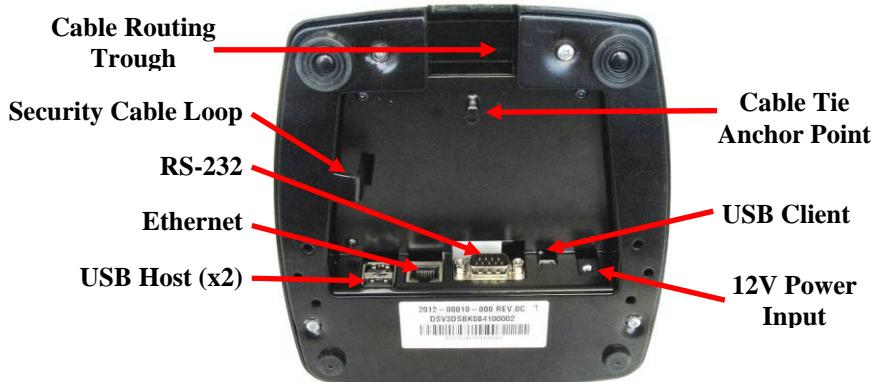
- Wired I/O Access:** Provides convenient access to the wired I/O ports on the mobile terminal when docked.
 - USB 2.0 Host: standard A (x2)
 - USB 2.0 Client: standard B (x1)
 - Ethernet: 10/100 RJ45 (x1)
 - RS-232 DB9 (x1)
- Battery Charging:** Supplies power to charge the batteries inside the mobile terminal
- Storage:** Provides a convenient place to store the mobile terminal with “grab and go” access.



The docking station mates with the DSV3 terminal via a high density connector located on the bottom of the terminal. There are two guide holes on the terminal (and corresponding guide posts on the docking station) that make it easy to dock and remove the mobile terminal while providing robust and rugged connectivity.

12.1 Docking Station I/O

The docking station provides access to the wired I/O ports of the DSV3 mobile terminal. Shown below is a photo of the bottom of the docking station depicting the location of each of the I/O connectors. Cables are normally routed through the cable trough in the back of the docking station. There is a cable tie anchor point that can be used to secure the cables.



12.2 Adjusting the Docking Station Backrest

The DSV3 docking station has an adjustable backrest. It is important to adjust the backrest correctly to ensure proper operation. To use the docking station with the DSV3-SP, ensure that the plastic backrest support is in the forward position. This is done by removing the 2 Philips- head screws in the plastic backrest support, repositioning the backrest support to the appropriate position, and then re-tighten the screws.

- **Forward Position:** This position should be used for DSV3-SP
- **Rear Position:** This position should be used for DSV3-EP



13 Troubleshooting

PROBLEM	POSSIBLE REASON AND REMEDY
Unit does not power up	The battery may be not connected, or may be completely discharged. ➤ Open the battery access cover and verify that the battery is properly installed. ➤ Use the external AC power adapter to operate the unit and to simultaneously charge the battery. <i>Please refer to Section 4.12.1 "Battery Charging and Replacement"</i>
Unit generates a single "error" beep tone, and the power LED flashes RED once	➤ This is an indication that the internal battery is very low, and does not have sufficient charge to run the unit at all. ➤ Plug in the AC power adapter to charge the battery AS SOON AS POSSIBLE

14 Available Parts, Supplies, and Accessories

The following options, accessories, and replacement parts are available for the DSV3 mobile terminals. Please contact Datastrip or an authorized reseller for a complete list, and for pricing and availability.

ACCESSORIES / SPARE PARTS	
Stylus	
D-Ring and Shoulder Strap	 <p>For applications that require over-shoulder carrying of DSV3 devices. Works with all Models.</p> <ul style="list-style-type: none"> • Sturdy metal snap-swivels. • Ergonomically curved and padded shoulder area, featuring non-slip material on one side. • Wide length adjustment range.
Digital Still Camera (DSC) Module	 <ul style="list-style-type: none"> • 3.2M Pixel Color Camera. • Quick point and shoot use. • Seamlessly integrated into dual grip back cover. • Built in flash illumination. • Built in preview illumination. • Auto Exposure. • User configurable operation. • Demo application software included. • Full SDK support.
Bluetooth Wireless	
Mobile Wireless: GSM (GPRS/EDGE)	
Global Positioning System	
Proximity Card Reader (PROX)	<ul style="list-style-type: none"> • Multi Format ready • Programmable output • Supports HID standard Prox cards • Indala and Motorola also available
Docking Station	 <ul style="list-style-type: none"> • Works with all models. • Operates and charges batteries simultaneously while units are docked. • Serial Cable included for Active Sync connections • Convenient upright position using a two position backrest.
DSV3 USB 2.0 Active Sync Cable	<ul style="list-style-type: none"> • Provides ActiveSync connection via the USB 2.0 Client Port
DS MT SDK (Software Development Kit)	<ul style="list-style-type: none"> • Provides the software components, samples, and information necessary to develop and deploy large scale, real world applications.
Dual-SAM Smart Card Module	<ul style="list-style-type: none"> • ISO 14443 Contactless card support. • ISO 7816 Contact card support. • 2 internal security slots for SAM (Security Access Modules).
Internal Memory Upgrade: 512 Meg CF card	
Internal Memory Upgrade: 1 Gigabyte CF card	

ACCESSORIES / SPARE PARTS	
Internal Memory Upgrade: 2 Gigabyte CF card	
Vehicle Power Charger:	

15 Service & Support

Technical support is available through the following contacts:

Home page and Tech Support: www.datastrip.com

For customers located in North and South America:

Address: Datastrip, Inc.

1285 Drummers Lane Suite 105

Wayne, PA 19087-1572

E-mail: support@datastrip-inc.com

Phone: (610) 594-6130

Fax: (610) 594-6065

Office Hours: 8:30 AM to 5:30 PM EST/EDT

For Customers outside North and South America:

Address: Datastrip Ltd.

1, Thame Park Business Centre

Wenman Road

Thame, Oxfordshire

OX9 3XA

E-mail: uksupport@datastrip.com

Phone: +44 (0) 1844 215668

Fax: +44 (0) 1844 215669

Licensing: +44 (0) 1844 215668

Office Hours: 0900 to 1730 GMT/BST.



To return your Datastrip for service, upgrade or repairs, please contact the tech-support department by e-mail or telephone. An RMA will be issued, and should be clearly marked on the outside of your shipping carton. Please be certain to provide adequate shipping insurance to safeguard the contents. For international shipments, please include a declaration of value, or other relevant legal documents that are required for shipment of this type of equipment.



Please use the original shipping carton and packing materials whenever possible.



Please ensure you send your package PREPAID or it will not be accepted. Do not ship collect. Datastrip will return all RMA equipment shipping prepaid as well. Failure to follow this requirement will result in delays.



For parts, supplies and accessories, place your order through your authorized Datastrip reseller, or by contacting Datastrip Limited or Datastrip, Inc.

Datastrip thanks you for purchasing our equipment. If you have any comments, suggestions, questions, or concerns, we would like to hear from you.