Datalogic™ OPOS Service Objects

User Manual

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Disclaimer

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Datalogic™ OPOS Service Objects

Introduction

Document Conventions

Formatting conventions are used throughout this guide to provide a consistent method for representing screen shots and command entries.

NOTE

Notes contain additional information of interest to the user.

CAUTION

The CAUTION symbol advises you of actions that could damage equipment or property.

Keystrokes: `Filenames, paths, field selections, and data or keystrokes entered by the user are shown in this monospaced typeface.`

About the Datalogic OPOS Service Objects

Service Objects are packaged with the current OPOS control objects. They are fully compatible with the Unified POS Retail Peripheral Architecture and the OPOS appendix to that spec. To view the current version of the document, go online to the National Retail Federation at www.nrf-arts.org/download. The Service Objects support four types of DATALOGIC interfaces: RS232 Standard (also called Dual Cable), RS232 Single Cable, USB-COM, and OEM USB.

Datalogic Products Supported

Device Type	Scanner				Scale		
	RS232 Std	RS232 SC	USB-COM	OEM USB	RS232 Std	RS232 SC	OEM USB
Table Top Scanner/Scales							
Magellan 3200	●	●	●	●			
Magellan 3300	●	●	●	●			
Magellan 2200VS	●	●		●			
Magellan 2300HS	●	●		●			
Magellan 800i	●	●	●	●			
Magellan 8100	●	●		●	●	●	●
Magellan 8200	●	●		●	●	●	●
Magellan 8300	●	●		●	●	●	●
Magellan 8400	●	●		●	●	●	●
Magellan 8500	●	●		●	●	●	●
Magellan 8500xT	●	●		●	●	●	●
Magellan 9500	●	●		●	●	●	●
Magellan 9800	●	●	●	●	●	●	●
Magellan 1000i	●		●	●			
Magellan 1100i	●		●	●			
Magellan 1400i	●		●	●			
Duet	●			●			
VS800	●			●			
Handheld Scanners							
GD41XX	●		●	●			
GM41XX	●		●	●			
GBT41XX	●		●	●			

Device Type	Scanner				Scale		
	RS232 Std	RS232 SC	USB-COM	OEM USB	RS232 Std	RS232 SC	OEM USB
Handheld Scanners (continued)							
GD44XX	●		●	●			
GBT44XX	●		●	●			
GM44XX	●		●	●			
QS6000+	●			●			
QS2500	●			●			
QS6500	●			●			
QS6500BT	●			●			
QD23XX	●		●	●			
QD21XX	●		●	●			
PD71XX	●		●	●			

Installation

Running the Install

NOTE

Uninstall any previous DATALOGIC or PSC OPOS scanner/scale service objects before proceeding with the installation of the DATALOGIC OPOS Service Objects.

DATALOGIC Service Objects are compatible with OPOS Common Control Objects included in this package.

Installation can be performed in either of two ways: using a standard GUI installation, or as a silent install from the Command Prompt.

GUI Installation

To install, please perform the following steps:

1. Download the most current install file for the DATALOGIC OPOS service objects from the Datalogic website (www.datalogic.com).

2. Double-click **DatalogicOPOS.msi** to run the install program.

3. Follow the on-screen instructions to complete the installation.

NOTE

Version and date fields will be different depending on the version of the downloaded file.

Silent Install from Command Prompt

To perform a "silent install," open a command window and cd to the directory containing the **DatalogicOPOS.msi** file. Type the following command to execute the install process:

```
> DatalogicOPOS.msi /quiet
```

NOTE

Silent Install mode does not install Common Control Objects.

To install control objects during a silent install, type the following command:

```
> DatalogicOPOS.msi /quiet INSTALLCONTROLOBJECTS=1
```

Utilities

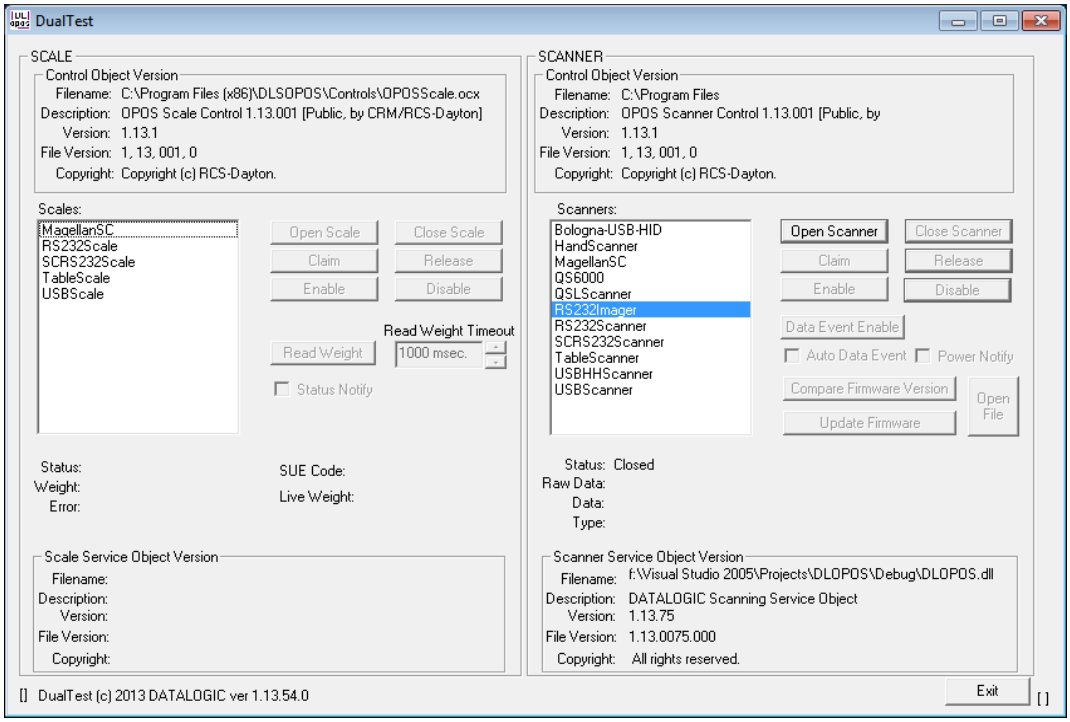
DualTest Utility

The Datalogic OPOS package contains a utility called DualTest that provides customers with the ability to quickly connect and test the operation of a Datalogic scanner/scale with the Datalogic service objects. Simple OPOS operations such as Open, Claim, Enable, Read Weights, bar code scanning, bar code type, Release, and Close can be exercised with this utility. DualTest is a fully operational OPOS application which exercises the connection and data path through the Common Controls and Service Objects to the physical device.

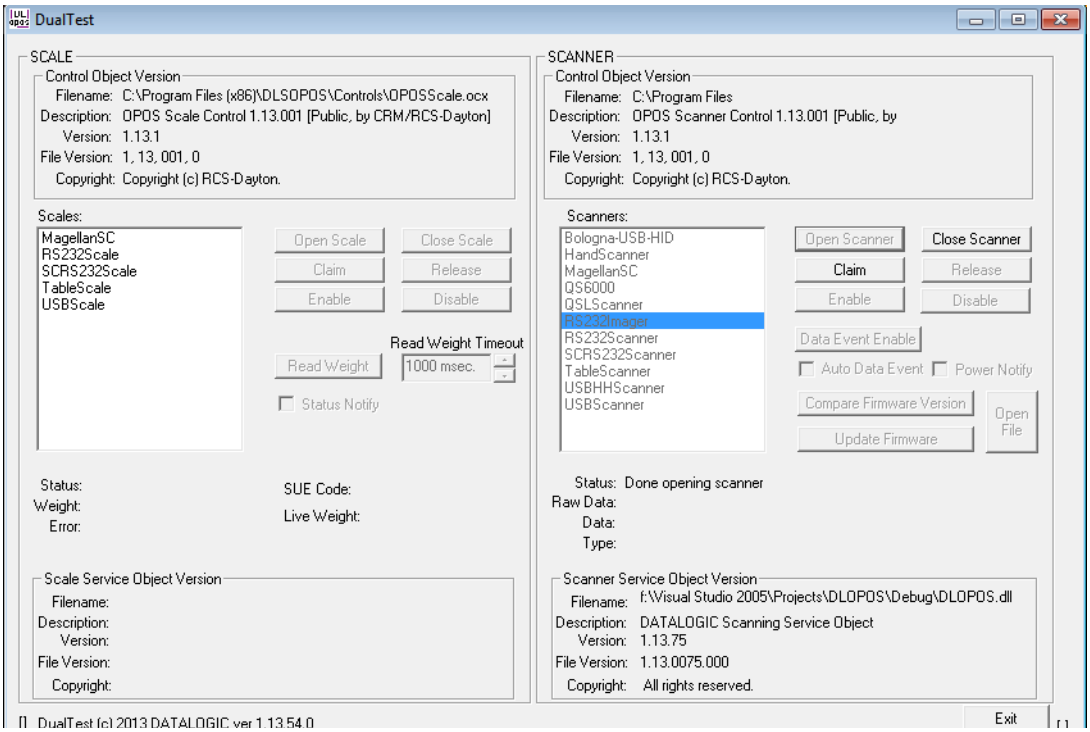
Scanner with DualTest

To connect to a Scanner, follow these steps after installing the OPOS package from Datalogic:

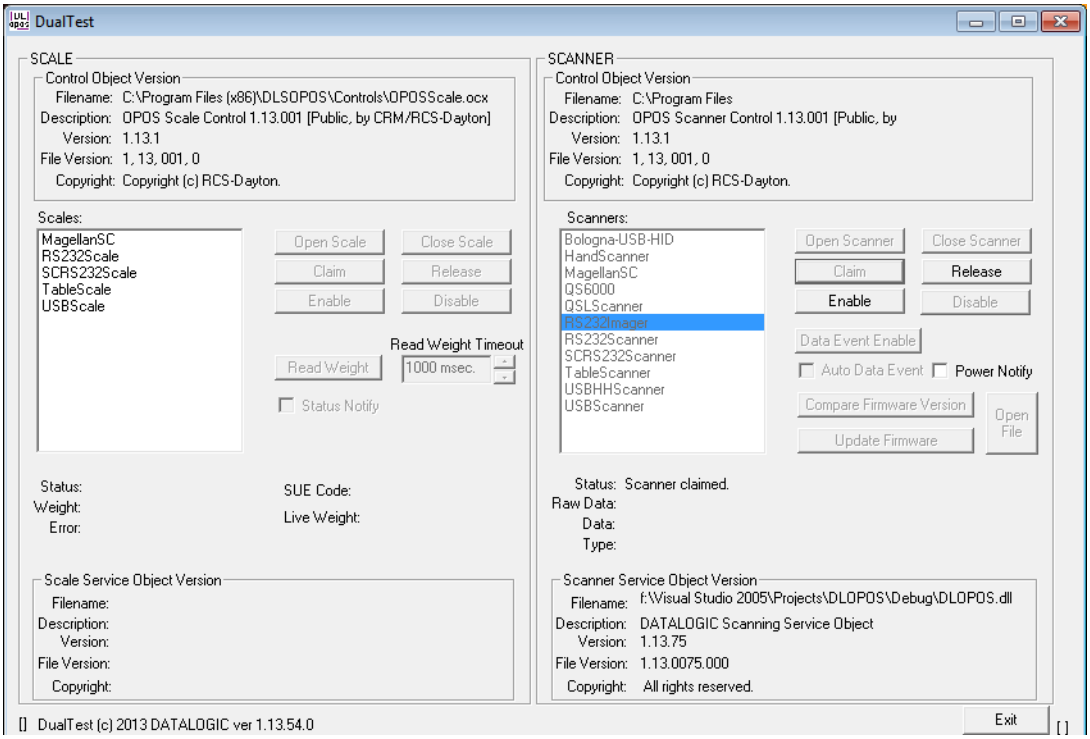
1. Select device:



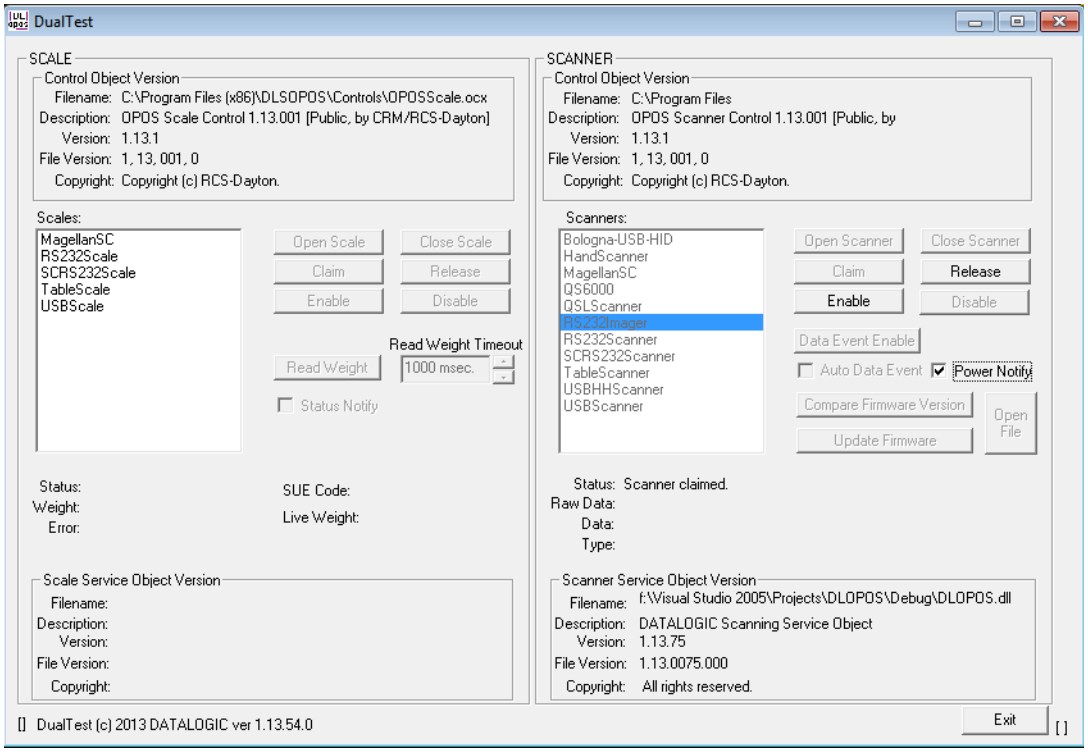
2. Open Scanner:



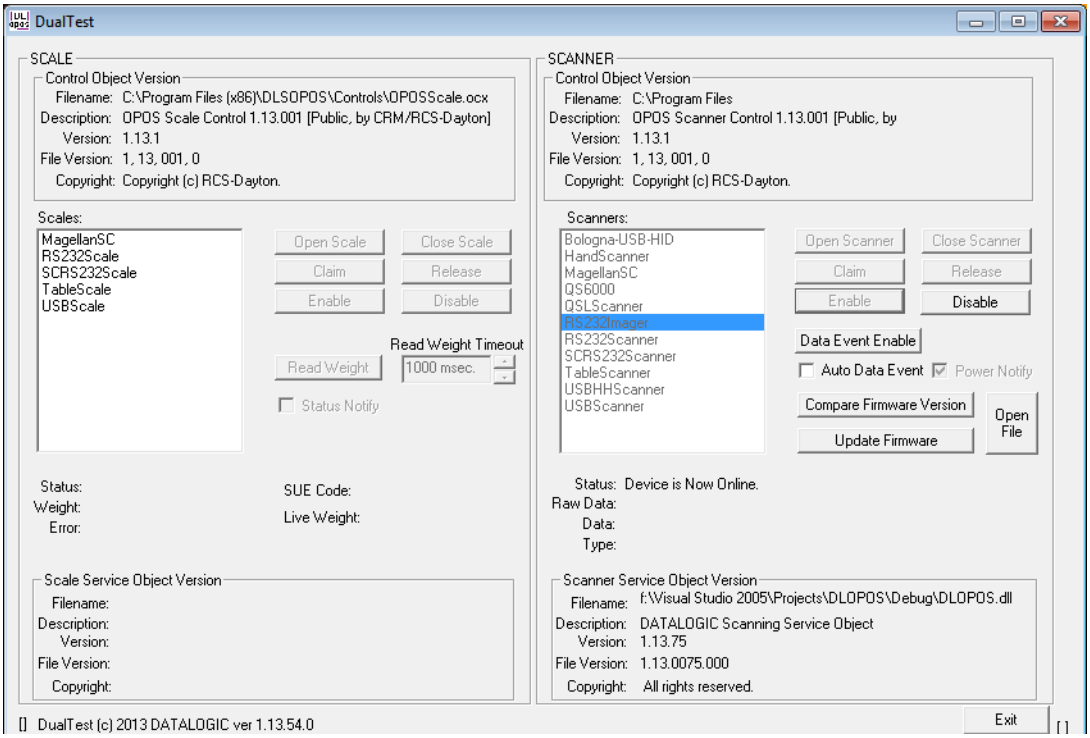
3. Claim:



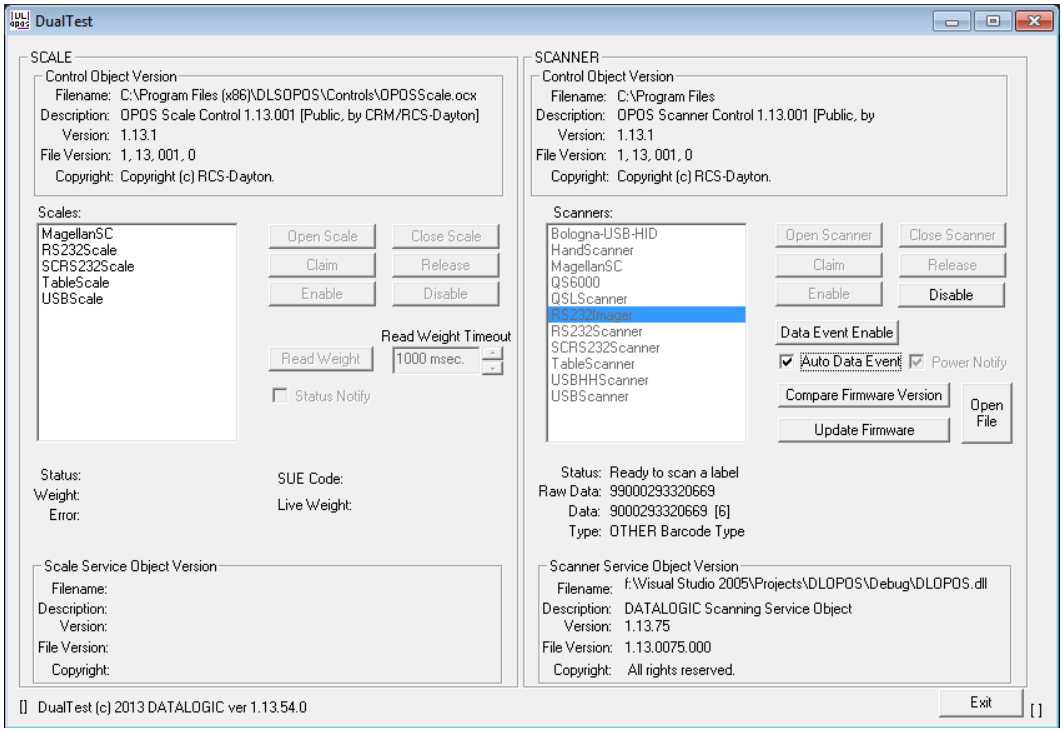
4. Select Power Notify:



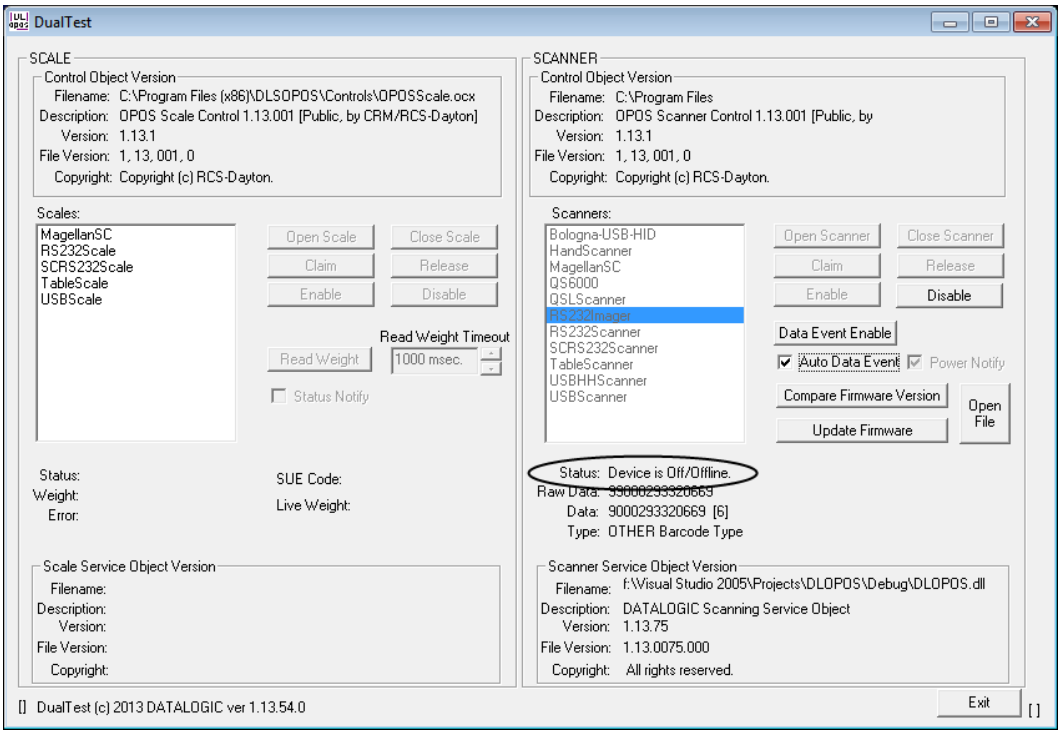
5. Enable:



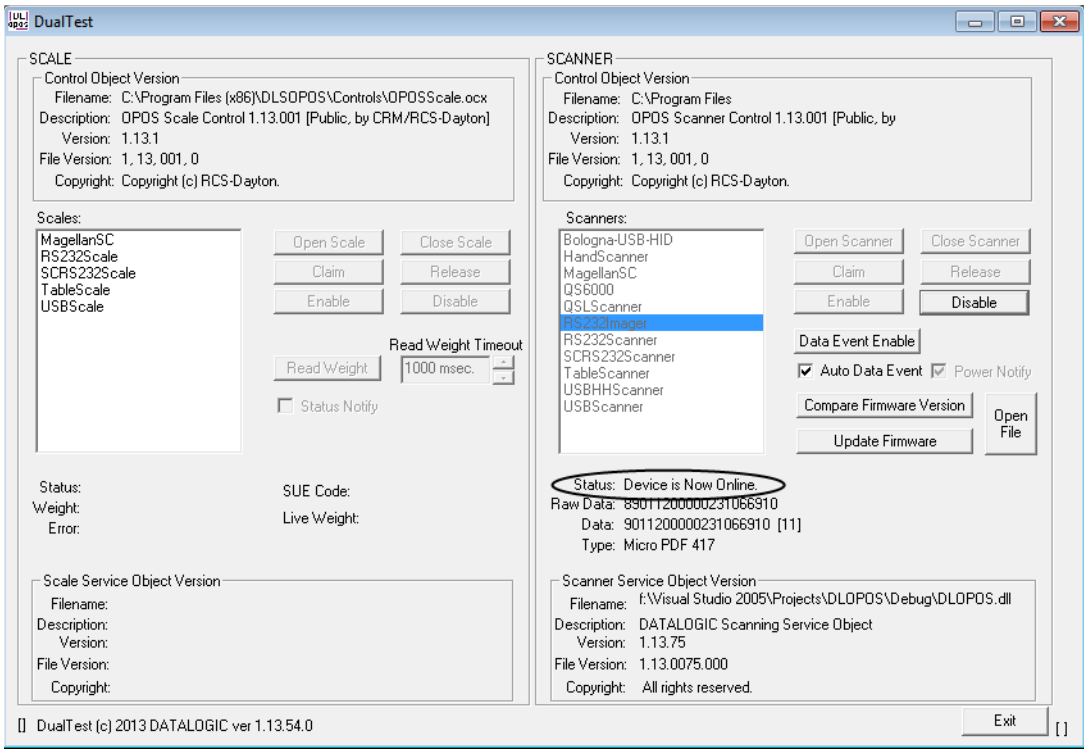
6. Click the "**DataEventEnable**" button and check the "**AutoDataEventEnable**" box, and scan a bar code. The bar code data and type will be displayed as shown here:



7. Unplug the Scanner from the system. Power Status will show the new scanner power state.



8. Plug the scanner back into the system. Power Status will update again with the new scanner power state.



Firmware Update with DualTest

The Datalogic OPOS Scanner Service Object supports the ability to update firmware on select scanners in accordance with the UPOS Specification (version 1.9 and above). The user's application may be written to take advantage of this capability in the service (see the UPOS specification for details). In addition, the DualTest application bundled with Datalogic's services supports this capability and may be used to upgrade firmware on select scanners. The following screen shots represent the steps used to upgrade firmware on a scanner that supports this ability using DualTest.

CAUTION

IMPORTANT NOTE to OPOS programmers:

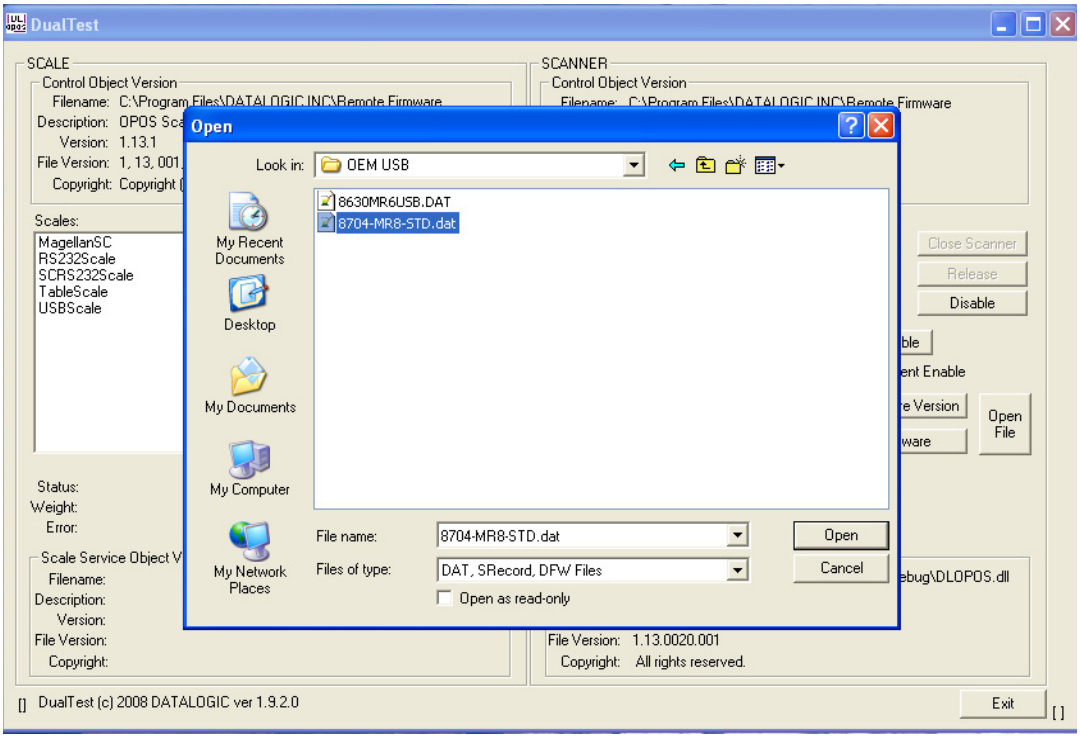
Prior to performing a firmware update on a scanner, the Scale Service Object should be closed. Failure to follow this step could lead to firmware update failure and an inoperative scanner.

To perform the firmware update, start DualTest and follow the steps in the previous section to Open and Claim the scanner. Then perform the following steps.

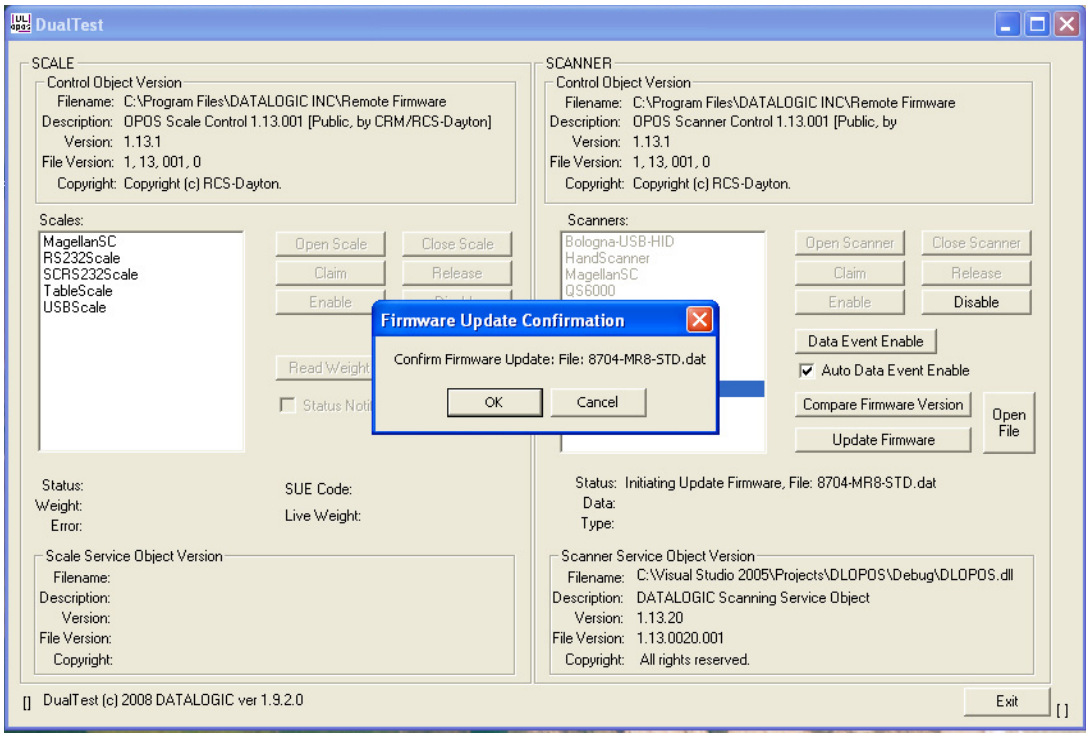
1. **`OpenFile`**: Locate the firmware file on your machine or network.

NOTE

Firmware files are interface and scanner specific and may be obtained from Datalogic Tech Support.



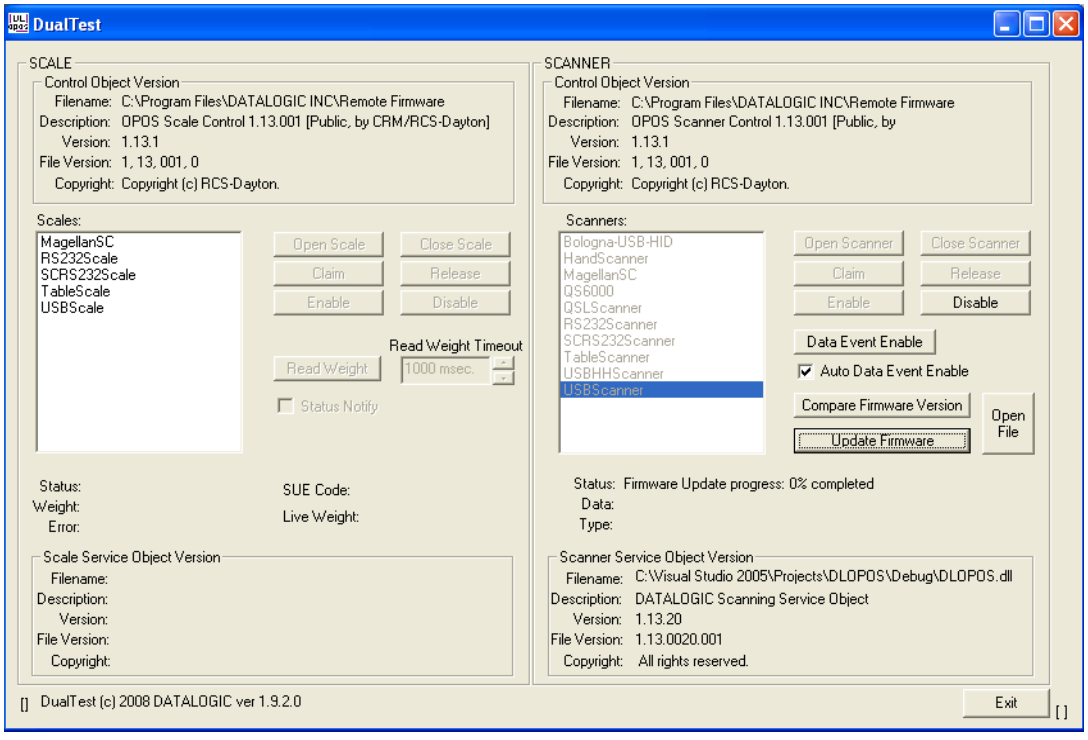
2. Confirm Update Firmware:



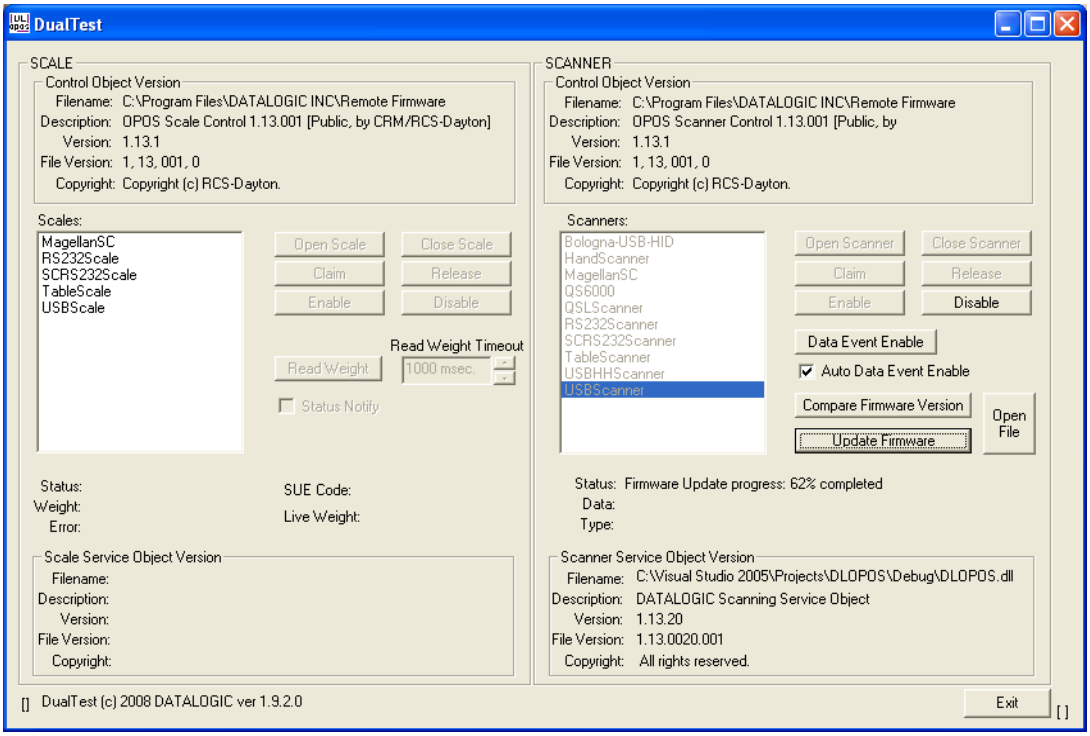
Firmware Update Started

The Status field will update at every 1% of the upload. Depending on the scanner interface and parameters such as baud rate, the update may take from approximately 7 minutes to 40 minutes.

DO NOT disconnect the interface cable or power cable from the scanner during the update!

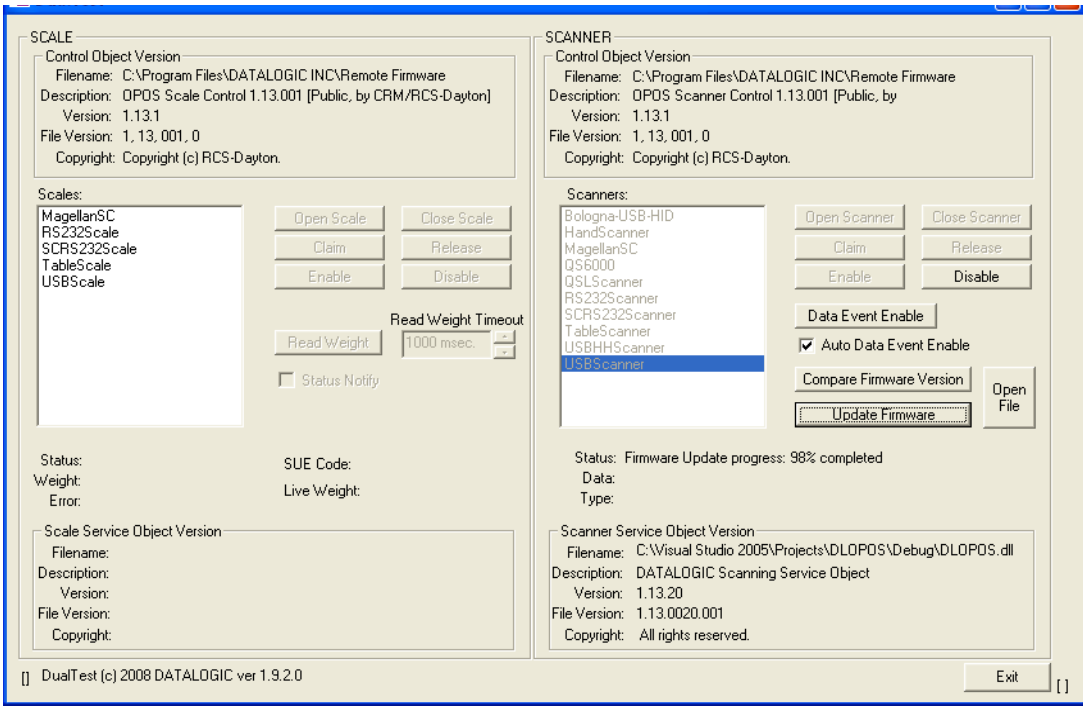


Update in progress, at 62% complete:

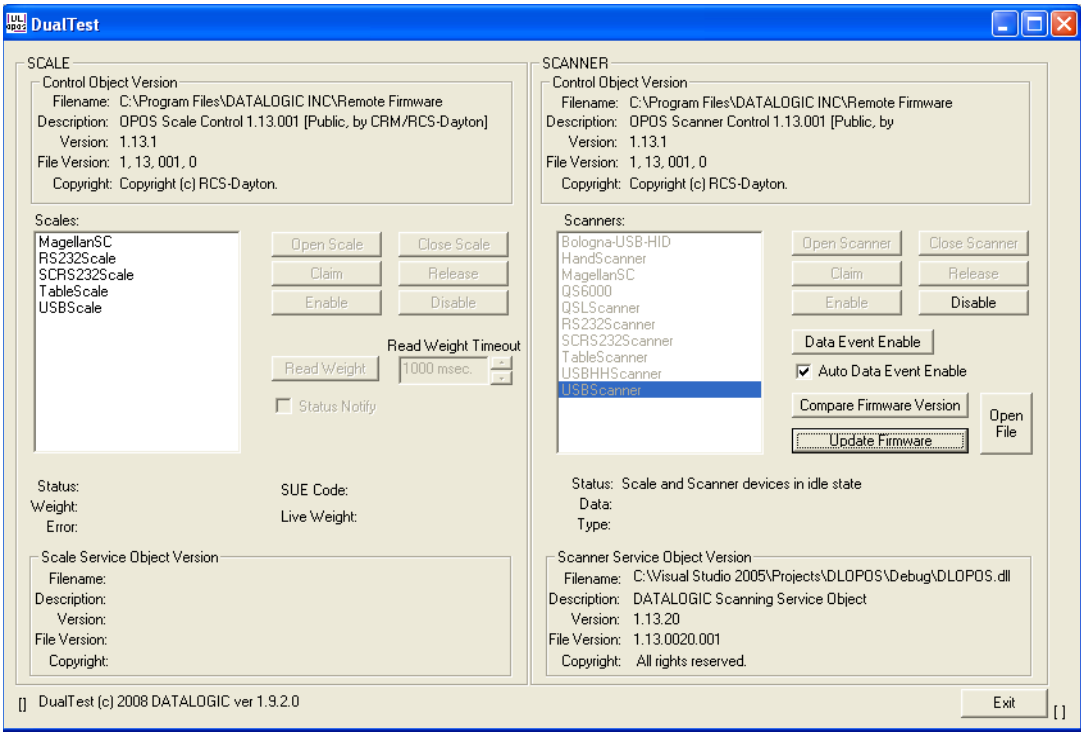


Firmware Update Finished

NOTE that the service will stop at 99% complete until the scanner reboots and comes on line, which may take several seconds.



Finalized: The scanner is now back on line and fully operational.



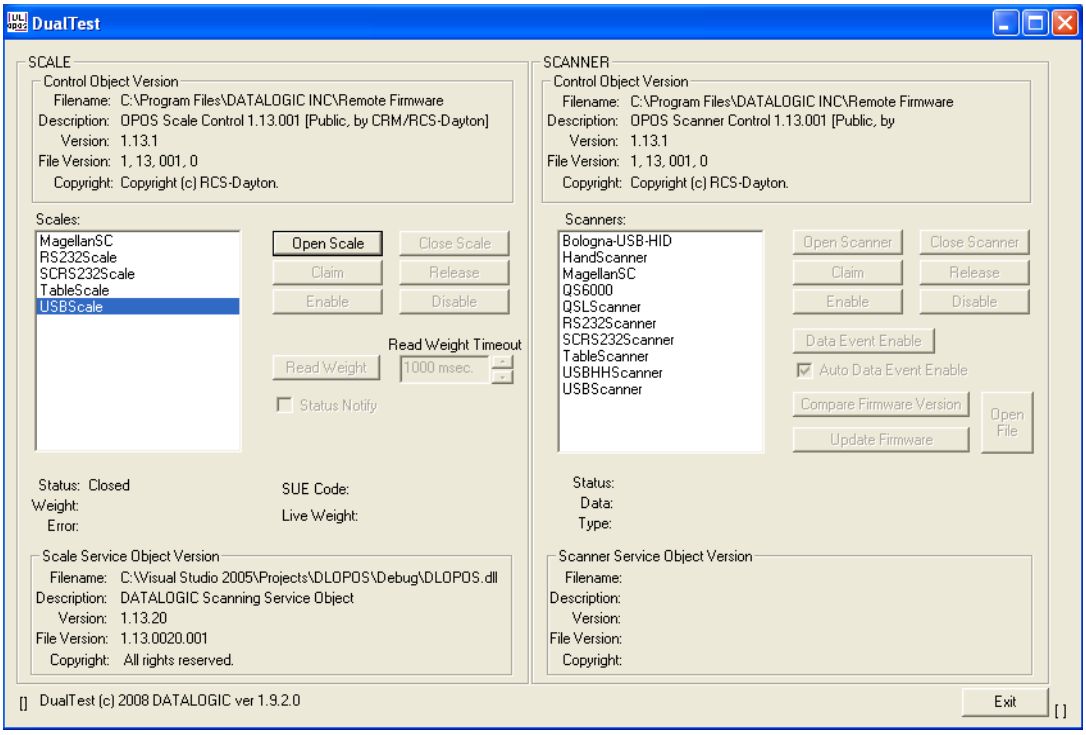
Firmware Update from the Command Line

See "Datalogic Remote Management Utility" on page 45.

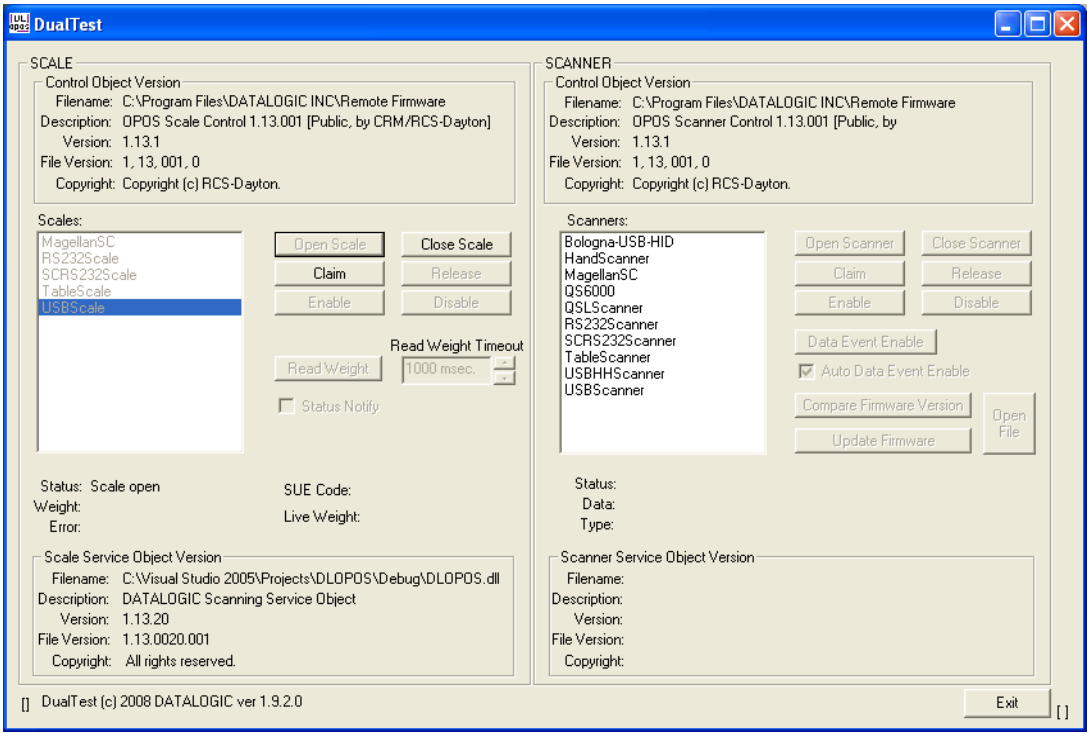
Scale with DualTest

To connect to a Scale, follow these steps after installing the OPOS package from Datalogic:

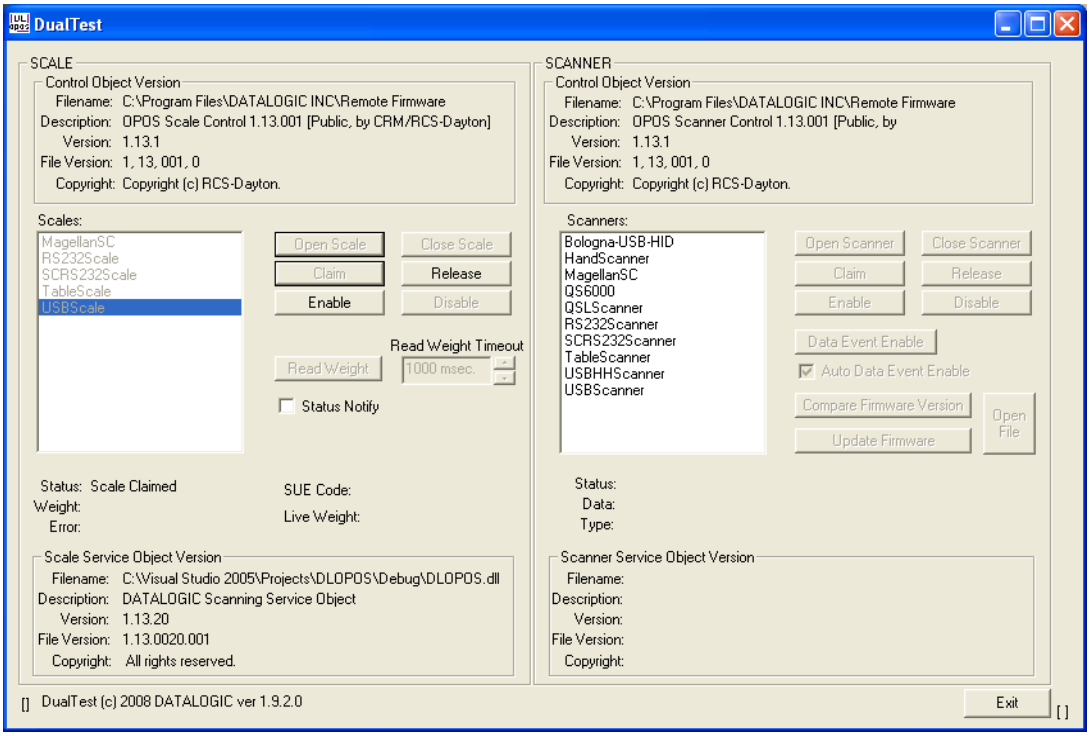
1. Select Device:



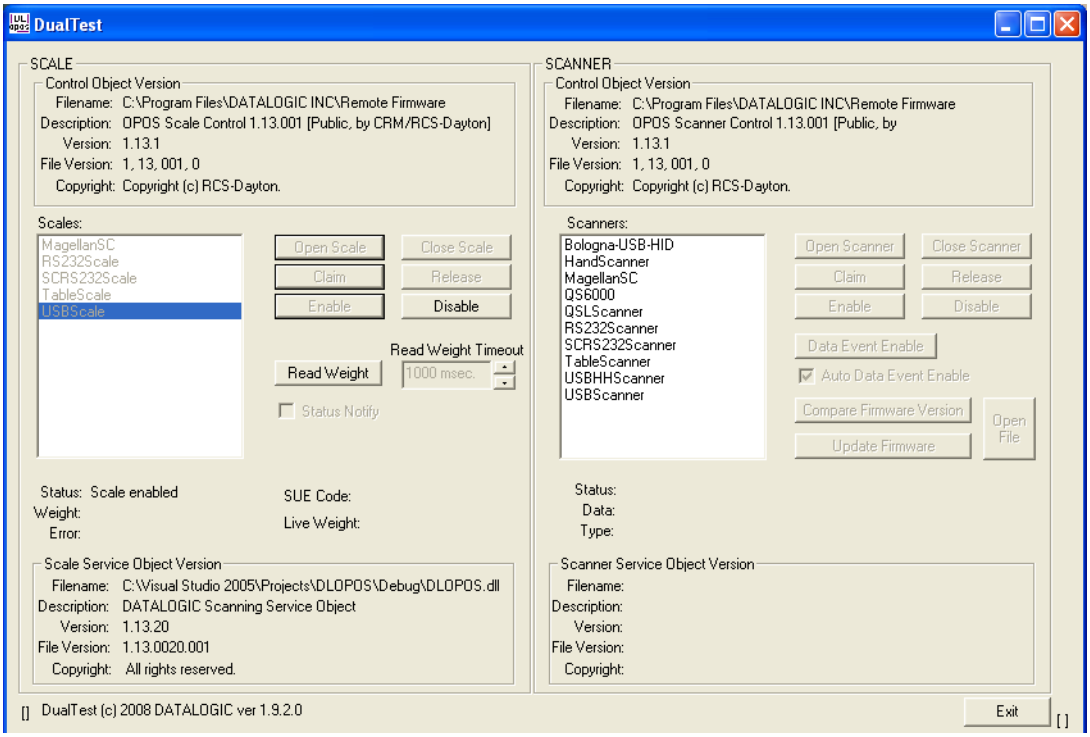
2. Open Scale:



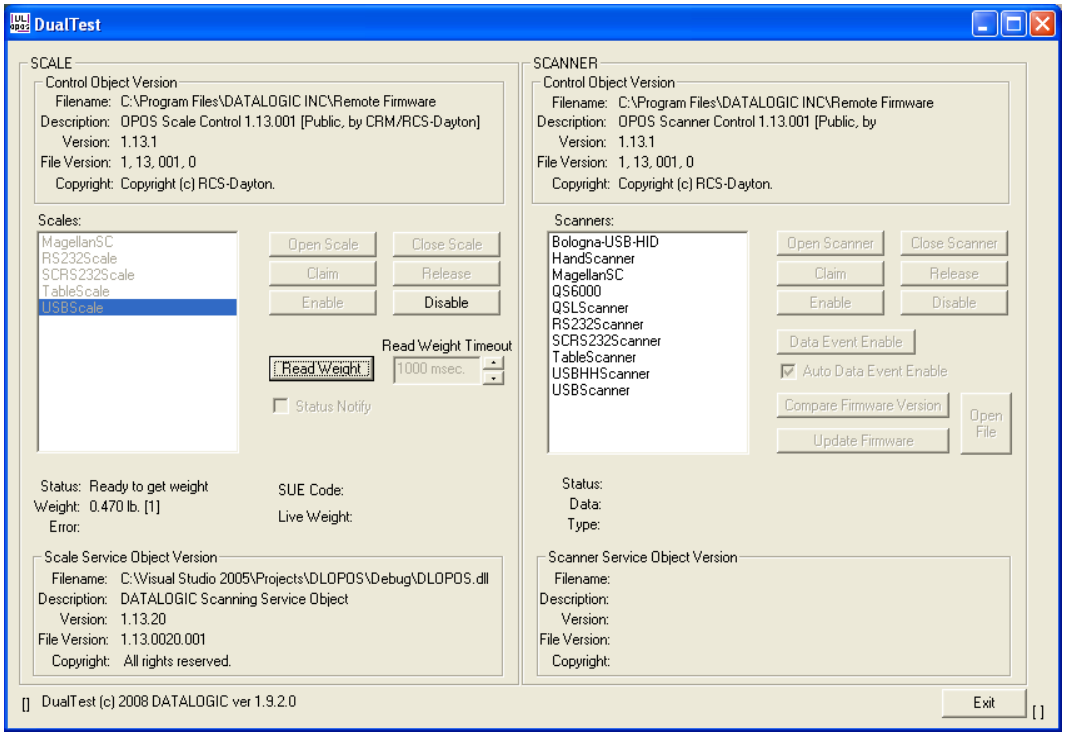
3. Claim:



4. Enable:



5. Read a weight:



Live Weight Display

The Datalogic OPOS Scale Service Object supports the ability to provide Live Weight Display functionality in accordance with the UPOS Specification (version 1.9 and above). The user's application may be written to take advantage of this capability in the service (see the UPOS specification for details). In addition, the DualTest application bundled with Datalogic's services supports this capability and may be used to demonstrate Live Weight Display function with a Datalogic scanner/scale. The following screen shots represent the steps used to activate Live Weight Display with a scale using DualTest.

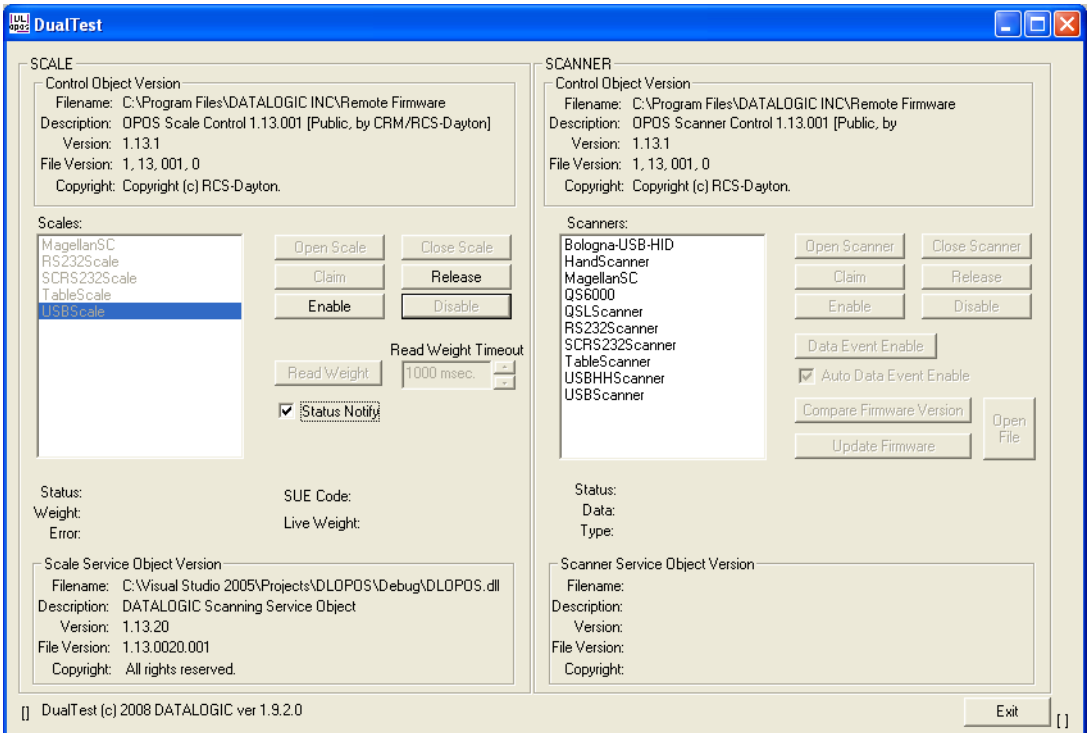
NOTE

IMPORTANT NOTE to OPOS Programmers:

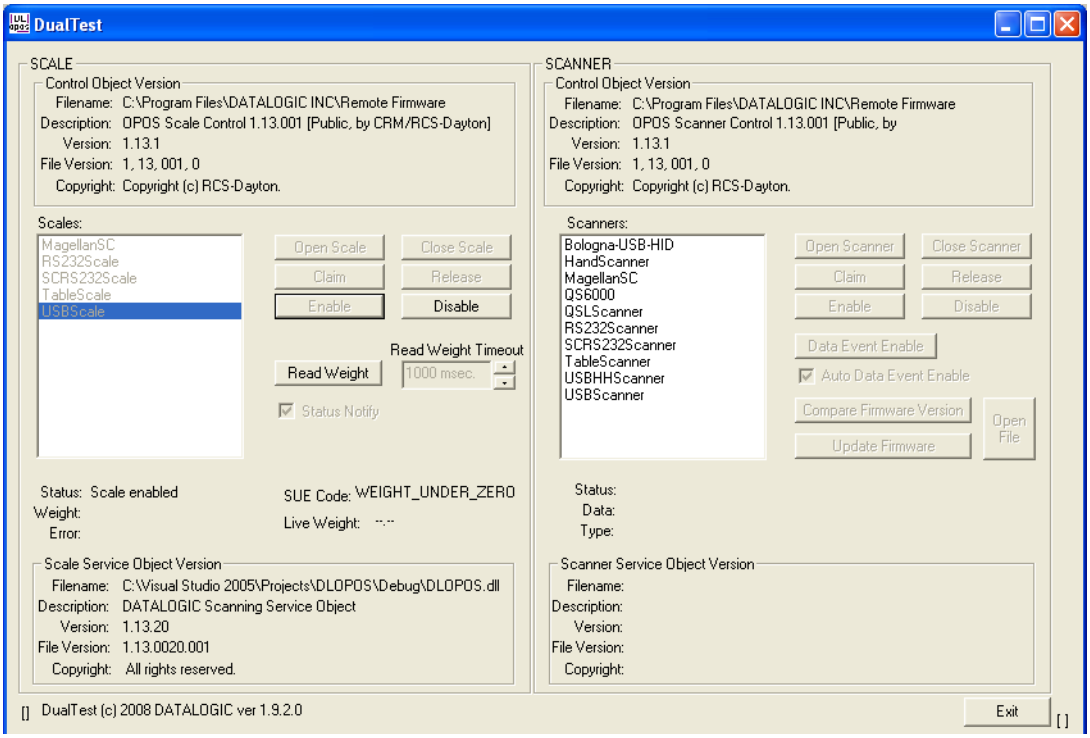
`PIDXScal_StatusNotify` must be set `TRUE` while the scale is NOT Enabled. As per the UPOS specification, setting `PIDXScal_StatusNotify` `TRUE` after the scale has been Enabled will not activate the Live Weight Display function in the scale service object.

To demonstrate Live Weight Display, start DualTest and follow the steps to Open and Claim the scale, as described in the previous section. Then perform the following steps:

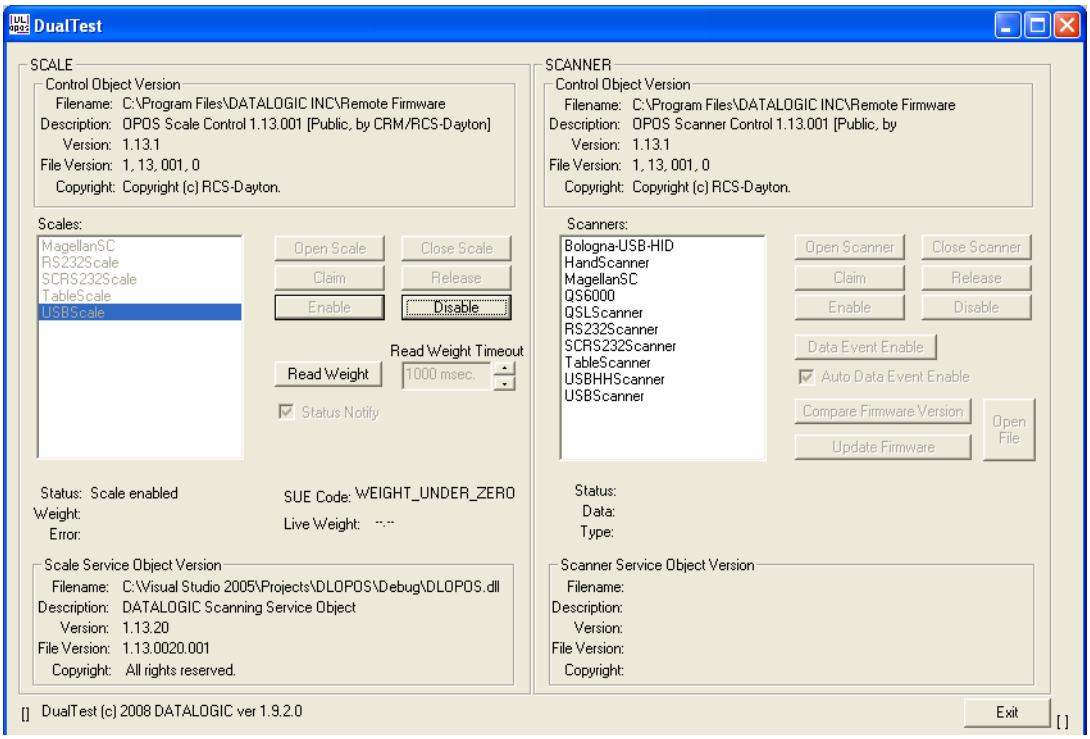
1. Set Status Notify True: Click the "Status Notify" check box.



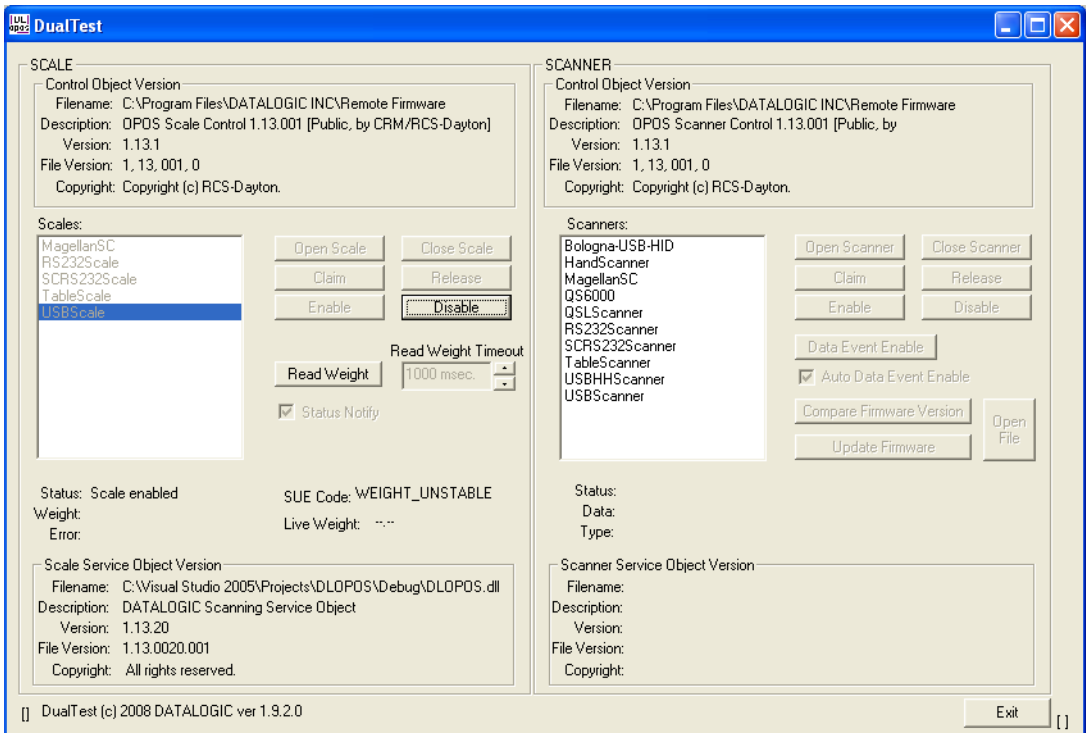
2. Enable: (Live Weight Begins immediately / Zero Weight)



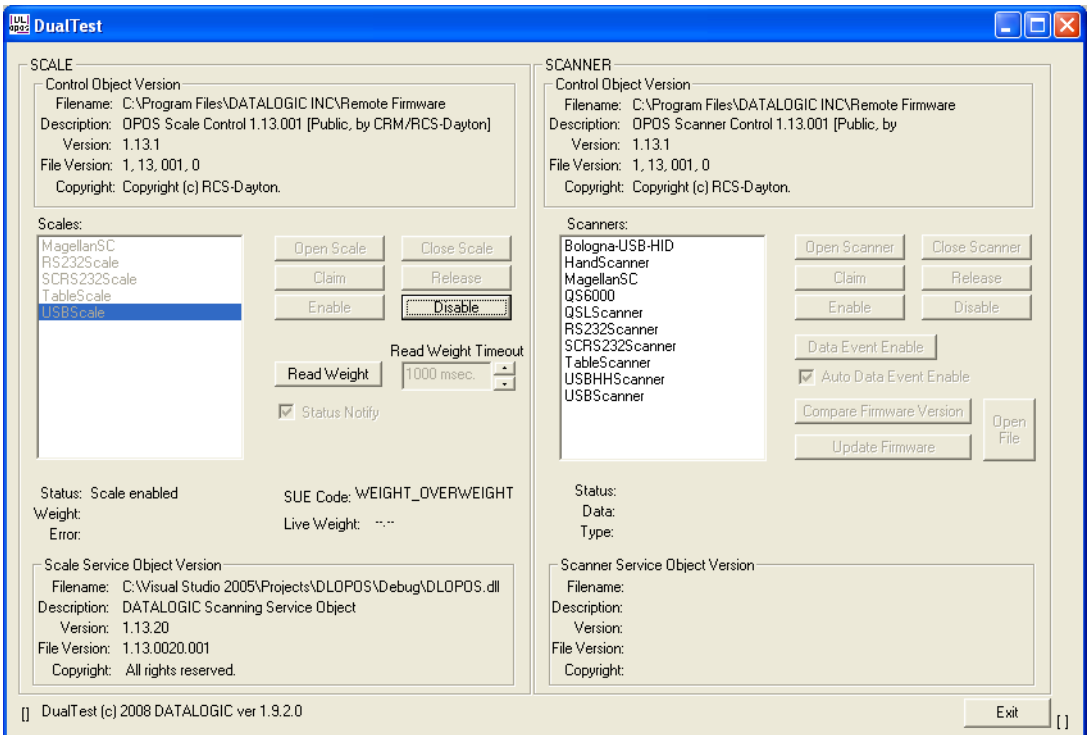
3. Underweight: An under zero condition has occurred.



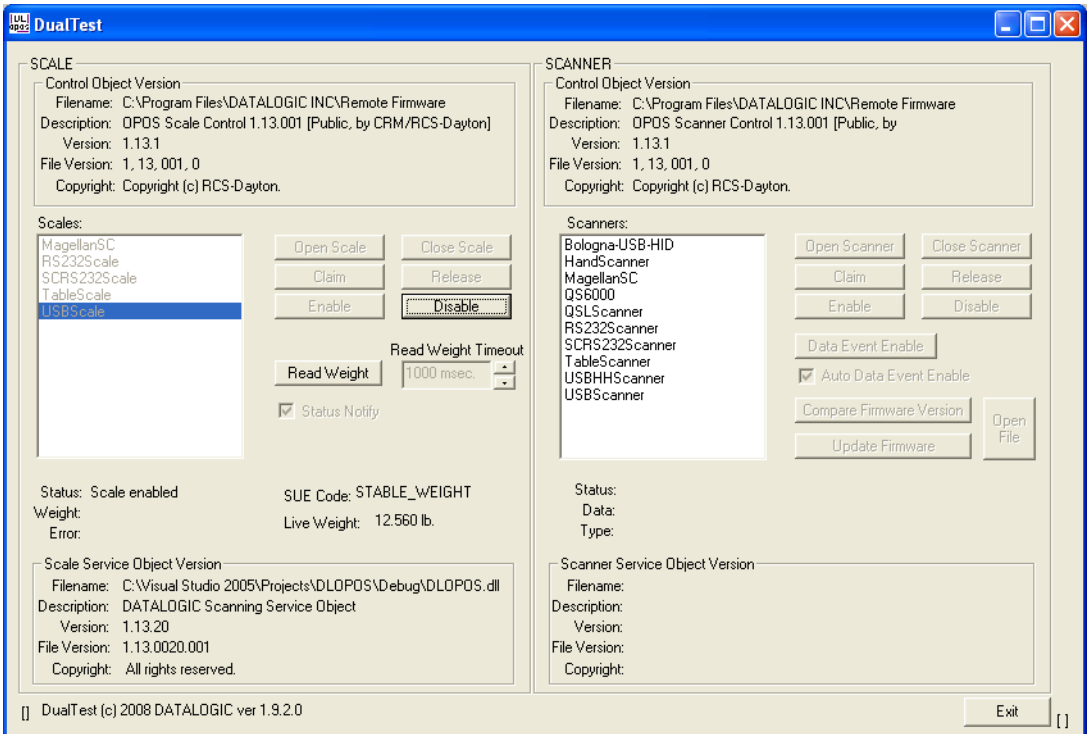
4. In motion: The scale is in motion and has not stabilized.



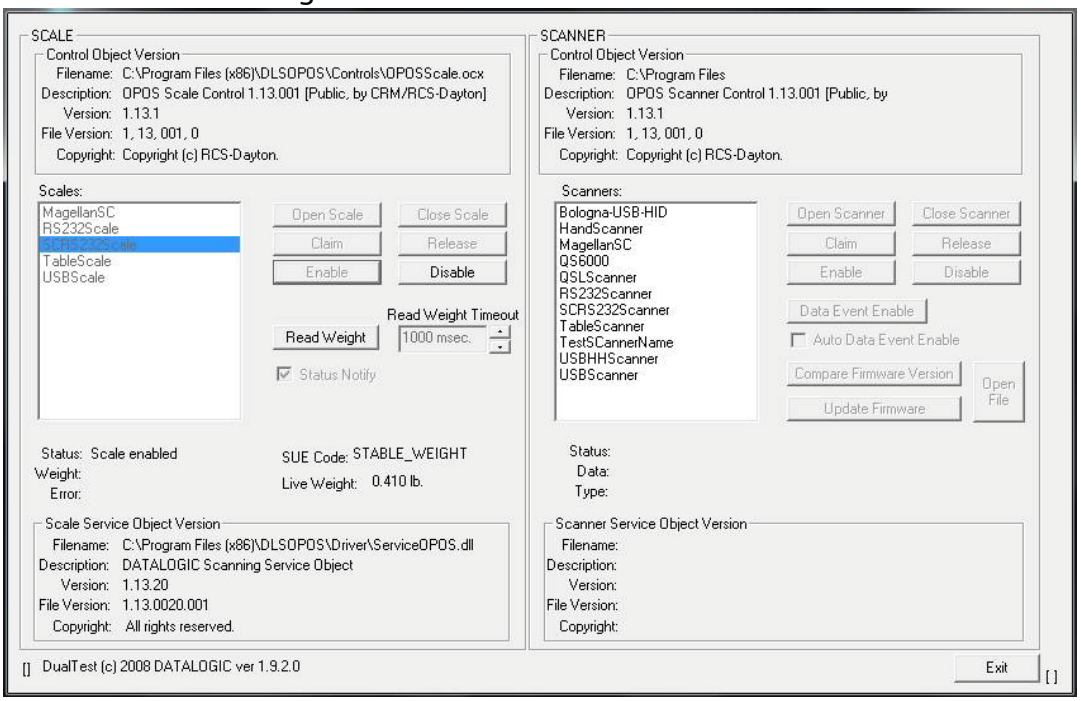
5. Overweight: The scale's weight capacity has been exceeded.



6. Stable Large Weight:



7. Stable Small Weight:



Registry

Windows Management Instrumentation (WMI) Compatible

Datalogic OPOS Service Objects provide WMI compatible Remote Management for certain scanners when properly configured. For scanners that support this data gathering capability, the Service Objects must be configured via registry settings to provide scanner data to the WMI data store. There are two registry settings that must be active to pull data from the scanner and provide it to the WMI data store: "**CheckIHSOnClaim**" and "**WMIOnClaim**" must both be set **= 1**. When these settings are active, each time the scanner is "claimed" by an OPOS application, the service will query the scanner and send the information to the WMI data store. Any WMI-data gathering application will then have access to the data. As noted in the registry section below, these settings are defaulted to "active" upon installation. Note that this process may have a small impact upon system performance.

The data provided to the WMI database follows the format as specified in the UPOS specification, Appendix I, "Systems Management Information", which is modeled on the Common Information Model (CIM) from the DMTF. This standard provides a means of Remote Management of Datalogic scanner/scales under the Windows Management Instrumentation process.

The default WMI repository:

root\CIMV2

contains two class definitions for statistics information:

- **UPOS_Scanner**
- **UPOS_Scale**

There will be one instance of each class per unique serial number identified scanner used by an OPOS object.

OPOS Registry

Datalogic OPOS Service Objects use the Windows registry for configuration of the OPOS software. When the OPOS package is installed, the installer creates registry entries under **HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS; Scale and Scanner.** Under each UPOS category, there are named entries for each device. Under each name, there are some user-configurable entries that control the operation of the OPOS Service Objects.

The registry system on Windows 64 bit machines has changed where 'default' 32 bit application registry settings are stored. In the registry, all settings will be found under:

[HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432NODE\....]

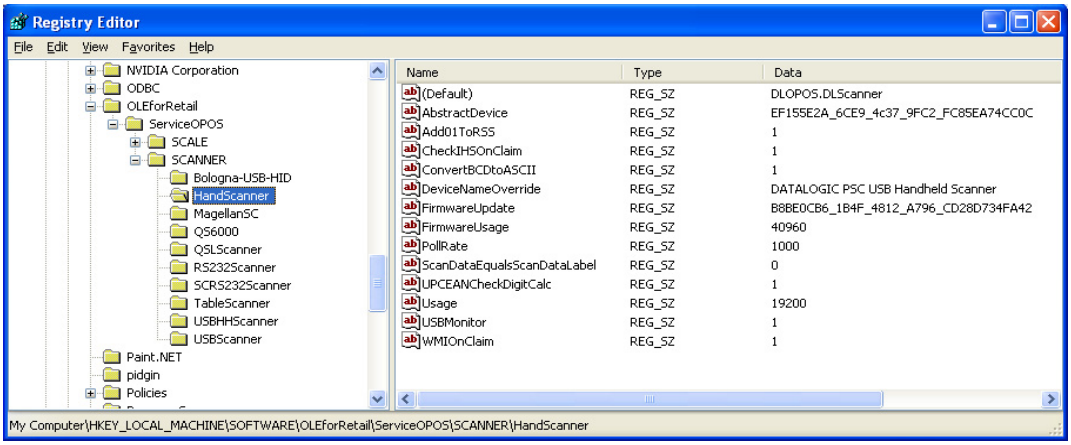
NOTE

Changing items in the registry does not change corresponding items in the scanner. For example, baud rate can be changed in the RS232Scanner registry, but the baud rate in the scanner must be changed via programming label to match the registry entry, or the Service Object will be unable to communicate to the scanner.

Scanner

Under **SCANNER** in the registry, there are a number of named entities: **HandScanner**, **MagellanSC**, **QS6000**, and so forth. Note that some of these are duplicates that have been maintained for legacy purposes: for example, "**HandScanner**" and "**USBHHScanner**" refer to the same device (a handheld scanner running OEM USB interface); "**MagellanSC**" is the same as "**SCRS232Scanner**"; "**TableScanner**" and "**USBScanner**" are equivalent; **QS6000** and **RS232Scanner** are equivalent, **QSLScanner** is a unique entry. The following screen shots cover the important user-configurable registry settings for each category of scanner.

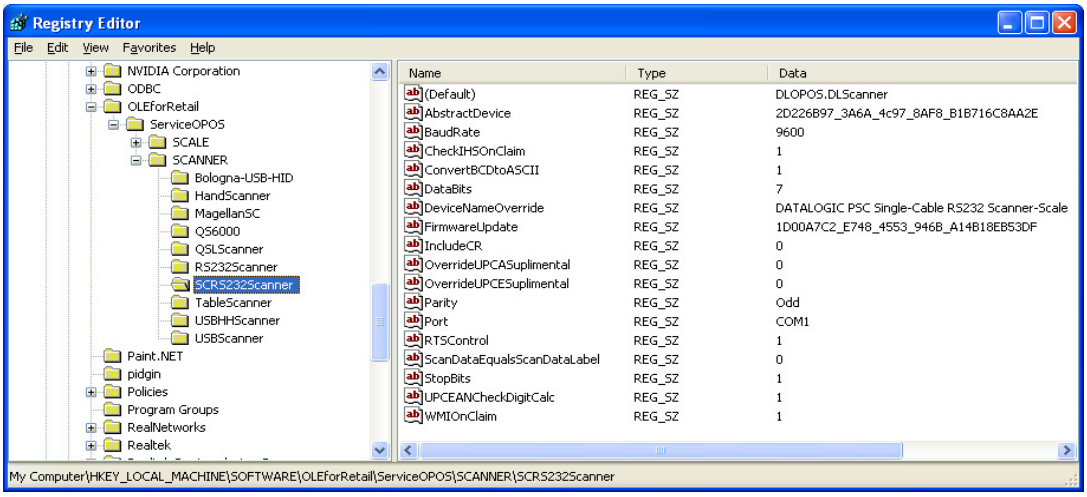
HandScanner = USBHHScanner:



- (Default) = **DLOPOS.DLScanner** – this is the default name used by the service. The user should not edit this entry.
- **AbstractDevice** – this represents the GUID and should not be edited by the user.
- **Add01ToRSS** – defaulted to active (1), if the scanner does not return a "01" at the start of a Databar label, the service will add the "01" if this item is active.
- **CheckIHSOnClaim** – defaulted to active (1). When 1, the service will request information-health-statistics data from the scanner each time it is "claimed".
- **ConvertBCDtoASCII** – defaulted to active (1), the service will convert any label sent in BCD format to ASCII.
- **DeviceNameOverride** – this is the name reported by OPOS as the "device name" in the OPOS object. If the user's application is coded to use a certain specific name, the user can insert that name here.
- **FirmwareUpdate** – Firmware endpoint GUID, user should not modify this entry.
- **FirmwareUsage** – this is the USB "usage" for the firmware endpoint, in decimal (the USB spec defines this in hexadecimal). User should not modify this entry.
- **Pollrate** – this is the period, in milliseconds, that the service polls the scanner for connection.
- **ScanDataEqualScanDataLabel** – default is off. This will make the ScanData property always equal the ScanDataLabel property.

- **UPCEANCheckDigitCalc** – defaulted to active, the service will calculate the check digit for a UPC/EAN label if it is not present on the scanner interface, and append this to the data in the ScanDataLabel property.
- **Usage** – this is the USB "usage" for the scanner device. (The USB spec defines this in hexadecimal). User should not modify this entry.
- **USBMonitor** – defaulted to active, the service will periodically ensure that the scanner and host "enable" state is the same.
- **WMIOnClaim** – defaulted to active, the service will compile WMI data upon "claim" of the device. This may slow down the claim process slightly.

MagellanSC = SCRS232Scanner



Common fields as per Handheld scanner above; in addition the following fields are:

- **BaudRate** – default to 9600.

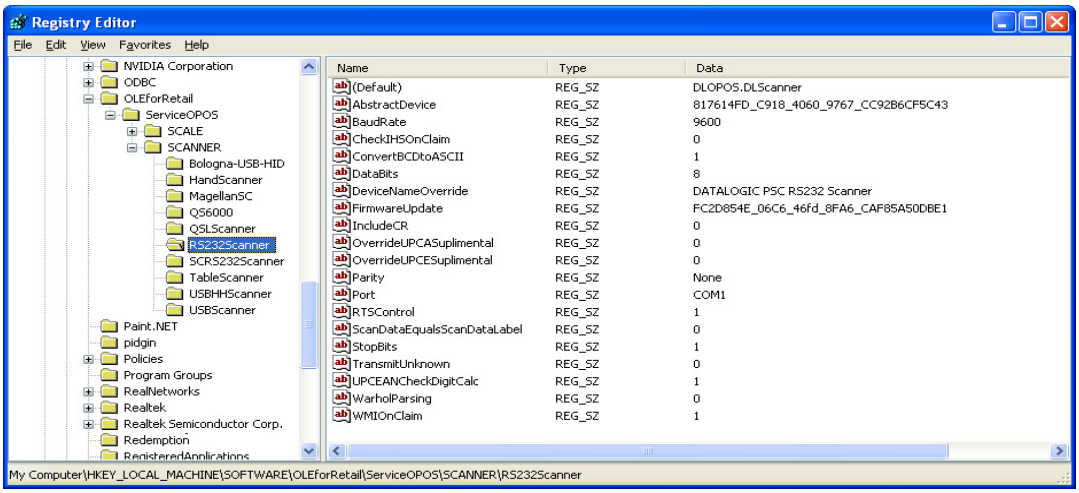
CAUTION

Changing this value REQUIRES changing the scanner to a matching value – failure to do so will result in failure to communicate!

- **DataBits** – default to 7, same caveat as for baud rate.
- **OverrideUPCASuplimental** – default not active; can be used in certain circumstances to differentiate label+addon from label only packet. This setting would rarely need user modification.
- **OverrideUPCESuplimental** – default not active; can be used in certain circumstances to differentiate label+addon from label only packet. This setting would rarely need user modification.
- **Parity** – defaults to Odd to match scanner default on SC RS232 interface, same caveat as for baud rate.
- **Port** – defaults to COM1. User can change as needed to match system com port.
- **RTSControl** – defaulted to active. Service will set CTS line active at the host port and leave it set high.

- **StopBits** – defaulted to 1, same caveat as for baud rate.

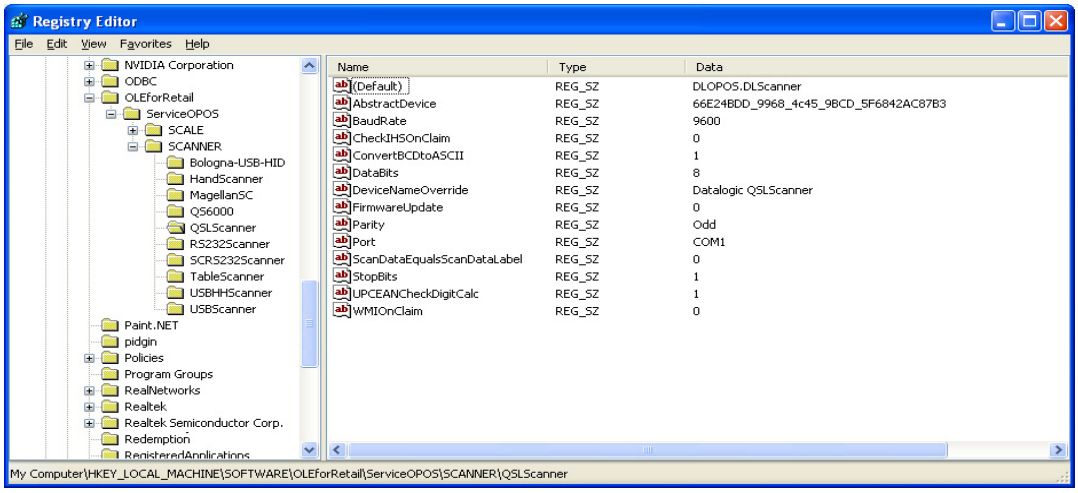
RS232Scanner = QS6000



Common fields as above; in addition the following field is:

- **IncludeCR** – This will add a {0x0D} to the end of barcodes. Default off.
- **TransmitUnknown** – when set to 0, the service will not send barcodes to the application if the symbology is unknown. When set to 1, all bar-code data will be sent to the application, regardless of the value of ScanDataLabel (symbology type). Default is 0.
- **WarholParsing** – defaults to not active. When using a QD21xx, QD23xx, PD71xx, or GD41xx handheld scanner, the user should set this to active and select the "**RS232 OPOS**" interface in the scanner programming guide. This setting enables correct identification of Label Ids from the scanner through the Service Object.

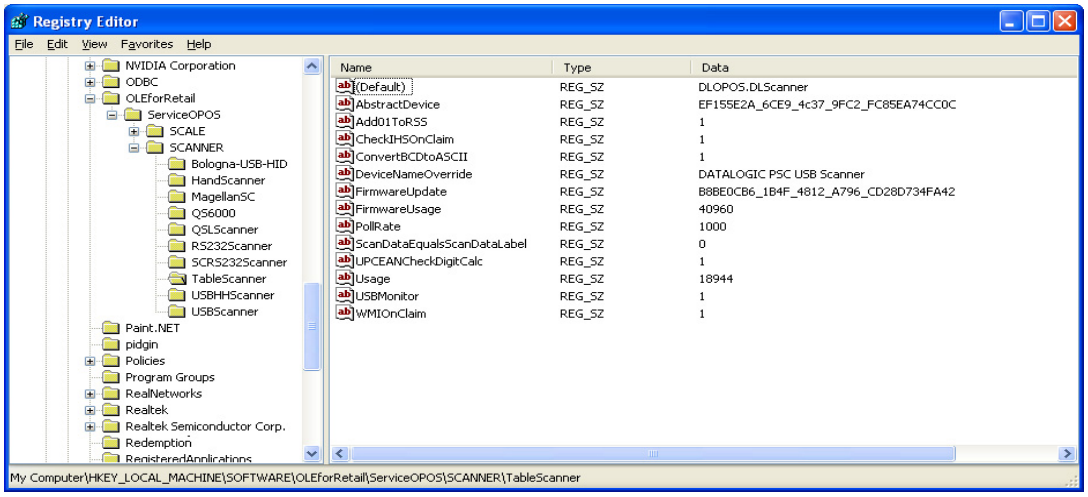
QSLScanner



There are no unique fields for this scanner, but some of the settings default to different values because of limited capabilities:

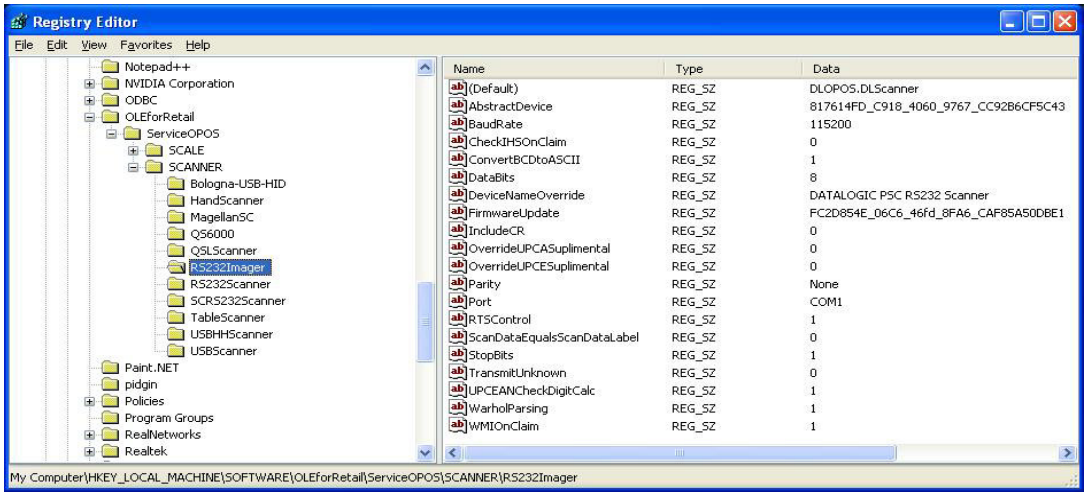
- **FirmwareUpdate** – defaults to 0; this device cannot be updated by the service.
- **CheckIHSOnClaim** – defaults to 0; this device does not support commands needed to determine scanner health and status.

TableScanner = USBScanner



Settings are identical to **USBHHScanner/HandScanner**, except that **Usage = 18944** (4A00 hex), and **DeviceNameOverride = "…USB Scanner"**.

RS232Imager



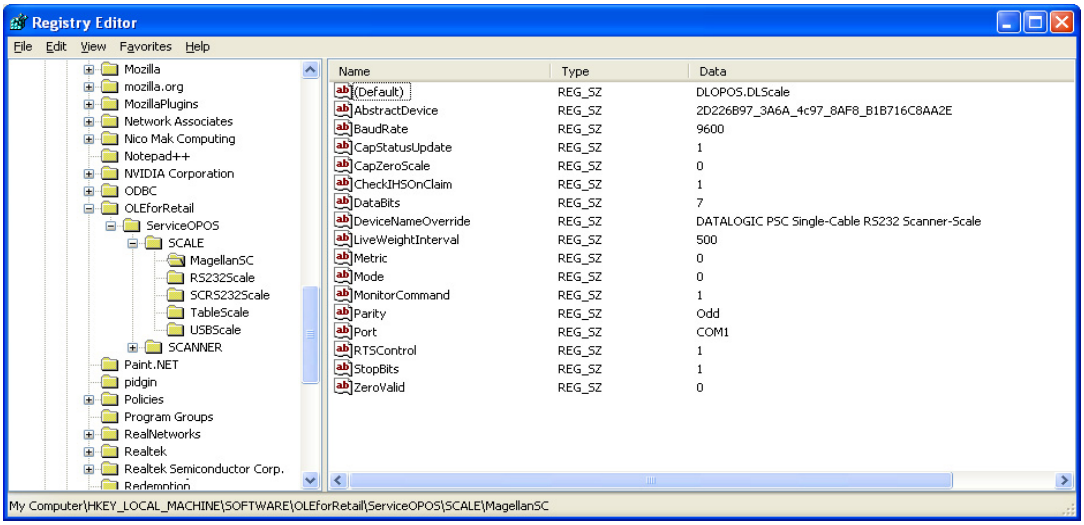
The RS232Imager utilizes a 115,200 baud rate and enhanced parsing capabilities. These registry items are turned on for this scanner type.

- **UseVirtualPort** – when set to 1, the service will look for a virtual com port and ignore the Port number if it finds a virtual port (USB COM device). If set to 0, the Port = COMn setting will be used.

Scale

Under the **SCALE** in the registry, there are five named entities. Some are redundant and have been maintained for legacy applications. The following screen shots cover the important user-configurable settings for each category of scale.

MagellanSC = SCRS232Scale



NOTE

IMPORTANT NOTE: COM port settings for this scale device are identical to the corresponding scanner names; this is because the two devices share the same COM port and must use the same communication parameters. The same caveats apply to changing these values in the registry and scanner/scale – the settings must match.

- **CapStatusUpdate** – defaulted to 1, this indicates that the scale service is capable of supplying Status Update events as per the UPOS **Live Weight Display** description in the scale section of the UPOS spec.
- **CapZeroScale** – defaulted to not active. The Single Cable scale does not support host zeroing of the scale.
- **LiveWeightInterval** – default to 500; this is the poll rate in milliseconds that the scale service polls the scale for weight in the case of **Live Weight Display** enabled.

NOTE

The user should never set this value below 250 msec.

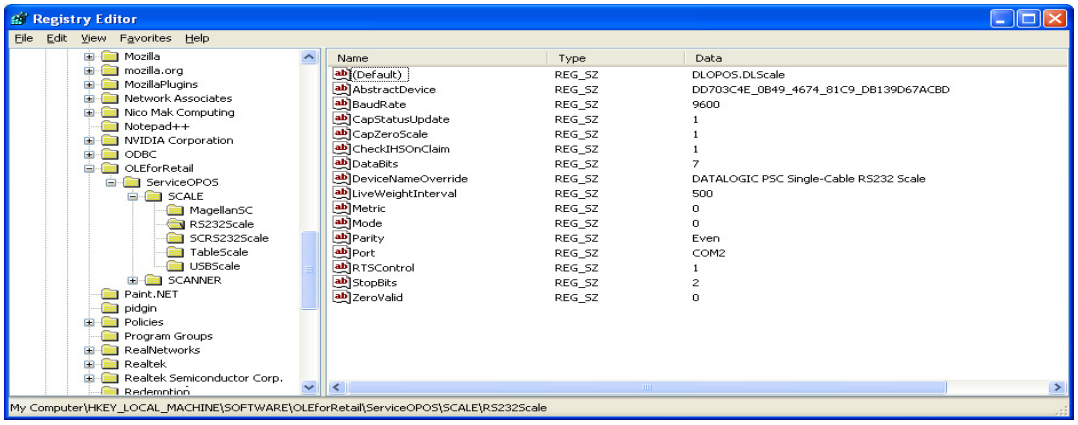
- **Metric** – defaulted to 0. This setting controls the type of Weight Request sent to the scale by the service; the default is English Weight Request. The user can set this to 1 to obtain Metric weights.

CAUTION

The scanner/scale must be programmed to the same data type or weight requests will fail.

- **ZeroValid** – defaulted to Active. When active, the service will deliver a stable zero weight as a valid weight to the host. When set to 0, the service will follow the pre-1.13 UPOS specification and not deliver zero as a valid weight (this setting is used by some customers to maintain a live weight display outside of the UPOS specification).

RS232Scale



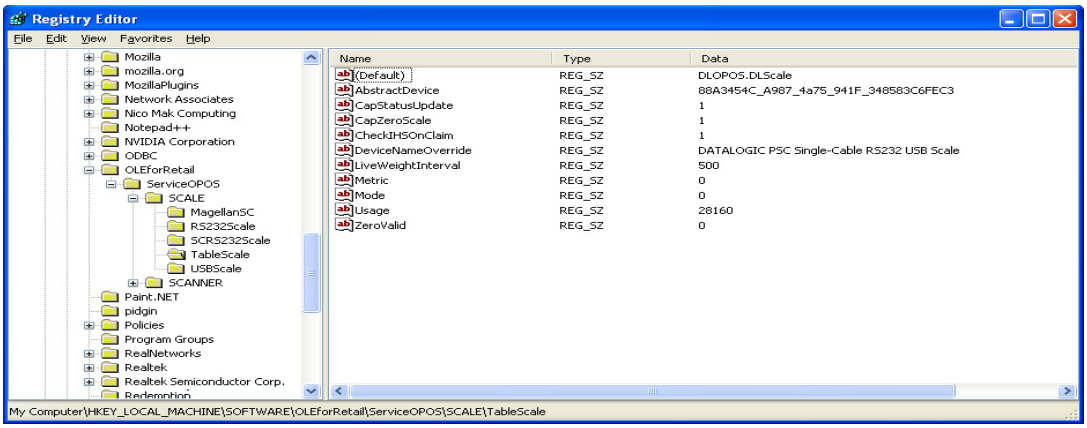
- **CapZeroScale** – defaulted to Active, the scale service can zero the scale through the interface.
- **Port** – defaulted to COM2. The user can select the desired COM port for their system.

NOTE

This MUST be a different COM port than the associated Scanner port.

- **BaudRate** – defaulted to 9600. The user should not change this setting, as the scale baud rate is NOT configurable.
- **DataBits** – set to 7. The user should not change this setting, as the scale data bits are NOT configurable.
- **Parity** – set to Even. The user should not change this setting, as the scale parity is NOT configurable.
- **StopBits** – set to 2. The user should not change this setting, as the scale stop bits are NOT configurable.

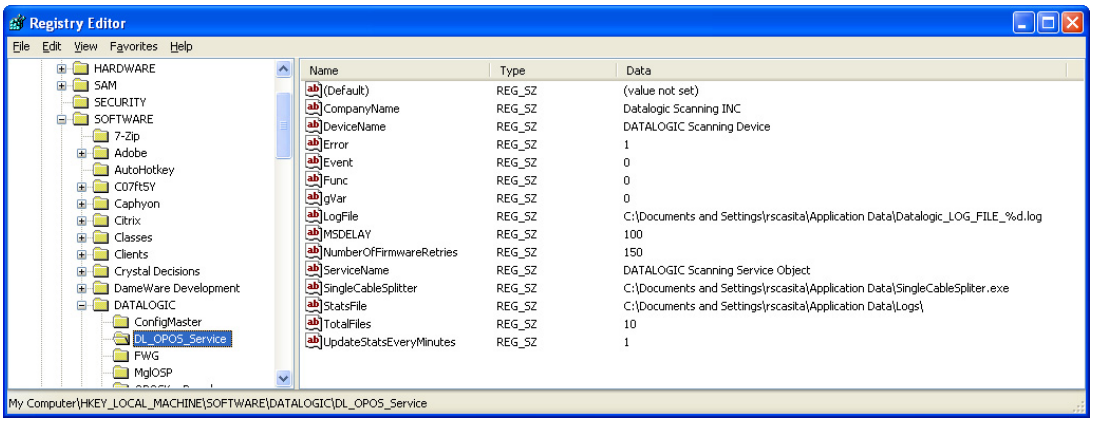
TableScale = USBScale



Logging

The DLS Service Objects have the ability to log various data items to a file for reporting, troubleshooting, and monitoring. The logging level is controlled by registry settings under the location: **HKEY_LOCAL_MACHINE\SOFTWARE\DATALOGIC\DL_OPOS_SERVICE**.

By default, only Error logging is turned on upon installation. If desired, the user can log various reporting levels by turning on settings.



The location of log files is shown under the **LogFile** name; the default path is as shown above. Total number of log files is defaulted to 10. Note that when all logging features are turned on, the logs will become very large. Logging should normally be left in the “error” mode only to conserve system resources.

Levels

Error – defaulted Active; logs only OPOS errors.

Event – defaulted Off; if set active, the service will log OPOS events.

Func – defaulted Off; if set active, the service will log all function entry/exit.

gVar – defaulted Off; if set active, the service will log variable values.

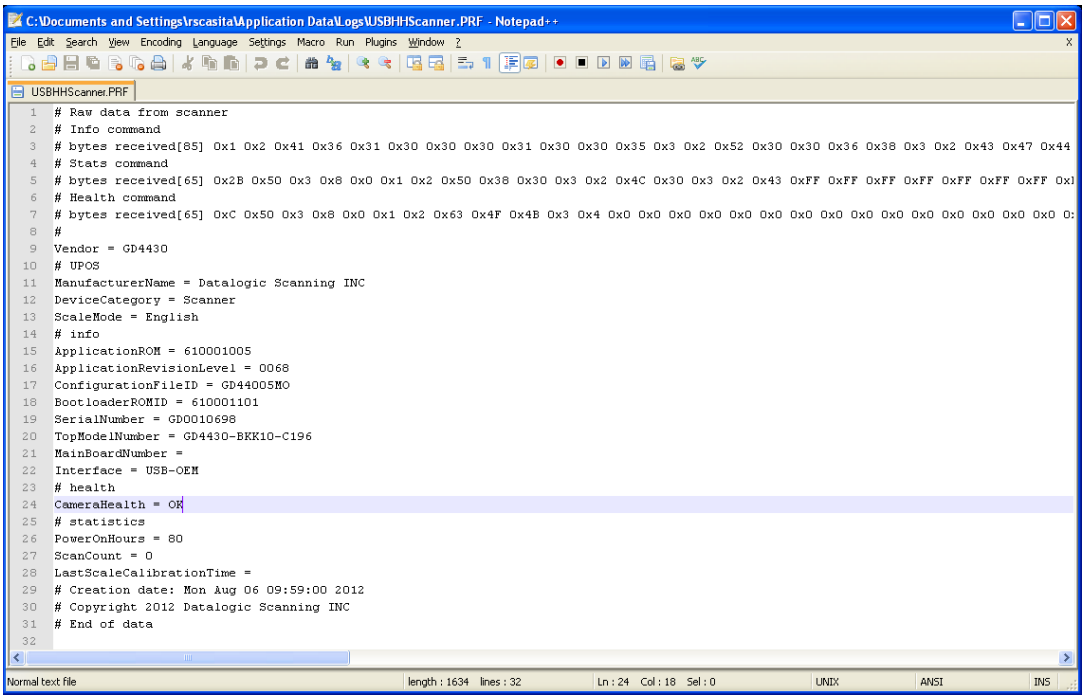
Registry Service Properties

- **CompanyName:** Value is the name displayed in the Service Object. This value should not be changed.
- **DeviceName:** Value is the name displayed in the Service Object. This value should not be changed.
- **LogFile:** Contains the location where the log files are written. Changing this value may cause logging failures under Windows 7 and newer operating systems.
- **MSDELAY:** Contains the global lock feedback timeout. This value should not be changed.
- **NumberofFirmwareRetries:** Value is the number of times to retry connecting to the scanner after firmware update. This value should not be changed.
- **ServiceName:** Value contains the name displayed in the Service Object. This value should not be changed.
- **SingleCableSplitter:** Contains the location of the RS232 Splitter program. This value should not be changed.
- **StatsFile:** Contains the directory to store the .PRF file. Changing this value may cause logging failures under Windows 7 and newer operating systems.
- **TotalFiles:** Controls how many log files to maintain before rolling over. It is recommended not to change this value.
- **UpdateStatsEveryMinutes:** Controls how many minutes between updates of the StatsFile and WMI store. If set to a non-zero value, the OPOS Service Object will query the scanner for statistical information every N minutes, where N is the value of this control, and update the stats file and WMI store.

Additional Logging

The DLS OPOS Service Object can also create two additional logs. A "**Stats-File**" is created every time the scanner is "**claimed**", provided the "**CheckIHSOnClaim**" control is set to active in the scanner registry. This file holds the result of the latest "**info-health-statistics**" call to the scanner, and is overwritten upon each "**claim**". This file holds information about the scanner that may be of interest to customers, and is similar to the UPOS Statistics data. Entries such as scanner software revision, S/N, hours-on, number of labels scanned, system health, and additional information can be found in this log.

An example is shown in the following screen shot:



Developers Guide

OPOS service objects export a uniform interface; however there may be slight differences between the same types of devices from different vendors and models. Queries of OPOS properties reveal these differences. Below listed properties, methods, and events are DATALOGIC device specific return values. Other DATALOGIC service objects with different interfaces may produce slightly different results. Developers are advised to consider all error conditions in designing an application.

Scanner Properties

Common Properties

AutoDisable:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

BinaryConversion:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

CapCompareFirmwareVersion:

Returns **TRUE** (also depends on the firmware and model of the scanner).

CapPowerReporting:

Returns **OPOS_PR_STANDARD**

CapStatisticsReporting:

Returns **TRUE** (also depends on the firmware and the model of the scanner).

CapUpdateFirmware:

Returns **TRUE** (also depends on the firmware and model of the scanner).

CapUpdateStatistics:

Returns **FALSE**.

CheckHealthText:

Internal HCheck: will return health string

External HCheck: not supported

Interactive HCheck: not supported

This property is empty before the first call to the **CheckHealth** method.

Claimed:

Returns **TRUE** after Claim method has been called. **FALSE** otherwise.

DATALOGIC devices are exclusive. It is recommended that a program keep the device **Claimed** as long as the application is running.

DataCount:

Returns the number of Data Events Queued.

DataEventEnabled:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

DeviceEnabled:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

FreezeEvents:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

OpenResult:

Returns **0**.

PowerNotify:

Returns **OPOS_PN_DISABLED** or **OPOS_PN_ENABLED**.

PowerState:

Returns **OPOS_PS_ONLINE**.

If the communication channel is having difficulties, an **OPOS_E_NOHARDWARE** will be returned on calls that send and receive data from the scanner.

If PowerNotify is set to "OPOS_PN_ENABLED", then:

- If the Scanner is Plugged and Enabled:
  OPOS_PS_ONLINE
- otherwise:
  OPOS_PS_OFF_OFFLINE

ResultCode:

Returns result of last operation.

ResultCodeExtended:

Returns **0**

State:

Returns

OPOS_S_CLOSED
OPOS_S_IDLE
OPOS_S_ERROR

DeviceServiceDescription:

Returns a descriptive string depending on the interface and device type.

DeviceServiceVersion:

Returns **101200XX**. where **XX** is the minor version.

PhysicalDeviceDescription:

Returns a descriptive string depending on the interface and device type.

PhysicalDeviceName:

Returns a descriptive string depending on the interface and device type.

Device Specific Properties

DecodeData:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

ScanData:

Holds the raw scanned data received from the scanner.

ScanData property always has bar code data when a DataEvent is fired. For Tabletop scanners, the bar code data may be sent across the USB interface as uncompressed Binary Coded Decimal (BCD), depending upon scanner configuration and bar code type.

ScanDataLabel:

Holds the scanned and decoded data from the scanner if **DecodeData** property is **TRUE**. If the decoded data did not contain a check digit, the scanner service will add the check digit to **ScanDataLabel** for EAN/UPC bar codes.

Contains data if **DecodeData** is **TRUE**.

ScanDataType:

Returns scanned data type of the most recent label from the scanner.

Returned value is one of **SCAN_SDT_XXXX** constants, where **XXXX** is the type of the label. Refer to OPOS Scanner header file for the numerical values.

Contains label type if **DecodeData** is **TRUE**.

Label type as reported on scanner interface — the scanner assigns a label type identifier and sends this with the label data across the interface. The Service Object translates this into one of the OPOS defined label types. For the RS-232 interface, the scanner configuration must be correctly set for the Service Object to properly identify label type.

Scanner Methods

Common Methods

Open:

Returns

OPOS_SUCCESS
OPOS_E_NOSERVICE
OPOS_E_NOEXIST
OPOS_E_ILLEGAL

Close:

Returns **OPOS_SUCCESS**

ClaimDevice:

Returns

OPOS_SUCCESS
OPOS_E_NOSERVICE
OPOS_E_ILLEGAL
OPOS_E_CLAIMED

This call will activate the communication with the device. **DATALOGIC** devices are exclusive. It is recommended that a program keep the device **Claimed** as long as the application is running.

CheckHealth:

OPOS_CH_INTERNAL is supported.

OPOS_CH_EXTERNAL is not supported.

OPOS_CH_INTERACTIVE is not supported.

Returns

OPOS_SUCCESS

CheckHealthText property will hold the text result of this method call.

ClearInput:

Returns

OPOS_SUCCESS
OPOS_E_DISABLED
OPOS_E_NOTCLAIMED

DirectIO:

Returns

OPOS_SUCCESS
OPOS_E_NOTCLAIMED

DirectIO: (continued)

OPOS_E_OFFLINE
OPOS_E_ILLEGAL

NOTE

Please refer to DR90000351, Datalogic UPOS DirectIO Commands (available at www.datalogic.com) for a complete list of DirectIO commands and implementation details.

ReleaseDevice:

Returns **OPOS_SUCCESS**, **OPOS_E_ILLEGAL**, or **OPOS_E_NOTCLAIMED**.

This call will deactivate the communication with the device.

ResetStatistics:

Returns **OPOS_E_ILLEGAL**

DATALOGIC service objects do not support reset statistics.

RetrieveStatistics:

Returns

OPOS_SUCCESS
OPOS_E_NOHARDWARE
OPOS_E_DISABLED
OPOS_E_NOTCLAIMED
OPOS_E_ILLEGAL

Results of the **RetrieveStatistics** call are written to the OPOS Log and returned as per the OPOS spec.

Supported statistics are:

- Device category
- Manufacturer
- Model number
- Serial Number
- Firmware revision
- Interface type
- Power on time
- Number of label scans

UpdateStatistics:

Returns **OPOS_E_ILLEGAL**

DATALOGIC OPOS Scanner service object does not support update statistics.

Device Specific Methods

None.

Scanner Events

Common Event

DataEvent:

This event fires when a label is forwarded from scanner.

DirectIOEvent:

Not supported.

ErrorEvent:

Not used.

StatusUpdateEvent:

During the Firmware Update Process the following Status Update Events will be delivered:

OPOS_SUE_UF_PROGRESS
OPOS_SUE_UF_COMPLETE
OPOS_SUE_UF_COMPLETE_DEV_NOT_RESTORED
OPOS_SUE_UF_FAILED_DEV_OK
OPOS_SUE_UF_FAILED_DEV_UNRECOVERABLE
OPOS_SUE_UF_FAILED_DEV_NEEDS_FIRMWARE
OPOS_SUE_UF_FAILED_DEV_UNKNOWN

If PowerNotify is set to OPOS_PN_ENABLED when the scanner is claimed:

- On Enable and/or If the current Power State Changes:
  OPOS_SUE_POWER_ONLINE
  OPOS_SUE_POWER_OFF_OFFLINE

Device Specific Events:

None.

Scale Properties

Common Properties

AutoDisable:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

BinaryConversion:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

CapCompareFirmwareVersion:

Returns **FALSE**.

CapPowerReporting:

Returns **OPOS_PR_STANDARD**.

CapStatisticsReporting:

Returns **FALSE**.

CapUpdateStatistics:

Returns **FALSE**.

CapUpdateFirmware:

Returns **FALSE**.

CheckHealthText:

Internal HCheck: not supported, will return **OPOS_E_ILLEGAL**.

External HCheck: not supported.

Interactive HCheck: not supported.

Claimed:

Returns **TRUE** after Claim method has been called. **FALSE** otherwise.

DATALOGIC devices are exclusive. It is recommended that the device be claimed and continue to be claimed thru-out a session.

DataCount:

Returns **Number of Data Events Queued**.

DataEventEnabled:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

DeviceEnabled:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

FreezeEvents:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

OpenResult:

Returns **0**.

PowerNotify:

Returns **OPOS_PN_DISABLED** or **OPOS_PN_ENABLED**.

PowerState:

Returns **OPOS_PS_ONLINE**.

If the communication channel if having difficulties, an **OPOS_E_NOHARDWARE** will be returned on calls that send and receive data from the scale.

If PowerNotify is set to "OPOS_PN_ENABLED", then:

- If the Scanner is Plugged and Enabled:
  OPOS_PS_ONLINE
- otherwise:
  OPOS_PS_OFF_OFFLINE

ResultCode:

Returns result of last operation.

ResultCodeExtended:

Returns extended result if the last operation produced an **OPOS_E_EXTENDED**. Otherwise this value is considered invalid.

State:

Returns

OPOS_S_CLOSED
OPOS_S_IDLE
OPOS_S_ERROR

DeviceServiceDescription:

Returns a descriptive string depending on the interface and device type.

DeviceServiceVersion:

Returns **10YY0XXX** where **YY** is the major version and **XXX** is the minor version.

PhysicalDeviceDescription:

Returns a descriptive string depending on the interface and device type.

PhysicalDeviceName:

Returns a descriptive string depending on the interface and device type.

Device Specific Properties

CapDisplay:

Returns **TRUE**.

TRUE is returned regardless of a remote display being connected to the scanner/scale or not.

CapDisplayText:

Returns **FALSE**.

FALSE is returned regardless of a remote display being connected to the scanner/scale or not.

CapPriceCalculating:

Returns **FALSE**.

CapStatusUpdate:

Returns **TRUE**.

CapTareWeight:

Returns **FALSE**.

CapZeroScale:

Returns **TRUE**.

AsyncMode:

Returns **TRUE** or **FALSE** depending on the previous **SetProperty** call.

MaxDisplayTextChars:

Returns **0**.

MaximumWeight:

Returns **15000** in metric mode.

Returns **30000** in pound mode.

ScaleLiveWeight:

Updated if **LiveWeight** is enabled.

StatusNotify:

If **CapStatusUpdate** is **TRUE**, the application can set **StatusNotify** to either **SCAL_SN_DISABLED** or **SCAL_SN_ENABLED**.

SalesPrice:

Returns **0** currency.

TareWeight:

Returns **0**.

UnitPrice:

Returns **0** currency.

WeightUnit:

Returns **SCAL_WU_KILOGRAM** in metric mode.

Returns **SCAL_WU_POUND** in pound mode.

Scale Methods

Common Methods

Open:

Returns

OPOS_SUCCESS
OPOS_E_NOSERVICE
OPOS_E_ILLEGAL

Close:

Returns **OPOS_SUCCESS**.

ClaimDevice:

Returns

OPOS_SUCCESS
OPOS_E_NOSERVICE
OPOS_E_ILLEGAL
OPOS_E_CLAIMED

This call will activate the communication with the device. **DATALOGIC** devices are exclusive. It is recommended that a program keep the device **Claimed** as long as the application is running.

CheckHealth:

OPOS_CH_INTERNAL is not supported.

OPOS_CH_EXTERNAL is not supported.

OPOS_CH_INTERACTIVE is not supported.

Returns

OPOS_SUCCESS
OPOS_E_NOTCLAIMED
OPOS_E_DISABLED
OPOS_E_ILLEGAL

CheckHealthText property will hold the text result of this method call.

ClearInput:

Returns

OPOS_SUCCESS
OPOS_E_DISABLED
OPOS_E_NOTCLAIMED

DirectIO:

Returns

OPOS_E_NOTCLAIMED
OPOS_E_OFFLINE
OPOS_E_ILLEGAL

NOTE

Please refer to DR90000351, Datalogic UPOS DirectIO Commands (available at www.datalogic.com) for a complete list of DirectIO commands and implementation details.

ReleaseDevice:

Returns **OPOS_SUCCESS**.

OPOS_E_ILLEGAL if the device has not been claimed.

This call will deactivate the communication with the device. It is recommended that a program keep the device Claimed until an application quits.

ResetStatistics:

Returns **OPOS_E_ILLEGAL**

DATALOGIC OPOS Scale service objects do not support reset statistics.

UpdateStatistics:

Returns **OPOS_E_ILLEGAL**.

DATALOGIC OPOS Scale service objects do not support update statistics.

Device Specific Methods

GetSalesPrice:

Returns **0**
Not implemented

GetUnitPrice:

Returns **0**
Not implemented

SetUnitPrice:

Returns **OPOS_E_ILLEGAL**
Not implemented

DisplayText:

Returns **OPOS_E_ILLEGAL**

ReadWeight:

Returns

OPOS_SUCCESS
OPOS_E_EXTENDED
OPOS_E_TIMEOUT
CANCELLED
OPOS_E_NOTCLAIMED
OPOS_E_DISABLED
OPOS_E_OFFLINE
OPOS_E_ILLEGAL
OPOS_E_FAILURE
OPOS_E_BUSY
OPOS_E_NOHARDWARE

If the result is **OPOS_SUCCESS** valid weight is returned.

If the result is **OPOS_E_EXTENDED** extended status will return either **OPOS_ESCAL_OVERWEIGHT** or **OPOS_ESCAL_UNDER_ZERO** in result code extended.

If the result is **OPOS_E_TIMEOUT** there was not valid settled weight on the platter before the timeout. **Weight** and the **ExtendedStatus** values are invalid.

NOTE

The Weight Unit entry in the Registry must match the Scale configuration (Metric or English). See the Registry Description section starting on page 21**.**

ZeroScale:

Returns

OPOS_SUCCESS
OPOS_E_NOHARDWARE
OPOS_E_OFFLINE
OPOS_E_DISABLED
OPOS_E_NOTCLAIMED

Scale Events

Common Event

DataEvent:

Used for asynchronous weight requests

DirectIOEvent:

Not supported

ErrorEvent:

Used if a cancel weight is called during an asynchronous weight request

StatusUpdateEvent:

Supported as per **`LiveWeightDisplay`** as documented in the UPOS specification.

If PowerNotify is set to OPOS_PN_ENABLED when the scanner is claimed:

- On Enable and/or If the current Power State Changes:
  `OPOS_SUE_POWER_ONLINE`
  `OPOS_SUE_POWER_OFF_OFFLINE`

Device Specific Events

None

NOTES

Appendix A
Datalogic Remote Management Utility

Overview

Datalogic Remote Management Utility (DLRMU) is a command line-driven program that uses the Datalogic OPOS drivers to perform firmware/configuration updates. The command line-driven interface provides an easy way to perform updates via batch files.

This document will provide information on operation, command line options as well as command line and batch file examples.

Operation

DLRMU supports the following interfaces: Standard RS232, Single-Cable RS232,USBCOM and USBOEM.

Operating System Requirements: Windows XP (.NET Version 3.5 and up), Windows 7 (32,64 bit), Windows 8

If DLRMU is run from the command line without any command line options it will return the Help file contents to the screen.

Each command line execution will return a status. A zero status indicates a successful operation and non-zero status indicates an error.

The program creates a log **(dlslog.txt)** that is located in the same folder as the DLRMU program. This log is appended with each execution.

DLRMU also creates a scanner information file (.**prf**) that contains all the information gathered during the last query. This file is overwritten each time the scanner is queried so that it only contains the most current information.

This file is used for remote management data collection. This file is located in **C:\ProgramData\Datalogic\Logs**. The file name will be the same as the OPOS profile called on the command line, such as "**USBHHScanner.prf**".

The new firmware/configuration files that are going to be downloaded into the scanner should be in the same folder as DLRMU. If a different location is chosen, the full path to the file must be entered on the command line.

All options not defined in the command line use the default values:
COM 0, Baud 9600, Data Bits 7, Parity Odd, Stop Bits 1

If a COM port is not specified it is assumed that the scanner interface is USBOEM. Baud, Data bits, Parity and Stop Bits do not apply.

--help Display the help screen.

-a x Scanner Profile. Selects the scanner profile: Std RS232, Single-Cable RS232, USBCOM or USBOEM interface. The OPOS scanner profile name must be used.
These names are case sensitive.

List of OPOS Scanner Profiles:	RS232 Interfaces	USBOEM Interfaces
	MagellanSC	HandScanner
	SCRS232Scanner	TableScanner
	RS232Scanner	USBHHScanner
	RS232Imager	USBScanner

-b x Selects baud rate x to be used for initial identification and firmware update. Default is 9600. Supports 2400 – 115200

-c x COM Port. Selects COM port x for communication. Default is 0.

-d x Data Bits. Selects number of Data bits to be used. x may be 7,8 Default is 7.

-e x EC Level Checking. Checks the scanner's EC Level before starting a firmware update. The x value is a 4 character numeric string. The EC Level should match the new firmware file.

If the scanner responds with an EC Level "equal to" or "greater than" the value on the command line the firmware update will be aborted.

If the scanner responds with an EC Level "less than" the value on the command line the firmware update will continue.

Return Codes:
1 = OLDER
2 = SAME
3 = NEWER
4 = DIFFERENT
5 = UNKNOWN

-E, --Enabled. Leave the scanner in the Enabled state after firmware update. Default = true.

-f x File Name. Update the scanner with the firmware or config file x. The scanner's ID, health, and status is recorded before and after the firmware update.

-F x Model Number Validation. Validate the scanner's model number before performing firmware/config update.

x = scanner model number. The model number entered on the command line is compared to the model number extracted from the scanner.
If the model numbers match the firmware/config update will proceed, if not, no firmware/config update is performed.
This option is only used when performing a firmware/config update.
If this switch is not present, no comparison is performed and update will proceed.
If the "-r" short model number option is used the command line must have one of the models listed above.

The short model numbers must be quoted on the command line

-l x Log File Name. x sets the log file name. Default is dlslog.txt.

-O List Options.

-p x Parity. Selects parity x to be used for communication with the scanner.

```
x may be:
 'n' no parity
 'o' odd
 'e' even parity
 'm' mark parity
 's' space parity
```

-r Short Model Names. Specifies the use of Short Model Names.

"2200 VS"	"2300 HS"
"8200 SO"	"8200 SS"
"8300 SO"	"8300 SS"
"8400 SO"	"8400 SS"
"8500 SO"	"8500 SS"
"8500XT SO" "8500XTS SO"	"8500XT SS" "8500XTS SS"
"9300i SO"	"9300iSS"
"9400i SO"	"9400i SS"
"9500 SO"	"9500 SS"
"9800i SO"	"9800i SS"
SO = Scanner Only	SS = Scanner Scale

-s x Stop Bits. Selects the number of Stop Bits. **x** may be 1,2, Default is 1.

-t x Selects baud rate **x** to be used for identification following a firmware update.

NOTE

The new firmware and configuration may change the baud rate of the scanner.)

Default is 9600. Supports 2400 – 115200

-v x Timeout Delay. **x** sets the Timeout Delay in Seconds. Controls the amount of time the program will wait for the scanner to come back online after an update. The minimum is 10. Default is 60.

Examples of Command Line Entries:

USE: Retrieving Scanner ID.

The DLRMU program will automatically query the scanner for ID information.

The following examples show how to query the three supported serial interfaces:

DLRMU -c 5 -a SCRS232Scanner	(Single-Cable RS232 Scanner, COM 5)
DLRMU -c 18 -a RS232Imager	(USBCOM Scanner, virtual COM 18)
DLRMU -c 1 -a RS232Scanner -p N -d 8	(RS232 Scanner, COM 1, No Parity, 8 databits)
DLRMU -a USBHHScanner	(USBOEM, Handheld Scanner)

The information gathered will be displayed on screen.

The **<scanner profile name>.prf** file will also be updated.

USE: Retrieving Scanner ID at 115200.

To query a Single-Cable scanner for ID information at 115200.

```
DLRMU -c 5-b 115200 -a SCRS232Scanner
```

USE: Scanner Firmware Update.

The **-f** option is used to perform a firmware update. The filename of the firmware update image follows the "**-f**" option.

For example, to update a Single-Cable RS232 scanner connected to COM2, the following command may be used:

```
DLRMU -c 2 -a SCRS232Scanner -f DRxxxxxxxx.s37
DLRMU -c 2 -a SCRS232Scanner -F 868005211-0421000R
-f DRxxxxxxxx.s37
```

The command above will download the firmware at the default 9600 baud rate and will take approximately 30 minutes to complete.

USE: Scanner Firmware Update with Model Number Validation.

The **-F** option validates the scanners model number before updating the firmware.The long model number follows the **-F** option.

The **-f** option is used to perform a firmware update.

The filename of the firmware update image follows the **-f** option.

For example, to update a scanner with a model number of 868005211-0421000R and connected to COM2, the following command may be used:

DLRMU -c 2–a SCRS232Scanner -F 868005211-0421000R -f DRxxxxxxxx.s37

The command above will download the firmware at the default 9600 baud rate and will take anywhere from 20 minutes to 1hour to complete.

The file size determines the amount of time it takes.

USE: Scanner Firmware Update with Short Model Number Validation.

The **-r** option specifies the use of short model numbers.

The **-F** option validates the scanners model number before updating the firmware.The short model number follows the "**-F**" option.

The **-f** option is used to perform a firmware update. The filename of the firmware update image follows the "**-f**" option.

For example, to update a scanner with a short model number of 8500XTS SS and connected to COM2, the following command may be used:

DLRMU -c 2 -a SCRS232Scanner -r -F "8500XTS SS" -f DRxxxxxxxx.s37

The short model numbers must be quoted on the command line

The command above will download the firmware at the default 9600 baud rate and will take anywhere from 20 minutes to 1hour to complete. The file size determines the amount of time it takes.

USE: Scanner Firmware Update with KeepConfig[1] at two baud rates.

This example uses two different baud rates to reduce the amount of time it takes to perform the update. A download at 9600 baud that takes 30 minutes can be reduced to 6–7 minutes at 115200 baud.

The s37 firmware file in this example does not contain a config file. It is using KeepConfig to maintain all scanner settings. This example uses two unique .s37 files that contain a single configuration item to change the scanner's baud rate. DLRMU must communicate with the scanner at both of these baud rates so both must be specified on the command line.

The example contains three command line strings, the first queries the scanner, validates the scanners model and changes the scanner's baud to 115200.

The second updates the firmware at 115200.

The third returns the scanner to 9600 baud and validates the update was a success.

String 1: **DLRMU -c 1 -a SCRS232Scanner -b 9600 -t 115200 -r -F "8500XTS SS" -f 115200.s37**

1. KeepConfig is required when performing host download on the 83/8400 and 8500Xtscanner/scales.

Validates short model name, communicates at 9600 baud for scanner ID and file download.

Communicates at 115200 for scanner ID and validates baud change.

String 2: **DLRMU -c 1DLRMU -c 1 -a SCRS232Scanner -b 115200 -t 115200 -f DRxxxxxxxx.s37.**

Communicates at 115200 baud for scanner ID and file download.

Communicates at 115200 for scanner ID and to validate firmware update.

String 3: **DLRMU -c 1 -a SCRS232Scanner -b 115200 -t 9600 -f 9600.s37**

Communicates at 115200 baud for scanner ID and file download.

Communicates at 9600 for scanner ID and to validate baud change.

These three command strings can be used together in a batch file:

```
DLRMU -c 1 -a SCRS232Scanner -b 9600 -t 115200 -r -
F "8500XTS SS" -f 115200.s37

DLRMU -c 1 -a SCRS232Scanner -b 115200 -t 115200 -f
DRxxxxxxxx.s37

DLRMU -c 1 -a SCRS232Scanner -b 115200 -t 9600 -f
9600.s37
```

Real World Batch file

The following batch file is an example of how DLRMU can be used to target specific scanners and perform updates across an enterprise. In this example, the customer had over 1000 self-checkout lanes which utilized 3 different Datalogic Scanner/Scales (Mgl9500,Mgl8500Xt, Mgl9800i). Two of the scanners required updating and the third did not. This batch file determines if the scanner is one of the two needing an update or not, then loads the appropriate firmware for the scanner found. This batch file combines many of the DLRMU features to form a very powerful update solution.

- Queries the scanner and gathers Information, Health and Statistics.
- Validates that the responding scanner is one of the two desired models. Uses "**Short Model Names**" and "**Model Number Validation**."
- Validates the scanner needs updating. Uses the "**EC Level Checking**."
- Checks command status to make decision on which firmware to load.
- Changes baud rate to 115200 to increase the update speed.

- Changes baud rate back to 9600 for customer's application (8500Xt only).

```
set comport=2

DLRMU -a SCRS232Scanner -c %comport% -b 9600 -r -F
"8500XTS SS" --EC 0939
if "%errorlevel%"=="0" goto download_8500xts

DLRMU -a SCRS232Scanner -c %comport% -b 9600 -r -F
"9800i SS" --EC 0340if "%errorlevel%"=="0" goto
download_9800i

goto exit


:download_8500xts

DLRMU -a SCRS232Scanner -c %comport% -b 9600 -t
115200 -r -F "8500XTS SS" -f8500_115200.s37

DLRMU -a SCRS232Scanner -c %comport% -b 115200 -t
115200 -r -F "8500XTS SS" -
f8500_9801_SCRS232_ULE.s37

DLRMU -a SCRS232Scanner -c %comport% -b 115200 -t
9600 -r -F "8500XTS SS" -f8500_9600.s37

goto exit


:download_9800i

DLRMU -a SCRS232Scanner -c %comport% -b 9600 -t
115200 -r -F "9800i SS" -f9800i_115200.s37 -v 10

DLRMU -a SCRS232Scanner -c %comport% -b 115200 -t
9600 -r -F "9800i SS" -fMR21_0494_KRSCO.s37 -v 10

goto exit

:exit
```

Unsupported Features

These features are planned to be added in the future

-m x **STX** Character. Specifies the start character used in the single-cable message format. If omitted, the default value matches the DLS scanner default of 83 (decimal for ASCII '**S**'). The value **x** is in decimal.

-n x **ETX** Character. Specifies the end character used in the single-cable message format.

If omitted, the default value matches the DLS scanner default of 13 (decimal for ASCII Carriage Return). The value **x** is in decimal.

-x **BCC** Character. Specifies that a **BCC** is to be used in the single-cable message format. **BCC** character is calculated and transmitted with the data packets.

NOTES

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