

DatamedRcv™ DRCV02

Service Manual

Datamed LLC

DatamedRcv™ DRCV02 v3.0

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CAUTIONS

This product is not intended for home use.

REGULATORY

This product is not a medical device.



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INTENDED USE

This product is a software application intended to receive transmissions from any device that uses the Philips transmission protocol and write the data to a file. This product does not alter the transmitted data in any way. It is not intended to be used for any other purpose and attempting to use it for any other purpose is a violation of the EULA.

PROTECTED HEALTH INFORMATION (PHI) CONSIDERATIONS

The file that is received by this product may or may not contain PHI. As this product does not interact with the contents of the file except to receive and write it out, no data from the file is written to the log. If the file contains PHI then appropriate measures should be taken to ensure the security of the file. When planning the physical and electronic security of the installation, it is important to be aware of this data and plan accordingly. PHI may appear in the following locations:

- Debug Folder - If Debugging is enabled, the debug files are written here. The debug file will contain the raw data transmitted from the sender and therefore may contain PHI. This data is always encrypted.

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CHAPTER 1 - GETTING STARTED

The DatamedRcv™ Model DRCV02 Receiver Module ("*DRCV02*") is a utility that receives LAN transmissions from compatible devices and writes the received data to a file. It can be used with the DatamedFT™ EKG Format Translator or as a standalone utility. The program runs as a system service and will monitor a network connection (TCP/IP port) for incoming connections from Philips PageWriter® Touch/Trim/TC-Series cardiographs, or any device that uses this same protocol. As each EKG is received by DRCV02 it is written to a specific output folder. When used with DatamedFT™, the Format Translator will pick up the file and translate it to the appropriate destination format and location. Each file is verified after being written and an error will be returned to the cart if there is a problem. DRCV02 can handle incoming requests from multiple supported cardiographs simultaneously.

CHAPTER 2 – INSTALLATION

Requirements

- ❖ **License Key.** The software licenses that the applications need to run are contained in a License Key which can be either hardware or software. The hardware License Key is a specialized USB device (dongle) that must be accessible to the application at all times. It should be green or black and look like one of these:



For regions where a software License Key is available (currently North America) this type of key is activated on a specific computer and node-locked to that computer. If the key needs to be updated (e.g. if additional licenses are purchased), it can be updated via email - see *Appendix A* for instructions.

- ❖ **Software.** The installation package from DLLC which may be supplied on a flash drive or via download link.
- ❖ **Computer.** This software is independent of the host system and can be installed either on the host system server (if permitted by the manufacturer) or anywhere with network access to the host system. *It must be installed on the same computer (or VM) as DatamedFT™.* The minimum specifications for the computer are: 2 GB RAM, 40 GB HD, and a LAN connection or serial connection as appropriate. The following operating systems are supported: Windows Server 2008 x86 and x64, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, and Windows Server 2016. The .NET 4.5 Framework must be installed on this computer.
- ❖ **LAN considerations.** The DRCV02 software accepts LAN transmissions and then writes out files. Normally the output folder is local, but if it is remote then it will require proper file-sharing network permissions to be set up to a shared folder. If there is a firewall between the device and this computer, then a rule must be set up to allow HTTP traffic (TCP port 80) to pass. If the output is on a shared folder and there is a firewall between this computer and the remote computer, then a rule must be set up to allow Windows file-sharing traffic (TCP port 445) to pass. *If Windows Firewall is turned on, make sure these rules are added as needed.*

- ❖ **VM considerations.** This software can be run on virtual machines. If it is offered in your region you may choose to use a software license key. When using a hardware license key, a USB-to-Ethernet adapter such as AnywhereUSB is required. Note that using AnywhereUSB with a modem can affect the connectivity to the License Key (<http://www.digi.com/support/kbase/kbaseresultdet?id=3039>). DLLC recommends the use of hardware license keys where possible because they are reliable, portable and the license activation can never be broken.

New Installation

These instructions are for a new installation where there is no prior version of DRCV02 installed. This can also be used if DRCV02 was uninstalled. DRCV02Config will need to be run after installation to update the settings.

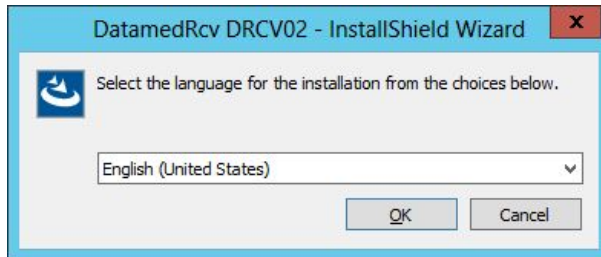
NOTE: *DRCV02 v1.x cannot be directly upgraded to v3.x. For upgrades, follow the instructions later in this chapter.*

Install the License Key

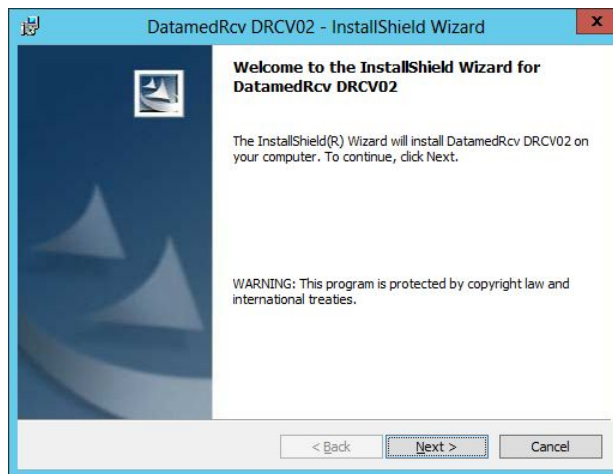
- In the installation media provided with the software there will be a file named *HASPUserSetup.exe*. Run this to install the full driver package. Alternatively, after installation the driver can be found using the shortcut under *Start → All Programs → Datamed → DatamedFT → Install License Key Drivers*. This driver package includes important tools used to diagnose issues. The latest driver for Sentinel HASP from the manufacturer may be downloaded directly from the SafeNet website at: <http://sentinelcustomer.safenet-inc.com/sentineldownloads/>.
- For a hardware License Key, insert the hardware key into the USB port and confirm that the LED inside the key lights. If you are using an AnywhereUSB adapter, follow the instructions that came with the adapter and install the Digi driver, then configure it to point to the adapter and USB port.
- For a software License Key you must activate the license and lock it to the VM that will be used. This is a two-step procedure that requires coordination with DLLC. Follow these steps:
 - a. After installing the driver, run *DatamedSentinelUtility.exe*. On the first tab select *Installation of new protection key* and then press the *Collect Information* button. Name and save the file, then send the fingerprint file (.c2v) file to the DLLC technician you are working with.
 - b. DLLC will use the file to manually activate the software License Key and send you back a license update (.v2c). You can apply this using the 2nd tab of that same utility. At this point the license is activated and locked
- Check to make sure that the License Key is available by using the Admin Control Center which is part of the driver package. Open a browser and go to http://localhost:1947/_int_/devices.html and confirm that you see the License Key in the list and it says "Local" in the *Location* column.

Install the DRCV02 software

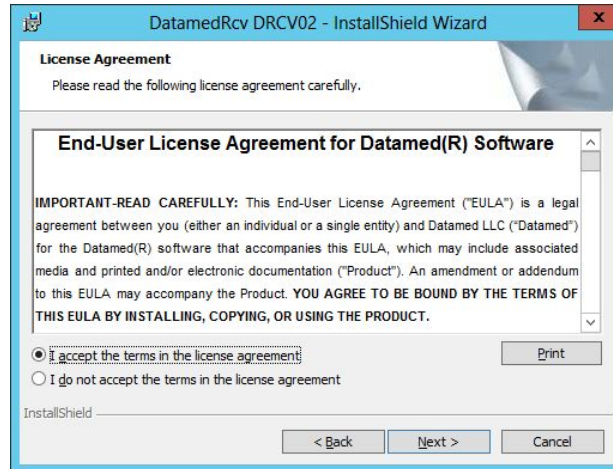
- The installation package can be found on the software installation flash drive or may be emailed. Locate *DatamedRcv_DRCV02_Setup_v3.x.x.exe* and double click on it. The following screen should appear. Select the appropriate language and then click *Next* to continue.



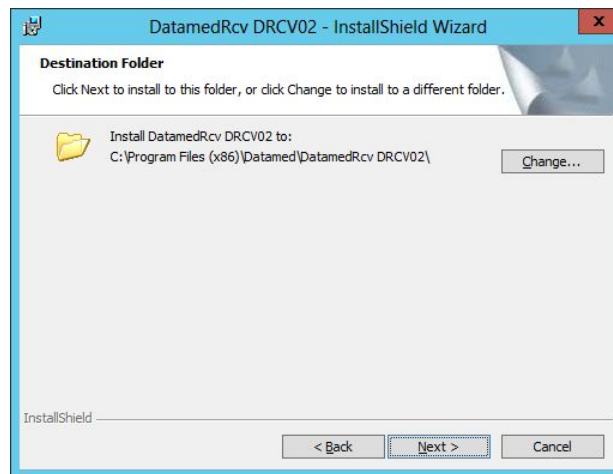
- The introduction screen will appear. Click *Next* to continue.



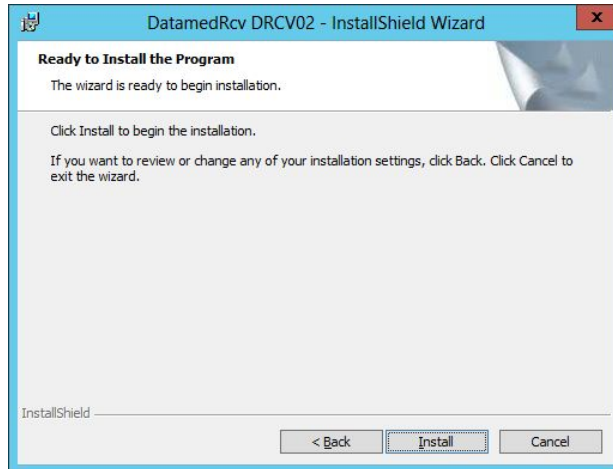
- Read the License Agreement carefully and select *I accept...* Click *Next* to continue.



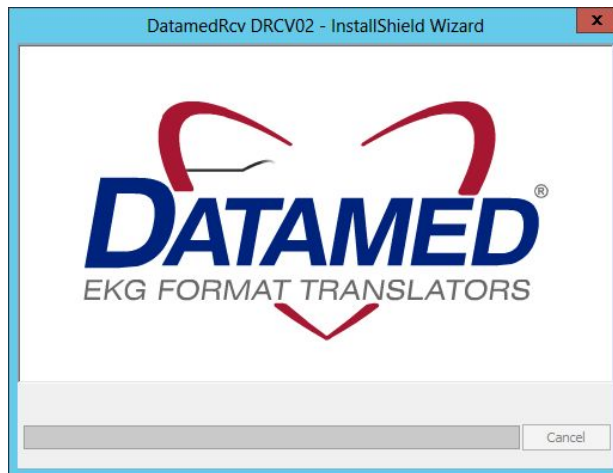
- Select the installation folder for the program and then click *Next* to continue.



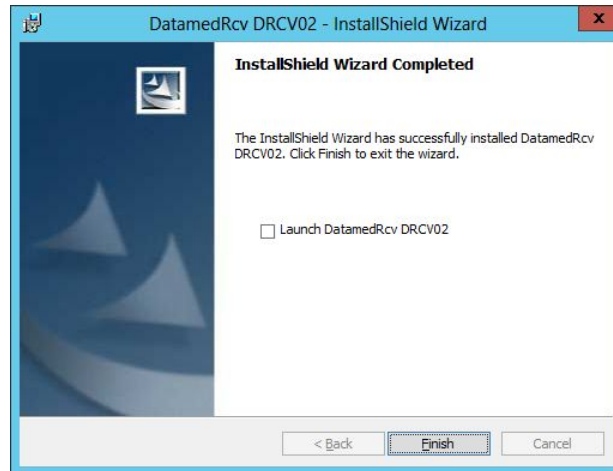
- When ready, click *Next* to begin the installation. Installation should take 1-2 minutes.



- During installation this screen will appear. Depending on what other software you have installed on the computer, you may or may not see the logo as shown below.



- Once installation is complete, this screen will appear. If you want to run the configuration utility immediately, check the *Launch DatamedRcv DRCV02* box. Click *Finish* to close the window.



Updating

If DRCV02 v3.0 or higher is already installed, running the setup program will update it. The screens are the same as a new installation.

If DRCV02 v1.x or PWTRcv is installed, follow these steps:

- Open the configuration utility and copy all of the settings down manually.
- Uninstall the old version.
- Install the new version.
- Start the *DRCV02Config* utility and configure it with the written settings.

Uninstalling

To uninstall DRCV02, do one of the following: 1) from *Start* → *All Programs* → *Datamed* → *DatamedRcv_DRCV02*, select *Uninstall DRCV02*; or 2) open *Control Panel*, choose *Add or Remove Programs*, select *DatamedRcv_DRCV02*, and press the *Remove* button. In either case the application will be removed. It may take a minute for the uninstall to complete. Note that only the application is removed - all ECG files and logs will remain.

Post-Installation Notes

If this was an update then the configuration settings will already be set up and should not need to be changed. However, for a new installation the configuration settings will need to be set up. Configuration settings are changed by using the DRCV02Config utility. A shortcut to this utility will be found on the desktop, and it can also be found at *Start* → *All Programs* → *Datamed* → *DatamedRcv DRCV02* → *DRCV02Config*. See *Chapter 3* for a complete description of the configuration settings.

We recommend setting the service *Startup Type* to *Automatic (Delayed Start)*. This is especially important when using an AnywhereUSB adapter. After installation open the *Services* applet, locate the *DatamedRcv_DRCV02* service, right-click on *Properties*, and change *Startup Type* to *Automatic (Delayed Start)*. An alternate method is to run this from the command line (note that the space after the '=' is required):

```
sc config DatamedRcv_DRCV02 start= delayed-auto
```

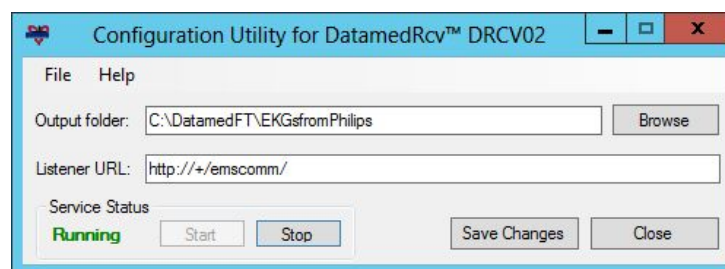
Note that the *DatamedRcv_DRCV02* service will not start automatically until the computer is rebooted. It can be started immediately using the *DRCV02Config* utility. An alternative method of starting the service is to open the *Services* applet from *Control Panel* → *Administrative Tools* and start *DatamedRcv_DRCV02*.

IMPORTANT NOTE: Normally this application is installed on the same computer as *DatamedFT™* and the output goes to a local folder. If the output will be directed to a shared folder on a separate computer, the account that the *DatamedRcv_DRCV02* service runs under is critical to the proper operation. By default, the service will run under the Local System account and by definition this account does not have access to the network, so it will not work correctly. In this situation, after installation and configuration it is very important to set the service to run with a domain (or workgroup) account. It will also be necessary to add the same domain (or workgroup) account to the folder that is being shared on the host management system.

Once the setup is complete and any accounts/permissions/shares have been addressed, the receiving process should be tested. The best way to do this is with *DatamedFT™* temporarily stopped. The cart(s) should be configured and a test transmission done. As long as a file appears in the Output Folder then this installation is complete.

CHAPTER 3 – CONFIGURING DRCV02

Once DRCV02 is installed, changes to the configuration settings can be done using the DRCV02Config utility that is installed along with the service. Open the utility from the desktop shortcut or from the Windows™ Start menu and it will automatically read the current configuration settings from the registry. When configuration changes are made, they must be saved and then the service must be restarted for them to take effect.



Window Settings

At the top of the window there are two items:

- + **Output folder.** The folder that incoming EKG files are written to. This must be the *Input folder* for DatamedFT™. If DatamedFT™ is installed on the same computer (typical) then it will be a local folder. If DatamedFT™ is installed on a different computer then this will be the network path to a share on the remote computer (`\\computername\sharename`). The *computername* can be specified as a name or IP address. The *Browse* button allows you to browse for the folder to use (or create one). **IMPORTANT NOTE:** If the *Output folder* is on a network share, the Log On account that the DatamedRcv_DRCV02 service is running under *must* have permissions to access that share. The default account for services is the System Account, which *does not* have network access permissions. The account can be changed by opening the Services applet from the *Help* menu and changing the properties for the DatamedRcv_DRCV02 service.
- + **Listener URL.** This is the Uniform Record Locator (URL) that identifies the location that the Philips cardiograph or PIIC iX (for IntelliVue® patient monitors) is transmitting to. The syntax of this value is: `“scheme://host:port/path/”`. The *scheme* must always be “http”. The *host* may be a DNS name, an IP address, or “+” to indicate this computer. The *:port* setting is not compatible with Philips carts and should only be used with PIIC iX where it is installed with DatamedWL™. The *path* should normally be “emscomm” unless Philips advises a different name. The default value in this field is typical for use

with both cardiographs and monitors and should only be changed if directed by DLLC personnel. Note that this URL must match the URL configured in the cardiographs and/or PIIC iX but with the "+" changed to an IP address or host name.

At the bottom of the window there is a status indicator and four buttons:

- ✚ **Service Status.** This shows the current status of the DatamedFT service. There are several possible values: **Stopped** - indicates that the service is not running; **Running** - indicates that the service is running; **Starting** - which indicates that the service is in the process of starting; **Stopping** - which indicates that the service is shutting down; **Paused** - which indicates that the service was manually paused; and **Unknown** - which indicates a problem. The blue statuses are normally transitional so if the status remains for more than a couple of seconds then there is a problem. The most common reason for this condition is that the License Key is not present or accessible.
- ✚ **Start.** This button will start the DatamedRcv_DRCV02 service.
- ✚ **Stop.** This button will stop the DatamedRcv_DRCV02 service.
- ✚ **Save Changes.** This button will cause all configuration changes to be saved to the registry. Previous settings will be discarded.
- ✚ **Close.** This button closes the window. Any unsaved changes will be discarded.

Menu Options

The following menu options are available:

- ✚ **File → Reload from registry.** Selecting this will cause any changes to be discarded and the settings on the screen reset to the saved values.
- ✚ **File → Save to registry.** This is the same as clicking the *Save Changes* button.
- ✚ **File → Import settings from file.** This will load configuration settings from a DRCV02 Settings (.dr2) file. This file is created by exporting the settings. Note that the settings are loaded into the window, but are not saved to the registry until the *Save Changes* button is clicked.
- ✚ **File → Export settings to file.** This will save the configuration settings as they exist in the window (possibly edited) to a DRCV02 Settings (.dr2) file. This file should not be edited manually. Typically this functionality is used to send the configuration settings to DLLC for troubleshooting.
- ✚ **File → Enable debugging.** In the event that there is a problem with the translator, DLLC support personnel may want to collect detailed technical information. After checking this option and restarting the service, files containing debugging information will be written to the *Output Folder*. This information should be sent to DLLC support for analysis. See *Chapter 6* for more details.

- ✚ **File → Exit.** This is the same as clicking the *Close* button.
- ✚ **Help → Open Windows Event Viewer.** This will open the Event Viewer to the Application Event Log.
- ✚ **Help → Open Windows Services Manager.** This will open the services applet so that you can access the properties for Windows services.
- ✚ **Help → About.** This will open a window that displays information about the application and the license details.

CHAPTER 4 – DEVICE CONFIGURATION

The devices that communicate with this receiver utility currently are the Philips PageWriter® cardiographs, and the Philips PIIC iX (patient monitoring). This section is intended to provide some practical guidance for configuring these devices to send to DRCV02; however, this information is not from Philips and you should always consult the device's user manual or a Philips technician for definitive instructions.

Philips PageWriter® TC-Series Cardiographs

Configuration

- Turn on the cardiograph - it will be the 1st button of 3 when you open the lid of the cart.
- Connect an Ethernet cable between the LAN port on the back of the cart to the hospital network. If the option is enabled, this cart can also transmit data via Wi-Fi.
- Once powered up, the screen will default to the configured Resting 12 Lead or 15/16 Lead EKG view.
- On the screen's bottom button bar, touch *Set Up* button which will take you to the overall settings for this cart.
- In this setup screen, touch *Configure Cardiograph Default Settings*. This screen allows setting of many defaults, but the important one is on the tab named *Algorithm/Pacing*. Philips recommends setting the algorithm to "PH100B".
- Return to the main setup screen after saving the changes. In this setup screen, touch *Configure Network Settings*.
- On the tab named *LAN/WLAN Configurations*, you can put in a static IP/Mask/Gateway or DHCP. Or if you choose WLAN, another configuration screen pops up to enter info such as SSID, etc.
- On the tab named *ECG Mgmt Systems* click on the sub-tab named *Edit/Delete TraceMaster*.
- Click on the *EDIT* button for the existing entry (it may be *TMVUE* or another name). Configure the following:
 - Under *System Type* make sure *ECG Management* is selected.
 - The *Server URL* should be set to a complete URL with the following format: <http://ADDRESS/emscmm/>, where ADDRESS can either be the IP address or DNS

name of the computer running DRCV02. Note that the “/emscmm” is required and MUST match the setting in DRCV02.

- The *User Name* and *Password* must not be blank, but the values are not used.
 - The *Computer Name* should be the name of the computer running DRCV02.
 - The *Enable SSL*, *Compression*, and *Encryption* should all be set to *OFF*.
 - The *ECG Mgmt Version - Filtered ECG* setting is very important and should be set to *Other EMS - XML 1.04.01* if the Algorithm was set to PH100B. Note that the Other EMS selection causes the ECGs to be output with the filters applied.
- Save the changes and exit this screen and the setup screen. You should now be able to take a 12-16 lead ECG depending on the Algorithm and Format chosen and transmit out of the cart.

Operation

- To take an ECG, enter the Patient ID demographics and then press the green ECG button to start the process. The cart can be setup to auto print/archive/transfer ECG out of the cart, or to do each step manually.
- If set to manual, after the ECG is recorded touch the *Archive* button to get to a screen of all the stored ECGs. On that screen you can transfer the ECG(s).

Philips PIIC iX

Configuration

- On the *System Configuration* screen, choose *ECG 12 Lead*.
- The *Destination (Export URL)* should be set to a complete URL with the following format: <http://ADDRESS/emscomm/>, where ADDRESS can either be the IP address or DNS name of the computer running DRCV02. Note that the *"/emscomm/"* is required and MUST match the setting in DRCV02.

If an installation is using Philips cardiographs and monitors and DatamedWL is installed to support order query functionality on the cardiographs, DRCV02 will be required to support the monitors. In this case the ADDRESS must also include a port to separate it from the cart traffic to DatamedWL, and DRCV02 should be configured to use the same port. For example: you could configure PIIC iX to use <http://10.10.10.27:50/emscomm/> and then configure DRCV02 to use <http://+:50/emscomm/>. Note that PIIC iX A.xx and B.xx will be fine by default, but for PIIC iX C.xx Philips will need to open the selected port in the firewall because it is locked by default. Check with DLLC or Philips before configuring this.

- The *Filter Before Export* checkbox MUST be checked. This will cause the ECGs to be output with the filters applied.

IMPORTANT NOTE ABOUT FILTERING

By default, Philips devices do not filter the ECGs. Because all ECG Management/Storage Systems expect filtered output, this can cause a discrepancy between an ECG printed from the cart/monitor and the same ECG displayed or printed on the computer. Philips has added a specific option in the TC-Series cardiographs and the PIIC to cause the ECGs to be filtered before output. This is very important and must be set. The instructions above describe how to do this. Note that the older Touch and Trim carts do not have this option, so the best way to get a match is to set the cart filters to 0.05 - 150Hz.

CHAPTER 5 - TROUBLESHOOTING

When DRCV02 is installed, a new Windows™ service named DatamedRcv_DRCV02 is created. The service continually monitors the License Key and if it is removed the service will log a message to the Event Log and stop processing. Once the key is connected again the service will resume processing. The DRCV02Config utility can be used to start, stop, and monitor the service.

If there is a problem, the first place to look is the *Event Viewer*, which can be accessed from **Control Panel** → **Administrative Tools** or from the *Help* menu. Once the viewer is opened, select **Application** from the left side menu and the right side will be filled with the application event log. Double-clicking on any entry in the log will open a window that shows the details for the event. The *Type* column in the log will indicate whether this is an *Information* or *Error* message, and the *Source* column will indicate what service logged the entry. The *Information* messages are normal and for a normal startup there will be two or more from DatamedRcv_DRCV02 depending on the configuration. The *Error* messages describe problems that have occurred. Reviewing the log entries will give insight into what is working and what is a problem. If the License Key could not be contacted, the service will log an Error message describing the condition.

The other reason that the service can fail to access the key is due to a licensing problem. In this case see *Appendix A* for instructions for updating the key.

After the startup message, there should be an event log message that gives the URL that the listener is monitoring and also the directory where files will be written. If a message that should be there is not present, check the configuration settings using DRCV02Config to confirm that the parameters are correct (see Chapter 3 for details). If the message is missing and there is no error relating to it, make sure the process is enabled. In most cases, however, there will be an error message that describes the problem. Most errors are self-explanatory and can be resolved by correcting the setting or condition that caused them.

Running Microsoft IIS on the computer with DRCV02 may prevent DRCV02 from initializing the port listener. If IIS must be run, make sure to verify proper operation after installation. To do this, turn on debugging and restart DRCV02 and then open the debug file that is written to the output folder. If the message says the port listener is running, turn off debugging and restart DRCV02 for normal operation. If the message says that it failed to start the listener, IIS is preventing DRCV02 from attaching to the port. There are two things to try. First, change the DatamedRcv_DRCV02 service to log on using a specific administrator account rather than the default Local System account. If that doesn't work and the Microsoft utility httpcfg is present, use the following at a command prompt to grant access to the specified URL:

```
httpcfg.exe set urlacl /u http://localhost/emscmm/ ; /a D:(A;;GX;;;WD)
```

Here are some other common issues and answers:

- **Symptom: The License Key cannot be located**
 - The License Key is required for the DatamedRcv_DRCV02 service to run. Whether the License Key is attached to the computer directly, attached to the VM's host computer, or connected by network, it must be accessible and a local driver must be installed. To verify that the key is connected, do one (or both) of the following:
 - Start the Configuration Utility and select *Help* → *About* on the menu. After a moment it should show the license information.
 - Open a browser and connect to this address: <http://localhost:1947>. If the complete driver package is properly installed you should see the Sentinel Admin Control Center. If you do not see this, use the shortcut under *Start* → *All Programs* → *Datamed* → *DatamedRcv DRCV02* → *Install HASP Security Key Drivers* or download and install the latest driver, which can be found at:
<http://sentinelcustomer.safenet-inc.com/sentineldownloads/>
 - On the key is a light that should be on if the driver is working.
 - If the Security Key still can't be located, please contact DLLC support.
- **Symptom: No files are written**
 - If the service starts properly but no files are received when the originating device makes a transmission, then the communication needs to be checked. The most common reason is that the SERVER URL setting on the cardiograph does not match the *Listener URL* setting in DRCV02. Recheck both settings to ensure they match.
 - Another common problem is that there is a firewall interfering with the incoming transmission. Ensure that TCP port 80 is open.
 - Check the permissions on the output folder to make sure that the service has write permissions.
 - DLLC support personnel may need to gather detailed information using the debugging facility. If directed to collect debugging information, follow the directions to enable debugging in *Chapter 3*. The debug file(s) will be created in the output folder and should be sent to DLLC.

DLLC support can be reached by email at support@datamed.com or by phone at either (800) 601-3361 ext 2 (within the US) or +1 901 672 6225 ext 2 (outside the US).

APPENDIX A – UPDATING THE LICENSE KEY

Licensing for Datamed® software applications is controlled using a hardware or software License Key. Hardware License Keys can easily be moved to another computer and the license can't ever be broken, but a USB port is required. In contrast, a software License Key is tied to a specific computer and cannot easily be moved but there is no hardware involved.

Upon delivery of the Datamed® software, a hardware License Key will already be programmed with the appropriate licensing information. Software License Keys must be activated and locked before use. If additional connection licenses are purchased, the key can be updated remotely to activate the new licenses. A single License Key may be used for any number of licenses for Datamed® software applications on a single computer (physical or virtual).

There are four ways to update the License Key:

1. Use the Configurator utility. This is the normal method and is described in detail below.
2. Use `DatamedLicenseUtil`. This utility displays the license details, just like the About screen in the Configurator. It has functions just like the ones described below.
3. Use `DatamedSentinelUtility`. This utility is normally only used for sites with software License Keys but it will work with hardware Licenses Keys as well.
4. Use the Admin Control Center. This is a browser interface provided by the HASP driver package. You access this page at <http://localhost:1947/>. This interface has a number of good diagnostic features and when working with DLLC support you will probably be asked to open this page to gather information.

On the License menu in the Configurator utility there are two options: one to create a license update request file, and one to apply the update. The license update request file must be emailed to DLLC so that an update can be created and sent back. The following is a step-by-step procedure:

- Step 1:** Start the DRCV02 Configuration Utility and select *License → Create License Update Request File* on the menu. You will be able to select a folder and filename to write the file to. Note that the license key must be present on this computer.
- Step 2:** A file will be created in the location specified with an extension of ".c2v". Email this file to DLLC at support@datamed.com.
- Step 3:** DLLC will generate an update file (with an extension of ".v2c") and email it back. Save this file.
- Step 4:** In the DRCV02 Configuration Utility select *License → Load License Update* on the menu. Navigate to the saved update file and press *Open* to load the license.

When the update is complete a success message will be displayed. The update files can be discarded. Stop and restart the service to allow the new license to take effect.

APPENDIX B – REGISTRY SETTINGS

If it is necessary to change the settings for DRCV02 after installation, the DRCV02Config utility should be used. There is normally no reason to access the registry editor to make the changes. In the event that DLLC support personnel request it, you can open the registry editor by selecting Start → Run and then type "*regedit*" and press *OK*. When the registry editor opens, navigate the folders to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\DatamedRcv_DRCV02.

Most of the settings must not be changed or the operation of DRCV02 will be affected. If any setting is changed DatamedRcv_DRCV02Start must be restarted.

APPENDIX C – END USER LICENSE AGREEMENT AND LIMITED WARRANTY

The current End User License Agreement and Limited Warranty (EULA) can be found on DLLC's web site (www.datamed.com). The following EULA was current at the time of this printing.

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