

DatamedSnd™ DSND01 Service Manual

Datamed LLC

DatamedSnd™ DSND01 v3.2

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CAUTIONS

This product is not intended for home use.

REGULATORY

This product is not a medical device.

IMPORTANT LINKS

Support & Maintenance Plan Description



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Datamed LLC	Datamed
Microsoft Corporation	Microsoft and Windows Server
National Electrical Manufacturers Association Corporation	DICOM
SafeNet Data Security Ltd.	HASP

INTENDED USE

This product is a software application intended to transmit files in DICOM® format to a destination server that accepts a C-STORE transaction in the DICOM® transmission protocol. 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 transmitted by this product may or may not contain PHI. As this product does not interact with the contents of the file except to read it from a folder and transmit it, 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.

SECURITY CONSIDERATIONS

Organizations should ensure that the Computer operating system is deployed, configured, and managed to meet the security requirements of the organization. As part of the planning process here are several recommendations and notes that should be factored in:

- It is recommended that this product be installed on a Computer with only software related to this one such as other Datamed® modules and related vendor-provided software.
- The organization is responsible for securing and maintaining the Computer that this product is installed on. DLLC does not restrict the antivirus products that can be used, nor are they validated. Likewise, OS patches are not restricted or validated.

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CHAPTER 1 - GETTING STARTED

he DatamedSnd™ Model DSND01 Transmitter Module ("DSND01") is a utility that monitors a folder for files with a specific extension (.dcm), reads the file into memory, and then transmits the data to a server using a DICOM® C-STORE transaction. It is used with the DatamedFT™ EKG Format Translator which writes out the .dcm files to be transmitted. The program runs as a system service and will monitor the configured folder for incoming files. Note that an organization using DatamedWL™ will not use this program because the DICOM® transmission functionality is already built into DWL.

All Datamed® Software is user-installed on a Computer provided by and maintained by the organization. DLLC does not require any direct access to the Computer. The organization is responsible for providing a technical resource with access to the Computer that will work with DLLC for the installation, configuration, updates, and any technical support. Under no circumstances will DLLC accept any unmonitored access such as VPN to the organization's network or to the Computer.

IMPORTANT NOTE: Support must be maintained for continued operation of the software. As specified in the EULA, the license will expire 2 years after support expires. If it is allowed to expire then a License Reactivation Fee must be paid along with the support renewal to re-enable the software.

Definitions, Acronyms and Abbreviations

DSND01 DatamedSnd™ DSND01

DFT DatamedFT™ Format Translator

DLLC Datamed LLC DWL DatamedWL $^{\text{TM}}$

SL Software License Key
HL Hardware License Key

ACC Sentinel Admin Control Center (web page)

Computer A physical or virtual machine running a supported version of a Windows®

operating system where the DLLC software is installed

Configurator DSND01 Configurator (on the desktop)

Start Menu Windows® Start Menu

Start Menu Shortcuts (for files in the install folder)

Install License Key Drivers Shortcut to HASPUserSetup.exe

Sentinel License Utility Shortcut to DatamedSentinelUtility.exe

CHAPTER 2 - INSTALLATION

Requirements

- License Key. The licenses that are required for the applications to run are contained in a License Key which can be either software or hardware.
 - A Software License Key is activated on a specific computer and locked to that computer. This is normally used for VMs.
 - A Hardware License Key is a specialized USB device (dongle) that must be accessible to the application at all times. This is normally used for a physical computer but it can be used with a VM by assigning it to the VM in the VM host configuration, or it can be plugged into a USB-to-Ethernet adapter and connected with a special driver. It should be green or black and look like one of these:





When the key needs to be updated (for license additions and support renewals), it is updated via email - see *Updating the License Key* later in this chapter for instructions. **NOTE: The HASP driver must be v9.12 or higher.**

- Software. The installation package from DLLC which will be supplied via download link.
- Computer. This software is independent of the destination system and can be installed either on the destination system server (if permitted by the manufacturer) or anywhere with network access to the destination system. It should be installed on the same computer as DatamedFT™. The minimum specifications for the computer at the time of this printing are: 4GB RAM, 40GB HD, and a LAN connection. The following operating systems are supported: Windows® Server 2016, Windows® Server 2019, Windows® Server 2022, and Windows® Server 2025. The .NET 4.8 Framework (or higher) must be installed on this computer. Check the DLLC website for the latest changes to the system requirements.
- LAN considerations. The DSND01 software transmits via a TCP/IP connection on a configured port. The folder that is being monitored must be a local folder. If Windows Firewall is turned on, make sure any required rules are added to allow the traffic to pass.

New Software Installation

These instructions are for a new installation where there is no prior version of DSND01 installed. This can also be used if DSND01 was uninstalled. The Configurator will need to be run after installation to configure the settings.

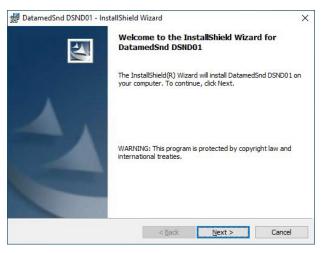
NOTE: DSND01 v1.x cannot be directly upgraded to v3.x. To upgrade from v1 to v3 follow the Updating instructions later in this chapter.

Step 1: Install the DSND01 software

> The installer will be delivered as a download link. After downloading, double click on DatamedSnd_DSND01_Setup_v3.x.x.exe. The following screen should appear. Select the appropriate language and then click Next to continue.



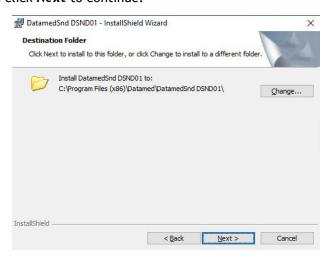
➤ The introduction screen will appear. Click *Next* to continue.



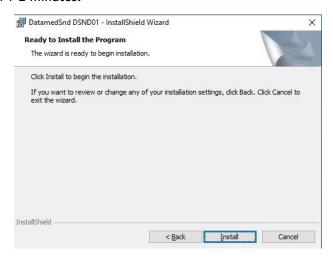
Read the License Agreement carefully. IMPORTANT: THIS EULA IS A BINDING CONTRACT BETWEEN THE ORGANIZATION (END USER) AND DATAMED LLC FOR THE USE OF THE SOFTWARE. THE TECHNICIAN INSTALLING THE SOFTWARE MUST HAVE THE AUTHORITY TO ACCEPT A CLICK-THROUGH CONTRACT ON BEHALF OF THE ORGANIZATION. Once you confirm this authority and review the license, select I accept the terms in the license agreement and then click Next to continue.



> Select the installation folder for the program (normally the default location) and then click *Next* to continue.



➤ When ready, click *Next* to begin the installation. Installation should take no more than 1-2 minutes.



Once installation is complete, this screen will appear. If you want to run the configuration utility (Configurator) immediately, check the *Launch DatamedSnd DSND01* box. Note that you can't start the software until the license is activated. Click *Finish* to close the window.



Step 2: Install the License Key Driver

- > The license key driver and the Software License Key (if applicable) will only be installed and activated once on the Computer, regardless of how many Datamed suite applications are installed. If the license has already been activated with a previous module such as DFT then skip to the next step.
- ➤ To install the license key driver, open the Start Menu and locate DatamedSnd DSND01 → Install License Key Drivers. Run this to install the full driver package. The driver includes a web-based interface called the Sentinel Admin Control Center (ACC) with tabs on the left side that allows a user to view the license key(s) and the license entitlements (products and features), apply license updates, and gather diagnostics. It will show license keys that are installed on the local Computer and also any other servers in the same subnet. To access the ACC (a) select Sentinel Admin Control Center from the Start Menu, (b) open a browser to http://localhost:1947, or (c) choose Open Sentinel Admin Control Center from the Tools menu in the Configurator.
- > Here are some useful direct URLs for the ACC screens:
 - a. Sentinel Keys: http://localhost:1947/_int_/devices.html
 - b. *Update/Attach*: http://localhost:1947/_int_/checkin.html
 - c. Diagnostics: http://localhost:1947/_int_/diag.html

Step 3 Option 1: Activate a Software License Key

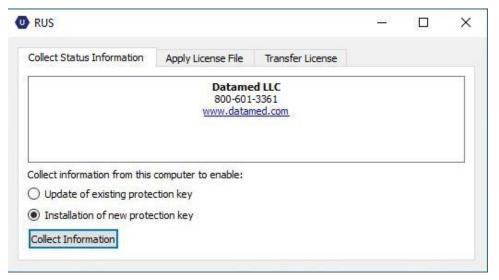
- > This is a two-step procedure that requires coordination with DLLC and only takes a few minutes. The first step is to collect the license fingerprint and send it to DLLC, and the second step is to apply the activation file that we send back. It can be done using the web interface (ACC) or using a standalone utility. To use the ACC:
 - a. Open the ACC and go to Sentinel Keys. If the driver and DLLC library were installed properly then there will be a line with Location "Local", Vendor "11974", Key Type "Reserved for New SL Key", and Configuration "SL". Click the Fingerprint button to the right to generate a fingerprint file (.c2v). This will be written to the default download folder. Send that to support@datamed.com for activation.



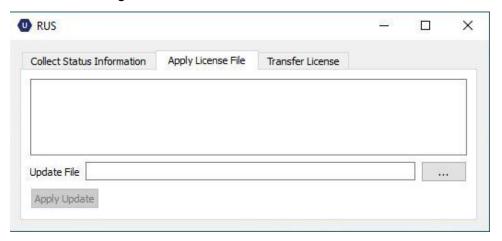
b. When you receive the activation file (.v2c), open the ACC again and select Update/Attach on the left-side menu. Use Select File to browse to the activation file and then click Apply File. Notify DLLC support if there is an error message instead of a success message.



- > To use the standalone Sentinel License Utility:
 - a. Open Sentinel License Utility from the Start Menu or from the Tools menu in the Configurator. On the Collect Status Information tab select Installation of new protection key and then press Collect Information to generate a fingerprint file (.c2v). Send that to support@datamed.com for activation.



b. When you receive the activation file (.v2c), open the Sentinel License Utility again. On the Apply License File tab press the button with 3 dots at the bottom to browse to the activation file and select it, then click Apply Update. Notify DLLC support if there is an error message instead of a success message.



Check to confirm that the license is activated and accessible. Open the ACC and go to Sentinel Keys. If the driver and DLLC library were installed properly then there will be a line with Location "Local", Vendor "11974", and Key Type "HOST SL AdminMode". The Key ID is specific to this Computer and should be checked for a match with the filename when applying an update. A Serial Number has also been assigned but is not visible in the ACC, only in the Configurator.

Step 3 Option 2: Install a Hardware License Key

- > 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 a USB-to-Ethernet adapter follow the instructions that came with the adapter and install the driver, then configure it to point to the adapter and USB port.
- ➤ Check to make sure that the License Key is available. Open the ACC and confirm that you see the License Key in the list with Location "Local" and Vendor "11974".

Step 4: Configure the software

> Start the Configurator and enter the desired settings. See *Chapter 3* for details.

Updating the Software

If DSND01 v3.2 or higher is already installed, running the setup program will update it. The screens are the same as a new installation.

If DSND01 v3.0 or v3.1 is already installed, the old shortcuts in the Datamed folder on the Start Menu must be manually removed before installing v3.2. It is normally here: C:\ProgramData\Microsoft\Windows\Start Menu\Programs. Locate "Datamed" in this folder and delete it. Then run the setup program normally to update in place.

If DSND01 v1.x is installed, follow these steps:

- Stop the DatamedSnd_DSND01 and DatamedSnd_DSND01Start services.
- Open the Configurator and copy all the settings down manually.
- Uninstall the old version. Reboot the server if prompted to do so.
- Follow the instructions above for a new installation, including installing the latest license key driver. A license update will be supplied if there is already a Software License Key installed.
- Start the Configurator and configure it with the settings you wrote down.

Uninstalling the Software

To uninstall DSND01, do one of the following: 1) from the Start Menu locate *DatamedSnd DSND01* → *Uninstall DSND01* and select it; or 2) open *Control Panel*, choose *Add or Remove Programs*, select *DatamedSnd_DSND01*, and press the *Remove* button. In either case the application will be removed. It may take a minute or two for the uninstall to complete. Note that only the application is removed - all ECG files and logs will remain as well as the License Key Driver.

Updating the License Key

When support is renewed or licenses are added, the License Key must be updated. DLLC will email a license update file (.v2c) which needs to be applied. This can be done using the web interface (ACC) or using the standalone Sentinel License Utility.

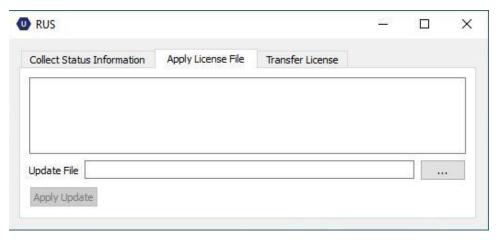
Applying an update using the ACC

Open the ACC and select Update/Attach on the left-side menu (the direct URL is http://localhost:1947/_int_/checkin.html). Use Select File to browse to the activation file and then click Apply File. Notify DLLC support if there is an error message instead of a success message.



Applying an update using the Sentinel License Utility

> Open the Sentinel License Utility from the Start Menu or from the Tools menu in the Configurator. On the Apply License File tab press the button with 3 dots at the bottom to browse to the activation file and select it, then click Apply Update. There should be a success message, otherwise let us know if there is an error.



Check to confirm that the license is activated and accessible. Open the ACC and go to Sentinel Keys. If the driver and DLLC library were installed properly then there will be a line with Location "Local", Vendor "11974", and Key Type "HOST SL AdminMode". The Key ID is specific to this Computer and should be checked for a match with the filename when applying an update.

In some cases DLLC will need to collect a new fingerprint file from the Computer for a Software License Key. This can happen when there is a change to the computer that affects the "internal fingerprint" used by the license software. Collecting this fingerprint file (.c2v) can be done using the web interface (ACC) or using the standalone DatamedSentinelUtility. Once the file is collected it should be sent to DLLC.

- ➤ Open the ACC and select Sentinel Keys on the left-side menu. On the line with Location "Local", Vendor "11974", and Key Type "HOST SL AdminMode", press the C2V button on the right side to generate the file.
- > Open the Sentinel License Utility. On the Collect Status Information tab select Update of existing protection key and then press Collect Information to generate the file.

Post-Installation Notes

If this was an update the configuration settings will already be set up and should not need to be changed. For a new installation the configuration settings will need to be set up. Configuration settings are changed by using the Configurator utility. A shortcut to this utility will be found on the desktop, and it can also be found on the Start Menu under $DatamedSnd\ DSNDO1 \rightarrow DSNDO1\ Configurator$. See Chapter 3 for a complete description of the configuration settings.

We recommend setting the service Startup Type to Automatic (Delayed Start). After installation open the Services applet, locate the DatamedSnd_DSND01 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 DatamedSnd_DSND01 start= delayed-auto

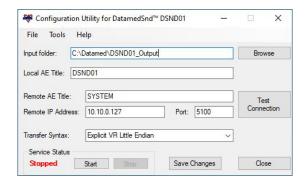
Note that the $DatamedSnd_DSND01$ service will not start automatically until the computer is rebooted. It can also be started interactively using the Configurator utility. An alternative method of starting the service is to open the **Services** applet from **Control** $Panel \rightarrow Administrative Tools$ and start $DatamedSnd_DSND01$.

IMPORTANT NOTE: This application should always be installed on the same Computer as DatamedFT™.

Once the setup and the configuration is complete, the connection to the destination server should be tested. This is done using the *Test Connection* button in the Configurator.

CHAPTER 3 - CONFIGURING DSND01

nce DSND01 is installed, changes to the configuration settings can be done using the Configurator utility that is installed along with the service. Open the utility from the desktop shortcut or from the 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

The main section of the window has several items:

- ♣ Input folder. This is the folder that will be monitored for incoming files. This must be the Output folder for DFT and will always be a local folder. The application will be monitoring this folder for files with an extension of .dcm. The Browse button allows you to browse for the folder to use (or create one). This will be yellow if the folder does not exist.
- Local AE Title. This is the AE Title for DSND01 when acting as an SCU (Service Class User) making the C-STORE request.
- * Remote AE Title. This is the AE Title of the DICOM SCP (Service Class Provider) that will accept and service the C-STORE request.
- * Remote IP Address and Port. This is the host name or IP address and the port for the DICOM SCP that will accept and service the C-STORE request.
- **Test Connection**. When this button is pressed it will generate a DICOM ECHO transmission to confirm that the destination server is available and listening.

Transfer Syntax. This is used to specify what Transfer Syntax will be used in the transmission: "Explicit VR Little Endian" (default) or "Implicit VR Little Endian".

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

- ♣ Service Status. This shows the current status of the DatamedSnd_DSND01 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 DatamedSnd_DSND01 service.
- **Stop**. This button will stop the *DatamedSnd_DSND01* 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 DSND01 Settings (.ds1) 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 DSND01 Settings (.ds1) 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. This should only be enabled if there is a problem with the application and DLLC support personnel request it. After turning on 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 and the option should be disabled.

- **File** → **Enable Low-Level Debugging**. This option is only available after **Enable Debugging** is turned on. In rare cases DLLC support personnel may need to collect granular debugging data to diagnose a transmission issue. After turning on this option and restarting the service, the debug files will grow quickly so only leave it on long enough to capture the transaction requested by DLLC.
- # File \to Exit. This is the same as clicking the Close button.
- **↓** Tools → Open Windows Event Viewer. This will open the Event Viewer to the Application Event Log.
- **Tools** → Open Windows Services Manager. This will open the services applet so that you can access the properties for Windows services.
- **Tools** → Open Sentinel Admin Control Center. This will open the ACC web page using the default browser.
- **Tools** → Open Sentinel License Utility. This will run the DatamedSentinelUtility.exe utility in the installation folder.
- **Help** → **About**. This will open a window that displays information about the application and the license details.
- **4** Help → Open Datamed Website. This will open <u>datamed.com</u> using the default browser.

CHAPTER 4 - SYSTEM CONFIGURATION

he system that receives the transmission from DSND01 must be configured properly so that it will accept the transmission. The Remote AE Title, IP Address, and Port are all critical for the transmission to reach the intended destination. The Local AE Title is also very important because many systems use this value to limit or route the incoming data. Always consult the system documentation and the manufacturer's instructions.

CHAPTER 5 - TROUBLESHOOTING

hen DSND01 is installed, a new Windows™ service named *DatamedSnd_DSND01* 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. Note that if the License Key is not connected then the service will not start. The Configurator utility can be used to start, stop, and monitor the service.

The Sentinel LDK License Manager service was installed by the license key driver, and it must be running at all times. If the service is reporting that the license key is not present, it might be due to this service being stopped or unresponsive. This can generally be resolved by restarting the service or restarting the Computer. Then check the ACC web page to confirm that the license is available. If the license key needs to be updated, review the steps in the *Updating the License Key* section of *Chapter* 2.

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 *Tools* 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 *DatamedSnd_DSND01* 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.

After the startup message, there should be an event log message that gives the IP address and port that the listener is monitoring and the directory where files will be written. If a message that should be there is not present, check the configuration settings using the Configurator to confirm that the parameters are correct (see *Chapter 3* for details). In most cases 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.

Here are some other common issues and answers:

- Symptom: The License Key cannot be located or is marked as Cloned
 - The License Key is required for the DatamedSnd_DSND01 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 $Help \rightarrow About$ on the menu. After a moment it should show the license information.

- Open the ACC from the Start Menu, the Tools menu in the Configurator, or manually opening http://localhost:1947 from a browser. Confirm that there is a line with Location "Local", Vendor "11974", Key Type "HOST SL AdminMode", and a value for Key ID.
- For a Hardware License Key there is a light on the physical key that should be on if the driver is working.
- If the Security Key still can't be located or is marked as Cloned in the ACC, contact DLLC support.

Symptom: The system does not receive the record

- o If the service starts properly but no files are received by the system when DSND01 makes a transmission, then the communication needs to be checked. The most common reason is that the IP address and port setting does not match the destination system. Recheck both settings to ensure they match and use the *Test Connection* button.
- Another common problem is that there is a firewall interfering with the outgoing transmission. Ensure that the configured port is open.
- 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.

Symptom: The file is renamed to .TransmitError

 This means there is a problem transmitting the file and it usually points to a problem with the configuration settings, a firewall or network issue, or a problem with the destination server. Once the issue with the network or server is resolved, rename the file to .dcm to reprocess it.

• Symptom: The file is renamed to .CorruptFile

This means that the file is not a valid DICOM file or has been corrupted in some way.
 Resend the record if needed.

• Symptom: The file is renamed to .ZeroLengthFile

This means that the file is completely empty.

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 - REGISTRY SETTINGS

If it is necessary to change the settings for DSND01 after installation, the Configurator utility should be used. There is normally no reason to access the registry editor to make the changes. If DLLC support personnel request it, you can open the registry editor by selecting $Start \rightarrow Run$ and then type "regedit" and press OK. When the registry editor opens, navigate the folders to $HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\DatamedSnd_DSND01.$

Most of the settings must not be changed or the operation of DSND01 will be affected. If any setting is changed <code>DatamedSnd_DSND01</code> must be restarted.

APPENDIX B - END USER LICENSE AGREEMENT

The current End User License Agreement (EULA) can be found on DLLC's web site here: datamed_eula.pdf. The following EULA was current at the time of this printing but is subject to being replaced by a more current version that is found on the website.

End-User License Agreement for Datamed® Software

IMPORTANT—READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between Datamed LLC ("Datamed") and the End User. Both you and the entity you act on behalf of in your capacity as an employee of such entity, or as an agent, contractor or representative of such entity shall be considered the End User for purposes of this EULA (collectively and individually, "you"). This EULA applies to the Datamed® software that accompanies this EULA, which may include associated media and printed and/or electronic documentation (individually and collectively, the "Product"). An amendment or addendum to this EULA may accompany the Product. No other person or entity personally or in any other capacity may acquire rights to use the Product pursuant to this EULA. YOU AGREE TO BE BOUND BY THE TERMS OF THIS EULA BY AGREEING TO ACCEPT THE TERMS AND CONDITIONS OF THIS EULA, AND/OR BY INSTALLING, COPYING, OR USING THE PRODUCT. IF YOU ARE NOT WILLING TO ACCEPT THE TERMS AND CONDITIONS OF THIS EULA, THEN DECLINE TO ACCEPT AND REFRAIN FROM INSTALLING, COPYING OR USING THE PRODUCT.

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