



RemLogic™ 3.4

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Instructions for Use

## Publisher's Notice



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**RemLogic 3.4 Instructions for Use**



Embla Systems  
1 Hines Road, Suite 202  
Kanata, ON K2K 3C7  
Canada  
Tel: +1.613.254.8877  
Fax: +1.613.270.0627  
Toll-Free in North America: 888 NO APNEA (888.662.7632)  
[www.natus.com](http://www.natus.com)  
[Ottawa.TechSupport@natus.com](mailto:Ottawa.TechSupport@natus.com)



Natus Manufacturing Limited  
IDA Business Park, Gort,  
Co. Galway, Ireland

Tel: +353 (0)91 647400  
Fax: +353 (0)91 630050



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# Introduction



This document is intended for all RemLogic users and provides instructions about using the application to review and analyze physiological data collected using both Embla and Embletta® recorders.

It is assumed that the user has a basic knowledge of the Windows® environment, working with the mouse, using toolbars, and arranging windows. Sections typically begin with an overview of main features, followed by instructions in simple action steps.

# Warnings, Cautions, and Certifications

## Warnings and Cautions

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U.S. Federal law restricts this device to sale by, or on the order of, a physician.

It is assumed that the user is trained in the manual classification of sleep stages as described in the standard manual of Rechtschaffen and Kales and in the AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications before using the program.

It is assumed that the user is trained in the detection of specific events in sleep like apnea, hypopnea, and arousal before using the program. Special publications in the journal Sleep (1994) by the Atlas Task Force of the American Sleep Disorders Association (now [American Academy of Sleep Medicine](#)) can be consulted.

The user is assumed to know the characteristics of a signal and how to interpret spectral analysis.

The [computer assisted analysis](#) tools provided by RemLogic are intended to assist in the analysis of polysomnographic data by a physician or trained technologist. These tools are not intended to replace the physician or trained technologist. Users should always review and edit the results of computer assisted analyses to ensure accurate event marking.

RemLogic is intended to assist the physician or trained technologist in analyzing and reporting on data collected during sleep studies. However, users are solely responsible for all data collected, and are expected to assess and analyze this data to ensure its accuracy and completeness.

Do not install any third-party software on the computer running the RemLogic Software, unless approved by Embla. Please contact Technical Support ([Ottawa.TechSupport@natus.com](mailto:Ottawa.TechSupport@natus.com)) for information.



All RemLogic studies on patients with any co-morbidity such as congestive heart failure, hypertension, and/or moderate to severe pulmonary diseases, should be reviewed by a Sleep Medicine Physician.



RemLogic systems may be delivered with factory set passwords. It is our recommendation that you change your password in keeping with your company policy.



RemLogic systems are personal computer based with Windows operating systems. As such, they are subject to the same security risks as a personal computer. It is our recommendation that you use industry best practices in keeping your system up to date with regards to Operating System updates/patches and anti-virus solutions in line with the Exclusions, Policies, and Security Update Information for Embla Line Products (DOC-012422) documentation. Please contact Technical Support ([Ottawa.TechSupport@natus.com](mailto:Ottawa.TechSupport@natus.com)) for the latest guidelines.

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## Intended Use

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The RemLogic software is intended for Polysomnography studies and allows recording, displaying, analysis, printing and storage of physiological signals to assist in the diagnosis of various sleep disorders and sleep related respiratory disorders. The RemLogic software allows:

- Automated analysis of physiological signals that is intended for use only in adults;
- An optional audio/visual alert for user defined threshold on calibrated DC input. These alerts are not intended for use as life support such as vital signs monitoring or continuous medical surveillance in intensive care units.
- Sleep report templates which summarize recorded and scored sleep data using simple measures including count, average, maximum and minimum values as well as data ranges for trended values;

The RemLogic software does not provide any diagnostic conclusion about the patient's condition and is intended to be used only by qualified and trained medical practitioners, in research and clinical environments.

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## Certifications

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RemLogic is certified to carry the CE mark. The CE mark is a declaration that RemLogic is in compliance with the directive for medical devices set forth by the European Union.

The Embla Quality Management System complies with EN ISO 13485:2003.

RemLogic is manufactured by Embla Systems, a division of Natus Medical Incorporated.

Embla certifies that the development, manufacture, sales, and service of RemLogic is in conformity with Annex II of the Directive 93/42/EEC on medical devices.

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## Safety and Regulatory Information

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Before using RemLogic, please read this document carefully, paying particular attention to the caution or warning that appears with each safety symbol.



The CAUTION notice denotes a potential hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

# Getting Started

## System Requirements

Review the following hardware and software requirements before [installing or upgrading](#) to RemLogic 3.4.

### Desktop

Component	Minimum	Recommended
Operating System <i>Note: RemLogic is not supported on 64-bit editions of Windows XP.</i>  <i>Windows 7 64-bit is supported</i>	Windows XP Professional, SP3 Windows 7 Home Premium / Professional / Enterprise / Ultimate, SP1	Windows 7 Ultimate / Enterprise / Professional, SP1
Processor <i>Note: If you are using the Embla MDrive with a wireless collection, the recommended specification for the processor should be used.</i>	Intel® Dual Core processor	Intel Quad Core, i5 or higher processor
Clock Speed	≥2 GHz	≥3 GHz
Memory	2 GB	≥4 GB
Hard Drive	80 GB	≥500 GB
CD/DVD Drive	CD-RW , DVD+/- RW	DVD+/- RW
Graphics Resolution	1600 x 1050*	Highest Available*
	<i>*For AASM-compliant scoring, the minimum graphics resolution required is 1600 x 1050.</i>	
Graphics Memory	128 MB	≥512 MB
Monitor	19"	24" LCD Flat Panel
USB Port	2	≥4
Microsoft® Office™ Suite  <i>Note: RemLogic does not support 64-bit or Office 365 versions of Microsoft Office.</i>	Microsoft Office 2003 Professional  Update for Microsoft Office 2003 (KB907417)  Microsoft Office 2007  Microsoft Office 2010  Microsoft Office 2013  Microsoft Office 2016	Microsoft Office 2010  Microsoft Office 2013  Microsoft Office 2016

## Laptop

Component	Minimum	Recommended
<b>Operating System</b> <i>Note: RemLogic is not supported on 64-bit editions of Windows XP.</i>  <i>Windows 7 64-bit is supported</i>	Windows XP Professional, SP3 Windows 7 Home Premium / Professional / Enterprise / Ultimate, SP1	Windows 7 Ultimate / Enterprise / Professional, SP1
<b>Processor</b> <i>Note: If you are using the Embla MDrive with a wireless collection, the recommended specification for the processor should be used.</i>	Intel® Dual Core processor	Intel Quad Core, i5 or higher processor
<b>Clock Speed</b>	≥2 GHz	≥2.5 GHz
<b>Memory</b>	2 GB	≥4 GB
<b>Hard Drive</b>	80 GB	≥160 GB
<b>CD/DVD Drive</b>	CD-RW , DVD+/- RW	DVD+/- RW
<b>Graphics Resolution</b>	1440 x 990*	Highest Available*
	<i>*For AASM-compliant scoring, the minimum graphics resolution required is 1600 x 1050.</i>	
<b>Graphics Memory</b>	256 MB	≥ 512 MB
<b>Monitor</b>	15"	15"
<b>USB Port</b>	2	≥4
<b>Microsoft® Office™ Suite</b>  <i>Note: RemLogic does not support 64-bit or Office 365 versions of Microsoft Office</i>	Microsoft Office 2003 Professional Update for Microsoft Office 2003 (KB907417) Microsoft Office 2007 Microsoft Office 2010 Microsoft Office 2013 Microsoft Office 2016	Microsoft Office 2010 Microsoft Office 2013 Microsoft Office 2016

## Hardware

Hardware Device or Requirement	All Systems
Embletta Gold	One high-speed (16550 UART) serial port for each device One USB 1.1 port (laptops require a powered hub)
Embletta (Serial Communication)	One high-speed (16550 UART) serial port for each device One PS/2 port
Embletta USB (USB Communication)	One USB 1.1, 2.0 port (laptops may require a powered hub)
Embla titanium	One 10/100 Ethernet NIC (for network configuration) One USB 1.1, 2.0 port (for USB configuration) (additional NIC required for network connectivity)
Embla titanium (Wireless)	Linksys® USBBT100 or LM Technologies® LM541
MDrive™ (N7000 & S4500)	One 10/100 Ethernet NIC (for network configuration) (additional NIC required for network connectivity)
MDrive™ (Wireless)	IEEE 802.11g IEEE 802.11b
Video Capture for analog video systems	Winnov® Videum 1000 AV Plus (supports 32-bit operating systems only) StarTech USB S-Video and Composite Video Capture Cable with Audio (model SVID2USB2) (supports 64-bit operating systems only) Winnov 4100 AV (PCI) Winnov 4100 AV Xpress (PCIe) – 64-bit Operating system support
Photic Device	One high-speed (16550 UART) serial port per device (RemLogic 3.2) One USB 1.1, 2.0 port (RemLogic 1.3)
ResMed® Tx Link	One 10/100 Ethernet NIC (additional NIC required for network connectivity)
Embletta MPR	One USB 2.0 port (for configuration)
TX Proxy Unit	One USB 2.0 port (for configuration) One isolated sub-network connection for each patient bedroom with a connection to the existing network.

## Hardware Compatibility

- Embla S4500 (MDrive/Communication Unit)
- Embla N7000 (MDrive/Communication Unit)
- Embla titanium
- Embletta MPR
- Embletta Gold
- Embletta 128
- ResMed Tx Link

For additional firmware/device compatibility information, contact Technical Service at 888.662.7632 or at [Ottawa.TechnicalSupport@natus.com](mailto:Ottawa.TechnicalSupport@natus.com).

## Driver\*

*\*Not applicable to the License free version of RemLogic*

Component	All Systems
WebCamXP (for use with an IP camera)	5.5.0.8 and higher
Go to <a href="http://www.webcamxp.com/download.aspx">www.webcamxp.com/download.aspx</a> to download and obtain a license to use WebCamXP.	

## Firmware

Component	Firmware Included in RemLogic Install
Embla Communication Unit	FWCOM006-0114 Communication Unit firmware 1.3.3:104 or higher
Embletta Gold	FWCOM014-010300-B19 or higher
Embletta	FWCOM007-070400-B244 (Version 7.4, Build 244) or higher
Embla titanium	2010.02 or higher
Embla MDrive	FWCOM016-1.0.0.11 or higher
Embletta MPR	FWCOM020-1.2.0.9 or higher
Tx Proxy Unit	FWCOM021-1.2.0.7 or higher
ST/ST+ Proxy	FWCOM025-1.0.0.6 or higher

## Installing RemLogic

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The RemLogic 3.4 installation transparently upgrades RemLogic 1.2 (or higher) in the United States and 2.0 (or higher) in the rest of the world while retaining current software settings and resources. Any version prior to RemLogic 1.2/2.0 must be uninstalled before proceeding with the RemLogic 3.4 installation. The recording profiles that are delivered with RemLogic 3.4 must be used for customized profiles. For additional assistance, contact Technical Support at **888.662.7632** or [Ottawa.TechSupport@natus.com](mailto:Ottawa.TechSupport@natus.com).

RemLogic is compatible with most editions of Windows XP, and Windows 7 operating systems. RemLogic is also compatible with Microsoft Office 2003 Professional, Microsoft Office 2007 Professional, Microsoft Office 2010, Microsoft Office 2013, and Microsoft Office 2016 (Microsoft Office 32-bit only). For more information about compatibility, see [System Requirements](#).



Note: If you are running Windows 7 and see the User Account Control message while installing Embla software, click **Continue** or **Allow** to continue the installation.

### Getting Started

Log into Windows with administrator privileges, and have the RemLogic 3.4 Installation CD ready.

### Verifying and Installing Prerequisites

#### To verify and install prerequisite components:

1. Close all programs, and log on with administrator privileges.
2. Insert the RemLogic 3.4 installation CD into the CD/DVD drive.
3. On the welcome screen, click **Check Prerequisites**. A green "✓" displays to the left of components included in the installation.
4. Missing components display a red "x" to the left, and an **Install Now** link displays to the right.
5. Click **Install Now**, and follow the setup instructions to install missing components.
6. Repeat this procedure for all missing prerequisite components. You might need to restart the computer during or following the installation process.

### Installing RemLogic 3.4



Note: The recording profiles that are delivered with RemLogic 3.4 must be used for customized profiles. For assistance, contact Technical Support at **888.662.7632** or [Ottawa.TechSupport@natus.com](mailto:Ottawa.TechSupport@natus.com).

#### To install RemLogic 3.4:

1. Close all programs, and log on with administrator privileges.
2. Insert the RemLogic 3.4 Installation CD into the CD/DVD drive.
3. Click Install RemLogic 3.4.

4. The RemLogic Installation wizard displays. Do one of the following:
  - If you are installing RemLogic 3.4, and not upgrading from an earlier version of RemLogic, click **Next**.
  - If you are upgrading from an earlier version of RemLogic, click **Next**, then proceed to the [second bullet of Step 6](#).
5. On the Choose Setup Type screen, click one of the following installation options, then click **Next**:
  - **Typical**: Installs features required to acquire, score, analyze, and report PSG data and tools for managing recorded data.
  - **Complete**: Installs all program features. This option requires the most space on the hard drive.
  - **Custom**: Allows you to customize the installation, and add or remove install components. See [Installation Components](#) for additional details.
6. Note one of the following:
  - If you selected **Typical** or **Complete**, proceed to [Step 7](#).
  - If you selected **Custom**, or are proceeding from step 4, click the arrow to the left of the install components you want to add or remove, then select one of the following options:
    - **Will be installed on local hard drive**. Select this option to install the feature only.
    - **Entire feature will be installed on local hard drive**. Select this option to install the feature and all sub-features.
    - **Entire feature will be unavailable**. Select this option to remove a component.
7. Click **Next**.
8. Click **Install**.
  - **Windows XP Users**: During the Embla titanium software support installation, a warning message (indicating that the drivers have not yet passed Windows Logo Testing) displays twice. To proceed, click **Continue Anyway**.
  - **Windows 7 Users**: During the Embla titanium software support installation, a warning message (indicating that Windows cannot verify the publisher of the driver software) displays twice. To proceed, click **Install this driver anyway**.
9. Click **Finish** to exit the Installation wizard.
10. Click **Exit** to close the Welcome screen.
11. Restart the computer to complete the installation.

## Installation Components

### Licensing

The following are included in the custom or complete installation:

	United States License	International License	Licensed	License Free
CSB Analyzer		X	X	
CAP Scoring Assistant		X	X	
Data Management Module	X	X	X	X
Photic	X	X	X	
ResMed Tx Link	X	X	X	
Embla titanium	X	X	X	
Demonstration Device	X	X	X	
Generic Data Export	X	X	X	
Event Import	X	X	X	
Scoring Export	X	X	X	
Designer Plug-In for Microsoft Office	X	X	X	X
Inter-Scorer Comparison	X	X	X	X
Phase View	X	X	X	
Timer	X	X	X	
REMbrandt™ Viewer	X	X	X	X

### Reports

The following reports are also part of the custom or complete installation:

	United States License	International License	Licensed	License Free
CAP Report		X	X	
Compare Scorings	X	X	X	
EEG	X	X	X	
HRV Report	X	X	X	X
Hypnogram Report	X	X	X	
MWT Report	X	X	X	
Oximetry Report	X	X	X	X
Oxygen Titration Report	X	X	X	

	United States License	International License	Licensed	License Free
PLM Report	X	X	X	X
Sleep Stage Report	X	X	X	X
Sleep Statistics Report	X	X	X	
Summary Graph	X	X	X	X

The following reports are a part of a typical installation:

	United States License	International License	Licensed	License Free
Event Report	X	X	X	X
HRV Statistics - Comments	X	X	X	
MSLT and MWT Reports	X	X	X	
Pediatric Polysomnography Report	X	X	X	
Polygraphy Report	X	X	X	X
Polysomnography Report	X	X	X	
ResMed Device Report	X	X	X	X
Short Polygraphy Report	X	X	X	X
Short Polysomnography Report	X	X	X	
Split Night Report	X	X	X	
Summary Graph	X	X	X	X
Technote Report	X	X	X	X
Titration Report PSG	X	X	X	X

## Post-Installation Optimization for Windows 7\*

*\*Applicable to the Licensed version of RemLogic Only*

The following post-installation steps optimize the Windows 7 operating systems for use with RemLogic 3.4. You can grant auto-archive folder access to all users or one or more specific users, and preserve your custom settings from the software version from which you are upgrading.

### Granting Auto-Archive Folder Access\*

#### To grant folder access to all users:

1. Close all programs, and log on with administrator privileges.
2. Click **Start**, right-click **Network**, then click **Properties**.

3. Enable file sharing:
  - a. Under Sharing and Discovery, expand **File sharing**.
  - b. Click **Turn on file sharing**, then click **Apply**.
4. Disable password protected sharing:
  - a. Expand **Password protected sharing**.
  - b. Click **Turn off password sharing**, then click **Apply**.
5. Disable the Windows Firewall:
  - a. In the left pane, under See also, click **Windows Firewall**.
  - b. Click **Change settings**.
  - c. Click **Off**, then click **OK**.
6. Navigate to the destination folder.
7. Right-click the folder, then select **Share**.
8. Do one of the following:
  - a. To grant access to all users, select **Everyone (All users in this list)** from the list, then click **Add**.
  - b. To grant access to a specific user, select a user from the list, then click **Add**.
9. Under Permission Level, click **Reader**, then select **Full Control**.
10. Click **Share**.
11. Click **Done**.

## Starting and Closing RemLogic

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To open RemLogic, do one of the following:

- Double-click the RemLogic desktop icon .
- From the Windows start menu, select **Programs | Embla | RemLogic**.

To close RemLogic, do one of the following:

- Click the  in the upper-right corner of the application window.
- On the **File** menu, click **Exit**.

RemLogic is designed for easy access to the data acquisition and [analysis tools](#). The [work environment](#) can be divided into two main areas: the Workspace area on the left and the Workpad area on the right.

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## Daylight Savings Adjustment\*

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*\*Applicable to the Licensed version of RemLogic Only*

Disable automatic daylight savings adjustments on the host computer if it will occur during a study's recording time. After the study, enable the daylight savings adjustment on the host computer, and RemLogic's clock will automatically adjust.

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## License Management

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You can [activate](#), [renew](#), and [return](#) your RemLogic license using the Embla License Wizard. When you want to [renew](#) or [return](#) your RemLogic license, you can manually launch the wizard from the **About** dialog.

### Activating a RemLogic License

You must activate your RemLogic license once the RemLogic software has been installed. Have the serial number provided with the install package ready.

#### To activate the RemLogic license:

1. Do one of the following:
  - If you are running Windows XP, click **Start**, point to **Programs**, point to **Embla**, then click **Embla License Wizard**.
  - If you are running Windows 7, click **Start**, click **All Programs**, click **Embla**, then click **Embla License Wizard**.
2. Enter the 28-digit serial number provided with your install package.
3. Enter your organization name, then click **Next**.
4. Do one of the following:
  - **To activate your license over the Internet:**
    - Click **Over the Internet**, then click **Next**.
  - **To activate your license by phone:**
    - a. Click **By telephone via support personnel**, then click **Next**.
    - b. Select your location from the list, and have the activation request code at the bottom of the wizard page ready.
    - c. Call Technical Support using the numbers on the page and provide the activation request code. Click **Next**.
    - d. Type the authorization code provided by Technical Support, then click **Next**.

- **To activate your license by email:**
  - a. Click **By email**, then click **Next**.
  - b. Click the email link to open your default email client. The activation request code at the bottom of the wizard page is present in the message body. Click **Send**. You will receive a confirmation email with the authorization code.
  - c. Type the authorization code, then click **Next**.
- 5. Click **Finish**.

## Renewing a RemLogic License

By renewing your license, you can extend the license period.

### To renew a RemLogic license:

1. On the **Help** menu, click **About**.
2. Click **License**.
3. Click **Manage**.
4. Click **Renew RemLogic license**, then click **Next**.
5. Select your location from the list, and have the renewal request code at the bottom of the wizard page ready.
6. Call Technical Support using the numbers on the page and provide the activation request code. Click **Next**.
7. Type the authorization code provided by Technical Support, then click **Next**.
8. Click **Finish**.

## Licensed Components

The type of license you purchased determines the license period, as well as components and functionality available in the application. The following table outlines licensed components and corresponding workflow tasks.

Licensed Component	Tasks
CAP/CSB <i>This feature is currently unavailable in the United States.</i>	<ul style="list-style-type: none"> <li>• Perform CAP and CSB analyses.</li> <li>• Create CAP reports.</li> </ul>
Pleth <i>This feature is currently unavailable in the United States.</i>	<ul style="list-style-type: none"> <li>• Marks autonomic arousal events</li> <li>• Generates the Pleth Amplitude optional trace displaying peak-to-peak amplitude of each waveform in the Pleth Trace.</li> <li>• Optionally generates artifact events</li> </ul>

Licensed Component	Tasks
Scoring Assistant <i>This feature is currently unavailable in the United States.</i>	<ul style="list-style-type: none"> <li>Stages sleep according to current scoring guidelines</li> </ul>
Video Acquisition	<ul style="list-style-type: none"> <li>Record video with a video acquisition device.</li> </ul>
Online PSG	<ul style="list-style-type: none"> <li>Record online using the Embla S4500, Embla N7000, and Embla titanium amplifiers.</li> </ul>
Online Embletta	<ul style="list-style-type: none"> <li>Record online using the Embletta, Embletta Gold, and Embletta MPR.</li> </ul>
EEG	<ul style="list-style-type: none"> <li>Perform routine EEG procedures using the Photic Controller toolbar.</li> <li>Create EEG reports.</li> </ul>

#### To see a list of currently licensed components:

1. On the **Help** menu, click **About**.
2. Click **License**.
3. Under Optional Components, note the selected boxes. These components are licensed.

To add or remove licensed components, see [Returning a RemLogic License](#).

## Returning a RemLogic License

You must return your RemLogic license, or transfer your license to another computer, to add or remove [licensed components](#).

#### To return a RemLogic license:

1. On the **Help** menu, click **About**.
2. Click **License**.
3. Click **Manage**.
4. Depending on the software installed, click either **Return RemLogic license** or **Return RemLogic-e license**, then click **Next**.
5. Do one of the following:
  - **To deactivate your license over the Internet:**
    - Click **Over the Internet**, then click **Next**.
  - **To deactivate your license by phone:**
    - a. Click **By telephone via support personnel**, then click **Next**.
    - b. Select your location from the list, and have the activation request code at the bottom of the wizard page ready.
    - c. Call Technical Support using the numbers on the page, and provide the serial number and license code when prompted. Click **Next**.

- **To deactivate your license by email:**
    - a. Click **By email**, then click **Next**.
    - b. Click the email link to open your default email client. The activation request code at the bottom of the wizard page is present in the message body. Click **Send**. You will receive a confirmation email.
6. Click **Finish**.
  7. Do one of the following:
    - If you are transferring a license to another computer, install RemLogic on the new computer, and have the serial number provided with the install package ready. See [Activating a RemLogic License](#) for instructions.
    - If you are adding or removing licensed components, contact Technical Support for information. You will receive a new serial number to activate RemLogic. See [Activating a RemLogic License](#) for instructions.

## Recording Device Setup

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Recording devices and components can be installed and configured to work seamlessly with RemLogic.

For device installation instructions and information, refer to the respective clinical manual for each device.

### Automatic Detection of New Embletta or Embletta Gold Devices

By default, the [Device Manager](#) automatically detects recording devices when they are connected to the computer. This setting can be modified in the Options dialog.

#### To activate/deactivate automatic device detection:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Advanced**.
3. Do one of the following:
  - To detect new devices and refresh the device status automatically, select the **Detect new devices and refresh device status automatically** check box. When this option is selected, the Device Manager automatically recognizes new devices, activates the Device Wizard, and updates the status of devices.
  - To manually add devices and refresh the device status, clear the **Detect new devices and refresh device status automatically** check box.

### Installing the Embletta Device Driver

Installing a USB device driver is required to allow the operating system to communicate with Embletta devices. When an Embletta device is connected to the computer with the USB download cable for the first time, you will be prompted for a device driver for the new device. Although the device driver is installed with the software used to program the Embletta, the driver requires activation for each connected device and for each unique USB connection to the computer.

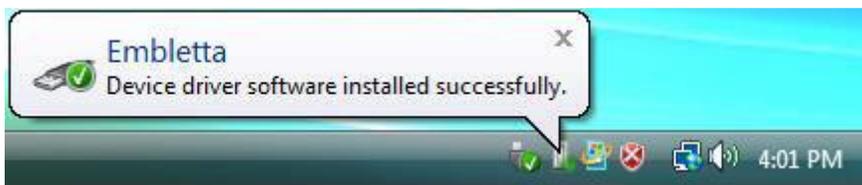
## Windows 7

### To complete the installation of the device driver:

- Connect the Embletta device to a USB port on the computer. The arrow on the cable device connector should face the front. Windows 7 detects the device, and displays the following message:



After the device automatically installs, the following message displays:



The Embletta device can now be used with the system.

## Windows XP Professional

### To complete the installation of the device driver:

1. Connect the Embletta device to a USB port on the computer. The arrow on the cable device connector should face the front. Windows XP detects the device, and displays the following message:



2. In the Found New Hardware Wizard, select **Yes, this time only**, then click **Next**.
3. Select **Install the software automatically**, then click **Next**.
4. Click **Finish**.

The Embletta device can now be used with the system.

## **Installing the Embletta**

Before a recording can be programmed with an Embletta recorder, the device must be introduced to the application. This introduction is automated with the assistance of the New Device Wizard.

### To install an Embletta device:

1. Open RemLogic.
2. Connect the USB/Download Cable to the computer.

3. Connect an Embletta to the USB/Download Cable. The New Device Wizard automatically detects the device.
4. Click **Next** to continue.
5. Select the Embletta device, then click **Next**.

Device Type	Model	Serial Number	Connection
 Embletta	Embletta	F551048-EB2	USB0004

6. Type a name for the new device, then click **Next**. An overview of device properties displays.
7. Click **Finish** to close the wizard.

An Embletta icon  with the name provided displays in the [Device Manager](#), to the left of the [Operations Sheet](#).



Note: To record online using the Embla S4500, Embla N7000, Embletta, Embletta MPR, and Embla titanium amplifiers, you must activate the [Online PSG license component](#). See [License Management](#) for more information.

## Installing the Embletta Gold

Before a recording can be programmed with an Embletta Gold, the device must be introduced to the application. This introduction is automated with the assistance of the New Device Wizard.

### To install the Embletta Gold:

1. Open RemLogic.
2. Connect the USB/Download Cable to the computer.
3. Connect the Embletta Gold to the USB/Download Cable. The New Device Wizard automatically detects the device.
4. Click **Next** to continue.
5. Select the Embletta Gold device, then click **Next**.

Device Type	Model	Serial Number	Connection
 Embletta Gold	Embletta Gold EBG	C0813001-EBG	USB0004

6. Type a name for the new device, then click **Next**. The device properties summary displays.
7. Click **Finish** to close the wizard.

An Embletta Gold icon  with the name provided displays in the [Device Manager](#), to the left of the [Operations Sheet](#).



Note: To record online using the Embla S4500, Embla N7000, Embletta, Embletta MPR, and Embla titanium amplifiers, you must activate the [Online PSG license component](#). See [License Management](#) for more information.

## Installing a Power Embla Device\*

\*Not available with the License free version of RemLogic

Power Emblas include the Embla N7000 and Embla S4500 devices.

After a Power Embla device is connected, the device can be installed in RemLogic. Refer to the appropriate clinical manual (located on the RemLogic installation CD) for detailed information about how to connect the system units:

- Embla N7000 Clinical Manual
- Embla S4500 Clinical Manual

### To install a Power Embla device:

1. Open RemLogic.
2. Open the [Device Manager](#).
3. On the Device Manager bar, click **Devices**, then click **Add Device**.



The New device wizard displays.

4. Select **Automatically scan for new devices**, then click **Next**.
5. The wizard displays a list of the Embla systems that were detected on the network. Select the device you want to add, then click **Next**.

Device Type	Model	Serial Number	Connection
Embla CU	CU	F230041-CU-0100	192.168.145.36
Embla CU	CU	F260043-CU	192.168.145.37

6. Type in a name for the new device, then click **Next**.
7. Click **Finish** to complete the installation.

An Embla Bedside Unit icon with the provided name displays in the [Device Manager](#), to the left of the [Operations Sheet](#). To view the properties of the Communication Unit / MDrive, right-click the Bedside Unit icon, then click Properties. For more information, see Communications Unit / MDrive Properties in the following location in the RemLogic online help: **Getting Started | Recording Device Setup | Power Embla**.

## Installing the Embletta MPR

To begin using the Embletta MPR device, you must first configure the device for use. To allow the use of the Embletta MPR PG in conjunction with the TX Proxy Unit (for online or ambulatory recordings) the two devices need to be configured to communicate to each other. Refer to the Embletta MPR Clinical Manual for details on how to pair two devices to communicate with each other.

Before a recording can be programmed with an Embletta MPR, the device must be introduced to the RemLogic application.

### To install the Embletta MPR:

1. Open RemLogic.

2. Do one of the following:

If you are collecting	Then
Ambulatory Studies	Connect the USB cable to the Embletta MPR.
Online Studies	Pair the Embletta MPR with a TX Proxy Unit using the Configuration tool, and ensure the TX Proxy Unit is connected to the Local Area Network (LAN) of the recording computer.

3. Open the [Device Manager](#).

4. On the Device Manager bar, click **Devices**, then click **Add Device...**



The New device wizard displays.

5. Select **Automatically scan for new devices**, then click **Next**. The wizard displays a list of devices detected on the network.

6. Select the device, then click **Next**.

Device Type	Model	Serial Number	Connection
Embletta MPR	Embletta MPR	EBM-C1000003	USB
Embletta MPR	TX Proxy	TX-C1000014	Ethernet

- If collecting an ambulatory study or if you plan to download data from the device, select the Model type of Embletta MPR.
- If collecting an online study, select the Model type of TX Proxy.

Type a name for the device, then click **Next**.

7. Click **Finish** to complete the installation.

An Embletta MPR icon with the name provided displays in the [Device Manager](#), to the left of the [Operations Sheet](#).



Note: To record online, you must connect the Embletta MPR to the TX Proxy Unit wirelessly and activate the [Online PSG license component](#). See [License Management](#) for more information.

## Installing the Embla titanium\*

*\*Not available with the License free version of RemLogic*

The Embla titanium is a PSG signal amplifier with an integrated LCD screen for signal display, impedance checking, and patient data entry. Embla titanium is connected to the local area network (LAN) and RemLogic through an Ethernet cable or wirelessly through a Bluetooth adapter. Information about both methods is presented below.

### Installing the Embla titanium through Ethernet Cable\*

#### To install the Embla titanium:

1. Open RemLogic. If it detects the new Embla titanium, the New Device Wizard automatically opens and displays a list of Embla devices it detects on the network.
2. Select the device, then click **Next**.

Device Type	Model	Serial Number	Connection
 Embla titanium	Embla PS 1	EPS-0013/01...	COM3

3. Type a name for the device, then click **Next**.
4. Click **Finish** to complete the installation.

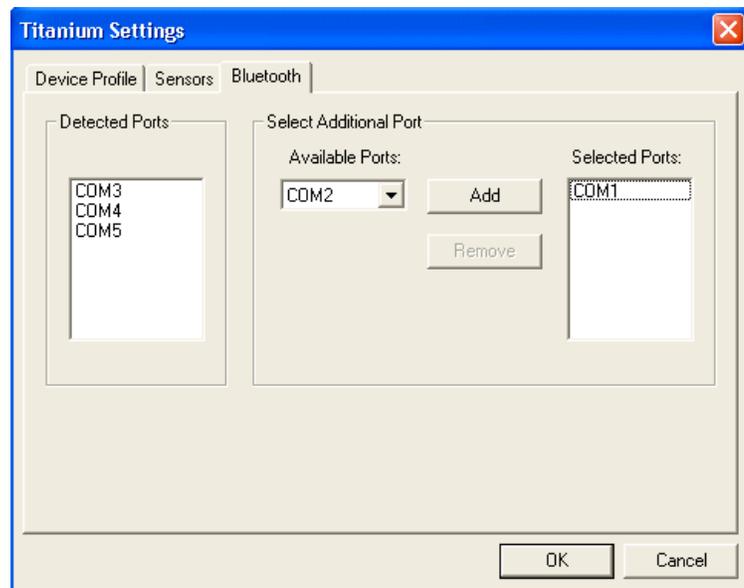
An Embla titanium icon  with the name provided displays in the [Device Manager](#), to the left of the [Operations Sheet](#).

### Installing the Embla titanium through the Bluetooth Adapter\*

Before installing the Embla titanium wirelessly, you must connect the Bluetooth adapter to RemLogic. For information about installing a Bluetooth adapter, see [Bluetooth Adapter \(Embla titanium\)](#).

#### To install Embla titanium:

1. Open RemLogic.
2. Ensure the Embla titanium is connected to the collecting computer through the Bluetooth serial link.
3. In the [Device Manager](#), select **Device | Settings | Embla titanium**.
4. In the Titanium Settings dialog box, select the **Bluetooth** tab.
5. In the Select Addition Port section, confirm the port for the Bluetooth is listed in the **Detected Ports** list. If it is not, complete the following steps:
  - From the **Available Ports** drop-down list, select the port for the Bluetooth.
  - Click **Add** to move the port for the Bluetooth to the Selected Ports list.
6. Click **OK** to close the Titanium Settings dialog box. If it detects the new Embla titanium device, the New Device Wizard opens.
7. Click **Next** in the first page of the New Device Wizard.
8. From the list of detected Embla devices, select **Embla titanium**, then click **Next**.



9. Type a name for the device (for example, Wireless titanium), then click **Next**.
10. Click **Finish** to complete the installation.



Note: A warning message will indicate the Embla titanium drivers have not yet passed Windows Logo Testing. Click **Continue Anyway** to proceed.

## Installing the Bluetooth Adapter\*

*\*Not available with the License free version of RemLogic*

RemLogic can communicate with the Bluetooth-enabled Embla titanium amplifier through a wireless connection to configure, initiate, and complete online recordings. A Bluetooth adapter is required to establish a wireless connection. The Linksys USBT100 and the LM Technologies LM541 Bluetooth adapters are supported for using the Embla titanium in a wireless configuration.



Note: The Embla titanium requires firmware version 2010.02 to be compatible with RemLogic 3.4 and higher.

In optimum conditions, Bluetooth technology works within a range of 30 feet. Physical obstacles (such as metal and walls) or radio interference from nearby electrical equipment (such as wireless LAN devices and cordless phones) can affect performance.

You can install the Linksys USB and the LM Technologies Bluetooth Adapters on computers with Windows XP and Windows 7 operating systems. Instructions for installing the Bluetooth adapter on the Windows operating systems are included below.

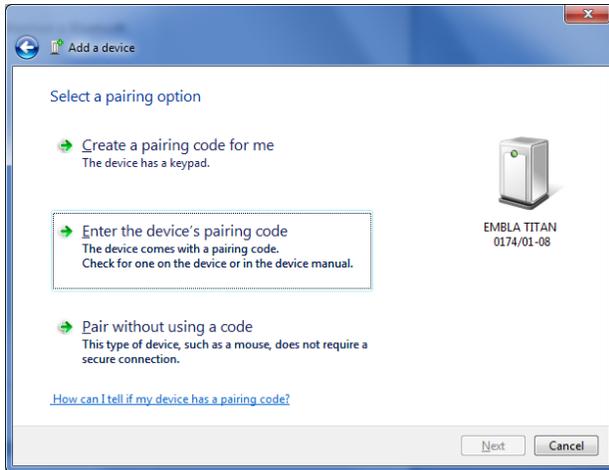
After a wireless connection is established between the computer and the Bluetooth adapter, you can install the Embla titanium on RemLogic through the Bluetooth adapter. For more information, see [Installing the Embla titanium through the Bluetooth Adapter](#).

### Installing the Bluetooth Adapter (Windows XP, Windows 7)\*

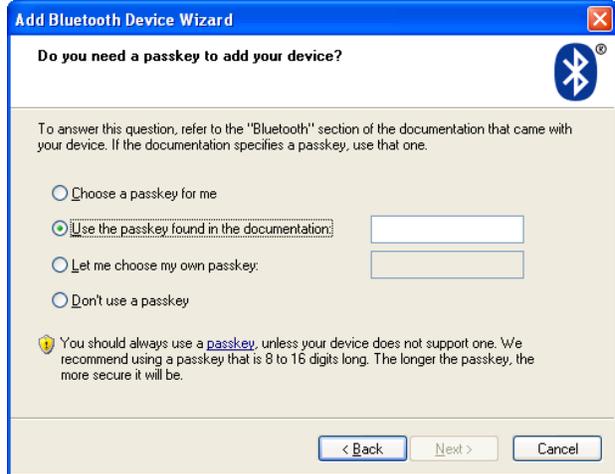
Follow the directions below to install the Bluetooth adapter on Windows operating systems.

1. Insert the Bluetooth adapter into the USB port of the computer.
2. Windows automatically installs the required Bluetooth driver. After installation, Windows displays a Bluetooth icon in the task bar.
3. Search for the Embla titanium device by completing the following steps:
  - a. Ensure the titanium device is turned on, and the radio is active.
  - b. Right-click the Bluetooth icon  in the system tray, then select **Add a device**.
4. Pair the devices by completing the following steps:
  - a. Choose the option to pair by entering the device's pairing code.



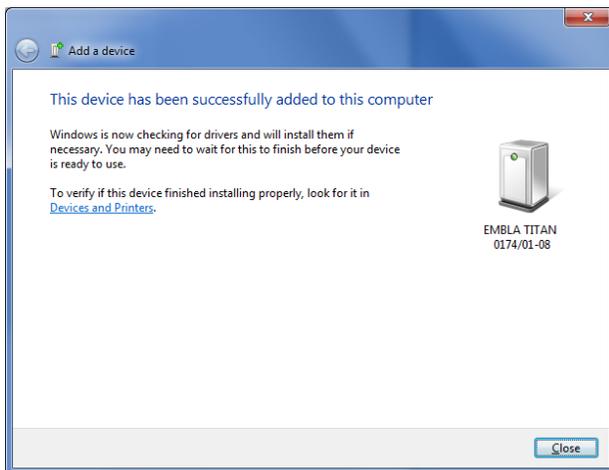


Windows 7



Windows XP

- b. When prompted, type passkey 0000 to authenticate the connection.
- c. Once the pairing is successful, the following message displays:



Windows 7



Windows XP

- d. Click **Close** or **Finish**.

After a wireless connection is established between the computer and the Bluetooth adapter, you can install the Embla titanium on RemLogic through the Bluetooth adapter. For more information, see [Installing the Embla titanium through the Bluetooth Adapter](#).

## Installing ResMed Tx Link\*

*\*Not available with the License free version of RemLogic*

The ResMed Tx Link is added with the complete or custom installations of RemLogic 3.1 or higher. You can add Tx Link as a composite device with any amplifier listed below, or it can operate as a stand-alone device. It is compatible with the following Embla amplifiers:

- Embletta (online mode only)
- Embletta Gold (online mode only)

- Embla titanium (online mode only)
- MDrive (with an Ethernet connection to the LAN)
- Embla communication units
- Embletta MPR (online mode only – [ResMed Therapy Device Setting disabled](#))

The ResMed Tx Link must be connected to the same local area network (LAN) as the recording computer. You must install the ResMed Tx Link through a complete or custom installation of RemLogic. Additionally, ResMed EasyCare Tx software, version 3.0 or higher, is required to use Tx Link.



Tip: RemLogic communicates with all Tx Link devices connected to the same computer network. If multiple Tx Link devices are installed on the same network, it is recommended that each patient bedroom is isolated with a single subnet.

Before adding a new device, ensure the device is connected to the acquisition computer and the Device Manager is open:

- On the **View** menu, point to **Workspace**, then click **Devices**.

#### To install the ResMed Tx Link:

1. Open RemLogic.
2. Open the [Device Manager](#).
3. On the Device Manager bar, click **Devices**, then click **Add Device**.



The New device wizard displays.

4. Click **Automatically scan for new devices**, then click **Next**. New device items are listed under Device Type. Each new device is identifiable by its name (device type), model, serial number, and connection IP address.

Device Type	Model	Serial Number	Connection
Tx Link Device	Tx Link Device	20091444447	10.31.31.70
MDrive	MD	MD-C1000001	10.31.31.44
MDrive	MD	MD-C1000007	10.31.31.87
Embla Commu...	CU	C0611019-CU	10.31.31.65

5. Select **Tx Link Device**, then click **Next**.
6. Type a name for the device you are adding, then click **Next**.
7. Click **Finish** to complete the wizard.

A PAP icon with the name you provided displays in the [Device Manager](#), to the left of the [Operations Sheet](#).



Note: Tx Link is available only if a ResMed therapy device is attached to it.

## Installing the MDrive\*

\*Not available with the License free version of RemLogic

The MDrive is a PSG signal amplifier with an integrated LCD screen for signal display and impedance checking. It is compatible with the following Embla bedside units:

- S4500
- N7000

RemLogic 3.4 and higher can control several MDrive functions. For more information, see [Controlling the MDrive with RemLogic](#).

### To install the MDrive:

1. Open RemLogic.
2. [Open the Device Manager](#).
3. On the Device Manager bar, click **Devices**, then click **Add Device**.



The New device wizard displays.

4. Select **Automatically scan for new devices**, then click **Next**. The wizard displays a list of devices detected on the network.
5. Select the device, then click **Next**.

Device Type	Model	Serial Number	Connection
 MDrive	MD	C100007-MD	10.41.41.48

6. Type a name for the device, then click **Next**.
7. Click **Finish** to complete the installation.

An MDrive icon  with the name provided displays in the [Device Manager](#), to the left of the [Operations Sheet](#). To view the properties of the MDrive device, right-click the MDrive icon, then click Properties. For more information, see *MDrive Properties* in the following location in the RemLogic online help: **Getting Started | Recording Device Setup | MDrive**.



Note: A warning message indicates the Embla MDrive drivers have not yet passed Windows Logo Testing. Click **Continue Anyway** to proceed.



Note: To record online using the Embla S4500, Embla N7000, Embletta, Embletta MPR, and Embla titanium amplifiers, you must activate the [Online PSG license component](#). See [License Management](#) for more information.



Note: An MDrive cannot be deleted from RemLogic while it is in use.

## Installing a Video Capture Device\*

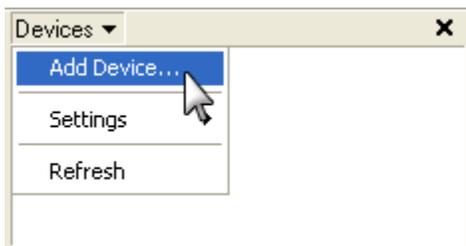
*\*Not available with the License free version of RemLogic*

You can add and configure a video camera for use with RemLogic. Before adding a video capture device in RemLogic, it must be connected to the acquisition computer. Follow the instructions that came with the video capture device to install it and the necessary applications.

### Installing a Video Capture Device\*

#### To install a video capture device:

1. Open RemLogic.
2. Open the [Device Manager](#).
3. On the Device Manager bar, click **Devices**, then click **Add Device**.



The New device wizard displays.

4. Select **Automatically scan for new devices (Recommended)**, then click **Next**. The New Device Wizard searches for available acquisition devices.
5. From the list of device types, select a video capture device and click **Next**. Selecting the default video device is not recommended (the recommended device connection is Wavelength Division Multiplexing (WDM)).

Device Type	Model	Serial Number	Connection
Video Capture	Default_Video_Device	N/A	WDM
Video Capture	Integrated Webcam	N/A	WDM
Video Capture	IP Camera [JPEG/MJPEG]	N/A	WDM
Embla MPR	TX P...	TX C1000301	Embla

7. Type a descriptive name for the video capture device, then click **Next**.
8. Click **Finish** to complete the New Device Wizard.

A video device icon  with the new name displays in the [Device Manager](#) to the left of the [Operations Sheet](#). To view the properties of the video capture device, right-click the video icon,

then click **Properties**. It is important to properly configure the video properties before starting a recording. For more information, see *Video Properties* in the following location in the RemLogic online help: **Collecting Data | Video Capture**.

It is not possible to record with a video capture device without recording traces. The video capture device must be combined with a recording device by creating a composite device. See [Installing a Composite Device](#).

Contact [Technical Support](#) for additional information on setting up and configuring the video capture devices.

## Installing a Photic Device\*

*\*Not available with the License free version of RemLogic*

The photic stimulator is a solid-state electronic device for generating short duration flashes of white light. In an EEG, this is used to assess a patient's photosensitivity—in other words, sensitivity to flashing lights.

### To install a photic device:

1. Open RemLogic.
2. Open the [Device Manager](#).
3. Connect the photic lamp to the computer's COM port or a simulated COM port (through Ethernet connection or USB port) using the serial cable.
4. On the Device Manager bar, click **Devices**, then click **Add Device**.



5. Click **Manually add a new device**, then click **Next**.
6. Click **Photic Device**, then click **Next**.
7. From the **COM Port** list, select a communication port, then click **Next**.
8. Enter a name for the device (for example, Photic Device), then click **Next**.
9. Click **Finish**.

## Installing a Composite Device\*

*\*Not available with the License free version of RemLogic*

A composite device is composed of more than one device (for example, Embla S4500 and video capture device), and must be manually added using the New Device wizard.

### To install a composite device:

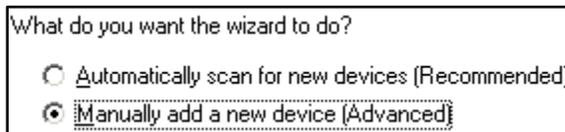
1. Open RemLogic.
2. Open the [Device Manager](#).

- On the Device Manager bar, click **Devices**, then click **Add Device**.



The New device wizard displays.

- Select **Manually add a new device (Advanced)**, then click **Next**.



- From the list of device types, select **Composite Device**, then click **Next**.



- Click **Add**.
- Select one of the available devices (for example, Embla), then click **OK**.
- Click **Add** again, then select an additional device (for example, video).
- Click **OK**.
- Type in a descriptive name for the new device (for example, Embla 2 with Video), then click **Next**.
- Click **Finish** to complete the wizard.

A composite device icon  with the new name displays in the [Device Manager](#) to the left of the [Operations Sheet](#). To view the properties of the composite device, right-click the device, then click **Properties**.

## Device Settings

### Setting the Download Options

Ambulatory studies recorded with the Embletta, Embletta Gold, Embletta MPR and Embla titanium units have the option of setting the download options when setting up the device. This helps with downloading recorded studies and transferring study data to a central network or local location. To view the methods available for download, see [Downloading Data](#).

**To access the download settings for your ambulatory device:**

- On the **View** menu, point to **Workspace**, then click **Devices**.
- On the **Device Manager** bar, select **Devices | Settings | [Ambulatory Device Name]**.

3. Select the **Options** tab and modify to your desired configuration according to the table below.

Available Option	Description
Download Data Location	A text data field which contains a list of available data locations in RemLogic. When a study is downloaded, the study files will be saved to this data location. The default data location is C:\RemLogic Recordings.
Transform to EDF format	If this item is checked, each downloaded study will be transformed to EDF format and saved.
	 <p>Note: If this option is selected, all button events will be lost upon download and conversion.</p>
Erase data from device after download	If this item is checked, the study will be removed from the device storage after it has been downloaded.
Transfer downloaded data	If this item is checked, all downloaded data files will be transferred to a central location automatically. The central location can be a file folder on local machine, network, or on a FTP server. The following options become available:
Network/Local location	Specifies the path of the transfer destination. This text field can be populated with the button on the right that displays a folder selection dialog and returns with a user selected folder.
FTP site / User Name/Password	Specifies an FTP site as the transfer destination. From here you can enter your User Name which is your FTP account name. As well, you can enter your Password. A "*" is displayed in the UI for each character that is entered.
Coded folder name	If this item is selected, the study will be transferred into a folder that is named with a numerical string rather than a patient's name. See <a href="#">Coded Folders</a> for additional information.

Available Option	Description	
	Human-readable folder name	<p>If this item is selected, the study will be transferred into a folder that is named in a format that is defined in the text box located on the right. The four buttons on the bottom of this dialog can insert a formatting string into the format text box on the above line. The formatting string will be added to the box in the order they are selected, but in reverse order. For example, to get the following string "{Last Name}, {First Name} {DD-MM-YY} [{Patient ID}]" you must select the Patient ID first, then the Start Time, Then the First Name, and finally the Last Name.</p> <p>The following characters are not permitted in this data field '\', '/', ':', '*', '?', '"', '&lt;', '&gt;', ' '. See <a href="#">Human-Readable Folders</a> for further information.</p>
Delete local copy after successful transfer	If this item is checked, the downloaded study files will be deleted from the local download data location after they are transferred. This option is only available when the <b>Transfer downloaded data</b> check box is checked.	

### Embletta

In the Embletta Device Type Settings dialog box, you can edit Embletta proxy labels and select proxies used in the Recording Wizard. You can also indicate whether you want to use start and stop times from the last ambulatory study. If the start time would occur in the past, RemLogic adjusts the date that displays in the Recording Wizard to the next date in the future with the desired time.

#### To modify the Embletta device type settings:

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta** to open the **Embletta Device Type Settings** dialog box.
3. To modify the proxy label in the **Proxies** tab:
  - a. Click the proxy, then click **Edit**.
  - b. Type a new label description, then click **OK**.
4. To make a proxy available in the Recording Wizard, select its check box.
5. To omit a proxy from the Recording Wizard, clear its check box.
6. Click **OK**.

#### To use the start and stop times from the last ambulatory recording:

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta** to open the **Embletta Device Type Settings** dialog box.

3. Click the **Recording** tab.
4. Select the **Use last ambulatory study time setup** check box.
5. Click **OK**.

### Embletta Gold

In the Embletta Device Type Settings dialog box, you can add, edit, or delete sensor definitions for the differential pressure sensor and a variety of DC sensors. You can also indicate whether you want to use start and stop times from the last ambulatory study. If the start time would occur in the past, RemLogic adjusts the date that displays in the Recording Wizard to the next date in the future with the desired time. Additionally, studies with multiple sessions display with the same between sessions as the previous study.

#### To add or edit an Embletta Gold sensor definition:

1. On the **View** menu, point to **Workspace**, and then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta Gold**.
3. Do one of the following:
  - Click the sensor definition on which you want to base the new definition, then click **New**.
  - Click the sensor definition you want to edit, then click **Edit**. Proceed to step 6.
4. In the **Name** box, enter a name for the sensor.
5. Do one of the following:
  - If this definition is for a DC sensor, click **DC**.
  - If this is definition is for a differential pressure sensor, click **Differential Pressure**.
6. Configure the sensor properties according to the following table:

To	Do This
Modify the unit displayed.	<ol style="list-style-type: none"> <li>1. Click the <b>General tab</b>.</li> <li>2. Under Display, in the Unit box, type the unit type (for example, V, W).</li> <li>3. From the Sub-Unit list, select the subunit, if applicable.</li> </ol>
Modify the default range displayed.	<ol style="list-style-type: none"> <li>1. Click the <b>General tab</b>.</li> <li>2. Under Default Range, in the Min box, type the minimum value permissible.</li> <li>3. Under Default Range, in the Max box, type the maximum value permissible.</li> </ol>

To	Do This
Modify the input signal voltage range.	<ol style="list-style-type: none"> <li>1. Click the Signal tab.</li> <li>2. Under Voltage Range, in the Min box, type the minimum value permissible.</li> <li>3. Under Voltage Range, in the Max box, type the maximum value permissible.</li> <li>4. From the Unit list, select a unit type.</li> </ol>
Add a signal type.	<ol style="list-style-type: none"> <li>1. Click the Signal Types tab.</li> <li>2. Click Add.</li> <li>3. From the Signal Type list, select a signal type.</li> <li>4. Click OK.</li> </ol>
Transform the signal derived from the sensor by specifying a physical range.	<ol style="list-style-type: none"> <li>1. Click the Transform tab.</li> <li>2. Click Use physical range.</li> <li>3. Under Physical Range, select a unit type from the <b>Unit list</b>.</li> <li>4. In the <b>Min box, type the minimum value permissible</b>.</li> <li>5. In the Max box, type the maximum value permissible.</li> </ol>
Transform the signal derived from the sensor using the linear interpolation method.	<ol style="list-style-type: none"> <li>1. Click the Transform tab.</li> <li>2. Click Linear interpolation.</li> <li>3. Under Physical Range, select a unit type from the <b>Unit list</b>.</li> <li>4. In the <b>Min box, type the minimum value permissible</b>.</li> <li>5. In the <b>Max box, type the maximum value permissible</b>.</li> <li>6. Under Measured, double-click the cell, and type the measured voltage.</li> <li>7. Under Actual, double-click the cell, and type the actual voltage. The function pane updates accordingly.</li> </ol>
Transform the signal derived from the sensor using a predefined function.	<ol style="list-style-type: none"> <li>1. Click the Transform tab.</li> <li>2. Click Custom.</li> <li>3. Under Physical Range, select a unit type from the <b>Unit list</b>.</li> <li>4. In the <b>Min box, type the minimum value permissible</b>.</li> <li>5. In the <b>Max box, type the maximum value permissible</b>.</li> <li>6. Under <math>f(x)</math>, enter a function defining the sensor signal transformation.</li> </ol>

**To delete an Embletta Gold sensor definition:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta Gold**.
3. Click the sensor definition you want to delete, then click **Delete**.
4. Click **Yes**.

**To use the start and stop times from the last ambulatory recording:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta Gold** to open the **Embletta Gold Device Type Settings** dialog box.
3. Click the **Recording** tab.
4. Select the **Use last ambulatory study time setup** check box.
5. Click **OK**.

**Power Embla\***

*\*Not available with the License free version of RemLogic*

Use the Device Profile Editor to edit, create, and delete [Device Profiles](#) and Sensors for the Embla N7000 and Embla S4500 devices.

**To access the Device Profile Editor dialog:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. On the Device Manager bar, select **Devices | Settings | Embla Communication Unit or MDrive | Profile Editor**.
3. From the **Device type** list, select the device you want to view.

**Embletta MPR**

In the Embletta Device Type Settings dialog box, you can add, edit, or delete sensor definitions. You can also indicate whether you want to use start and stop times from the last ambulatory study. If the start time would occur in the past, RemLogic adjusts the date that displays in the Recording Wizard to the next date in the future with the desired time. Additionally, studies with multiple sessions display with the same between sessions as the previous study.

**To add or edit an Embletta MPR sensor definition:**

1. On the **View** menu, point to **Workspace**, and then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta MPR**.
3. Click on the **Sensors** Tab, and select the sensor definition on which you want to base the new definition, then click **New**.
4. In the **Name** box, enter a name for the sensor.
5. From the drop-down menu, select the **Type** of signal it is: unipolar or bipolar
6. Configure the sensor properties according to the following table:

To	Do This
Modify the default range displayed.	<ol style="list-style-type: none"> <li>1. Click the General tab.</li> <li>2. Under Default Range, in the Min box, type the minimum value permissible.</li> <li>3. Under Default Range, in the Max box, type the maximum value permissible.</li> <li>4. From the Unit list, select a unit type.</li> </ol>
Modify the input signal voltage range.	<ol style="list-style-type: none"> <li>1. Click the Signal tab.</li> <li>2. Under Voltage Range, in the Min box, type the minimum value permissible.</li> <li>3. Under Voltage Range, in the Max box, type the maximum value permissible.</li> <li>4. From the Unit list, select a unit type.</li> </ol>
Add a signal type.	<ol style="list-style-type: none"> <li>1. Click the Signal Types tab.</li> <li>2. Click Add.</li> <li>3. From the Signal Type list, select a signal type.</li> <li>4. Click OK.</li> </ol>
Transform the signal derived from the sensor using the linear interpolation method.	<ol style="list-style-type: none"> <li>1. Click the Transform tab.</li> <li>2. Click Linear interpolation.</li> <li>3. Under Linear interpolation, select a unit type from the Unit list.</li> <li>4. Under Measured, double-click the cell, and type the measured voltage.</li> <li>5. Under Actual, double-click the cell, and type the actual voltage. The function pane updates accordingly.</li> </ol>
Transform the signal derived from the sensor using a predefined function.	<ol style="list-style-type: none"> <li>1. Click the Transform tab.</li> <li>2. Click Custom.</li> <li>3. Under Physical Range, select a unit type from the Unit list.</li> <li>4. Under <math>f(x)</math>, enter a function defining the sensor signal transformation.</li> </ol>

#### To delete an Embletta MPR sensor definition:

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta MPR**.
3. Click on the **Sensors** Tab, and select the sensor definition you want to delete, then click **Delete**.
4. Click **Yes**.

**To use the recording wizard to start recording:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta MPR** to open the **Embletta MPR Settings** dialog box.
3. Click the **General** tab.
4. Select the **Use Recording Wizard** to start recording check box.
5. Click **OK**.

**To use the start and stop times from the last ambulatory recording:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta MPR** to open the **Embletta MPR Settings** dialog box.
3. Click the **General** tab.
4. Select the **Use last ambulatory study time setup** check box.
5. Click **OK**.

**To remove notifications when downloading an existing study:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. Click **Devices**, point to **Settings**, then click **Embletta MPR** to open the **Embletta MPR Settings** dialog box.
3. Click the **General** tab.
4. Select the **Do not warn when downloading a recording which already exists** check box.
5. Click **OK**.

**Embla titanium\***

*\*Not available with the License free version of RemLogic*

Use the Titanium Settings dialog box to edit, create, and delete [Device Profiles](#) and Sensors for the Embla titanium device.

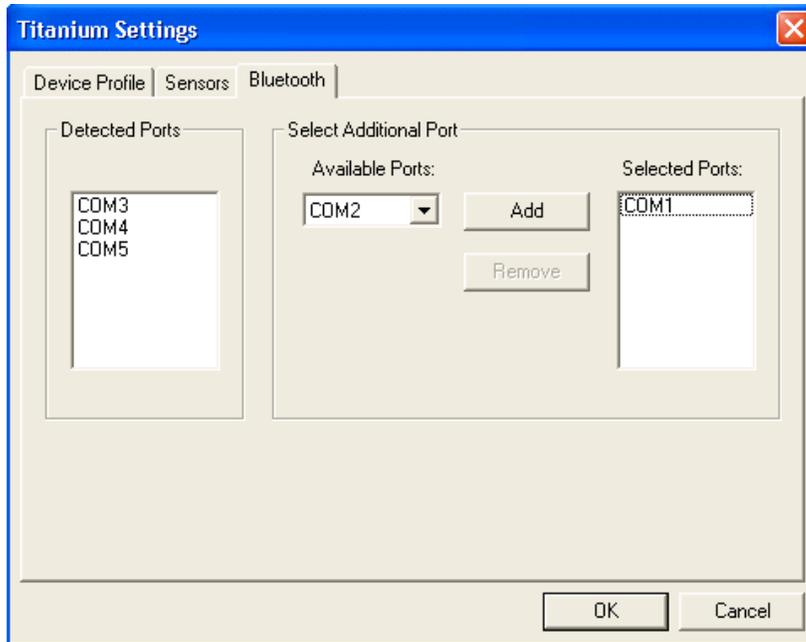
**To access the Titanium Settings dialog box:**

1. Open the [Device Manager](#).
2. On the Device Manager bar, select **Devices | Settings | Embla titanium**.

**To configure the Bluetooth adapter:**

1. Ensure the Embla titanium is connected to the collecting computer through the Bluetooth serial link.
2. In the [Device Manager](#), select **Devices | Settings | Embla titanium**.
3. In the Titanium Settings dialog box, select the **Bluetooth** tab.

4. In the **Select Addition Port** section, confirm the port for the Bluetooth is listed in the **Detected Ports** list. If it is not, complete the following steps:
  - From the **Available Ports** drop-down list, select the port for the Bluetooth.
  - Click **Add** to move the port for the Bluetooth to the Selected Ports list.



5. Click **OK** to close the Titanium Settings dialog box. If it detects the new Embla titanium device, the New Device Wizard opens.
6. Click **Next** in the first page of the New Device Wizard.
7. From the list of detected Embla devices, select **Embla titanium**, then click **Next**.
8. Type a name for the device (for example, Wireless titanium), then click **Next**.
9. Click **Finish** to complete the installation.

## Device Profiles\*

*\*Not available with the License free version of RemLogic*

A device profile defines which channels and signals the Embla devices will record. Device profiles are very flexible, and can include a wide range of sensor types. Device profiles are also commonly known as montages.

Record with a default device profile installed with RemLogic, or create customized profiles.

### Default Device Profiles\*

Profiles assist you in performing typical sleep studies with various recording devices. RemLogic is installed with several device profiles, as outlined in the following table.

Profile	Description	Device
Embla 32 Channel EEG / MDrive 32 Channel EEG	A referential 32 channel EEG profile for the Embla N7000. The profile has one EKG channel assigned to input channel 1 on the Bedside Unit (bipolar channel). X1 is used as a common reference.	Embla N7000
Embla N7000 PSG / MDrive N7000 PSG	Standard PSG profile for the N7000 system. Includes all channels needed for a routine PSG recording: EEG (M1, M2, F3, F4, C3, C4, O1, O2), EOG (E1, E2), Chin EMG (left, right, Upper midline), Limb EMG (right and left tibialis), EKG, respiratory effort (abdomen and thorax), nasal pressure, thermistor, snore, position, oxygen saturation, pulse, and plethysmogram. X1 is used as a common reference.	Embla N7000
Embla Photic EEG	Referential 32 channel EEG profile. One EKG channel assigned to input channel 1 on the bedside unit (bipolar channel) for photic. X1 is used as a common reference.	Embla N7000
Embla S4500 PSG/ MDrive S4500 PSG	Standard PSG profile for the S4500 system. This profile includes all channels needed for a routine PSG recording: EEG (M1, M2, F3, F4, C3, C4, O1, O2), EOG (E1, E2), Chin EMG (left, right, Upper midline), Limb EMG (right and left tibialis), EKG, respiratory effort (abdomen and thorax), nasal pressure, thermistor, snore, position, oxygen saturation, pulse, and plethysmogram.	Embla S4500
Routine PSG	Standard PSG profile for the titanium system. Includes all channels needed for a routine PSG recording: EEG (M1, M2, F3, F4, C3, C4, O1, O2), EOG (E1, E2), Chin EMG (left, right, Upper midline), Limb EMG (right and left tibialis), EKG, respiratory effort (abdomen and thorax), nasal pressure, thermistor, snore, position, oxygen saturation, pulse, and plethysmogram.	Embla titanium
Basic PSG	Standard PSG profile for the titanium system. Includes the following channels for PSG recording: EEG (M1, M2, C3, C4, O1, O2), EOG (E1, E2), EMG (submental, right and left tibialis), EKG, respiratory effort (abdomen and thorax), nasal pressure, thermistor, snore, position, oxygen saturation, pulse, and plethysmogram.	Embla titanium
PAP Titration	Includes the following 26 channels for recording: EEG (M1, M2, F3, F4, C3, C4, O1, O2); EOG (E1, E2); ChinR, ChinL, ChinA; EKG; left and right leg; snoring; CPress; CFlow; respiratory effort (abdomen and thorax); differential pressure; plethysmogram; position; oxygen saturation; and heart rate.	Embla titanium

Profile	Description	Device
Photic EEG	Includes the following 25 channels for recording: F3, F4, C3, C4, O1, O2, A1, A2; EOG (E1, E2); ChinR, ChinL, ChinA; EKG; left and right leg; thermistor; snoring; respiratory effort (abdomen and thorax); nasal pressure; plethysmogram; position; oxygen saturation; and heart rate.	Embla titanium

## Embla titanium Device Profiles\*

*\*Not available with the License free version of RemLogic*

In the Titanium Settings dialog box, you can create and add new device profiles to the list of profiles for selection when starting a recording. You can create any number of profiles. Creating your own profiles can save you from customizing the profiles each time you start a recording in the Recording Wizard. In the profile, you can determine which channels to record and what sensors to use. When you first open the Device Profile Editor dialog, only the default device profile displays. This profile can be edited.

### Viewing a Device Profile\*

#### To view a device profile:

1. Open the [Device Manager](#).
2. On the Device Manager bar, select **Devices | Settings | Embla titanium**.
3. Double-click the profile you want to view.

### Creating a Device Profile\*

#### To create a device profile:

1. Open the [Device Manager](#).
2. On the Device Manager bar, select **Devices | Settings | Embla titanium**.
3. Click **New**.
4. Click the **General** tab.
5. In the **Name** box, enter a name for the profile.
6. Modify the profile settings as required.
7. Click **OK**.

### Editing a Device Profile\*

#### To create/edit a device profile:

1. Open the [Device Manager](#).
2. On the Device Manager bar, select **Devices | Settings | Embla titanium**.
3. To edit an existing profile, select the appropriate profile in the **Device Profile** tab, then click **Edit**.

4. In the **General** tab of the **Embla titanium Device Profile Properties** dialog box, modify the profile settings as required:
  - In the **Name** box, edit the name of the new profile (optional).
  - To add or remove a channel from the profile, select or clear the appropriate check box.
  - To rename a channel, select it, then click the label name (for example, F3). Type a new label name, then press ENTER.
  - To modify the sensor or signal selection, select the appropriate item, click the drop-down arrow, then select a new item.
  - To enter a comment or description to a sensor item, select it, then click the **Comments** column cell.
5. Click **OK**.



Note: If a channel program and sensor are incompatible, a message displays, and the profile will not save. Incompatible sensors are highlighted in red. Modify the sensors or channel program, then click **OK**. To view a summary of the profile, click the **Info** tab.

### General Tab Properties

Property	Description/Procedure
Label	The channel label identifies the trace on the screen. The label column contains an <b>on/off</b> check box and the channel label. Select or clear the check box to indicate if data is to be recorded on that channel. The channel label is user-definable. All label names must be unique, otherwise the recording template cannot save. Keep the names short and descriptive. To change the label, select the desired channel, then click on the label field. A box in which you can type the new label displays. You can also automatically assign EEG labels. Selecting the sensor, signal, and reference first automatically completes the label field. To avoid the software from automatically overwriting the label, press CTRL while selecting the signal type.
Sensor	Displays the sensor type to be used on the designated channel. To choose a different sensor type, select the appropriate channel. Click the arrow  next to the sensor name and select a sensor from the context menu.
Channel	Displays the number of channels supported by the recording device. The numbering indicates the system channel capacity, and does not reflect the ordering of the traces displayed on the screen during online recording or review. Display preferences, such as channel spacing and channel order, are managed by <a href="#">Workpad Sheets</a> . If the order of channels, spacing, colors, or settings should be different, <a href="#">Workpad Sheets</a> can be modified to accommodate individual preferences.

Property	Description/Procedure
Signal	Once a sensor type is selected, the signal drop-down menu will reflect all available signal options for the selected sensor, and displays a default signal type in the Signal column. To change the signal type, click the arrow ▾ next to the signal type and select a signal from the menu. The signal type is used by the analysis tools to locate the data they require. For example, the sleep apnea analysis requires a sensor with the signal type Resp-Flow Cannula Nasal to locate the nasal cannula airflow signal. All inputs using the same main sensor type have the same sampling rate. Although sampling rates can be very different from one sensor type (flow) to another (EEG), maintaining the same sampling rate within a sensor group allows re-referencing.
Comments	To add or edit a comment, select the appropriate channel and click the comment. A box displays where you can type a comment. For example, you can use this field to write notes about where to place the sensors.
Connect Channel 25 to ISO Box	This option is selected if the optional titanium DC Isolation Box was connected to the titanium for recording data from devices using mains power (AC Power) on Channel 25.
Connect Channel 26 to ISO Box	This option is selected if the optional titanium DC Isolation Box was connected to the titanium for recording data from devices using mains power (AC Power) on Channel 26.

### Deleting a Device Profile\*

#### To delete a device profile:

1. Open the [Device Manager](#).
2. On the [Device Manager](#) bar, click **Devices**, point to **Settings**, then click **Embla titanium**.
3. Click the profile you want to delete, then click **Delete**.
4. Click **Yes**. The profile is removed from the Device Profile list and the Embla Recording Wizard.
5. Click **OK**.

### Power Embla Device Profiles\*

*\*Not available with the License free version of RemLogic*

*This information applies to the Embla N7000 and Embla S4500.*

New device profiles can be created and added to the list of profiles for selection when starting a recording. You can create any number of profiles. Custom profiles save you from having to customize the profiles each time a recording is started in the Recording Wizard. In the profile, you can determine which channels to record, what sensors to use, whether to run an impedance test and the calibration test signal, and so on. Existing device profiles, except the default profiles, can also be edited. Profiles can be created for routine study types, quick start, and studies requiring special sensors or additional channels.



Tip: Power Embla default profiles are write-protected and cannot be viewed or edited. To view the properties of a default profile, select the profile, then click **Clone**. Cloned versions are exact copies of the original that can be viewed and edited.

### Viewing a Device Profile\*

To view a device profile, you must clone it. For more information, see [Cloning a Device Profile](#).

#### **To view a device profile:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. In the Device Manager, click **Devices**, point to **Settings**, then click **Embla Communication Unit**.
3. From the **Device type** list, select the device.
4. Do one of the following:
  - If you previously [cloned](#) a profile, proceed to step 5.
  - If you have not previously [cloned](#) the profile, click it, then click **Clone**.
5. Click the cloned profile, then click **Edit**.

### Cloning a Device Profile\*

*This information applies to the Embla N7000 and Embla S4500.*

Copies can be made of default and customized profiles. Power Embla default profiles are write-protected and cannot be viewed or edited. Cloning a default device profile creates an exact copy or clone that can be renamed and edited.

#### **To clone a device profile:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. In the Device Manager, click **Devices**, point to **Settings**, then click **Embla Communication Unit**.
3. From the **Device type** list, select the device.
4. In the pane below, click the profile, then click **Clone**.
5. Click **Close**.

### Editing a Device Profile\*

#### **To edit a device profile:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. In the Device Manager, click **Devices**, point to **Settings**, then click **Embla Communication Unit**.
3. From the **Device type** list, select the device.
4. In the pane below, click the profile, then click **Edit**.

5. Define the properties of device profile. The following describes applicable tabs for each device:

- Embla N7000: [General](#), [Unipolar](#), [Bipolar](#), [Auxiliary](#), [Patient Unit](#), [Photic](#)
- Embla S4500: [General](#), [Unipolar and Resp.](#), [Bipolar](#), [Auxiliary](#), [Oximeter](#)

The profile is saved and added to the list of device profiles in the Recording Wizard.

### **Power Embla PSG Properties Dialog Tabs\***

#### **General Tab**

Use the **General** tab to create a new profile name and description. If you are editing an existing profile, you can change the description on this tab.

#### **General Tab Properties**

Property	Description/Procedure
Name	Type a descriptive name for the device profile.
Description	(Optional) Write a description of the profile in this field—for example, what channels will be recorded. This information displays in the Recording Wizard.
Allow impedance test	By default, this option is selected to allow for electrode impedance testing. If it is not be possible to perform an impedance test—for example, in the case of patients with pacemakers—the clear the check box.
Perform impedance test at the start of the recording	By default, this option is selected so an electrode impedance test starts automatically each time a recording is started or resumed. Clear the check box if you do not want to automatically perform an impedance test at the start of each recording.
Allow calibration test signal	By default, this option is selected so a calibration test signal can be activated to verify the gain for the Bedside Unit channels. Clear the check box if it should not be possible to activate the calibration test signal.
Run the calibration test signal at the start of the recording	Check this box to automatically activate the calibration test signal at the beginning of each recording.

#### **Unipolar Tab**

*Applies to the Embla N7000.*

Use the **Unipolar** tab to select which unipolar channels to record and to modify channel properties (such as label, signal type, and sampling rate).

- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

### **Unipolar and Resp Tab**

*Applies to the Embla S4500.*

Use the **Unipolar and Resp** tab to select which unipolar and respiratory channels to record and to modify channel properties (such as label, signal type, and sampling rate).

- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

### **Bipolar Tab**

*Applies to the Embla N7000 and Embla S4500.*

Use the **Bipolar** tab to select which bipolar channels to record and to modify channel properties (such as label, signal type, and sampling rate).

- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

### **Auxiliary Tab**

*Applies to the Embla N7000 and Embla S4500.*

Use the **Auxiliary** tab to select which auxiliary channels to record and to modify channel properties (such as label, signal type, and sampling rate).

- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

### **Photic Tab**

*Applies to the Embla N7000.*

Use the **Photic** tab to modify channel properties (label, signal type, and sampling rate). When the photic stimulator is activated, a corresponding trace appears. The trace has a value of 1 if the photic stimulator is on, and a value of 0 if the photic stimulator is off.

- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

The default Embla profiles are write-protected and cannot be edited.

### **Patient Unit Tab**

*Applies to the Embla N7000.*

Use the **Patient Unit** tab to select which channels should be recorded with the Patient Unit and to modify channel properties (such as label, signal type, and sampling rate).

- **Select Proxy:** Identifies which proxy to use in the recording. Click the arrow  to select a proxy from the list.
- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

## Oximeter Tab

Applies to the Embla S4500.

Use the **Oximeter** tab to select which oximeter channels to record and to modify channel properties (such as label, signal type, and sampling rate).

- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

## Deleting a Device Profile\*

This information applies to the Embla N7000 and Embla S4500.

Deleting a device profile removes it from the Device Manager and Recording Wizard.

### To delete a device profile:

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. In the Device Manager, click **Devices**, point to **Settings**, then click **Embla Communication Unit**.
3. From the **Device type** list, select the device.
4. In the pane below, click the profile, then click **Delete**.
5. Click **Yes**.
6. Click **OK**.

## Power Embla Channel Properties\*

\*Not available with the License free version of RemLogic

This information applies to the Embla N7000 and Embla S4500.

In the Device Profile Editor dialog, you can modify the channel properties of Power Embla profiles.



Note: Because default profiles are write-protected, you must make a copy or clone before editing the properties. See [Cloning a Device Profile](#) for more information.

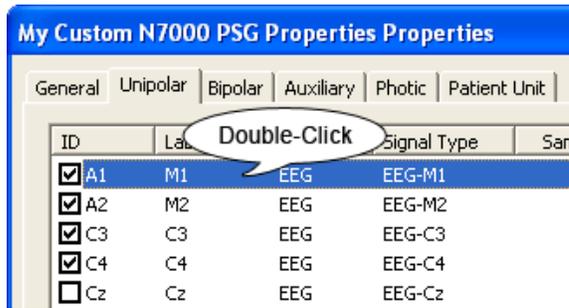
## Embla N7000\*

You can modify the channel properties on the tab sheets of the Profile Properties dialog.

### To change channel properties:

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. In the Device Manager, click **Devices**, point to **Settings**, then click **Embla Communication Unit**.
3. From the **Device type** list, select a profile.
4. In the pane below, click a profile, then click **Edit**. Because default profiles are write-protected, you must make a copy or clone before editing the properties. See [Cloning a Device Profile](#) for more information.

5. Click the tab containing the channel.
6. Double-click the channel.



The Channel Properties displays according to the selected channel.

7. Modify the settings according to the following table.

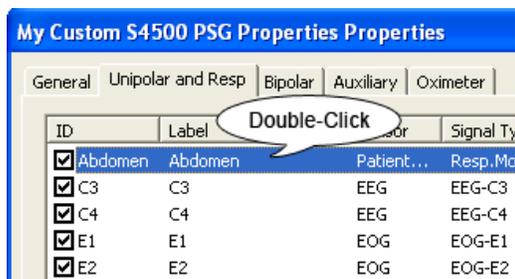
### Channel Properties

Property	Description/Procedure
Label	The channel label identifies the trace on the screen. All label names must be unique, otherwise the device profile cannot be saved. It is important to keep the names short and descriptive. Ensure that no two channels have the same label name.
Sensor	Selects the sensor type to be used on the designated channel. Click <input type="button" value="v"/> , and select a sensor from the list.
Signal Type	Once a sensor type is selected, the signal drop-down context menu reflects all available signal options for the selected sensor. To change the signal type, click <input type="button" value="v"/> , and select a signal from the list. Make sure that the sensor and signal type are correct. The analysis tools use the signal type to locate the data they require. For example, the sleep apnea analysis looks for a sensor with the signal type <i>Resp-Flow Cannula Nasal</i> to locate the nasal cannula airflow signal.
Sampling Rate	The sampling rate drop-down context menu reflects the sensor and device type selected. For example, an EEG sensor can be sampled at 2000Hz (on 1-2 channels (max)), with 500Hz as the highest rate on the remaining inputs with the Embla N7000. Click <input type="button" value="v"/> , and select a different sampling rate from the list.
Reference	Unipolar signals are measured against a common reference. Correct references are essential for re-referencing traces. Select this check box if the channel should be used as a reference. If more than one channel is defined as the reference, the average of these channels is used. For example, if M1 and M2 are defined as the reference, the average signal of both channels are used as the actual reference.

Embla S4500\*

**To change channel properties:**

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. In the Device Manager, click **Devices**, point to **Settings**, then click **Embla Communication Unit**.
3. From the **Device type** list, select a profile.
4. In the pane below, click a profile, then click **Edit**. Because default profiles are write-protected, you must make a copy or clone before editing the properties. See [Cloning a Device Profile](#) for more information.
5. Click the tab containing the channel.
6. Double-click the channel.



The Channel Properties displays according to the selected channel.

7. Modify the settings according to the following table.

**Channel Properties**

Property	Description/Procedure
Label	The channel label identifies the trace on the screen. All label names must be unique, otherwise the device profile cannot be saved. It is important to keep the names short and descriptive. Ensure that no two channels have the same label name.
Sensor	Selects the sensor type to be used on the designated channel. Click the arrow , and select a sensor from the list.
Signal Type	Once a sensor type is selected, the signal drop-down context menu reflects all available signal options for the selected sensor. To change the signal type, click the arrow , and select a signal from the list. Make sure that the sensor and signal type are correct. The analysis tools use the signal type to locate the data they require. For example, the sleep apnea analysis looks for a sensor with the signal type <i>Resp-Flow Cannula Nasal to locate the nasal cannula airflow signal</i> .
Sampling Rate	The sampling rate drop-down context menu reflects the sensor and device type selected. The highest sampling rate available is 500Hz. Click the arrow , and select a different sampling rate from the list.

Embla S4500 devices have a fixed reference channel. See the Embla S4500 Clinical Manual for more information.

## Embletta MPR Device Profiles

In the Embletta MPR Settings dialog box, you can create and add new device profiles to the list of profiles for selection when starting a recording. You can create any number of profiles. Creating your own profiles can save you from customizing the profiles each time you start a recording in the Recording Wizard. In the profile, you can determine which channels to record and what sensors to use. When you first open the Device Profile Editor dialog, the default device profiles are the only profiles which display. There are seven Embletta MPR default device profiles provided with the RemLogic software. These profiles can be edited.

- EB MPR – Autostart no Audio
- EB MPR – Scheduled Audio
- EB MPRPG – Ambulatory Autostart no Audio
- EB MPRPG – Ambulatory Scheduled with Audio
- EB MPRPG – Online with Audio
- EB MPR-ST – Ambulatory
- EB MPR-ST+ – Online

### Viewing a Device Profile

#### To view a device profile:

1. Open the [Device Manager](#).
2. On the Device Manager bar, select **Devices | Settings | Embletta MPR**.
3. Double-click the profile you want to view.

### Creating a Device Profile

#### To create a device profile:

1. Open the [Device Manager](#).
2. On the Device Manager bar, select **Devices | Settings | Embletta MPR**.
3. Click **New**.
4. Click the **General** tab.
5. In the **Name** box, enter a name for the profile.
6. If desired, type a description for your profile in the **Description** box.
7. Modify the profile settings as required. The following tabs are available and can be used for defining the properties of the device profile: [General](#), [Base/PG Unit](#), [Tx Proxy](#), [ST / ST+](#), and [Ambulatory Recording](#).
8. Click **OK**.

Editing a Device Profile**To edit a device profile:**

1. Open the [Device Manager](#).
2. On the Device Manager bar, select **Devices | Settings | Embletta MPR**.
3. To edit an existing profile, select the appropriate profile in the **Device Profile** tab, then click **Edit**.
4. Define the properties of device the profile. The following tabs are available and can be used for defining the properties of the profile: [General](#), [Base/PG Unit](#), [Tx Proxy](#), [ST / ST+](#), and [Ambulatory Recording](#).
5. Click **OK**.

The profile is saved and added to the list of device profiles in the Recording Wizard.

Deleting a Device Profile**To delete a device profile:**

1. Open the [Device Manager](#).
2. On the Device Manager bar, click **Devices**, point to **Settings**, then click **Embletta MPR**.
3. Click the profile you want to delete, then click **Delete**.
4. Click **Yes**. The profile is removed from the Device Profile list and the Embla Recording Wizard.
5. Click **OK**.

Embletta MPR Properties Dialog Tabs

In the Embletta MPR Properties Dialog box, you can modify your desired profiles to reflect the needs of your lab. To access the Embletta MPR Properties Dialog box, you need only select either **New** or **Edit** from the Device Profile Editor.

**General Tab Properties**

Use the **General** tab to create a new profile name and description. If you are editing an existing profile, you can change the description on this tab.

Property	Description/Procedure
Name	Type a descriptive name for the device profile.
Description	(Optional) Write a description of the profile in this field—for example, what channels will be recorded. This information displays in the Recording Wizard.

Property	Description/Procedure
Perform Automatic Impedance Test	<p>Select the check box if you want to automatically perform the impedance test at the beginning of each recording. This option is only available if the Embletta MPR PG unit is being used and is selected under the <a href="#">Base/PG</a> Unit tab.</p> <ul style="list-style-type: none"> <li>Ambulatory Studies – The test begins after 90 seconds of recording and lasts for 30 seconds.</li> <li>Online Studies – The test begins after 120 seconds of recording and lasts for 30 seconds.</li> </ul>
Perform Automatic Calibration Test	<p>Select the check box if you want to automatically perform the calibration test at the beginning of each recording. This option is only available if the Embletta MPR PG unit is being used and is selected under the <a href="#">Base/PG</a> Unit tab.</p> <ul style="list-style-type: none"> <li>Ambulatory Studies – The test begins after 30 seconds of recording and lasts for 30 seconds.</li> <li>Online Studies – The test begins 30 seconds after the start of recording and lasts for 60 seconds.</li> </ul>
Display patient initials on MPR device	By selecting this check box, only the patient's initials will be shown on the LCD display screen during both online and ambulatory studies.
Download Audio	Select the check box to download the audio collected with the Embletta MPR unit.

### Base/PG Unit Tab Properties

Use the **Base/PG Unit** tab to select which channels to record and to modify channel properties (such as label, signal type, and sampling rate).

- Select one of the following buttons to determine which type of channels/profile the Embletta MPR study will use as a basis for collection:

To perform:	Select:
An ambulatory study with an Embletta MPR base unit.	Embletta MPR – Ambulatory
An ambulatory study with an Embletta MPR PG unit (with or without a TX Proxy Unit or ST/ST+ Proxy).	Embletta MPR PG – Ambulatory
An online* study using the TX Proxy Unit (with or without an ST/ST+ Proxy).	Embletta MPR PG – Online*

*\*This option is only available in the licensed version of RemLogic.*

- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

### Channel Properties

Property	Description/Procedure
Label	The channel label identifies the trace on the screen. All label names must be unique, otherwise the device profile cannot be saved. It is important to keep the names short and descriptive. Ensure that no two channels have the same label name.
Sensor	Selects the sensor type to be used on the designated channel. Click  , and select a sensor from the list.
Signal Type	Once a sensor type is selected, the signal drop-down context menu reflects all available signal options for the selected sensor. To change the signal type, click  , and select a signal from the list. Make sure that the sensor and signal type are correct. The analysis tools use the signal type to locate the data they require. For example, the sleep apnea analysis looks for a sensor with the signal type Resp-Flow Cannula Nasal to locate the nasal cannula airflow signal.

### TX Proxy Tab Properties

Use the **TX Proxy** tab to select which DC channels to record and to modify channel properties (such as label, signal type, and sampling rate). If the **Embletta MPR – Ambulatory** button is selected in the [Base/PG Unit Tab](#) this tab will be unavailable. In the license free version of RemLogic, this tab is only available when the TX Proxy is used in an ambulatory study. Online recording is available in the licensed version of RemLogic only. See [License Management](#) for more information.

- Select the Use TX Proxy check box to use the TX Proxy.
- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.
- To use a ResMed Therapy device or to collect Differential Pressure, select the appropriate check box. Currently, this will only work with the ResMed S8 or S9. All other ResMed therapy devices may have issues when used with the Embletta MPR paired with the TX Proxy.



Note: If using the TX Proxy Unit with the ResMed Tx Link, the **ResMed Therapy Device** setting should be disabled. To disable this setting: open the profile being used or create a new one; browse to the TX Proxy tab; and clear the check box next to **ResMed Therapy Device**. See [Creating a Device Profile](#) or [Editing a Device Profile](#) for further details.

### ST/ST+ Tab Properties

Use the **ST/ST+** tab to select which additional channels to record and to modify channel properties (such as label, signal type, and sampling rate). If the **Embletta MPR – Ambulatory** button is selected in the [Base/PG Unit Tab](#) this tab will be unavailable. In the license free version of RemLogic, this tab is only available when the ST/ST+ Proxy is used in an ambulatory study. Online recording is available in the licensed version of RemLogic only. See [License Management](#) for more information.

- Select the Use ST/ST+ check box to use the ST or ST+ Proxy.
- Select the type of Proxy being used by clicking on the radio button beside it. The ST Proxy collects up to 8 additional channels; and the ST+ Proxy can collect up to an additional 16 channels.
- Channels on which data will be recorded have a check mark in the ID column.
- Double-click any channel to change its properties.

### Channel Properties

Property	Description/Procedure
Label	The channel label identifies the trace on the screen. All label names must be unique, otherwise the device profile cannot be saved. It is important to keep the names short and descriptive. Ensure that no two channels have the same label name.
Sensor	Selects the sensor type to be used on the designated channel. Click  , and select a sensor from the list.
Signal Type	Once a sensor type is selected, the signal drop-down context menu reflects all available signal options for the selected sensor. To change the signal type, click  , and select a signal from the list. Make sure that the sensor and signal type are correct. The analysis tools use the signal type to locate the data they require. For example, the sleep apnea analysis looks for a sensor with the signal type Resp-Flow Cannula Nasal to locate the nasal cannula airflow signal.



Note: The C3 and C4 sensors on the ST Proxy are referenced to M2 internally and should not be re-referenced in the profile or software setup.

### Ambulatory Recording Tab Properties

Use the **Ambulatory Recording** tab to modify the ambulatory study settings. If the **Embletta MPR PG – Online** button is selected under the [Base/PG Unit Tab](#), this tab will be unavailable. The information from this tab will only be used when the **Use last ambulatory study time setup** on the [General Tab](#) of the Embletta MPR Settings dialog is unchecked. See [Device Settings | Embletta MPR](#) for details on changing this setting.

Property	Description/Procedure
Start Automatically	Select this radio button to begin the study once the unit has been unplugged from the computer and the Oximetry sensor or XactTrace belts begin to send a valid signal.
Use Start and Stop Time	Selects this radio button to set a specific start and stop time for each ambulatory study. To activate a start/stop time, select the check box to the left of the start date. <ul style="list-style-type: none"> <li>• Pre-set the Start date, Start Time, Stop time, or Duration for all studies using this profile.</li> <li>• Setup multiple studies which will automatically be added to the</li> </ul>

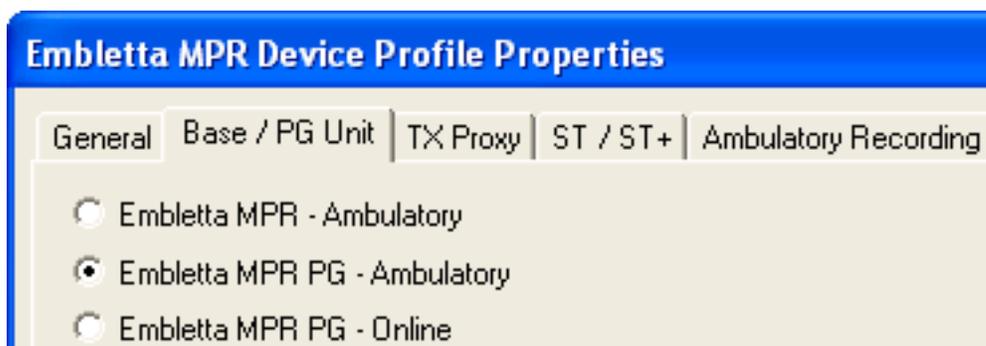
Property	Description/Procedure
	<p>device when using this profile. If the check box next to the start/stop time is deselected, the start/stop time will not be used for the ambulatory recording.</p> <ul style="list-style-type: none"> <li>• Program up to three (3) start/stop times for an ambulatory Embletta MPR or Embletta MPR PG unit. For an ambulatory study with the TX Proxy Unit, only two (2) start/stop times can be programmed. For an ambulatory study with the ST/ST+ Proxy, only one (1) start/stop time can be programmed.</li> </ul> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;">  </div> <div> <p>Note: The maximum duration of an ambulatory study with the TX Proxy Unit is eight (8) hours. For an ambulatory study using the ST/ST+ Proxy, the maximum study duration is 10 hours.</p> </div> </div>

## Embletta MPR Channel Properties

In the Device Profile Editor dialog, you can modify the channel properties of Embletta MPR profiles. You can modify the channel properties on the tab sheets of the Profile Properties dialog.

### To change channel properties:

1. On the **View** menu, point to **Workspace**, then click **Devices**.
2. In the Device Manager, click **Devices**, point to **Settings**, then click **Embletta MPR**.
3. From the **Device Profile** list, select a profile and then click **Edit**.
4. Click one of the following tabs depending on the desired channels:
  - Base/PG Unit Tab
  - TX Proxy Tab
  - ST/ST+ Tab



5. Double-click the channel. The **Channel Properties Dialog** displays according to the selected channel.

6. Modify the settings according to the following table:

### Channel Properties

Property	Description/Procedure
Label	The channel label identifies the trace on the screen. All label names must be unique, otherwise the device profile cannot be saved. It is important to keep the names short and descriptive. Ensure that no two channels have the same label name.
Sensor	Selects the sensor type to be used on the designated channel. Click  , and select a sensor from the list.
Signal Type	Once a sensor type is selected, the signal drop-down context menu reflects all available signal options for the selected sensor. To change the signal type, click  , and select a signal from the list. Make sure that the sensor and signal type are correct. The analysis tools use the signal type to locate the data they require. For example, the sleep apnea analysis looks for a sensor with the signal type Resp-Flow Cannula Nasal to locate the nasal cannula airflow signal.

## Configuration File Setup\*

*\*Not available with the License free version of RemLogic*

The RemLogic configuration settings and configuration files, such as event definitions and device sensor definitions, can be exported to a central location, and then imported from that location by RemLogic onto another machine. This will enable all beds to be running the same configuration settings and files without having to recreate them on each individual machine.



Note: If you run the export/import without first setting up the [Configuration File Location](#), the default import location will be set to “C:\Embla Config.”

### Set up Configuration File Location\*

In order to export or import the configuration files, you will first need to define a central file location.

#### To define the configuration file location:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click on **Advanced** or single-click the “+” beside it.
3. In the left pane, single-click on **Miscellaneous**.
4. In the right pane, type the destination of the desired Workspace into the **Configuration Files** data field or single-click on the ellipses  to the right of the data field to browse to the location manually.

## Export Configuration Files\*

Once the central file location has been defined for the configuration files, you can export the existing files to that location.



Note: The import/export feature does not include the automatic backup section or data locations under this section. These will need to be configured on each system manually.

### To export configuration files:

1. On the **File** menu, click **Export**, and then click **Configuration....**
2. Select the configuration files that you would like to export by selecting the check boxes next to the available options:

Export option:	Description:
Sheet templates and Workspaces	Exports all of the available sheet templates and Workspaces.
Event and signal types, event groups	Exports event and signal types as well as event groups.
Analysis and Association settings	Exports the Analysis and Association settings.
Custom Reports	Exports all custom reports.
Options Settings	Exports the options settings.
Device Configuration Files	Exports the configuration files for the selected device. The listed devices are dependent on the types of devices currently installed on the system. Depending on the selected device you have the option to export the Sensor definition files or the Profiles by checking the appropriate box.  You can export all available device types by selecting the data item – <b>All Device Types</b> .

3. Once the selections have been made, you can begin the export by clicking **OK**. To cancel the export, click **Cancel**.



Note: Running the export/import for the configuration files will overwrite any existing files in the destination folder.

4. Once the **OK** button has been selected, a warning dialog box will be displayed confirming the overwriting of the existing files.
  - Click **Yes** to continue.
  - Click **No** to cancel the export and return to the Export configuration Files dialog.

5. A second confirmation message is displayed when the **Yes** button has been selected.
  - Click **Yes** to continue and remove the existing configuration files from the destination folder and replace them with the currently selected groups of files. With this selection, the files from the destination folder are deleted permanently prior to placing the exported files into the empty folder.
  - Click **No** to keep the files that were not overwritten in the export of the new files. With this option, only the selected groups of files are replaced with the new files.
6. Click **OK**. The selected file groups will be copied to the following sub-folders under the destination folder as setup in the [Configuration File Location](#).

File Group		Folder/File Name in Configuration File Location
Sheet templates and Workspaces		Sheet Templates
Event and signal types, event groups		EventSignalSettings
Analysis and Association settings		AnalysisSettings
Reports		Reports
Options Settings		Settings\SettingsRegistryFile.reg
		Settings\[referenced file name]
Sensor Definition Files	Titanium	Titanium Sensors
	Embletta	EmblettaGold Sensors
	MDrive	MDrive Sensors
Profiles	Titanium	Titanium Profiles
	Embletta	N/A
	MDrive	MDrive Profiles

## Import Configuration Files\*

### To import configuration files:

1. On the **File** menu, click **Import**, and then click **Configurations**.
2. Select the configuration files that you would like to export by selecting the check boxes next to the desired options. The options that are available are the same as with the export process. See Step #2 under [Configuration File Location](#) for further information.
3. Once the selections have been made, you can begin the import by clicking **OK**. To cancel the import, click **Cancel**.



Note: Running the export/import will overwrite the existing RemLogic configuration files with the selected files.

4. Once the **OK** button has been selected, a warning dialog box will be displayed confirming the overwriting of the existing files. Do one of the following:
  - Click **Yes** to continue.
  - Click **No** to cancel the import and return to the Import Configuration Files dialog.
5. When the **Yes** button is selected, a second confirmation message is displayed. Click **OK** and restart RemLogic to ensure the changes take effect.



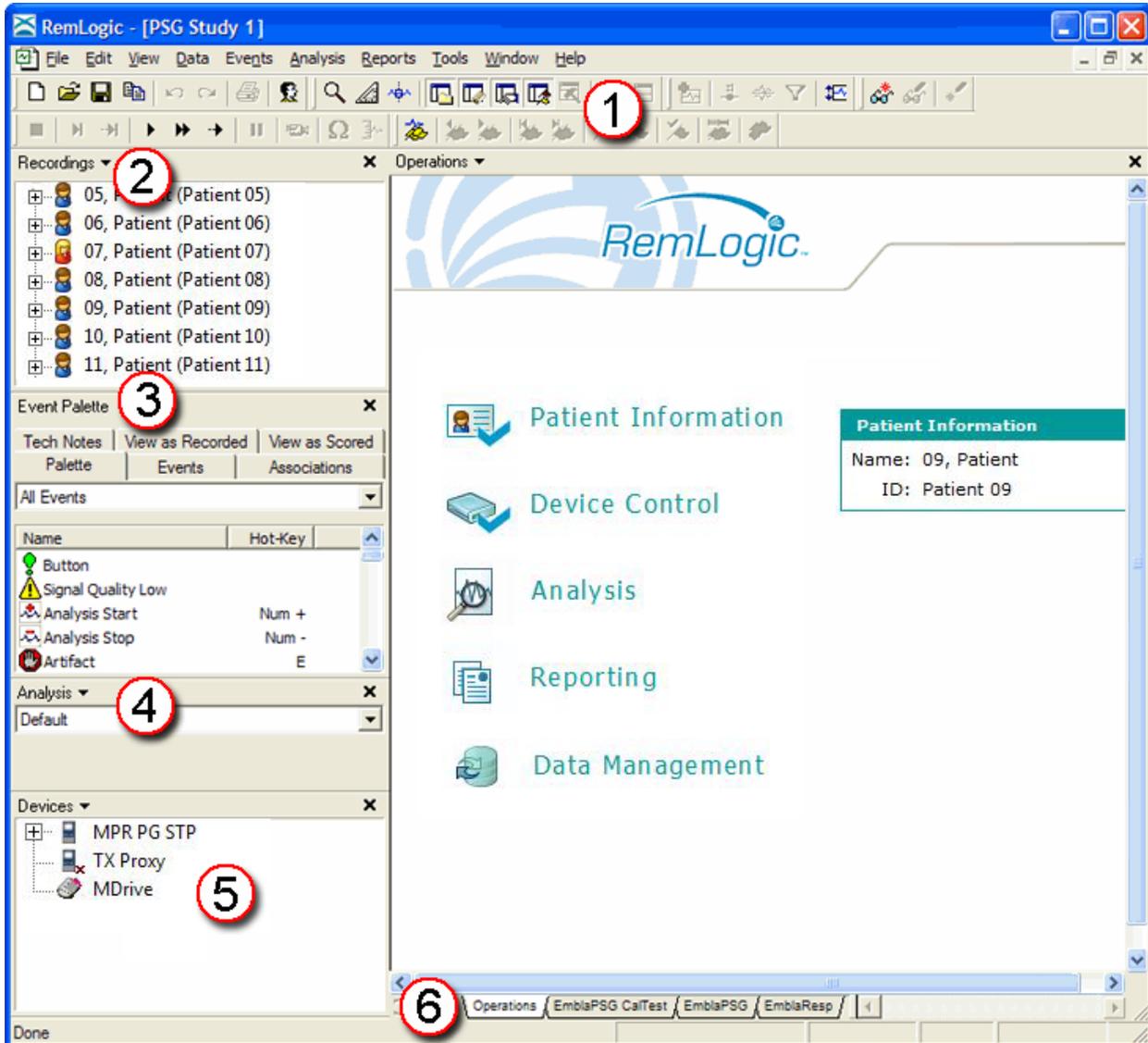
Note: If you run the export/import without first setting up the [Configuration File Location](#), the default import location will be set to “C:\Embla Config.”



Note: The import/export feature does not include the automatic backup section or data locations under this section. These will need to be configured on each system manually.

# Work Environment

When the application is installed, a RemLogic icon displays on your desktop. Starting RemLogic displays the application start window.



## 1 Toolbars

[RemLogic toolbars](#) allow you to change the appearance of the work environment, view trace information, insert and search for events, control and play back recordings, and manipulate traces within Workpad Sheets. For more information, see [RemLogic Toolbars](#).

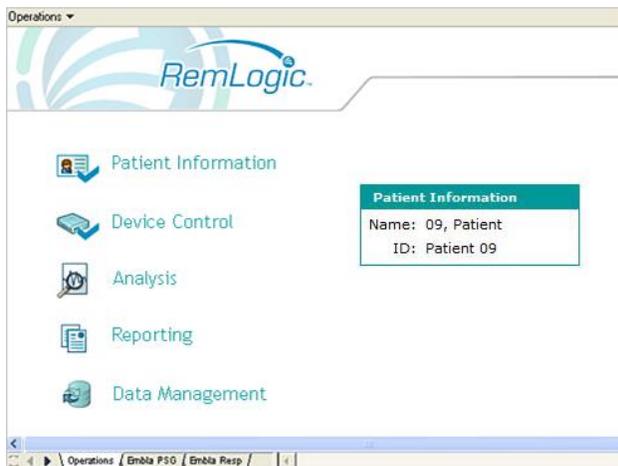
## 2 Recording Manager

The [Recording Manager](#), located in the Workspace Area, provides an overview of recording folders and files, sorted alphabetically by patient name, or chronologically by recording date. For more information, see [Recording Manager](#).

- 3
Event Palette
The [Event Palette](#) allows you to select and mark events on a [Workpad Sheet](#) with a single mouse click or keystroke, navigate between [events](#) or [event associations](#) marked in the Workpad. The licensed version of RemLogic also allows you to insert and [navigate between tech notes](#). For more information, see [Event Palette](#).
- 4
Analysis Settings Manager
The Analysis Settings Manager allows you to select default or custom settings for [computer assisted analysis](#) and [customize analysis parameters](#). For more information, see [Analysis Settings Manager](#).
- 5
Device Manager
The [Device Manager](#) monitors recording devices, and allows you to add and identify new recording devices using the New Device Wizard. For more information, see [Device Manager](#).
- 6
Operations and Workpad Sheets
[Workpad Sheets](#) display recorded signals and visual data settings, including the [time interval](#), [axis values](#), filters, trace number, sequence, and color. Events are [marked](#) on Workpad Sheets. For more information, see [Workpad Sheets](#).

## Operations Sheet

The Operations sheet, RemLogic's action sheet, displays by default you open the application.



RemLogic Operations Sheet, displaying patient information.



RemLogic License free Operations Sheet

Operations sheet buttons, including Patient Information, Device Control, Prepare Recorder, Download Data, Analysis, Reporting and Data Management (for Enterprise users), provide access to main functions. The buttons are blue when active, and gray when inactive.

Button	Description
Patient Information	Opens the <b>Patient Information</b> dialog box, in which you can add and edit patient demographic/biometric details.

Button	Description
<b>Device Control*</b> <i>*Not available with the License free version of RemLogic</i>	Opens the <b>Device Control</b> panel, from which you can select a recording device, start, stop, and resume recordings, and download and transfer data. This button is available after you enter information on the patient undergoing the sleep study.
<b>Prepare Recorder</b> <i>Only available with the License free Version of RemLogic</i>	Opens the <b>Device Control</b> panel, from which you can select a recording device, and prepare it for ambulatory studies. This button is available after you enter information on the patient undergoing the sleep study.
<b>Download Data</b> <i>Only available with the License free Version of RemLogic</i>	Downloads the selected study from the recorder to your active recordings folder. Using this download option does not open a <a href="#">Workspace</a> .
<b>Analysis</b>	Opens the <b>Analysis</b> panel, from which you can select and perform the computer assisted analysis of recorded data using the <a href="#">Respiration Analyzer</a> and <a href="#">PLM Analyzer</a> . Additional analyzers are available in the Analysis menu in the menu bar. See <a href="#">Analyzing Data</a> for a list of RemLogic's analyzers.
<b>Reporting</b> <i>Items marked with an "*" are not available with the License free Version of RemLogic</i>	Opens the <b>Reporting</b> panel, from which you can select and create the following reports: Polysomnography*, Polygraphy (Respiration and Oximetry), Split Night*, PLM, MSLT*, Titration Report PSG*, and Technote.
<b>Data Management</b>	Opens the <b>Data Management</b> panel, from which you can retrieve patient and study information and publish scored sleep studies. Available to users with an Embla Enterprise license.

The Operations Sheet contains a **Patient Information** box, which is empty until you click **Patient Information** and enter information. When you open a data folder with recorded data, the box displays the name and ID of the relevant patient.

You can retrieve information on scheduled patients, publish scored sleep studies, and search on the published data by clicking **Data Management**.

The **Operations** sheet tab  is at the bottom of the Operations sheet. Clicking the tab opens the Operations Sheet.

# RemLogic Toolbars

RemLogic features nine toolbars that provide shortcuts to menu commands. By default, all toolbars display at the top of the program window, below the menu bar. You can [show](#), [hide](#), [move](#), and [reset](#) toolbars. Not all toolbars or buttons are available with the license free version of RemLogic.

## Standard



Button	Description
	Opens a new Workpad.
	Opens the patient folder storage location.
	Saves the current Workpad.
	Copies the current selection to Windows Clipboard.
	Undoes the last action.
	Redoes the last action.
	Displays the Print dialog.
	Displays the Patient Information dialog.

## Tools\*

*Items marked with an "\*" are not available with the License free version of RemLogic*



Button	Description
	Magnifies a trace so it becomes the only visible trace in the Workpad.
	Displays relative amplitude and time between two points in a trace.
	Displays absolute amplitude of a certain position in a trace.
	Displays the timer.*
	Displays/hides Recording Manager.
	Displays/hides Device Manager.

Button	Description
	Displays/hides Analysis Settings Manager.
	Displays/hides Event Palette.
	Displays/hides Analysis Pane.
	Displays the Workpad in full screen view, removing the Workspace Area.
	Vertically splits the Workpad.*
	Horizontally splits the Workpad.*
	Displays the Workpad in RemAxis View.

## Events



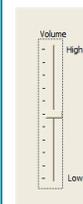
Button	Description
	Searches for events within the active trace.
	Finds the previous event in recording.
	Finds the next event in recording.
	Finds the first event in recording.
	Finds the last event in recording.
	Finds the previous event of same type.
	Finds the next event of same type.
	Finds all events that match the selected event type.
	Stops/continues the scoring session.
	Turns the Event Palette insertion mode on/off.
	Turns the Single Click insertion mode on/off.

## Controls\*

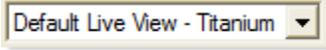
Items marked with an "\*" are not available with the License free version of RemLogic



Button	Description
	Stops the current online recording.
	Starts the real-time scrolling playback mode.*
	Starts the real-time interval playback mode.*
	Starts the playback at the current point in the recording.
	Plays the recording in fast forward mode.
	Plays the recording fast forward, one screen at a time.
	Pauses the playback.
	Turns the video playback on/off.*
	<p>Turns the Embletta MPR audio on/off. This will only be enabled if there are audio clips that have been properly annotated in the recording folder. These get created when downloading a study from the MPR. If audio playback is selected, the button will appear pressed. To adjust the volume for the Embletta MPR audio, select the small down arrow to the right of the Embletta MPR audio button . Slide the bar up and down to raise and lower the volume on the Embletta MPR audio. If both audio and video were collected together from a camera, but there are no audio clips, this button will not be enabled. Video collected with the audio will be played back together and is controlled only with the video playback button.</p>
	Starts the impedance test.*
	Starts the calibration test signal.*



## Preview



Button	Description
	<p>Available Preview list. The drop-down menu specifies the preview options available for the connected device.</p>
	<p>Note: Only available for the Embletta, Embletta Gold, Titanium, and Embletta MPR Units.</p>

## Observations\*

\*Not available with the License free version of RemLogic



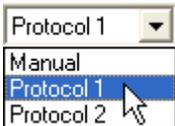
Button	Description
	<p>Opens the Initial Observations chart. This button is available when the Enable Initial Observations option is turned on in the Observations settings.</p>
	<p>Adds a Tech Note.</p>
	<p>Opens the Collection Observation chart. This button is available when the Enable Collection Observations option is turned on in the Observations settings, and the Lights Off event marker is added to the Workpad Sheet. In analysis, this button opens the Collection Observation chart nearest to the current time in the study, or opens the first Collection Observation chart when you are viewing a report or the Overview Sheet.</p>
	<p>Opens the Summary Observations chart. This button is available when the Enable Summary Observations option is turned on in the Observations settings.</p>
	<p>Generates and displays the Observation report.</p>

## Photic Controller\*

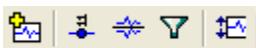
\*Not available with the License free version of RemLogic



Button	Description
	<p>Starts intermittent photic stimulation (IPS).</p>
	<p>Stops IPS.</p>

Button	Description
	IPS mode list. Options specify how IPS is controlled.
	Decreases the frequency of the photic flash.
	Text box value that represents the current frequency of the photic flash in hertz.
	Increases the frequency of the photic flash.

## Trace



Button	Description
	Displays Add/Remove Traces dialog box, where traces are added to/removed from sheets.
	Displays trace values.
	Inverts the active trace.
	Displays Trace Properties dialog box, where the filter settings are set.
	Automatically scales traces within panes.

## View History\*

\*Not available with the License free version of RemLogic



Button	Description
	Starts the recording of actions that modify the way raw data is viewed in all open Workpads during data acquisition. See <b>View as Recorded</b> in the following location in the RemLogic online help: <b>Work Environment   Workpad Area   Workpad Views   Workpad History</b> .
	Starts the recording of actions that modify the digital display <a href="#">during a scoring session</a> . See <b>View as Scored</b> in the following location in the RemLogic online help: <b>Work Environment   Workpad Area   Workpad Views   Workpad History</b> .
	Starts the recording of the current scoring session. See <a href="#">Recording a Scoring Session</a> .

## Show/Hide a Toolbar

### To show or hide a toolbar:

1. On the **View** menu, point to **Workspace**, then click **Toolbars**.
2. Do one of the following:
  - To show a toolbar, select the check box next to the toolbar name.
  - To hide a toolbar, clear the check box next to the toolbar name.

## Moving a Toolbar

You can position a toolbar anywhere in the program window.

### To move a toolbar:

1. Position the pointer over the handle on the left of the first toolbar button.
2. Drag the toolbar to the new location in the program window.

## Resetting Toolbars

You can reset the toolbars to their original settings and on-screen positions.

### To reset the toolbars:

1. On the **View** menu, point to **Workspace**, then click **Toolbars**.
2. Click **Reset**.

## Workspace Area

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### Analysis Settings Manager

The Analysis Settings Manager (labeled *Analysis*) allows you to analyze a recording, using default or custom settings.



*Analysis Settings Manager*

The Analysis Settings dialog box lists analysis parameters, where they can be customized. Access the Analysis Settings dialog box by clicking **Analysis**, then selecting **Settings**.

### Opening/Closing the Analysis Settings Manager

To open or display the Analysis Settings Manager, do one of the following:

- Click **Toggle Analysis Settings**  on the [Tools](#) toolbar.
- On the **View** menu, point to **Workspace**, then click **Analysis Settings**.

To close the Analysis Settings Manager, do one of the following:

- Click **Toggle Analysis Settings**  on the [Tools](#) toolbar.
- Click **Close**  on the **Analysis Manager** bar.

### Analysis Settings Manager Properties

In the Analysis Settings dialog box, customize the analysis parameters used by the computer assisted analyzers.

To access analysis settings:

- On the **Analysis Settings** Manager bar, click **Analysis**, then click **Settings**.

To modify parameter values:

- In the **Profile** list, click **Custom**. For more information, see [Analysis Parameters](#).



## Device Manager

The Device Manager is located in the start window to the left of the [Operations Sheet](#) and is titled **Devices**. The Device Manager monitors the recording devices that are used with RemLogic. The Device Manager includes a New Device Wizard that assists in adding and identifying new recording devices in the application.



Opening/Closing the Device Manager

To open the Device Manager, do one of the following:

- Click **Toggle Devices**  on the toolbar.
- On the **View** menu, point to **Workspace**, then click **Devices**.

To close the Device Manager, do one of the following:

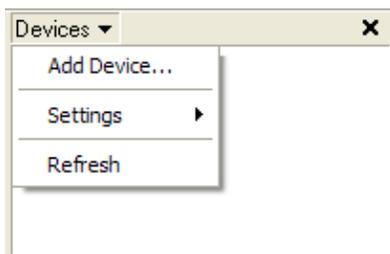
- Click **Toggle Devices**  on the toolbar.
- Click **Close**  on the **Devices** bar.

Device Manager Icons

Each device in the Device Manager is identified with an icon that displays the current status of the device.

Icon	Properties
no symbol	The device is connected, but presently untasked.
✓	The device is programmed.
•	The device is in a recording mode.
⊕	The device contains data to be downloaded. This is displayed to the left of the unit icon.
⌵	The recording is downloading / importing.
✕	The device is disconnected.
🔒	The device is in use at another workstation.
☰	The device is in calibration mode.
⚡	The device is in impedance check mode.
🖨	The device is in preview mode.

With the Device Manager, you can add devices, view and modify device settings, and refresh the current device list.



### Adding a Device

The New Device Wizard activates by default whenever RemLogic detects a new Embletta device. Manually, click **Add Device** to activate the New Device Wizard. In addition to the previously listed devices, the New Device Wizard can add the Embla N7000 and Embla S4500 systems; video capture devices; ResMed™ Tx Link; and composite devices.

### Refreshing a Device

The **Refresh** command displays the current status of all devices by scanning and sorting devices in the Device Manager.

#### To refresh a device:

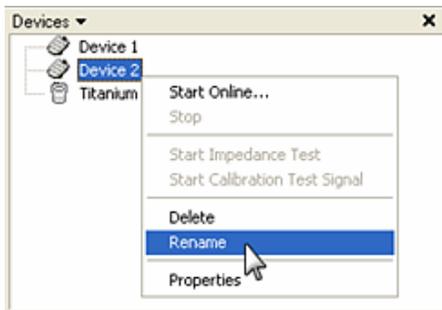
- Click **Devices**, then click **Refresh**.

### Renaming a Device

You can rename devices listed in the Device Manager.

#### To rename a device:

1. In the [Device Manager](#), right-click the device.
2. Click **Rename** and type the new name for the device.



### Deleting a Device

You can remove a device no longer used in connection with the application from the Device Manager.

#### To delete a device:

1. In the [Device Manager](#), right-click the device.
2. Click **Delete**.

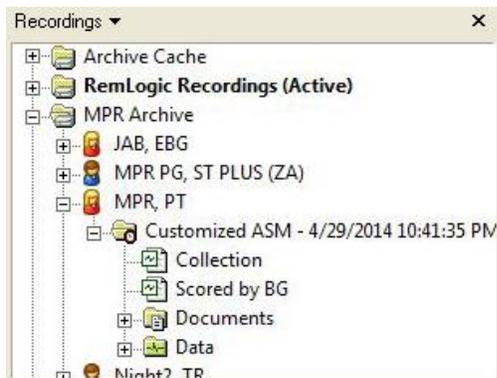
## Recording Manager

By default, the Recording Manager is located to the left of the [Operations Sheet](#), and is identified by the label *Recordings*. The Recording Manager monitors and updates any changes in recorded data in the [active storage locations](#) as specified in the Options dialog.

#### To access Data Location settings:

1. On the **Tools** menu, click **Options**.

2. In the left pane, double-click **Data Management**.



Recording Manager displaying an archive cache location and other data locations.

### Opening/Closing the Recording Manager

**To open the Recording Manager, do one of the following:**

- Click **Toggle Recordings**  on the toolbar.
- On the **View** menu, point to **Workspace**, then click **Recordings**.

**To close the Recording Manager, do one of the following:**

- Click **Toggle Recordings**  on the toolbar.
- Click the  on the Recording Manager bar.

### Recording Manager Icons

An icon identifies each folder or file type in the Recording Manager.

Icon	Properties
	Data Location Folder. Storage location for patient folders. For more information, see <a href="#">Data Locations</a> .
	Patient Folder. Identified by the patient name and ID. Contains patient folders and files.
	Recording Folder. Identified by the date and time of recording. Contains Workpads, documents, and a raw data folder. Right-click this folder to import a file, archive a recording, delete a recording, join recordings, and view recording properties.
	Workpad File. Contains sheets that were reviewed or analyzed. Saved Workpad files are added to the appropriate Patient folder. Each time you open the Raw Data folder, it is opened as a new Workpad. Every recording can be saved as many different Workpads (for example, Scored 1, Scored 2). You can save your analysis of a recording in a Workpad file and return to it later (by double-clicking the Workpad file icon) for further review and analysis.
	Documents Folder. Stores patient documents including exported reports, Microsoft® Word™ documents, transcriptions, and images. Right-click this icon to import a file.

Icon	Properties
	Raw Data Folder. Contains recorded data sorted alphabetically. Double-click this icon to open a new Workpad with the raw data.

Displaying and Sorting Recordings

You can store recordings in active and non-active [data locations](#). For more information about assigning active data locations, see [Data Locations](#).

By default, you can view recordings stored in both data locations in the Recording Manager. With the Recording Manager Arrange feature, you can modify the recording list to include only active data location recordings or all recordings (active and non-active), and you can sort files by patient name and recording date.

**To show recordings stored at all data locations (active and non-active):**

- On the **Recordings** list, point to **Arrange**, then select **Show All Locations**. The active data location displays in bold type.

**To show only recordings stored at the active data location:**

- On the **Recordings** list, point to **Arrange**, then cancel the **Show All Locations** selection.

**To sort recordings:**

- From the **Recordings** list, point to **Arrange**.
- Do one of the following:

To Sort	Do This
Patient Folders alphabetically by patient name from A to Z.	<ol style="list-style-type: none"> <li>1. Click Arrange by Patient Name.</li> <li>2. Click Sort by Patient Name.</li> <li>3. Click Sort Ascending.</li> </ol>
Patient Folders alphabetically by patient name from Z to A.	<ol style="list-style-type: none"> <li>1. Click Arrange by Patient Name.</li> <li>2. Click Sort by Patient Name.</li> <li>3. Click Sort Descending.</li> </ol>
Patient folders chronologically by recording date from newest to oldest.	<ol style="list-style-type: none"> <li>1. Click Arrange by Patient Name.</li> <li>2. Click Sort by Recording Date.</li> <li>3. Click Sort Ascending.</li> </ol>
Patient folders chronologically by recording date from oldest to newest.	<ol style="list-style-type: none"> <li>1. Click Arrange by Patient Name.</li> <li>2. Click Sort by Recording Date.</li> <li>3. Click Sort Descending.</li> </ol>

To Sort	Do This
Study folders chronologically by recording date from newest to oldest.	<ol style="list-style-type: none"> <li>1. Click Arrange by Recording Date.</li> <li>2. Click Sort by Recording Date.</li> <li>3. Click Sort Ascending.</li> </ol>
Study folders chronologically by recording date from oldest to newest.	<ol style="list-style-type: none"> <li>1. Click Arrange by Recording Date.</li> <li>2. Click Sort by Recording Date.</li> <li>3. Click Sort Descending.</li> </ol>
Study folders alphabetically by patient name from A to Z.	<ol style="list-style-type: none"> <li>1. Click Arrange by Recording Date.</li> <li>2. Click Sort by Patient Name.</li> <li>3. Click Sort Ascending.</li> </ol>
Study folders alphabetically by patient name from Z to A.	<ol style="list-style-type: none"> <li>1. Click Arrange by Recording Date.</li> <li>2. Click Sort by Patient Name.</li> <li>3. Click Sort Descending.</li> </ol>

### Importing a Recording

The Recording Manager makes it possible to import recordings from your PC, removable media (such as a CD / DVD), or a computer network, for example.

#### **To import a recording:**

1. Click **Recordings** on the Recording Manager bar.
2. Click **Import**.
3. Browse to and select the recording you want to import.
4. Click **OK**.

The recording is added to the active data location in the Recording Manager.

### **Importing Recordings from a CD / DVD**

When you are importing many recordings into RemLogic, it is more convenient to copy and paste them from a CD onto the computer's hard drive.

#### **To import recordings from a CD or DVD:**

1. Insert the CD / DVD into the computer.
2. Open the desktop of the computer, then double-click **My Computer**.
3. Double-click the **Compact Disc (D:)** drive to display the recordings on the CD / DVD.
4. Copy the folder and paste it into the data storage location of the computer—for example, **C:\RemLogic Recordings**.

## Refreshing the Recording Manager

### To refresh the list of Patient folders:

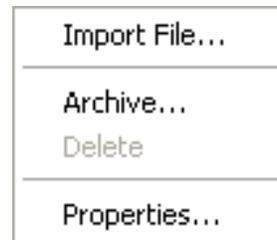
1. Click **Recordings** on the Recording Manager bar.
2. Click **Refresh**.

The Patient folders are scanned and rearranged.

With the Recording folder, you can import files, archive recordings, delete recordings, join two recordings together\*, and verify recording properties.



Recording Folder Options, Licensed version of RemLogic



Recording Folder Options, License free version of RemLogic

## Recording Properties

The Recording Properties window displays an overview of a recording's [GUID](#) (a numerical string to protect the patient's information), location (where it is stored on your computer), size, time, duration, type, and number of channels used in the recording.

### To access the Recording Properties window:

1. Right-click the appropriate Recording folder .
2. Click **Properties**.

## Importing a File

You can import files and add them to a Patient folder. Imported files can be of types such as recordings, reports, Word documents, transcriptions, and pictures.

### To import a file:

1. In the [Recording Manager](#), right-click the Recording folder  of the appropriate patient.
2. Click **Import File**.
3. The **Import** dialog box displays. Find and select the correct file.
4. Click **Open**.

The selected file is imported and placed in the Documents folder  of the selected patient folder.

## Archiving a Recording

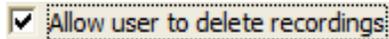
The [archiving function](#) is used for long-term storage of recordings and related files. Recordings are archived using the [Archive wizard](#), but all archive location adjustments are made in **Tools | Options | Data Locations**.

**To archive a study:**

1. In the [Recording Manager](#), right-click the Recording folder  containing the recording you want to archive, then click **Archive**.
2. Follow the steps of the wizard to archive the recording.

**Deleting a Recording**

The delete function erases the selected Recording folder, recorded data, and all other documents in that folder. To be able to delete recordings, the delete function must be active. Go to **Tools | Options | Data Management | Data Locations** and select **Allow user to delete recordings**.

**To delete a recording:**

1. In the [Recording Manager](#), right-click the Recording folder  to be deleted.
2. Click **Delete**.
3. Click **OK**.

The Recording folder and all its contents are erased. If only one Recording folder is located in a Patient folder, the delete function erases both the Recording folder and the Patient folder.

It is recommended that the **Delete** recordings function is made available only as necessary to prevent accidental deletions. Deleted Recordings are deleted from RemLogic and sent to the Recycle Bin.



Note: If you are using Embla Enterprise, and you attempt to delete the last online copy of a study, a warning informs you of this. If the recording history database is unavailable, a warning informs you that the database is unavailable, and the study you are deleting might be the last online copy.

**Joining Recordings\***

*\*Not available with the License free version of RemLogic*

The **Join With** option activates the Join Recordings Wizard. This wizard assists you in joining two recordings belonging to the same patient together. This feature can be helpful in cases where a new recording was started for the patient, instead of [resuming](#) the patient's previously started recording, for example. You can join the two recordings together, analyzed them, and save them as one recording.

**To join recordings:**

1. Right-click the Recording Folder containing the study you want to use as the primary recording.
2. Click **Join With**.
3. Follow the steps as outlined in the Recording wizard.

## Workspace Templates

A template contains user-defined settings for the presentation and layout of a recording. Templates save you from having to recreate your preferred Workspace setup each time you view a recording. You can define the following elements in a Workspace template:

- The number of sheets used
- Sheet names, and their order in the Workpad
- Information displayed in a sheet (such as traces, graphs, and scaling)
- Settings for analysis views, such as Pressure Monitor, the Event Radar, and Hypnogram
- Toolbar positions, and whether or not a toolbar is visible
- Workspace settings for the recording manager, event palette, and analysis settings manager

You can locally store workplace templates on a workstation, or make them available to multiple workstations by storing them on a network. You can save a Workspace, or load and edit an existing Workspace template.

The default Workspace can be found in one of the following locations:

**Windows XP Users:** C:\Documents and Settings\All Users\Application Data\Embla\RemLogic\Sheet Templates\Embla Default.ESWT

**Windows 7 Users:** C:\ProgramData\Embla\RemLogic\Sheet Templates\Embla Default.ESWT

### Changing the Default Workspace

The default Workspace can be changed to a previously saved Workspace.

#### To change the default Workspace:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click on **Advanced** or single-click the “+” beside it.
3. In the left pane, single-click on **Miscellaneous**.
4. In the right pane, type the destination of the desired default Workspace into the **Default Workspace** data field or single-click on the ellipses  to the right of the data field to browse to the location manually.
5. Click **OK**.



Note: If the specified location is invalid, an error message will be displayed, and the dialog box will remain open until a valid location is provided.

### Saving a Workspace as a Template

#### To save a new Workspace template:

1. Do one of the following:
  - To save an existing template (that was modified) under a new name:  
On the **View** menu, click **Save as Workplace Template**.

- To save the Workspace layout as a new template:  
On the **View** menu, click **Save Workplace Template**.
2. Specify a location for the template by selecting the template type. Click **Next**.
    - **Local Template:** Select this option to make the template accessible on the current workstation.
    - **Workgroup Template:** Select this option to make the template accessible to all the workstations on your network.
  3. In the **Name** box, type a name for the template. Type a description of the template in the **Description** box, or if this is an existing template, type a new name by overwriting the existing text in the **Name** and **Description** text boxes.
  4. Click **Next**. Confirm the template location, name, and description.
  5. Click **Finish** to close the wizard.

### Loading a Workspace Template

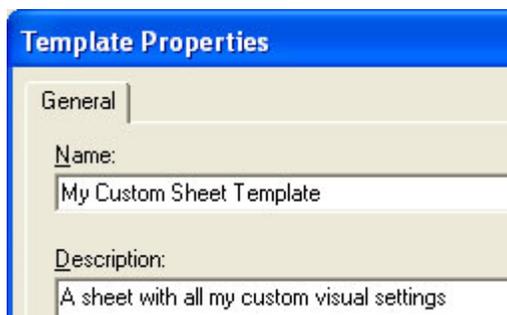
#### To load a Workspace template:

1. On the **View** menu, click **Load Workspace Template**.
2. In the View Workspace Template dialog, select a template from the list, then click **Load**.

### Renaming a Workspace Template

#### To rename a Workspace template:

1. On the **View** menu, click **Edit Workspace Templates**. The Edit Workspace Templates dialog box displays.
2. Select the template you wish to edit, then click **Edit**. The Template Properties dialog box displays.



- **Name:** Type a new name for the template.
  - **Description:** Write or change the description of the template.
3. Click **OK**, then click **Close**.

### Updating a Workspace Template

A Workspace template can be modified and updated. Each time you change a Workspace template, it must be saved.

#### **To update Workspace templates:**

- On the **View** menu, click **Save Workspace Template**.

The changes in the Workpad are saved to the template.

### Reverting a Workspace Template\*

If you change the appearance of a Workspace template and realize you do not want to keep the edits, you can undo the changes, and revert to the latest copy of the template that was saved.



Note: If you select the **Revert To Workspace Template** command, you will lose any changes you made to the appearance of the template.

#### **To revert a Workspace template:**

1. On the **View** menu, click **Revert to Workspace Template**.
2. A confirmation dialog box displays. Click the appropriate option to revert the template.

The most recent version of the template replaces the Workspace.

### Deleting a Workspace Template

You can delete a Workspace template that is no longer used from RemLogic.

#### **To delete a Workspace template:**

1. On the **View** menu, click **Edit Workspace Templates**.
2. Select a template from the list, then click **Delete**.
3. A confirmation dialog displays confirming that you want to delete the selected template. Click **Yes** to proceed with deleting the template. Click **No** to cancel the delete and return to the Edit Workspace Template dialog.
4. Click **Close**.

### Sharing a Workspace Template

You can store Workspace template settings on a network (on a server or shared drive). Your preferred visual settings are accessible to each computer on the network. If you upgrade from a previous version of RemLogic, the network location previously specified will not change. If you installed RemLogic for the first time, the default location for workgroup templates is:

- **Windows XP Users:** C:\Documents and Settings\All Users\Application Data\Embla\RemLogic\Sheet Templates
- **Windows 7 Users:** C:\ProgramData\Embla\RemLogic\Sheet Templates

Changing the file path to a server or shared drive location is recommended.

#### **To change the network location for workgroup Workspace templates:**

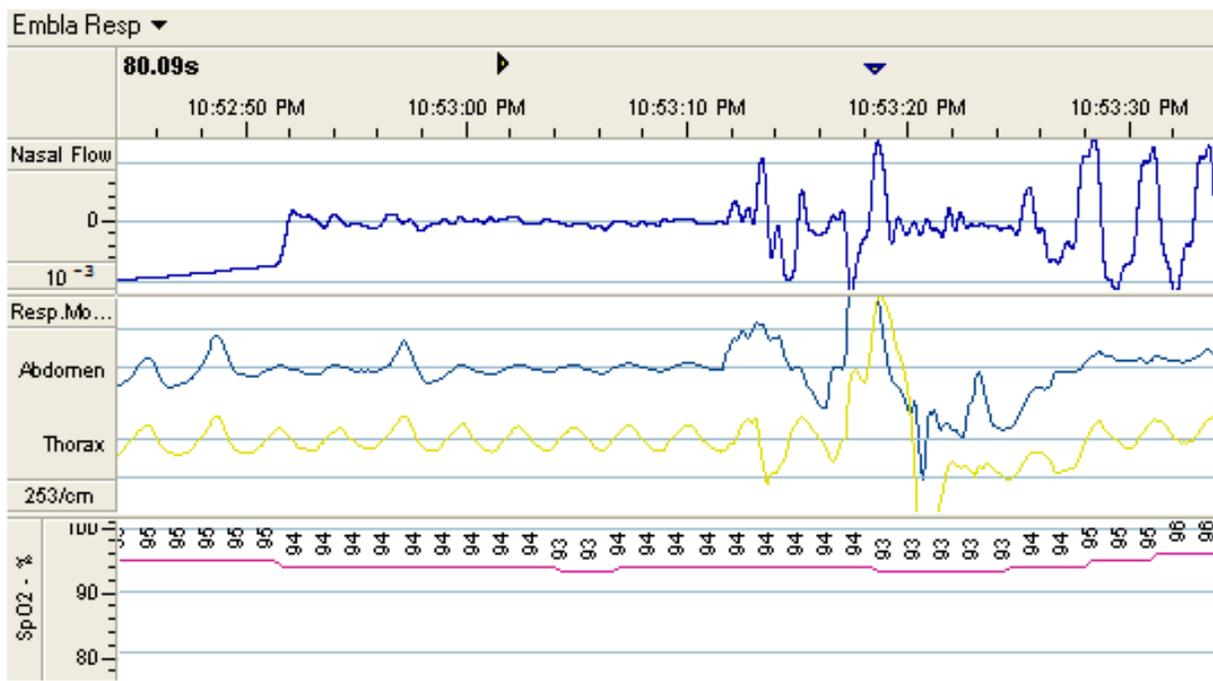
1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click on **Advanced** or single-click the “+” beside it, and single-click on **Miscellaneous**.
3. In the right pane, type the destination of the desired Workspace template into the **Workgroup Templates** data field or single-click on the ellipses **...** to the right of the data field to browse to the location manually.
4. Click **OK**.

All new workgroup Workspace templates are stored at this location.

## Workpad Area

### Workpad Sheets

Workpads contain one or more Workpad Sheets, which are individual work areas. Workpad Sheets contain the recorded signals and visual data settings (for example, time interval, axis values, filters, trace number, sequence, and color). You can customize and save visual settings for one or even several different sheets.



A Workpad Sheet displaying four traces.

When you open a recording for the first time, RemLogic automatically inserts the default sheets into the new Workpad:

- If you are running the licensed version of RemLogic, the sheets inserted are: Embla PSG (EmblaPSG), Embla Respiratory (EmblaResp), and Embla PSG Calibration Test (EmblaPSG CalTest). The first two templates recognize all of Embla's recording devices and most commonly used sensors. For example, if you use Piezo respiratory sensors during collection, the data from these sensors display when you open the study in RemLogic; likewise, if you use XactTrace™ sensors, the Embla template recognizes the

derived traces, and displays them correctly. The Embla PSG Cal Test sheet differs from the Embla PSG and Embla Respiratory templates in that it displays machine calibration waveforms of bipolar EEG, EKG, and EMG traces.



Note: Derived traces from the XactTrace™ belts must be selected using the **Tools | Options | Advanced** menu. Once the desired traces have been selected, they will be displayed in the Workpad Sheet accordingly.

- If you are running the license free version of the software, the sheets inserted are: Respiratory and sheet 1 – Customizable. The sheet 1 – Customizable is the only one of the two that you can make changes to and save using the process described under [Updating a Workpad Sheet Template](#). All changes made to the Respiratory worksheet can only be saved using the [Saving a Workpad Sheet as a Template](#) process.

Opening an existing Workpad displays all sheets open during the last save.

Each Workpad Sheet tab is located at the base of the Workpad area. Click on a sheet tab to display the respective sheet.



You can create new sheets in several ways, including inserting or copying the default sheets, inserting new blank sheets, and cloning existing sheets.

### Saving a Workpad Sheet

Any recording that was reviewed and analyzed can be saved as a Workpad file. When a Workpad is closed, RemLogic asks if the changes made to the recording, which can include the scoring and analysis information entered into the recording, should be saved. It also saves changes made to the sheet or template that was used for viewing the traces. You can save and store a customized sheet along with other sheets or reports as a Workpad file within the Patient folder. Depending upon how many Workpads are opened, RemLogic will add a number to the Workpad label, such as "Workpad5." You can give the Workpad a more meaningful label, such as "Scored."

#### **To save a Workpad Sheet:**

1. On the **File** menu, click **Save As**.
2. Type a name for the Workpad.
3. Click **OK**.

The set of sheets are saved as a Workpad file , and stored under the appropriate patient folder in the [Recording Manager](#).

### **Auto-Saving Workpads**

By default, changes to the current Workpad are automatically saved at a regular time interval. You can customize the auto-save time interval. You can also disable the auto-save function.

#### **To enable autosave:**

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Advanced**.

3. Select the **Autosave Workpads every x minutes** check box.
4. Enter the autosave frequency in minutes.
5. Click **OK**.

#### To save Workpads to other locations outside of the recording folder:

- Select the **Allow saving Workpads outside of the recording folder** check box.



Note: Saving a recording as a Workpad does not affect the Raw Data folder. Additionally, if any changes were made to the Workpad, RemLogic always prompts you if the data must be saved before closing.

#### Inserting an Existing Workpad Sheet

##### To insert a default sheet:

1. Right-click any sheet tab.
2. Click **Insert**, then from the list of default sheets, select a sheet type.

A new sheet displays in the Workpad, with its own sheet tab.



#### Inserting a Blank Workpad Sheet

Inserting a blank sheet allows you to create a sheet and choose which traces to include in it.

1. Right-click any sheet tab.
2. Point to **Insert**.
3. Click **Blank Sheet**. The Add/Remove Traces dialog box displays.
4. To select the traces to be included in the new sheet, do one of the following:
  - Select the check boxes next to the traces to be added to the sheet.
  - Click **Check All** to add all the traces on the list to the sheet.
  - Click **New** if you want to define a new trace and add it to the sheet.
5. Click **OK**.

The selected traces display in a new sheet with its own sheet tab, *New Sheet*.



#### Cloning a Workpad Sheet

You can make an exact copy of a selected sheet by cloning it.

1. Make the appropriate changes to any sheet (for example, adjust trace size, number, and color).
2. Right-click the sheet tab of the sheet to be cloned.
3. Click **Clone**.

A new sheet that is identical to the selected sheet displays in the Workpad with its own sheet tab.



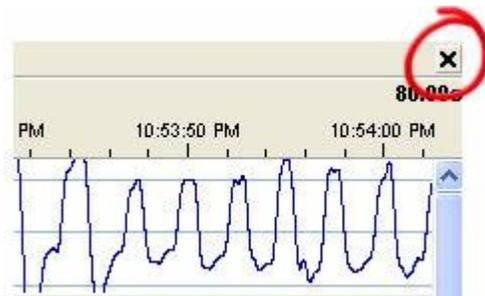
Tip: If you clone a default Embla Workpad Sheet (Embla PSG or Embla Resp), the dynamic properties present in the original sheet will be lost. If you open a newly recorded study in the template, only recorder and sensor channels already present in the template will be recognized. You can, however, manually add the missing signal channels.

### Deleting a Workpad Sheet

You can delete a Workpad Sheet that is no longer needed from the Workpad.

#### To delete a sheet:

- Do one of the following:
  - Right-click the sheet tab of the sheet, then click **Delete**.
  - Click **Close**  above the time axis in the upper-right corner of the sheet.
- A confirmation messages asks if you are sure you want to delete the sheet from the Workpad; click **Yes**.



### Printing a Workpad Sheet

You can print Workpad Sheets from RemLogic both page-by-page and on continuous paper.

#### To print a Workpad Sheet:

- On the **File** menu, click **Page Setup**.
- Optionally, specify any print options that are available for your printer. Click **OK**.
- Do one of the following:
  - Click **Print**  on the toolbar.
  - On the File menu, click **Print**.
- The Print dialog box displays. Specify the print options available:
  - Workpad range:** These settings control what portion of the data in the Workpad is sent to the printer.
    - All:** Print all data in the Workpad.
    - Screen:** Print the data visible on the screen.
    - Time:** Print the data within the time range specified by the **from** and **to** boxes.
  - Options:**
    - Scale panes to fit vertically:** Scale the panes so all traces are condensed or expanded to fit on one page.

- **Scale time to fit horizontally:** Scale the time range to be printed to fit on one page.
- **Print events:** Include any events you marked into the Workpad in the printout.
- **Print gridlines:** Include Any gridlines you inserted into the Workpad in the printout.
- **Print trace labels:** Include the trace labels on the amplitude axis in the printout.
- **Print range:** These settings affect which pages from the specified Workpad range are to be printed.
  - **All:** Prints all the pages.
  - **Pages:** Prints a range of pages specified by the from and to boxes.
  - **Copies/Number of copies:** Select how many copies of the printout you want.
  - **Collate:** If you are printing more than one copy, select this option for the printer to arrange the copies in numerical sequences.

5. Click **OK**.

The printed sheet reflects the settings of the [time](#) and [amplitude](#) axes in the Workpad. For example, if the time axis is set to show 3cm/s, the printed sheet also uses that scale. Therefore, the traces you see on the screen might not fit on one page.

To make a printout where all traces fit on one page, select Scale panes to fit vertically in the Print dialog.

### Workpad Sheet Properties

In addition to saving a set of traces in a specific order, a sheet holds information about the sheet name, grid settings, and colors. Changing the properties only affects the current sheet in the open study. The changes made to the sheet's properties can be saved. To make sheets with settings that will persist between studies, see [Workpad Sheet Templates](#).

#### **To change sheet properties:**

1. Right-click the sheet tab, then click **Properties**.
2. See below for a detailed explanation of each tab.
3. Click **OK**.

#### **General, Grid, and Colors Tab Options**

##### **General, Grid, and Colors Tabs**

Use the General tab to change the sheet name or add basic description of the sheet. Changes made to the name and description of a sheet are stored in the current Workpad only.

- **Name:** Type a name for the sheet. This name display on the sheet's tab.
- **Description:** Enter a description of the sheet.

General, Grid, and Colors Tabs	
Use the Grid tab to insert or remove gridlines from a sheet. By default, major gridlines from both the axes display in the sheet. You can enable minor gridlines or hide gridlines altogether.	<ul style="list-style-type: none"> <li>• <b>Show major/minor gridlines:</b> Select the check boxes to display gridlines in the sheet. To hide the gridlines, clear the check boxes.</li> </ul>
Use the Colors tab to change the color settings of a sheet.	<ul style="list-style-type: none"> <li>• <b>Trace:</b> Click the color box, and select a color for the active trace.</li> <li>• <b>Gridlines:</b> Click the color boxes, and select a color for the major and the minor gridlines.</li> <li>• <b>Background:</b> Click the color box, and select a color for the background of the sheet.</li> </ul>

## Workpad Sheet Templates

Sheet templates provide you with a means to save the settings you defined for the visual presentation of traces (if you create an Overview Sheet template, you can define graphs, as well). For example, a sheet template specifies what traces are shown, their order, the colors, pane sizes, and more. The template can save you from recreating the format each time you view a recording. Sleep technologists can also create their own templates to view the data in the way they find most convenient. A sheet template can be saved and used as a model for displaying sheets from other recordings.

You can store the templates locally on one workstation, or make them available on all workstations by storing them on a network. If you create a sheet template that you will use frequently, you can save it so it will automatically display every time you open new data.

When you open a recording for the first time, RemLogic automatically inserts the default sheets into the new Workpad:

- If you are running the licensed version of RemLogic, the sheets inserted are: Embla PSG (EmblaPSG), Embla Respiratory (EmblaResp), and Embla PSG Calibration Test (EmblaPSG CalTest). The first two templates recognize all of Embla's recording devices and most commonly used sensors. For example, if you use Piezo respiratory sensors during collection, the data from these sensors display when you open the study in RemLogic; likewise, if you use XactTrace™ sensors, the Embla template recognizes the derived traces, and displays them correctly. The Embla PSG Cal Test sheet differs from the Embla PSG and Embla Respiratory templates in that it displays machine calibration waveforms of bipolar EEG, EKG, and EMG traces.



Note: Derived traces from the XactTrace™ belts must be selected using the **Tools | Options | Advanced** menu. Once the desired traces have been selected, they will be displayed in the Workpad Sheet accordingly.

- If you are running the license free version of the software, the sheets inserted are: Respiratory and sheet 1 – Customizable. The sheet 1 – Customizable is the only one of the two that you can make changes to and save using the process described under [Updating a Workpad Sheet Template](#). All changes made to the Respiratory worksheet can only be saved using the [Saving a Workpad Sheet as a Template](#) process.



Note: Modifying a default Embla Workpad Sheet (Embla PSG, Embla Resp, and EmblaPSG CalTest) and saving it as a template overwrites dynamic properties present in the original sheet. Consequently, when you open recorded studies in the template, only recorder and sensor channels present in the template are recognized and displayed. To correct the issue, add any missing signal channels.

Sheet templates allow you to view data with your preferred settings. You can create a template in two ways: by creating a new template, or by saving an existing customized sheet as a template.

### Saving a Workpad Sheet as a Template

#### To save a Workpad Sheet as a template:

1. Do one of the following:
  - On the **View** menu, click **Edit Sheet Templates**. Click **New**.
  - Right-click the tab of the Workpad Sheet you want to save as a template, then click **Save As Template**.
2. Click **Next**.
3. Specify a location for the template by selecting the template type.
  - **Local Template:** Select this option to make the template accessible on the current workstation.
  - **Workgroup Template:** Select this option to make the template accessible to all the workstations on your network.
  - **This template is designed for use as a Live View Layout:** Select this option to make the layout a template for the Live View Window.
4. Click **Next**.
5. Select a Workpad Sheet on which to base the template, then click **Next**.
6. In the **Name** box, type a name for the template.
7. Type a description of the template in the **Description** box, then click **Next**.

Name: PSG\_MSLT

You can also enter a more detailed description of the template.

Description: Template for MSLT recordings

8. Confirm the template location, name, and description. Click **Finish**.
9. Click **Close**.

To insert a Workpad Sheet based on the template, right-click any Workpad Sheet tab, point to **Insert**, then click the new template.



Note: Modifying a default Embla Workpad Sheet (Embla PSG, Embla Resp, and EmblaPSG CalTest) and saving it as a template overwrites dynamic properties present in the original sheet. Consequently, when you open recorded studies in the template, only recorder and sensor channels present in the template are recognized and displayed. To correct the issue, add any missing signal channels.

### Renaming a Workpad Sheet Template

**To rename a sheet template:**

1. On the View menu, click **Edit Sheet Templates**.
2. Select the template to be edited, then click **Edit**.

The screenshot shows a dialog box titled 'Template Properties' with a blue header. Below the header is a tabbed interface with 'General' selected. There are two text input fields: 'Name:' with the value 'My Custom Sheet Template' and 'Description:' with the value 'A sheet with all my custom visual settings'.

- **Name:** Type a new name for the template.
  - **Description:** Write or change the description of the template.
3. Click **OK**, then click **Close**.

### Updating a Workpad Sheet Template

You can modify a sheet template. Each time you change a sheet template, it must be updated to save the changes.

**To update sheet templates:**

1. Right-click the tab of the modified template.
2. Click **Save Sheet Template**.
3. Click **Yes**.

### Reverting a Workpad Sheet Template

If you do not want to keep the edits for a sheet template, you can undo the changes and revert to the latest saved copy of the template.



Note: If you select the **Revert to Workspace Template** command, you will lose all the changes you made to the appearance of the template since you last saved it.

**To revert a sheet template:**

1. Right-click the tab of the sheet to which you want to revert.

2. Click **Revert to Sheet Template**.
3. Click **Yes**.

### Deleting a Workpad Sheet Template\*

*\*Not available with the License free version of RemLogic*

You can delete from RemLogic a sheet template that is no longer used.

#### **To delete a sheet template:**

1. On the View menu, click **Edit Sheet Templates**.
2. Click the template you want to delete, then click **Delete**.  
Enterprise Users: If you delete the Publishing Overview Sheet Template, RemLogic selects a default Publishing Overview Sheet template, unless you specify a new one.
3. Click **Yes**.

### Sharing Workpad Sheet Templates

Sheet template settings can be stored on a network (on a server or shared drive). This means that your preferred visual settings are accessible to each computer on the network. If you upgrade from a previous version of RemLogic, the network location previously specified will not change.

The default location for workgroup templates is:

- **Windows XP Users:** C:\Documents and Settings\All Users\Application Data\Embla\RemLogic\Sheet Templates
- **Windows 7 Users:** C:\ProgramData\Embla\RemLogic\Sheet Templates

Changing the file path to a server or shared drive location is recommended.

#### **To change the network location for workgroup sheet templates:**

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Advanced**, or single-click the “+” beside it, and single-click on **Miscellaneous**.
3. Enter the file path, or click **Browse** to search for and select the appropriate network location.
4. Click **OK**.

All new workgroup sheet templates are stored at this location.

## **Overview Sheet**

The Overview Sheet is a [Workpad Sheet](#) that provides a summary of an entire recording, including signal trends, [events](#), and [traces](#), on one sheet. Workpads sheets update dynamically when the synchronization marker (located on the time axis at the top of the sheet) [navigates to specific points in the recording](#).

On the Overview Sheet, you can [add event traces](#) and [graphs](#), or create graph groups to add graphs specific to the analysis type. The [Amplitude Axis](#) bar displays to the left of the traces on the Overview Sheet. For more information, see [Amplitude Axis](#).



Note: Filter and Calibration properties cannot be adjusted in the Overview Sheet.

### Inserting an Overview Sheet

#### To insert an Overview Sheet:

1. Right-click any sheet tab in the Workpad area.
2. Click **Insert**.
3. Click **Overview Sheet**. A blank sheet displays:



4. To add traces to the Overview Sheet:
  - Select the check boxes of the traces you want to add, then click **OK**.
  - To add all available traces to the Overview Sheet, click **Check All**, then click **OK**.
  - To add a New trace (This feature is not available with the License free version of RemLogic.):
    - Click **New**, and select trace type from the Main type list.
    - In the **Signal** pane, click a signal.
    - In the **Reference 1** pane, select the first reference.
    - In the **Reference 2** pane, select the second reference (if applicable).
    - Click **OK**.
5. To add graphs to the Overview Sheet:
  - Click the **Graphs** tab, select a graph group from the list, select the check boxes of the graphs you want to add, then click **OK**. For more information, see **Event Graph Groups** in the following location in the RemLogic online help: **Work Environment | Workpad Area**.

### Deleting an Overview Sheet

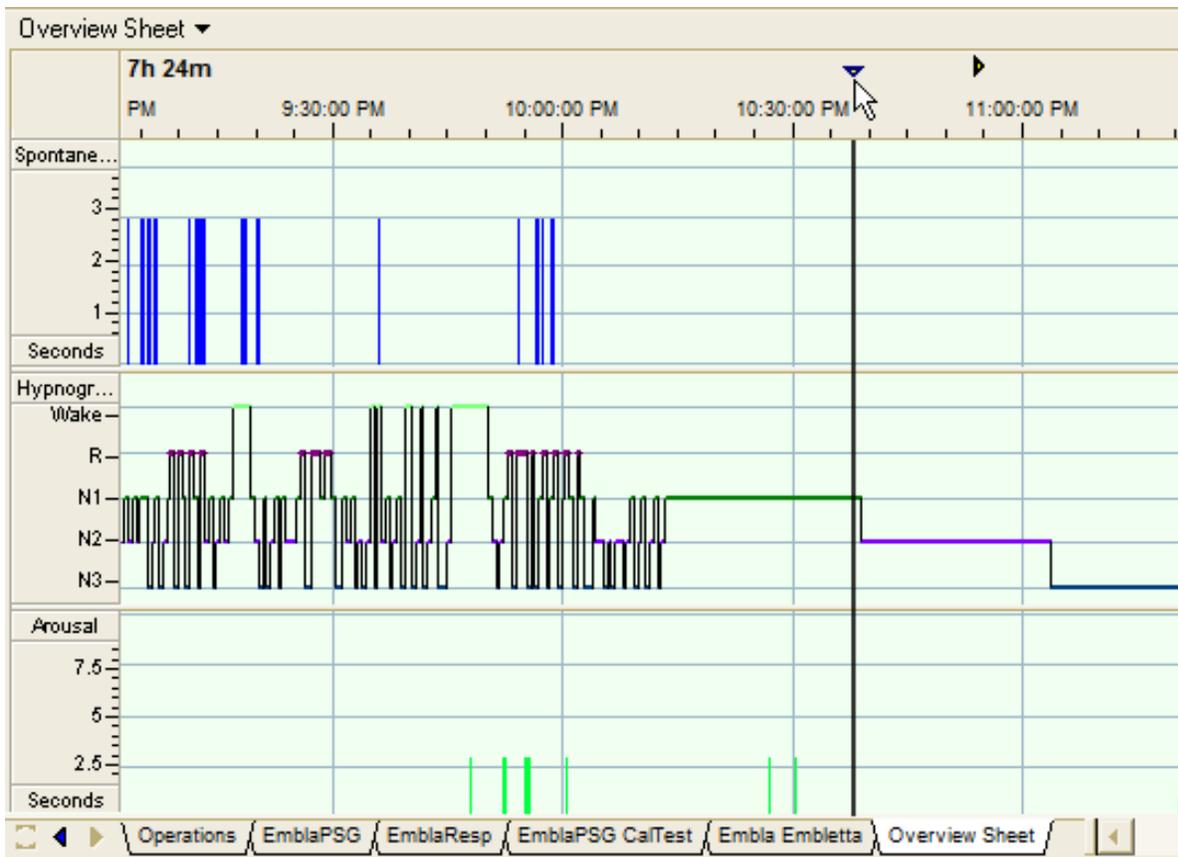
#### To delete an Overview Sheet:

- Right-click the **Overview Sheet** tab, then click **Delete**.

### Navigating a Recording

The Overview Sheet synchronizes with the trace displays in the other sheets in your Workpad. You can use the Overview Sheet to quickly jump to different locations in the recording.

The Overview Sheet displays a synchronization marker  on the time axis at the top of the sheet. It allows you to navigate to a specific time during a recording to display an event or point of interest.



As the synchronization marker moves to a new point on the time axis, a line appears, indicating the location of the marker.

### To jump to a location in the recording:

1. Click on the synchronization marker on the time axis at the top of the Overview Sheet.
2. Drag the marker to the point on the time axis that corresponds to an event or point of interest.

All sheets in the Workpad synchronize based on the time selected.



Tip: Press TAB to move to the next graph or trace on the Overview Sheet. To move to the previous graph or trace, press SHIFT + TAB.

### Time Display During Collection\*

*\*Not available with the License free version of RemLogic*

You can use the Overview Sheet to view scored events during data collection. As events are scored, they display on the Overview Sheet according to previously added event graphs.

At the start of a recording, the Overview Sheet displays one hour of data. After an hour of recording, the sheet displays two hours, with the second hour starting at the center of the sheet. After two hours, the sheet displays three hours, with the third hour beginning in the center of the sheet, and so on. By the end of the recording, the entire study displays.

### Adding a Trace

#### To add a trace to an existing Overview Sheet:

1. Click **Traces**  on the toolbar.
2. Do one of the following:
  - Select the check box of the trace you want to add.
  - To add a New trace, click **New**, and select trace type from the Main type list. This feature is not available with the License free version of RemLogic.
    - a. In the **Signal** pane, click a signal.
    - b. In the **Reference 1** pane, select the first reference.
    - c. In the **Reference 2** pane, select the second reference (if applicable).
    - d. Click **OK**.
3. Click **OK**.

### Removing a Trace

#### To remove a trace from an Overview Sheet:

1. On the **Data** menu, click **Add/Remove Traces/Graphs**.
2. Clear the check box of the trace you want to remove.
3. Click **OK**.

### Adding a Graph

#### To add a trace to an existing Overview Sheet:

1. Click **Traces**  on the toolbar.
2. Click the **Graphs** tab.
3. Select a graph group from the menu, then select the check box of the graph you want to add.
4. Click **OK**. For more information, see **Event Graph Groups** in the following location in the RemLogic online help: **Work Environment | Workpad Area**.

You can save the selection of traces and graphs as a [sheet template](#) for future use. For more information, see [Sheet Templates](#). For information about activating, adding, and removing traces, see [Traces](#).

### Removing a Graph

#### To remove a graph from an Overview Sheet:

1. On the **Data** menu, click **Add/Remove Traces/Graphs**.
2. Click the **Graphs** tab.
3. Clear the check box of the graph you want to remove.

4. Click **OK**.

### Moving a Trace/Graph

#### To move a trace on the Overview Sheet:

1. Place the pointer directly over the trace name.
2. Drag the trace to the new position .



Tip: To remove a trace/graph and its pane, right-click the trace, then click **Delete Pane**.

## Overview Sheet Layout

Using the Overview Sheet, you can display event graphs and traces together in a single Overview Sheet, or use the split Workpad feature to view data from two Workpad Sheets in a single screen.

When a graph displays, it appears in the color specified for the Event bar and trace highlight. You can alter the display color by editing the properties for the event. For more information, see [Event Types](#).

### Event Graph Display

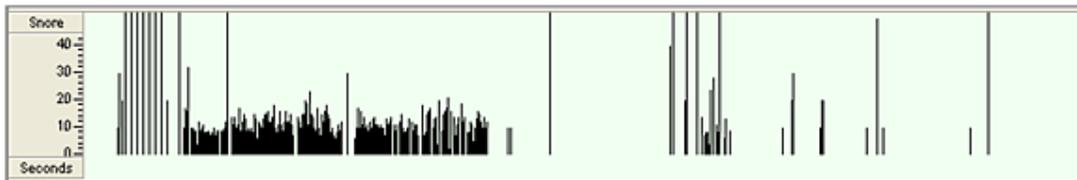
The Overview Sheet allows you to display event graphs in two ways: [horizontally](#) and [vertically](#).

#### **Horizontal Display**

By default, the event graph displays horizontally. The beginning and end of each event is represented by short vertical lines, with a horizontal line between them. Short events appear as a single, thicker line:

#### **Vertical Display**

You can change the display to present event graphs vertically. With the vertical display, the duration of events is indicated by the height of the lines that represent the events. You can adjust the graph using the bar that displays on the left when you display the time graph.



### Displaying Graphs and Traces Together

You can display events and related traces together in the Overview Sheet. This way, you can view all instances of an event that occurred during the night in conjunction with the trace upon which the event was scored.

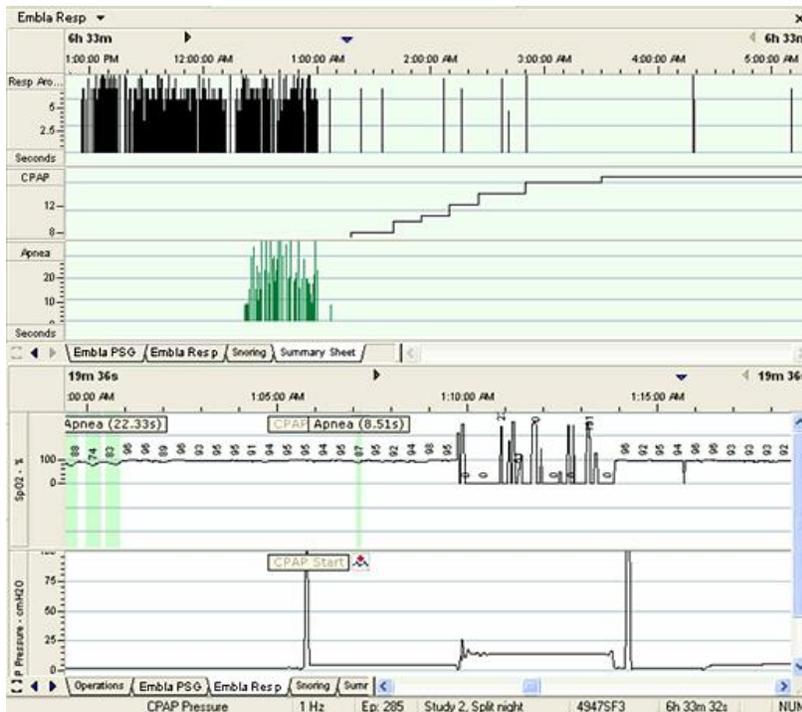


In this figure, an SpO2 trace displays along with a Desaturation event graph, showing all the desaturations scored on this trace during the study. The Analysis Start and Stop times, as well as Artifacts marked during the study, also display.

### Displaying Graphs and Traces Using a Split Screen\*

\*Not available with the License free version of RemLogic

You can customize the Workpad to display the Overview Sheet and another sheet together using the split Workpad feature. The split Workpad can include the Overview Sheet displaying event graphs, and another sheet containing the traces you are currently scoring. The events you score display in the Overview Sheet. For more information, see **Split Workpad Views** in the following location in the RemLogic online help: **Work Environment | Workpad Area | Workpad Views**.



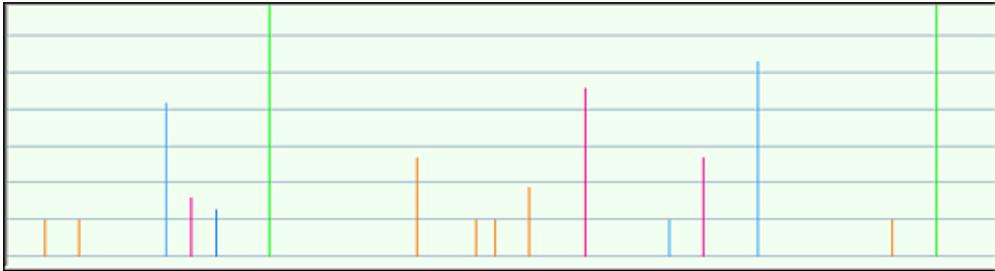
In this figure, the Overview Sheet displays Respiratory Arousal, CPAP pressure, and Apnea events. SpO2 and PAP pressure traces display in the Respiratory sheet, where they were scored.



Tip: You can save customized Overview Sheets and Workpads as Sheet Templates or Workspace Templates.

## Displaying Graph Groups

When you display graphs as part of a group, each event in the group displays in the color specified in the Event Type properties (Event bar and trace highlight color). Using contrasting colors allows you to differentiate between the related, but distinct, graphs.



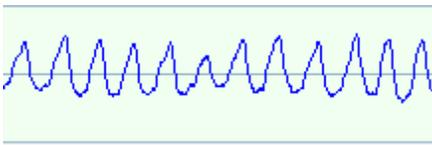
In this example, an Apnea graph group displays. Each event and corresponding trace in the group has its own color, making it easy to identify specific events, like Obstructive, Central, or Mixed Apnea.



Tip: When viewing an eight hour study, a limited amount of data within each one minute segment in the Overview Sheet displays. If more than one event is scored within a one minute segment, the event graphs might overlap.

## Traces

Traces are the visible representations of recorded signals. A trace displays in a pane located in a sheet. You can change properties of every trace, such as amplitude and filtering. Further, you can adjust the number of traces, their order in the sheet, how they are grouped, and more.



An active trace.

### Activating a Trace

Click on a trace to make it active. By default, an active trace displays in blue; however, you can change the color. The status bar at the bottom of the screen displays the properties of the active trace.



Status bar showing the EKG trace as active. Its frequency is 200Hz, the epoch number is 1, the patient name is Normal Patient, the study is Ambulatory, the ID is 123456, and the recording duration is almost 9 hours.

### To change the active trace color:

1. Right-click a sheet tab, then click **Properties**.
2. Click the **Colors** tab.
3. Under Trace, click the **Active** color box.
4. Click a color.
5. Click **OK** twice.



### Adding a Trace

You can add one or more traces to a Workpad Sheet.

#### To add a trace:

1. Click **Traces**  on the [toolbar](#).
2. Do one of the following:
  - Select the check boxes of the traces you want to add to the Workpad Sheet.
  - Click **Check All** to add all traces from the list.
  - To define a new trace, click **New**.
3. Click **OK**.

### Removing a Trace

You can remove traces from a [Workpad Sheet](#) in two ways. The Add/Remove Traces function can remove a single trace or all recorded traces from a sheet.

#### To remove a trace from a Workpad Sheet:

1. Click **Traces**  on the [toolbar](#).
2. Do one of the following:
  - Clear the check boxes of the traces you want to remove.
  - Click **Uncheck All** to clear all check boxes.
3. Click **OK**.

### Copying a Trace

You can copy trace values to the clipboard.

#### To copy trace values to the clipboard:

1. Select the portion of a trace containing the values you want to copy.
2. On the **Edit** menu, click **Copy**.
3. Press CTRL + V to paste the clipboard contents in any Windows application.

### Moving a Trace

#### To move a trace within a pane:

1. Place the pointer on the trace you want to move. The pointer changes to a hand .
2. Drag the trace to the new position in the pane .

### Magnifying a Trace

#### To zoom in on a trace:

1. Click **Zoom**  on the [toolbar](#).
2. Click on a section of the trace.
3. To revert to normal view, press ESC.

### Inverting a Trace

You can invert traces around the zero axis on any Workpad Sheet but the Overview Sheet. This action is practical when you connect bipolar channels, such as EKG.

#### To invert a trace:

1. [Activate the trace](#).
2. Click **Invert**  on the [toolbar](#).

### Creating a Trace by Re-Referencing Signals\*

*\*Not available with the License free version of RemLogic*

You can re-reference signals to create new traces derivations.

#### To create a trace by re-referencing signals:

1. Click **Traces**  on the [toolbar](#).
2. Click **New**.
3. From the Main type list, select a type for the new trace. Based on the Main type selection, the available signals and references display below.
4. Select the Signal and Reference. For EEG and EOG Main types, select two references.
5. Click **OK**.

The new derivation displays in the Add/Remove Traces dialog box, and is available to add to any [Workpad Sheet](#) in the Patient folder.

### Scaling a Trace to Fit the Pane Size

You can scale traces so they are adjusted to the size of the pane.

#### To fit a trace within a pane:

- Right-click the trace, then click **Scale to Fit**.

### Centering a Trace

You can center traces within their panes. The trace is centered without changing the [amplitude axis](#) settings.

#### To center a trace in a pane:

- Right-click the trace, then click **Center**.

## Auto-Adjusting Traces

You can automatically adjust traces to fit within their panes. The auto-adjust function automatically adjusts the trace once on each page during playback or review.

### To auto-adjust traces:

1. Right-click the trace, then click **Properties**.
2. Click the **Scale** tab.
3. Do one of the following:
  1. To display traces without centering and scaling, under Auto-Adjust, click **Disabled**.
  2. To center traces, under Auto-Adjust, click **Center**.
  3. To scale traces to fit the pane, under Auto-Adjust, click **Scale to fit**.

### To toggle auto-adjust on or off:

Click **Toggle Auto-Adjust**  on the [toolbar](#). Clicking this button will affect traces with Auto-Adjust enabled only.



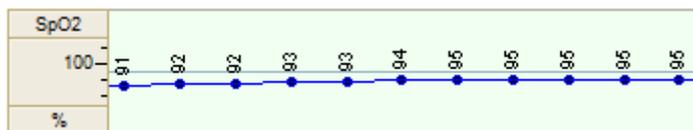
Tip: If you use auto-adjust for some traces, it might be difficult to notice amplitude changes.

## Trace Values

You can display the actual signal sampling values of the trace. These values are visible regardless of the time scale settings.

### To show or hide trace values:

1. [Activate the trace](#).
2. Do one of the following:
  - Click **Show Values**  on the [toolbar](#).
  - Right-click the trace, then select **Show Values/Hide Values**.



## Traces Sheet

A traces sheet includes all available traces.

### To insert a Traces sheet:

- Right-click any sheet tab, point to **Insert**, then click **Traces**.



Tip: You can move between traces on the sheet by using TAB and SHIFT. Press TAB to jump to the next trace. Press TAB + SHIFT to jump to the previous trace.

## Trace Properties

You can modify the properties of a trace in the Trace Properties dialog box to optimize the display of the trace. You can change the amplitude scales for the trace, turn on or off gridlines, rename or filter traces. These functions affect the sheet only, not the original recorded signals in the Raw Data folder . Modification of traces affects the whole trace, and can also impact the analysis of sheets.

### To change the trace properties:

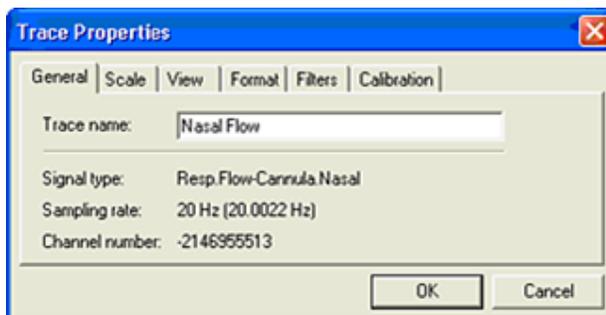
1. Right-click the appropriate trace, then click **Properties**. The Trace Properties dialog box displays.
2. Make the desired adjustments on the [General](#), [Scale](#), [View](#), [Format](#), [Filters](#) and [Calibration](#) tabs. See below for more information.
3. Click **OK**.



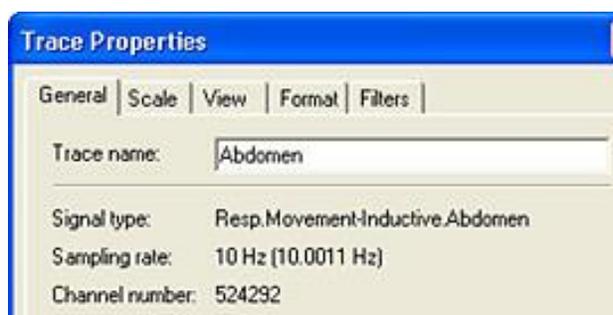
Note: Filter and Calibration properties cannot be adjusted in the Overview Sheet.

### General Tab

The **General** tab displays the trace name, signal type, data sampling rate, and recording channel number. You can modify the trace name on this tab sheet.



General Tab – Licensed Version of RemLogic



General Tab – License free Version of RemLogic

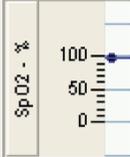
- In the **Trace name** box, type the desired name.

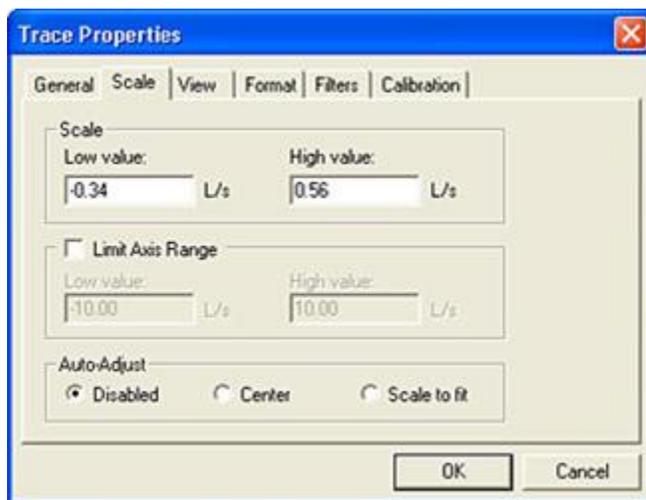
The new trace name displays on the [amplitude axis](#).

### Scale Tab

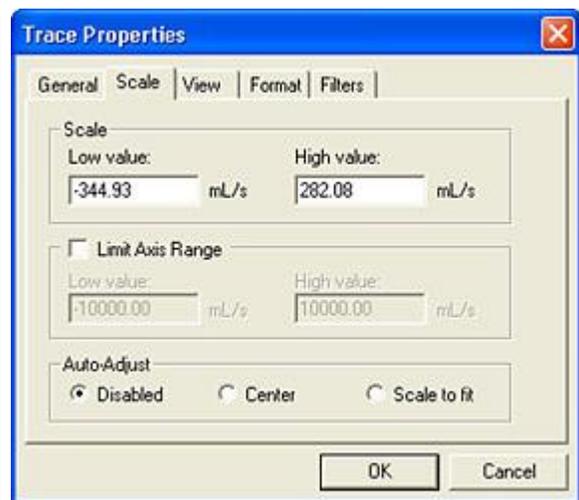
The **Scale** tab allows you to set the high and low scale values for the trace and limit the axis range.

**Scale Tab Properties**

Property	Description/Procedure
Scale	In Low value and High value, type the preferred low and high values, respectively, for the amplitude scale. These values adjust the range of the trace's <a href="#">amplitude axis</a> . The low and high values do not limit the display range of the amplitude axis.
Limit Axis Range	Choosing this option limits the amplitude axis display range. No values above or below the given limit display. This display limit assists in avoiding unwanted amplitude adjustments for signals out of range due to artifacts. For example, an SpO2 trace with axis limit range from 0–100 results in the following display: 
Auto-Adjust	Auto-scaling or auto-centering of traces can be enabled for each individual trace. These options are active during playback and review. You can store the trace adjustments with a <a href="#">sheet template</a> so that a specific channel is automatically adjusted. You can turn this feature on and off by clicking <b>Toggle Auto-Adjust</b>  on the toolbar. The auto scale function should be used sparingly, as it might distract from when the amplitude is increasing or decreasing.  Auto-Adjust options: <ul style="list-style-type: none"> <li>• <b>Disabled:</b> The trace is not automatically adjusted; that is, it displays off center and unscaled.</li> <li>• <b>Center:</b> The trace is automatically vertically centered in the pane without changing its amplitude.</li> <li>• <b>Scale to fit:</b> The trace is scaled to fit within the pane.</li> </ul>



Scale Tab – Licensed Version of RemLogic



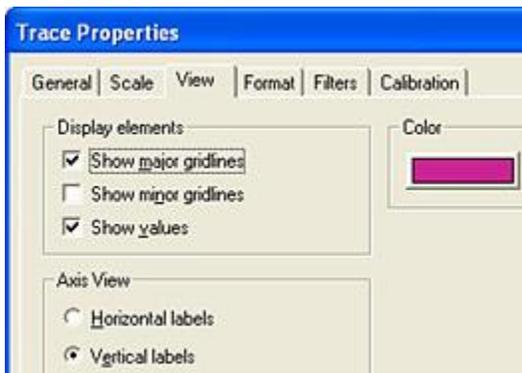
Scale Tab – License free Version of RemLogic

View Tab

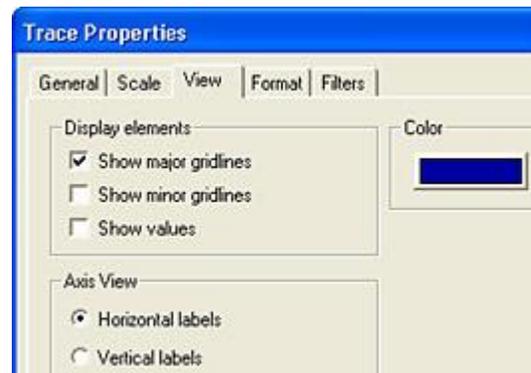
You can change the color of the trace, the display elements, and the view of the [amplitude axis](#).

**View Tab Properties**

Property	Description/Procedure
Display elements	Select Show major gridlines and Show minor gridlines to enable the major and minor trace gridlines of the trace. The Show values option displays the actual sampled values of the trace.
Color	Click this box to select a color from the Color palette. You can make a custom color by clicking <b>Define Custom Color</b> .
Axis View	You can arrange the trace label from horizontal to vertical on the amplitude axis.

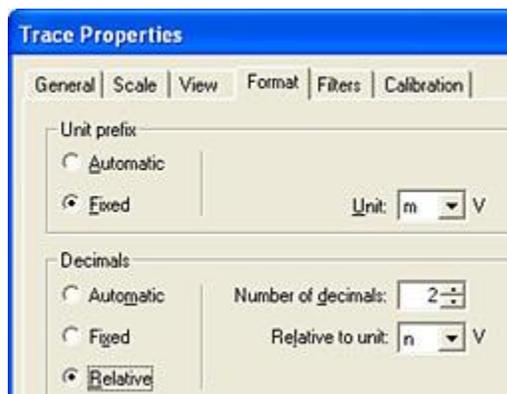


View Tab – Licensed Version of RemLogic

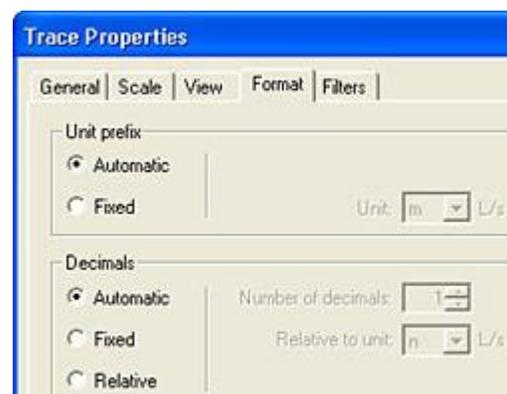


View Tab – License free Version of RemLogic

Format Tab



Format Tab – Licensed Version of RemLogic

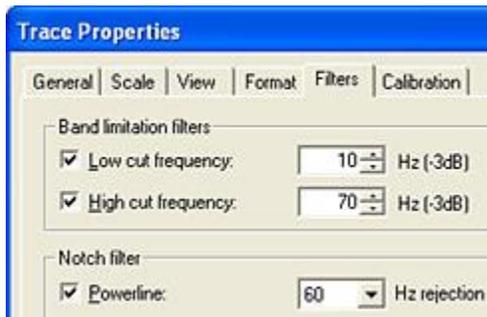


Format Tab – License free Version of RemLogic

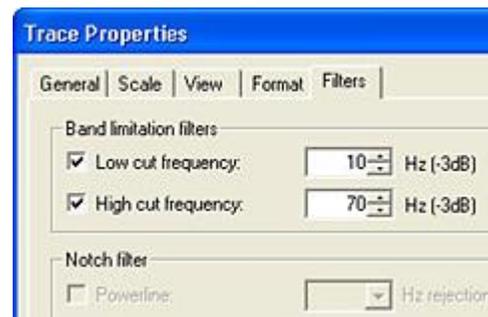
This property determines the format of the numbers on the amplitude axis. You can change the amplitude unit prefix, or the number of decimals displayed when values display on a trace. For more information, see [Amplitude Axis](#).

### Filters Tab

By default, no filters are applied to a trace; however, you can apply filters as needed.



Filters Tab – Licensed Version of RemLogic



Filters Tab – License free Version of RemLogic

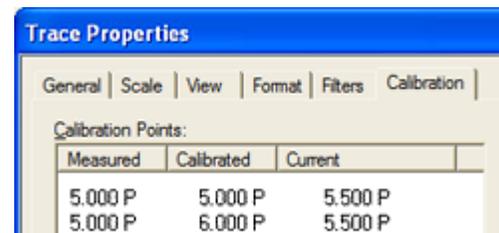
### **Filters Tab Properties**

Property	Description/Procedure
Band limitation filters	You can set both high and low cut band limitation filters. High cut eliminates all frequencies above a given limit, and low cut eliminates all frequencies below a given limit. In the example, all frequencies below 10 Hz and above 70 Hz are eliminated from the trace.
Notch filter	You can apply a notch filter to a trace. A notch filter is a narrow filter that eliminates one specific frequency in the data. This is useful to reject the possible impact of the 50/60 Hz from the mains power (note that this can also be done for individual sensors during acquisition with the Embla).

### Calibration Tab\*

\*Not available with the License free version of RemLogic

All calibrated points added to a signal during online calibration display in the Calibration tab of the Trace Properties dialog. For instructions about calibrating signals during acquisition, see **Online Calibration** in the **Collecting Data** section of the RemLogic online help.



### Changing the Properties of Multiple Traces

You can select several traces at once and change their properties using the CTRL + SHIFT and your mouse.

#### **To change the properties of multiple traces:**

1. Select the traces you want to change by pressing CTRL and clicking the desired traces. Alternatively, to select a group of traces, highlight the first trace you want to select with your mouse. Press SHIFT and select the last trace you want to select. All traces between the first and last trace are selected.
2. The traces you selected will turn blue, or the default color you selected for active traces.
3. Right-click, then click **Properties**. The Trace Properties dialog box displays.

4. Make the desired adjustments on the [Scale](#), [View](#), and [Filters](#) tabs. See above for more information.

When you change the properties for multiple traces, you cannot change details on the General, Format or Calibration tabs. These properties must be individually set for each trace.

The properties you choose are applied to all the traces you selected.

## Trace Groups

### Grouping Traces

You can rearrange traces on a [Workpad Sheet](#) as well as group, and rearrange similar and dissimilar types in one pane.

#### **Grouping Similar Traces**

You can group together traces of the same signal type, such as abdomen and thorax, in one pane.

#### **To group similar traces:**

- Right-click the trace, then click **Group**.

#### **To ungroup similar traces:**

- Right-click the trace, then click **Ungroup**.

#### **Grouping Different Trace Types**

You can group together traces of dissimilar signal types (for example, flattening and flow) in one pane by moving a trace from one pane to another.

#### **To group dissimilar traces:**

1. Position the pointer over the trace. The pointer changes to: .
2. Press SHIFT + CTRL.
3. Drag the trace to the new position. The empty pane is automatically deleted.



Note: To reverse this action, right-click inside the pane containing the two traces, then select **Separate Traces**.

### Ungrouping Traces

#### **To ungroup traces:**

- Right-click any trace in the group, then click **Ungroup**.

### Removing a Trace from a Group

You can remove a trace from a group, or place it on a separate pane in the sheet.

#### **To remove a trace from a group (and sheet):**

- Right-click the trace, then click **Remove Trace**.

### Separating a Trace from a Group

#### To separate a trace from a group:

- Right-click the trace, then click **Separate Trace**. The trace is removed from the grouped pane and displays in a separate pane.

### Arranging Traces

When several traces are placed in one pane, you can rearrange and space them evenly within the pane. This function is useful when working with multiple EEG traces in one pane. There are two ways to do this:

- Click the mouse inside the appropriate pane. On the **Data** menu, click **Arrange**.
- Right-click the background of the appropriate pane, then click **Arrange**.

Clicking **Pane Number**  (in the lower-left corner of the Workpad area) displays a list where you can choose the number of panes to display.

### Renaming a Trace Group

The default name on the amplitude axis of grouped traces is based on the signal type of the traces. You can change the group name on the amplitude axis.

#### To rename a trace group:

1. Right-click the [amplitude axis](#), then click **Properties**.
2. In the **Name** box, type a new name for the trace group.
3. Click **OK**.

### Trace Group Axis Gain

#### To set the axis gain of trace group:

1. Right-click the [amplitude axis](#), then click **Properties**.
2. Click the **Gain** tab.
3. From the **Unit of Measure** list, select an option.
4. In the **Gain Value** box, type a value.
5. Click **OK**.

### Trace Group Layout

You can adjust the distance between each trace in a grouped pane by inserting or deleting gaps between the traces.

#### To insert or remove gaps:

1. Right-click the [amplitude axis](#), then click **Properties**.
2. Click the **Layout** tab.
3. Select the trace below the space you want to insert a gap, then click **Insert Gap**.
4. To remove a gap, select the gap, then click **Remove Gap**.

5. If selected traces in the group were separated from the grouped pane, those traces can be added back to the group. Click **Add Traces**. Select the check boxes in front of the desired traces, then click **OK**.
6. You can rearrange the gaps by highlighting the gap, then using the up and arrow keys to change the position of the gap and the traces.

## Trace Filters

You can adjust the filter properties of a trace in several ways. Filter adjustments applied to a grouped trace are also applied to other traces in the group. To modify the settings of an individual trace in a group, first ungroup the traces.

When a trace is filtered, a new trace is created from the original, and displayed in the Workpad. To view the original trace in the Workpad, it must be [added](#) manually.

### To adjust the filter properties:

1. Select the trace.
2. Do one of the following:
  - Click **Filter Settings**  on the toolbar. The Trace Properties dialog displays. Make the desired changes, then click **OK**.
  - Right-click the trace, then select **Filters**. Select the desired values, or click **Other** to display the Trace Properties dialog box, where you can enter the desired frequency. Click **OK**.



## Event Graphs

Two types of event graphs display on the Overview Sheet: On/Off graphs and Multiple Event graphs. On/Off graphs indicate the start, end, and duration of an event, such as PAP titration.

Multiple Event graphs, such as the Hypnogram graph, display data based on several events (seven sleep stage-related events).

Items marked with an “\*” are not available with the License free version of RemLogic

Name	Type	Description
Analysis	On/Off	Analysis Start/Stop event. Indicates the section of a recording marked for computer assisted analysis.
Export*	On/Off	Export Start/Stop event. Indicates the section of a recording marked for export.
Room Air	On/Off	Room Air Start/Stop event. Indicates the beginning, end, and duration of the pretreatment (pre-PAP) section of a split-night study.
PAP On	On/Off	PAP Start/Stop event. Indicates the beginning, end, and duration of the PAP titration section of a split-night study.
Optimal Pressure	On/Off	Optimal Pressure Start/Stop event. Indicates the beginning, end, and duration of the optimal PAP pressure section of a split-night study.
Lights*	On/Off	Lights Off/On event. Indicates when room lights are turned off and on during a study.
Video Edit*	Multiple Event	This graph is generated based on three events: video edit mark in, mark out, and clip.
PAP/Bilevel	Multiple Event	Based on PAP and Bilevel events.
Position	Multiple Event	Based on seven body position events: Unknown, Transition, Supine, Left, Prone, Right, and Up.
Hypnogram*	Multiple Event	Based on the events of the <a href="#">sleep staging palettes</a> (Adult, Pediatric, and Infant).

### Graph Gridlines

Graph gridlines extend from the axis across the plotting area.

#### To show/hide major graph gridlines:

1. Right-click the graph, then click **Properties**.
2. Do one of the following:
  - To show major graph gridlines, under Display Elements, select the **Show Major Gridlines** check box.
  - To hide major graph gridlines, under Display Elements, clear the **Show Major Gridlines** check box.
3. Click **OK**.

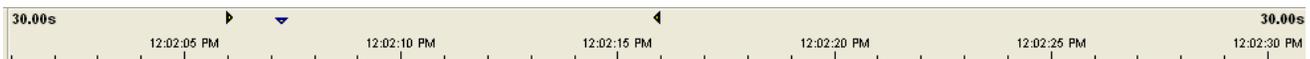
#### To show/hide minor graph gridlines:

1. Right-click the graph, then click **Properties**.

2. Do one of the following:
  - To show minor graph gridlines, under Display Elements, select the **Show Minor Gridlines** check box.
  - To hide minor graph gridlines, under Display Elements, clear the **Show Minor Gridlines** check box.
3. Click **OK**.

## Time Axis

The time axis, which displays the recording time and time interval in a Workpad, is the horizontal axis at the top of a Workpad. You can change the time interval displayed and the unit of time displayed (seconds, minutes, and hours) on the time axis. For advanced changes of scroll range for the time interval in a Workpad Sheet, see **Workpad Display** in the following location in the RemLogic online help: **Work Environment | Workpad Area | Workpad Views**.



*Time axis, showing a 30 second time interval.*

### To show or hide the time axis:

1. Right-click the gray bar at the top of the sheet that shows the time interval.
2. Click **Show Axis** or **Hide Axis**.



Note: The time axis cannot be adjusted on the Overview Sheet.

### Time Axis Interval

You can adjust the interval of the time axis. It can be helpful to change the time interval in the Workpad, depending on what trace you are viewing.

### To change the time axis interval:

1. Place the pointer on the time axis. The pointer changes from a white arrow to: .
2. Click to grab the axis , then move the hand left and right to change the time scale.

### Selecting Predefined Intervals

You can adjust the time interval on the axis by selecting an interval from a predefined list.

### To select an interval from the list:

1. Right-click the time axis.
2. Select an interval from the list.

## Using Arrow Keys

You can change the interval on the time axis by using the keyboard.

### To increase the time axis gain (show less time):

- Press SHIFT + RIGHT ARROW.

### To decrease the time axis gain (show more time):

- Press SHIFT + LEFT ARROW.

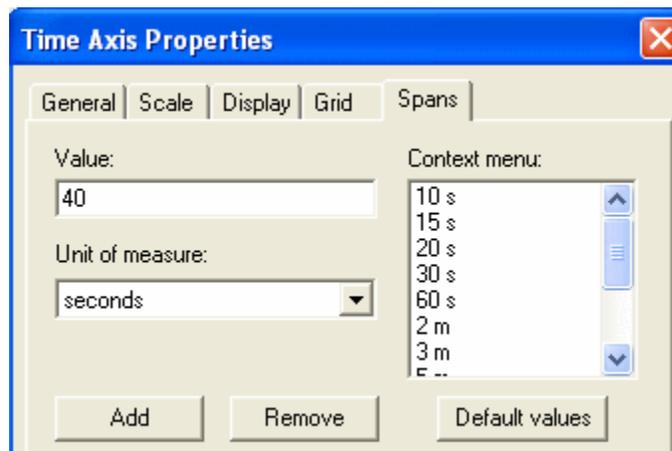
## Time Interval List\*

*\*Not available with the License free version of RemLogic*

You can make your own list of time intervals to display in the time axis context menu. This is useful if you frequently change between several special time intervals.

### To make a list of time intervals:

1. Double-click the time axis.
2. Click the **Spans** tab.
  - **Value:** Type the value that you want to add to the time axis context menu.
  - **Unit of measure:** Click the drop-down list box, then select a unit for your new value. Click **Add**. The value is added to the Context menu list.



3. To remove values from the list of intervals, select the value, then click **Remove**.
4. To restore the RemLogic default time interval values, click **Default values**.
5. Click **OK**.

## Time Axis Scale

### To change the scale of the time axis:

1. Right-click the time axis.
2. Click **Properties** to display the Time Axis Properties dialog box.
3. Click the **Scale** tab.

- **From:** To change the start point of the interval in the Workpad, in the Date and Time boxes, enter the date and time of the recording you want to view. You are moved to the selected location in the recording.
- **In window:** Type the time span to be displayed in the window.
- **Unit of measure:** Click the drop-down list box, then select the time unit to be displayed on the time axis.



4. Click **OK**.

### Time Axis Gridlines

Vertical time gridlines assist in viewing the exact time of any occurrence in a Workpad.

#### **To display time gridlines:**

1. Right-click the time axis.
2. Click **Properties** to display the Time Axis Properties dialog box.
3. Click the **Grid** tab.
4. To display major minor gridlines, select the **Major gridlines** check box.
5. To display minor gridlines, select the **Minor gridlines** check box.
6. Click **OK**.

### Time Axis Indication Bars

You can indicate whether you want Indication Bars to display in the active or inactive areas of a split Workpad. You can also adjust the following characteristics for both active and inactive Indication Bars:

- Color
- Color transparency
- Line thickness

For more information about Indication Bars, see **Split Workpad Synchronization** in the following location of the RemLogic online help: **Work Environment | Workpad Area | Workpad Views | Split Workpad Views**.

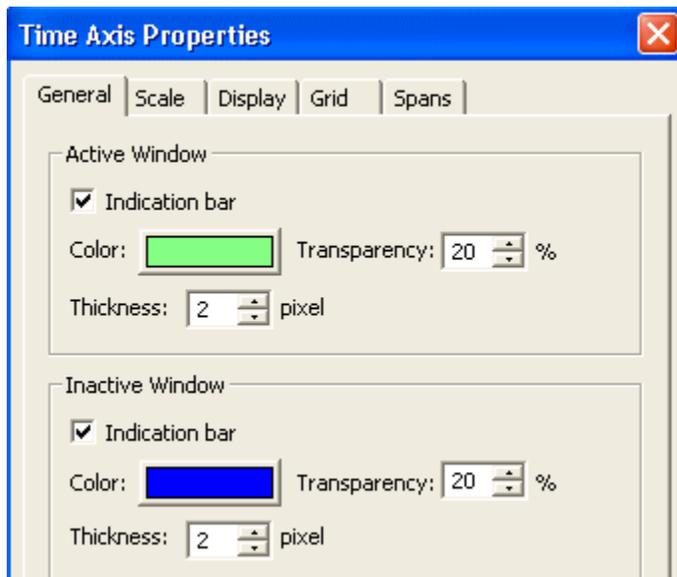
#### **To indicate whether the Indication Bar displays in a split Workpad:**

1. Right-click the time axis.

2. Select **Properties** to display the Time Axis Properties dialog box.
3. If needed, click the **General** tab.
4. To display the Indication Bar in the active or inactive window, select the **Indication bar** check box for the corresponding window. Clear the **Indication bar** check box to remove it from a window.

**To change Indication Bar characteristics:**

1. Right-click the time axis.
2. Select **Properties** to display the Time Axis Properties dialog box.
3. If needed, click the **General** tab.



4. Adjust a characteristic as described in the following table.

Characteristic	Adjustment
Color	Click the button to select a color in the Color dialog box. To create a color, click <b>Define Custom Colors</b> in the Color dialog box, then enter values in the Hue, Sat (Saturation), and Lum (Luminosity) fields, or the <b>Red</b> , <b>Green</b> , and <b>Blue</b> fields. If desired, click <b>Add to Custom Colors</b> to add the color to your color palette. Click <b>OK</b> to return to the Color dialog box; then click <b>OK</b> to return to the Time Axis Properties dialog box. Finally, click <b>OK</b> to confirm your changes.
Transparency	Enter a value from 0 to 90 to indicate how dark or light you want the color to be. Zero is the darkest value; 90 is the lightest value.
Thickness	Enter value to indicate how thick you want the line to be. One is the thinnest value; 10 is the thickest value.

## Amplitude Axis

The amplitude axis is on the left side of each pane. Each pane has its own separate amplitude axis marked with the trace name, amplitude scale, and unit prefix type. You can change the view of the axis so the trace name replaces the amplitude scale. You can also adjust the axis to conform effectively to the versatility of different signals.

### Axis Gridlines

#### To show or hide major gridlines:

1. Right-click the amplitude axis, then click **Properties**.
2. Click the **View** tab.
3. Do one of the following:
  - To show major gridlines, select the **Show major gridlines** check box.
  - To hide major gridlines, clear the **Show major gridlines** check box.
4. Click **OK**.

#### To show or hide minor gridlines:

1. Right-click the amplitude axis, then click **Properties**.
2. Click the **View** tab.
3. Do one of the following:
  - To show minor gridlines, select the **Show minor gridlines** check box.
  - To hide minor gridlines, clear the **Show minor gridlines** check box.
4. Click **OK**.

### Axis Values

#### To show or hide axis values:

1. Right-click the amplitude axis, then click **Properties**.
2. Click the **View** tab.
3. Do one of the following:
  - To show axis values, select the **Show values** check box.
  - To hide axis values, clear the **Show values** check box.
4. Click **OK**.

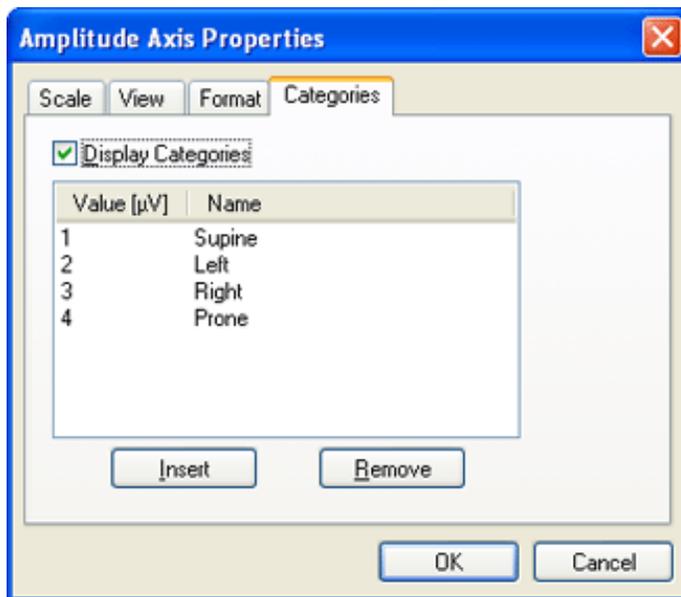
### Axis Categories\*

*\*Not available with the License free version of RemLogic*

You can create categories to describe the numeric values of a trace. For instance, position trace values ranging from 1-4 represent a specific body position. You can assign categories or descriptors, such as Supine, Left, Right, and Prone. (In this case, ensure the position sensor is mounted correctly so the traces are identified accurately.)

**To create an amplitude axis category:**

1. Right-click the appropriate amplitude axis, then click **Properties**.
2. Click the **Categories** tab.



3. Select the **Display Categories** check box.
4. Click **Insert**.
5. In the **Value** box, type the amplitude value.
6. Click the cell under **Name**, then type a name for the value.
7. Click **OK**.

The descriptive text replaces the numerical values on the amplitude axis.

**Axis Label Orientation**

The trace name can display either horizontally or vertically on the amplitude axis.

**To change the orientation of the axis label:**

1. Right-click the amplitude axis, then click **Properties**.
2. Click the **View** tab.
3. Do one of the following:
  - To display the axis label horizontally, click **Horizontal labels**.
  - To display the axis label vertically, click **Vertical Labels**.
4. Click **OK**.

**Adjusting the Axis Scale**

You can adjust the scale of the amplitude axis so that it conforms to the signal you are viewing. There are various ways to change the amplitude size, and you can also have the application scale the amplitude size [automatically](#).

## **Mouse Method**

### **To adjust the axis with your mouse:**

1. Place the pointer on the amplitude axis to be adjusted. The pointer changes from a white arrow to a hand 🖐️.
2. Click and hold the left mouse button. The hand grabs 🖐️ the axis. Moving the mouse up and down changes the amplitude scale.

## **Keyboard Method**

You can also change the axis gain using your keyboard.

### **To increase the trace gain (decrease the trace size):**

- Press SHIFT + UP ARROW.

### **To decrease the trace gain (increase the trace size):**

- Press SHIFT + DOWN ARROW.

## **Context Menu Method**

You can adjust amplitude axis by selecting an amplitude size from a predefined list.

### **To select a predefined amplitude size:**

1. Right-click the amplitude axis you want to adjust.
2. Click the desired amplitude size.

### **To specify an amplitude size:**

1. Right-click the amplitude axis of the appropriate trace.
2. Click **Properties**.
3. Under **Scale**, type low and high values.
4. To limit the axis display range, select the **Limit Axis Range** check box. This option is preferable if you want to avoid amplitude adjustments for signals out of range due to artifacts.
5. In the **low value** and **high value** boxes, type the limiting values.
6. Click **OK**.

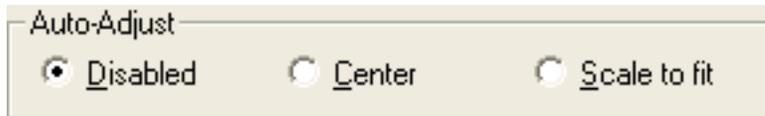
## **Auto-Adjusting the Axis Scale**

You can auto-scale and auto-center traces. This functionality is active during playback and review.

### **To enable auto-adjusting:**

1. Right-click the amplitude axis of the trace.
2. Click **Properties**.

- Under **Auto-Adjust**, select the desired option.



- **Disabled:** The trace will not automatically adjust; that is, it displays off center and unscaled.
- **Center:** The trace automatically centers vertically in the pane without changing its amplitude.
- **Scale to fit:** The trace automatically scales to fit within the pane.



Tip: The automatic trace adjustment can be quickly turned on and off by clicking

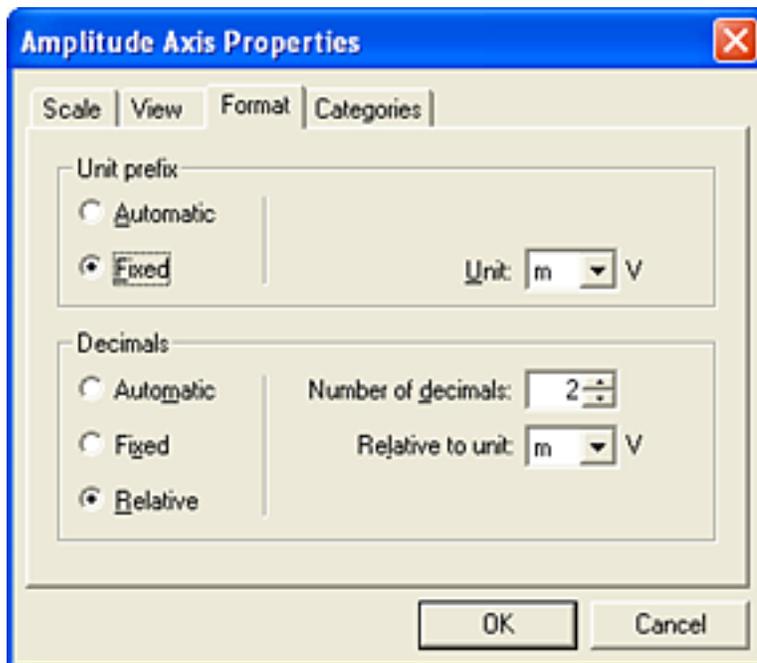
**Toggle Auto-Adjust**  on the toolbar. Only traces that have auto-adjustment enabled in the Amplitude Axis Properties dialog box are affected.

### Formatting the Amplitude Axis

You can change the format of the numbers on the amplitude scale. The amplitude unit prefix or the number of decimals that display when values are shown on a trace can be adjusted.

#### To change the axis format:

- Right-click the amplitude axis you want to change, then click **Properties**.
- Click the **Format** tab.



- **Unit prefix:** Specifies what prefix (milli-, micro-, and so on) to use for the axis scale. Select **Automatic** to have the application choose the most appropriate prefix for the values in the pane. Select **Fixed** if you want to lock the axis to a specific prefix. From the Unit list, select the desired prefix.

- **Decimals:** Specifies how many decimals to display in the axis scale. Select **Automatic** to have the application choose the appropriate number of decimals for the values in the pane. Select **Fixed** if you want to lock the display to a fixed number of decimals. Select **Relative** if you want the number of decimals to follow changes in the unit prefix. For example, using 2 decimals relative to mV yields the following display: 220.35 mV (2 decimals), 0.22035 V (5 decimals), 220350  $\mu$ V (0 decimals), and so on.

3. Click **OK**.

## Live View Window

When connected to an ambulatory device (Embletta or Embletta Gold via the 3-in-1 cable, Titanium, or Embletta MPR via wireless connection to the TX Proxy Unit), you can view the collected signals from the device using the Live View window. This window is used for previewing the signals from the device in Monitor Mode only; when the Live View window is open, the signal data is not saved.

When in the Live View Window, user controls are limited. You can: view a limited number of toolbars and menus; change trace display properties and view layouts; switch between Workpads; start impedance tests; and begin calibration tests depending on the connected device.



Tip: When a Live View window is open, a reminder that you are in Monitor Mode is displayed every 5 minutes. The reminder can be closed by clicking **OK**.

## Configuring the Live View Window

The layout of the Live View window can be configured to display your preferred settings. Trace display properties are configured using a Live View Layout which is similar to a Workpad Sheet template.

When running the licensed version of RemLogic, there are six predefined View Layouts available:

- Default Live View – Titanium
- Default Embletta Live View
- Default Embletta Gold Live View
- Embla MPR Preview
- TX Online Live View
- DX Online Live View

The license free version of RemLogic includes two predefined View Layouts:

- Preview layout (E) – Embletta
- Embletta MPR Preview

Additional View Layouts can be created and used based on personal preference.

### Creating a Live View Layout

To create a live view layout it is important that the device type and the current sheet templates correspond to the desired unit to ensure all possible channels are available.

#### **To create a view Layout:**

1. Determine which ambulatory device you would like to use for the live view layout, and open a study collected from this type of device.

2. Right-click on the Workpad Sheet tab and use the menu to insert the default view layout for this device type.
3. Modify the selected layout to fit your preferences.
4. Save the view layout. To do this, right-click on the Workpad Sheet tab and select one of the following:
  - To save the existing, modified template under a new name, select **Save as Sheet Template....**
  - To save the existing, modified template under the same name, select **Save Sheet Template.**
5. The New Template Wizard opens. Specify a location for the template by selecting the template type. If you're running the license version of RemLogic, select the **This template is designed for use as a Live View Layout** check box.
  - **Local Template:** Select this option to make the template accessible on the current workstation.
  - **Workgroup Template:** Select this option to make the template accessible to all the workstations on your network.
6. In the **Name** box, overwrite the existing default layout name by typing a new name for the template. Do the same for the description of the template in the **Description** box.
7. Select the **Device Type** that this template applies to using the drop down box.
8. Click **Next**. Confirm the name and description.
9. Click **Finish** to close the wizard.

### Modifying a Live View Layout

#### **To modify a live view layout:**

1. Determine the ambulatory device and open a study collected from this type of device.
2. Right-click on the Workpad Sheet tab and use the menu to insert the desired view layout for modification.
3. Make the desired changes.
4. Right-click on the Workpad Sheet tab and click **Save Sheet Template.**
5. A confirmation dialog appears confirming that you want to make the changes to the layout permanent. Selecting **Yes** overwrites the original layout and saves your changes, and selecting **No** cancels the save and returns you to the RemLogic window.

## **Managing Live View Window Layouts**

You can manage Live View Window layouts in several ways, including setting the active layout and editing, copying, or deleting existing layouts.

#### **To manage a layout:**

1. On the **Tools** menu, click **Options.**
2. In the left pane, double-click **View Data**, then single click **Live View Layout.**

3. From the **Device Type** drop-down menu in the right pane, select the device type that you would like to modify. A list of available layouts is shown in the Live View templates window. These templates are associated with the type of device being previewed.
4. From here, you can choose how you would like to modify the layout.

If you would like to:	Select:
Set the active layout	<ol style="list-style-type: none"> <li>1. Select the desired layout in the right pane under <b>Live View templates</b>.</li> <li>2. Select the <b>Set Active</b> button.</li> </ol> <p>The <b>Set Active</b> button sets the selected view layout to be the current view. This layout is used to display the <b>Live View</b> window when the preview is started.</p> <div style="display: flex; align-items: center;">  <p>Note: The active layout is designated with an “*” in the Live View templates window.</p> </div>
Edit an available layout	<ol style="list-style-type: none"> <li>1. Select the desired layout in the right pane under <b>Live View templates</b>.</li> <li>2. Select the <b>Edit</b> button.</li> </ol> <p>The <b>Edit</b> button displays the Template Properties for the selected view layout where you can adjust the Name or the description of the layout.</p>
Copy an available layout	<ol style="list-style-type: none"> <li>1. Select the desired layout in the right pane under <b>Live View templates</b>.</li> <li>2. Select the <b>Copy</b> button.</li> </ol> <p>The <b>Copy</b> button makes a copy of the selected view layout, and names it with “Copy of” and the original view layout name. You can now edit the copied layout to change the name and description.</p>
Delete an available layout	<ol style="list-style-type: none"> <li>1. Select the desired layout in the right pane under <b>Live View templates</b>.</li> <li>2. Select the <b>Delete</b> button.</li> </ol> <p>The <b>Delete</b> button removes the selected view layout from the computer. This action cannot be undone.</p>



Note: If a button is grayed out, it could mean that the selected layout is set as read-only and is not able to be modified or there is no layout currently selected.

## Starting the Live View Window

Provided the ambulatory device is connected and idle, you can preview the signals collected with the device in the Live View Window.



Note: When the Live View Window is displayed, no corresponding entry will be added to the active recording location.

### To preview the signals and open the live view window:

1. Connect your device to the computer and ensure that it is available in the [Device Manager](#).
2. Right-click on your device in the **Device Manager**, and select **Preview** to activate the Live View window.
3. Depending on your connected device, you may need to configure the device before the Live View window will display.

Items marked with an “\*” are not available in the License free version of the RemLogic Software.

If you are connecting to:	You will need to:
A Titanium*	Select the device profile from the drop-down menu.
An Embletta Gold	Configure the Embletta Gold channel acquisition settings according to the following list: Respiration, ExG, DC Sensor, Signal Settings, Oximeter, Position/Activity, Snoring, Differential Pressure Sensor, and Thermistor as required.
An Embletta	Select the Proxy being used and the Configuration by using the drop down menus. Click Next. Configure the Embletta channel acquisition settings according to the following list: Respiration, ExG, Oximeter, Position/Activity, and Signal Settings as required.
Embletta MPR	Select the device profile from the drop-down menu.

4. Click **OK** to confirm the channel configuration and begin the preview.

## Closing the Live View Window

When the Live View window is closed, any changes to the display properties will be stored permanently and will apply to the Live View window the next time it is opened.

### To close the Live View Window, do one of the following:

- Click the  in the upper-right corner of the application window.
- Click the Stop button  on the Controls toolbar.
- On the **File** menu, click **Exit**.



Note: When the Live View Window is closed, no corresponding entry will be added to the recent Workpads list at the bottom of the File menu.

## Changing the Live View Window Layout

While the Live View window is displayed you can change to a different pre-defined View Layout

**To change the layout for the live view window, do one of the following:**



- Select the new view from the drop-down menu on the View Layout Toolbar.
- Set the new view as active using the **Tools | Options** menu. For specific directions, see [Managing Live View Window Layouts](#) and reference the [Set the active layout](#) option.

## Collecting Data

This chapter provides information on preparing and performing ambulatory and online studies, [patient charting](#), EEG procedures, and programming recording devices.



Note: Prior to starting a recording, check the PC storage to ensure there is adequate space.

## Preparing a Study

To prepare a study, you must enter information on the patient undergoing the study in the **Patient Information** dialog box in the [Operations sheet](#).

### To prepare a study for a new patient:

1. Click on the  New Workpad icon to open a new Workpad in RemLogic.
2. On the [Operations sheet](#), click **Patient Information**.

Type the patient's name, ID number, date of birth, gender, and body metrics.

Patient Information dialog box – Licensed Version of RemLogic

Patient Information dialog box – License free Version of RemLogic

3. Click the **Home** tab. Type the patient's address, telephone numbers, and email address.
4. Click the **Custom** tab (This tab is only available in the licensed version of RemLogic). Type the values for customized patient information parameters to be used in reports. For more information, see the **Adding Patient Information Fields** section of in the following location in the RemLogic online help: [Reporting | Active Reports](#).
5. Click the **Notes** tab. Type comments or notes that you want to display in the comment section of RemLogic's [active reports](#).

6. Click the **Summary** tab to review a summary of the patient information.
7. Click **OK**.

### To prepare a study for a patient with an existing patient record:

- In the Recording Manager, right-click the patient's folder, then click **New Study**.

A Patient folder is created for the patient in the active data location in the [Recording Manager](#). The Patient folder contains a Recording folder  labeled Unknown until the Embletta is prepared.

### Applicable to the Licensed version of RemLogic only:

If the study will involve a flow generator, you can use the ResMed® Tx Link to automatically relay pressure and setting changes to RemLogic. For more information, see [Using ResMed Tx Link](#).

## Online Studies\*

*\*Not available with the License free version of RemLogic*

Online studies are recorded with any of the following:

- Embla N7000 (MDrive, Communication Unit)
- Embla S4500 (MDrive, Communication Unit)
- Embletta
- Embla titanium amplifiers
- Embletta MPR (when connected wirelessly to the TX Proxy Unit)



Note: To record online using the Embla S4500, Embla N7000, Embletta, Embletta MPR, and Embla titanium amplifiers, you must activate the [Online PSG license component](#). See [License Management](#) for more information.

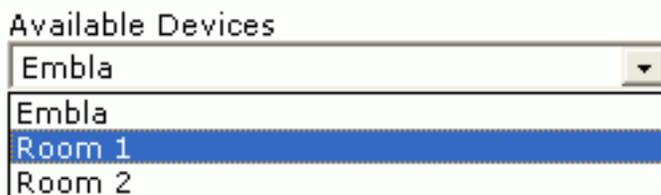
### Starting an Online Study\*

*\*Not available with the License free version of RemLogic*

Before starting the study, connect the recording device, prepare the patient for the study according to the instructions in the appropriate clinical manual, and enter [patient information](#).

### To start an online recording:

1. On the [Operations sheet](#), click **Device Control**. The Device Control dialog box displays.
2. From the **Available Devices** list, select the appropriate device.



3. From the **Recording Types** list, select **Start Online**.
4. Click **OK**. The Recording Wizard displays.

5. Click **Next** to continue.
6. Follow the wizard instructions to initialize the recording.

During recording, data automatically saves to the patient's Raw Data folder. You can [score](#) and [analyze data](#) while the device is recording.



Tip: You can also start an online recording by right-clicking the appropriate recording device in the [Device Manager](#), then clicking **Start Online**.

## Stopping an Online Study\*

*\*Not available with the License free version of RemLogic*

You can stop and resume collection more than once during a study. To protect the collected data from loss or corruption, configure RemLogic to back up the recording on the network. For more information, see **Automated Backup** in the **Managing Data** section of the RemLogic online help.



Note: Pause recordings by clicking **Pause**  on the toolbar. Pausing a recording does not interrupt data collection; it stops the playback of the recorded data.

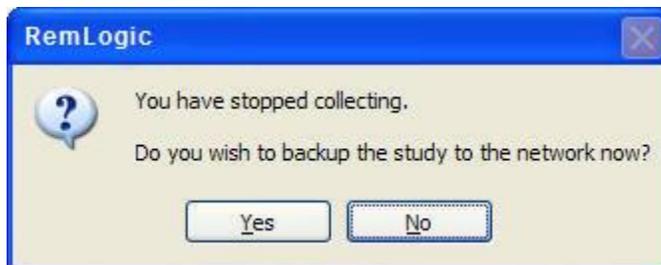
### To stop an online study:

1. Do one of the following:
  - On the [Operations Sheet](#), click **Device Control**. The following message displays:



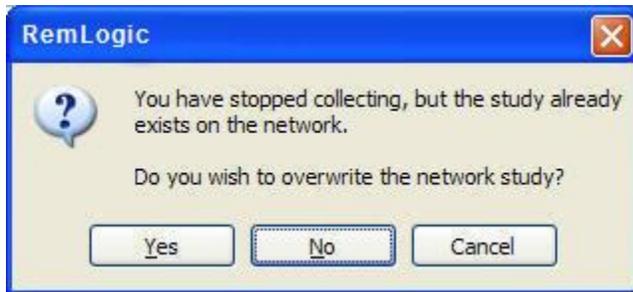
Click **OK** to stop the recording.

- Click **Stop**  on the [Controls](#) toolbar. A confirmation dialog box displays.
2. To stop the recording, click **Yes**. You can also stop the recording by right-clicking the appropriate recording device in the [Device Manager](#), then clicking **Stop**.
3. If you configured RemLogic to prompt you to automatically back up recordings when collection stops, the following message displays:



To create a backup of the study, click **Yes**. To skip the backup, click **No**.

- If you resume collection after backing up a recording, the next time you stop the recording, the following message displays, giving you the option to overwrite the previous backup:



- Click **Yes** to overwrite the previous backup.
- Click **No** to create a new backup.
- Click **Cancel** if you do not wish to back up the changes to the recording.



Note: If you chose to not receive a prompt after collection, the same message displays, except **Cancel** is not available. If you want to access **Cancel**, select **Only archive after collection with prompt (Tools | Options | Advanced)**.

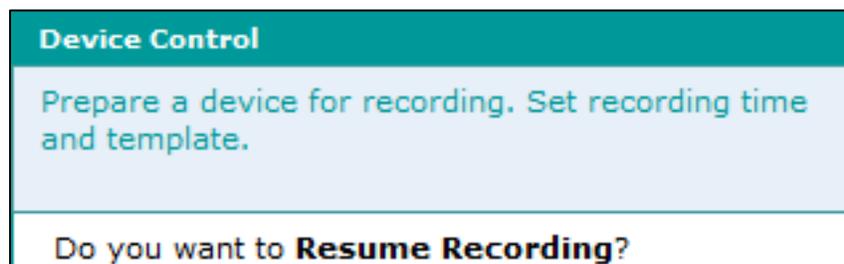
## Resuming an Online Study\*

*\*Not available with the License free version of RemLogic*

If you stopped an online study, you can resume the study in the same Workpad. Signals that were transmitted during the interruption are not saved.

### To resume an online study:

- Open the appropriate Workpad.
- Do one of the following:
  - On the [Operations Sheet](#), click **Device Control**. The following message displays:



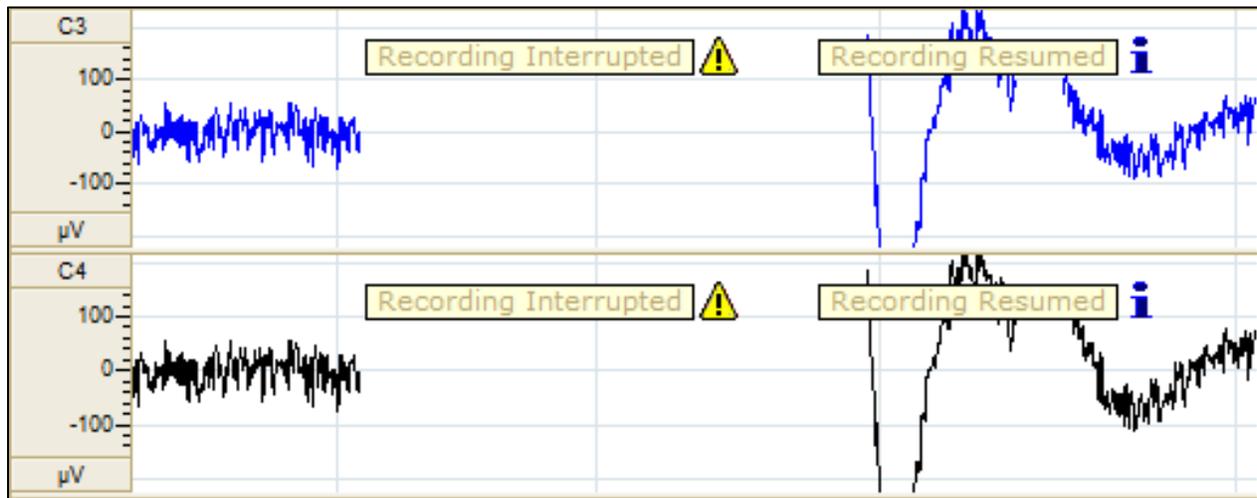
Click **OK**.

- Right-click the appropriate recording device in the [Device Manager](#), then click **Resume Online**.
- The Recording Wizard displays. Click **Next** to continue.
  - Follow the instructions in the Recording Wizard to resume the study.

### Auto Resuming\*

If a recording device loses power or is disconnected temporarily, a Recording Interrupted event is marked on the Workpad Sheet. When power and connection to the recorder restores, the

recording automatically resumes, and a Recording Resumed event is marked. An audible warning sounds during the interruption.



Note: The Auto Resume function might be unavailable with all recording devices. Some devices might need a firmware upgrade to support this.



Attempting to resume recordings older than two hours results in a warning from the application. Following a power failure, it might take several minutes for RemLogic to recognize the recording device again.

## Saving an Online Study\*

\*Not available with the License free version of RemLogic

RemLogic recordings are automatically saved to the active [data storage location](#) specified, making them visible in the in the [Recording Manager](#). By default, this location is **C:\RemLogic Recordings**. If you opt to show all data locations in the Recording Manager, the active location displays in bold. For more information, see [Data Locations](#).

A patient folder  is immediately created in the [Recording Manager](#) when you enter information for a new patient. Patient folders contain a Recording folder . This folder is labeled *Unknown* until a recording starts.

Recording folders contain a Documents folder  and a Data folder . Recordings are automatically saved in the latter when a recording begins. If you modify raw data, as when the recording is marked with events, data is saved as a Workpad file in the Recording folder .

### To save an online recording:

- Do one of the following:
  - Click **Save** .
  - Press CTRL + S.

## Ambulatory Studies

Before starting the recording, enter [patient information](#) (see [Preparing a Study](#)), and prepare the patient according to the instructions outlined in the device clinical manual. Only the [Embla titanium](#), [Embletta](#), [Embletta Gold](#), and [Embletta MPR](#) devices support the ambulatory recording mode.

RemLogic can display start and end times for the previous ambulatory study in the Recording Wizard, making the times available for scheduling the next ambulatory study. By default, this information does not display. For more information about enabling this feature, see the Embletta part of the Device Settings section in the RemLogic online help.

A programmed recording cannot exceed 23.59 hours.

See the following topics for information about programming a recording device:

- [Programming the Embla titanium](#)
- [Programming the Embletta](#)
- [Programming the Embletta Gold](#)
- [Programming the Embletta MPR](#)

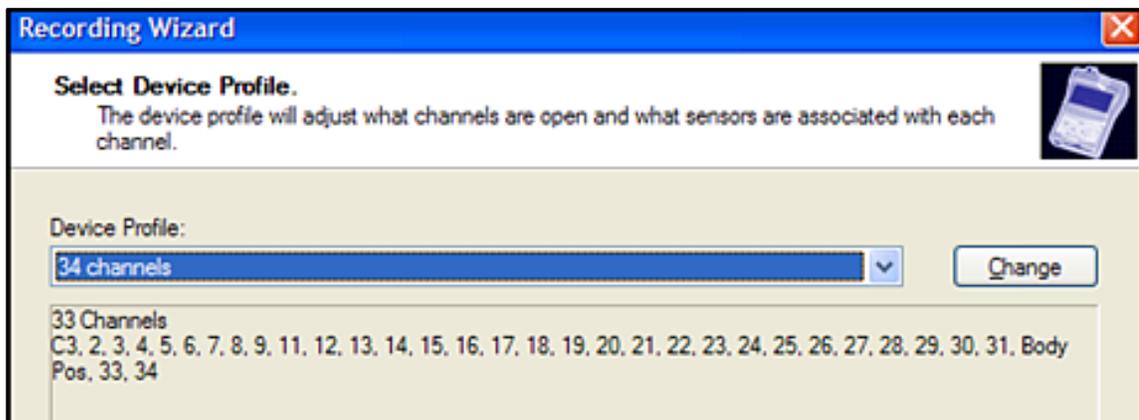
### Programming the Embla titanium\*

*\*Not available with the License free version of RemLogic*

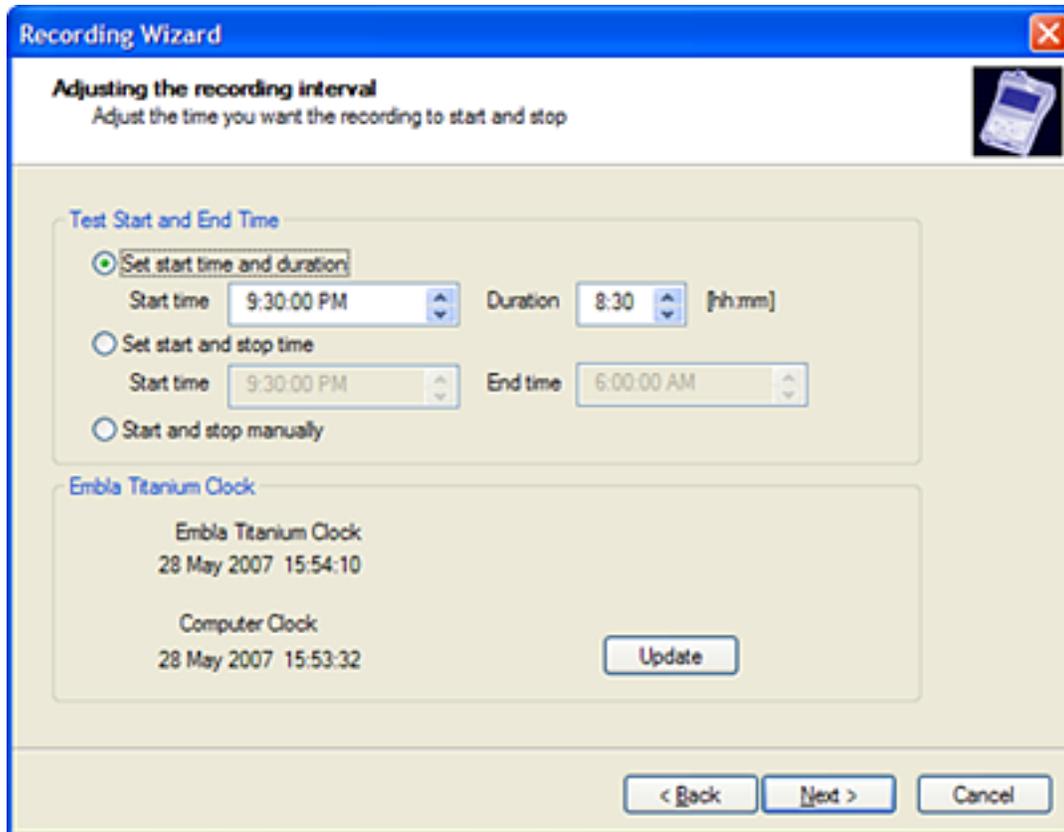
Once you enter the patient information, the titanium can be programmed for a recording. A programmed recording cannot exceed 23.59 hours.

#### To program the Embla titanium for an ambulatory recording:

1. Connect the Embla titanium to your computer using the provided cable.
2. On the Operations sheet, click **Device Control**.
3. From the **Available Devices** list, select the recorder. Ensure the recorder is connected to the computer.
4. From the **Recording Types** list, select **Ambulatory**.
5. Click **OK**, then click **Next** to continue.
6. On the **Device Profile** list, select a device profile, then click **Next**.

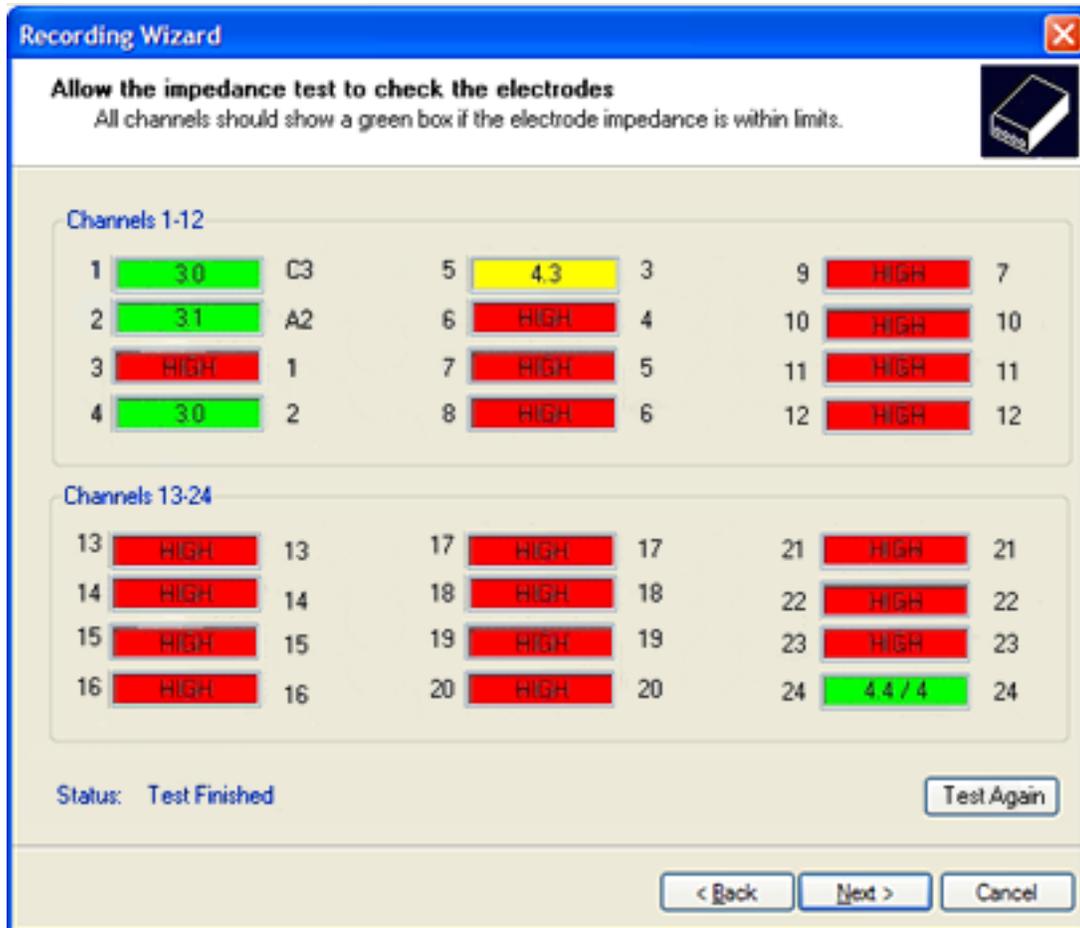


7. Set the recording interval based on the options listed below, then click **Next**:



The image shows a 'Recording Wizard' dialog box with the title 'Adjusting the recording interval'. It contains three radio button options: 'Set start time and duration' (selected), 'Set start and stop time', and 'Start and stop manually'. The 'Set start time and duration' option has a 'Start time' field set to '9:30:00 PM' and a 'Duration' field set to '8:30 [h:mm]'. The 'Set start and stop time' option has a 'Start time' field set to '9:30:00 PM' and an 'End time' field set to '6:00:00 AM'. Below these options is a section titled 'Embla Titanium Clock' with two lines of text: 'Embla Titanium Clock 28 May 2007 15:54:10' and 'Computer Clock 28 May 2007 15:53:32', followed by an 'Update' button. At the bottom of the dialog are three buttons: '< Back', 'Next >', and 'Cancel'.

- **Set start time and duration:** Select this option to set the start time and recording duration using the up and arrows  to set the correct time. Similarly, use the arrows to set the **Duration** (for example, 8 hours, 30 minutes).
  - **Set start and stop time:** Select this option to set the start and stop times using the up and arrows.
  - **Start and stop manually:** Select this option if you wish to start and stop the recording using the keypad on the Embla titanium.
  - If there is a difference between the Embla titanium's system's and the acquisition computer's clock time, click **Update** to synchronize the time.
8. Click **Next** to run the Impedance Test.



- The impedance test is part of the Recording Setup wizard. It cannot be repeated at another time in the study.
- When a channel's signal is of good quality, the value for the channel displays in KOhms. When the values are too high or too low, **High** or **Low** displays. **High** displays for values above 100 KOhms, and **Low** displays for values below 0.1 KOhms.
- Two values display for bipolar channels, positive leads first (Positive lead value / Negative lead value).
- The Impedance screen uses color codes to indicate the results of the test:
  - Green: Acceptable; in the middle 70% of the supplied range
  - Yellow: Inside the acceptable range, but within 15% of the high or low values
  - Red: Unacceptable; above or below the acceptable range
  - Dark Gray: Channel is collected, but sensor definition states not to run the impedance check
  - Light Gray: Channel is not collected; impedance is not possible
- Once the test is run, adjust any sensors that do not display acceptable results, and click **Test Again** to run the impedance test on the adjusted signals. When you are satisfied with the signal impedance, click **Next**.

- Click **Finish** to complete the ambulatory setup. At this point, the RemLogic software is still connected to the titanium device, and goes into Preview Mode.
  - While in Preview Mode, you can re-run the impedance test or start a calibration test. If you wish to run either test, right-click on the Embla titanium icon that appears in the Device Manager, and select the desired test from the displayed menu – e.g. **Start Impedance Test / Start Calibration Test Signal**. Alternately, you can select the **Impedance Test**  or **Calibration Test Signal**  icons in the toolbar.
  - Close out of Preview Mode by selecting the **Stop**  icon.
9. A confirmation message indicates the recorder was successfully programmed, and indicates the patient name and device profile. Disconnect the cable from the device.

The Embla titanium begins recording based on the time you set in the Recording Wizard, unless you have opted for the manual start and stop time. See [Downloading Data](#) for information about downloading data from the Embla titanium.

## Programming the Embletta

Once you enter the patient information, the Embletta can be programmed for a recording. A programmed recording cannot exceed 23.59 hours.

Note: You must activate the [Embletta Online license component](#) to record online. See [License Management](#) for more information. This feature is not available on the License free Version of RemLogic.



Firmware build 242 or higher must be installed on the Embletta for the data to properly download to RemLogic. If the firmware is not current, you must download data to RemLogic with a serial cable, or the data will be lost.

### To program the Embletta for an ambulatory recording:

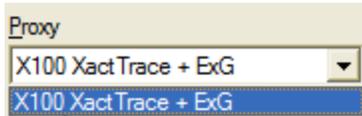
1. Connect the Embletta to the computer using the USB download cable. For online recordings, use the PC extension cable.
2. On the [Operations sheet](#), click **Device Control** or **Prepare Recorder** (this opens the **Device Control** Box).

3. From the **Available Devices** list, select the Embletta that is connected to the computer.
4. From the **Recording Types** list, select **Prepare Ambulatory**, then click **OK** to start the Recording Wizard.

5. If you elected to base the next recording time on the last study's recording time (see [Embletta](#) in [Device Settings](#) in the RemLogic online help), the start and stop times for the last study display in their corresponding boxes. Set the recording interval based on the options listed below, then click **Next**.

- If you want to start the recording immediately, leave all options clear, and click **Next**. The recording starts when the proxy is connected to the Embletta.
  - **Start time, Stop time, Duration:** Select the check boxes to accept the time that displays in the corresponding spin boxes, or to preprogram the recording interval. For example, to set the start time of the recording, select the **Start time** check box. If an item needs to be changed, select it, and use the up and arrows  to set the correct date or time.
  - **Use external switch to start and stop:** Select this option to allow the patient to control when to start and stop the recording. To start a recording, the patient must use a small object to press and hold the Start button on the Embletta until the green status light turns on. To stop the recording, the patient must press and hold the start button until the green status light turns off.
6. Select the appropriate study mode, then click **Next**.

- From the **Proxy** list, select the desired proxy.



- Review and modify the default study configuration, including whether signal settings are **AASM Compliant** or **NON AASM Compliant**. AASM Compliant signals have a higher sampling rate. Then click **Next**.
- The Recording Wizard measures the battery voltage. Ensure that the voltage is acceptably high. The battery light on the Embletta should be green. It is advisable to perform a sleep study with fully charged rechargeable batteries or new alkaline batteries. Click **Next** if the battery voltage is greater than or equal to 2.8 V.
- Click **Finish** to complete the wizard. The preparation progress displays, and a buzz sounds while the Embletta's memory clears. The Embletta shows a double-flashing yellow status light.
- Wait until an information dialog box that summarizes the study. Confirm that the Embletta is correctly programmed, then click **OK**.



- Disconnect the download cable from the Embletta, and briefly connect the proxy to verify the proxy is correct.

The status light on the Embletta stops blinking when the cable is disconnected. The Embletta starts recording based on the recording time you set in the Recording Wizard. Take care to insert the proxy firmly. The Embletta beeps when the proxy was properly inserted and shows a double-flashing yellow status light.

See [Downloading Data](#) for information on downloading data from the Embletta.

## Programming the Embletta Gold

You can prepare the Embletta Gold for ambulatory and online studies. A programmed recording cannot exceed 23.59 hours.



Note: For detailed information on the Embletta Gold device, consult the Embletta Gold Clinical Manual, available on the RemLogic installation CD.

Note: The Online capability is only available for the licensed version of the RemLogic software.

### Ambulatory Studies

Before connecting and programming the Embletta Gold for an ambulatory study, you must install the device and enter patient information relevant to the study. See the following topics for more information:

- [Installing the Embletta Gold](#)
- [Preparing a Study](#)

### **Connecting the Embletta Gold**

#### **Desktop**

**To connect the Embletta Gold to a desktop computer:**

1. Connect the isolated USB download cable to the Embletta Gold connection port (located to the right of the device status lights).
2. Connect the isolated USB download cable connector to a computer USB port.

#### **Laptop**

When using the Embletta Gold with a laptop computer, use a self-powered USB hub to ensure the USB voltage is adequate for reliable interface and downloads.



#### **Caution:**

For continued patient isolation and protection, first connect the Embletta Gold to the isolated USB download cable, then connect the powered hub.

**To connect the Embletta Gold to a laptop computer:**

1. Connect the isolated USB download cable to the Embletta Gold connection port (located to the right of the device status lights).
2. Connect the isolated USB download cable connector to a USB port on the powered USB hub.
3. Plug the hub USB connector into a USB port on the computer.
4. To power the USB hub, connect it to an electrical outlet.

### **Programming the Embletta Gold**

Before programming the device, determine the position of the device on the patient. To conform to the default location setting *Front*, place the device on the patient's abdomen. If another

position is preferred, such as the left or right side, modify the default device location (front) before starting the recording.

**To modify the device location setting:**

1. On the **Analysis** menu, click **Settings**.
2. In the **Profile** list, click **Custom**.
3. In the left pane, double-click **Position**.
4. In the right pane, double-click **Location of Position Sensor**, then click one of the following options: **Left Side**, **Front**, or **Right Side**.
5. Click **Close**.



Note: Always perform a sleep study with fully charged batteries.

**To program the Embletta Gold for an ambulatory study:**

1. On the Operations sheet, click **Device Control**.
2. From the Available Devices list, select Embletta Gold.
3. From the **Recording Types** list, select **Prepare Ambulatory**, then click **OK**.
4. In the Multiple Recording Session page of the Recording Wizard, click **Add**.
5. Do one of the following in the Add New Session dialog box:
  - To use an external switch to start and stop the recording, select the **Use external switch to start and stop** check box. You can start the recording manually by pressing the Embletta Gold start button until the left status light displays green. Proceed to [step 7](#).
  - If you elected to base the next recording time on the last study's recording time (see [Embletta Gold](#) in [Device Settings](#) in the RemLogic online help), the start time for the last study (including multiple studies) displays in its corresponding box. Select the **Start time** check box, then click **Next**.
  - To specify a start time, select the **Start time** check box, then specify the month/day/year/hour/minute. The Embletta Gold automatically starts at the specified time once disconnected from the setup computer.
6. Specify and stop time and recording duration, if desired.
  - If you elected to base the next recording time on the last study's recording time (see [Embletta Gold](#) in [Device Settings](#) in the RemLogic online help), the stop time for the last study (including multiple studies) displays in its corresponding box. Select the **Stop time** check box, then click **Next**.
  - To specify a stop time, select the **Stop time** check box, and specify the month/day/year/hour/minute. The Embletta Gold will automatically stop at the specified time.
  - To specify a recording duration, select the **Duration** check box, click the first digit, then type the duration in hours. Click the last two digits, and type the duration in minutes.

7. Click **OK**.
8. In the Multiple Recording Session page of the Recording Wizard, do one of the following:
  - To add another recording session, repeat steps 4-7.
  - To continue, click **Next**.
9. In the study mode page of the Recording Wizard, do one of the following, then click **Next**:
  - To record respiratory parameters using a nasal cannula that assists in the diagnosis of sleep-disordered breathing, click **Diagnostic Study**.
  - To record respiratory parameters and PAP mask pressure, click **PAP/Bi-level Study**.
  - To record respiratory parameters and ResMed Therapy Device flow generator signals, click **ResMed Therapy Device Study**.
10. Configure the Embletta Gold channel acquisition settings according to the following table:

To Record	Do This
The nasal cannula signal	Under <b>Respiration</b> , select the <b>Nasal Cannula</b> check box.
The Abdominal Respiratory Effort (XactTrace) signal	Under <b>Respiration</b> , select the <b>Abdomen Belt XactTrace</b> check box.
The Thoracic Respiratory Effort (XactTrace) signal	Under <b>Respiration</b> , select the <b>Thorax Belt XactTrace</b> check box.
The EKG signal	Under <b>ExG</b> , select the <b>ExG</b> check box, then click <b>EKG</b> .
The EEG signal	Under <b>ExG</b> , select the <b>ExG</b> check box, then click <b>EEG</b> .
The EMG signal	Under <b>ExG</b> , select the <b>ExG</b> check box, then click <b>EMG</b> .
A DC sensor signal	Under <b>DC Sensor</b> , select the <b>DC Sensor</b> check box, then select a sensor from the list. By default, the last DC sensor selected for the study type is used. To add, edit, or delete a DC sensor definition, see <a href="#">Device Settings</a> .
A lower sampling rate	In the <b>Signal Settings</b> section, select <b>NON AASM Compliant</b> to record with lower sampling rates, which result in faster study downloads and computer assisted analysis.  Select <b>AASM Compliant</b> for a higher sampling rate, which is the signal quality suggested by the AASM manual for sleep studies. However, data download and computer assisted analysis take longer than the <b>NON AASM Compliant</b> setting.
The SpO2 and Pulse signal derived from the oximeter	Under <b>Oximeter</b> , select the <b>SpO2 &amp; Pulse</b> check box.

To Record	Do This
The Pulse Waveform signal derived from the oximeter	Under <b>Oximeter</b> , select the <b>Pulse Waveform</b> check box.
The Gravity signal derived from the Position/Activity sensor	Under <b>Position/Activity</b> , select the <b>Gravity</b> check box.
The Snoring signal derived from the nasal cannula	Under <b>Snoring</b> , select the <b>Derived from nasal cannula</b> check box.
The Differential Pressure Sensor signal	Under <b>Differential Pressure Sensor</b> , select the <b>Differential Pressure Sensor</b> check box. By default, the last differential pressure sensor selected for the study type is used. To add, edit, or delete a differential pressure sensor definition, see <a href="#">Device Settings</a> .
The Thermistor signal	Select the <b>Thermistor</b> check box.

- Click **Finish**. A progress indicator displays. While the device memory clears, the Embletta Gold buzzes.

Do not disconnect the Embletta Gold from the USB download cable until a message window indicates the Embletta Gold is programmed correctly, and the right status light flashes amber once every second.

- Disconnect the USB download cable from the setup computer. The right status light flashes amber twice in quick succession every second to indicate that a study is pending. The light stops flashing when the device starts recording at the programmed time.



Tip: To add, edit, or delete a DC or differential pressure definition, see [Device Settings](#).



Note: Unplug the isolated USB cable from the Embletta Gold before starting a recording. If the USB cable is connected to the device, recordings will not start at a preprogrammed time or by pressing the external start button.

### Online Studies\*

*\*Not available with the License free version of RemLogic*



Note: You must activate the [Embletta Online license component](#) to record online. See [License Management](#) for more information.

Before connecting and programming the Embletta Gold for an online study, you must install the device and enter patient information relevant to the study. See the following topics for more information:

- [Installing the Embletta Gold](#)

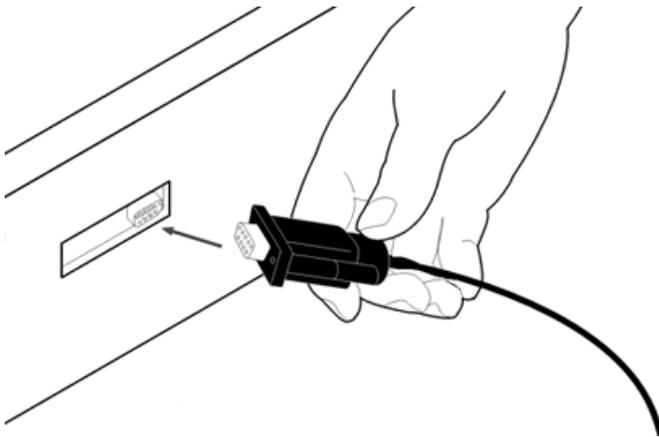
- [Preparing a Study](#)

### **Connecting the Emblemata Gold\***

The Emblemata Gold can be configured for attended online studies by connecting the device to the acquisition computer using the 3-in-1 cable. The cable has a built-in isolation unit for patient safety, and a quick-release connector that allows easy disconnection from the computer during the night. This online solution provides the same parameters as Emblemata Gold diagnostic studies, and allows PAP mask pressure to be viewed during a PAP study.

#### **To connect the online Interface:**

1. Plug the cable serial connector into the serial port of the computer. If the computer does not have a serial port, a USB-to-serial adaptor is required.



2. Connect the 3-pin connector of the 3-in-1 cable to the black 3-pin touchproof input of the Emblemata Gold.



Note: Online studies cannot be performed when using the ResMed Therapy Device, as the Emblemata Gold requires the same 3-in-1 cable when configured for online studies.

### **Disconnecting the Cable during a Study**

The 3-in-1 cable can be disconnected during a recording if the patient needs to leave the bed.

#### **To disconnect the cable:**

1. Slide the quick-release lock down (as shown).



2. Have the patient carry the Embletta Gold together with the cable isolation unit.
3. When the patient returns to bed, reconnect the quick-release lock by lining up the arrows.

When the 3-in-1 cable is reconnected, the recording automatically resumes and continues in the same Workpad.

### **Programming the Embletta Gold\***

Before you program the device, determine the position of the device on the patient. To conform to default location setting *Front*, place the device on the patient's abdomen. If another position is preferred, such as the left or right side, modify the default device location (front) before starting the recording.

#### **To modify the device location setting:**

1. On the **Analysis** menu, click **Settings**.
2. In the **Profile** list, click **Custom**.
3. In the left pane, double-click **Position**.
4. In the right pane, double-click **Location of Position Sensor**, then click one of the following options: **Left Side**, **Front**, or **Right Side**.
5. Click **Close**.



Note: Always perform a sleep study with fully charged batteries.

#### **To program the Embletta Gold for an online recording:**

1. On the [Operations sheet](#), click **Device Control**.
2. From the Available Devices list, select Embletta Gold.
3. From the **Recording Types** list, select **Start Online**, then click **OK**.
4. In the Multiple Recording Session page of the Recording Wizard, click **Add**.
5. Do one of the following in the Add New Session dialog box:
  - To use an external switch to start and stop the recording, select the **Use external switch to start and stop** check box. You can start the recording manually by pressing the Embletta Gold start button until the left status light displays green. Proceed to [step 7](#).
  - To specify a start time, select the **Start time** check box, then specify the month/day/year/hour/minute. The Embletta Gold automatically starts at the specified time once disconnected from the setup computer.
6. Specify a stop time and recording duration, if desired.
  - To specify a stop time, select the **Stop time** check box, and specify the month/day/year/hour/minute. The Embletta Gold will automatically stop at the specified time.

- To specify a recording duration, select the **Duration** check box, click the first digit, and type the duration in hours. Click the last two digits, and type the duration in minutes.
7. Click **OK**.
  8. In the Multiple Recording Session page of the Recording Wizard, do one of the following:
    - To add another recording session, repeat steps 4-7.
    - To continue, click **Next**.
  9. In the study mode page of the Recording Wizard, do one of the following:
    - To record respiratory parameters using a nasal cannula that assists in the diagnosis of sleep-disordered breathing, click **Diagnostic Study**.
    - To record respiratory parameters and PAP mask pressure, click **PAP/Bi-level Study**.
    - To record respiratory parameters and ResMed Therapy Device flow generator signals, click **ResMed Therapy Device Study**.
  10. Click **Next**.
  11. Configure the Embletta Gold channel acquisition settings according to the following table:

To Record	Do This
The nasal cannula signal	Under <b>Respiration</b> , select the <b>Nasal Cannula</b> check box.
The Abdominal Respiratory Effort (XactTrace) signal	Under <b>Respiration</b> , select the <b>Abdomen Belt XactTrace</b> check box.
The Thoracic Respiratory Effort (XactTrace) signal	Under <b>Respiration</b> , select the <b>Thorax Belt XactTrace</b> check box.
The EKG signal	Under <b>ExG</b> , select the <b>ExG</b> check box, then click <b>EKG</b> .
The EEG signal	Under <b>ExG</b> , select the <b>ExG</b> check box, then click <b>EEG</b> .
The EMG signal	Under <b>ExG</b> , select the <b>ExG</b> check box, then click <b>EMG</b> .
A DC sensor signal	Under <b>DC Sensor</b> , select the <b>DC Sensor</b> check box, then select a sensor from the list. By default, the last DC sensor selected for the study type is used. To add, edit, or delete a DC sensor definition, see <a href="#">Device Settings</a> .

To Record	Do This
A lower sampling rate	In the <b>Signal Settings</b> section, select <b>NON AASM Compliant</b> to record with lower sampling rates, which result in faster study downloads and computer assisted analysis.  Select <b>AASM Compliant</b> for a higher sampling rate, which is the signal quality suggested by the AASM manual for sleep studies. However, data download and computer assisted analysis take longer than the <b>NON AASM Compliant</b> setting.
The SpO2 and Pulse signal derived from the oximeter	Under <b>Oximeter</b> , select the <b>SpO2 &amp; Pulse</b> check box.
The Pulse Waveform signal derived from the oximeter	Under <b>Oximeter</b> , select the <b>Pulse Waveform</b> check box.
The Gravity signal derived from the Position/Activity sensor	Under <b>Position/Activity</b> , select the <b>Gravity</b> check box.
The Snoring signal derived from the nasal cannula	Under Snoring, select the Derived from nasal cannula check box.
The Differential Pressure Sensor signal	Under Differential Pressure Sensor, select the <b>Differential Pressure Sensor</b> check box. By default, the last differential pressure sensor selected for the study type is used. To add, edit, or delete a differential pressure sensor definition, see <a href="#">Device Settings</a> .
The Thermistor signal	Select the <b>Thermistor</b> check box.

12. In Completing the Recording Wizard page, click **Next**.
13. A message window indicates the Embletta Gold is programmed correctly, and the right status light flashes amber once every second.
14. To start the recording, click **Finish**. The Embletta Gold begins acquiring and transmitting signals, which display on the *Embla Resp* [Workpad Sheet](#).



Tip: To add, edit, or delete a DC or differential pressure definition, see [Device Settings](#).

## Programming the Embletta MPR

Once you enter the patient information, the Embletta MPR can be programmed for a recording. When using either the Embletta MPR or Embletta MPR PG (with or without the TX Proxy Unit), a programmed recording cannot exceed 24:00 hours. For an ambulatory study using the ST/ST+ Proxy (with or without the TX Proxy Unit), the maximum study duration is 13.50 hours.

Note: To record online, you must connect to the TX Proxy Unit wirelessly and activate the Embletta Online license component to record online. See [License Management](#) for more information.



Note: When using the Embletta MPR or Embletta MPR PG Unit, you can program up to three (3) start/stop times for an ambulatory study. For an ambulatory study with the TX Proxy Unit, only two (2) start/stop times can be programmed. With the ST/ST+ Proxy, only one (1) start/stop time can be programmed when programming an ambulatory study. With the ST/ST+ Proxy, only one (1) start/stop time can be programmed (with or without TX Proxy Unit) for a maximum duration of 13.5 hours.

Before connecting and programming the Embletta MPR for an ambulatory or online study, you must install the device and enter patient information relevant to the study. See the following topics for additional information:

- [Installing the Embletta MPR](#)
- [Preparing a Study](#)

### Ambulatory Recordings

#### To program the Embletta MPR for an ambulatory recording:



Note: Always perform a sleep study with fully charged batteries.

1. Connect the Embletta MPR to the computer using the USB cable provided with the system.
2. On the [Operations sheet](#), click **Device Control**.

3. From the **Available Devices** list, select the **Embletta MPR** that is connected to the computer.
4. From the **Recording Types** list, select **Prepare Ambulatory**, then click **OK**. Alternately, you can right click on the device in the [Device Manager](#) and select **Prepare Ambulatory**.
5. From the **Select Device Profile** dialog, select the desired study profile for your ambulatory study from the drop-down menu. If the device profile is edited from here, the edits are only temporary. To edit the device profiles for future recordings, refer to [Embletta MPR Device Profiles](#).

When using the ST or ST+ Proxy, you must identify the P-Ground connection type in the **Select Device Profile** dialog.

If you are connecting your P-Ground connection to: Choose:	
The patient and the ST/ST+ Proxy Only	Single (ST/ST+ Proxy Only)
The patient and both the Embletta MPR, when using the ExG channel, and ST/ST+ Proxy.	Dual (MPR and ST/ST+ Proxy)

Select Profile: EB MPRPG ST Ambulatory [Edit]

Start / Stop Times

Start Automatically  Use Start and Stop Time

#	Start Date	Start Time	Stop Time	Duration
<input checked="" type="checkbox"/> 1	Today	10:00:00 PM	6:00:00 AM	8:00

Add / Edit Time

Start Study: Today

Start Time: 10:00 PM

Stop Time: 6:00 AM

Duration: 8:00

P-Ground Connection

Single (ST/ST+ Proxy only)

Dual (MPR and ST/ST+ Proxy)



Note: When using the Embletta MPR PG in conjunction with the TX Proxy unit, a maximum of two ambulatory recordings can be scheduled. If you are recording two studies using both a ResMed Therapy device and a TX Proxy unit, both units will need to be powered off once the first study has ended. Prior to starting the second ambulatory study, the ResMed Therapy device and the TX Proxy unit will need to be powered back on.

- Set your Start/Stop Times by selecting one of the following:
  - Start Automatically** – Begins the study once the unit has been unplugged from the computer and the Oximetry sensor or XactTrace belts begin to send a valid signal.
  - Use Start and Stop Time** – Begins and ends the study at the specific time set.
- Set your start and stop times for your study to begin by selecting one of the existing preset times listed. If you would like to change a preset for the current study being collected, select the preset and manually adjust the Start/Stop information using the Add/Edit Time box. These can be modified on a permanent basis by creating or modifying the preset using the [device profile](#).

To adjust the:	Do this:
Start date	Select one of the following from the drop-down menu: Today, Tomorrow, in 2 days, in 3 days, or in 4 days.
Start Time	Select this option to set the start time using the up and down arrows to set the correct time. Alternately, you can manually type the start time.
Stop Time	Select this option to set the start time using the up and down arrows to set the correct time. Alternately, you can manually type the stop time.

The Duration displays the total duration of your selected study based on Start and Stop times.

8. Once the start/Stop times have been set or selected, press **Next** to initialize the ambulatory recording.
9. A verification screen showing the information for the study displays. Click **Finish**.



Tip: You can choose to display a dialog versus using the wizard by selecting the check box next to **In the future display dialog instead of wizard to start recording**. This can be re-enabled by going to **Devices | Settings | Embletta MPR | General Tab** and selecting the **Use Recording Wizard to start recording** check box.

10. Wait while the Embletta MPR is being programmed. This can take a few minutes; do not disconnect the Embletta MPR from the computer until after the Ambulatory Recording Summary has displayed. Once displayed, click **OK** to close the summary and disconnect the Embletta MPR from the computer.

**Ambulatory Recording Summary** X

---

**Patient Information**

First Name: EB MPRPG ST  
Last Name:

---

**Profile Information**

Profile Name: EB MPRPG ST Ambulatory  
Profile Description: Ambulatory profile with Audio / scheduled recoding time

---

**Recording Information**

Start Type: Use Start / Stop Time

	Start Date:	Start Time:	Stop Time:	Duration:
Recording 1:	8/14/2013	2:43:00 PM	2:45:00 PM	0:02

---

**TX Proxy Use**

The Embletta MPR is linked with TX Proxy (serial number TX-C1000103).

OK

Online Recordings

**To program the Embletta MPR for an online recording:**



Note: Always perform a sleep study with fully charged batteries.

Note: To record online, you must connect to the TX Proxy Unit wirelessly and activate the Embletta Online license component to record online. See [License Management](#) for more information.

Note: If a patient needs to move out of range of the TX Proxy Unit, during the collection of an online recording, the study needs to be stopped and then resumed in RemLogic once the patient is back in range. Out of range is defined as being further than 20 feet from the TX Proxy Unit, being out of the direct line of sight of the TX Proxy Unit (i.e. in the bathroom), or both.



Note: If a patient moves out of range unexpectedly, the study should be stopped in RemLogic. At this time, the partial study should be downloaded to RemLogic and a new study should be started. Once the studies are complete, they can be joined in RemLogic. See **Joining Recordings** in the **Collecting Data** Section of the Online Help.

1. Open RemLogic
2. Pair the Embletta MPR with a TX Proxy Unit using the Configuration tool, and ensure the TX Proxy Unit is connected to the Local Area Network (LAN) of the recording computer.
3. On the [Operations sheet](#), click **Device Control**.
4. From the **Available Devices** list, select the **Embletta MPR** that is connected to the computer.
5. From the **Recording Types** list, select **Start Online**, then click **OK**. Alternately, you can right click on the device in the [Device Manager](#) and select **Start Online**.
6. The Recording wizard opens. Select **Next**.
7. From the Select Device Profile dialog, select the desired study profile for your online study from the drop-down menu. If the device profile is edited from here, the edits are only temporary. To edit the device profiles for future recordings, refer to [Embletta MPR Device Profiles](#).



When using the ST or ST+ Proxy, you must identify the P-Ground connection type in the **Select Device Profile** dialog.

If you are connecting your P-Ground connection to:	Choose:
The patient and the ST/ST+ Proxy Only	Single (ST/ST+ Proxy Only)

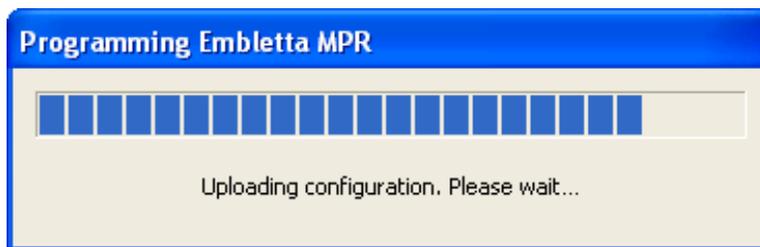
If you are connecting your P-Ground connection to:	Choose:
The patient and both the Embletta MPR, when using the ExG channel, and ST/ST+ Proxy.	Dual (MPR and ST/ST+ Proxy)

8. A verification screen showing the information for the study displays. Click **Finish**.



Tip: You can choose to display a dialog versus using the wizard by selecting the check box next to **In the future display dialog instead of wizard to start recording**. This can be re-enabled by going to **Devices | Settings | Embletta MPR | General Tab** and selecting the **Use Recording Wizard to start recording** check box.

9. Wait while the Embletta MPR is being programmed. This can take a few minutes and the following dialog displays:



Once complete, the online recording begins.

## Using ResMed Tx Link\*

\*Not available with the License free version of RemLogic

ResMed Tx Link communicates information between a computer with RemLogic and ResMed EasyCare Tx software and RemLogic on a local area network (LAN) and a connected flow generator. For example, when you enter a pressure change in EasyCare Tx, the command is passed through Tx Link to the flow generator. Concurrently, Tx Link communicates the change to RemLogic, and includes information about current settings when the change was made.

The types of information (tracings, signals, and setting information) that are produced depend upon the flow generator model. To determine which flow generators are compatible with Tx Link, visit the ResMed web site: [www.resmed.com](http://www.resmed.com).

The Tx Link is compatible with the following amplifiers:

- Embletta
- Embletta Gold
- Embla titanium
- MDrive (with an Ethernet connection to the LAN)
- Embla communication units
- Embletta MPR (online mode only – [ResMed Therapy Device Setting disabled](#))



Note: Before beginning the study in RemLogic, the EasyCare Tx software will need to be started and the therapy device should be turned on.

## Laying Tags with Tx Link\*

\*Not available with the License free version of RemLogic

If RemLogic is recording a study, the Tx Link automatically lays a connect tag when the connected flow generator is turned on. In addition to the time, the connect tag includes the flow generator's product name and its serial number. Concurrently, Tx Link automatically lays a settings event that includes the attributes that apply to the current mode (for example, IPAP pressure, EPAP pressure, and IPAP Max Time). If the flow generator changes modes, Tx Link automatically lays a tag with the new mode and its attributes. Throughout the study, RemLogic records all traces delivered from the flow generator connected to Tx Link.

You can add special events, such as room air start/stop or pressure events and values, through the [Event Palette](#). For more information, see the **Flow Generator Events** section in the following location of the RemLogic online help: **Analyzing Data | Marking Events | Special Events**.

If the flow generator is turned off or in standby mode, Tx Link automatically lays a disconnect event, and data recording discontinues until the flow generator returns to an active mode.

## Viewing Tx Link Tags\*

\*Not available with the License free version of RemLogic

Setting information for the flow generator that was recorded with the tag, such as mask type, mode, and pressure, displays in the RemLogic Workpad when you mouse over the event that caused Tx Link to automatically lay the tag. Additionally, RemLogic records the flow generator's product name for reporting purposes.

## Using Patient Charting\*

\*Not available with the License free version of RemLogic

Patient charting allows you to electronically chart observations at intervals in the study. Patient charting also allows you to generate an observation report summarizing all the collection observations, all the general and summary observations, or only the key observations.



Button	Description
	Opens the Initial Observations chart. This button is available when the Enable Initial Observations option is turned on in the Observations settings.
	Adds a Tech Note.
	Displays the time until the next observation or the time elapsed since the last observation was due.
	Displays the number of fields completed.
	Displays the text of the Patient Observation report.

## Observations toolbar



The [Observations toolbar](#) is organized according to the Patient Charting workflow:

1. **Chart Initial Observations:** Prior to starting the study or shortly after starting the study, chart your observations and any general comments you may have about the patient.

Click **Initial Observation**  to open the Initial Observations chart. You can edit the contents of the Initial Observations chart until you close the Workpad. Then, the content of the chart is no longer editable (read-only).

2. **Add Tech Notes:** For your convenience, you click **Add Note**  to add a note during collection or analysis. For more information, see the **Note Box** section in the following location of the RemLogic online help: **Analyzing Data | Marking Events | Special Events**.

3. **Chart Collection Observations:** Once you start collection and lay the Lights Off marker, the software begins counting down the time until the first Collection Observations chart is due to be completed.

When it is time for you to complete the Collection Observations chart, the chart either opens automatically or **Collection Observation**  flashes on the Observations toolbar.

In the Collection Observations chart, you document your observations and any general comments about the patient at that point in the study.

You can only revise the current Collection Observations chart until the next Collection Observations chart is due. When the next Collection Observations chart is due, the previous Collection Observations chart cannot be edited (read-only).

4. **Summary Observations chart:** Throughout the study, you can document any conclusions drawn about the patient.

Click **Summary Observations**  to open the Summary Observations chart. You can edit the contents of the Summary Observations chart until you close the Workpad. Then, the content of the chart is read-only.

5. **Generate and View Observation Report:** At the end of the study or during analysis, you can generate and view an observation report.

Depending on your system settings (see the **Configuring Observation Report Settings** section in the following location of the RemLogic online help: **Collecting Data | Managing Patient Data**), you can generate an observation report that summarizes all collection observations (Detailed Observation Report), all general and summary observations (Summary Observation Report), or only those collection observations marked as important (Notable Event Report).

Click **Observation Report**  to generate and view an observation report.

If the Initial -, Collection -, and/or Summary Observation buttons are not available on the Observations toolbar, charts must be added to the Patient Charting workflow. See [Managing Patient Charting](#) for more information.

## Charting Initial Observations\*

*\*Not available with the License free version of RemLogic*

Prior to starting the study or shortly after starting the study, chart your observations and any general comments you have about the patient.

Open the Initial Observations chart by clicking **Initial Observation**  on the Observations toolbar. By default, the contents of the Initial Observations chart remains editable until you close the Workpad.

### To chart initial observations prior to starting or shortly after starting the study:

1. On the **Observation** toolbar, click **Initial Observation**  to open the Initial Observations chart.
2. Complete the Initial Observations chart.
3. Click **OK**.



Tip: Press TAB to move through the Initial Observations chart.

## Charting Collection Observations\*

*\*Not available with the License free version of RemLogic*

Throughout the study, you document your observations and any general comments about the patient in the Collection Observations chart.

Once you start collection and lay the Lights Off marker, the software begins counting down the time until the first Collection Observations chart is due to be completed. When it is time for you to complete the Collection Observations chart, the chart either opens automatically or

**Collection Observation**  flashes on the Observations toolbar.

When a Collection Observations chart is updated by the sleep technologist, the Collection Observations chart icon  is moved to the time in the study timeline when the chart was revised. You can rest on  to view a ToolTip that displays the content of the Collection Observations chart or you can double-click  to open the Collection Observations chart.

If you are unable to complete the Collection Observations chart, click **Snooze** to postpone completing the chart. The Collection Observations chart does not display until the delay period expires or the next Collection Observations chart is due, whichever duration is shorter.

You will continue to complete the Collection Observations chart at regular intervals throughout the study until you lay the Lights On marker or stop collection. If you stop and then resume a collection, the software resets the interval to when the next Collection Observations chart is due and begins counting down.

By default, the Collection Observations chart can only be revised until the next Collection Observation chart is due to be completed. When the next Collection Observations chart is due,

the previous Collection Observations chart cannot be edited (read-only). If you miss completing a Collection Observations chart for an interval, the missed chart is saved as a blank chart. Any partially completed charts are saved as is.

### To chart Collection observations during the study

1. If necessary, on the **Observation** toolbar, click **Collection Observation**  to open the current Collection Observations chart.

If you are unable to complete the Collection Observations chart at that time, click **Snooze** to postpone completing the chart.

2. Complete the Collection Observations chart.
3. Do one of the following:
  - To identify an observation as important, click  next to the observation of note.
  - To identify an entire Collection Observations chart as important, in the top right corner of the Collection Observations chart, click .
4. Click **OK**.



Tip: Press TAB to move through the Collection Observations chart.

### Charting Summary Observations\*

*\*Not available with the License free version of RemLogic*

Throughout the study, you can document any conclusions you have drawn about the patient.

Depending on your system configuration, the Summary Observations chart might appear at intervals throughout the study with the Collection Observations chart, or you can open the

Summary Observations chart manually by clicking **Summary Observations**  on the Observations toolbar.

By default, you can edit your comments in the Summary Observations chart until you close the Workpad.

### To chart summary observations during or at the end of the study:

1. If necessary, click **Summary Observations**  to open the Summary Observations chart.
2. Complete the Summary Observations chart.
3. Click **OK**.



Tip: Press TAB to move through the Summary Observations chart.

## Generating the Observations Report\*

*\*Not available with the License free version of RemLogic*

At the end of the study or during analysis, you can generate and view an observation report by clicking **Observation Report**  on the Observations toolbar.

Depending on the default Observation Report template specified as your default template (see [Configuring Observation Report Settings](#)) (see the **Configuring Observation Report Settings** section in the following location of the RemLogic online help: **Collecting Data | Managing Patient Data**), you will generate one of the following observation reports:

**Notable Event Report:** Lists only those collection observations marked as important by the sleep technologist.

**Detailed Observation Report:** Lists all the collection observations.

**Summary Observation Report:** List all the general observations from the Initial– and Collection Observations charts and all the comments from the Summary Observations chart.

When you generate the Observation Report, it is saved with the study. Like other reports, you can publish your generated report to the Embla Enterprise System.

Observation Reports have two key features:

**Hyperlinked Observation Times:** Depending on your system configuration, your Observation Reports might have observation time hyperlinks. These hyperlinks allow you to click the observation time in the report to go to the corresponding time in the study.

**Highlighted Notable Observations:** Observations of note are easily identified in the report by the bold text.

### To generate and view the Observation Report:

- On the Observations toolbar, click **Collection Observation**  to generate and open an Observation Report.

## Viewing Observations in Analysis\*

*\*Not available with the License free version of RemLogic*

In analysis, you can open the Initial Observations chart, the Collection Observations chart, and the Summary Observations chart from the Observations toolbar. By default, these charts are not editable (read-only) in analysis. For more information, see [Turning off Observations are Read-Only After Collection](#).

### To view the Initial Observations chart:

- On the Observations toolbar, click **Initial Observation** . By default, the contents of the chart are read-only.

### To view the Collection Observations chart:

1. On the Observations toolbar, click **Collection Observation** , or double-click  on the collection timeline. By default, the contents of the chart are read-only.

- In the top right corner of Collection Observations chart, click  or  to move to the previous or next Collection Observations chart.

The  is not available when the first observation is displayed. The  is not available when the last observation is displayed.

### To view the Summary Observations chart:

- On the Observations toolbar, click **Summary Observations** . By default, the contents of the chart are read-only.

## Managing Patient Charting\*

*\*Not available with the License free version of RemLogic*

Patient charting allows sleep technologists to chart observations electronically at regular intervals in a study. Patient charting prompts the sleep technologist to assess the patient regularly throughout the night and eliminates the need for paper charting.

Patient charting consists of three observation charts:

**Initial Observations:** The sleep technologist uses this chart to document observations prior to starting the study or shortly after starting the study.

**Collection Observations:** The sleep technologist uses this chart to document observations at intervals or arbitrary times during the study.

**Summary Observations:** The sleep technologist uses this chart to document any conclusions drawn during or after the study.

You can customize the content of the Initial-, Collection-, and Summary Observations charts. You can also customize the intervals at which the Collection Observations chart appears to the sleep technologist. Your customized settings are saved to a file so you can transfer these settings to other sleep labs.

By default, patient charting is available during collection.

### Turning off Observations are Read-Only After Collection\*

*\*Not available with the License free version of RemLogic*

By default, the Initial Observations chart and Summary Observations chart can be edited throughout a study. These charts cannot be edited (read only) once the sleep technologist closes the Workpad.

By default, the Collection Observations chart can be revised until the next Collection Observations chart is due to be completed. When the next Collection Observations chart is due, the previous Collection Observations chart cannot be edited (read-only).

By default, all observations are read-only in analysis.

If you want to permit sleep and scoring technologists to edit observations, then you must turn off the Observations are read-only after collection option.

### To turn off the Observations are Read Only After Collection option:

- On the **Tools** menu, click **Options**.

2. In the left pane, click **Observations**.
3. Clear the **Observations are read-only after collection** check box.
4. Click **OK**.

## Turning on the Collection Observation Charting Notification\*

*\*Not available with the License free version of RemLogic*

If you want your sleep technologists to chart collection observations at regular intervals in the Collection Observations chart, you can notify the sleep technologist of the requirement to chart in one of two ways:

- The Collection Observations chart appears automatically at the set interval.
- The Collection Observation button flashes on the Observations toolbar at the set interval.

### To turn on the Observation buttons flash on toolbar option:

1. On the Tools menu, click **Options**.
2. In the left pane, click **Observations**.
3. Do one of the following:
  - To open the Collection Observations chart automatically at the set interval, select the **Collection Observations automatically pop up** check box.
  - To flash the Collection Observation button on the Observations toolbar at the set interval, select the **Collection Observation button flashes on toolbar** check box.
4. Click **OK**.

## Adjusting the Transparency of the Collection Observations Chart ToolTip\*

*\*Not available with the License free version of RemLogic*

From the signal view, you can point to a Collection Observations chart icon  to see a summary of the Collection Observations chart in a ToolTip.

By default, the background of the Collection Observation ToolTip is transparent, so you can still see the signal waveforms behind the ToolTip. If you want to make the Collection Observation ToolTip opaque so it is easier to read, you can adjust the transparency of the ToolTip in the Observation settings.

### To adjust the transparency of the Collection Observation ToolTip:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Observations**.
3. Move the slider to the left or right to decrease or increase the opacity of the Collection Observation ToolTip.
4. Click **OK**.

## Configuring the Initial Observations Chart\*

\*Not available with the License free version of RemLogic

In the Initial Observations chart, the sleep technologist documents observations about the patient prior to or shortly after starting the study.

You can add or remove the Initial Observations chart from the patient charting workflow. When you remove the Initial Observations chart from the patient charting workflow, the Initial Observations button is not available on the Observations toolbar.

You can also customize the contents of the Initial Observations chart. By default, the sleep technologist can chart blood pressure, blood oxygen saturation, neck size, and general comments in the Initial Observations chart.

When you update the Initial Observations chart, your changes will not take effect until the next collection.

### To configure the Initial Observations:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Observations**.
3. Under **Observations**, click **Initial Observations**.
4. Select the **Enable Initial Observations** check box to add the Initial Observations chart to the charting workflow.
5. Do one of the following:

To	Do This
Add an observation field	<ol style="list-style-type: none"> <li>a. Click <b>Add</b>.</li> <li>b. Skip to step 6.</li> </ol>
Edit an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to edit.</li> <li>b. Click <b>Edit</b>.</li> <li>c. Skip to step 6.</li> </ol>
Delete an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to delete.</li> <li>b. Click <b>Remove</b>.</li> <li>c. Skip to step 8.</li> </ol>
Move an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to move.</li> <li>b. Click <b>Up</b> or <b>Down</b> to move the observation higher or lower in the list.</li> <li>c. Skip to step 8.</li> </ol>

6. In the **Field Name** box of the Observation Field dialog box, type the label name of the observation field.

7. Under the **Field Type** group, do one of the following:

To	Do This
Create a label to group related observations	Click <b>None</b> .
Create a single line text box in which the sleep technologist can type	Click <b>Short Text</b> , <b>Medium Text</b> , or <b>Long Text</b> .
Create a multi-line text box in which the sleep technologist can type	Click <b>Multi-Line Text</b> .
Create a check box that the sleep technologist selects if an item applies	Click <b>Check box</b> .
Create a list from which the sleep technologist can only select one item	<ol style="list-style-type: none"> <li>Click <b>List</b>.</li> <li>Click <b>Details</b>.</li> <li>In the box above the <b>OK</b> button, type the label name for the item you want to add to the list.</li> <li>Click <b>Add</b>.</li> <li>Repeat steps iii and iv for the remaining items in the list.</li> <li>Click <b>OK</b>.</li> </ol>
Update or delete the content of the list from which the sleep technologist can only select one item	<ol style="list-style-type: none"> <li>Click <b>List</b>.</li> <li>Click <b>Details</b>.</li> <li>Click the item in the list you want to update or delete.</li> <li>Do one of the following: <ul style="list-style-type: none"> <li>To update an item, in the box above the <b>OK</b> button, revise the text, then click <b>Update</b>.</li> <li>To delete an item, click <b>Remove</b>.</li> </ul> </li> <li>Click <b>OK</b> to close the List Details dialog box.</li> </ol>

8. Click **OK**.

## Configuring Collection Observations Chart\*

*\*Not available with the License free version of RemLogic*

In the Collection Observations chart, the sleep technologist documents observations about the patient during collection.

You can add or remove the Collection Observations chart from the patient charting workflow. When you remove the Collection Observations chart from the patient charting workflow, the Collection Observations button is not available on the Observations toolbar.

You can set the interval at which the sleep technologist charts collection observations. By default, the interval is 30 minutes. You can set the Collection Observations chart to open automatically or set the Collection Observation button to flash on the Observations toolbar at the set interval. See [Turning on the Collection Observation Charting Notification](#) in this topic.

You can set the duration of the Snooze button. By default, the delay is 5 minutes. The snooze duration cannot be longer than half the interval before the Collection Observations chart appears. For example, if the interval is 30 minutes, then the snooze duration cannot be more than 15 minutes.

You can also customize the contents of the Initial Observations chart. You can chart up to 50 collection observations. By default, the sleep technologist can chart the following in the Collection Observations chart:

- Sleep Stage
- Respiratory Event Status
- Snoring Status
- Blood Oxygen Saturation
- Heart Rate
- Treatment Pressure
- Respiratory Rate
- Body Position
- General Comments

When you update the Collection Observations chart, your changes will not take effect until the next collection.

#### To configure the Collection Observations chart:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Observations**.
3. Under **Observations**, click **Collection Observations**.
4. Select the **Enable Collection Observations** check box to add the Collection Observations chart to the charting workflow.
5. In the **Interval** box, type the duration in minutes before the Collection Observations chart appears. *The Snooze Duration cannot be more than half the time specified in the Interval box.*
6. In the **Snooze Duration** box, type the duration in minutes to delay the notification to complete the Collection Observations chart when the sleep technologist presses the Snooze button.
7. Do one of the following:

To	Do This
Add an observation field	<ol style="list-style-type: none"> <li>a. Click <b>Add</b>.</li> <li>b. Skip to step 8.</li> </ol>
Edit an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to edit.</li> <li>b. Click <b>Edit</b>.</li> <li>c. Skip to step 8.</li> </ol>
Delete an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to delete.</li> <li>b. Click <b>Remove</b>.</li> <li>c. Skip to step 10.</li> </ol>

To	Do This
Move an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to move.</li> <li>b. Click <b>Up</b> or <b>Down</b> to move the observation higher or lower in the list.</li> <li>c. Skip to step 10.</li> </ol>

8. In the **Field Name** box of the **Observation Field** dialog box, type the label name of the observation field.

9. Under the **Field Type** group, do one of the following:

To	Do This
Create a label to group related observations	Click <b>None</b> .
Create a single line text box in which the sleep technologist can type	Click <b>Short Text</b> , <b>Medium Text</b> , or <b>Long Text</b> .
Create a multi-line text box in which the sleep technologist can type	Click <b>Multi-Line Text</b> .
Create a check box that the sleep technologist selects if an item applies	Click <b>Check box</b> .
Create a list from which the sleep technologist can only select one item	<ol style="list-style-type: none"> <li>a. Click <b>List</b>.</li> <li>b. Click <b>Details</b>.</li> <li>c. In the box above the <b>OK</b> button, type the label name for the item you want to add to the list.</li> <li>d. Click <b>Add</b>.</li> <li>e. Repeat steps iii and iv for the remaining items in the list.</li> <li>f. Click <b>OK</b>.</li> </ol>
Update or delete the content of the list from which the sleep technologist can only select one item	<ol style="list-style-type: none"> <li>a. Click <b>List</b>.</li> <li>b. Click <b>Details</b>.</li> <li>c. Click the item in the list you want to update or delete.</li> <li>d. Do one of the following:                             <ul style="list-style-type: none"> <li>• To update an item, revise the text in the box above the <b>OK</b> button, then click <b>Update</b>.</li> <li>• To delete an item, click <b>Remove</b>.</li> </ul> </li> <li>e. Click <b>OK</b> to close the List Details dialog box.</li> </ol>

10. Click **OK**.

## Configuring the Summary Observations Chart\*

\*Not available with the License free version of RemLogic

In the Summary Observations chart, the sleep technologist documents any conclusions drawn during or after the study.

You can add or remove the Summary Observations chart from the patient charting workflow. When you remove the Summary Observations chart from the patient charting workflow, the Summary Observations button is not available on the Observations toolbar.

You can set the Summary Observations chart to appear with the Collection Observations chart. You can also customize the contents of the Summary Observations chart. By default, the sleep technologist can chart the following in the Summary Observations chart:

- Findings related to sleep diagnosis
- EEG abnormalities
- ECG abnormalities
- Behavioral observations

When you update the Summary Observations chart, your changes will not take effect until the next collection.

### To configure the Summary Observations chart:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Observations**.
3. Under **Observations**, click **Summary Observations**.
4. Select the **Enable Summary Observations** check box to add the Summary Observations chart to the charting workflow.
5. Select the **Include with Collection Observations** check box to make the Summary Observations chart available whenever the Collection Observations chart appears.
6. Do one of the following:

To	Do This
Add an observation field	<ol style="list-style-type: none"> <li>a. Click <b>Add</b>.</li> <li>b. Skip to step 7.</li> </ol>
Edit an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to edit.</li> <li>b. Click <b>Edit</b>.</li> <li>c. Skip to step 7.</li> </ol>
Delete an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to delete.</li> <li>b. Click <b>Remove</b>.</li> <li>c. Skip to step 9.</li> </ol>
Move an observation field	<ol style="list-style-type: none"> <li>a. Click the observation you want to move.</li> <li>b. Click <b>Up</b> or <b>Down</b> to move the observation higher or lower in the list.</li> <li>c. Skip to step 9.</li> </ol>

7. In the **Field Name** box of the **Observation Field** dialog box, type the label name of the observation field.
8. Under the **Field Type** group, do one of the following:

To	Do This
Create a label to group related observations	Click <b>None</b> .
Create a single line text box in which the sleep technologist can type	Click <b>Short Text, Medium Text, or Long Text</b> .
Create a multi-line text box in which the sleep technologist can type	Click <b>Multi-Line Text</b> .
Create a check box that the sleep technologist selects if an item applies	Click <b>Check box</b> .
Create a list from which the sleep technologist can only select one item	<ol style="list-style-type: none"> <li>a. Click <b>List</b>.</li> <li>b. Click <b>Details</b>.</li> <li>c. In the box above the <b>OK</b> button, type the label name for the item you want to add to the list.</li> <li>d. Click <b>Add</b>.</li> <li>e. Repeat steps iii and iv for the remaining items in the list.</li> <li>f. Click <b>OK</b>.</li> </ol>
Update or delete the content of the list from which the sleep technologist can only select one item	<ol style="list-style-type: none"> <li>a. Click <b>List</b>.</li> <li>b. Click <b>Details</b>.</li> <li>c. Click the item in the list you want to update or delete.</li> <li>d. Do one of the following:                             <ul style="list-style-type: none"> <li>• To update an item, revise the text in the box above the <b>OK</b> button, then click <b>Update</b>.</li> <li>• To delete an item, click <b>Remove</b>.</li> </ul> </li> <li>e. Click <b>OK</b> to close the List Details dialog box.</li> </ol>

9. Click **OK**.

## Configuring Observation Report Settings\*

*\*Not available with the License free version of RemLogic*

You can choose one of the following standard Observation Report templates as your default report template:

**Notable Event Report:** Lists only those collection observations marked as important by the sleep technologist.

**Detailed Observation Report:** Lists all the collection observations.

**Summary Observation Report:** Lists all the general observations from the Initial– and Collection Observations charts and all the comments from the Summary Observations chart.

You can choose to include observation time hyperlinks in the report. These hyperlinks allow a report reviewer to click the observation time in the report to go to the corresponding time in the study.

#### To configure the Observation Report Settings:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Observations**.
3. Under Observations, click **Observation Report**.
4. Do one of the following:
  - To choose a report listing only those collection observations marked as significant, click **Notable Event Report**.
  - To choose a report listing all the collection observations, click **Detailed Observation Report**.
  - To choose a report listing all the general comments from the Initial- and Collection Observations charts and all comments from the Summary Observations chart, click **Summary Observation Report**.
5. Click **Hyperlink observation times in report to study** to allow users to go to the relevant point in the study by clicking on the observation time in the report.
6. Click **OK**.

### Transferring Patient Charting Settings\*

*\*Not available with the License free version of RemLogic*

Once you have created customized observation charts, you can copy them to other computers. This allows other sleep technologists to use your customized observation charts. You must do this manually by copying your modified popupsettings.xml file (which contains the settings for your customized observation charts) to the other computer.

#### To transfer patient charting settings to another computer:



**Note:** Before you start this procedure, you must display hidden files and folders in your operating system. For assistance, see the Windows Help and Support Center.

1. On the computer with the customized observation charts, do one of the following:
  - If you are running Windows XP, browse to c:\Documents and Settings\All Users\Application Data\Embla\RemLogic\Settings, where c: represents the drive on which your operating system is installed.

- If you are running Windows 7, browse to c:\Program Data\Embla\RemLogic\Settings, where c: represents the drive on which your operating system is installed.
2. Copy the PopupSettings.xml file to a portable media, such as a USB drive.
  3. From the portable media, copy the PopupSettings.xml file to the same directory location as listed in Step 1 on the computer you want to update the observation charts.

## Controlling the MDrive with RemLogic\*

\*Not available with the License free version of RemLogic



Note: Prior to starting a recording, check the PC storage to ensure there is adequate space.

With RemLogic, you can control several functions on the MDrive, including:

- [Manage profiles](#)
- [Manage bio-calibrations](#)
- [Run impedance tests](#)
- [Calibrate the test signal](#)
- [Record a study](#)
- [Mark events](#)
- [Assume control of a study](#)
- [Download studies from an SD card](#)
- [Support two way audio](#)

The MDrive has several icons that indicate its status. Examples are outlined in the table below; variations can display in RemLogic.

Icon	Status
	Wirelessly connected, available MDrive; no secure digital (SD) card present
	MDrive available, no SD card present
	MDrive not available, no SD card present
	Recording (MDrive is controlling the recording), SD card present
	Locked, SD card present
	Recording controlled by RemLogic, SD card present
	Impedance test, SD card present
	Bio-calibration test, SD card present

## Using the SD Card and the MDrive\*

\*Not available with the License free version of RemLogic

If a secure digital (SD) card is inserted in the MDrive, you can use RemLogic to:

- Record a study
- Upload a study to RemLogic
- Add new and edited [profiles](#) for the MDrive to use
- Add new and edited [bio calibrations](#) for the MDrive to use

RemLogic can download or delete studies from the SD card only if the SD card is unlocked. If it is locked, RemLogic can only display a list of studies and profiles on the card. For more information about the SD card, such as the amount of memory required for a study, see *SD Card* in the *System Components* section of the *MDrive Instructions for Use*.

For more information about profiles and bio calibrations in relation to the MDrive, see [Managing Profiles on the MDrive](#) and [Using Bio Calibrations with the MDrive](#).



Note: Removing the SD card while the MDrive is recording causes the MDrive to experience errors. The MDrive must be restarted to record again.

### Downloading a Study from the SD Card to RemLogic\*

Studies that are recorded with the MDrive are identified with the following information in the Device Manager:

- Date of the study
- The MDrive unit's identification number
- The length of the study

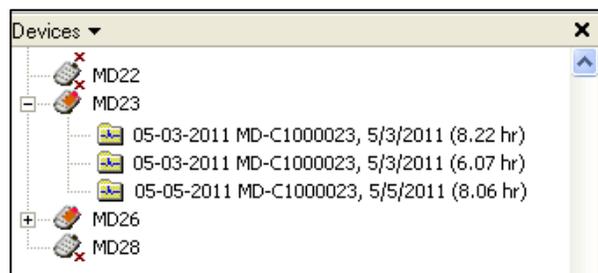
Download a single study, then edit the study's patient information before downloading another study.



Note: If you download multiple studies that were recorded the same day with the same MDrive without changing the patient information, all studies will have the same patient name.

### To download a study to RemLogic:

1. Click the **plus** to the left of the MDrive in the [Device Manager](#) in RemLogic to display a list of studies on the MDrive's SD card. The list includes the date and time the study started, and the MDrive unit's identification number.



MDrive's list of studies, including start date, unit number, and study length.

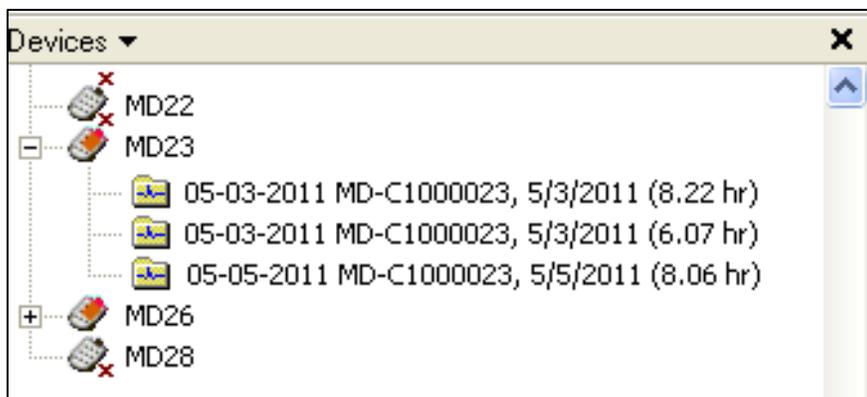
2. Right-click the study that you want to download, then select **Download** from the shortcut menu.
3. A message notifies you when the download is complete; click **OK**.
4. If desired, edit the patient information by completing the following steps:
  - a. Select the patient folder to be edited.
  - b. Select **Patient Info...** from the **Edit** menu.
  - c. Enter information as required in the Patient Information dialog box. For more information, see steps 2 through 6 in [Preparing a Study](#).
  - d. Click **OK** to save any changes and close the Patient Information dialog box.

### Deleting a Study from the SD Card\*

Deleting a study involves viewing a list of studies on the MDrive's SD card in the Workspace area, then selecting the desired study for deletion.

#### **To delete a study from the SD card:**

1. Click the **plus** to the left of the MDrive in the [Device Manager](#) to display a list of studies on the MDrive's SD card. The list includes the date and time the study started, and the MDrive unit's identification number.



*MDrive's list of studies, including start date, unit number, and study length.*

2. Right-click the study that you want to delete, then select **Delete** from the shortcut menu.
3. A confirmation message asks you if you want to delete the selected recording; click **Yes**.

### **Managing Profiles on the MDrive\***

*\*Not available with the License free version of RemLogic*

The MDrive has a set of default profiles that cannot be edited. Additionally, you can create and edit profiles in RemLogic, then save them to an SD card for use with the MDrive. You must use RemLogic to delete profiles from the SD card. When you add, edit, or delete a profile, RemLogic retrieves a list of profiles that were previously saved.



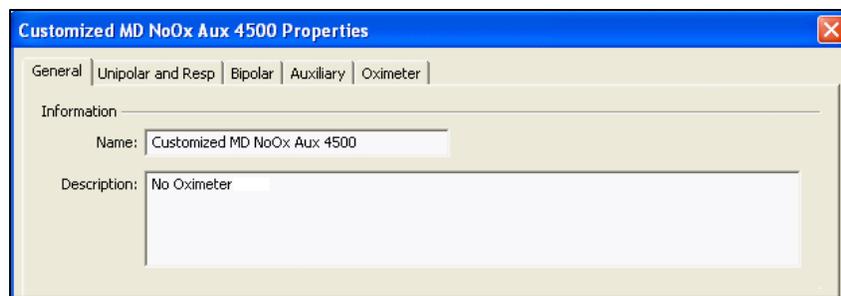
Note: It is strongly recommended that you configure the Windows firewall before managing MDrive profiles with RemLogic.

### Editing a Profile\*

You can edit a profile's name, description, impedance test and calibration test signal timing, and individual channel properties. You can edit profiles that are already saved on an SD card for use with the MDrive.

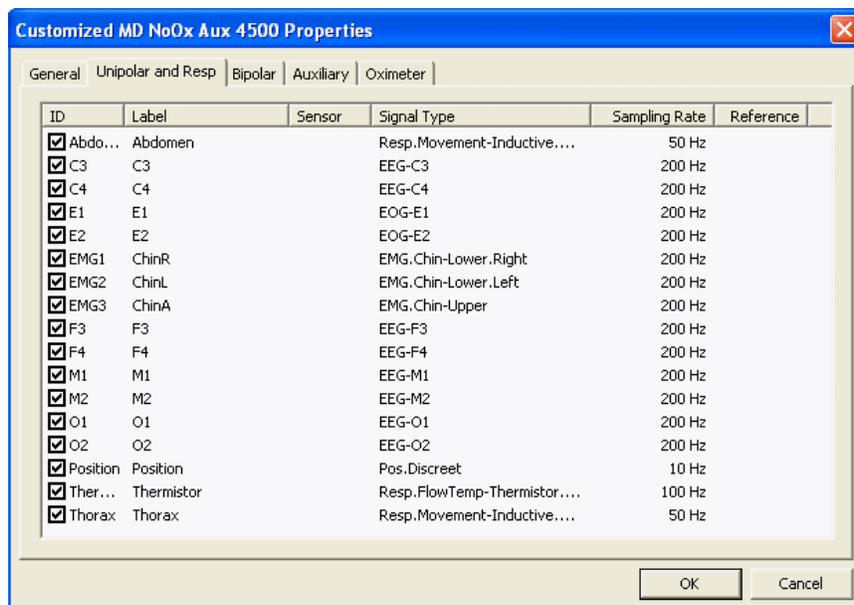
#### To edit a profile on an SD card:

1. Right-click an MDrive in the [Device Manager](#), then select **Manage Profiles** from the shortcut menu.
2. Select a profile from the list in the Manage MDrive Profiles dialog box, then click **Edit** to open the [Profile Name] Properties window.



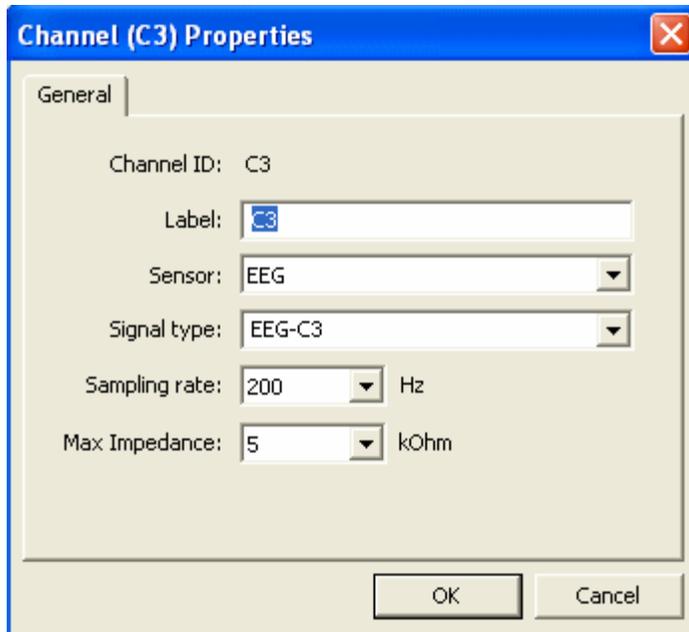
[Profile Name] Properties window

3. In the General tab, edit the profile's name and description, as needed.
4. Select a [Channel Type] tab to view, edit, and assign a specific channel to a study. The Auxiliary tab displays channels that are connected to the MDrive's auxiliary ports.



[Profile Name] Properties dialog box, displaying the Bipolar and Resp tab.

5. Select the check box to the left of the channel's label for it to collect data during a study.
6. Double-click the channel to open its properties dialog box, where you can edit the following:
  - Label name (the channel name that displays on the MDrive and RemLogic)
  - Sensor
  - Signal type
  - Sampling rate
  - Maximum impedance



[Channel Name] Properties dialog box

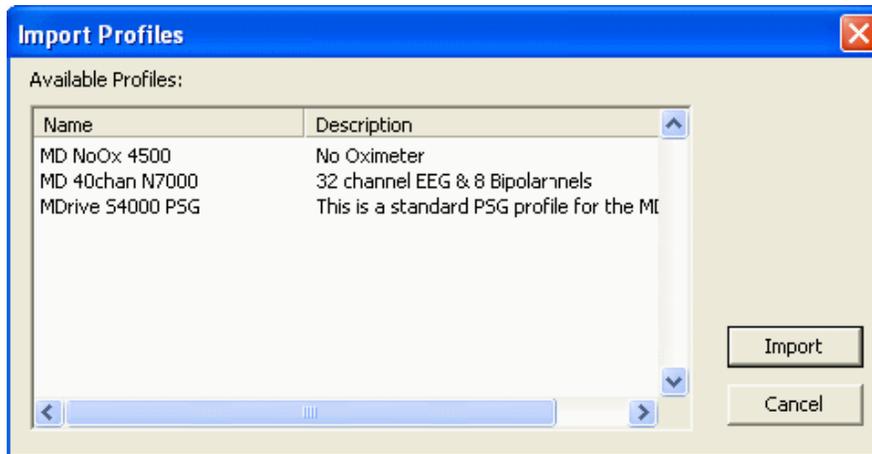
7. Click **OK** to return to the [Profile Name] Properties dialog box; click **OK** again to close the dialog box.
8. Click **Close** to exit the Manage MDrive Profiles dialog box.

### Adding a Profile\*

You can download a profile from RemLogic to an SD card for use with the MDrive.

#### **To add a profile to the SD card:**

1. Right-click an MDrive in the [Device Manager](#), then select **Manage MDrive Profiles** from the shortcut menu.
2. In the Manage MDrive Profiles dialog box, click **Add New** to open the Import Profiles dialog box, which lists profiles that are available in RemLogic.



Import Profiles dialog box

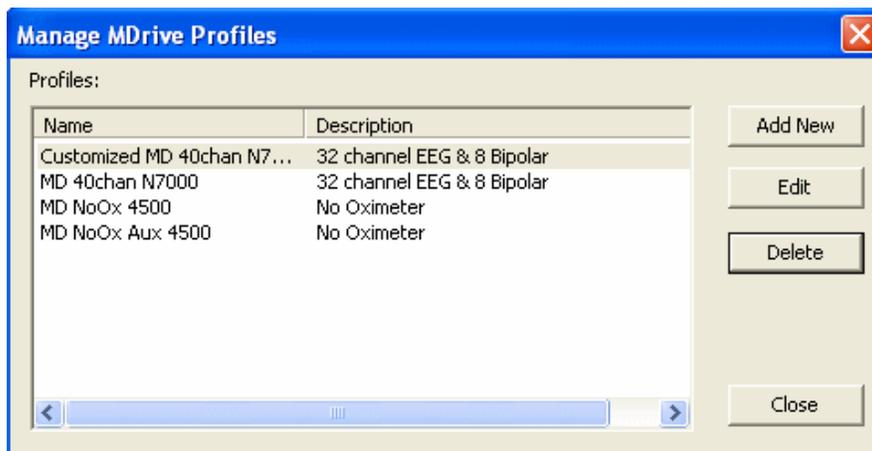
3. Select a profile, then click **Import**.
4. The Manage MDrive Profiles dialog box displays; click **Close**.

### Deleting a Profile\*

You must use a PSG software, such as RemLogic, to delete profiles from an SD card.

#### To delete a profile from the MDrive with RemLogic:

1. Right-click an MDrive in the [Device Manager](#), then select **Manage MDrive Profiles** from the shortcut menu.
2. In the Manage MDrive Profiles dialog box, select the profile to be removed from the MDrive; then click **Delete**.



Manage MDrive Profiles dialog box

3. Click **Close** to exit the Manage MDrive Profiles dialog box.

## Running Impedance Tests with the MDrive\*

\*Not available with the License free version of RemLogic

An impedance test is an electrical test that evaluates the electrodes' connections to the patient. Default MDrive profiles automatically run an impedance test when you start a study. To manually start an impedance test, follow the steps below.

The MDrive can conduct an impedance test without RemLogic; the results are visible in the MDrive screen and saved to the secure digital (SD) card. For more information, see *Displaying Impedances and Impedance Summary* in the *MDrive Menu Functions* section of the *MDrive Instructions for Use*.

### To run an impedance test with the MDrive:

Do one of the following:

- Right-click an MDrive in the [Device Manager](#), then select **Start Impedance Test** from the shortcut menu.
- Click **Impedance**  on the [Controls](#) toolbar.

To stop an impedance test, click **Stop Impedance test**, or click **Impedance**  on the [Controls](#) toolbar.

## Using Bio Calibrations with the MDrive\*

\*Not available with the License free version of RemLogic

You can create and edit MDrive bio calibrations in RemLogic, then save them to an SD card for use with the MDrive. Bio calibrations are saved within a single file on the SD card. Editing a bio calibration or adding a new bio calibration will cause the bio calibration file on the SD card to be overwritten. You must use RemLogic to delete bio calibrations from the SD card.

If RemLogic is recording a study through the MDrive, RemLogic uses its bio calibrations, rather than the bio calibration file on the SD card. If the MDrive is recording without RemLogic, the MDrive uses the bio calibration file on the SD card.

For information about viewing and marking bio calibrations with the MDrive, see *Marking a Study with a Bio Calibration* in the *MDrive Menu Functions* section of the *MDrive Instructions for Use*.



Note: It is strongly recommended that you configure the Windows firewall before managing MDrive bio calibrations with RemLogic.

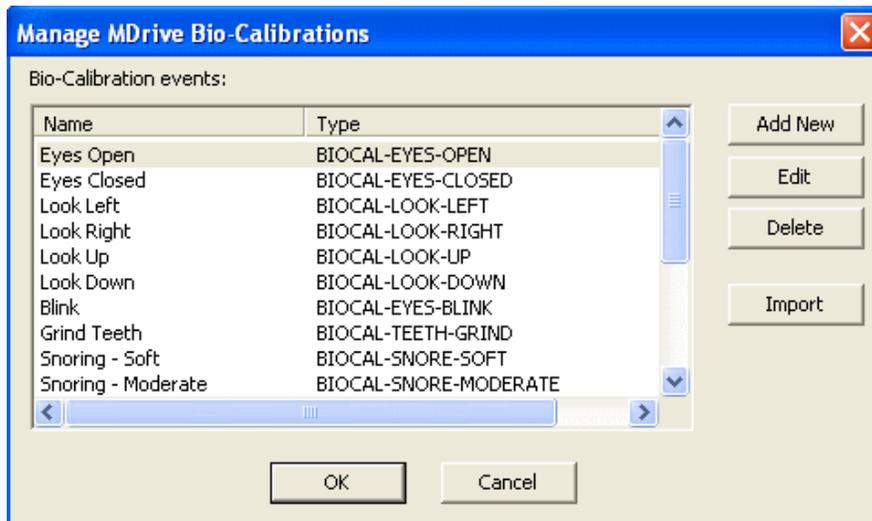
### Editing a Bio Calibration\*

Complete the steps below to edit a bio calibration's name and type.

#### To edit a bio calibration on the MDrive:

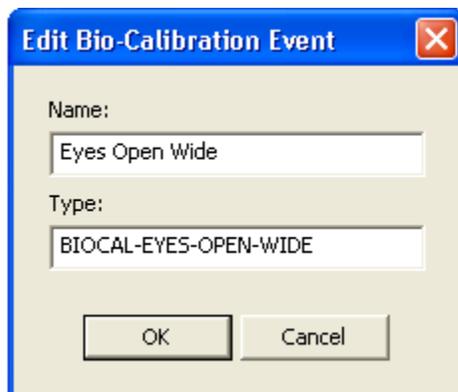
1. Right-click an MDrive in the [Device Manager](#), then select **Manage Bio Calibration** from the shortcut menu.

- In the Manage MDrive Bio Calibrations dialog box, select the bio calibration that you want to edit, then click **Edit**.



Manage MDrive Bio Calibrations dialog box

- In the Edit Bio Calibration Event dialog box, edit the name or type of bio calibration event, as needed.



Edit Bio Calibration Event dialog box

- Click **OK** to return to the Manage MDrive Bio Calibration dialog box.
- Click **OK** to exit the Manage MDrive Bio Calibrations dialog box and save the changes to the SD card.

### Adding a Bio Calibration\*

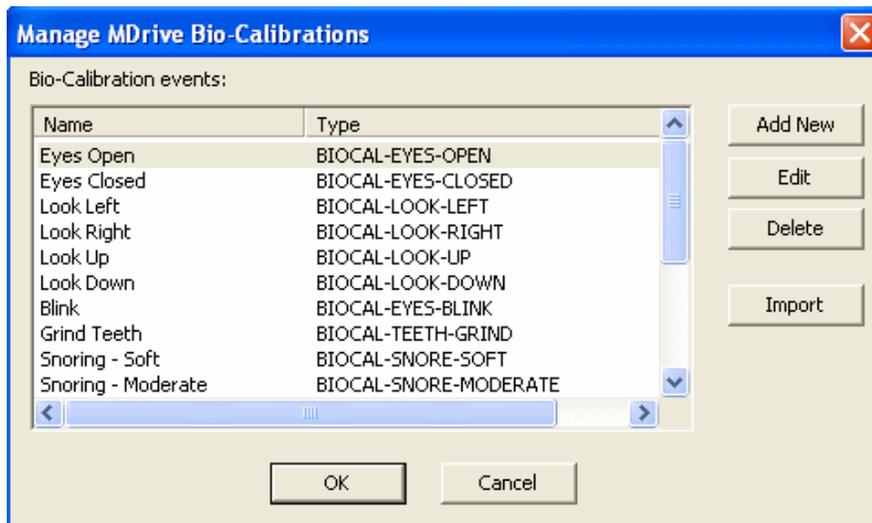
Complete the following steps to add patient behavior events, such as eye movement, to the bio calibrations file on the SD card. The new event will display immediately above the current selection.

#### **To add a bio calibration to the MDrive:**

- Right-click an MDrive in the [Device Manager](#), then select **Manage Bio Calibration** from the shortcut menu.

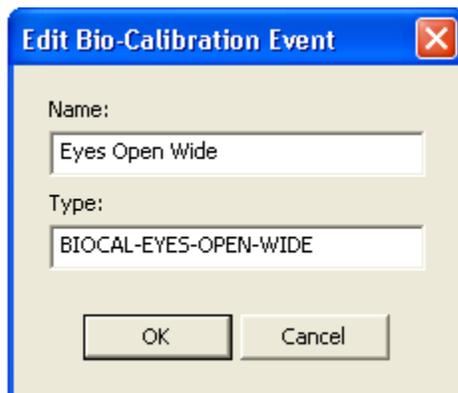
- In the Manage MDrive Bio Calibrations dialog box, the current bio calibrations display in sequence. Select the existing event that will follow the new bio calibration, then click **Add New**.

The selected bio calibration shifts down, and a blank line displays above it.



Manage MDrive Bio Calibrations dialog box

- In the Edit Bio Calibration Event dialog box, type the name and the type of bio calibration event.



Edit Bio Calibration Event dialog box

- Click **OK** to return to the Manage MDrive Bio Calibration dialog box.
- Click **OK** to exit the Manage MDrive Bio Calibrations dialog box and save the changes to the SD card.

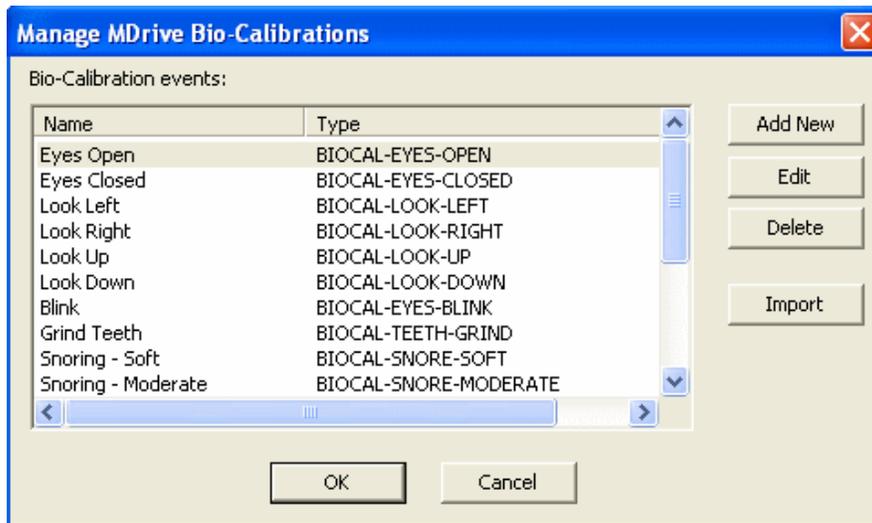
### Deleting a Bio Calibration\*

You must use a PSG software, such as RemLogic, to delete bio calibrations from an SD card.

#### **To delete a bio calibration from the MDrive with RemLogic:**

- Right-click an MDrive in the [Device Manager](#), then select **Manage Bio Calibration** from the shortcut menu.

- In the Manage MDrive Bio Calibrations dialog box, select the bio calibration event to be removed from the SD card, then click **Delete**.



Manage MDrive Bio Calibrations dialog box

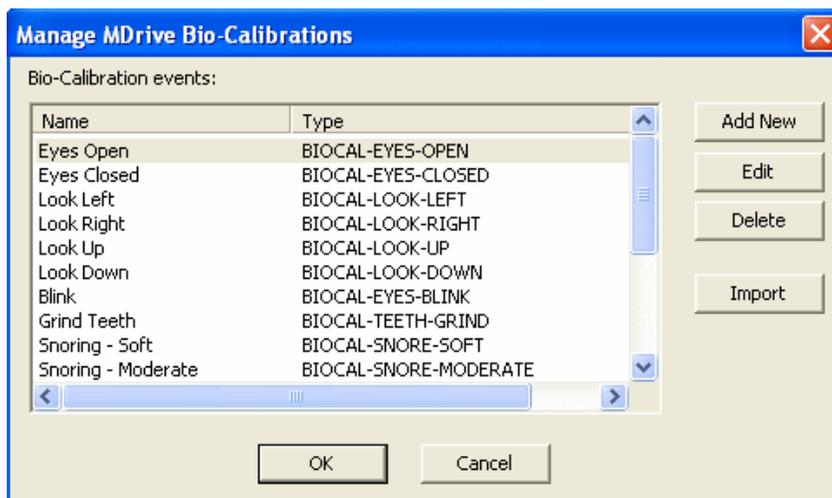
- Click **OK** to close to the Manage MDrive Bio Calibrations dialog box and save the changes to the SD card.

### Importing a Bio Calibration from RemLogic to the MDrive\*

Use the Import function to retain standard events—events that were part of the bio calibration default set—that were deleted. For example, if you accidentally deleted Eyes Open through the Manage MDrive Bio Calibrations window, the event will display at the bottom of the list in the Manage MDrive Bio Calibrations window after you import the bio calibrations.

### To import a bio calibration to the MDrive:

- Right-click an MDrive in the [Device Manager](#), then select **Manage Bio Calibration** from the shortcut menu.
- In the Manage MDrive Bio Calibrations dialog box, click **Import**.



Manage MDrive Bio Calibrations dialog box

3. Click **OK** to copy any changes to the SD card.

## Calibrating the Test Signal\*

*\*Not available with the License free version of RemLogic*

If the MDrive does not pass an impedance test, you can use RemLogic to calibrate the test signal. When it is calibrating the test signal, the MDrive sends a set of signals to the bedside unit to make sure the bedside unit is working correctly.

### To calibrate the test signal:

Do one of the following:

- Right-click an MDrive in the [Device Manager](#), then select **Start Calibration Test Signal** from the shortcut menu.
- Click **Calibration Test Signal** in  the [Controls](#) toolbar.

You can also stop a calibration test that is in progress.

### To stop a calibration test:

Do one of the following:

- Right-click an MDrive in the [Device Manager](#), then select **Stop Calibration Test Signal** from the shortcut menu.
- Click **Calibration Test Signal** in  the [Controls](#) toolbar.

## Recording a Study with the MDrive\*

*\*Not available with the License free version of RemLogic*

The MDrive has three recording options:

- Record to PSG software and an SD card
- Record to an SD card only
- Assume control of a study in progress (record to PSG software and an SD card)

With these options, and if space exists on the SD card, you can continue recording to the SD card if the connection between RemLogic and the MDrive is lost. For more information about using RemLogic to control an MDrive that is already in use, [Assuming Control of a Study with an MDrive](#).

You can also stop an MDrive recording with RemLogic, if needed.



Note: It is strongly recommended that you configure the Windows firewall before recording with the MDrive.

### Recording with RemLogic and an SD Card\*

When the MDrive is connected to RemLogic, the software records the study. If an SD card is inserted in the MDrive, the card also records the study, as long as space exists on the card. When you finish the Recording Wizard in RemLogic, the software notifies you of how many

hours the card can record with the selected profile. For more information about the SD card, such as the amount of memory required for a study, see *SD Card* in the *System Components* section of the *MDrive Instructions for Use*.

When you use RemLogic to select a default profile and start a recording with the MDrive, an impedance test automatically begins. When RemLogic is recording, "Online recording in progress," displays at the bottom of the window, and the recording displays in the [Workpad](#).

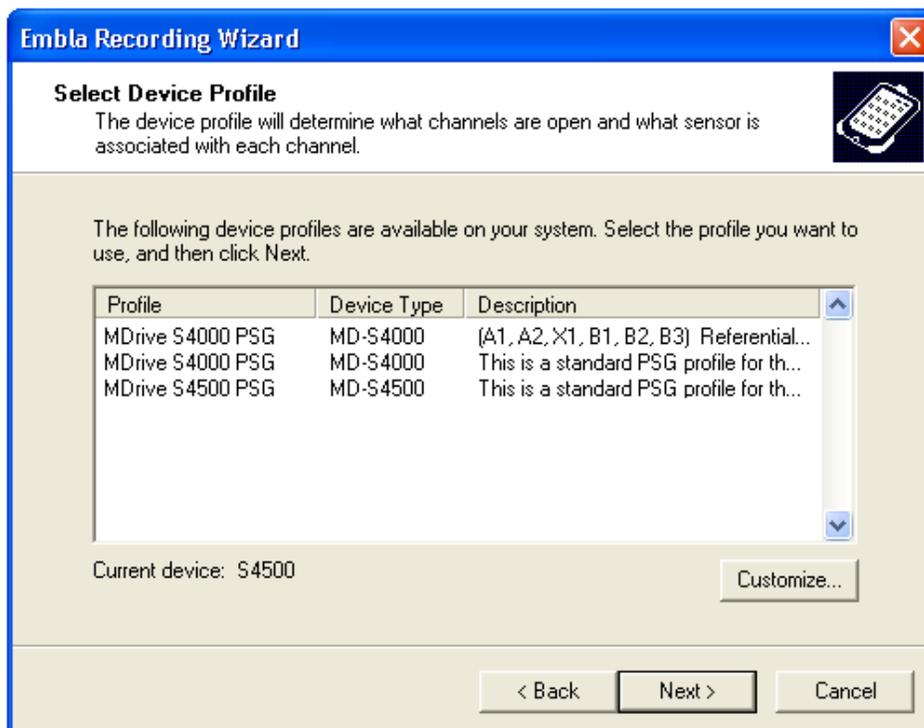
The steps below will record a study with RemLogic and an SD card concurrently, if an SD card is inserted. If an SD card is not present, only RemLogic will record the study.



Note: Removing the SD card while the MDrive is recording causes the MDrive to experience errors. The MDrive must be restarted to record again.

### To record a study with RemLogic and the SD card:

1. Enter patient information; see [Preparing a Study](#) for more information.
2. Right-click an MDrive in the [Device Manager](#), then select **Start Online...** from the shortcut menu to start the Embla Recording Wizard.
3. Click **Next** in the Welcome to the Embla Recording Wizard page of the Embla Recording Wizard.
4. Complete one of the following steps:
  - Select the profile to be used during the recording, then click **Next**.
  - Select a profile, then click **Customize** to [edit the profile](#) in the [Profile Name] Properties dialog box. For more information, see [Editing a Profile](#) in the [Managing Profiles on the MDrive](#) section.



Select Device Profile page of the Embla Recording Wizard

- The Completing the Embla Recording Wizard page notifies you of how many hours the SD card can record. Click **Finish** to exit the wizard.



Note: If no SD card is inserted, no warning dialog will be displayed once the wizard is closed. Events, showing **no device storage** are generated into the Workpad traces, and only RemLogic will save the study.



Note: If the SD card is full when starting the recording or becomes full during the recording, a warning dialog will be displayed and events showing **device storage full** are generated into the Workpad traces.

### Stopping a Recording\*

You can stop an online recording on the MDrive at any time. You cannot remove the MDrive from RemLogic while the MDrive is in use.

#### To stop a recording:

Do one of the following:

- Right-click the desired MDrive in the [Device Manager](#), then select **Stop** from the shortcut menu.
- Click **Stop**  on the [Controls](#) toolbar.

A confirmation message asks if you want to stop the online recording; click **Yes**. The recording continues until you click **Yes**.

### Assuming Control of a Study with an MDrive\*

*\*Not available with the License free version of RemLogic*

If the connection between the MDrive and RemLogic is interrupted, the MDrive will continue recording with an SD card, if one with enough available memory is inserted. Additionally, RemLogic can assume control of a study that started with the MDrive only.

When recording is interrupted,  displays on every trace in RemLogic.

When the recording resumes,  displays on every trace.

When a device—for example, the oximeter—is disconnected from the MDrive or bedside unit, the signals associated with the device display **Alert: Disconnected** on the MDrive screen. When the device is reconnected, a vertical, red line displays, and the signals resume on the MDrive screen.



Note: RemLogic can take control of an MDrive that displays the following icon: .

It is strongly recommended that you configure the Windows firewall before recording with the MDrive.

The procedure below applies if RemLogic or your computer closes unexpectedly, and the MDrive is saving the recording to the SD card.

### To take control of an MDrive recording with RemLogic:

- Open a new [Workpad Sheet](#).
- Right-click the MDrive that RemLogic will control; then select **Take Over Recording Control** in the shortcut menu.

If you did not open a new Workpad Sheet, the MDrive uploads the study date and MD unit number, and the information displays in the Device Manager.



Tip: Click on Workpad Sheet tabs to view the data as it records. To edit patient information, select the study, then select **Patient Info** from the **Edit** menu to open the Patient Information dialog box. See [Preparing a Study](#) for more information about the Patient Information dialog box.

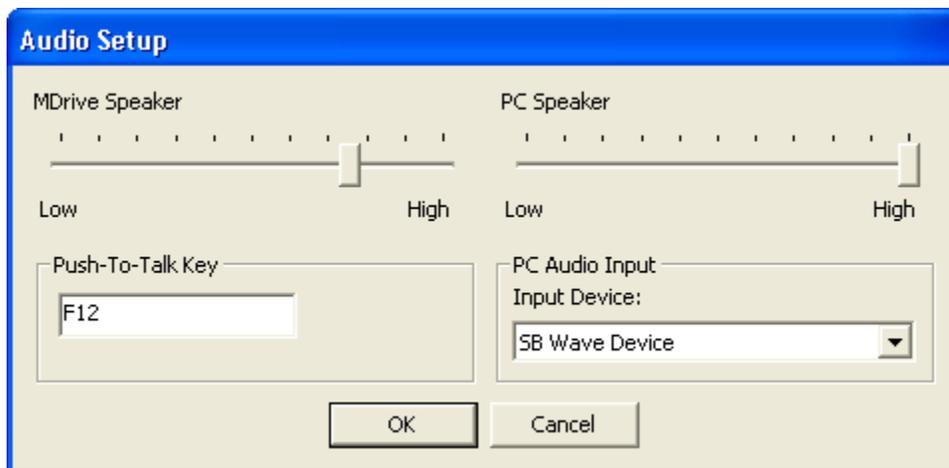
### Using Audio with the MDrive\*

*\*Not available with the License free version of RemLogic*

With RemLogic, you can control the MDrive's volume, the PC speaker's volume, and which key you press to talk to the patient through the MDrive. You must also select an input device, or audio driver.

#### To control the volume of the MDrive's and PC's speakers:

1. Right-click [Device Manager](#). Then select **Settings, MDrive**, then **Audio Setup** from the shortcut menus to open the Audio Setup window.



*Audio Setup window*

2. Move the slider as needed to lower or raise the volume for the respective speaker.
3. Click **OK**.



Note: Adjusting your PC's speaker volume through RemLogic does not change the volume setting that you can set through your computer.

**To designate a Push-To-Talk key:**

1. Right-click [Device Manager](#). Then select **Settings, MDrive**, then **Audio Setup** from the shortcut menus to open the Audio Setup window.
2. Place your cursor in the **Push-To-Talk Key** text box, then press the desired key.

If the key is already designated the Push-To-Talk key, a message notifies you the key is already in use; press another key, if desired.

3. Click **OK**.



Tip: You must continuously press the **Push-To-Talk** Key while talking to transmit audio through the MDrive.

**To select an audio device:**

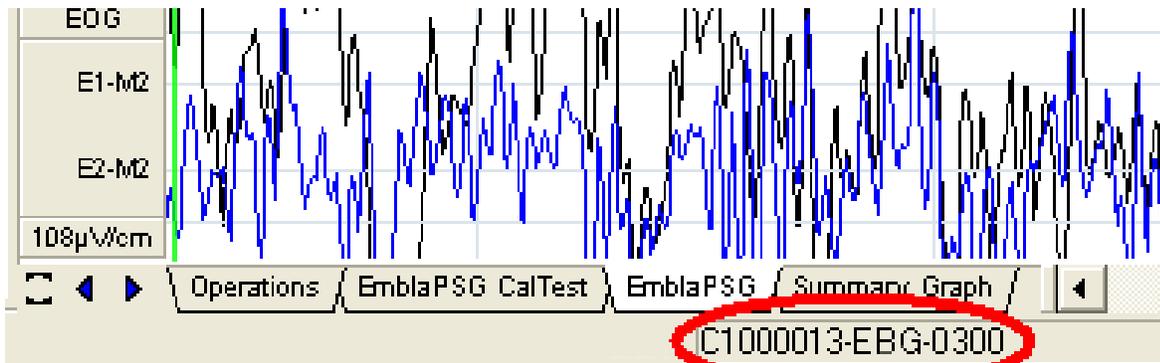
1. Right-click [Device Manager](#). Then select **Settings, MDrive**, then **Audio Setup** from the shortcut menus to open the Audio Setup window.
2. Select an audio device from the **Input Device** list.
3. Click **OK**.

# Managing Data

This chapter provides information on [downloading](#), [archiving](#), and [importing](#) and exporting data.

## Downloading Data

Downloaded study data automatically includes the name of the recorder and its serial number. This information displays at the bottom of the Workpad, in the area below the sheet tab names.



This study was recorded with an Embletta with the serial number C1000013.

Note: Recordings that are downloaded from the Embla titanium's compact flash (CF) card and card reader do not display this information.

Note: When a ResMed Therapy Device treatment study is downloaded, events are marked in the recording and display immediately in the Workpad.



Note: Firmware build 242 or higher must be installed on the Embletta for the data to properly download to RemLogic. If the firmware is not current, you must download data to RemLogic with a serial cable, or the data will be lost.

Note: If the **Transform to EDF format** option is selected, all button events will be removed from the study during download. To avoid this, you can disable the **Transform to EDF** format option on the **Options** tab under **Devices | Settings | [Ambulatory Device Name]**.

## Downloading a titanium Study\*

*\*Not available with the License free version of RemLogic*

If you recorded an ambulatory study with the Embla titanium, you might want to download the data to the computer. The data is placed in the active data storage location.

### To download a titanium study:

1. Open RemLogic.
2. Connect the Embla titanium to the computer with the BQUSB and titanium Interface cable.
3. In RemLogic, complete one of the following steps (if the titanium is still in a recording mode, click **Stop** first):

- Right-click the Embla titanium icon  in the [Device Manager](#), then click **Download**. The data will be automatically placed in the download location specified in the device settings. See [Setting the Download Options](#).
- Select the single study from the expanded list on the [Device Manager](#) and right-click on the study, then click **Download**. The data will be automatically placed in the download location specified in the device settings. See [Setting the Download Options](#).
- In the [Device Manager](#) area, expand the list of studies collected by the titanium. Click the study that you want to download, then drag it to the Workpad. The data is automatically placed in the active data location specified on the hard disk of the computer.
- Select the single study from the expanded list on the [Device Manager](#) and drag it to the [Operations Sheet](#). The data is automatically placed in the active data location specified on the hard disk of the computer.



Tip: The Drag and drop to download option is disabled if you have selected either the **Transform to EDF format** or **Delete local copy after successful transfer** in the device options settings.

4. A progress indicator indicates the progress of the download, and a confirmation message displays when the download is complete. Click **OK**.

As soon as the download is complete, the new recording displays in the [Recording Manager](#) in the Data folder of the appropriate Patient folder.

## Downloading an Embletta Study

When an Embletta recording is complete, it should be downloaded into the RemLogic application. The following procedure describes how to download an Embletta recording in RemLogic.



Note: Firmware build 242 or higher must be installed on the Embletta for the data to properly download to RemLogic. If the firmware is not current, you must download data to RemLogic with a 3-in-1 Cable, or the data will be lost.

### To download an Embletta study:

1. Open RemLogic.
2. If applicable, disconnect the proxy from the Embletta.
3. Connect the Embletta to the computer with the USB cable, the serial download cable, or the 3-in-1 cable.
4. Complete one of the following steps (if the Embletta is still recording, click **Stop** first):
  - Right-click the Embletta icon  in the [Device Manager](#), then click **Download**. The data will be automatically placed in the download location specified in the device settings. See [Setting the Download Options](#).
  - Select the single study from the expanded list on the [Device Manager](#) and right-click on the study, then click **Download**. The data will be automatically placed in the download location specified in the device settings. See [Setting the Download Options](#).

- In the [Device Manager](#) area, expand the list of studies collected by the Embletta. Click the study that you want to download, then drag it to the Workpad. The data is automatically placed in the active data location specified on the hard disk of the computer.
- Select the single study from the expanded list on the [Device Manager](#) and drag it to the [Operations Sheet](#). The data is automatically placed in the active data location specified on the hard disk of the computer.



Tip: The Drag and drop to download option is disabled if you have selected either the **Transform to EDF format** or **Delete local copy after successful transfer** in the device options settings.

5. A progress indicator displays, and a confirmation message displays when the download is complete. Click **OK**.

When the download is complete, the new recording displays in the [Recording Manager](#) in the Data folder of the appropriate Patient folder.

## Downloading an MDrive Study\*

*\*Not available with the License free version of RemLogic*

Studies that are recorded with the MDrive are saved to a secure digital (SD) card. For information about downloading a study from the SD card, see [Using the SD Card and the MDrive](#).

## Downloading an Embletta MPR Study

When an Embletta MPR recording is complete, it should be downloaded into the RemLogic application. The following procedure describes how to download an Embletta MPR recording in RemLogic.

### To download an Embletta MPR study:

1. Open RemLogic.
2. Connect the Embletta MPR to the computer with the USB cable provided with the system.
3. Complete one of the following steps (if the Embletta MPR is still recording, click **Stop** first):
  - Right-click the Embletta MPR icon  in the [Device Manager](#), then click **Download**. The data will be automatically placed in the download location specified in the device settings. See [Setting the Download Options](#).
  - Select the single study from the expanded list on the [Device Manager](#) and right-click on the study, then click **Download**. The data will be automatically placed in the download location specified in the device settings. See [Setting the Download Options](#).
  - In the [Device Manager](#) area, expand the list of studies collected by the Embletta MPR. Click the study that you want to download, then drag it to the Workpad. The data is automatically placed in the active data location specified on the hard disk of the computer.

- Select the single study from the expanded list on the [Device Manager](#) and drag it to the [Operations Sheet](#). The data is automatically placed in the active data location specified on the hard disk of the computer.



Note: For users of the license free version of RemLogic, you can also download a study by clicking on the Embletta MPR  icon in the [Device Manager](#), and then clicking **Download Data** on the operations sheet. The downloading icon  will appear beside the Embletta MPR icon. Upon completion of the download a confirmation message will be displayed. The study can now be opened from the [Recording Manager](#).



Tip: The Drag and drop to download option is disabled if you have selected either the **Transform to EDF format** or **Delete local copy after successful transfer** in the device options settings.

4. A progress indicator displays, and a confirmation message displays when the download is complete. Click **OK**.

When the download is complete, the recording displays in the Data folder of the appropriate Patient folder listed in the [Recording Manager](#).



Note: If a recording has already been downloaded, a warning message will be displayed. If you want to re-download a study, you can click **Yes** and the original recording will be overwritten with the downloaded version. If you would like to keep the original recording, you can click **Cancel**. This warning can be disabled by clicking on the **Do not display the warning in the future** check box. And can be re-enabled using the **Devices | Settings | Embletta MPR | General tab**.

## Data Locations

Recorded data is saved in storage folders, also called data locations. An unlimited number of data locations can be specified in RemLogic. Data locations can be edited, removed, or set as active or [archive](#) locations.

You can change the attributes of existing data locations and also create new locations.

### Adding a Data Location

To add a data location:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Data Management**.
3. Click **Data Locations**.
4. To the right, click **Add**.
5. In the **Name** field, type a descriptive name for the data location folder. This name will display in the Recording Manager.
6. Do one of the following:
  - In the Location field, enter a file path for the storage location.

- Click **Ellipses**  to browse for a storage location. Click **OK**.
7. In the **Attributes** section, select the attributes for the storage location.
    - **Read-only:** Recordings cannot be deleted from a read-only data location. Since it is not possible to save new recordings in the location, a read-only data location cannot be set as active.
    - **Archive/Archive Cache:** Select this option if you intend to burn the folder to a storage disc. For more information, see [Archiving](#).
    - **View as a special folder:** A special folder translates the coded recording name into patient name, ID, type, and date of recording. The special folder attribute is recommended.
    - **Removable:** This attribute is not selectable. It is automatically selected during archiving to a CD or DVD using an archive folder. The attribute shows whether the folder is on removable media.
    - **Hidden:** Select this attribute to hide the data location in the [Recording Manager](#).
  8. Click **OK** in the Data Location Properties dialog box to confirm the added data location.
  9. Click **OK** to exit the Options dialog box.

## Removing a Data Location

### To remove a data location:

1. On the **Tools** menu, click **Options**.
2. Click the **Data Locations** tab.
3. Click **Remove**.
4. Click **OK**.

## Editing a Data Location

### To modify a data location:

1. On the **Tools** menu, click **Options**.
2. Click the **Data Locations** tab.
3. Click **Edit**.

## Setting a Data Location as Active

New and imported recordings are saved automatically to the active data location.

### To set a data location as active:

1. On the **Tools** menu, click **Options**.
2. Click the **Data Locations** tab.
3. Select a data location, then click **Set Active**.
4. Click **OK**.

In the Recording Manager, active data location folders are indicated by bold font.

## Displaying All Data Locations in the Recording Manager

To show all data locations in the Recording Manager:

- On the Recording Manager bar, click **Recordings | Arrange | Show all locations**.

The active data location displays in bold in the Recording Manager. If the **Show all locations** option is not selected, only the active data location is accessible in the Recording Manager.

Data locations are created and edited in the **Options** dialog.

## Expanding the Most Recent Recording Folder

To save time, the most current Recording folder  can be made to expand when you expand the patient folder.

1. On the **Tools** menu, click **Options**.
2. Click the **Data Locations** tab.
3. Activate the **Automatically expand most recent recording when expanding patient** check box.

## Deleting a Recording

To delete a recording:

1. Enable recording deletion.
  - a. On the **Tools** menu, click **Options**.
  - b. Click the **Data Locations** tab.
  - c. Activate the **Allow user to delete recordings** check box.
  - d. Click **OK**.
2. Right-click the Recording folder , then click **Delete**.
3. Click **OK**. The recording and associated files will be moved to Recycle Bin. Data in the Recording folders can be deleted, except for the last online copy of a recording.

Note: To prevent accidental deletions, enable the delete recordings function only when necessary.



Deleted Recordings are sent to the Recycle Bin and can be retrieved by opening the Recycle bin, right-clicking on the folder and selecting **Restore**. To view the restored recording in RemLogic, refresh the Recording Manager.

## Data Folders

In RemLogic, each recording has a folder in the [active data location](#). By default, each Patient folder name is coded with a unique identification in the form of a numerical string (GUID) for patient privacy and security purposes. To view patient names when browsing in Windows

Explorer, the recording must be stored in a special folder that translates the unique identification into the patient name, recording date, and recording type.

## Coded Folders

*Recommended.* To protect the patient's personal identification, it is best to archive using coded Patient folder names. If a Patient folder with a coded name is placed in a regular folder or on a computer that does not have RemLogic installed, the recording's file name will appear as a numerical string instead of the patient's name. But when placed in a [special folder](#) or viewed in the Recording Manager, the patient's name and recording date are visible. Recordings that have been archived with coded folder names can be read directly from the archive folder (or storage media) in RemLogic as long as the archive folder (or storage media) is set as a data location in **Tools | Options | Data Locations**.

## Human-Readable Folders

The recording is identified with the patient name and recording date in any folder on any computer. Use this option if the recording needs to be recognizable on computers that do not have RemLogic installed. Recordings that have been archived with this method cannot be read directly from the archiving folder (or storage media) in RemLogic and have to be imported into the active data location.

The main advantage of archiving using coded folder names is that you can mount the archive media in RemLogic without having to import the recording to the hard disk. The main drawback is that you will not be able to identify the patient name on a computer that does not have RemLogic installed. This is also the only reason why you might want to use human-readable names for archiving.

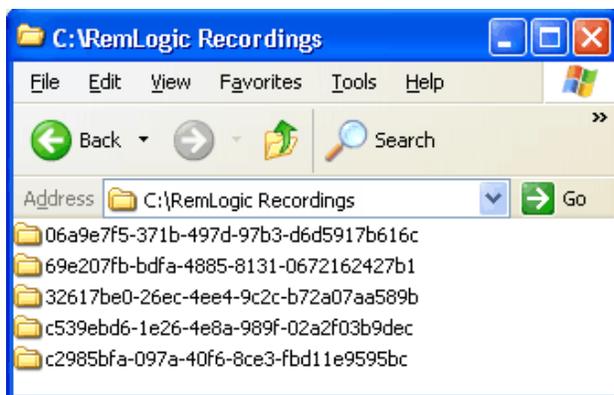
### Special Folders

**To designate a folder as a special folder:**

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Data Management**.
3. Click **Data Locations**.
4. To the right, click **Edit**.
5. Under **Attributes**, click **View as special folder**.
6. Click **OK** to exit the Data Location Properties dialog.
7. Click **OK** to exit the Options dialog.

Special folders are indicated by a blue trace folder icon  in Windows Explorer. On computers that do not have RemLogic installed, recordings will always display the unique identification instead of the patient name.

When [archiving](#), you can opt to store recordings with human-readable names so that they are identifiable even if they are not stored in a special folder. Extra care must be taken to protect the patient information contained in recordings when storing recordings with [human-readable names](#).



Coded folder names



Patient folders in a special folder



Note: Special folders only display recording file types. To view other file types, disable the **View as special folder** option.

Special folders cannot display subfolders. Creating a subfolder within a special folder is not recommended. To view subfolders, disable the **View as special folder** option.

## Folder Appearance

Archived recordings are displayed according to the folder type specified.

Folder Type	Folder Icon	Patient Folder Icon	Accessibility	Appearance on CD / DVD or computer PC without RemLogic installed
Special		Doe, John 020142-8970 Diagnostic 08/15/2004 10:59:59	Accessible by Recording Manager	10d82c44-4750-492c-2fe-384542b7ab0c
Coded names		10d82c44-4750-492c-2fe-384542b7ab0c	Accessible by Recording Manager	10d82c44-4750-492c-2fe-384542b7ab0c
Human-readable		Doe, John - 08/15/2004	Accessible by Recording Manager (may result in slower performance)	Doe, John – 08_15_2004

## File Information

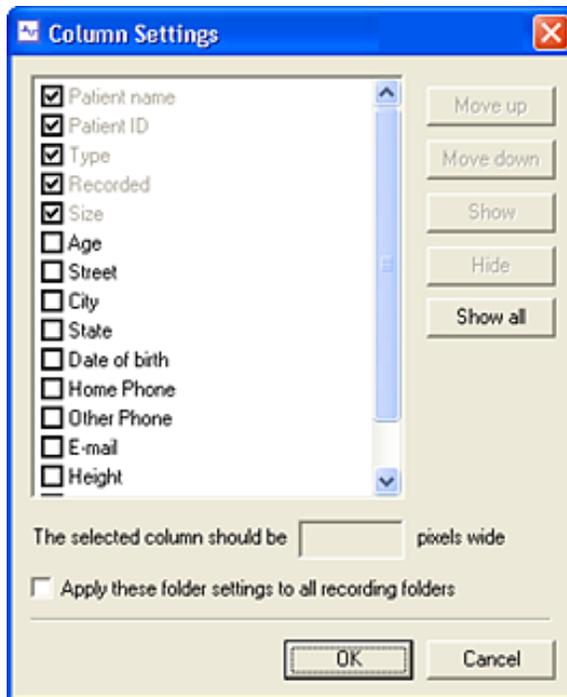
When browsing in Windows Explorer, you can customize the file information to display in data location folder (for example, patient weight, phone number, and so on). File information displays in columns adjacent to the folder/file name, and is derived from the **Patient Information** dialog box in RemLogic. Displaying this information in Windows Explorer allows you to sort data by patient information fields.

### To customize the file information columns:

1. Browse to the data location.
2. From the View menu, select **Details**.
3. Right-click the columns bar.

Patient name | Patient ID | Type | Recorded | Size | City

4. Click **Columns**. The RemLogic Column Settings dialog box displays.



5. Select the columns you want to display. Columns that cannot be removed from the view are dimmed.
6. Click **Move up** and **Move down** to sort the columns.
7. Specify the column width for each selected column (optional).
8. Select the **Apply these folder settings to all recording folders** check box to apply the selected settings to all RemLogic recording folders.
9. Click **OK**.



Note: The list of available columns contains most patient information. Additionally, all custom patient info properties are available. For more information, see **Patient Information** in the following location in the RemLogic online help: **Reporting | Active Reports**.

## Archiving

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This topic describes the steps in archiving one or more recordings.

- Saving a copy of a recording to a specified data location
- Moving a recording to a specified data location
- Burning a recording to a CD or DVD
- Burning multiple recordings to a DVD

Before archiving a recording, you will need to specify an [archive folder](#) and [archive cache](#).

### Archive Folder

An archive folder is a local or network location storage location at which you can save completed recordings. RemLogic can remind you to back up a recording once it is complete.

#### To specify an archive location:

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Data Management**.
3. Click **Data Locations**.
4. To the right, click **Add**.
5. In the **Name** text box, enter a name for the archive.
6. In the **Location** text box, type the file path, or click **Browse**  to locate the folder you want to specify as the archive folder.
7. Select the **Archive** check box.
8. Optionally, select the **View as a special folder** check box to view patient names as the folder labels for each recording saved to the archive folder. For more information, see [Data Folders](#).
9. Optionally, select the **Hidden** check box to hide the recording saved to the archive folder in the Recording Manager.

### Archive Cache

An archive cache is a local or network location storage location where you can save completed recordings before burning them to a CD or DVD. When the cache is full, you are prompted to burn the recordings to a CD or DVD. The recordings you save to the archive cache are visible in the Recording Manager.

Moving each recording to the archive cache once complete is recommended. The size of the cache depends on the media type selected (CD [700 MB] or DVD [4.7 GB]). A DVD can hold approximately 10-20 studies, and can be used as a secondary backup option.

**To specify an archive cache location:**

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Data Management**.
3. Click **Data Locations**.
4. To the right, click **Add**.
5. In the **Name** text box, type a name for the archive cache.
6. In the **Location** text box, type the file path, or click **Browse**  to locate the folder you want to specify as the archive cache.
7. Select the **Archive Cache** check box. This option will be unavailable unless you select a removable media location.
8. Select the **View as a special folder** check box to view patient names as the folder labels for each recording saved to the archive folder. For more information, see [Data Folders](#).
9. Select the **Hidden** check box to hide the recording saved to the archive folder in the Recording Manager.

**Archiving a Recording**

You can move or copy recordings to a specified local or network location. Before moving or copying, you must specify an [archive folder](#) or [archive cache](#).

**To archive a recording:**

1. Close the study you want to archive.
2. In the [Recording Manager](#), right-click the Recording folder  containing the study, then click **Archive**.
3. Click **Next**.
4. Do one of the following:
  - To save a copy of the recording, click **Copy the recording**.
  - To move the recording from its original location, click **Move the recording**.
5. Do one of the following:
  - To copy/move the recording to the [archive folder](#), click the archive folder path.
  - To copy/move the recording to the [archive cache](#), click the archive cache path.
6. Click **Next**.
7. Do one of the following:
  - Select **Coded folder names** to mask the recording folder labels. See [Data Folders](#).



- Select **Human-readable folder names** to label each folder with its respective patient name.
8. Click **Next**.
  9. Click **Finish**.

The recordings will display in the Recording Manager.



Note: If you re-save a copy of a human-readable recording folder to the archive folder, a copy will be made, labeled with a version number. You can overwrite coded recording folders.

## Burning a Recording

### To burn a recording to CD / DVD:

1. Insert a blank disc into the CD / DVD drive.
2. Close the recording you want to archive.
3. In the [Recording Manager](#), right-click the Recording folder  containing the recording, then click **Archive**.
4. Click **Next**.
5. Click **Burn the recording**, then click **Next**.
6. Do one of the following:
  - Select **Coded folder names** to mask the recording folder labels. See [Data Folders](#).
  - Select **Human-readable folder names** to label each folder with its respective patient name.
7. Click **Next**.
8. Click **Finish**.
9. To launch the Archive Label maker following the archive, do one of the following:
  - To automatically generate an archive label, click **Get Label**.
  - To specify an archive label, type a name in the **Archive Label** text box. See [Archive Labels](#) for more information.
10. Click **Archive**. The disc will eject once the process is complete.
11. Click **OK**.

## Burning Cached Recordings

### To burn cached recordings to a CD / DVD:

1. In the Recording Manager, right-click the archive cache, then click **Archive**.
2. Click **Next**.
3. Click **Burn the recording**, then click **Next**.
4. Do one of the following:

- Select **Coded folder names** to mask the recording folder labels. See [Data Folders](#).
  - Select **Human-readable folder names** to label each folder with its respective patient name.
5. Click **Next**.
  6. Click **Finish**.
  7. To launch the Archive Label maker following the archive, do one of the following:
    - To automatically generate an archive label, click **Get Label**.
    - To specify an archive label, type a name in the **Archive Label** text box. See [Archive Labels](#) for more information.
  8. Click **Archive**. The disc will eject once the process is complete.
  9. Click **OK**.

## Archive Labels

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RemLogic's Archiving feature allows you to create and print standard Avery labels for discs and jewel cases. You can also use LightScribe to print the label directly on the discs. If you are using Embla Enterprise Server, you can set the labeling options so that a unique number is generated by Enterprise for each disc.

### Creating an Archive Label

**To create an archive label:**

1. On the **Tools** menu, click **Options**.
2. In the left pane, double-click **Data Management**.
3. Click **Archive Tools**.
4. To the right, specify the following labeling options:
  - Click **Day**, **Month**, and **Year** to add the date to the labels. You can choose to add only the month and year, or specify the day, too. A preview of the date format displays in the **Preview** field.
  - If you are using Embla Enterprise Server, you can generate a unique number for each label by clicking **Enterprise Label**. Enterprise generates a number between one and one million for each disc. You can add a descriptor before or after the number to further identify the Recordings. Using the Enterprise label ensures all labels have unique numbers.
  - Click **Institution Name** to add your institution's name to the label. If your institution's name does not appear, you can add it through **Tools | Options**. Select the [Reports](#) tab, and type the name in the **Name** field. Click **OK** to save the changes.
  - If you leave the label options blank, RemLogic generates a default label, which is RL followed by the date the disc was burned. The label name must not exceed 16 characters. If you are unsure of the length, check how the label appears in the **Preview** field.

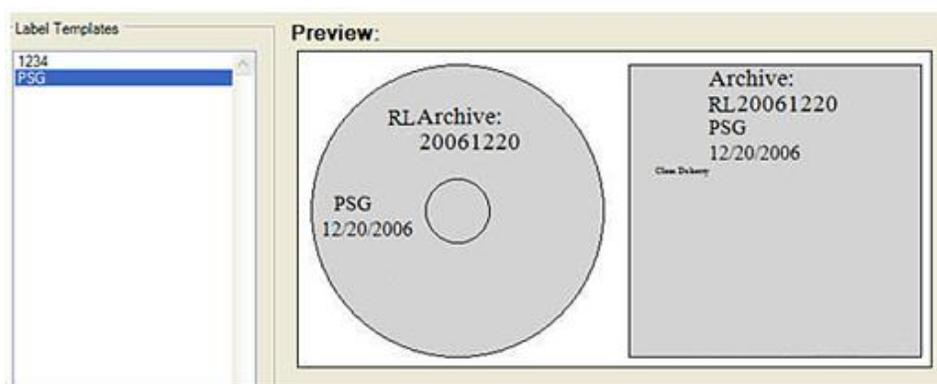
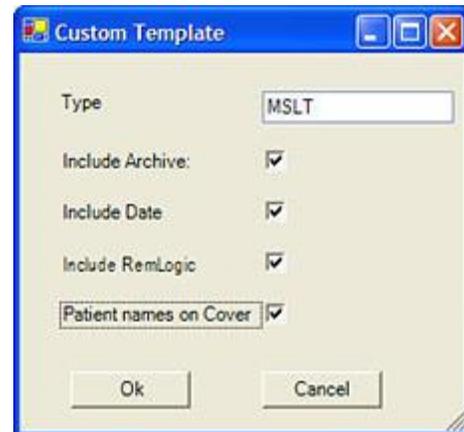
5. In the Post-Archive Tools section of the Archive Tools screen, select the check box next to the options to create:
  - CD/DVD Label
6. Click **OK**.

## Printing Disc and Jewel Case Labels

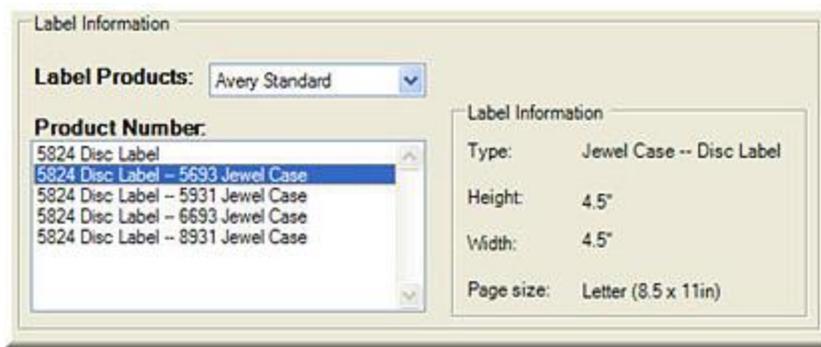
After clicking **OK** in the Embla Burn Tool, the Archive Label Maker starts. The label maker allows you to create your own templates for disc and jewel case labels.

### To create disc and jewel case label templates:

1. In the Archive Label Maker dialog, click **Create**.
2. The Custom Template dialog box includes the following fields (Select all that apply):
  - **Type:** Type the study type for the recordings being written to CD or DVD (for example, MSLT).
  - **Include Archive:** Select this box to specify that this is an archive disc.
  - **Include Date:** Select this box to print the current date.
  - **Include RemLogic:** Select this box to specify that the disc contains RemLogic recordings.
  - **Patient names on Cover:** Select this box to print patient names on the jewel case insert. This option is useful if you burn multiple studies to DVD. Up to 30 patient names can fit on the jewel case insert.
3. When you finish selecting the options, click **OK**.
4. A preview of the disc and jewel case labels containing the information you selected displays in the Preview window. The name of the new template displays in the Label Templates list, displayed to the left of the Preview window.



- Click the arrow next to the **Label Products** field to choose a label format from the menu:



- Avery Standard:** Choose this option to format disc and jewel case labels using Avery label formats. Highlight the desired option with your mouse. Label dimensions and page size for the option display in the Label information section. The label maker supports A4 and Letter paper sizes.
- By default, the **Print to Default printer** option is selected. If you use Avery labels, the Archive Label Maker sends the disc label to the printer first, followed by the jewel case label, which is printed on a separate sheet. This allows you to insert the Avery label sheet into the printer prior to printing the disc label.
  - If you clear the **Print to Default printer** check box, Microsoft Word starts and displays the labels. Print the labels in Word.
  - Once the labels are printed, a prompt allows you to do one of the following:
    - Remove the studies from the archive cache.
    - Burn another archive disc.
    - Leave the studies in the cache for later.

## Automated Backup\*

*\*Not available with the License free version of RemLogic*

You can specify a directory on your network as a backup data location where newly collected recordings can be copied. A study can be automatically backed up to the network as soon as recording stops, or RemLogic can prompt you whether or not to back up the study when you finish recording.

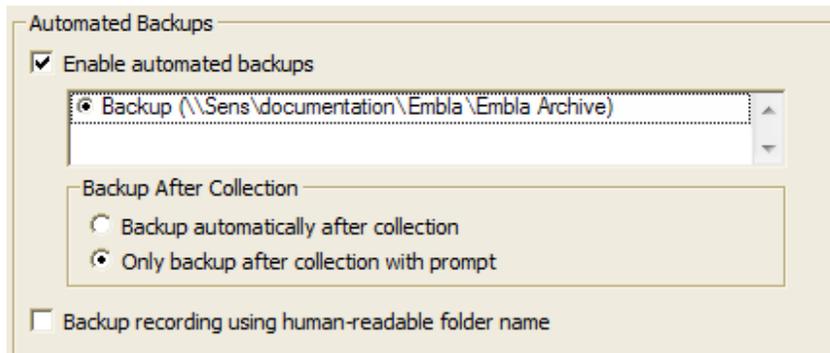
Backing up recordings on the network helps protect the data against loss due to hard drive failure or human error; however, it is not recommended to modify a recording over the network, since it could become corrupt if another user modifies it at the same time.

If you choose to create a backup after collection, RemLogic will place a copy of the recording, along with any scoring you did during collection (such as sleep staging) in the network location you specified.

Even though a copy of the recording is placed on the network during backup, all analysis, including scoring and creating reports should be done using the copy stored in your default data location (usually C:\RemLogic Recordings).

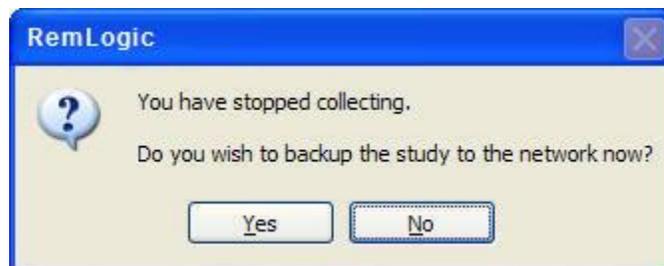
**To create a backup data location on the network:**

1. First, create an archive data location (see [Archive Folder](#)) that is on the network where you wish to automatically back up recordings.
2. On the **Tools** menu, click **Options**. The Options dialog box displays.
3. Click the **Advanced** tab.
4. In the Automated Backups section of the dialog, the network data location that you added displays.
5. Select the **Enable automated backups** check box.
6. Highlight the location you want to set as the default archive. The option beside the location is selected. The network drive you specified is now set as a default network archive location.



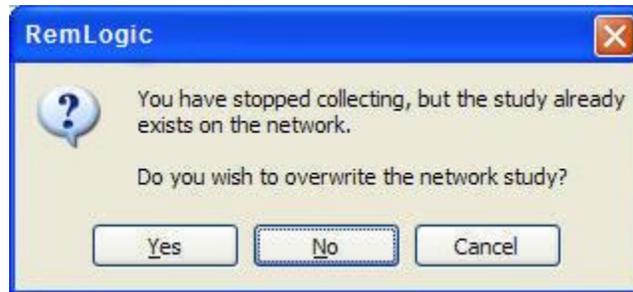
7. There are two options in the **Backup After Collection** section of the dialog:
  - Backup automatically after collection
  - Only backup after collection with prompt

If you select the first option, studies will back up without a prompt to the network each time you stop collection. If you select the second option, when you stop recording a study, the following message displays:



- Click **Yes** to back up the study on the network.
- Click **No** if you do not wish to save a copy of the recording on the network.

If you resume collection after backing up a recording, and you chose to be prompted, the next time you stop the recording, the following message will display, giving you the option to overwrite the previous backup, if desired. If you chose not to receive a prompt after collection, the same message displays, except the **Cancel** button is not available. If you want to access the **Cancel** button, select the **Only archive after collection with prompt** option (**Tools | Options | Advanced**).



- Click **Yes** to overwrite the previous backup.
  - Click **No** to create a new backup.
  - Click **Cancel** if you do not wish to back up the changes to the recording.
8. Click the desired option.
  9. Click **OK** to save the changes.

## Importing Data

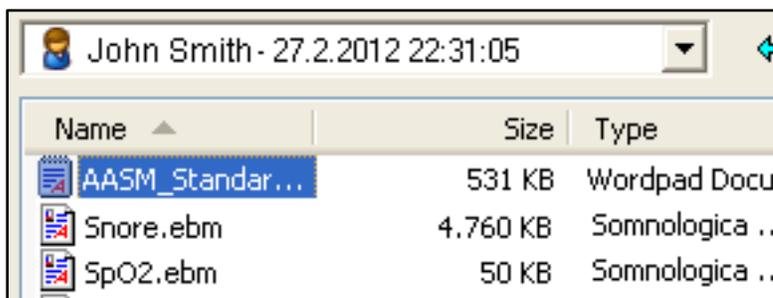
RemLogic can import various forms of external data. It imports data directly in its original format and in other formats: European data format (EDF), Plain text, and the CSV format.

### Importing a File

Files such as Microsoft® Word documents, Microsoft® Excel® spreadsheets, Workpad files, and EDF recordings can be imported into an open recording where they are stored in the Patient folder based on type. For example, Microsoft Word documents and Microsoft Excel spreadsheets are stored in the Documents folder  and Workpad files and other related items are stored in the Recording folder .

#### To import a file into a recording:

1. On the **File** menu, point to **Import**, then click **File**.
2. The Import dialog box displays. Click the file you want to import.



3. Click **Open**.

Depending on the file type, the data will import into either the Recording folder or the Documents folder.



Tip: You can import files by right-clicking either the Recording folder  or the Documents folder , then clicking **Import File**.

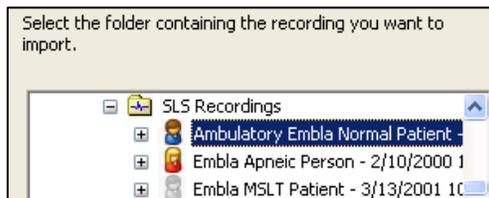
It is essential to have an empty Workpad open when importing an EDF recording, because the data will always import into the current Workpad.

## Importing a Recording

Complete recordings can be imported into the [Recording Manager](#) in RemLogic. All the contents of the folder containing the recording are then copied from their original location on the PC or network to the [active location](#) in the Recording Manager.

### To import recordings:

1. Do one of the following:
  - On the **File** menu, point to **Import**, then click **Recording**.
  - On the Recording Manager bar, select **Recordings | Import**.
2. The Browse For Folder dialog box displays. Select the recording you want to import.



3. Click **OK**.

A progress indicator displays while the recording is coping into the Recording Manager.



Note: If you have a folder with multiple EDF recordings, they will all import when using the **Import | Recording** command. It is therefore advisable to keep each EDF recording in a separate folder, or use the **Import | File** option to select only one recording when importing EDF recordings.

## Importing Text and CSV Files\*

*\*Not available with the License free version of RemLogic*

Data that was converted from one format to plain text can be imported into the current recording (for example, EEG data converted to plain text format). To do this, you need to know some information about the original recording, such as the highest value used in that recording.

### To import text or CSV data files:

1. [Open](#) the recording containing the data.
2. From the main, menu, select **File | Import | Text, CSV or NI16 Data File**. The Import Data dialog box displays.
3. Click **Add**.

- The Trace Information dialog box displays. Modify settings as required. In the example below, an EEG trace is importing. Start by browsing for the signal data by clicking **Browse**. Give the signal a name in the Signal Name text box, and enter the appropriate information.

**Trace Information**

Signal Name: EEG C3 Epilepsy

Input Format: Plain Text

Signal Main Type: EEG

Signal Sub Type: C3

Signal Reference Type: A2

Sampling Rate: 200

Date: 06/11/2012

Time: 15:48:39

Signal Unit: V

Highest value: 0.25

Input Signal Location: C:\Recordings\Demo\dea20abf-aab2-4d59-9243-57dab21beb07\C4e

Browse

OK Cancel

- Click **OK**.
- Confirm that the information in the Import Data dialog box is correct, then click **Import**.

The imported data will display in the appropriate Patient folder in the [Recording Manager](#).

# Analyzing Data

The analysis of a recording is ultimately used to diagnose the presence and severity of sleep disorders. With RemLogic, you can stage sleep, mark events, and analyze data with computer assisted scoring, minimizing the time it takes to score data.

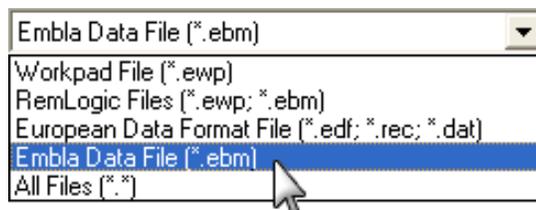
## Opening Data

This topic describes how you can view the raw data or Workpad of a previously saved recording.

### Raw Data

To open a trace file, do one of the following:

- Option 1:
  - In the Recording Manager, expand the Patient folder .
  - Double-click the Data folder .
- Option 2:
  - On the **File** menu, click **Open**.
  - Select the file type *Embla Data File (\*.ebm)*.



- Select a trace file, then click **Open**.

Name	Size	Type	Date
Heart Rate Variability	2 KB	RemLogic Trace File	8/9/21
Nasal_EG	3 KB	RemLogic Trace File	7/11/;
Phase_EG	3 KB	RemLogic Trace File	7/11/;
Position_EG	3 KB	RemLogic Trace File	7/11/;
Resp Peaks	2 KB	RemLogic Trace File	8/9/21
RMI_EG	3 KB	RemLogic Trace File	7/11/;
RR	2 KB	RemLogic Trace File	8/9/21
R-R Intervals	6 KB	RemLogic Trace File	8/9/21
RR_EG	2 KB	RemLogic Trace File	7/11/;
Snore_EG	B	RemLogic Trace File	7/11/;
Thermistor_EG	B	RemLogic Trace File	7/11/;
Thorax_EG	B	RemLogic Trace File	7/11/;
XFlow_EG	3 KB	RemLogic Trace File	7/11/;
XSum_EG	3 KB	RemLogic Trace File	7/11/;

A tooltip is visible over the 'R-R Intervals' row, displaying the following information:

- Type: RemLogic Trace File
- Size: 5.50 KB
- Date Modified: 8/9/2012 8:50 AM

## Analyzed Data

Analyzed data is saved as a Workpad file in the Study folder.

### To open analyzed data, do one of the following:

- Option 1:
  - In the Recording Manager, expand the Patient folder .
  - Double-click the Workpad file .
- Option 2:
  - On the **File** menu, click **Open**.
  - Select the file type *Workpad File (\*.ewp)*.
  - Select a Workpad file , then click **Open**.

## Staging Sleep\*

*\*Not available with the License free version of RemLogic*

The following topics are related to staging sleep.

- [Scoring Sessions](#)
- [Scoring Epochs](#)
- [Dynamic Scoring](#)
- [Scoring Synchronization](#)
- [Continuous Sleep Staging](#)
- [Scoring an MSLT Study](#)

## Scoring Sessions\*

*\*Not available with the License free version of RemLogic*

Having individual scoring sessions ensures that staging and sleep events entered by each scorer are identified in the Workpad, allowing more than one scorer to score the same Workpad. Studies are manually scored using hot keys (keyboard keys).

### Recording a Scoring Session\*

Capturing details on how one views and modifies the digital display [during a scoring session](#) improves the transparency of the scoring process. Using the Record Scoring feature, scoring technologists can record Workpad display changes made during a scoring session.

RemLogic records these display change events—actions that modify the way [raw data](#) is viewed in a Workpad during a session such as derivation changes, sensitivity adjustments, and modifications to filter settings—and automatically saves this information to the View as Scored settings file. This settings file, saved with the Workpad, allows the physician or reviewer to view these display changes in View as Scored mode.

In Record Scoring mode, display change events are saved to the View as Scored settings file and logged chronologically in the [Event Palette](#) (under the View as Scored tab) as they are applied to the raw data.

### To record a scoring session:

1. Click **Record Scoring** on the [View History](#) toolbar:



Display changes made during a scoring session ARE saved to the View as Scored settings file.

2. Score the recording manually and/or using the [computer assisted analyzers](#). [Mark events](#), as appropriate.
3. When the scoring session is complete, save and close the Workpad.
4. To view display changes, open the Workpad, and click the View as Scored button on the View History [toolbar](#):



### Starting a Scoring Session\*

#### To start a scoring session:

1. Scroll to the point in the study at which to start the scoring session.
2. Click a trace on which to mark the stages. For sleep staging, this is typically the EEG or EOG channels.
3. On the **Events** menu, click **New Scoring**.
4. In the **Scoring Start Time** text box, enter the scoring start time (optional).
5. In the **Technician** text box, type your name.
6. From the **Palette** list, select a scoring palette.
7. Optionally, select a caret color. This will distinguish the scoring session from others.
8. Optionally, enter a comment or brief description. This information will be displayed in the Sleep Stage Report.
9. Click **OK**.
10. Start scoring by pressing the appropriate hot keys. Refer to the Scoring Palettes and Associated Markers and Hot Keys table for marker and hot key information.

Pressing a hot key will mark the selected trace and advance the scoring display by one epoch.



Tip: The Event Palette can display while scoring by clicking **Toggle Event Palette**  on the toolbar.

### Stopping/Resuming a Scoring Session\*

A sleep staging scoring session can be stopped at any time.

#### To stop a scoring session:

- On the **Events** menu, click **Stop Scoring**, or click **Toggle Scoring**  on the toolbar.

The yellow highlighted area disappears from the scoring session.

**To resume a scoring session:**

Click on the sleep scoring event you want to continue from and do one of the following.

- On the **Events** menu, click **Continue Scoring**, or click **Toggle Scoring**  on the toolbar.

The session will resume, and the next epoch can be scored.

**Editing a Scoring Session\***

You can change the type of a sleep scoring event after it was marked into the Workpad. The scoring session must be active before editing. To activate a stopped session, from the main menu, select **Events | Continue Scoring**.

**To edit a scoring session:**

- Locate the epoch to be changed.
- Click on the event bar.



- Change the event marking by pressing the appropriate sleep scoring hot key.

The epoch is marked with the new sleep stage.

**Removing a Scoring Session\*****To remove a scoring session:**

- Right-click a sleep scoring event, then click **Remove Score**. You are asked to confirm the deletion of the scoring session.
- Click **Yes** to confirm.

The scoring session with all its sleep scoring events is deleted from the Workpad.

**Scoring Epochs\***

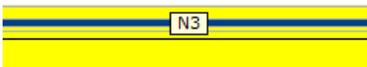
*\*Not available with the License free version of RemLogic*

**Deleting a Scoring Epoch\***

You can delete the last scoring epoch of the scoring session without removing the entire scoring session. The scoring session must be active in order to delete the last scoring epoch. It is not possible to remove single epochs when the scoring has been stopped because they are locked to the session.

**To delete a scoring epoch:**

- Locate the last epoch in the scoring session.
- Highlight the epoch by clicking on its bar.



3. Right-click the epoch's event bar, then click **Delete**, or press DELETE.

### Scoring Epoch Gaps\*

During sleep staging, epochs may be scrolled by and left temporarily unscored. The unscored epoch gaps can be scored with a single keystroke either with the same stage as the latest scored epoch or with the same stage as the next epoch that will be scored. Optionally, epochs can be left unscored.



### To select the scoring mode for unscored epoch gaps:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Event**.
3. Under **Score epoch gaps with**, do one of the following:
  - To mark epoch gaps with the unscored event, click **Unscored**.
  - To mark epoch gaps with the same stage as the previous epoch, click **Last Stage**.
  - To mark epoch gaps with the same stage as the following epoch, click **New Stage**.
4. Click **OK**.

### Epoch Numbering\*

Epochs are numbered in order of succession. You can choose to start epoch numbering at the first scored event, or at the recording start time. By default, RemLogic numbers the epochs relative to the scoring session, so that epochs are counted from the first event in the scoring session. A numbering based on the recording start time starts counting the epochs at the start of the recording regardless of sleep stage events.



*Epoch numbers are displayed on the status bar beside the patient information at the bottom of the Workpad. The epoch numbers indicate the location of the Workpad screen in the recorded data.*

### To select an epoch numbering method:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Event**.
3. Under **Epoch Numbering**, do one of the following:
  - To start numbering epochs at the first scoring event, click **Relative to scoring session**.
  - To start assigning numbers at the start of the recording, click **Relative to recording start time**. You can modify the default duration of 30 seconds by selecting a duration option from the **Epoch Length** list.
4. Click **OK**.

## Dynamic Scoring\*

*\*Not available with the License free version of RemLogic*

Dynamic Scoring enables you to create a customized sleep-staging palette and make, for example, an adaptive scoring with variable epoch duration based on the changes in the data.

You might want to start by making a [customized sleep-scoring palette](#) with [customized events](#).

### To score dynamically:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Event**.
3. To the right, select the **Enable advanced scoring options** check box. This feature makes dynamic scoring possible.
4. Click **OK**.
5. Open the **Scoring Session** dialog box by clicking **New Scoring** on the **Events** menu.
6. From the **Palette** drop-down list, select the palette to be used for scoring.
7. From the **Epoch Length** list, select a length for the scoring epochs. *Same as Event* refers to the default event duration or 30 seconds. The **Epoch Length** list displays available default dynamic scoring epoch lengths ranging from 5 to 40 seconds in 5-second increments.
8. Select the **Dynamic scoring** check box.
9. Click **OK**.
10. Start the scoring session. Event duration will be according to definition on the customized Sleep Scoring palette.

### Making Variable Epoch Durations\*

The scoring session must be active in order to make variable epoch durations.

1. Place the pointer on the border where two epochs meet. When the pointer is over the border, it will change from a white arrow to an arrow pointing in opposite directions .
2. After the pointer changes, click and hold the left mouse button down and drag the border left and right to make one epoch larger and the other epoch smaller.

## Scoring Synchronization\*

*\*Not available with the License free version of RemLogic*

By default, scorings are automatically synchronized with epoch boundaries.

RemLogic synchronizes the start of the current scoring session to the start of the next epoch in the signal window. If this option is disabled, the start of the current scoring session will be at the current position of the signal window.

### To turn on/turn off automatic synchronization:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Event**.

3. To the right, select or clear the **Automatically synchronize scoring with epoch boundaries** check box.
4. Click **OK**.

## Continuous Sleep Staging\*

*\*Not available with the License free version of RemLogic*

The continuous sleep staging feature offers a semi-automatic scoring of sleep staging events during online recordings.

This feature is helpful if you need to step away from the PC to attend to the patient while scoring online recordings. While you are away from the computer, the continuous sleep staging marks the scoring events into the Workpad. If, for example, you mark the Unscored event before leaving the scoring station, that event will be marked into the Workpad every 30 seconds until you return. You can then continue with the manual sleep staging. The Unscored period indicates what section of the recording needs to be scored for sleep stages.

Periods of Unscored events can be easily found in the Workpad with the Hypnogram and re-scored during the online recording.

### To enable continuous sleep staging:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Events**.
3. Select the **Continuous staging** check box.
  - **Unscored**: Click this option to mark gaps with the unscored event.
  - **Last stage**: Click this option to mark gaps with the same event used for the sleep stage scored.
4. Click **OK**.



Continuous sleep staging is enabled for scoring sleep stages during an online recording.

## Scoring an MSLT Study\*

*\*Not available with the License free version of RemLogic*

MSLT recordings consist of several recording sessions. The sessions are scored individually.

### To score an MSLT study:

1. Locate the first MSLT session.
2. On the **Events** menu, click **New Scoring**. Score the first recording session.
3. At the end of the first recording session, select **Events | Stop Scoring** from the main menu.
4. Locate the beginning of the second recording session.

5. On the **Events** menu, click **New Scoring**. Score the second session.
6. At the end of the second recording session, select **Events | Stop Scoring** from the main menu.

Repeat the scoring process for the third and fourth MSLT sessions.

## Marking Events

An event is a notable environmental (for example, lights on), respiratory (for example, apnea), movement-related (for example, PLM), or polysomnological episode (for example, arousal) that can be identified, reviewed, and analyzed in support of the diagnosis of sleep-related disorders. You can manually mark events (score) while a study is in progress or in completed studies using [keyboard shortcuts](#), your [mouse](#), the [Event Palette](#), and the [Events toolbar](#), or using computer [assisted scoring](#) tools. To refine both computer assisted and manual analyses, you can also [delete](#), [move](#), [resize](#), or [modify](#) event markers (by changing their event type).

### Marking Events Using Keyboard Shortcuts

To view a list of keyboard shortcuts, do one of the following:

- On the **View** menu, point to **Workspace**, then click **Event Palette**. If the [Event Palette](#) is currently open, click the **Palette** tab.
- Click anywhere in the [Workpad Sheet](#), then press F6.

To mark a trace using a keyboard shortcut:

1. Move the pointer to the segment of the trace you want to mark.
2. Drag across a segment of the trace. The duration of the selection displays on the status bar in the lower-left corner of the screen. If no duration is selected, the default event length is marked.
3. Press the keyboard shortcut for the event.

To mark multiple segments of a trace using a keyboard shortcut:

1. While pressing CTRL, drag across segments of the trace.
2. Press the keyboard shortcut for the event.

### Marking Events Using the Mouse

To mark an event with your mouse:

1. On the [Event Palette](#), click the event you want to mark.



Note: Sleep Stage Scoring events are not available for this function.

2. Move the pointer to the segment of the trace you want to mark. The pointer changes to a flag  when positioned over a trace.

3. Do one of the following:
  - Click to insert a marker with the default duration of the selected event.
  - Drag across a segment of the trace.

## Marking Events with the MDrive\*

\*Not available with the License free version of RemLogic

When the MDrive is connected to RemLogic, you can mark an event with RemLogic as described in this section: using [keyboard shortcuts](#) or with the [mouse](#). You can also edit the event as described in this section.



Note: RemLogic and a secure digital (SD) card in the MDrive can record studies. If you mark an event with RemLogic, the event displays in the RemLogic only; it does not display on the MDrive screen, and the SD card does not record the event.

For information about marking an event using the MDrive itself, see *Mark MDrive Menu Functions* section of the *MDrive Instructions for Use*. If you mark an event with the MDrive, you can edit the event within RemLogic as described in this section. Edits do not transfer to the SD card

## Event Palette Insertion Mode

In **Event Palette Insertion** mode, the event you last selected from the [Event Palette](#) is used for all subsequent event placements until another event is selected.

**To turn on Event Palette Insertion mode:**

- On the [Event toolbar](#), click **Event Palette Insertion Mode**  so that it is enabled.

**To turn off the Event Palette Insertion mode:**

- Do one of the following:
  - On the [Event toolbar](#), click **Event Palette Insertion Mode**  so that it is disabled.
  - Press ESC.

## Single Click Insertion Mode

In **Single Click Insertion** mode, the event you last selected for the trace on which you are placing an event is used.

**To enable the Single Click Insertion Mode:**

- Click **Single Click Insertion Mode**  on the [Event toolbar](#) so that it is enabled.

**To disable the Event Palette Insertion mode:**

- Click **Single Click Insertion Mode**  on the [Event toolbar](#) so that it is disabled.

## Overlapping Events

By default, marking an event over an existing event replaces the existing event. You can disable this feature in the Options dialog. As a new feature, there are several Event Overlap Groups that have been created to manage the overlapping of events within RemLogic. In the licensed version of RemLogic, these event groups can be modified and saved into a new configuration file which can be [exported](#) or [imported](#). See [Configuration File Setup](#) for details.

### To disable event overlapping:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Event**.
3. Clear the **Remove events in the same Event Overlap Group** check box.
4. Click **OK**.

### Automatic Removal of Manual Events

Within RemLogic, you can have the computer assisted scoring events remove any manual events that are a part of the same Event Overlap Group. By default, this option is disabled. You can enable this feature using the Options dialog.

### To enable Automatic Removal of Manual Events:

1. On the **Tools** menu, click **Options**.
2. In the left pane, click **Event**.
3. Select the **Automatic events can remove manual events in the same Event Overlap Group** check box.

### Event Overlap Groups

The following Event Overlap Groups are provided as the default within the RemLogic software. Events not listed in the table below are not included in an Event Overlap Group at this time. Modifications to these groups can be made in the Licensed version of RemLogic.

Event Overlap Group	Event types Included
Arousal	Arousal, Apnea Arousal, Desaturation Arousal, Hypopnea Arousal, LM Arousal, PLM Arousal, Respiratory Arousal, Snore Arousal, Spontaneous Arousal, RERA
Autonomic Arousal	Autonomic Arousal, Desaturation-Autonomic Arousal, LM-Autonomic Arousal, Respiratory-Autonomic Arousal , Respiratory Desaturation-Autonomic Arousal, Spontaneous-Autonomic Arousal
Body Position	Left, Right, Upright, Prone, Supine, Unknown Position
CAP	MCAP-A1, MCAP-A2, MCAP-A3
Cardiac	Arrhythmia, Asytole, Atrial Fibrillation, Bradycardia, Narrow Complex Tachycardia, Sinus Tachycardia, Tachycardia, Wide Complex Tachycardia

Event Overlap Group	Event types Included
CPAP	Bilevel, CPAP, APAP, VAUTO, ASV
Movement	Alternating Leg Muscle Activation, Bruxism Phasic, Bruxism Tonic, Excessive Fragmentary Myoclonus, Hypnagogic Foot Tremor, RBD Phasic, RBD Tonic, Rhythmic Movement Disorder
PLM	LM, PLM, Respiratory Related LM
ResMed Device	RMD Apnea, RMD Hypopnea, RMD Breath
Sleep Apnea	Apnea, Apnea Central, Apnea Mixed, Apnea Obstructive, Hypopnea, Hypopnea Central, Hypopnea Mixed, Hypopnea Obstructive, RERA Event
Snoring	Snore, Single Snoring, Snoring-Loud, Snoring-Moderate, Snoring-Soft
Apneic Group	Apneic Phase, Hyperpneic Phase
Crescendo Group	Crescendo, Decrescendo
Spindle Group	KComplex, Spindle, Spindle Block, Sync Spindle
RM Group	RM, SM
Analysis Period	Analysis Start, Analysis Stop

Modifying an Event Overlap Group\*

*\*Not available with the License free version of RemLogic*

Modifications to the above groups can be made using the Event menu.

**To modify an Event Overlap Group:**

1. From the **Events** menu, click **Event Overlap Groups....**
2. Configure the Event Overlap Groups according to the following table:

To	Do This
Add a new Event Overlap Group	<ol style="list-style-type: none"> <li>1. Click the <b>New</b> button.</li> <li>2. Assign your new group a unique name.</li> <li>3. Select the event types from the <b>All event types</b> list by selecting the desired event type and clicking on the <b>Add</b> button.</li> <li>4. Once all desired event types have been selected click <b>OK</b>.</li> </ol>

To	Do This
Edit an existing Event Overlap Group	<ol style="list-style-type: none"> <li>1. Select the desired Event Overlap Group, and click on the <b>Edit</b> button.</li> <li>2. Select the event types you wish to add to or remove from the group by selecting the event type from the existing lists and pressing either the <b>Add</b> or the <b>Remove</b> buttons.</li> <li>3. Once all changes have been completed, click <b>OK</b> to save the Event Overlap Group.</li> </ol>
	 <p>Note: Once an event type has been selected and the <b>Add</b> button has been clicked, the event is removed from the All event types list and added to the <b>Group event types</b> list.</p>
Delete an Event Overlap Group	<ol style="list-style-type: none"> <li>1. Select the desired Event Overlap Group, and click on the <b>Delete</b> button.</li> <li>2. This removes the Event Overlap Group permanently and cannot be undone.</li> </ol>
Create an Exception to the Event Overlap Groups	<ol style="list-style-type: none"> <li>1. Click the <b>Exceptions</b> button.</li> <li>2. Select the event types that you wish to be excluded from the Event Overlap Groups, and click the <b>Add</b> button.</li> <li>3. Once all desired exceptions have been created click <b>OK</b>.</li> </ol>

3. To have all changes take effect, click **OK**. Clicking **Cancel** will undo all changes made within each event overlap group.



Note: Modification of the Event Overlap Groups can cause undesirable results when scoring. Use extreme caution when adjusting the groupings within RemLogic.

## Deleting an Event

To delete an event from a Workpad, do one of the following:

- Click on the event that should be deleted, then press DELETE.
- Right-click the event, then click **Delete**.

To delete more than one event simultaneously:

1. Do one of the following:
  - Select the events you want to delete by clicking them while holding down CTRL.
  - To select events of the same type, right-click an event, then click **Select By Type**. Events of the same type are selected within the active trace.
2. Press **DELETE**.

## Moving an Event

You can move an event to a new position within the same trace or another trace on the Workpad Sheet.

### To move an event:

1. Place the pointer over the event.
2. Drag the event to the desired location.

## Resizing an Event

You can increase or reduce the width of an event marker.

### To resize an event:

1. Place the pointer on the border of the event. The pointer changes to: .
2. Drag the border to increase or reduce the length of the event.

## Event Type Destination and Preference

An event's destination is the location on the Workpad Sheet at which the event is placed during scoring. You can place an event on the active trace, a specified trace, traces belonging to a specified trace category (for example, EEG), and all traces on a Workpad Sheet. When you specify the destination of frequently used events, you tailor their behavior to suit your scoring workflow. As a result, scoring becomes more streamlined and interactive.

An event's preference is its association with a specified trace or trace category (for example, EEG). A trace category includes traces with the same trace name prefix, such as EEG. By specifying a preferred trace or trace category, the event, by association, becomes a preferred event of the trace or trace category. You can configure a trace or trace category to have one or multiple associated or preferred events. This association, intended to simplify event marking, ensures that specified preferences are first on the list of options in the **Change Type** shortcut menu. This menu allows you to change the event type of previously placed events. See [Changing the Event Type](#) for more information.

If you select **Specific Trace** as the preferred option for an event, and then specify a trace, the event is listed at the top of the **Change Type** shortcut menu when you change an event previously placed on the specified trace. Similarly, if you select a trace category as the preferred option for an event, the event is listed at the top of the **Change Type** shortcut menu when you change an event previously placed on a trace of the specified trace category.

You can specify an event's destination and preferred trace or main type in the **Event Type Properties** dialog.

### To specify the destination and preference of an event:

1. On the **Events** menu, click **Types**.
2. From the list, click the event, then click **Edit**.
3. Click the **Constraints** tab.

## 4. Do one of the following:

To...	Do This...
<ul style="list-style-type: none"> <li>Place the event on the active trace.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>Active Trace</b>.</li> <li>Under <b>Preferred Trace</b>, click <b>None</b>.</li> </ol>
<ul style="list-style-type: none"> <li>Place the event on the active trace.</li> <li>List the event associated with the specified trace in the top section of the <b>Change Type</b> menu.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>Active Trace</b>.</li> <li>Under <b>Preferred Trace</b>, click <b>Specific Trace</b>.</li> <li>From the list to the right, select a trace.</li> </ol>
<ul style="list-style-type: none"> <li>Place the event on the active trace.</li> <li>List the events associated with the specified trace category in the top section of the <b>Change Type</b> menu.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>Active Trace</b>.</li> <li>Under <b>Preferred Trace</b>, click <b>Trace Group</b>.</li> <li>From the list to the right, select a trace group.</li> </ol>
<ul style="list-style-type: none"> <li>Place the event on all traces.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>All Traces</b>.</li> <li>Under <b>Preferred Trace</b>, click <b>None</b>.</li> </ol>
<ul style="list-style-type: none"> <li>Place the event on all traces.</li> <li>List the event associated with the specified trace in the top section of the <b>Change Type</b> menu.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>All Traces</b>.</li> <li>Under <b>Preferred Trace</b>, click <b>Specific Trace</b>.</li> <li>From the list to the right, select a trace.</li> </ol>
<ul style="list-style-type: none"> <li>Place the event on all traces.</li> <li>List the event associated with the specified trace category in the top section of the <b>Change Type</b> menu.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>All Traces</b>.</li> <li>Under <b>Preferred Trace</b>, click <b>Trace Group</b>.</li> <li>From the list to the right, select a trace group.</li> </ol>
<ul style="list-style-type: none"> <li>Place the event on the specified trace.</li> <li>List the event associated with the specified trace in the top section of the <b>Change Type</b> menu.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>Specific Trace</b>.</li> <li>From the <b>Signal Type</b> list, select a signal type.</li> </ol>

To...	Do This...
<ul style="list-style-type: none"> <li>Place the event on all traces in the specified main type (for example, EEG).</li> <li>List the event associated with the specified trace category in the top section of the <b>Change Type</b> menu.</li> </ul>	<ol style="list-style-type: none"> <li>Under <b>Event Placement</b>, from the <b>Destination</b> list, select <b>Trace Group</b>.</li> <li>From the <b>Signal Type</b> list, select a trace group.</li> </ol>

## Changing the Event Type

You can change the event type of a previously-placed event using the **Change Type** shortcut menu or a keyboard shortcut.

### Change Type Shortcut Menu Method

Using the **Change Type** shortcut menu, you can quickly change the event type of a previously placed event:

- Associated with the trace on which the event is placed.
- Associated with the trace category to which the trace belongs.
- Included in an event palette.
- Not included in an event palette.

### To change the event type using the **Change Type** shortcut menu:

- Right-click the event, point to **Change Type**, then do one of the following:

To	Do This
Change the event to a preferred event associated with the trace or trace category.	In the top section of the <b>Change Type</b> shortcut menu, click an event. See <a href="#">Event Types Destination and Preference</a> for more information.
Change the event to an event type included in an event palette.	In the second section of the <b>Change Type</b> shortcut menu, point to the applicable event palette (for example, Arousal Events), then click an event.
Change the event to an event type not included in an event palette.	In the second section of the <b>Change Type</b> shortcut menu, point to <b>Other</b> , then click an event.

### Keyboard Shortcut Method

### To change the event type using a keyboard shortcut:

- Click the event, then press the keyboard shortcut of new event type.

**To change the event type of multiple events simultaneously:**

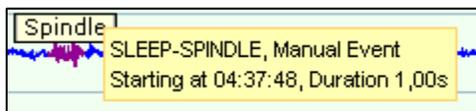
1. Do one of the following:
  - Right-click one of the events on the trace, then click **Select Events By Type**.
  - Click each event while holding down CTRL.
2. Press the shortcut key of the new event type.

**Event Markers**

By default, event markers display the event type (for example, Sleep Spindle), event mode (for example, manual or computer assisted), start time, and duration. If you mark events while a study is in progress, events are time-stamped as ending at the time the keyboard shortcut is pressed. For example, pressing the keyboard shortcut for Apnea at 23:30:20 time-stamps the event ten seconds earlier at 23:30:10, the default duration of Apnea events. For information on modifying keyboard shortcut assignments, see [Event Types: General](#).

**To display event information:**

- Hover the pointer over the event bar. The pointer changes to: . A yellow comment box displays the event information.

**To change the appearance of an event marker:**

- Right-click the event marker, then click one or more of following options:
  - Enable **Show Bar** to show the event bar. Showing the event bar is useful in highlighting the event duration. Hiding the bar is might reduce the visual clutter or displaying many events on the screen.
  - Enable **Show Caption** to display the event caption.
  - Enable **Highlight Background** to highlight the trace background in a different color. This option is useful for highlighting respiratory events.
  - Enable **Highlight Trace** to display the event as a highlighted trace. This also alters the color of the trace during the duration of the event. This feature is useful for transient events such as sleep spindles, spikes, and artifacts. Highlighting a trace is suitable for short or high-density events.

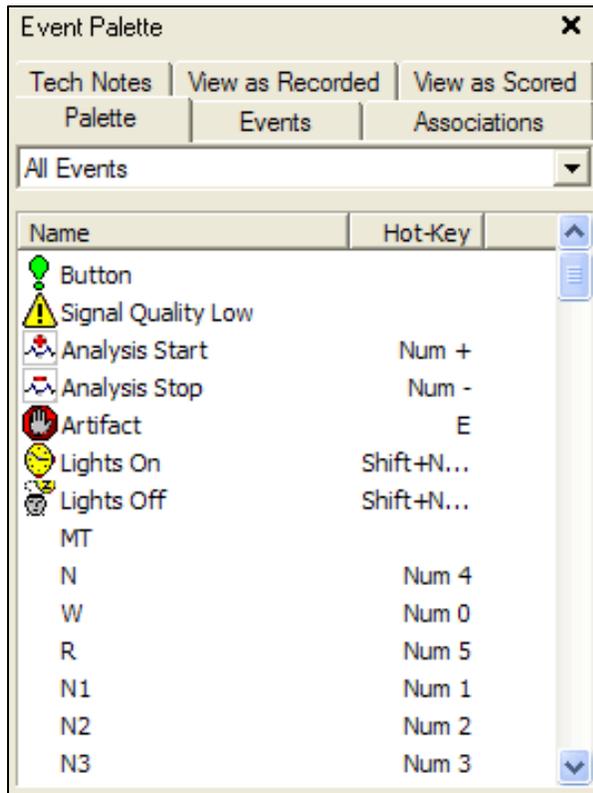
Changes are saved with the Workpad Sheet. To make permanent changes to the appearance of an event, see [Event Types](#).

**Default Event Duration****To modify the default event duration:**

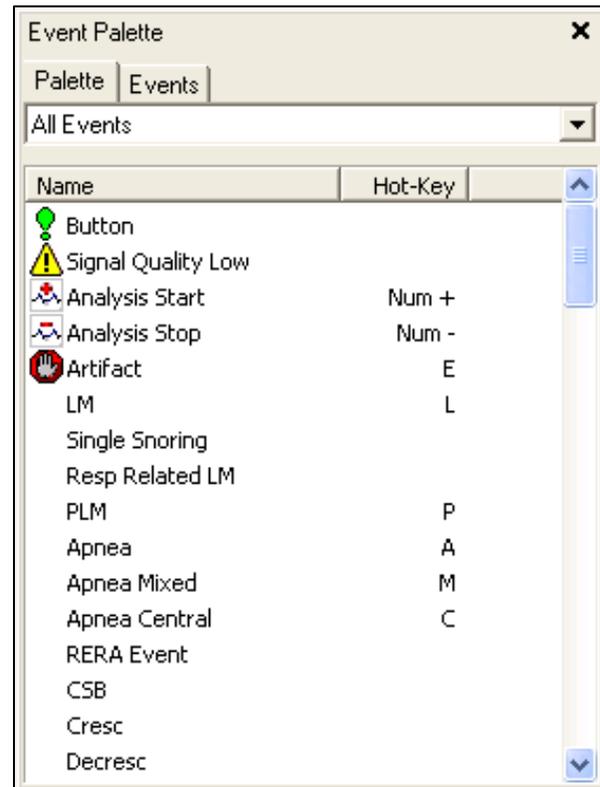
1. On the **Events** menu, click **Types**.
2. Click the event, then click **Edit**.
3. In the Default Duration text box, enter type the duration in seconds.

## Event Palette

By default, the Event Palette is in Workspace Area, to the left of the [Operations Sheet](#).



Event Palette with the All Events event filter selected. The Palette tab displays by default. (Licensed Version of RemLogic)



Event Palette with the All Events event filter selected. The Palette tab displays by default. (License free Version of RemLogic)

The Event Palette organizes, according to type, default events used to [score a Workpad](#) on tabs. You can navigate events by clicking scored events on the **Events** tab. The License free version of RemLogic includes only the Palette and Events tabs.

### Opening/Closing the Event Palette

**To open the Event Palette, do one of the following:**

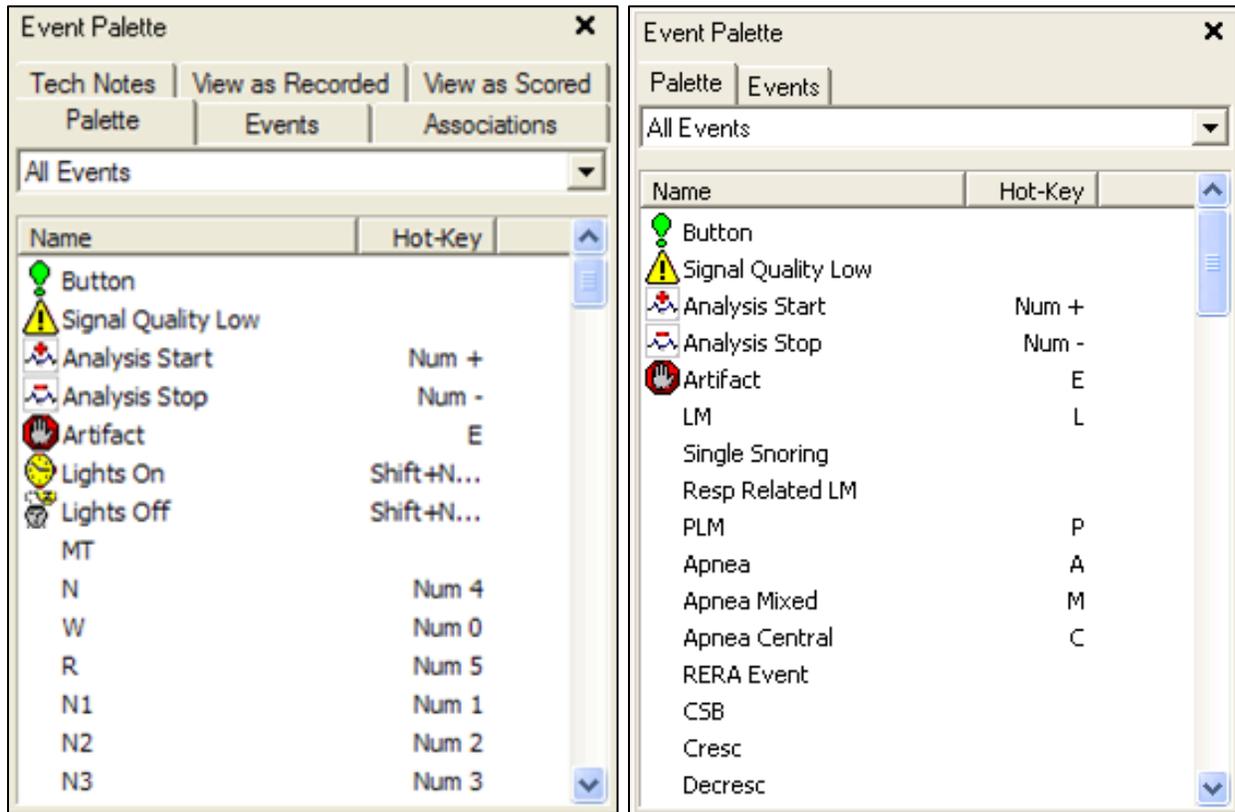
- Click **Toggle Event Palette**  on the toolbar.
- On the **View** menu, point to **Workspace**, then click **Event Palette**.

**To close the Event Palette, do one of the following:**

- Click **Toggle Event Palette**  on the toolbar.
- Click **Close**  on the **Event Palette** bar.

### Palette Tab

On the **Palette** tab, related events are grouped together under a palette name, such as Bio Calibration. Selecting a palette from the list displays events grouped under that event palette. To view all available events, select **All Events** from the list.



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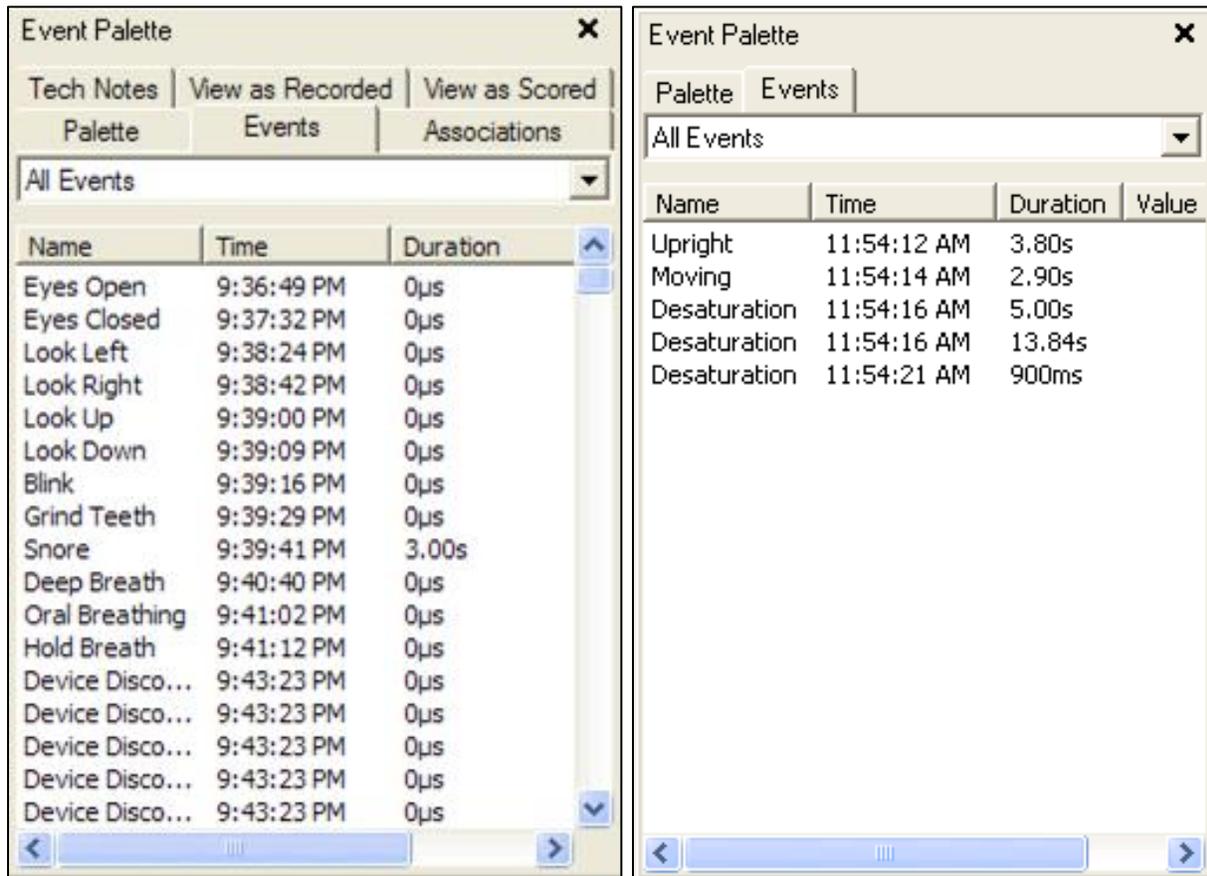
### Palettes available in the Palette Tab list:

Items marked with an "\*" are not available in the License free version of RemLogic.  
 Items marked with a "\*\*" are not currently available in the United States.

- All Events
- Arousal Events
- Autonomic Arousal Events
- Bio Calibration\*
- CAP\*\*
- CAP Manual\*\*
- Cardiac Events
- Infant Sleep Staging\*
- Movement Events\*
- Pediatric Sleep Staging\*
- PLM Events
- Pressure Events
- ResMed Device Events
- Sleep Apnea Events
- Sleep Events\*
- Sleep Scoring\*\*
- Timed EEG Events\*
- Video Events\*

## Events Tab

The **Events** tab lists all events that were marked into the Workpad, along with the time the events occurred and their duration. This can be sorted by name or time index.



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### To view a specific event in the Workpad:

1. In the Event Palette, click the **Events** tab.
2. Select a palette type from the list.
3. Select the event that you want to view.

The Workpad jumps to the location of the selected event in the recording.

**Event Associations Tab\***

\*Not available with the License free version of RemLogic

The **Event Associations** tab lists events that are associated with other events. To view associations, expand the node (+) adjacent to the event.

Name	Time	Duration
Desaturation	3:48:03 AM	18.00s
Hypopnea Arousal	3:48:10 AM	5.28s
Apnea Obstructive	6:25:29 AM	27.29s
Apnea Arousal	6:26:00 AM	19.80s
Desaturation	11:24:19 PM	19.67s
Apnea Arousal	11:24:24 PM	12.61s
Apnea Obstructive	11:22:47 PM	30.27s
Desaturation	12:23:05 AM	46.34s
Desaturation	5:09:24 AM	19.33s
Desaturation	11:49:15 PM	27.00s
Snore	4:42:44 AM	77.33s
Snore Arousal	4:42:56 AM	10.00s
Apnea Obstructive	1:41:38 AM	23.92s
Snore	2:53:54 AM	9.48s

**Tech Notes Tab\***

\*Not available with the License free version of RemLogic

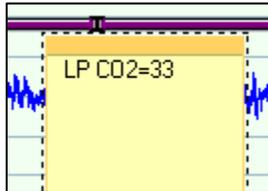
The **Tech Notes** tab lists all tech notes inserted into Workpad Sheets. You can navigate between notes by selecting a specific comment from the list.

Time	Note
9:31:05 PM	jumping A1 and A2
10:06:00 PM	LEFT coughing
10:09:12 PM	LEFT occ snore
10:31:17 PM	LEFT
10:50:19 PM	LEFT OCC SNORES
11:08:23 PM	SUPINE APNEAS DESATS
11:20:43 PM	SUPINE DECREASED FLOWS
11:21:47 PM	
11:30:41 PM	LEFT
11:34:10 PM	LEFT HYPOPNEA
11:55:35 PM	LEFT REM
12:04:14 AM	S C SNORES LEFT
12:06:34 AM	RT
12:10:21 AM	RT LEG MOVEMENT
12:31:04 AM	SUPINE
1:17:35 AM	LEFT

You can insert comments anywhere in the Workpad Sheets by entering it into a note box. Note boxes can be resized and moved between traces. See [Marking Events](#) for information about how to manipulate a note box.

#### To insert a tech note:

1. Right-click inside the pane where the tech note will be placed, then click **Add Note**.  
Alternatively, click inside the pane where the tech note will be placed, then press F11.
2. Type text into the note box.
3. When you are finished, click outside the note box.



The Audio Event is not available in the Event Palette (see **Analyzing Data | Marking Events | Special Events** in the RemLogic online help).

Special events, such as time events (Analysis Start, Analysis Stop, Lights On, Lights Off, Button, Pressure, and Bilevel), are of special interest because of their functionality. For specific information about marking and function of these events, see *Special Events* in the following location in the RemLogic online help file: **Analyzing Data | Marking Events**. For information about how to create a new event type or edit available events, see [Event Types](#) and [Customizing Event Palettes](#).

#### View as Recorded Tab\*

\*Not available with the License free version of RemLogic

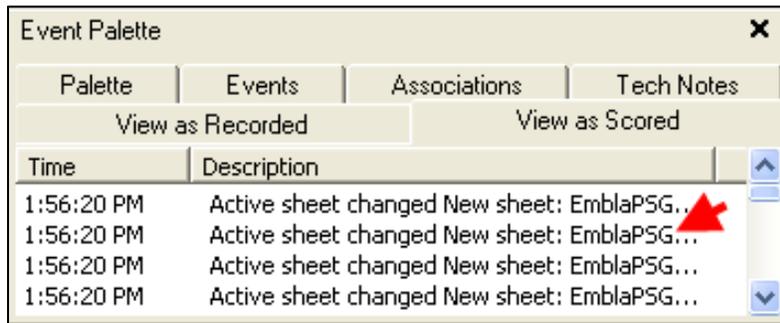
Recording related display change events are logged chronologically in the Event Palette on the View as Recorded tab sheet. To advance to a display change event in the recording, double-click an item in the list. For more information, see View as Recorded in the following location of the RemLogic online help: **Work Environment | Workpad Area | Workpad Views | View History**.

Event Palette	
Palette	Events
View as Recorded	
Time	Description
10:18:12 AM	Scale Change: Old from: -0.753859 mV to:2.26158 mV ...
10:18:20 AM	Active sheet changed New sheet: EmblaResp
10:18:43 AM	Split change Old Value Vertical split, New Value No split
10:18:47 AM	Active sheet changed New sheet: EmblaPSG
10:18:48 AM	Scale Change: Old from: -0.752095 mV to:0.376048 m...

### View as Scored Tab\*

\*Not available with the License free version of RemLogic

Scoring -related display change events are logged chronologically in the Event Palette on the View as Scored tab sheet. To advance to a display change event in the recording, double-click an item in the list. For more information, see View as Scored in the following location of the RemLogic online help: **Work Environment | Workpad Area | Workpad Views | View History**.



### Customizing an Event Palette\*

\*Not available with the License free version of RemLogic

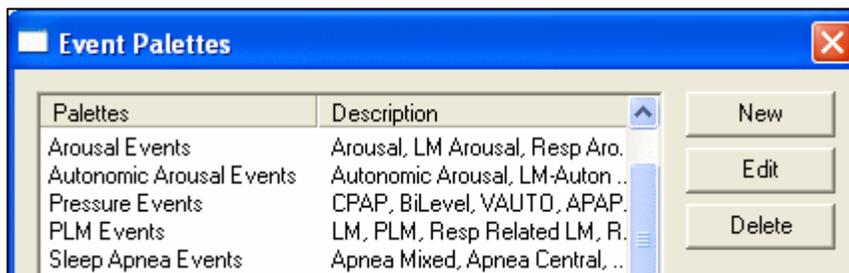
You can organize event types into event palettes, that is, groups of related events. Event palettes can filter information displayed in the [Event Radar View](#) and Event Report. RemLogic features several predefined event palettes and associated event types. You can add or delete events from these palettes or create new palettes—for example, create a custom list of events to display in the Event Radar. You can edit the event palettes in the Event Palette Properties dialog.



Note: Only experienced users should modify the default event palettes. Incorrect modification of some of the default event palettes might render portions of the system unusable until they are recreated correctly.

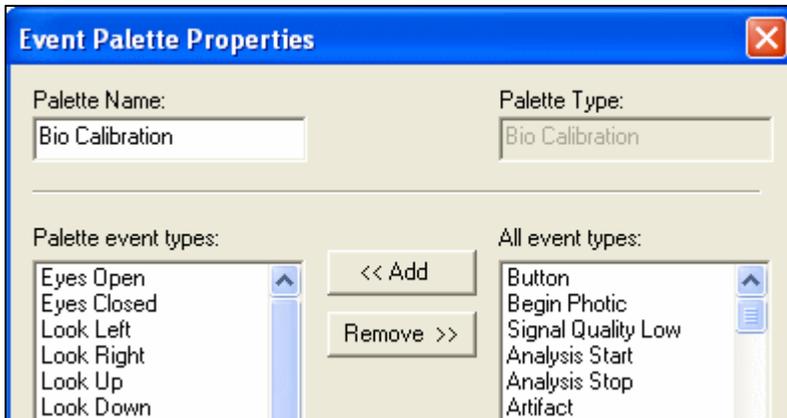
#### To create or edit an event palette:

1. On the **Events** menu, click **Palettes**. The Event Palettes dialog box displays.



- **New:** Click this button to create a new event palette.
- **Edit:** If you want to edit an existing event palette, select the palette from the list, then click this button.
- **Delete:** To delete a palette, select the appropriate palette, then click this button. Click **OK** to exit the dialog.

- If you clicked either **New** or **Edit**, the Event Palette Properties dialog box displays.



- **Palette name:** Displays the palette's name. This name displays in the Event Palette in the Workspace area.
- **Palette Type:** Uniquely identifies a specific palette. This is usually the same as the palette's name. It is not possible to change the type of existing palettes. The palette type is only used when referencing an event palette programmatically.
- **Palette event types:** Lists the event types that are in the event palette. To add event types to the list, select the desired type from **All event types** and click **Add**. To remove event types from the palette, select the type from the **Palette event types** list and click **Remove**. You can sort the events in a palette into any desired order by clicking and dragging them up or down with the mouse.
- **All event types:** Contains all event types available apart from those already listed in the Palette event types list. Select from this list to add event types to event palettes.

- Click **OK**.

## Finding Events

In addition to the [Event Palette](#), you can use three different methods to locate events on a scored Workpad.

### Find Command

**To find an event and jump to its location in a recording:**

- On the **Events** menu, point to **Find**, then click one of the find command options.

Find Previous	Ctrl+Shift+Left Arrow
Find Next	Ctrl+Shift+Right Arrow
Find Previous of Same Type	
Find Next of Same Type	
Find First	Ctrl+Shift+Home
Find Last	Ctrl+Shift+End

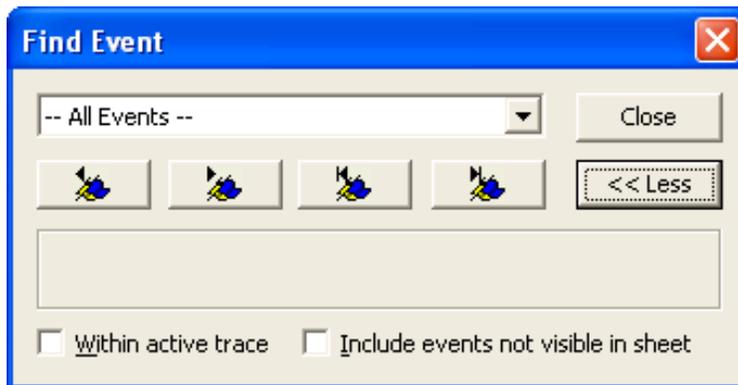


Tip: You can also find events by using keyboard shortcuts. Shortcuts are listed next to each find command (from the main menu, select **Events | Find**). To find the next event of the same type, press SHIFT + RIGHT ARROW.

### Advanced Find

#### To perform an advanced search:

1. Do one of the following:
  - On the **Events** menu, point to **Find**.
  - Press F3.
2. From the drop-down list, select the event type for which you want to search.



3. Select the **Within active trace** check box to search within the activated trace.
4. Select the **Include events not visible in sheet** check box to search all events (visible on the Workpad Sheet and invisible events (in other words, those without a bar, caption, or background)).
5. See [Events Toolbar](#) for information on navigation buttons.

### Events Toolbar

The find event buttons on the Events toolbar can be used to quickly locate events.



Find Event Toolbar

Button	Description
	Searches for events within the active trace.
	Finds the previous event in recording.
	Finds the next event in recording.
	Finds the first event in recording.

Button	Description
	Finds the last event in recording.
	Finds the previous event of same type.
	Finds the next event of same type.
	Finds all events that match the selected event type.

## Event Types

You can create and customize event types. Event types are edited in the Event Type Properties dialog box.

### Creating an Event Type

When you create an event type, it is added to the list of events in the [Event Palette](#).

#### To create an event type:

1. On the **Events** menu, click **Types**.
2. Click **New**.
3. Modify information on the [General](#), [Visualization](#), [Constraints](#) and [Visualizing Associations](#) tabs to specify how events will behave and display in the Workpad.
4. Click **OK**.

### **General**

The **General** tab defines general properties of the event, such as the event's label, duration, and corresponding shortcut key. A message in the lower-left corner indicates whether the event type is used in an event palette. If it is used, the event type cannot be deleted, and the type name cannot be changed.

#### **General Properties**

Property	Description/Procedure
Default Label	Type a descriptive label for the new event type. This label will display in the Event Palette and on the title caption of the event in the Workpad. It is recommended to keep the label short. The label name will also display in the type name field, if this is a new event type.
Default Duration	Type a duration for the event. The default duration is used when the event is marked without selecting a specific duration, and to determine the epoch duration for scoring events.

Property	Description/Procedure
Type Name	Type a unique identifier for the event. The type name is used by reports to look for specific event types. Predefined event type names, such as those for respiratory events, cannot be changed because they are used by the reports. If you would like to create a new event type group, enter the group name followed by a dash, then type the event name. Ensure that there are no spaces before or after the dash.
Hot Key	Enter a shortcut key for the event. All events can have a hot key assigned to them. This allows you to insert events with a single keystroke. Avoid using complex combinations like control keys, and so on. The ALT key should not be used, as such commands will conflict with the Windows menu shortcuts.
Icon	Select an icon to be displayed with the event in the Workpad (optional). It is suitable for some types of events and can be very effective when viewing a large number of events.

### Visualization

The **Visualization** tab is used to adjust how an event displays in the Workpad Sheet. The changes made in this tab are saved and applied to all future Workpad Sheets, unlike temporary changes made to event appearance. For more information, see [Marking Events](#).

### Visualization Properties

Property	Description/Procedure
Show event label	Select this option if you want the event name to display in the Workpad.
Highlight trace	Select this option if you want to display the event as a highlighted trace. This alters the color of the trace for the duration of the event. This feature is useful for transient events, such as sleep spindles, spikes, and artifacts.
Show event bar	When this option is selected, the event will display with a bar or handle. Event bars are suitable for some types of events, especially where the event duration is important.
Highlight background	The background of the trace will be highlighted in a different color for the duration of the event when this option is selected. It is especially suitable for respiratory and other events where the epoch of the event is considered significant.
Show event duration	If you want the duration of the event to display along with the event in the Workpad, select this option. The duration will display in brackets next to the event label. If the Show event label option is clear, the event duration does not display.

Property	Description/Procedure
Show custom variable	This option applies to events that have custom variables, such as pressure, Desaturation, and Impedance events. Select this option and type into the box the name of the variable that should display in the Workpad. The selected variable will display in square brackets next to the event label in the Workpad. If the Show event label option is not selected, the custom variable will not display. To find out if an event has a custom variable, place the mouse pointer on the event in the Workpad. A yellow comment box will display information about the event. The custom variables display in blue.
Event bar and trace highlight	Each event type can have a set color that is used when drawing the event bar. The color is also used by some of the analysis tools when referring to the event—for example, in the Event Report and the Overview Sheet. This color is also used to highlight the trace if the Highlight trace option is active. Click the color box to customize the color.
Background highlight	If the Highlight background option is active, the selected color highlights the trace background. Choose a color in high contrast to the trace color so they are clearly visible from one another.

### Constraints

The constraint properties of an event allow you to mark the trace at a specific time, position, and destination.

### Constraints Properties

Property	Description/Procedure
Locked in time	When this option is selected, the event cannot move to the left or right in the Workpad Sheet. Events that have a time aspect—like event buttons—should be locked in time. For example, sleep scoring events are locked in time.
Locked to the trace	When this option is selected, the event cannot move to another trace. For example, desaturation events should be locked to the SpO2 trace.
Snaps to the grid when being moved	By default, you can freely position an event anywhere in the Workpad. This option makes the event snap to several predefined vertical positions or event lines. As a result, two event title captions cannot overlap each other.
Scoring event, implicitly locked in time	Select this option to define the event as a scoring event. The behavior of scoring events differs from the behavior of instantaneous events. Scoring events belong to a continuous series of scoring epochs, and it is not possible to delete a scoring event from within the middle of a scoring session.
Event Placement (Destination)	Defines the placement of the event on a Workpad Sheet. Options: Active Trace, Specific Trace, Trace Group, and All Traces.
Event Placement (Signal Type)	Available if the <b>Specific Trace</b> or <b>Trace Group</b> Destination option is selected. Select the Signal Type from the drop down menu.

Property	Description/Procedure
Preferred Trace (None)	Available if the <b>Active Trace</b> or <b>All Traces</b> Destination option is selected.
Preferred Trace (Specific Trace)	Available if the <b>Active Trace</b> or <b>All Traces</b> Destination option is selected. Select the Specific Trace from the drop down menu.
Preferred Trace (Trace Group)	Available if the <b>Active Trace</b> or <b>All Traces</b> Destination option is selected. Select the Trace Group from the drop down menu.



Note: New customized events are only included in the Event Report and custom reports.

### Visualizing Associations

The Visualizing Associations tab allows you to specify what information will display about an association:

#### Visualizing Association Properties

Property	Description/Procedure
Number of associations	Displays the total number of associations within the association range.
Associated events	Displays the names of the events that are associated (either the label or type name).
Display associated events by event label or event type	Select either <b>Label</b> or <b>Type</b> from the list.

### Deleting an Event Type

Default event types cannot be deleted.

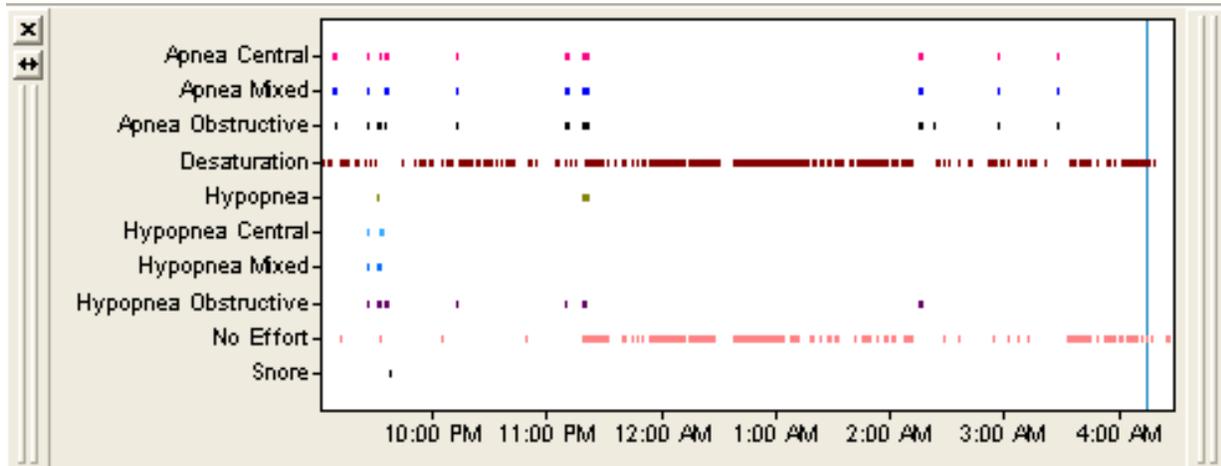
#### To delete an event type:

1. On the **Events** menu, click **Types**.
2. Select the event type, then click **Delete**.
3. Click **OK**.

The event type is removed from the [Event Palette](#).

## Event Radar View

The Event Radar displays an overview of all the events marked on the Workpad Sheet. If there are no events in the Workpad, the Event Radar is empty.



The Event Radar. Event colors displayed are the same as the colors chosen for particular events.

A vertical bar on the Event Radar indicates what part of the Event Radar displays in the Workpad. The width of the vertical bar is proportional to the part of the recording displayed in the Workpad. When the scale of the time axis is large, the vertical bar becomes wider. If you move to another part of the Workpad, the vertical bar in the Event Radar moves accordingly. Likewise, if you click on a different point in the Event Radar, the Workpad displays the same location. Where there are intervals with no events, clicking on the Event Radar causes the selection to jump to the nearest event to the left of the clicked position.

### To access this view:

- On the **View** menu, click **Event Radar**.

### Filtering the Event Radar

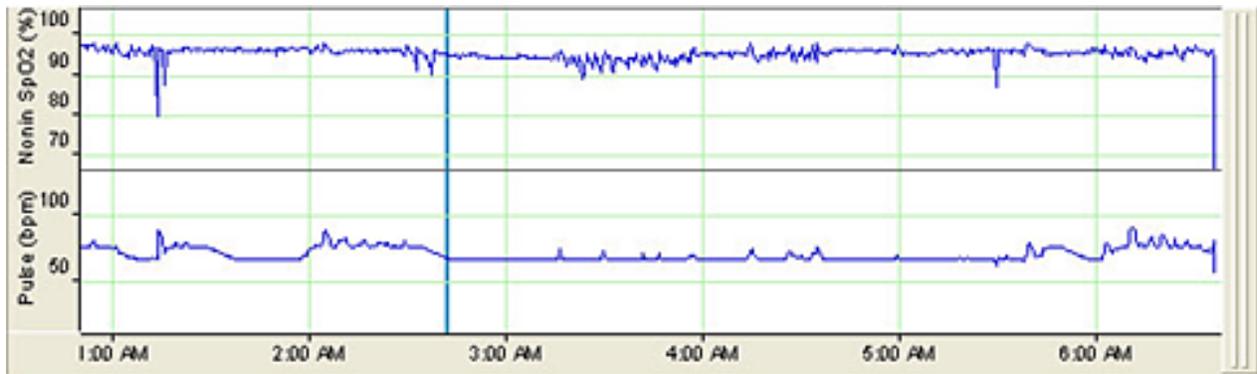
By default, the Event Radar displays all event types. You can choose what types of events to display in the Event Radar.

### To filter the Event Radar:

1. Right-click inside the view window.
2. Select the events types you want to display.

## Trace Overview

The Trace Overview displays an overview of an entire trace for the whole recording time. Trace Overview gives you the opportunity to quickly find places of interest in the recording—when the oxygen desaturation falls below normal values, for example. The Trace Overview has a position marker that helps you navigate through the recording. Signal traces with low sampling rates provide a clearer overview than those with high sampling rates.



Overview of an SpO2 trace and a Pulse trace

### To view the Trace Overview for a trace:

1. Click the trace.
2. From the main menu, select **View | Trace Overview**.

### Adding a Trace

You can display multiple traces in the Trace Overview window simultaneously.

### To add a trace to the overview:

1. Activate the trace you want to add to the Trace Overview.
2. Right-click inside the overview window.
3. Click **Add Active Trace**.

An overview of the active trace displays at the bottom of the Trace Overview window.

### Removing a Trace

### To remove traces from the overview:

1. Inside the Trace Overview, right-click the trace you want to remove.
2. Click **Remove Trace**.

### Process Modes

You can choose between several process modes for the Trace Overview. For example, you can opt to show only the minimum or maximum values for the trace.

### To select a process mode:

1. Right-click inside the view window.
2. Point to **Process Mode**, then click the mode in which the Trace Overview should process the trace.

### Trace Color

By default, Trace Overview trace displays in blue. You can change the color of the trace in the view.

#### **To change the trace color:**

1. Right-click inside the view.
2. Point to **Line Color**, then click the color you want to use for the line.

### Epoch Size

You can change the epoch size used in the Trace Overview. By default, the Trace Overview displays the trace using five second intervals. Increasing the epoch size reduces trace resolution based on the selected process method. Similarly, decreasing the epoch size increases the resolution of the trace. Some process methods show more variance when used with larger epoch sizes, such as the min/max process method. Some process methods also require a certain amount of data to be considered accurate, such as the RMS and the SD methods.

#### **To change the epoch size:**

1. Right-click inside the overview window, then click **Epoch Size**.
2. Type the desired epoch length into the text box, then click **OK**.

The Trace Overview is updated according to the new epoch length.

### Excluding Artifacts

By default, the Trace Overview shows artifacts that are marked on the trace. You can select to exclude artifacts from the overview.

#### **To exclude artifacts from the overview:**

1. Right-click inside the overview window.
2. Click **Artifacts**. The check mark disappears.

To include artifacts again, repeat this action.

A check mark in front of **Artifacts** indicates artifact areas are shown in the Trace Overview by hiding those areas.



No check mark in front of **Artifacts** indicates artifact areas are not shown in the Trace Overview.



## Computer Assisted Analysis



Note: The computer assisted analyzers for Snoring, PLM, Arousal, and Respiratory events have only been validated using Adult studies, and are for use with only Adult studies.

### Computer Assisted Analysis

Depending on the version of RemLogic you have purchased, the RemLogic computer assisted analyzers can score sleep stages, mark respiratory events, limb movements, arousals, and generate heart variability from recorded EKG. These analyzers use parameters that can be modified and saved in an analysis profile. Multiple analysis profiles can be created to address the needs of differing patient populations.



Note: The computer assisted analysis tools provided by RemLogic are intended to assist in the analysis of polysomnographic data by a physician or trained technologist. These tools are not intended to replace the physician or trained technologist. Users should always review and edit the results of computer assisted analyses to ensure accurate event marking.

RemLogic has several analyzers and trace generators.

*Items marked with an “\*” are not available in the License free version of RemLogic.  
Items marked with a “†” are not currently available in the United States.*

- [Arousal Analyzer\\*](#)
- [Association Module](#)
- CAP Scoring Assistant\*\*†
- [CSB Analyzer\\*\\*†](#)
- [Inter-Scorer Comparison](#)
- [Pleth Analyzer†](#)
- [PLM Analyzer](#)
- [Respiration Analyzer](#)
- [Scoring Assistant\\*\\*†](#)
- [HRV Trace Generator](#)
- [PTT Trace Generator](#)

When each analyzer begins, it will check for any existing computer assisted scoring events generated. It will then check for any manual events created which are the same as the computer assisted scoring events generated. If existing events are found, the software will prompt you to remove them with the following options:

- **Automatic Events Only** – If only computer assisted analysis events are found, you can either remove all previous events by selecting **OK**, or stop the analyzer by selecting **Cancel**.
- **Manual Events Only** – If only manual events of the same type as the analyzer are found, you have the option to remove these events by selecting **OK**, or stop the analyzer by selecting **Cancel**.
- **Both Automatic and Manual Events** – If both manual and computer assisted analysis events are found, you have the option to remove these events by selecting one of the following options and selecting **OK**. Clicking **Cancel** will stop the analyzer.
  - **Remove automatic events only**
  - **Remove manual and automatic events**

If you choose **remove manual and automatic events**, a confirmation dialog box will be displayed asking if you want to delete the manually scored events. You have three options available:

1. You can choose to continue and remove both types of events by clicking **Yes**.
2. You can choose to not remove the manually scored events by clicking **No**.
3. You can stop the analyzer by clicking **Cancel**.



Note: The Sleep Scoring Assistant analyzer will not be able to remove or re-score computer assisted or manual events.

### Analysis Start and Stop

To specify the analysis period, mark the Workpad Sheet with Analysis Start (+ hotkey) and Analysis Stop events (- hotkey) to signify the beginning and end of the analysis, respectively. This step will exclude noise and artifacts resulting from the patient retiring for the night and separate the analysis period or *Time In Bed* from the *Total Recording Time*. For more information, see [Marking Events](#).

Regardless of the position of the Start/Stop events, body positioning and movement events can be inserted throughout the recording. Respiratory and LM events, however, are limited to the range denoted by the Analysis Start and Analysis Stop events. In the latter case, the entire recording will be analyzed if you do not mark the Workpad Sheet with Start/Stop events.

The patient must place the Embletta on the abdomen; otherwise, the default device location Front must be changed before analyzing the recording. This step ensures settings reflect the actual location of the Embletta.

## Analysis Parameters

Several parameters affect the behavior of the various analysis modules. You can modify and save these parameters in an analysis profile. Any parameter modification will affect data analysis. The changes made to parameters will persist when you start RemLogic again.

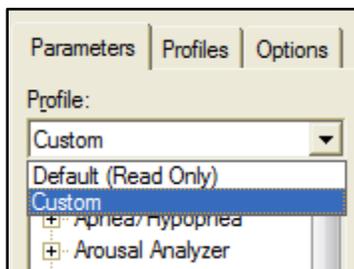
The analysis parameters used in the computer assisted analysis are accessible in the Analysis Settings dialog.

### To modify an analysis parameter:

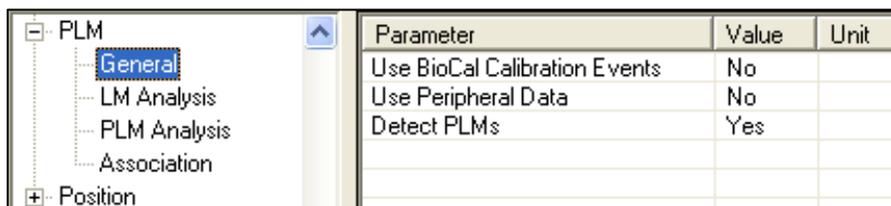
- Do one of the following:
  - On the **Analysis** menu, click **Settings**.
  - On the Analysis Settings Manager bar, click **Analysis**, then **Settings**.

The Analysis Settings dialog box displays.

- From the **Profile** list, select the custom profile to be changed.



- Expand the desired parameter section by clicking the plus symbol  $\oplus$  next to the section name. A list of subsections displays.
- Select the appropriate subsection to view its parameters in the **Parameter** column on the right.



- To change the parameter value, do one of the following:
  - Double-click the **Value** field you want to change. Type in or select the desired value.
  - Right-click the **Value** field you want to change, and select **Revert to parent** or **Revert to default** to restore original settings for the selected parameter based on the original profile from which the custom profile was created (settings are inherited from the parent profile).

Parameter	Value	Unit
Use BioCal Calibration Events	No	
Use Peripheral Data	No	
Detect PLMs	Yes	
	No	

- When you are finished, click **Close**.

The customized parameters will be used by the analyzers when the analysis profile is selected in the Analysis Settings Manager.



Note: RemLogic automatically starts with the default profile active. The default analysis profile is read-only and cannot be changed. To change parameters, a custom profile must be selected. To make the custom profile active during analysis, see the *Applying an Analysis Profile* section in the following location of the RemLogic online help: **Analyzing Data | Computer Assisted Analysis | Analysis Profiles**.

Customized parameters are displayed in blue. The color makes it easy to distinguish default parameters from customized parameters.



Tip: Clicking on a parameter in the Analysis Settings dialog box displays a description of the parameter at the bottom of the dialog. For a list of available parameters, see Analysis Settings (located in the Appendix of the RemLogic online help).

The available value range for the parameter displays when the cursor hovers over the value.

## Clinical Study Summary – Respiratory, Arousal, Limb Movement and Snore Event Assisted Scoring

### Participants

Fifty-one diagnostic PSG sleep studies were collected (one study per patient). All patients involved in this study were adult patients (18 years or older) with a clinical indication for a sleep study. The patient data were de-identified and applied as subject data to this study.

### Dataset description

Total Number of Subjects: 51 per event evaluated

Total Number of scored Epochs (30 Sec):  $\geq 47,113$

Total Number of Hours:  $\geq 392:36:30$

Mean number of epochs per subject:  $\geq 924$

Minimum number of epochs per subject: 764

Maximum Number of epochs per subject: 1,162

Data from 51 subjects were evaluated for respiratory, arousal, limb movement and snore events. All epochs from these subjects were scored.

### Objective of the study

The goal of the validation study reported here is to establish that RemLogic performance is equivalent to the performance of the predicate device. For the purpose of this study the “Reference standard” is defined using majority rule, that is at least two out of three expert scorings (medical professionals certified on PSG recording and analysis) agree on the presence of an event within an epoch.

### PSG acquisition protocol

For this study, the following signals were recorded from each subject:

- Six (6) Electroencephalogram ([EEG] channels: F3, F4, C3, C4, O1, and O2)

- Two (2) Electrooculogram (EOG) channels
- Submental and bilateral tibial electromyogram (EMG)
- Electrocardiogram (ECG)
- Airflow (nasal-oral thermistor and nasal pressure sensors or PAP flow)
- Chest and abdominal movement using respiratory inductance Plethysmography
- Pulse oximetry (SpO<sub>2</sub>) and pulse rate
- Body position
- Snoring

### PSG Analysis Protocol

All physiologic data were collected and stored on a RemLogic System. The ECG, EEG, EMG, EOG and Snoring channels were sampled at 200 Hz or higher. The Airflow, Chest and Abdominal movement channels were sampled at 25 Hz or higher. The Pulse oximetry channel was sampled at 10 Hz. The Body Position channel was sampled at 1 Hz.

The raw PSG recordings were de-identified, randomized and provided to three experienced and certified PSG specialists, including one board certified sleep specialist, who independently marked events of interest in each epoch, applying the following criteria:

- Apnea is scored when both of the following criteria are met:
  - a. There is a drop in the peak signal excursion by  $\geq 90\%$  of pre-event baseline respiratory nasal pressure or flow sensor signal.
  - b. The duration of the  $\geq 90\%$  drop in sensor signal is  $\geq 10$  seconds.
    - The apnea is Obstructive if it meets apnea criteria and is associated with continued or increased inspiratory effort throughout the entire period of absent airflow.
    - The apnea is Central if it meets apnea criteria and is associated with absent inspiratory effort throughout the entire period of absent airflow.
    - The apnea is Mixed if it meets apnea criteria and is associated with absent inspiratory effort in the initial portion of the event followed by resumption of inspiratory effort in the second portion of the event.
- Hypopnea is scored if all of the following criteria are met:
  - a. The peak signal excursions drop by  $> 30\%$  of pre-event baseline using nasal pressure, PAP device flow or alternative hypopnea sensor.
  - b. The duration of the  $> 30\%$  drop in signal excursion is  $> 10$  seconds.
  - c. There is a  $> 3\%$  oxygen desaturation from pre-event baseline or the event is associated with an arousal.
- Scoring Arousals
  - a. Score arousal during sleep stages N1, N2, N3, or R if there is an abrupt shift of EEG frequency including alpha, theta and/or frequencies greater than 16 Hz (but not spindles) that lasts at least 3 seconds, with at least 10 seconds of stable sleep preceding the change.

- b. Scoring of arousal during REM requires a concurrent increase in submental EMG lasting at least 1 second.
- Limb movement is scored if the following significant leg movement (LM) events are indicated:
  - a. The minimum duration of a LM event is 0.5 seconds.
  - b. The maximum duration of a LM event is 10 seconds.
  - c. The minimum amplitude of a LM event is an 8  $\mu$ V increase in EMG voltage above resting EMG.
- Snore: The scoring of snore events relies on clinical interpretation.

Separate from the expert review, all PSG studies were also analyzed by RemLogic assisted-scoring modules at default values for:

- Respiratory events (Central apnea, Obstructive apnea, Hypopnea)
- Limb movement events
- Snoring events

The RemLogic assisted-scoring module default values applied for the clinical study are listed in the following tables.

#### **Respiratory Analysis Default Settings**

Analysis Setting	Analysis Parameter	Default Setting
General	Use Respiratory Baseline Event	No
	Perform Computer Assisted Analysis	Yes
	Perform Hypopnea Sub Classification	No
Artifact Detection	Enable Artifact Detection	Yes
Apnea	Select Trace Automatically	No
	Select Output Trace Automatically	Yes
	Amplitude	25
	Shortest Duration	10
	Longest Duration	120
	Shortest Breath Duration	0.3
	Short Breath Amplitude	30
Hypopnea	Select Trace Automatically	No
	Select Output Trace Automatically	Yes
	Amplitude	80
	Shortest Duration	10
	Longest Duration	120

Analysis Setting	Analysis Parameter	Default Setting
	Shortest Breath Duration	0.3
	Short Breath Amplitude	75
Advanced	Use Low Cut Filter for Flow	Yes
	Flow Noise Level	0
	Thermistor Flow Noise Level	0
	Generic Flow Noise Level	0
	Maximum Breath Rate	1
	Pneumo Flow Noise Level	0
	Low Cut Filter for Flow	0.03
	Low Cut Filter for Thermistor	0.5
Association	Link Apnea to Desaturations	No
	Interval from Apnea to Desaturation	20
	Link Hypopneas to Desaturations	Yes
	Interval from Hypopnea to Desaturations	20
	Ignore Desat connection when SpO2 missing	Yes
	Link Central Apneas < 20 sec to Events	No
	Interval from Central Apnea to Event	20
	Link Hypopneas to Events	Yes
	Interval from Hypopnea to Event	20

### ***Arousal Analysis Default Settings***

Analysis Setting	Analysis Parameter	Default Setting
Analysis	Shortest Duration	3
	Sensitivity	72
	Delta Sensitivity	5
	Theta Sensitivity	20
	Alpha Sensitivity	50
	Sigma Sensitivity	55
	Beta Sensitivity	55
	Link To Heartrate	No

Analysis Setting	Analysis Parameter	Default Setting
	Heartrate Sensitivity	50
	Chin EMG increase search range	2
	Score Arousal During Wake	No
	Minimum Chin EMG increase for arousal	1.5
	Use Chin EMG increase for arousal	Yes
	No EMG arousal threshold multiplier	3

### ***Periodic Limb Movement (PLM) Analysis Default Settings***

Analysis Setting	Analysis Parameter	Default Setting
General	Select Trace Automatically	Yes
LM Analysis	Shortest Duration	0.5
	Score LM during Apnea/Hypopnea Event	No
	Longest Duration	10
	Lowest Relative Amplitude	8
	Highest Relative Amplitude	300
	Shortest Interval Between LM Events	5
PLM Analysis	Shortest Interval Duration	5
	Longest Interval Duration	90
	Number of Events in PLM	4
	Discard Arousal Association	No
	Discard Apnea/Hypopnea Association	No
	May Overlap Wake	Yes
	Insert Additional Information	Yes
	Combine Both Limb Traces	Yes
Association	Link to Apnea/Hypopnea before LM Event	10
	Link to Apnea/Hypopnea after LM Event	0
	Link to Apnea/Hypopnea Method	End of Event
	Link to Arousal before LM Event	0.5
	Link to Arousal after LM Event	0.5

Analysis Setting	Analysis Parameter	Default Setting
	Link To Arousal Method	All Arousals

### Snore Analysis Default Settings

Analysis Setting	Analysis Parameter	Default Setting
General	Perform Computer Assisted Analysis	Yes
	Select Trace Automatically	No
Analysis	Fewest Snores per Period	3
	Duration Between Periods	10
	Longest Snore Duration	4
	Shortest Duration Between Snores	1
Cannula Snore	Use Low Cut Filter	No
	Low Cut Filter Frequency	1
	Threshold	0.00001
	Artifact Threshold	0.01
Neck Snore	Use Low Cut Filter	No
	Low Cut Filter Frequency	1
	Threshold	0.00001
	Artifact Threshold	0.01
Flow Generator	Use Low Cut Filter	No
	Low Cut Filter Frequency	1
	Threshold	0.4
	Artifact Threshold	400
Audio Snore	Use Low Cut Filter	No
	Low Cut Filter Frequency	1
	Threshold	400
	Artifact Threshold	500000



**WARNING:** Performance results reported here were obtained using default analysis setting parameters for assisted-scoring evaluated. Performance of the RemLogic assisted-scoring at settings different than the noted Default Settings have not been validated and may result in performance different than reported here.

## Outcomes

Positive Percent Agreement (PPA) between RemLogic and assisted-scoring compared to the Reference standard was measured on an epoch basis. The mean and 95% confidence interval (CI) of the PPA and false detection rate per hour for event detection for assisted-scoring are shown in the following table.

### **PPA and False Detection Rate Per Hour of RemLogic Event Detection Assisted Scoring Analysis**

Event	PPA			False Detection Rate Per Hour		
	95% CI			95% CI		
	Mean	Lower	Upper	Mean	Lower	Upper
<b>Central Apnea</b>	98.3%	96.4%	99.0%	2.1	1.2	4.1
<b>Mixed Apnea</b>	98.0%	95.6%	98.9%	2.4	1.3	5.1
<b>Obstructive Apnea</b>	93.5%	91.0%	95.3%	7.8	5.6	10.9
<b>Hypopnea</b>	85.5%	83.3%	87.4%	17.4	15.0	20.0
<b>Arousal</b>	83.2%	81.2%	85.1%	20.2	17.8	22.6
<b>Limb Movement</b>	86.0%	83.5%	88.2%	16.8	14.0	19.9
<b>Snoring</b>	85.1%	82.5%	87.6%	17.8	14.9	20.9

## Conclusion

Compared to the Reference standard; RemLogic assisted-scoring showed performance levels comparable to the manual markings of expert reviewers. The device performance is clinically equivalent to the Reference standard (majority rule) as constructed for this study, similar to results reported in the literature and to performance reported for other commercially available devices.



It is important to review all detected events keeping in mind the performance of each analyzer described above.

## **Arousal Analyzer\***

*\*Not available with the License free version of RemLogic*

The Arousal Analyzer is designed to score arousals from an input EEG trace and an EMG trace. The Arousal Analyzer analyzes the EEG signal and inserts arousal events into the Workpad based on the criteria set by AASM (American Academy of Sleep Medicine) Scoring Manual. According to the AASM specification, an arousal must be of duration 3 seconds or longer; however, parameters can be adjusted for user-defined criteria. In RemLogic, the default value is 3 seconds, but this value can be set to anywhere between 0.5 seconds and 10 seconds in the [Analysis Settings](#) dialog.

Clinical Utility\*

An EEG arousal is defined as an abrupt shift in the EEG frequency, which can include theta, alpha, and/or frequencies greater than 16 Hz, but not spindles. The RemLogic arousal analyzer identifies these abrupt EEG shifts.

Frequency Bands\*

The Arousal Analyzer algorithm calculates a combination value from all the frequency bands and compares the value to a threshold value. If the calculated value is above a threshold, an arousal event is inserted. The algorithm uses the following frequency bands:

Frequency Band	
Delta Band	Represents frequencies from 0.5-4.0Hz
Theta Band	Represents frequencies from 4.0-8.0Hz
Alpha Band	Represents frequencies from 8.0-12.0Hz
Sigma Band	Represents frequencies from 12.0-16.0Hz
Beta Band	Represents frequencies from 16.0-35.0Hz



Tip: To run the Arousal Analyzer, a valid EEG trace must exist in the recording and a scoring session must be inserted into the Workpad.

Starting the Arousal Analyzer\*

If the arousal analyzer is run on separate traces, it will not score overlapping arousal events. For instance, if the arousal analyzer is run using the Central EEG derivation, it can be also be run on the Occipital derivation without duplicating arousal events.



Note: A recording must include EEG and EMG data for the Arousal Analyzer to function.

**To run the Arousal Analyzer:**

1. On the **Analysis** menu, click **Arousals**.
2. Do one of the following:
  - If the study contains **computer assisted** or **manually** scored arousal events, choose one of the following options, and then click **OK**.
    - Click **Remove automatic events only** to remove only the computer assisted analysis events.
    - Click **Remove manual and automatic events** to remove both the computer assisted and manually scored analysis events.

- If the study contains only **manually** scored arousal events, choose one of the following options:
  - Click **Yes** to delete the manual scoring, and confirm the deletion to proceed with the computer assisted analysis.
  - Click **No** to append the results of the computer assisted analysis to the existing manual scoring.
- 3. Select the **EEG** trace to be used for analysis, and click **OK**.
- 4. Select the **EMG** trace to be used for analysis.
- 5. Click **OK** to finalize and run the Arousal analyzer.

## Association Module

Use the Association Module to associate related events in a sleep study to identifying causal relationships. For example, an association between apnea events and arousals might indicate a sleep disturbance is caused by sleep disordered breathing. Similarly, associations between limb movements and arousals may signify a sleep disturbance caused by Periodic Limb Movements in Sleep (PLMS).

Use (or customize) the default event associations provided by RemLogic to identify typically associated events, or customize event associations to suit your clinical requirements.

### Clinical Utility

Apneas are defined as a drop in the peak thermal sensor excursion by greater than or equal to 90% from baseline; a minimum duration of 10 seconds and at least 90% of the event's duration meet the amplitude reduction criteria.

Respiratory effort related arousal (RERA) is defined as a sequence of breaths lasting at least 10 seconds, demonstrating increased effort or flattening of the nasal pressure waveform, which leads to an EEG arousal from sleep.

An EEG arousal associated with a periodic limb movement should be considered when there is less than 0.5 seconds between the end of one event and the onset of the other event, regardless of which comes first.

No arousal criterion is provided by the AASM guidelines in association with tachycardia and bradycardia. The EEG arousal rule described below is used by the manual scorers to identify an arousal.

An EEG arousal in N1, N2, N3, or REM is scored when an abrupt shift of EEG frequency, including alpha, theta, and/or frequencies greater than 16 Hz, lasts at least 3 seconds. At least 10 seconds of stable sleep should precede the EEG change. In REM sleep, the EEG arousal should be associated with a concurrent increase in sub-mental EMG that lasts at least 1 second.

The RemLogic Event Association tool detects the user scored and defined events and links them as "associated" by displaying an event associated tag. The tool does not utilize any physiological signals in linking events.

### Starting the Association Module

Once you have configured the [Association settings](#), you can run the Associations tool to create specified associations in a scored study. After running the tool once, you can use the

Associations Runtime Settings to ensure the associations are updated when another analyzer is run, or when manual edits are made to events in the study. You can also run the Associations tool again to update associations that are not configured in the Runtime settings.

### To start the Associations Module:

1. From the main menu, select **Analysis | Associations | Update all Associations**. New associations are created and existing ones are updated.



**Note:** This step should be completed again prior to generating reports to ensure that all associations are updated in the reports.

2. To view the associations, select the Event Associations tab in the Event Palette. Each association is listed by its Primary event. To view the Secondary event, click the + sign to the left of the Primary event.

Event Palette		
Tech Notes	View as Recorded	View as Scored
Palette	Events	Associations
Name	Time	Duration
[-] Hypopnea	10:34:04 PM	12.40s
[-] Desaturation	10:34:42 PM	17.00s
[+] LM	5:41:38 AM	1.76s
[+] Hypopnea	2:29:22 AM	20.14s
[-] Hypopnea	11:05:51 PM	13.94s
[-] Hypopnea Arousal	11:06:09 PM	3.00s
[-] LM	5:19:43 AM	5.00s
[-] LM Arousal	5:19:45 AM	3.00s
[+] Desaturation	4:25:15 AM	22.00s

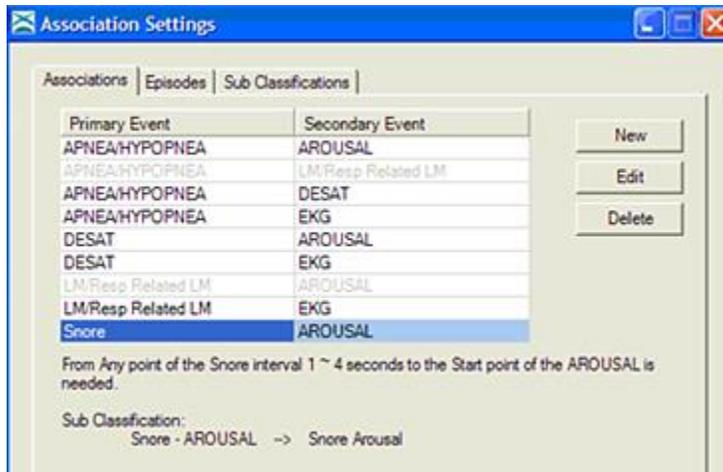
### Association Settings

The Association Settings dialog box allows you to specify:

- One or more primary and secondary events for each association.
- Sub classifications for these associations, so that during analysis, the events are re-classified to a more specific event association type (for example, desaturation-arousal instead of arousal).
- When the tool should identify a series of events as an episode (such as a snore episode).

### To view default association settings:

- On the **Analysis** menu, click **Association Settings**. These default associations can be edited or new associations can be created. For more information, see Event Association Parameters in the following location of the RemLogic online help: **Analyzing Data | Computer Assisted Analysis | Association Module**.



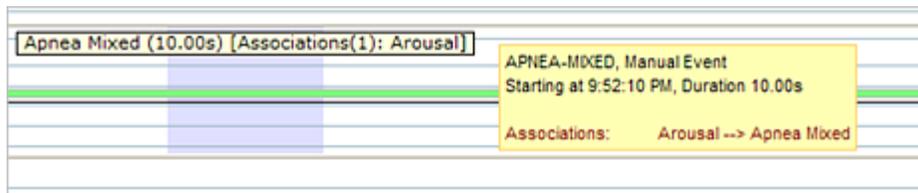
### Association Tool Tips

Association information (in the form of a tool tip) appears automatically when you move the mouse pointer over an association in a study. The tip disappears automatically in a few seconds, or when the mouse pointer is moved away from the association.

Association tool tips can be configured to display the associated event name (based on the event label and assigned types) and the number of associations related to the event.

#### **To view association details (display the tool tip):**

- Hover the mouse over any associated event in a recording.



Association tool tip with association information is displayed in red. The event label can be customized to display the number of Associations for an event and the associated event name (either label name or type name).

You can configure tool tip settings in the Event Type Properties dialog. For more information, see [Event Types](#).

### **CSB Analyzer\***

*\*Not available with the License free version of RemLogic*

*\*This feature is currently unavailable in the United States.*

The Embla Cheyne-Stokes Breathing (CSB) Analyzer is an algorithm that detects the typical crescendo and decrescendo waveforms in respiratory recording traces related to the airflow and breathing efforts of a patient. You can use it during collection or analysis.

By default, the CSB Analyzer automatically selects a trace on which to detect the typical CSB waveform. In order of preference, the CSB Analyzer uses one of the following traces:

- Tidal Volume (Resp.TidalVolume-Inductive)
- XSUM (Resp.Sum-Inductive)
- XFlow (Resp.Flow-Inductive)
- Thorax Effort (Resp.Movement-Inductive.Thorax)
- Abdomen Effort (Resp.Movement-Inductive.Abdomen)

By default, the CSB Analyzer uses the Tidal Volume trace derived from the Respiratory Inductance Plethysmography (RIP) belts for the analysis.

The CSB Analyzer scores the following events on a specified trace:

- Apneic-Phase
- Hyperpneic-Phase
- CS-Cycle
- CSB sequences

You can modify their display properties in the [Event Type Properties dialog box](#). For more information, see [Event Types](#).

### Starting the CSB Analyzer\*

#### To start the CSB Analyzer:

1. Open a patient recording.
2. In the **Analysis** menu, click **CSB Analyzer**.



Note: If the **Select Trace Automatically** is set to **No** in the Analysis Settings for CSB parameters, or if the CSB Analyzer did not detect one of the preferred respiratory signals, you must specify the trace on which the CSB Analyzer detects the Cheyne-Stokes Breathing waveform.

You can run the CSB Analyzer on any trace with a Resp. trace type, excluding: Resp.Phase, Resp.Rate, Resp.Snore, and Resp.TidalVolume-Flowgenerator.

3. If necessary, click the trace on which you want the CSB Analyzer to detect the Cheyne-Stokes Breathing waveform.

### Generating CSB Statistics\*

For Circulatory Delay statistics to appear in the report, you must score desaturation events. You must also run the Associations module to associate the Apneic-Phase with the desaturation event.

In the Association Settings, the Apneic-Phase is associated with Desaturation by default. The Association module re-evaluates for Desaturation associations after you run the CSB Analyzer.

For assistance scoring desaturation events, run the Respiration Analyzer (see [Starting the Respiration Analyzer](#) for more information). The Respiration Analyzer will identify SpO2 desaturations based on the parameter settings.



Note: RemLogic uses the results from the Phase-Desaturation association to calculate Circulatory Delay statistics for reports. Changing the default CSB Association may affect the reported values for Circulatory Delay, and may produce results different from those validated from independent research.

**To generate a report containing CSB statistics:**

1. Score desaturation events or run the [Respiration Analyzer](#).
2. Run the CSB Analyzer.



Note: If you turned off the feature that re-evaluates associations (after you run the CSB Analyzer) in the Association Runtime Settings, you must update all associations.

3. If necessary, update all associations. See [Starting the Association Module](#) for more information.
4. [Run the desired report](#) that includes CSB information. For more information, see [Generating a Report](#).



Tip: To include Circulatory Delay statistics in the report, Desaturation events and Apneic-Phase - Desaturation associations must be in the study.

**CSB Parameters\***

The following table outlines the Cheyne Stokes Breathing (CSB) parameter group associated with the [CSB analyzer](#).

**General**

Parameter	Value	Unit
Select Trace Automatically	Yes	n/a

**Analysis**

Parameter	Value	Unit
T2	120	seconds
Minimum Decrease	50	%
Flow Noise Level	2	%
Minimum Apneic phase duration	3	seconds
Minimum number of cycles in CSB	3	n/a

**Inter-Scorer Comparison**

The Inter-Scorer Comparison tool is a quality-assessment and training tool that can assess scoring accuracy among sleep facility technologists or perform scoring accuracy studies (for example, inter-facility scoring accuracy).

The Inter-Scorer Comparison tool compares a gold standard scoring session (sleep staging and event marking) and a comparison scorer on an epoch-by-epoch basis for a given epoch range. The tool also quantifies the correct matches compared to incorrect matches, and calculates report statistics, including the degree of agreement between the scorers (as a percentage value).

Comparing a companion scorer to a gold standard scorer is a subjective and facility-specific process. Each session being compared can be a result of manual scoring, computer assisted analysis or a combination of both. To ensure a valid comparison, scoring sessions are saved to different Workpads within the PSG recording folder so that the results of the *gold standard* scoring session are completely hidden from the comparison scorer.

### Comparison Scorer

The comparison scorer is an individual whose scoring accuracy is assessed against the gold standard. A facility interested in assessing the scoring accuracy of new technologists may choose the recently-hired night tech as an ideal comparison candidate.

### Gold Standard Scorer

The gold standard scorer is an individual whose scored Workpad has been chosen by the facility as the ideal or consensus scoring method against which comparison scoring sessions are compared.

### Accuracy

The degree of accuracy, or the precision of the test stage scoring and event marking in relation to the gold standard, is summarized as the Acceptable Agreement Score on the last page of Inter-Scorer Comparison reports. This score (expressed as a % mark) is similar to a pass grade, and can be modified for each comparison.

The degree of accuracy that is calculated in the Inter-Scorer Comparison report is influenced by user-defined comparison criteria selected for sleep stage and event comparisons as outlined in the Sleep Stage Comparison and Event Comparison topics.

The Inter-Scorer Comparison Wizard provides step-by-step instructions for [comparing two scored Workpads](#) and ultimately creating one or more reports based on the findings. The steps include selecting comparison reports to include in the output, specifying the epoch range, and configuring settings that influence how sleep stages and events are compared, as outlined in the Sleep Stage Comparison and Event Comparison topics, which are in the following location of the RemLogic online help: **Analyzing Data | Computer Assisted Analysis | Inter-Scorer Comparison**.

### Starting the Inter-Scorer Comparison

You can compare two scored Workpads and generate reports that will assist in your assessment of inter-scorer reliability.

#### **To start the Inter-Scorer analyzer:**

1. On the **Tools** menu, click **Inter-Scorer Comparison**.
2. Click **Next**. The **Gold Standard** and **Comparison Scoring** Workpad windows display.
3. In the Gold Standard Workpad window, browse the available recording folders, then select a scored Workpad (filename \*.ewp) that will serve as the gold standard for the comparison. The selected Workpad filename displays in the field beneath the Gold Standard Workpad window.
4. In the comparison Workpad window, select a scored Workpad with which to compare the gold standard. The selected Workpad filename displays in the field beneath the Comparison Scoring Workpad window.

5. Click **Next**.
6. Do one of the following:
  - To generate Sleep Stage Comparison reports:
    - Select one or more sleep stage reports to generate, then click **Next**. The Stage Score Comparison screen displays.
  - To generate Event Comparison reports only:
    - a. Ensure that all sleep stage report options are deselected.
    - b. Click **Next** to skip to the Event Comparison Report window.
    - c. Proceed to [step 10](#).
6. Specify the minimum and maximum values for the epoch range (if required):
  - To specify the minimum epoch number, do one of the following:
    - Enter a numeric value in the **To** field.
    - Click and drag the slider bar: the value to the right changes according to the slider bar position. Release the bar to set the desired epoch number.
  - To specify the maximum epoch number, do one of the following:
    - Enter a numeric value in the **From** field.
    - Click and drag the slider bar: the value to the right changes according to the slider bar position. Release the bar to set the desired epoch number.
8. To specify the comparison criteria, enter a numeric value representing the acceptable agreement. For more information, see *Sleep Stage Comparison* in the following location of the RemLogic online help: **Analyzing Data | Computer Assisted Analysis | Inter-Scorer Comparison**. After entering a value, do one of the following:
  - To exactly compare sleep stages, select **Yes**, then click **Next**. Proceed to [step 10](#).
  - To specify a lesser degree of agreement, select **No**, then click the Matrix button. The Stage Weight Matrix dialog box displays. Edit the Stage Weight Matrix to give partial points for incorrect yet similar matches:
    - Enter a decimal value representing the percentage weight in the appropriate cell. To assign partial points to the comparison scorer for inexact, yet approximate, sleep stage scorings, enter 0.9, for instance, in the cell where two different stages intersect. This value represents a scoring weight of 90%, or 90% of a full point (1.0). Repeat as necessary, then click **OK**.
9. Click **Next** to continue.
10. Do one of the following:
  - Select one or more event type reports to include, then click **Next**.
  - To omit event type reports from the results, click **Next**. The Comparison Summary window displays. Proceed to [step 14](#). **Note:** If you already skipped the sleep stage report selection, you must select an event type report to continue.
11. In the Events window, select one or more event to include in the comparison. To select all available events, click **Select All**.
12. Configure the event comparison settings (if required):

- To specify the minimum overlap and event length percentage, click the appropriate check box to select it, then enter a numeric value.
  - Do one of the following:
    - To compare the classification of events in both Workpads, select the **Compare Event Classifications** check box. This indicates that the *comparison* event must have the same classification as the gold standard to be considered a match.
    - To indicate the *comparison* event does not need to have the same classification as the gold standard to be considered a match, ensure the **Compare Event Classifications** check box is cleared.
  - To specify an acceptable agreement percentage, enter a numeric value.
  - Specify the maximum and minimum values for the epoch range:
    - To specify the minimum epoch number, do one of the following:
      - Enter a numeric value in the **From Epoch** field.
      - Click and drag the slider bar: the value to the right changes according to the slider bar position. Release the bar to set the desired epoch number.
    - To specify the maximum epoch number, do one of the following:
      - Enter a numeric value in the **To Epoch** field.
      - Click and drag the slider bar: the value to the right changes according to the slider bar position. Release the bar to set the desired epoch number.
13. Click **Next**. The Comparison Summary displays.
14. Click **Next** to complete the analysis. A Progress dialog box displays while the reports generate.
15. On the final wizard screen, a window listing the generated reports displays. To view the reports, select all appropriate check boxes, then click **Finish**. The selected reports will open in Microsoft Word.

## Pleth Analyzer\*♦

\*Not available with the License free version of RemLogic

\*This feature is currently unavailable in the United States.



**Note:** You must activate the Pleth license component to use the Pleth Analyzer. See [License Management](#) for more information.

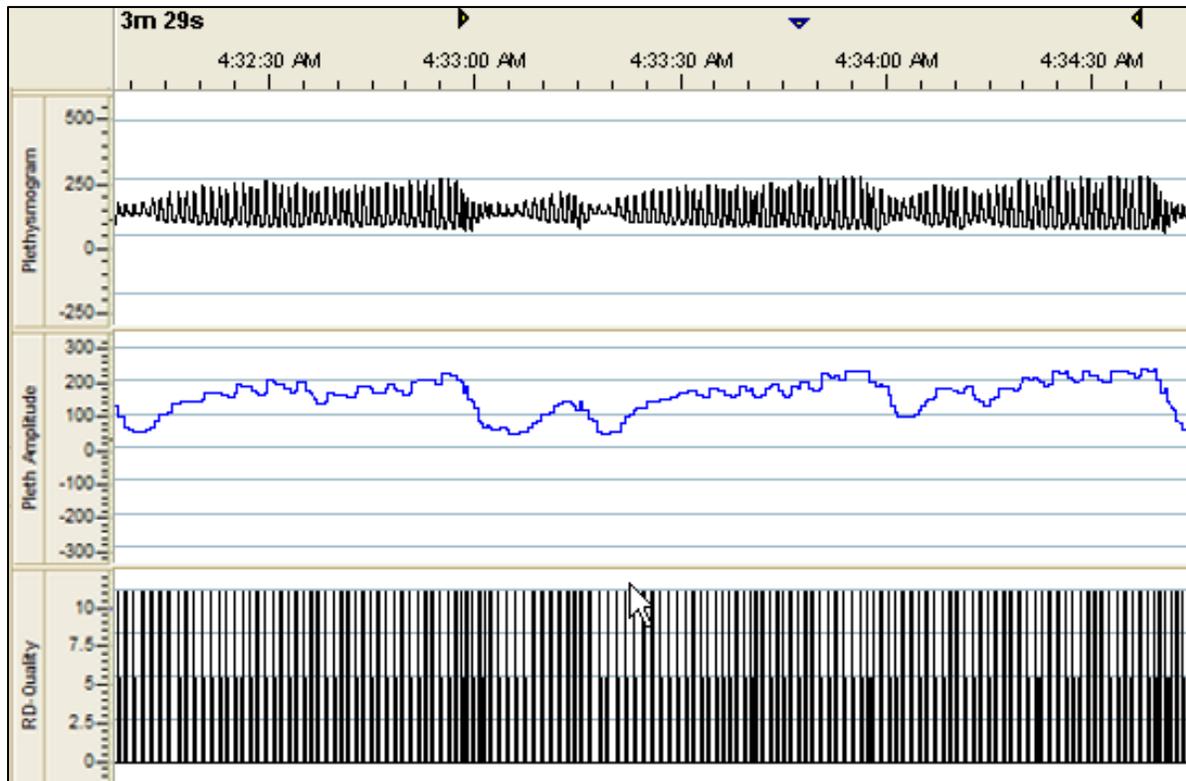
The Pleth analyzer detects and inserts new subtype arousal events in the plethysmograph trace. The detection of arousal events is based on the amplitude of the Pleth waveform. The Pleth waveform, SpO2, SpO2 Beat to Beat, and Pulse signals are derived from the Nonin XPOD probe pulse oximeter. This signal can be acquired using the following recorders: Embla titanium, Embla N7000, Embla S4500, and Embletta.

Pleth Analyzer main functions:

- Marks autonomic arousal events (AUTONOMIC) on the Pleth trace.

- Generates a new optional trace (Pleth Amplitude) displaying peak-to-peak amplitude of each waveform in the Pleth Trace. The module analyzes the peak-to-peak amplitude internally. The Pleth Amplitude trace is optionally stored in the current Workpad, and useful in determining how autonomic arousal events are generated.
- Optionally generates artifact events (SIGNAL-ARTIFACT) to the Pleth trace.

The Pleth Analyzer input traces are *Pulse.Pleth-Probe.RD* and *RD-Quality*. The *Pulse.Pleth-Probe.RD* trace also holds the output events. The optional derived trace is *Pulse.Pleth-Amplitude*. The Pleth Quality trace, *RD-Quality*, helps improve analyzer performance by detecting artifacts.



Pleth Analysis Traces

### Clinical Utility

An arousal can be detected from a change in autonomic activity. Autonomic activity can be measured in many signals, like the ECG, breathing rate, and Pulse Transit Time. In this case, an autonomic arousal is marked as a change (drop) in the amplitude of the plethysmogram signal. Identification and summary of the pleth amplitude drops can provide an alternative method to correlating EEG arousals and sleep disturbance severity with other recorded physiological signals.

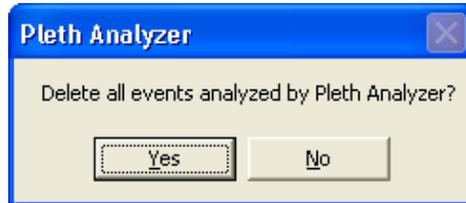
### Starting the Pleth Analyzer

The Pleth Analyzer runs on recordings with the Pulse Waveform traces *Pulse.Pleth-Probe.RD* and *RD-Quality*.

#### **To start the Pleth Analyzer:**

- From the main menu, select **Analysis | Pleth Analyzer**.

- If the Pleth Waveform traces *Pulse.Pleth-Probe.RD* and *RD-Quality* are present, a progress indicator displays while the Pleth Analyzer completes the analysis. You can cancel the progress indicator at any time, but an unfinished trace will be left in the recording.
- If the Pleth Waveform trace is not present, a dialog box displays, indicating the required trace is not found in the study. To continue, click **OK**. To use this module, you must record the *Pulse.Pleth-Probe.RD* and *RD-Quality* traces.
- If you have run the Pleth Analyzer before (or manually edited or added events), the following dialog box displays:



Do one of the following:

- Click **Yes** to delete the previous analysis. To confirm the deletion and start a new analysis, click **Yes** again.
- Click **No** to add the new analysis to the previous one. Previously generated autonomic arousals (including manually added autonomic arousals) are maintained in the Workpad, and new autonomic arousals (indicated by the label AROUSAL-AUTON) is generated.



Tip: Adding new autonomic arousals to a previous analysis does not delete manually added autonomic arousal events, even if settings were modified. Only computer assisted analysis events are deleted.

## Viewing Results

**To view the results in the Workpad:**

1. Click **Traces**  on the toolbar. The Add/Remove Traces dialog box displays.
2. Select the Pleth Waveform traces to display.

Label	Filters	Signal Type
<input type="checkbox"/> 01		EEG-01
<input type="checkbox"/> 02		EEG-02
<input type="checkbox"/> PTT-Raw		PTT-Inductive
<input type="checkbox"/> PTT-Trans		PTT-Transformed
<input type="checkbox"/> Phase_CU		Resp.Phase-Inductive
<input checked="" type="checkbox"/> Pleth Amplitude		Pulse.Pleth-Amplitude
<input type="checkbox"/> Position		Pos.Angle-Gravity
<input checked="" type="checkbox"/> Pulse		Pulse.Averaged-Probe
<input type="checkbox"/> R-R Intervalle		HeartRate.RR-EKG
<input type="checkbox"/> R-R Intervals		HeartRate.RR-EKG
<input checked="" type="checkbox"/> RD-Pleth		Pulse.Pleth-Probe.RD
<input checked="" type="checkbox"/> RD-Quality		Pulse.Pleth-Quality

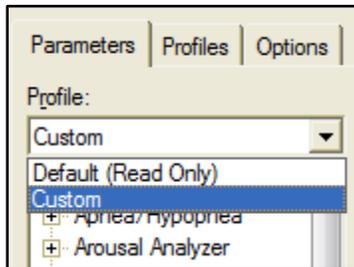
3. Click **OK**. The Pleth trace(s) are added to the Workpad Sheet.

For information on how to customize the Pleth analysis settings, see *Plethysmograph Parameters in the Appendix of the RemLogic online help*.

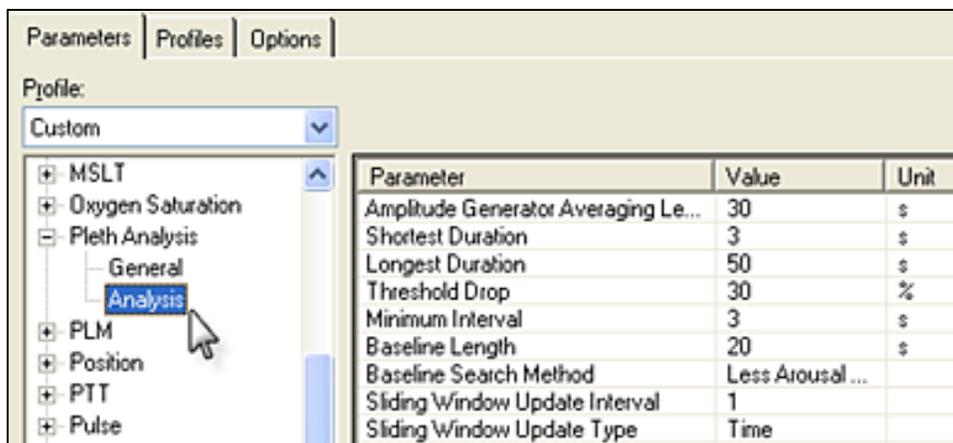
### Pleth Analysis Parameters

#### To modify Pleth analysis parameters:

1. On the **Analysis** menu, click **Settings**.
2. From the Profile drop-down list, select the appropriate profile.



3. Expand the Pleth Analysis parameter tree (click the plus sign ⊕), then select the appropriate subsection.



4. Double-click the appropriate Value field (located in the window on the right), then type in or select a value.
5. Click **Close**.

The most important parameters in Pleth Analysis are:

- **Threshold Drop:** The amount the amplitude must drop compared to the baseline.
- **Shortest Duration/Longest Duration:** Used to control events that are too short or too long.

For other allowed ranges, default values, and descriptions, see Plethysmograph Parameters in the Appendix of the RemLogic online help. For more information on customizing analysis parameters, see Analysis Profiles in the following location of the online help: **Analyzing Data | Computer Assisted Analysis**.

### Pleth Statistics

Pleth Analysis arousal statistics are included in the Polygraphy Report and are found in the *Sleep Summary* and *Position Statistics* sections. Additional Pleth Analysis information is included in the Analysis Criteria section of the report.

#### To generate the report:

- From the **Reports** menu, select **Polygraphy Report**.

## PLM Analyzer

The PLM (Periodic Limb Movement) Analyzer detects limb movement (LM) and periodic limb movement from the EMG signal.

### Clinical Utility

A PLM is defined as a limb movement of 0.5 – 5.0 seconds in duration. It should have amplitude of at least 25% of the calibrated signal, and should be periodic, with a duration of 5 to 90 seconds from onset to onset of the limb movements, and must be scored in sleep. These may be scored with or without EEG arousals. The utility of the tool is to assist the clinician or technician in identifying body movements by providing well-defined waveforms to be read and interpreted.

### Starting the PLM Analyzer

The PLM Analyzer can be activated from the [Operations Sheet](#) or from the menu bar. Before running the PLM Analyzer, mark the appropriate analysis time by [inserting Analysis Start and Analysis Stop events](#) into the recording.

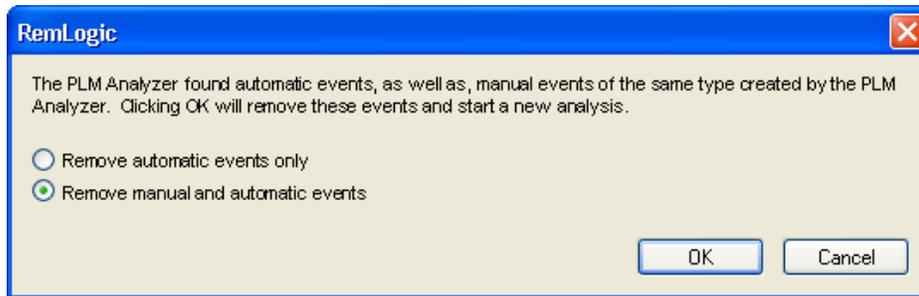
#### To start the PLM Analyzer:

1. Do one of the following:
  - Click **Analysis** on the Operations Sheet. The Analysis dialog box displays. Select **PLM Analyzer**, then click **OK**.
  - On the **Analysis** menu, click **PLM**.
2. If more than one scoring session exists in the patient's Workpad, select the appropriate scoring session to be used for the PLM calculations, then click **OK**. The Select Trace dialog box displays.
3. Select the traces to be used in the analysis, then click **OK**. A progress indicator displays while the PLM Analyzer completes the analysis.

Label	Type	Sampling Rate
<input checked="" type="checkbox"/> Tibialis R	EMG.Tibialis-Leg.Right	200 Hz
<input checked="" type="checkbox"/> Tibialis L	EMG.Tibialis-Leg.Left	200 Hz

### Existing PLM Events

LM and PLM events that were manually marked into the Workpad Sheet can be included with the computer assisted scoring events in the report statistics. If a computer assisted analysis or manual PLM analysis was previously performed, the following message displays when the PLM Analyzer is run:



- Select **Remove automatic events only** to delete all computer assisted scoring LM events from the previous analysis but leave the manually inserted events.
- Select **Remove manual and automatic events** if a completely new PLM analysis should be made. In other words, all LM events, inserted both manually and by the computer assisted scoring, should be removed from the previous analysis.

For information on how to customize the PLM analysis settings, see [Analysis Parameters](#).

## Respiration Analyzer

By default, the Respiration Analyzer detects respiratory and respiratory-related events from: the respiratory effort belts, the oximeter (saturation/desaturation), the actigraph (position/activity), the nasal cannula, and pressure transducer (nasal flow/snore pressure). The Respiration Analyzer usually runs after the recording was made, but can also run during online acquisition to assess the AHI of the patient. When running online, the analyzer analyzes the time interval between the Analysis Start and the Analysis Stop events. Otherwise, the analysis begins at the start of the recording, and ends at the point in the online recording when the analyzer started.

The Respiration Analyzer gathers information about the following events in the Workpad: Analysis Start/Stop, Light Off/On, Room Air Start/Stop, and Pressure Start/Stop. If any changes are made to these events, the Respiration Analyzer needs to run again. Therefore, the analyzer should always run before creating the PSG, Split Night, and Titration Report PSG reports.

### Clinical Utility

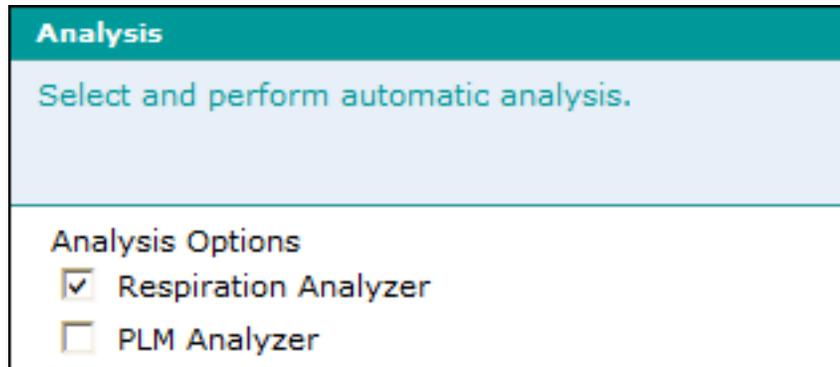
Apneas are defined as a drop in the peak thermal sensor excursion by greater than or equal to 90% from baseline; a minimum duration of 10 seconds and at least 90% of the event's duration met the amplitude reduction criteria. Classification of the apnea events as obstructive used the criteria that continued or increased inspiratory effort was present throughout the entire period with a corresponding absence of airflow. Central apnea was scored when the event was associated with an absence of both airflow and respiratory effort. Mixed apneas were scored when an associated absence of inspiratory effort in the initial portion of the event followed by resumption of inspiratory effort in the second part of the event. Hypopneas were scored when the nasal pressure signal deflections dropped by greater than or equal to 30% of baseline; a minimum duration of 10 seconds; an associated greater than or equal to 3% oxygen desaturation from baseline and at least 90% of the event's duration met the amplitude reduction. The utility of the tool is to assist clinicians and technicians well-defined signals to better flattening, plateauing and or fluttering in the wave airflow and respiratory effort forms.

### Starting the Respiration Analyzer

The Respiration Analyzer can be activated in two ways: by use of the [Operations Sheet](#), and from the menu bar. Before the Respiration Analyzer is run, mark the appropriate time of analysis by [inserting Analysis Start and Analysis Stop events](#) into the recording.

**To start the Respiration Analyzer:**

1. Do one of the following:
  - Click **Analysis** on the Operations Sheet. The Analysis dialog box displays. Select **Respiration Analyzer**, then click **OK**.



- On the **Analysis** menu, click **Respiration Analyzer**.
2. If the Respiration Analyzer was run before, a dialog box prompts you to delete the previously analyzed respiratory events. Do one of the following:
    - Select **Yes** to delete the events.
    - Click **No** to keep the events, and append the previous analysis.
  3. If more than one scoring session exists in the Workpad Sheet, select the appropriate scoring session to be used for the respiration analysis. Click **OK**.
  4. If you are using a customized analysis profile in which the setting for **Oxygen Saturation | General | Select Trace Automatically** is set to **No**, a dialog box asks you to select which trace to mark the Oxygen Desaturation events. Select the desired trace and click **OK**.

Label	Type	Sampling Rate
SpO2 BB	SpO2.BeatBeat-Probe	10 Hz
SpO2	SpO2.Averaged-Probe	10 Hz

5. If you are using a customized analysis profile in which the setting for **Snore | General | Select Output Trace Automatically** is set to **No**, a dialog box asks you to select which trace to use when marking the snore events. Select the desired trace and click **OK**.

Label	Type	Sampling Rate
Nasal Pressure	Resp.Pressure-Cannula.Nasal	200 Hz
Snore_DR	Resp.Snore-Cannula.Nasal	200 Hz
Snoring Sensor	Resp.SnoreEnvelope-Piezo.Neck	200 Hz

6. If the Default (read-only) profile is used, the settings for **Apnea/Hypopnea | Apnea (Hypopnea) | Select Trace Automatically** are set to **No**. Select a trace to use for the Apnea detection, and click **OK**. Then select a trace to use for the Hypopnea detection, and click **OK**.

Label	Type	Sampling Rate
Flow_DR	Resp.Flow-Cannula.Nasal	200 Hz
Nasal Pressure	Resp.Pressure-Cannula.Nasal	200 Hz
Thermistor	Resp.FlowTemp-Thermistor.N...	50 Hz
XFlow_DR	Resp.Flow-Inductive	50 Hz
XSum_DR	Resp.Sum-Inductive	50 Hz

Label	Type	Sampling Rate
Flow_DR	Resp.Flow-Cannula.Nasal	200 Hz
Nasal Pressure	Resp.Pressure-Cannula.Nasal	200 Hz
Thermistor	Resp.FlowTemp-Thermistor.N...	50 Hz
XFlow_DR	Resp.Flow-Inductive	50 Hz
XSum_DR	Resp.Sum-Inductive	50 Hz

A progress indicator displays while the Respiration Analyzer completes the analysis.

For detailed information on analysis profiles, see [Analysis Parameters](#) and Analysis Profiles (which are available in the following location of the RemLogic online help: **Analyzing Data | Computer Assisted Analysis**).

## Scoring Assistant\*<sup>♦</sup>

*\*Not available with the License free version of RemLogic*

*♦This feature is currently unavailable in the United States.*

The Scoring Assistant stages sleep according to current scoring guidelines. The Scoring Assistant is a tool intended as an aid in sleep staging and does not replace a specialist in sleep scoring. The results of the Scoring Assistant can be accepted, edited or rejected. A typical night study is analyzed in 1-5 minutes.

The Scoring Assistant algorithm utilizes a number of experts to score sleep stages efficiently and reliably. The following experts are incorporated into the Scoring Assistant:

- Delta Frequency Expert
- Sleep Spindle Expert
- Eye Movement Expert
- Electromyogram (EMG) Expert

The properties of the experts can be adjusted in the [Analysis Settings](#) dialog. For more information, see [Analysis Settings Manager Properties](#).

You can modify the relative probability of a particular sleep stage being scored in relation to the other sleep staging events. A higher set value for a particular sleep stage increases the probability that the sleep stage will be scored by the Scoring Assistant. A lower set value decreases the likelihood that a sleep stage will be scored by the Scoring Assistant.

The following parameters must be recorded in the sleep study for the Scoring Assistant to score sleep stages reliably:

- EEG data
- EOG data
- EMG Submental data.

For information on report parameters please refer to Report Parameters and Sections in the Online help.

### Clinical Utility\*

Wake is defined as trains of sinusoidal 8-14 Hz EEG activity recorded over the occipital region. These waveforms are accompanied with eye blinks and eye movements. Stage N1 is characterized as having slow eye movements, low amplitude, mixed EEG frequency of 4-7 Hz, and vertex sharp waves. Stage N2 is characterized by the presence of K-complex waves with a duration of greater than or equal to 0.5 seconds and sleep spindles in the frequency range of 11-16 Hz and a duration of greater than or equal to 0.5 seconds. Stage N3 is characterized as having EEG frequencies of 0.5 – 2 Hz and peak-to-peak amplitudes of greater than 75 $\mu$ V measured over the frontal region. REM sleep is defined as having rapid eye movements, low chin EMG activity, sawtooth waves, and transient muscle activity. The tool assists the clinician and technician with details of the waveforms by identifying waveform patterns that are typically identified manually.

### Starting the Scoring Assistant\*

The Scoring Assistant can be activated from the main menu. Before the Scoring Assistant is run, the appropriate time of analysis should be indicated by [marking Analysis Start and Analysis Stop events](#) into the recording.

When the Scoring Assistant is run, a dialog box appears on the screen prompting you to select which EEG trace from the recording should be used by the Delta Frequency Expert and Sleep Spindle Expert to score the sleep stages. You are also prompted to select EOG traces and an EMG trace. The Eye Movement Expert requires that EOG data be recorded as well, and the EMG Expert looks for EMG-Submental data to assist in the scoring of Rapid Eye Movement Sleep (REM) because of the change in muscle tone concurrent with REM sleep.

### **To start the Scoring Assistant:**

1. On the **Analysis** menu, click **Scoring Assistant**.
2. From the experts that display, select which traces to use for the analysis.
3. A progress indicator displays while the Scoring Assistant completes the analysis.

The analysis results display in the Workpad, available for review. For more information about manually editing events, see [Marking Events](#). For more information about how to customize the Scoring Assistant settings, see [Analysis Parameters](#).

## **PTT Trace Generator**

PTT (Pulse Transit Time) is measured as the time between the beat of the heart and the arrival of the arterial pressure pulse wave to a peripheral site, usually the finger. The moment that the heart muscle contracts is measured by the R-top in the EKG. When the pressure wave reaches the finger, a fixed point is measured on the pulse wave of the plethysmogram, a signal that is already available from the sensor measuring oxygen saturation. The extent to which the PTT value drops can be used as an indicator for finding autonomic arousal events.

### Clinical Utility

PTT is complementary to plethysmography for identifying micro-arousals. The clinical user can visually determine whether PTT trace changes coincide with plethysmography changes and EEG micro-arousals.

## PTT Traces

The PTT Trace Generator creates two primary PTT traces based on the EKG and Pleth Waveform signals. These derived traces are labeled PTT-Raw and PTT-Trans. The traces are called PTT-Inductive and PTT-Transformed, respectively. The PTT-Raw trace is calculated from EKG and Pleth traces and presented without averaging. The PTT-Trans trace is a trace with “smoothed” PTT values, the former which is calculated by averaging the PTT-Raw trace to eliminate cycle-by-cycle swing.

The PTT Trace Generator also creates two optional traces called R-tops and Slope. The R-tops trace shows where R-tops in the EKG trace are detected. The R-tops trace can be useful for evaluating the accuracy of R-top detection on the EKG trace and can help you determine if adjustments in the detection of R-tops are needed. The Slope Trace shows the location on the plethysmogram waveform that is used as the reference. It is detected based on the threshold setting. Since the Slope trace is generated with a low frequency (the same as Pleth trace), the position of the pulses in this trace is rounded up to the nearest sampling point. However, in internal calculation, the exact pulse position is used. The Pulse Transit Time interval is measured as the time between the R-top and the reference point on the pulse waveform (plethysmogram), which is shown in the Slope trace.

## Starting the PPT Trace Generator

Before generating the PTT traces, make sure that the EKG and Pleth traces are available in the recording.

### To start the trace generator:

1. On the **Analysis** menu, click **PTT Trace Generator**. Note that you cannot run the PTT Trace Generator unless both the EKG and Plethysmogram traces are available in the recording. If one or both is unavailable, a dialog box appears informing you that the required traces are not found in the study. Click **OK**, and select a study that contains the required traces. *The Signal Type for the Plethysmogram is Pulse-Pleth-Probe-RD.*
2. If the required traces are present, a progress indicator is displayed while the PTT Trace Generator completes the analysis. The progress indicator can be canceled at any time but unfinished traces will be left in the recording.

## Viewing Results

### To view the generated PTT traces in the Workpad:

1. Click **Traces**  on the toolbar. The Add/Remove Traces dialog box displays.
2. Select the PTT traces that you want to view.



3. Click **OK**, and the PTT trace(s) are added into the Workpad Sheet.

For information on how to customize the PTT trace generation settings, see [Analysis Parameters](#). See PTT Parameters in the Appendix of the RemLogic online help for PTT values and descriptions.

### Autonomic Arousal Event Marking

Once the PTT traces are generated and inserted into a Workpad, you can [manually score](#) Autonomic Arousal events on the traces.

The following Autonomic Arousal events are available: Autonomic, LM-Autonomic, Resp-Autonomic, Desat-Autonomic, Resp.Desat-Autonomic, Spontaneous-Autonomic.

This group of autonomic arousal events can be reported using the Event report.

If you would like to include autonomic arousals in other reports, such as the Polysomnography report, you should score them using the standard Arousal Events palette. These standard arousal events are included in the arousal statistics and tables available in several of the more comprehensive sleep reports.

For more information on manually scoring events, see [Marking Events](#). For more information on generating reports, see [RemLogic Reports](#).

## HRV Trace Generator

The Heart Rate Variability (HRV) Trace Generator calculates the heart rate signal from a standard EKG signal. The result is optionally written to three new [traces](#) in the Workpad, Heart Rate, Heart Rate Variability and R-R Intervals.

### Clinical Utility

The ECG signal collected at 200 Hz sampling rate provides the user with well-defined ECG waves to evaluate cardiac ischemia, identifies basic heart rates with the HRV tool, and identifies dysrhythmias.

### Precision Factor

The localization of the QRS complex, calculated by interpolating the EKG signal to a greater time-resolution, is used to locate the R-notch with greater accuracy in comparison to using the timing between the sampling points. The Precision Factor is used to enhance the accuracy of the R-R interval calculation. For example, the R-notch detection accuracy using a Precision Factor of 10 for an EKG signal sampled at 200Hz provides the same result as a 200Hz EKG signal sampled at 2000Hz. Sampling an EKG signal at 2000Hz, however, would produce and add to the signal significant noise, resulting in a reduced voltage resolution and timing accuracy.

The HRV trace generator uses this over-sampling technique to increase the R-notch detection accuracy to 10 times the original sampling rate. There is a computational trade off, however, as increasing the precision factor increases the time it takes to calculate the HRV by the same factor.

### Starting the HRV Trace Generator

Before running the trace generator, make sure that the EKG trace is available. The HRV Trace Generator analyses HR, HRV, and R-R traces for the whole recording so no Analysis Start and Stop events are needed.

#### **To start the trace generator:**

1. On the **Analysis** menu, click **HRV Trace Generator**.
2. If no or more than one EKG trace exists in the recording, a dialog box will prompt you to select the EKG for analysis. Click **OK**.

3. A progress indicator displays while the HRV Trace Generator completes the analysis. You can cancel the progress dialog box at any time, but that will leave unfinished traces in the recording.

### Viewing Results

#### To view the results in the Workpad:

1. Click **Traces**  on the toolbar. The Add/Remove Traces dialog box displays.
2. Select the HRV traces that you want to view.

<input checked="" type="checkbox"/>	Heart Rate	HeartRate.BeatBeat-EKG
<input checked="" type="checkbox"/>	R-R Intervals	HeartRate.RR-EKG
<input checked="" type="checkbox"/>	Heart Rate Variability	HeartRate.Variability-EKG

3. Click **OK**. The new heart rate traces will be added into the Workpad Sheet.

For information about how to customize the HRV analysis settings, see [Analysis Parameters](#).



Tip: Running the HRV Trace Generator overwrites the previous HR, HRV, and R-R traces with new traces.

# Reporting

RemLogic reports summarize facts and figures collected from data analysis and are an integral part of the Workpad. Generated reports display as separate [sheets](#) in the Workpad identified by sheet tabs at the base of the Workpad. RemLogic reports include active and non-active report types. Available reports depend upon the type of RemLogic installation.

Refer to the chart listed in the [Installation Components](#) section for the list of reports that are included with the typical, custom and complete installation options. With RemLogic, you can:

- [Generate a report](#)
- [Print a report](#)
- [Delete a report](#)
- [Customize a report](#)

## Generating a Report

Running a report involves selecting the report you want to generate. Active and non-active reports display in the Workpad; custom reports display in Microsoft Word.

Before creating a report, ensure the appropriate analysis is made. Creating a report without the required analysis will result in an empty report or a warning from the application.

[Computer assisted analyzers](#) analyze the period between the *Analysis Start and Analysis Stop* events. If these events are not marked to delineate the scored portion of a recording, the computer assisted analyzers will analyze the entire recording.

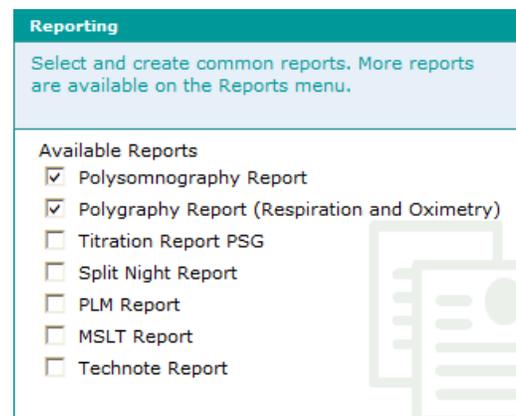


**Note:** Prior to generating reports, ensure that all associations are updated by manually running the [Associations Module](#). To do this, select the following from the menu: **Analysis>Associations>Update All Associations**.

### To create a report:

- Do one of the following:
  - On the [Operations Sheet](#), click **Reporting**. Select the reports you want to create, then click **OK**.
  - On the **Reports** menu, click the report you want to create. If applicable, select the scoring session you want to use, then click **OK**. The selected report displays as a sheet in the Workpad.

When you save a Workpad, you also save the reports you created.



## Customizing a Report

RemLogic reports supports the addition of a custom header, which can include your institution's name, address, and logo.



# Polygraphy Report

### Embla Systems

1 Hines Road, Suite 202  
Kanata, ON K2K 3C7

Total Recording Time: 15 minutes ( 15 minutes )  
Lights Off Clock Time: 5/25/2016 8:54  
Lights On Clock Time: 5/25/2016 9:10

*The first page of a Sleep Report displaying a header and institute address*

### To add a logo and name to active reports:

1. On the **Tools** menu, click **Options**.
2. Click the **Reports** tab.

**Options**

- Data Management
  - Data Locations
  - Archive Tools
- Display
- Event
- Reports
- Patient Info
- View Data
- Advanced
- Observations

**Institution**

Name: Embla Systems

Address and other info: 1 Hines Road, Suite 202  
Kanata, ON K2K 3C7

**Logos**

Use bitmap logos

First:  Browse...

Header: D:\Company Logos\natus\_neurology\_j\_4c.bmp Browse...

**Export**

Export to recording folder File Name...

Export to:  Browse...

OK Cancel

- **Institution:** Type the institution's name, address, and other relevant information. This information displays in the Report Title section of all active reports.
  - **Logos:** Select **Use bitmap logos** if a logo or a header should display in the active reports. Type the pathway for the logo in the **First page** text box, or click **Browse** to search for it on the computer. The logo displays on the first page of the active reports. If the reports should contain a logo in the header of every page, type the logo's path in the **Header** text box, or search for it by clicking **Browse**.
3. Click **OK**.

## Printing a Report

You can print hard copies of reports on your default Windows printer. The Active report page layout is formatted for US letter or A4 paper in a portrait orientation, and cannot be modified.

### To print an open report:

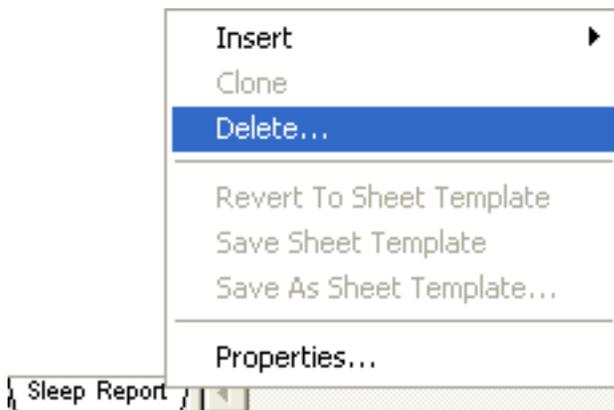
1. Do one of the following:
  - Click **Print**  on the toolbar.
  - On the **File** menu, click **Print**.
2. Specify the necessary print options.
3. Click **OK**.

## Deleting a Report

You can delete reports from the Workpads as needed.

### To delete a report from the Workpad, do one of the following:

- Right-click the sheet tab of the appropriate report, then click **Delete**.



- Open the appropriate report, then click **Close**  in the upper-right corner of the sheet. Click **Yes**.

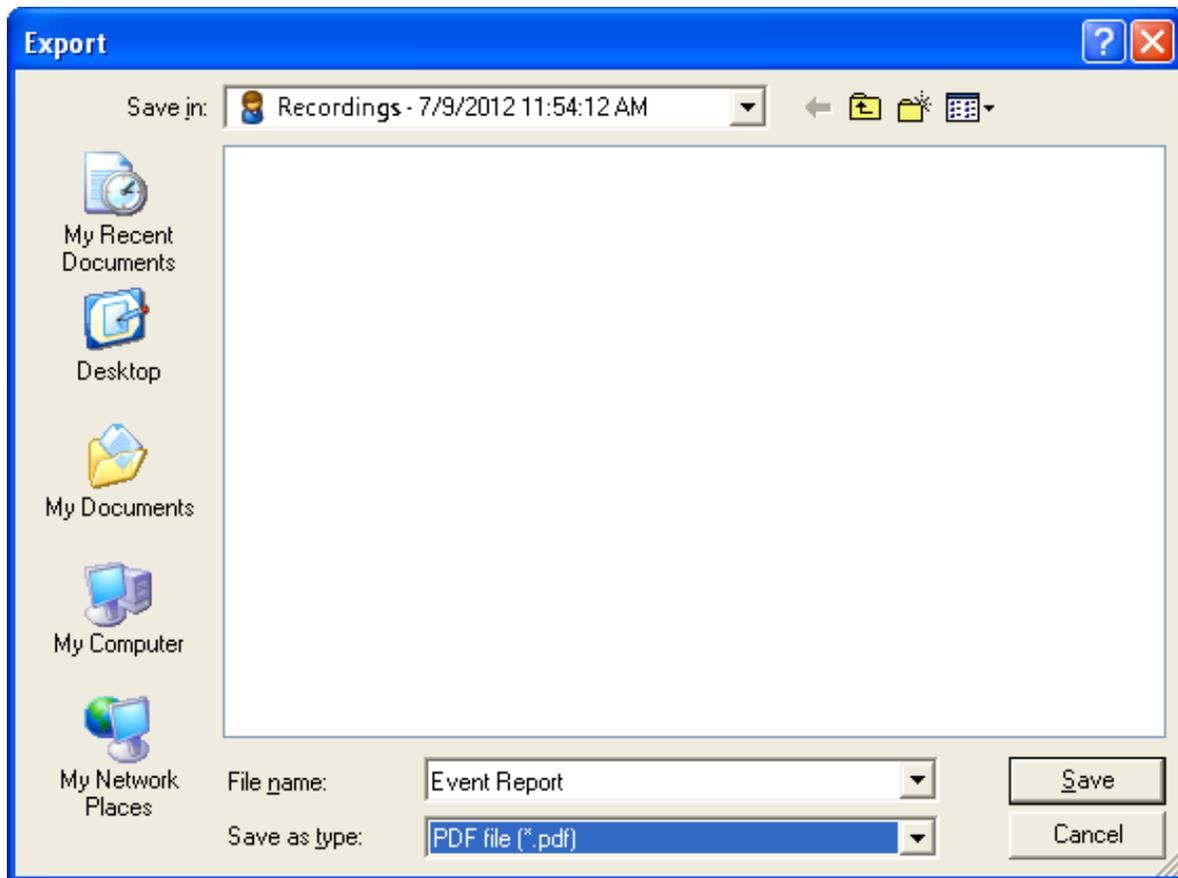
## Exporting Active Reports

Active reports can be exported in the following file formats:

- HTML world wide web format (\*.htm)
- PDF file (\*.pdf)
- Rich Text Format (RTF) file (\*.rtf)
- Text file (\*.txt). Applicable to report text only.

### To export an active report:

1. Click the sheet tab of the report you want to export.
2. On the **File** menu, point to **Export**, then click **Report**.
3. The Export dialog box displays the Patient folder in which the report was created as a default export location.



- **Save in:** Choose the appropriate export location.
  - **File name:** Type a name for the report.
  - **Save as type:** Click  and select a file format.
4. Click **Save**.

---

## Exporting Non-Active Reports

---

Information from non-active reports can be copied and pasted into other file formats.

### Copying an Entire Report

You can copy non-active report information (graphics and text) to the clipboard and paste it into Microsoft Word documents or Microsoft Excel spreadsheets.

1. Open the report.
2. Right-click on the report's header, then click **Copy Report**. The report information copies to the Windows Clipboard.
3. Open the file that will include the report information. Most Windows applications accept Clipboard data.
4. Paste the data into the file by the method supported in the application. For example, you can press CTRL+V in Microsoft applications to paste information.

The numerical data is represented as text, and the graphics are stored as a picture or an enhanced metafile. For example, you can paste the numerical data into a spreadsheet, and the graphics into a word processor.

If the report exceeds one page, an image-processing program is recommended, because word processors do not always allow big pictures to flow between pages.

### Copying Report Sections

You can copy certain sections, such as Hypnograms, tables, or color maps, separately from all non-active reports except the Technote Report.

1. Locate the section to be copied.
2. Right-click the section, then click **Copy**. The data copies to the Windows Clipboard.
3. Open the file that will include the report information. Most Windows applications accept Clipboard data.
4. Paste the data into the file by the method supported in the application. For example, you can press CTRL+V in Microsoft applications to paste information.

# Troubleshooting

The following table outlines known issues, and provides workaround information where applicable for the RemLogic software.

Description	Workaround / Fix																				
<p><b>RL-36</b> – When downloading multiple studies from the Embletta Gold, use of the USB download cable may not work.</p>	<p>To download multiple studies from the device, use the 3-in-1 cable.</p>																				
<p><b>RL-49</b> – When collecting an online study using the Embletta MPR and initiating the Impedance check, on occasion the Impedance test may not stop. The “Start Impedance Test” dialog will therefore not close.</p>	<p>To resolve this error and reconnect with the Embletta MPR:</p> <ol style="list-style-type: none"> <li>1. Stop the study in RemLogic.</li> <li>2. Reboot the TX Proxy.</li> <li>3. Reboot RemLogic, and resume the recording in the software.</li> </ol>																				
<p><b>RL-157</b> – When collecting an online study with the Embletta MPR and the ST/ST+ Proxy, you may be able to interact with the RemLogic workspace while it is still loading. This interaction may cause the software to crash.</p>	<p>Allow the RemLogic software to load the workspace prior to interacting with the software.</p>																				
<p><b>RL-161</b> – When using Microsoft Office 2016, the Event Matrix table in the Event Summary Report may be cut off.</p>	<p>To display the table in its entirety,</p> <ol style="list-style-type: none"> <li>1. Select the Event Matrix Table</li> <li>2. Right-click and select AutoFit or AutoFit to Window from the context menu.</li> </ol> <p>NOTE: That the Comparison title in the table in the title of the table will be missing.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Event Matrix:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>A</th> <th>MA</th> <th>CA</th> <th>OA</th> <th>H</th> <th>MH</th> <th>CH</th> <th>HO</th> <th>FN</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> </tbody> </table> <p style="text-align: right; margin-top: 5px;"> <span style="color: red;">← Missing "Comparison" here</span> </p> </div>		A	MA	CA	OA	H	MH	CH	HO	FN	A	1	0	0	0	0	0	0	0	1
	A	MA	CA	OA	H	MH	CH	HO	FN												
A	1	0	0	0	0	0	0	0	1												

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