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Scribe

DATA EXCHANGE INTERFACES

ADMINISTRATOR MANUAL

Manufactured by Mortara Instrument, Inc., Milwaukee, Wisconsin U.S.A.

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USER SAFETY INFORMATION



Warning: Means there is the possibility of personal injury to you or others.



Caution: Means there is the possibility of damage to the device.

Note: Provides information to further assist in the use of the device.



Warning(s)

- Reference HScript™ user manual for warnings relating to the Holter analysis system.
- Reference H12+™ or H3+™ digital recorder user manuals for all warnings relating to the recorder.
- Reference XScript™ user manual for warnings relating to the Stress Exercise system.
- Reference X12+™ user manual for all warnings relating to the transmitter.
- Reference RScript™ user manual for warnings relating to the Resting ECG system.
- Possible malfunction risks could be associated when installing 3rd party software. Mortara Instrument, Inc. cannot verify the compatibility of all possible hardware/software combinations.
- Data exchange interfaces are used to exchange data with 3rd party ECG management systems. It is not possible to assure complete compatibility with all possible 3rd party ECG management systems and configurations. It is recommended to contact the 3rd party vendor to ensure device has been verified as compatible with a particular installation of their system.



Caution(s)

- Reference HScript user manual for cautions relating to the Holter analysis system.
- Reference XScript™ user manual for warnings relating to the Stress Exercise system.
- Reference X12+™ user manual for all warnings relating to the transmitter.
- Reference RScript™ user manual for warnings relating to the Resting ECG system.
- Reference H12+ or H3+ digital recorder user manuals for all cautions relating to the recorder.



Note(s)

- Reference HScript user manual for notes relating to the Holter analysis system.
- Reference H12+ or H3+ digital recorder user manuals for all notes relating to the recorder.
- Reference XScript™ user manual for warnings relating to the Stress Exercise system.
- Reference X12+™ user manual for all warnings relating to the transmitter.
- Reference RScript™ user manual for warnings relating to the Resting ECG system.

EQUIPMENT SYMBOLS AND MARKINGS

Symbol Delineation



Attention, consult accompanying documents



Do not dispose as unsorted municipal waste. Per European Union Directive 2002/96, requires separate handling for waste disposal according to national requirements



Indicates compliance to applicable European Union directives (HScribe, RScribe, and XScribe are CE marked devices)

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Glossary

Term	Definition
Scribe(s)	HScribe, XScribe, and/or RScribe
Ordered Test	A diagnostic ECG test that has been electronically ordered by an authorized caregiver. Scheduling may be a separate step, or “now” may be implied by the ordering system.
Scheduled Test	An ordered test that has also been scheduled to be performed at a specific time. It could be scheduled for now, any time today, a specific date, and/or a specific time.
Modality Manager	The database used to organize and store patient and test data. It may reside on the local Scribe computer, a remote Scribe computer, or on a central server. A Scribe is associated with one and only one Modality Manager.
Ad Hoc Test	A test that is performed without an electronic order.
Scribe Desktop	The application desktop that displays the icons for such tasks as performing a test, editing a test, finding a test, finding a patient, etc.
SCP	Service Class Provider. In DICOM, this is the “server” that listens for connections from clients.
SCU	Service Class User. In DICOM, this is the “client” that initiates the connection to the SCP.
MWL	DICOM Modality Worklist.

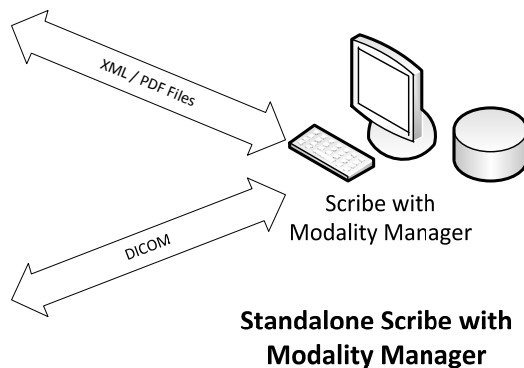
Data Exchange Interfaces

The Scribes can exchange data with other information systems using file exchange and/or DICOM®. HL7 is also possible by adding Mortara’s HL7 Gateway to the solution.

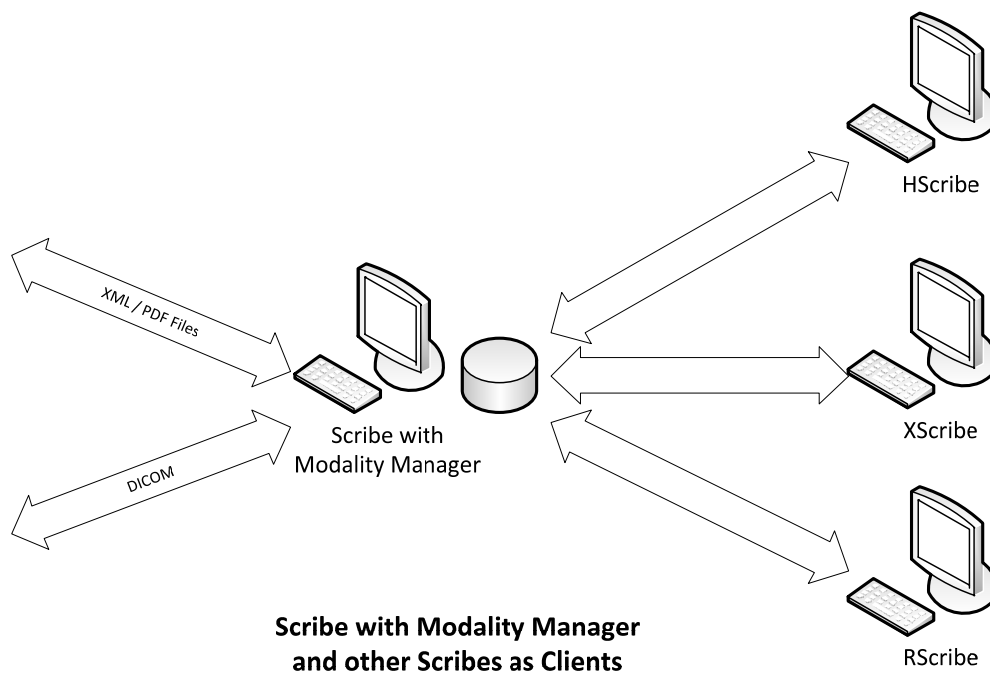
All data exchange is performed by the central Modality Manager; all Scribes connected to the Modality Manager share the data exchange settings.

Network Topologies

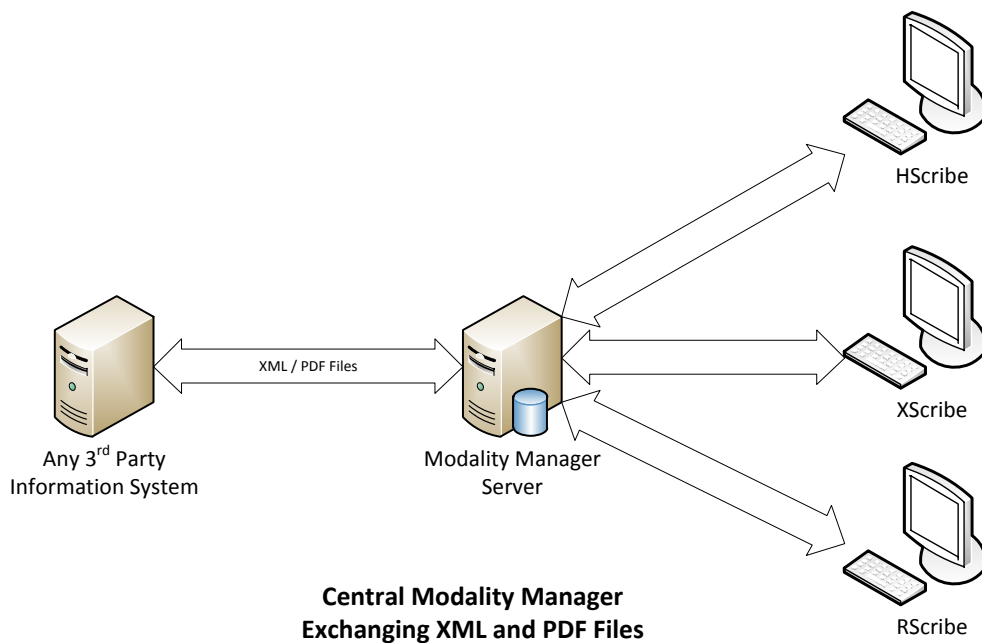
The simplest installation is a standalone Scribe with a local Modality Manager.



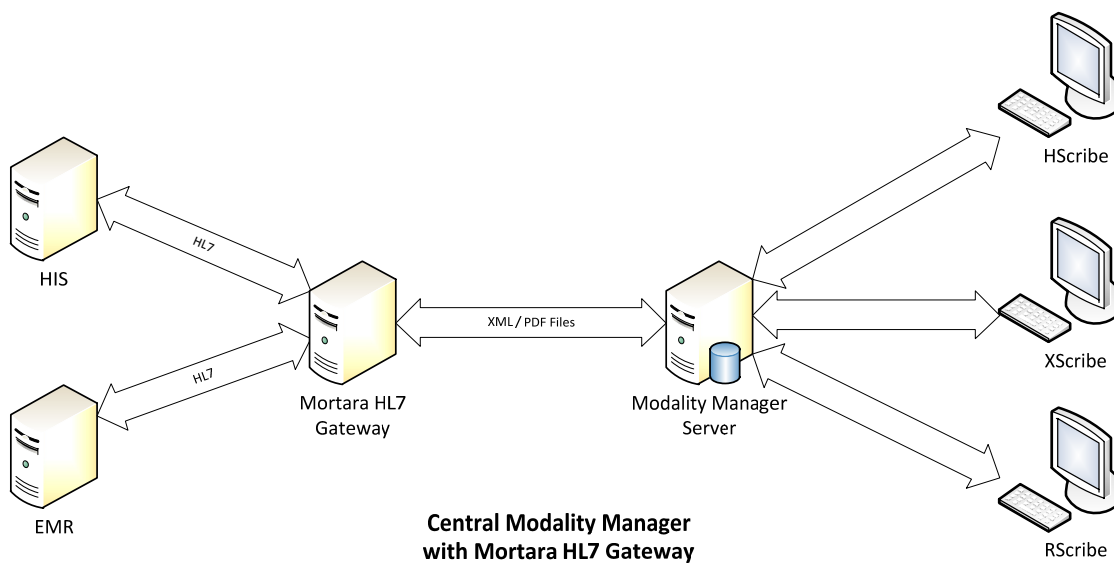
A small number of Scribes can be networked to another Scribe that hosts the central Modality Manager.



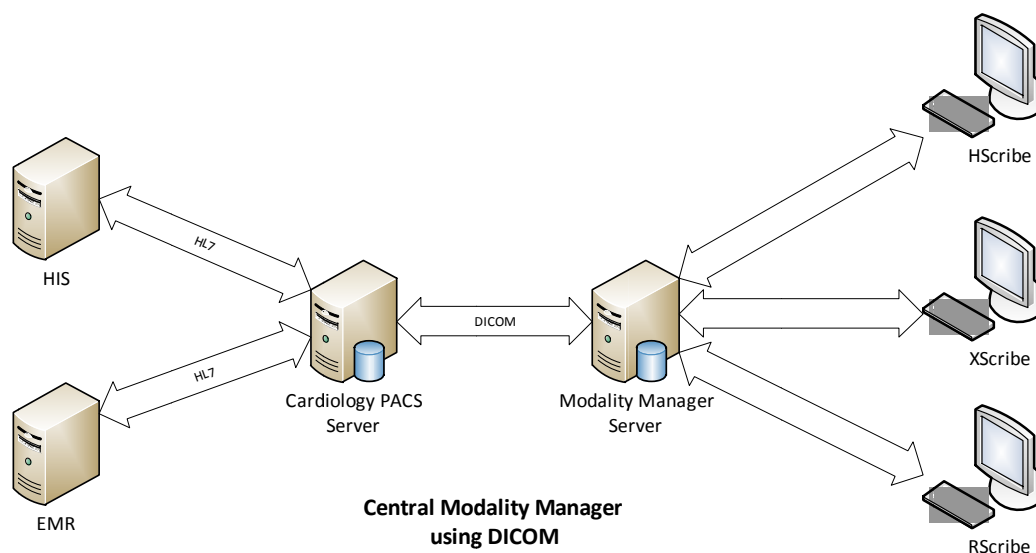
A central Modality Manager can be hosted on a server with any number of Scribes as clients. Any 3rd party information system can exchange XML and PDF files with the Modality Manager.



A Mortara HL7 Gateway can be added to the solution to enable exchange of HL7 messages between HIS and EMR systems and the central Modality Manager.



The central Modality Manager can exchange DICOM messages with a cardiology PACS system.

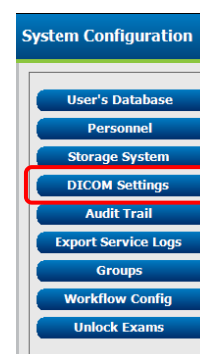
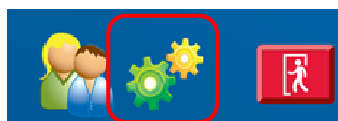


DICOM

When Modality Manager is configured for DICOM, all ordered/scheduled test information comes from the MWL SCP. The Schedule/Orders icon will not be displayed on the Scribes Desktops. If an ad hoc test needs to be performed, just start the test and enter new demographics at that time.

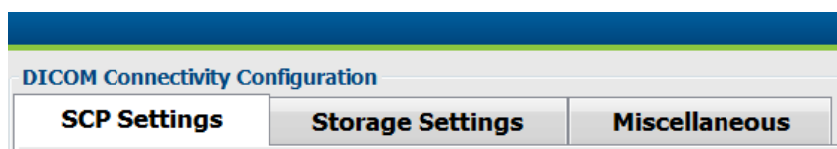
Configuring DICOM

Scribe users with “IT Administrator” permission can configure the Modality Manager DICOM settings. Log into any Scribe computer associated with the Modality Manager to be configured. Launch any of the Scribes to start a Scribe Desktop. Click on **System Configuration**.



Then select **DICOM Settings**.

The DICOM settings are organized on 3 tabs: SCP Settings, Storage Settings, and Miscellaneous.



SCP Settings

Service Class Provider (SCP) settings contain the communication settings used for Modality Worklist (MWL), C-STORE, Modality Performed Procedure Step (MPPS), and Storage Commitment.

SCP	Setting	Description
Modality Worklist (MWL)	Enable MWL	Check to enable MWL. Regardless if checked or not, the Schedule/Order icon will be hidden on the Scribes Desktop.
	SCP Host Name or IP	DNS hostname or IP address of the SCP.
	SCP TCP Port Number	TCP/IP port number of the MWL service.
	SCP AE Title	Application Entity (AE) Title of the SCP.
C-STORE	Enable Storage	Check to enable storage of results (Encapsulated-PDF for stress and Holter reports, 12-lead ECG Waveforms for resting ECGs). This checkbox enables storage for all Scribes connected to the central Modality Manager.
	SCP Host Name or IP	DNS hostname or IP address of the SCP. If Storage Commitment is also enabled, it will communicate with this same SCP host.
	SCP TCP Port Number	TCP/IP port number of the storage service.
	SCP AE Title	Application Entity (AE) Title of the SCP. If Storage Commitment is also enabled, it will communicate with this same AE Title.
Modality Performed Procedure Step (MPPS)	Enable MPPS	Check to enable MPPS status messages.
	SCP Host Name or IP	DNS hostname or IP address of the SCP.
	SCP TCP Port Number	TCP/IP port number of the MPPS service.
	SCP AE Title	Application Entity (AE) Title of the SCP.
Storage Commitment	Enable Storage Commitment	Check to enable Storage Commitment.
	SCP TCP Port Number	TCP/IP port number of the Storage Commitment service.
	SCU Response TCP Port Number	TCP/IP port Modality Manager will use to listen for Storage Commitment responses.

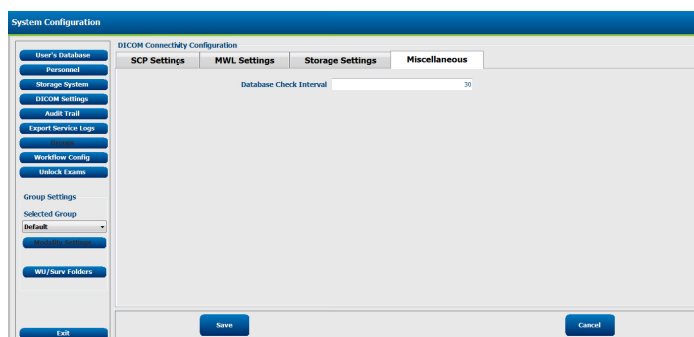
Storage Settings

These settings specify how to store the results of the tests.

Setting	DICOM Tag	Description
Encapsulated PDF Modality	(0008,0060)	Modality value stored in the encapsulated-PDF objects from Holter and stress tests. Normally set to “ECG”.
12-Lead ECG Waveform Modality	(0008,0060)	Modality value stored in the 12-Lead ECG Waveform objects from resting ECG tests. Normally set to “ECG”.
Institution Name	(0008,0080)	Name of institution or department that performed the test.
Station Name	(0008,1010)	DICOM Station Name that performed the test. Since this is global for all Scribes attached to this Modality Manager, it may need to be fairly general.
Delete exams after successful report storage		Check if the test data should automatically be deleted after the DICOM PDF or waveform has been stored. Only use this option if you’re sure you’ll never need to amend the test results later. This option is only active when Storage Commitment is used.
New Series Instance UID		When checked, and the test results are amended and signed again, the DICOM PDF or waveform will be given a different Series Instance UID from the previous ones used for this test.
Enable file export on storage		Check if PDF and XML files should be exported. The “Enable Storage” box must also be checked on the SCP Setting tab.
Export Folder Path		Path where PDF and XML files will be placed when the test is signed. This can be a UNC path to a network file share.
Export User Name		The username to use when writing to the export folder.
Export Password		The password corresponding to the username.
Export Domain		The domain the username is from.

Miscellaneous Settings

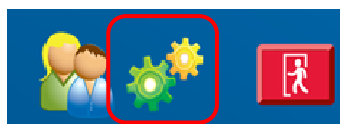
This tab contains other settings.



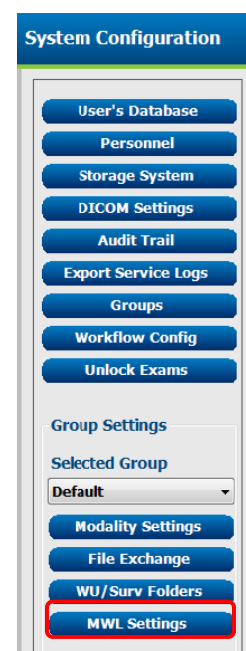
Setting	Description
Database Check Interval	<p>Specifies the number of seconds between each MWL query.</p> <p>Note: when a Scribe displays the MWL, it does not display the list it just retrieved from the MWL SCP. Instead, it displays the MWL most recently retrieved by Modality Manager. If the interval is set to 30 seconds, the MWL displayed by the Scribe is at most 30 seconds old. If set to 600 seconds, then it could be up to 10 minutes old. Using a small number ensures the list is up-to-date. However, a small number could overload the MWL SCP with frequent queries.</p>

MWL Settings

Scribe users with “IT Administrator” permission can configure the Modality Manager DICOM settings. Log into any Scribe computer associated with the Modality Manager to be configured. Launch any of the Scribes to start a Scribe Desktop. Click on **System Configuration**.



MWL Settings are per Group, so first select the Group, and then select **MWL Settings**.



The MWL settings are for filtering the MWL items Modality Manager seeks from the MWL SCP. Since these are global settings for all MWL items for all the Scribes associated with this Modality Manager, the query needs to be fairly broad. The only settings that specify which MWL items go to the individual H/X/R Scribes are the Requested Procedure Description Lists. There you will list the procedure descriptions for the procedures those particular Scribes support.

Setting	DICOM Tag	Description
Modality	(0008,0060)	Usually set to "ECG".
Institution Name	(0008,0080)	Name of institution or department where the order was placed, or where it should be performed.
Scheduled Station Name	(0040,0010)	DICOM Station Name scheduled to perform the test.
Scheduled Procedure Step Location	(0040,0011)	Location where the test is scheduled to be performed.
Current Patient Location	(0038,0300)	Patient's current location, e.g. a room number for an inpatient.
Requested Procedure Location	(0040,1005)	Location where the test was requested to be performed.
Scheduled Procedure Step ID	(0040,0009)	The procedure step ID of the scheduled procedure.
Scheduled Procedure Step Description	(0040,0007)	The text description of the scheduled procedure step.
Requested Procedure ID	(0040,1001)	The ID of the requested procedure.
Scheduled Station AE Title	(0040,0001)	AE Title of the system scheduled to perform the test.
User Tag, Value		Any tag and value not already supported in the other settings can be configured here.
Scheduled Procedure Start Date (days past)	(0040,0002)	Days prior to today. 0 = all dates, 1 = minimum days past.
Scheduled Procedure Start Date (days future)	(0040,0002)	Days in the future. 0 = all dates, 1 = minimum days future.
Holter Requested Procedure Description List	(0032,1060)	List of requested Holter procedure descriptions, separated by commas.
Resting Requested Procedure Description List	(0032,1060)	List of requested resting ECG procedure descriptions, separated by commas.
Stress Requested Procedure Description List	(0032,1060)	List of requested stress procedure descriptions, separated by commas.
Default Modality		The modality to assume when a MWL item does not have a Requested Procedure Description.

DICOM Events

The table below shows when DICOM transactions are performed.

DICOM Transaction	RScribe	XScribe	HScribe
Modality Worklist C-FIND	Query made periodically according to "Database Check Interval"	Query made periodically according to "Database Check Interval"	Query made periodically according to "Database Check Interval"
PDF or Waveform C-STORE Storage Commitment	When the State is changed to Signed with the "Finalize Exam Update" dialog.	When the State is changed to Signed with the "Finalize Exam Update" dialog.	When the State is changed to Signed with the "Finalize Exam Update" dialog.
MPPS IN PROGRESS	Not supported.	Not supported.	After preparing a recorder and changing the state with the "Finalize Exam Update" dialog.
MPPS DISCONTINUED	Not supported.	Not supported.	Not supported.
MPPS COMPLETED	After performing a new test and changing the State with the "Finalize Exam Update" dialog.	After performing a new test and changing the State with the "Finalize Exam Update" dialog.	After performing a new test and changing the State with the "Finalize Exam Update" dialog.

DICOM Echo

The DICOM communications configuration can be verified with the **DICOM Test Utility** found under **Mortara Modality Manager** menu in the Windows Start menu. To perform a DICOM Echo test, click the "Run Test" button. It will display the status of DICOM Echo tests to the Storage SCP, MWL SCP, and MPPS SCP. Click the "Exit" button when done viewing the results.

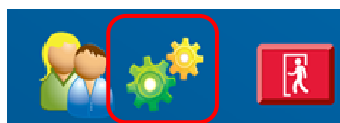
File Exchange

When the Modality Manager is configured for XML Connectivity, scheduled test information can be received in XML files, or the user can schedule tests using the Schedule/Order icon on the Scribe Desktop. Files are automatically exported when each test is signed (or signed again).

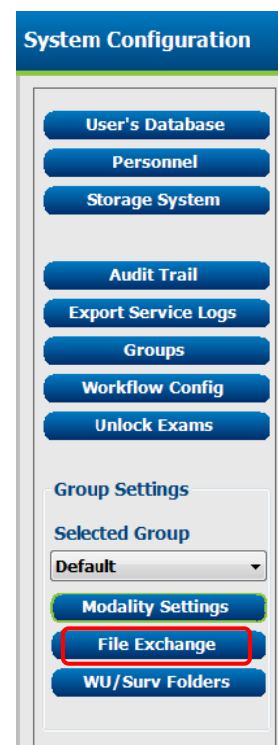
Files can be manually exported anytime from the "Exam Search" dialog. Search for the test to be exported, highlight it, and click **Export**. These files will be exported into a subfolder called "ManualExport". This Manual Export is only available for tests that have already been signed.

File Exchange Configuration

Scribe users with “IT Administrator” permission can configure the file exchange settings. Log into any Scribe computer associated with the Modality Manager to be configured. Launch any of the Scribes to start a Scribe Desktop. Click on **System Configuration**.



These settings are per Group. Select the Group from the Selected Group dropdown menu; click on **File Exchange** to view and change that Group's settings.



Import/Export Directories

These settings specify where and how the files will be imported and exported.

System Configuration

File Exchange Configuration

Import/Export directories

Import directory: C:\CSImpExp\XmlInputDir

Export directory: C:\CSImpExp\XmlOutputDir

User Name: modalitymanager

Password:

Domain: myhospital.org

Site Number: 45

Setting	Description
Import directory	If orders will be sent to Modality Manager as XML files, this is the full path to the folder where the XML files will be placed.
Export directory	Specify the full path to the folder where the XML and PDF files should be placed as each test report is signed.
User Name	This is the name of the Windows domain account to use for writing files into the export folder. If left blank, the default service account will be used to write the files.
Password	The account password that goes with the User Name.
Domain	The name of the domain for the User Name account.
Site Number	This is the UNIPRO "Site Number". It is only used by HSCRIBE when it creates UNIPRO files for E-Scribe.

File Formats

RScript Files

When an RScript test is exported, a PDF and XML file will be sent to the export folder. The RScript export XML format is described in Appendix A, and the order XML format is described in Appendix B.

XScript Files

When an XScript test is exported, a PDF and XML file will be sent to the export folder. The XScript export XML format is described in Appendix C, and the order XML format is described in Appendix D.

HScript Files

The types of files exported from HScript tests depends on the “HScript Rx” activation code as well as settings in configuration files on the Modality Manager server. The table below shows the 2 activation flags and the configuration file settings that affect the exported file formats. The configuration files can be found in the following folder on the Modality Manager server: **C:\Program Files\Mortara Instrument Inc\ModalityMgr**. The file **Mortara.exammgr.IntergrationApi.dll.config** has settings for the manually exported formats, and the file **Mortara.exammgr.CSgate.dll.config** has settings for the automatically exported formats. *(Note, the CorScribeAppServer service on the Modality Manager server must be restarted after making configuration changes to the dll.config files.)*

“HScript Rx” Activation Flag	“Connectivity” Activation Flag	dll.config Configuration File Setting	Exported Formats
Disabled	XML or DICOM	-	<ul style="list-style-type: none"> Holter Statistics XML (see Appendix E) PDF
-	XML or DICOM	HolterUniproExport=1	<ul style="list-style-type: none"> UNIPRO file for each 10-second strip
Enabled	XML or DICOM	-	<ul style="list-style-type: none"> Holter Rx Statistics XML (see Appendix E) PDF
Enabled	XML or DICOM	HolterRxStripFormat= MORTARA_XML	<ul style="list-style-type: none"> Mortara XML file per strip (see Appendix G)
Enabled	XML or DICOM	HolterRxStripFormat= FDA_XML	<ul style="list-style-type: none"> FDA XML (HL7 Annotated ECG) file per strip

File Names

Default Filenames

PDF filenames are compatible with Athena and have the following structure:

```
<Modality>^<EXMGR>^<Type>^<OrderUID>_<Group>^<RecordID>_
<PatID>^<LName>^<FName>^<MName>^<Prefix>^<Suffix>_
<TestDateTime>_<ReportDateTime>.PDF
```

RScribe XML export files have the following filenames:

```
R^ECG^M^<Group>^<ID>^<LName>_<TestDate><TestTime>_<RepDate><RepTime>.XML
```

HScribe XML export files have the following filenames:

```
H^<FileType>_EXMGR^<Group>_<PatID>^<LName>^<FName>^<MName>_
<TestDateTime>_<ReportDateTime>.XML
```

HScribe UNIPRO export files have the following filenames:

```
H^UNIPRO_EXMGR^<Group>_<PatID>^<LName>^<FName>^<MName>_
<StripDateTime>_<ExportDateTime>.UNI
```

XScribe XML export files have the following filenames:

```
X^REPORT_EXMGR^<Group>_<PatID>^<LName>^<FName>^<MName>_
<TestDateTime>_<ReportDateTime>.XML
```

Variable	Value
<Modality>	R = Resting H = Holter X = Stress
<Type>	auto = automatic export when test is signed manual = manual export from Exam Search
<OrderUID>	the order UID if available
<RecordID>	the Exam Manager Database record number
<Group>	the exam group number
<FileType>	STRIP^M = strip Mortara XML STRIP^F – strip FDA XML STAT = Holter statistics XML

Modality Manager will overwrite existing files with the same file name.

Filename Configuration Options

There are a few configuration file settings that affect the filenames and location of the exported files. The configuration files can be found in the following folder on the Modality Manager server: **C:\Program Files\Mortara Instrument Inc\ModalityMgr**. The file **Mortara.exammgr.IntegrationApi.dll.config** has settings for the manually exported formats, and the file **Mortara.exammgr.CSgate.dll.config** has settings for the automatically exported formats. *(Note, the CorScribeAppServer service on the Modality Manager server must be restarted after making configuration changes to the dll.config files.)*

Mortara.ExamMgr.IntegrationApi.dll.config (manual export)

Key	Description
AlternatePDFName	0 = Use default PDF filename (default) 1 = Use the same filename as the associated XML file
UseModalityInExportDir	0 = Use same subfolder for all manually exported files (default) 1 = Use modality-specific subfolders for manually exported files
UseManualExportSubDir	0 = Use main export folder for manually exported files 1 = Use a subfolder for manually exported files (default)

Mortara.ExamMgr.CsGate.dll.config (automatic export: XML, and DICOM with XML)

Key	Description
AlternatePDFName	0 = Use default PDF filename (default) 1 = Use the same filename as the associated XML file
UseModalityInExportDir	0 = Use same folder for all manually exported files (default) 1 = Use modality-specific subfolders for exported files
UseGroupNumberInExportDir	0 = Use same export folder for all Groups (default) 1 = Use Group-specific export folders

RSCRIBE EXPORT XML

APPENDIX A

XML Tag	Description
/ECG	
@ACQUISITION_TIME	Date and time the ECG waveforms were recorded. In the HL7 format: yyyyMMddHHmmss.
@ACQUISITION_TIME_XML	Date and time the ECG waveforms were recorded. In the XML format (including time zone): yyyy-mm-ddThh:mm:ss+hh:mm
@ROOM	From the Patient Room field.
@LOCATION	From the Patient Location field.
@COMMENT	From the Comment field.
@AGE	Patient's age at time of ECG acquisition.
@AGE_UNITS	Age units: Y = years M = months W = weeks D = days
@HEIGHT	Patient's height.
@HEIGHT_UNITS	Height units: I = inches C = centimeters
@WEIGHT	Patient's weight.
@WEIGHT_UNITS	Weight units: L = pounds K = kilograms
@NUM_QRS	Total number of beats detected by VERITAS™ resting ECG interpretation algorithm.
@AVERAGE_RR	Average RR interval calculated by VERITAS. Expressed in milliseconds.
@VENT_RATE	Average ventricular rate (heart rate) calculated by VERITAS. Expressed in beats-per-minute.
@SYSTOLIC_BP	From the Systolic BP field.
@DIASTOLIC_BP	From the Diastolic BP field.
@DIAGNOSIS	From the Diagnosis field.
@REFERRING_PHYSICIAN	From the Referring Physician field.
@TECHNICIAN	From the Technician field.
@SEQUENCE_NUMBER	Sequence number assigned to the ECG by the electrocardiograph. It is the electrocardiograph's accession number.
@ORDER_NUMBER	DICOM Study Instance UID (0020,000D).
@ACCESSION_NUMBER	DICOM Accession Number (0008,0050).
@ADMISSION_ID	DICOM Admission ID (0038,0010).
/ECG/DEMOGRAPHIC_FIELD	
@ID	Field identifier: 1= Patient Last Name 2= Patient Id Number

XML Tag	Description
	3= Patient Age 4= Patient Gender (Male, Female, Unknown) 5= Patient Race (Unknown, Caucasian, Black, Oriental, Hispanic, American Indian, Aleut, Hawaiian, Pacific Islander, Mongolian, Asian) 6= Medication ((blank), Antianginal, Antiarrhythmic, Anticholesterol, Anticoagulants, Antihypertensive, Antihypotensive, Aspirin, Beta Blockers, Calcium Blockers, Digoxin, Diurectics, Nitroglycerin, Psychotropic) 7= Patient First Name 8= LCD Request 9= Patient Height 10= Patient Weight 11= Soc Sec Number 12= Patient Second Id 13= Patient Middle Name 14= Patient Location 15= Patient Room 16= Patient Birth Date (yyyyMMdd) 17= Comment 18= Reason Code 19= Referring Physician 20= Attending Physician 21= Overreading Physician 22= Technician 23= Diagnosis 24= Note 1 25= Note 2 26= Order Number 27= Systolic Blood Pressure 28= Diastolic Blood Pressure 29= Requesting Physician 30= Accession Number 31= Admission ID
@VALUE	Field value.
@UNITS	Value units, if applicable. See descriptions for AGE, HEIGHT, and WEIGHT.
/ECG/SITE	
@ID	Site number from Group Settings (0 is default).
/ECG/SUBJECT	
@LAST_NAME	Patient's last name.
@SECOND_LAST_NAME	Patient's second last name.
@FIRST_NAME	Patient's first name.
@GENDER	Patient's gender: Male, Female, Unknown.

XML Tag	Description
@RACE	Patient's race. Values are from the Custom Format Definition.
@ID	Patient's primary ID or medical record number (MRN).
@DOB	Patient's date of birth in the HL7 yyyyMMdd format.
@DOB_XML	Patient's date of birth in the XML yyyy-mm-dd format.
/ECG/MEDICATION	
@NAME	Drug name: (blank) Antianginal, Antiarrhythmic, Anticholesterol, Anticoagulants, Antihypertensive, Antihypotensive, Aspirin, Beta Blockers, Calcium Blockers, Digoxin, Diuretics, Nitroglycerin, Psychotropic
/ECG/SOURCE	
@TYPE	Type of device that recorded the waveforms: RESTING HOLTER STRESS
@MANUFACTURER	Name of the device manufacturer, "Mortara Instrument Inc."
@MANUFACTURER_ID	Manufacturer ID according to the UNIPRO standard. 8 = Mortara
@MODEL	Electrocardiograph model number.
@ACQUIRING_DEVICE_DEVICE_TYPE	Acquiring device type: S = System.
@ACQUIRING_DEVICE_MANUFACTURER_CODE	Acquiring device manufacturer code binary. Permissible codes are: 8= Mortara Instrument
@ACQUIRING_DEVICE_MODEL_DESCRIPTION	Acquiring device model description.
@ANALYZING_DEVICE_DEVICE_TYPE	Acquiring device type: S = System
@ANALYZING_DEVICE_MANUFACTURER_CODE	Analyzing device manufacturer code binary. Permissible codes are: 8= Mortara Instrument
@ANALYZING_DEVICE_MODEL_DESCRIPTION	Analyzing device model description.
@BASELINE_ROLL_FILTER	Cutoff frequency of the high-pass baseline roll filter in units of Hertz.
@LOW_PASS_FILTER	Cutoff frequency of the low-pass filter in units of Hertz.
@FILTER_BITMAP	This field indicates if other filters have been used during the processing of the ECG. 8 = no AC filter 9 = 60 Hz AC filter

XML Tag	Description
	10 = 50 Hz AC filter
/ECG/AUTOMATIC_INTERPRETATION	
/ECG/AUTOMATIC_INTERPRETATION/STATEMENT	
@STATEMENT_NUMBER	VERITAS automatic interpretation statement number, starting with 1 as the first statement.
@TEXT	Main body of the interpretation statements.
@REASON	Reasons given with the statement.
/ECG/INTERPRETATION	
@OVERREADING_PHYSICIAN	Name of signing physician.
@TIME	Date/time when the interpretation was overread (signed) by the overreading physician, in XML date/time format.
@TEXT	Overreading physician's interpretation.
/ECG/TYPICAL_CYCLE	Median beat/representative beat/typical cycle...
@R_PEAK	Position of the R-peak as determined by VERITAS, expressed in milliseconds from the beginning of the typical cycle waveforms.
@P_ONSET	Position of the P-onset as determined by VERITAS, expressed in milliseconds from the beginning of the typical cycle waveforms.
@P_OFFSET	Position of the P-offset as determined by VERITAS expressed in milliseconds from the beginning of the typical cycle waveforms.
@Q_ONSET	Position of the QRS-onset as determined by VERITAS, expressed in milliseconds from the beginning of the typical cycle waveforms.
@Q_OFFSET	Position of the QRS-offset as determined by VERITAS, expressed in milliseconds from the beginning of the typical cycle waveforms.
@T_OFFSET	Position of the T-offset as determined by VERITAS, expressed in milliseconds from the beginning of the typical cycle waveforms.
@P_DURATION	Duration of the P-wave as determined by VERITAS, expressed in milliseconds.
@PR_DURATION	Duration of the PR interval as determined by VERITAS, expressed in milliseconds.
@QRS_DURATION	Duration of the QRS-wave as determined by VERITAS, expressed in milliseconds.
@QT	Duration of the QT interval as determined by VERITAS, expressed in milliseconds.
@QTC	Duration of the QT interval normalized to 60 bpm using the linear method: $QT_c = QT + \frac{(1000 - RR)}{7}$
@QTCB	Duration of the QT interval normalized to 60 bpm using the Bazett method: $QT_{cB}[s] = \frac{QT[s]}{(RR[s])^{1/2}}$
@QTCF	Duration of the QT interval normalized to 60 bpm using the Fridericia method: $QT_{cF} = \frac{QT}{RR^{1/3}}$

XML Tag	Description
@P_AXIS	P axis as determined by VERITAS, expressed in degrees.
@QRS_AXIS	QRS axis as determined by VERITAS, expressed in degrees.
@T_AXIS	T axis as determined by VERITAS, expressed in degrees.
@BITS	Number of bits per sample in the encoded waveform data: 8, 16 (default), 32.
@FORMAT	Format of the encoded waveform data: SIGNED (default) means values can be positive and negative.
@UNITS_PER_MV	Number of units per mV in the encoded waveform data. For example, 400 units per mV is the same as 2.5 uV per unit.
@DURATION	Duration of the waveforms, expressed in milliseconds.
@SAMPLE_FREQ	Sampling frequency of the waveforms, expressed in samples per second, or Hz.
@ENCODING	Type of encoding used for the waveforms: BASE64 (default), BINHEX.
/ECG/TYPICAL_CYCLE/TYPICAL_CYCLE_CHANNEL	
@NAME	Name of the lead: I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6, TEA.
@DATA	The encoded waveform data.
/ECG/CHANNEL	
@OFFSET	Offset from the beginning of the ECG recording where this lead starts, expressed in milliseconds.
@BITS	Number of bits per sample in the encoded waveform data: 16 (default).
@FORMAT	Format of the encoded waveform data: SIGNED (default) means values can be positive and negative.
@UNITS_PER_MV	Number of units per mV in the encoded waveform data. For example, 400 units per mV is the same as 2.5 uV per unit.
@DURATION	Duration of the waveforms, expressed in milliseconds.
@SAMP_FREQ	Sampling frequency of the waveforms, expressed in samples per second, or Hz.
@NAME	Name of the lead: I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6, TEA.
@ENCODING	Type of encoding used for the waveforms: BASE64 (default).
@DATA	The encoded waveform data.
/ECG/ASSOCIATED_REPORT_DOCUMENT	
@Path	Path and name of the corresponding PDF file.
@DocumentFormat	PDF

RSCRIBE ORDER XML

APPENDIX B

XML Tag	Description
/RestingECGRequest	
/RestingECGRequest/PatientDemographics	
./LastName/Value	Patient's last name.
./FirstName/Value	Patient's first name.
./MiddleName/Value	Patient's middle name.
./ID/Value	Patient's primary ID or medical record number (MRN).
./SecondID/Value	Patient's second ID.
./SocialSecurityNum/Value	Patient's social security number.
./PatientBirthDate/Value	Patient's date of birth in the HL7 yyyyMMdd format.
./Age/Value	Patient's age (in years). If the birthdate is known, set Age to 0 so RSCRIBE will calculate the age at the time of the test.
./Gender/Value	Patient's gender: Male, Female, Unknown.
./Race/Value	Patient's race. Values are defined in the Custom Format Definition.
./Height/Value	Patient's height.
./Height/Units	Height units: I = inches C = centimeters
./Weight/Value	Patient's weight.
./Weight/Units	Weight units: L = pounds K = kilograms
./PatientLocation/Value	Patient's location.
./PatientRoom/Value	Patient's room.
./CommentField/Value	Comments.
./ReferringPhysician/Value	Name of referring physician.
./AttendingPhysician/Value	Name of attending physician.
./OverreadingPhysician/Value	Name of physician requested to overread test.
./AssistingProvider/Value	Name of assisting provider.
./ProcedureDiagnosis/Value	Procedure diagnosis.
./ReasonForProcedure/Value	Reason for test.
./Medication1/Value	Medication name: (blank) Antianginal, Antiarrhythmic, Anticholesterol, Anticoagulants, Antihypertensive, Antihypotensive, Aspirin, Beta Blockers,

XML Tag	Description
	Calcium Blockers, Digoxin, Diuretics, Nitroglycerin, Psychotropic
./Medication2/Value	See Medication1.
./Note1/Value	Notes.
./Note2/Value	Notes.
./SysBPNum/Value	Systolic blood pressure in mmHg.
./DiaBPNum/Value	Diastolic blood pressure in mmHg.
./RequestingPhysician/Value	Requesting physician name.
./AccessionNumber/Value	DICOM Accession Number.
./AdmissionID/Value	DICOM Admission ID.
./ScheduledDate/Value	Date when test is scheduled to be performed in yyyyMMdd format.
./ScheduledTime/Value	Time when test is scheduled to be performed in hhmm or hhmmss format.

XSCRIBE EXPORT XML

APPENDIX C

XML Tag	Description
/StressTest	
./Manufacturer	Name of manufacturer of the system that produced the report. Always "Mortara Instrument, Inc."
./Version	Name and version of the system that produced the report.
./PDF_Path	Full path and filename of the exported report in PDF format.
./TIFF_Path	Full path and filename of the exported report in TIFF format.
/StressTest/PatientDemographics	
./LastName/Value	Patient's last name.
./FirstName/Value	Patient's first name.
./MiddleName/Value	Patient's middle name.
./ID/Value	Patient's primary medical record number.
./SecondaryID/Value	Patient's alternate ID. Site-specific use.
./DOB/Value	Patient's date of birth in format displayed to the user.
./DobEx/Value	Patient's date of birth in XML format, yyyy-MM-dd.
./Age/Value	Patient's age at time of exam.
./Age/Units	Always years .
./TargetHR/Value	Target heart rate to be reached in this exam.
./TargetHR/Units	Always BPM (beats per minute).
./Gender/Value	Patient's gender. Values can be: <ul style="list-style-type: none"> • Male • Female • Unknown
./Race/Value	Patient's race, according to the definition in CFD. Factory default choices in English are: <ul style="list-style-type: none"> • Caucasian • Black • Oriental • Hispanic • American Indian • Aleut • Hawaiian • Pacific Islander • Mongolian • Asian
./Height/Value	Patient's height at time of exam.
./Height/Units	<ul style="list-style-type: none"> • in = inches • cm = centimeters
./Weight/Value	Patient's weight at time of exam.
./Weight/Units	<ul style="list-style-type: none"> • lbs = pounds • kg = kilograms

XML Tag	Description
./Address/Value	Patient's home address. House number and street.
./City/Value	Patient's home city
./State/Value	Patient's home state.
./PostalCode/Value	Patient's home postal (zip) code.
./Country/Value	Patient's home country.
./HomePhone/Value	Patient's home phone number.
./WorkPhone/Value	Patient's work phone number.
./ReferringPhysician/Value	Full name of referring physician.
./AttendingPhysician/Value	Full name of the attending physician.
./Smoker/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./Diabetic/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./HistoryOfMI/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./FamilyHistory/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./PriorCABG/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./PriorCath/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./Angina/Value	Values can be: <ul style="list-style-type: none"> • Atypical • Typical • None
./Indications/Line	There is one Line per indication.
./Medications/Line	There is one Line per medication. Free text or selected from the customizable pick list configured in CFD. Factory list is: <p>Antianginal, Antiarrhythmic, Anticholesterol,</p>

XML Tag	Description
	Anticoagulants, Antihypertensive, Antihypotensive, Aspirin, Beta Blockers, Calcium Blockers, Digoxin, Diuretics, Nitroglycerin, Psychotropic
./Notes/Line	There is one Line per note. Free text or selected from the customizable pick list configured in NotesList.txt.
./MessageID/Value	Values carried over from the XML requests.
./OrderNumber/Value	
./BillingCode1/Value	
./BillingCode2/Value	
./BillingCode3/Value	
./ExpansionField1/Value	
./ExpansionField2/Value	
./ExpansionField3/Value	
./ExpansionField4/Value	
./AdmissionID/Value	
./AccessionNumber/Value	
/StressTest/TestSummary	
./Institution/Value	From "Dept. Footer" setting on the Miscellaneous tab of the User Settings.
./Protocol/Value	Name of the stress protocol used. Factory defaults include: <ul style="list-style-type: none"> • BRUCE • Cycle • Modified Bruce • Balke • Ellestad • Naughton • Pharmacological • Low Ramp • Medium Ramp • High Ramp • Astrand • USAF/SAM 2.0 • USAF/SAM 3.3
./ExamDate/Value	Date of exam, in format displayed to user.
./ExamDateEx/Value	Date of exam, in XML format, yyyy-MM-dd.
./ExamTime/Value	Local time of day when exam began in hh:mm format.

XML Tag	Description
./ExerciseTime/Value	Total exercise time in h:mm:ss format.
./JPoint/Value	Milliseconds from J-point where ST level is measured.
./JPoint/Unit	Always ms (milliseconds).
./LeadsWith100uV_ST/Value	One Value for every lead having at least 100 uV of ST elevation or depression. Values can be: <ul style="list-style-type: none"> • I • II • III • aVR • aVL • aVF • V1 • V2 • V3 • V4 • V5 • V6
./PVCs/Value	Total number of PVCs detected during the exam.
./DukeScore/Value	Duke treadmill score when the Bruce exercise protocol is used. Ranges from approximately -57 to 21.
./FAI/Value	Functional Aerobic Impairment score, expressed as a percentage. Two values are given separated by a / slash. The first value listed is for a person with a sedentary lifestyle (does not exercise at least once per week sufficient to perspire) and the second value is for an active person (exercises at least once per week sufficient to perspire).
./MaxSpeed/Value	Maximum treadmill speed during exam. Expressed as a number with units (e.g., "5.0 MPH").
./MaxSpeed/Units	<ul style="list-style-type: none"> • MPH = miles per hour • km/h = kilometers per hour
./MaxGrade/Value	Maximum treadmill grade during exam. Expressed as a number with a percentage sign (e.g., "18.0%").
./MaxGrade/Units	Always %.
./MaxPower/Value	Maximum ergometer power during exam. Expressed as a number.
./MaxPower/Units	Always Watts.
./MaxMets/Value	Maximum METs (estimated metabolic equivalents) achieved during test.
./MaxHR/Value	Maximum heart rate achieved during exam.
./MaxHR/Units	Always BPM (beats per minute).
./MaxSBP/Value	Maximum systolic blood pressure during exam. Expressed as "systolic/diastolic" (e.g. "160/80").
./MaxSBP/SBP	Systolic value.

XML Tag	Description
./MaxSBP/DBP	Diastolic value.
./MaxSBP/Time	Time of measurement, from beginning of the exercise phase. Expressed as h:mm:ss.
./MaxSBP/Units	Always mm Hg (millimeters of mercury).
./MaxDBP/Value	Maximum diastolic blood pressure during exam. Expressed as "systolic/diastolic" (e.g. "160/80").
./MaxDBP/SBP	Systolic value.
./MaxDBP/DBP	Diastolic value.
./MaxDBP/Time	Time of measurement, from beginning of the exercise phase. Expressed as h:mm:ss.
./MaxDBP/Units	Always mm Hg (millimeters of mercury).
./MaxDoubleProduct/Value	Maximum double product (systolic BP * HR) achieved during exam.
./MaxPercentTargetHR/Value	Maximum percentage of target heart rate achieved during exam.
./MaxPercentTargetHR/Unit	Always %.
./MaxST_Elevation/Value	ST level of leading having the most elevation during exam.
./MaxST_Elevation/Units	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./MaxST_Elevation/Lead	Lead having the most ST elevation during the exam.
./MaxST_Elevation/Time	Time elapsed from the beginning of the exam when the maximum ST elevation was measured. Expressed in h:mm:ss format.
./MaxST_Depression/Value	ST level of lead having the most depression during the exam.
./MaxST_Depression/Units	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./MaxST_Depression/Lead	Lead having the most ST depression during the exam.
./MaxST_Depression/Time	Time elapsed from the beginning of the exam when the maximum ST depression was measured. Expressed in h:mm:ss format.
./MaxST_ElevationChange/Value	The amount of change measured in lead having the most positive ST change during the exam.
./MaxST_ElevationChange/Units	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./MaxST_ElevationChange/Lead	Lead having the most positive ST change during the exam.
./MaxST_ElevationChange/Time	Time elapsed from the beginning of the exam when the most positive ST change was measured. Expressed in h:mm:ss format.
./MaxST_DepressionChange/Value	The amount of change measured in lead having the most negative ST change during the exam.

XML Tag	Description
./MaxST_DepressionChange/Unit	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./MaxST_DepressionChange/Lead	Lead having the most negative ST change during the exam.
./MaxST_DepressionChange/Time	Time elapsed from the beginning of the exam when the most negative ST change was measured. Expressed in h:mm:ss format.
./MaxSTHR_Index/Value	The maximum ST/HR index measured during the exam.
./ReasonsForEnd/Line	<p>One Line per reason. Free text or selected from the customizable pick list configured in CFD. Factory default list is:</p> <ul style="list-style-type: none"> • T1 Target HR • T2 Planned Submax • T3 Chest Pain • T4 Ischemic ECG • T5 Fatigue • T6 Arm Pain • T7 Neck Pain • T8 MD Discretion • T9 Dyspnea Maximum heart rate obtained • T10 Nausea/Headache • T11 Dizziness • T12 Hypotension • T13 Vent Arrhythmia • T14 Atrial Arrhythmia • T15 Claudication • T16 Poor Motivation • T17 Syncope • T18 Completion of Infusion • T19 Completion of Protocol • T20 Other
./Symptoms/Line	One Line per symptom. Free text or selected from the customizable pick list configured in CFD.XML.
./Conclusions/Line	<p>One Line per line of conclusion block. Free text, template, or selected from the customizable acronym list configured in ConclusionsList.txt. Factory default list is:</p> <ul style="list-style-type: none"> • myo ECG finding suggestive of myocardial ischemia • C1 No ST Changes • C2 Min Depr ST (0.5-0.9 mm) • C3 Mod ST Depr (1.0-1.9 mm) • C4 Marked Depr ST (=>2.0 mm) • C5 ST Elevation During Exercise • C6 Non-Diagnostic TW Abn • C7 Cond Defects Appeared • C8 RBBB Appeared • C9 Inadequate BP Resp (<30) • C10 Hypertensive BP Response • C11 Inadequate HR c/w Betablocker

XML Tag	Description
	<ul style="list-style-type: none"> • C12 Inadequate HR c/w Low level Exercise • C13 Normal Stress Test • C14 Abnormal Stress Test • C15 No Evidence of Ischemia • C16 Chest Pain did not Occur • C17 Atypical Chest Pain • C18 Typical Angina Occured • C19 Exertional Hypotension • C20 Inappropriate Dyspnea • C21 ECG & Sx Typical of CAD • C22 ECG typical of CAD • C23 Sx Typical of CAD • C24 ECG and Sx Suggest CAD • C25 ECG Suggests CAD • C26 Sx Suggest CAD • C27 Markedly abnormal test c/w Extensive CAD • C28 Equivocal Study • C29 Nondiagnostic Test, Inadequate HR Response • C30 Nondiagnostic test, Pt unable to complete • C31 Nondiagnostic Test, Baseline ST depression • C32 Nondiagnostic Test, Conduction Abnormality • C33 Nondiagnostic, Technically Inadequate • C34 Baseline St Abnormality increased during Stress • C35 Baseline ST abnormality unchanged during Stress • C36 Report of Radionuclide study attached • C37 Test within normal limits
./Technician/Value	Name of technician performing the stress exam. Free text or selected from the customizable pick list configured in CFD.XML.
./ReviewingPhysician/Value	Full name of physician reviewing the stress report. Free text or selected from the customizable pick list configured in CFD.XML.
/StressTest/SummaryTable	
/StressTest/SummaryTable/StageSummaryLine	One StageSummaryLine per stage. One per line of STAGE SUMMARY section of the stress report. Each line reports values at the end of that stage.
./Stage/Value	Name of stage. Values can be: <ul style="list-style-type: none"> • M-LIKAR = Mason-Likar event during pre-exercise • STANDING = Standing event during pre-exercise • HYPERV = Hyperventilation event during pre-exercise • SUPINE = Supine event during pre-exercise • START EXE = end of pre-exercise phase • STAGE 1 = end of stage 1

XML Tag	Description
	<ul style="list-style-type: none"> • STAGE 2 =end of stage 2 • STAGE n = end of stage n, where n is the stage number • PEAK EXE = time and values of peak exercise before entering the recovery phase • RECOVERY = end of 1 minute of recovery. There can be multiple RECOVERY stages, one per minute. • END REC = end of recovery
./StageTime/Value	Time when stage ended, expressed as time elapsed from beginning of exercise or recovery phase. Format is: <ul style="list-style-type: none"> • PRE-X = pre exercise stage • EXE h:mm:ss = exercise stage • REC h:mm:ss = recovery stage
./Speed/Value	Treadmill speed at end of stage.
./Speed/Unit	<ul style="list-style-type: none"> • MPH = miles per hour • km/h = kilometers per hour
./Power/Value	Ergometer workload at end of stage.
./Power/Unit	Always Watts.
./Grade/Value	Treadmill grade at end of stage.
./Grade/Unit	Always %.
./HR/Value	Heart rate at end of stage.
./HR/Unit	Always BPM (beats per minute).
./SystolicBP/Value	Last measured systolic blood pressure in stage.
./SystolicBP/Unit	Always mm Hg (millimeters of mercury).
./DiastolicBP/Value	Last measured diastolic blood pressure in stage.
./DiastolicBP/Unit	Always mm Hg (millimeters of mercury).
./METS/Value	METs (estimated metabolic equivalents) at end of stage.
./DoubleProduct/Value	Double product (systolic BP * HR) at end of stage.
./ST_Level/Lead_I/Value	ST level at end of stage.
./ST_Level/Lead_I/Unit	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./ST_Level/Lead_II/Value	ST level at end of stage.
./ST_Level/Lead_II/Unit	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./ST_Level/Lead_III/Value	ST level at end of stage.
./ST_Level/Lead_III/Unit	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./ST_Level/Lead_aVR/Value	ST level at end of stage.
./ST_Level/Lead_aVR/Unit	<ul style="list-style-type: none"> • mm = millimeters • uV = microvolts
./ST_Level/Lead_-aVR/Value	ST level at end of stage.

XML Tag	Description
./ST_Level/Lead_-aVR/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_aVL/Value	ST level at end of stage.
./ST_Level/Lead_aVL/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_aVF/Value	ST level at end of stage.
./ST_Level/Lead_aVF/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_V1/Value	ST level at end of stage.
./ST_Level/Lead_V1/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_V2/Value	ST level at end of stage.
./ST_Level/Lead_V2/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_V3/Value	ST level at end of stage.
./ST_Level/Lead_V3/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_V4/Value	ST level at end of stage.
./ST_Level/Lead_V4/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_V5/Value	ST level at end of stage.
./ST_Level/Lead_V5/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Level/Lead_V6/Value	ST level at end of stage.
./ST_Level/Lead_V6/Unit	<ul style="list-style-type: none"> mm = millimeters uV = microvolts
./ST_Slope/Lead_I/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_I/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_II/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_II/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_III/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_III/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_aVR/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_aVR/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_-aVR/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_-aVR/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_aVL/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_aVL/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_aVF/Value	Slope of waveform at ST measurement point.

XML Tag	Description
./ST_Slope/Lead_aVF/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_V1/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_V1/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_V2/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_V2/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_V3/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_V3/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_V4/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_V4/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_V5/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_V5/Unit	Always mV/s (millivolts per second).
./ST_Slope/Lead_V6/Value	Slope of waveform at ST measurement point.
./ST_Slope/Lead_V6/Unit	Always mV/s (millivolts per second).
/StressTest/SummaryTable/MinuteSummaryLine	The XML structure of the MinuteSummaryLine is the same as StageSummaryLine described above except for the tags described below. Each MinuteSummaryLine describes the state of the patient at the end of each minute and at manually created events and recorded RPEs.
./Stage/Value	Blank for automatically-created minute lines. Contains the name of the event for manually-created events. If the event is "Shortness of Breath", X-Scribe exports "Short of Breath". For other events, it exports the first 16 characters of the event name. When an RPE is recorded, this is RPE _n , where n is the value on the configured scale of 0-10 or 6-20.

XSCRIBE ORDER XML

APPENDIX D

XML Tag	Description
/StressRequest	
./Manufacturer	Leave blank.
./Version	Leave blank.
/StressRequest/PatientDemographics	
./LastName/Value	Patient's last name.
./FirstName/Value	Patient's first name.
./MiddleName/Value	Patient's middle name.
./ID/Value	Patient's primary medical record number.
./SecondaryID/Value	Patient's alternate ID. Site-specific use.
./DobEx/Value	Patient's date of birth in XML format, yyyy-MM-dd .
./Age/Value	Patient's age in years, if DOB is unknown. If DOB is known, age will be calculated at the time of the exam.
./Age/Units	Leave blank.
./MaxHR/Value	Leave blank. Calculated by X-Scribe.
./TargetHR/Value	Leave blank. Calculated by X-Scribe.
./TargetWatts/Value	Target workload for tests with the ergometer.
./Gender/Value	Patient's gender. Values can be: <ul style="list-style-type: none"> • Male • Female • Unknown
./Race/Value	Patient's race. Free text. Factory defaults in English are: <ul style="list-style-type: none"> • Caucasian • Afro American • Black • Asian • Hispanic • Indian • Other
./Height/Value	Patient's height.
./Height/Units	<ul style="list-style-type: none"> • in = inches • cm = centimeters
./Weight/Value	Patient's weight.
./Weight/Units	<ul style="list-style-type: none"> • lbs = pounds • kg = kilograms
./Address/Value	Patient's home address. House number and street.
./City/Value	Patient's home city.
./State/Value	Patient's home state.
./PostalCode/Value	Patient's home postal (zip) code.
./Country/Value	Patient's home country.
./HomePhone/Value	Patient's home phone number.
./WorkPhone/Value	Patient's work phone number.
./ReferringPhysician/Value	Full name of referring physician. Free text.
./AttendingPhysician/Value	Full name of the attending physician. Free text.

XML Tag	Description
./Smoker/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./Diabetic/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./HistoryOfMI/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./FamilyHistory/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./PriorCABG/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./PriorCath/Value	Values can be: <ul style="list-style-type: none"> • Yes • No • Unknown
./Angina/Value	Values can be: <ul style="list-style-type: none"> • Atypical • Typical • None
./Indications/Line	There is one Line per indication. Lines are free text.
./Medications/Line	There is one Line per medication. Lines are free text.
./Notes/Line	There is one Line per note. Lines are free text.
./MessageID/Value	Values can be used to carry information from the stress order to the stress results. None of the values are displayed to the user on the screen or on the report.
./OrderNumber/Value	
./BillingCode1/Value	
./BillingCode2/Value	
./BillingCode3/Value	
./ExpansionField1/Value	
./ExpansionField2/Value	
./ExpansionField3/Value	
./ExpansionField4/Value	
./AdmissionID/Value	
./AccessionNumber/Value	

HSCRIBE STATISTICS XML

XML Schema File: **HolterStatistics_V5.xsd**

NOTE: when Modality Manager is activated for **HolterRx** XML, the following XML elements will be included. If it is not activated for HolterRx, these elements will not contain any child elements.

- /HOLTER_STATISTICS/DIARY_PERIODS
- /HOLTER_STATISTICS/STRIP_LIST

XML Tag	Description
/HOLTER_STATISTICS	
@RECORDER_TYPE	Type of recorder used. E.g. "H12.Cont.3.12"
@SCAN_NUMBER	Number assigned by H-Scribe when data is downloaded from device. Can be overridden by user.
@DATE_RECORDED	The date and time when the ECG recording was started. In the format yyyyMMddHHmmss.
@DATE_PROCESSED	Date when data was downloaded from device in yyyyMMdd format.
@RECORDER_NUMBER	Holter recorder number as entered by the H-Scribe user.
@HOOKUP_TECH	Name of the hookup technician.
@ANALYST	Name of the Holter analyst.
@REFERRING_PHYSICIAN	Name of the referring physician.
@REVIEWING_PHYSICIAN	Name of the physician reviewing/confirming the Holter report.
@WORKSTATION	Name of the patient list where the recording is stored.
@REPORT_FILENAME	Full path to PDF file.
@ORDER_NUMBER	
@ACCESSION_NUMBER	
@ADMISSION_ID	
/HOLTER_STATISTICS/PATIENT	
@NAME	Full name of the patient as entered in the Name field.
@LAST_NAME	Last name of the patient if a comma was used to separate the last name from the first.
@FIRST_NAME	First name of the patient if a comma was used to separate the last name from the first.
@MIDDLE_NAME	Middle name of the patient if it can be parsed.
@ID	Patient's primary medical record number.
@SECOND_ID	Patient's secondary ID (i.e., admission ID).
@AGE	Patient's age in years.
@SEX	Unknown Male Female
@INDICATIONS	Indications for the Holter test, separated by commas.

XML Tag	Description
@MEDICATIONS	Name of medications, separated by commas.
@DOB	Patient's date of birth formatted according to the local regional settings.
@DOB_EX	Patient's date for birth formatted as yyyyMMdd.
/HOLTER_STATISTICS/SOURCE	
@TYPE	HOLTER
@MANUFACTURER	Mortara Instrument, Inc.
@MANUFACTURER_ID	8 = Mortara
@MODEL	Type and version of the recorder. E.g. "H12.Cont.3.12"
@ID	Recorder number entered by the user.
@RECORDER_SERIAL_NUMBER	Recorder serial number, if available.
/HOLTER_STATISTICS/DEMOGRAPHIC_FIELDS_LIST	Complete list of all demographics fields. Useful when field labels have been customized.
/HOLTER_STATISTICS/DEMOGRAPHIC_FIELDS_LIST/DEMOGRAPHIC_FIELD	
@NAME	Name of the field. FULL_NAME LAST_NAME FIRST_NAME MIDDLE_NAME ID SECOND_ID AGE SEX REFERRING_PHYSICIAN REVIEWING_PHYSICIAN INDICATIONS MEDICATIONS RECORDER_TYPE RECORDER_NUMBER HOOKUP_TECH ANALYST SCAN_NUMBER RECORD_DATE RECORD_START_TIME SCAN_DATE DOB COMMENT
@LABEL	Label of the field displayed to the H-Scribe user.
@VALUE	Value of the field.
/HOLTER_STATISTICS/SCAN_CRITERIA	
@SVPB_PREMATURITY_PERCENTAGE	Criteria for supraventricular prematurity as a percentage of the current RR.

XML Tag	Description
@PAUSE_MSEC	Number of milliseconds to be considered a pause.
@ST_DEPRESSION_UV	Minimum ST depression in microvolts.
@ST_ELEVATION_UV	Minimum ST elevation in microvolts.
@LONG_RR_PAUSE	All Beats = Any pause between any beats. N-N Only = Only count as a pause if long RR was between normal beats.
@PAUSE_EXCLUDED_FROM_HR	TRUE FALSE
@TACHYCARDIA_LIMIT_BPM	Minimum HR for tachycardia episodes.
@BRADYCARDIA_LIMIT_BPM	Maximum HR for bradycardia episodes.
@MIN_TACHY_BRADY_EPISODE_SECONDS	Minimum number of seconds of tachy or brady to be considered an episode.
/HOLTER_STATISTICS/RATE_STATISTICS	
@MIN_RATE	Minimum HR (BPM) recorded over a 5-second interval at MIN_RATE_TIME.
@MIN_RATE_TIME	Time of min rate in yyyyMMddHHmmss format.
@MAX_RATE	Maximum HR (BPM) including Ventricular beats recorded over a 5-second interval at MAX_RATE_TIME.
@MAX_RATE_TIME	Time of max rate in yyyyMMddHHmmss format.
@MEAN_RATE	Mean HR (BPM) computed over the entire monitoring period.
@TOTAL_QRS	Total number of detected QRS complexes including both normal and Ventricular beats.
@MONITORING_PERIOD	"HH hr, mm min" total time monitored.
@ANALYZED_DATA	"HH hr, mm min" total time analyzed.
@LONGEST_TACHY_DURATION	Longest tachycardia episode duration in HH:mm:ss format.
@LONGEST_TACHY_ONSET	Onset of longest tachycardia episode in HH:mm:ss format.
@LONGEST_TACHY_OFFSET	End of longest tachycardia episode in HH:mm:ss format.
@LONGEST_TACHY_MAX_HR	Maximum HR (BPM) during longest tachycardia episode.
@LONGEST_TACHY_AVG_HR	Average HR (BPM) during longest tachycardia episode.
@LONGEST_TACHY_TOTAL_BEATS	Number of beats in longest tachycardia episode.
@FASTEST_TACHY_DURATION	Fastest tachycardia episode duration in HH:mm:ss format.
@FASTEST_TACHY_ONSET	Onset of fastest tachycardia episode in HH:mm:ss format.
@FASTEST_TACHY_OFFSET	End of fastest tachycardia episode in HH:mm:ss format.
@FASTEST_TACHY_MAX_HR	Maximum HR (BPM) during fastest tachycardia episode.
@FASTEST_TACHY_AVG_HR	Average HR (BPM) during fastest tachycardia episode.
@FASTEST_TACHY_TOTAL_BEATS	Number of beats in fastest tachycardia episode.
@LONGEST_BRADY_DURATION	Longest bradycardia episode duration in HH:mm:ss format.
@LONGEST_BRADY_ONSET	Onset of longest bradycardia episode in HH:mm:ss format.

XML Tag	Description
@LONGEST_BRADY_OFFSET	End of longest bradycardia episode in HH:mm:ss format.
@LONGEST_BRADY_MIN_HR	Maximum HR (BPM) during longest bradycardia episode.
@LONGEST_BRADY_AVG_HR	Average HR (BPM) during longest bradycardia episode.
@LONGEST_BRADY_TOTAL_BEATS	Number of beats in longest bradycardia episode.
@SLOWEST_BRADY_DURATION	Slowest bradycardia episode duration in HH:mm:ss format.
@SLOWEST_BRADY_ONSET	Onset of slowest bradycardia episode in HH:mm:ss format.
@SLOWEST_BRADY_OFFSET	End of slowest bradycardia episode in HH:mm:ss format.
@SLOWEST_BRADY_MIN_HR	Maximum HR (BPM) during slowest bradycardia episode.
@SLOWEST_BRADY_AVG_HR	Average HR (BPM) during slowest bradycardia episode.
@SLOWEST_BRADY_TOTAL_BEATS	Number of beats in slowest bradycardia episode.
/HOLTER_STATISTICS/SUPRVENTRICULAR_ECTOPY	
@AFIB_TIME_PERCENTAGE	When detected, % of time that Atrial Fibrillation was present during monitoring period.
@AFIB_PEAK_AVERAGE_RATE	When detected, peak average rate during Atrial Fibrillation (BPM).
@SINGLES	Number of occurrences of a single Supraventricular Ectopic beat during monitoring period.
@COUPLETS	Number of occurrences of two consecutive Supraventricular Ectopic beats during monitoring period.
@RUNS	Number of occurrences of three or more consecutive Supraventricular Ectopic beats during monitoring period.
@FASTEST_RUN_RATE	Fastest HR (BPM) measured over Supraventricular Runs at FASTEST_RUN_TIME.
@FASTEST_RUN_TIME	Time of fastest run in yyyyMMddHHmmss format.
@LONGEST_RUN_RATE	Longest Supraventricular Run (number of beats) measured at LONGEST_RUN_TIME.
@LONGEST_RUN_TIME	Time of longest run in yyyyMMddHHmmss format.
@TOTAL	Total number of Supraventricular Ectopic beats during monitoring period.
@MAX_RUN	Number of beats in longest run.
/HOLTER_STATISTICS/VENTRICULAR_ECTOPY	
@VENT_PACED_TIME_PERCENTAGE	When pacemaker present, % of time Ventricular Pacing was active during monitoring period.
@VENT_PACED_BEATS	When pacemaker present, how many beats were paced.
@SINGLES	Number of occurrences of a single Ventricular Ectopic beat during monitoring period.
@COUPLETS	Number of occurrences of two consecutive Ventricular Ectopic beats during monitoring period.

XML Tag	Description
@RUNS	Number of occurrences of three or more consecutive Ventricular Ectopic beats during monitoring period.
@FASTEST_RUN_RATE	Fastest HR (BPM) measured over Ventricular Runs at FASTEST_RUN_TIME.
@FASTEST_RUN_TIME	Time of fastest run in yyyyMMddHHmmss format.
@LONGEST_RUN_RATE	Longest Ventricular Run (number of beats) measured at LONGEST_RUN_TIME.
@LONGEST_RUN_TIME	Time of longest run in yyyyMMddHHmmss format.
@NUMBER_R_ON_T	Number of occurrences of an R wave detected on the T wave of preceding beat.
@TOTAL	Total number of Ventricular Ectopic beats during monitoring period.
@MAX_RUN	Number of beats in longest run.
/HOLTER_STATISTICS/RR_VARIABILITY	
@PERCENT_RR_GREATER_50	Percentage of successive RR intervals with greater than 50 ms difference between normal beats. If more than 24 hours was analyzed, a value for each 24-hour period is reported, separated by commas.
@RMS_SD	Root-mean-square of successive differences of the RR intervals (ms) between normal beats. If more than 24 hours was analyzed, a value for each 24-hour period is reported, separated by commas.
@MAGID_SD	Magid standard deviation of the RR intervals (ms). If more than 24 hours was analyzed, a value for each 24-hour period is reported, separated by commas.
@KLEIGER_SD	Kleiger standard deviation of the RR intervals (ms). If more than 24 hours was analyzed, a value for each 24-hour period is reported, separated by commas.
/HOLTER_STATISTICS/ST_DEVIATION	
@MAX_DEPRESSION_V1_UV	Maximum ST segment depression in microvolts (1 mm = 100 microvolts) on V1/I/C1 at MAX_DEPRESSION_V1_TIME.
@MAX_DEPRESSION_V1_TIME	Time of max depression in yyyyMMddHHmmss format. If the recording is longer than 24 hours, a "/1" or "/2" will follow the time indicating which day it occurred in.
@MAX_DEPRESSION_V5_UV	Maximum ST segment depression in microvolts (1 mm = 100 microvolts) on V5/V/C2 at MAX_DEPRESSION_V5_TIME.
@MAX_DEPRESSION_V5_TIME	Time of max depression in yyyyMMddHHmmss format. If the recording is longer than 24 hours, a "/1" or "/2" will follow the time indicating which day it occurred in.
@MAX_ELEVATION_V1_UV	Maximum ST segment elevation measured in microvolts (1 mm = 100 microvolts) on V1/I/C1 at MAX_ELEVATION_V1_TIME.
@MAX_ELEVATION_V1_TIME	Time of max elevation in yyyyMMddHHmmss format. If the

XML Tag	Description
	recording is longer than 24 hours, a “/1” or “/2” will follow the time indicating which day it occurred in.
@MAX_ELEVATION_V5_UV	Maximum ST segment elevation measured in microvolts (1 mm = 100 microvolts) on V5/V/C2 at MAX_ELEVATION_V5_TIME.
@MAX_ELEVATION_V5_TIME	Time of max elevation in yyyyMMddHHmmss format. If the recording is longer than 24 hours, a “/1” or “/2” will follow the time indicating which day it occurred in.
/HOLTER_STATISTICS/PAUSES	
@LONGEST_RR_SEC	Longest RR interval (seconds) observed at LONGEST_RR_TIME. Can include or exclude RR intervals between Ectopic and normal beats according to the scan criteria.
@LONGEST_RR_TIME	Time of max elevation in yyyyMMddHHmmss format.
@NUM_RR_GREATER_2_SEC	Number of RR intervals with duration greater than pause threshold set in Scan Criteria (2.0 second as a default). Can include or exclude RR intervals between Ectopic and normal beats according to the scan criteria.
/HOLTER_STATISTICS/SUMMARY_NARRATIVE	Narrative summary.
/HOLTER_STATISTICS/COMMENTS	Physician comments.
/HOLTER_STATISTICS/DIARY	List of diary entries.
/HOLTER_STATISTICS/DIARY/DIARY_ENTRY	
@TIME	Time of diary entry in yyyyMMddHHmmss format.
@LABEL	Diary event label, e.g. “Event Button Pressed”.
/HOLTER_STATISTICS/DIARY_PERIODS	
/HOLTER_STATISTICS/DIARY_PERIODS/PERIOD	Statistics for each period between diary events.
@TIME_RANGE	Time range of period in “yyyyMMddHHmmss – yyyyMMddHHmmss” format.
@START_TIME	Start of time range in yyyyMMddHHmmss format.
@END_TIME	End of time range in yyyyMMddHHmmss format.
@LABELS	
@START_LABEL	Diary label that starts the diary period.
@END_LABEL	Diary label that ends the diary period.
/HOLTER_STATISTICS/DIARY_PERIODS/PERIOD/HEART_RATE	
@MIN_RATE	Minimum HR (BPM) in the period.
@MEAN_RATE	Mean HR (BPM) over the entire period.
@MAX_RATE	Maximum HR (BPM) including Ventricular beats in the period.
@TACHY_BEATS	Number of beats in period with HR greater than

XML Tag	Description
	TACHYCARDIA_LIMIT_BPM.
@TACHY_PERCENT	Percentage of beats in period with HR greater than TACHYCARDIA_LIMIT_BPM.
@BRADY_BEATS	Number of beats in period with HR less than BRADYCARDIA_LIMIT_BPM.
@BRADY_PERCENT	Percentage of beats in period with HR less than BRADYCARDIA_LIMIT_BPM.
/HOLTER_STATISTICS/DIARY_PERIODS/PERIOD/SUPRAVENTRICULAR_ECTOPY	
@AFIB_TIME_PERCENTAGE	When detected, % of time that Atrial Fibrillation was present during period.
@AFIB_PEAK_AVERAGE_RATE	When detected, peak average rate during Atrial Fibrillation (BPM).
@SINGLES	Number of occurrences of a single Supraventricular Ectopic beat during period.
@COUPLETS	Number of occurrences of two consecutive Supraventricular Ectopic beats during period.
@RUNS	Number of occurrences of three or more consecutive Supraventricular Ectopic beat runs during period.
@FASTEST_RUN_RATE	Fastest HR (BPM) measured over Supraventricular Runs at FASTEST_RUN_TIME.
@FASTEST_RUN_TIME	Time of fastest run in yyyyMMddHHmmss format.
@LONGEST_RUN_RATE	Longest Supraventricular Run (number of beats) measured at LONGEST_RUN_TIME.
@LONGEST_RUN_TIME	Time of longest run in yyyyMMddHHmmss format.
@TOTAL	Total number of Supraventricular Ectopic beats during period.
@MAX_RUN	Number of beats in longest run.
/HOLTER_STATISTICS/DIARY_PERIODS/PERIOD/VENTRICULAR_ECTOPY	
@VENT_PACED_TIME_PERCENTAGE	When pacemaker present, % of time Ventricular Pacing was active during period.
@VENT_PACED_BEATS	When pacemaker present, how many beats were paced.
@SINGLES	Number of occurrences of a single Ventricular Ectopic beat during period.
@COUPLETS	Number of occurrences of two consecutive Ventricular Ectopic beats during period.
@RUNS	Number of occurrences of three or more consecutive Ventricular Ectopic beat runs during period.
@FASTEST_RUN_RATE	Fastest HR (BPM) measured over Ventricular Runs at FASTEST_RUN_TIME.
@FASTEST_RUN_TIME	Time of fastest run in yyyyMMddHHmmss format.

XML Tag	Description
@LONGEST_RUN_RATE	Longest Ventricular Run (number of beats) measured at LONGEST_RUN_TIME.
@LONGEST_RUN_TIME	Time of longest run in yyyyMMddHHmmss format.
@NUMBER_R_ON_T	Number of occurrences of an R wave detected on the T wave of preceding beat.
@TOTAL	Total number of Ventricular Ectopic beats during period.
@MAX_RUN	Number of beats in the longest run.
/HOLTER_STATISTICS/DIARY_PERIODS/PERIOD/PAUSES	
@LONGEST_RR_SEC	Longest RR interval (seconds) observed at LONGEST_RR_TIME. Can include or exclude RR intervals between Ectopic and normal beats according to the scan criteria.
@LONGEST_RR_TIME	Time of max elevation in yyyyMMddHHmmss format.
@NUM_RR_GREATER_2_SEC	Number of RR intervals with duration greater than pause threshold set in scan criteria (2.0 second as a default). Can include or exclude RR intervals between Ectopic and normal beats according to the scan criteria.
/HOLTER_STATISTICS/DIARY_PERIODS/PERIOD/RR_VARIABILITY	
@PERCENT_RR_GREATER_50	Percentage of successive RR intervals with greater than 50 ms difference between normal beats.
@RMS_SD	Root-mean-square of successive differences of the RR intervals (ms) between normal beats.
@MAGID_SD	Magid standard deviation of the RR intervals (ms).
@KLEIGER_SD	Kleiger standard deviation of the RR intervals (ms).
/HOLTER_STATISTICS/DIARY_PERIODS/PERIOD/PACED_BEATS	
@ATRIAL	Number of atrial paced beats in period.
@VENTRICULAR	Number of ventricular paced beats in period.
@CAPTURE_FAILURE	Number of detected pacer spikes without a QRS in period.
@UNDER_SENSE	Number of times pacer spike detected too early (didn't sense rhythm) in period.
@OVER_SENSE	Number of times pacer spike was not detected when it was expected (sensed a rhythm when there wasn't one) in period.
/HOLTER_STATISTICS/RHYTHM_PROFILE	Hour-by-hour rhythm statistics.
/HOLTER_STATISTICS/RHYTHM_PROFILE/PERIOD	One hour's rhythm statistics.
@TIME_RANGE	Time range of period in "yyyyMMddHHmmss – yyyyMMddHHmmss" format.

XML Tag	Description
@START_TIME	Start of time range in yyyyMMddHHmmss format.
@END_TIME	End of time range in yyyyMMddHHmmss format.
@LABELS	
@START_LABEL	
@END_LABEL	
/HOLTER_STATISTICS/RHYTHM_PROFILE/PERIOD/HEART_RATE	
@MIN_RATE	Minimum HR (BPM) in the period.
@MEAN_RATE	Mean HR (BPM) over the entire period.
@MAX_RATE	Maximum HR (BPM) including Ventricular beats in the period.
@TACHY_BEATS	Number of beats in period with HR greater than TACHYCARDIA_LIMIT_BPM.
@TACHY_PERCENT	Percentage of beats in period with HR greater than TACHYCARDIA_LIMIT_BPM.
@BRADY_BEATS	Number of beats in period with HR less than BRADYCARDIA_LIMIT_BPM.
@BRADY_PERCENT	Percentage of beats in period with HR less than BRADYCARDIA_LIMIT_BPM.
/HOLTER_STATISTICS/RHYTHM_PROFILE/PERIOD/SUPRAVENTRICULAR_ECTOPY	
@AFIB_TIME_PERCENTAGE	When detected, % of time that Atrial Fibrillation was present during profile period.
@AFIB_PEAK_AVERAGE_RATE	When detected, peak average rate during Atrial Fibrillation (BPM).
@SINGLES	Number of occurrences of a single Supraventricular Ectopic beat during profile period.
@COUPLETS	Number of occurrences of two consecutive Supraventricular Ectopic beats during profile period.
@RUNS	Number of occurrences of three or more consecutive Supraventricular Ectopic beat runs during profile period.
@FASTEST_RUN_RATE	Fastest HR (BPM) measured over Supraventricular Runs at FASTEST_RUN_TIME.
@FASTEST_RUN_TIME	Time of fastest run in yyyyMMddHHmmss format.
@LONGEST_RUN_RATE	Longest Supraventricular Run (number of beats) measured at LONGEST_RUN_TIME.
@LONGEST_RUN_TIME	Time of longest run in yyyyMMddHHmmss format.
@TOTAL	Total number of Supraventricular Ectopic beats during profile period.
@MAX_RUN	Number of beats in longest run.
/HOLTER_STATISTICS/RHYTHM_PROFILE/PERIOD/VENTRICULAR_ECTOPY	

XML Tag	Description
@VENT_PACED_TIME_PERCENTAGE	When pacemaker present, % of time Ventricular Pacing was active during profile period.
@VENT_PACED_BEATS	When pacemaker present, how many beats were paced.
@SINGLES	Number of occurrences of a single Ventricular Ectopic beat during profile period.
@COUPLETS	Number of occurrences of two consecutive Ventricular Ectopic beats during profile period.
@RUNS	Number of occurrences of three or more consecutive Ventricular Ectopic beat runs during profile period.
@FASTEST_RUN_RATE	Fastest HR (BPM) measured over Ventricular Runs at FASTEST_RUN_TIME.
@FASTEST_RUN_TIME	Time of fastest run in yyyyMMddHHmmss format.
@LONGEST_RUN_RATE	Longest Ventricular Run (number of beats) measured at LONGEST_RUN_TIME.
@LONGEST_RUN_TIME	Time of longest run in yyyyMMddHHmmss format.
@NUMBER_R_ON_T	Number of occurrences of an R wave detected on the T wave of preceding beat.
@TOTAL	Total number of Ventricular Ectopic beats during profile period.
@MAX_RUN	Number of beats in the longest run.
/HOLTER_STATISTICS/RHYTHM_PROFILE/PERIOD/PAUSES	
@LONGEST_RR_SEC	Longest RR interval (seconds) observed at LONGEST_RR_TIME. Can include or exclude RR intervals between Ectopic and normal beats according to the Scan Criteria.
@LONGEST_RR_TIME	Time of max elevation in yyyyMMddHHmmss format.
@NUM_RR_GREATER_2_SEC	Number of RR intervals with duration greater than pause threshold set in scan criteria (2.0 second as a default). Can include or exclude RR intervals between Ectopic and normal beats according to the scan criteria.
/HOLTER_STATISTICS/RHYTHM_PROFILE/PERIOD/RR_VARIABILITY	
@PERCENT_RR_GREATER_50	Percentage of successive RR intervals with greater than 50 ms difference between normal beats.
@RMS_SD	Root-mean-square of successive differences of the RR intervals (ms) between normal beats.
@MAGID_SD	Magid standard deviation of the RR intervals (ms).
@KLEIGER_SD	Kleiger standard deviation of the RR intervals (ms).
/HOLTER_STATISTICS/RHYTHM_PROFILE/PERIOD/PACED_BEATS	
@ATRIAL	Number of atrial paced beats in profile period.

XML Tag	Description
@VENTRICULAR	Number of ventricular paced beats in profile period.
@CAPTURE_FAILURE	Number of detected pacer spikes without a QRS in profile period.
@UNDER_SENSE	Number of times pacer spike detected too early (didn't sense rhythm) in profile period.
@OVER_SENSE	Number of times pacer spike was not detected when it was expected (sensed a rhythm when there wasn't one) in profile period.
/HOLTER_STATISTICS/ST_DEPRESSION_EPISODES	
/HOLTER_STATISTICS/ST_DEPRESSION_EPISODES/EPISODE	An episode of ST depression meeting the @ST_DEPRESSION_UV Scan Criteria.
@ONSET	The onset of the ST depression episode in yyyyMMddHHmmss format.
@END	The end of the ST depression episode in yyyyMMddHHmmss format.
@DURATION	The duration of the ST depression episode in HH:mm:ss format.
@MAX_UV	The maximum ST depression in the episode, in microvolts.
@AVERAGE_UV	The average ST depression in the episode, in microvolts.
@PRIMARY_CHANNEL	The channel with the most ST depression. I II III aVR aVL aVF V1 V2 V3 V4 V5 V6
@SECONDARY_CHANNEL	Other channels also meeting the ST depression criteria, separated by commas. I II III aVR aVL aVF V1 V2 V3 V4 V5

XML Tag	Description
	V6
@MEAN_RATE	The mean HR (BPM) during the episode.
/HOLTER_STATISTICS/ST_ELEVATION_EPISODES	
/HOLTER_STATISTICS/ST_ELEVATION_EPISODES/EPISODE	An episode of ST elevation meeting the @ST_ELEVATION_UV scan criteria.
@ONSET	The onset of the ST elevation episode in yyyyMMddHHmmss format.
@END	The end of the ST elevation episode in yyyyMMddHHmmss format.
@DURATION	The duration of the ST elevation episode in HH:mm:ss format.
@MAX_UV	The maximum ST elevation in the episode, in microvolts.
@AVERAGE_UV	The average ST elevation in the episode, in microvolts.
@PRIMARY_CHANNEL	The channel with the most ST elevation. I II III aVR aVL aVF V1 V2 V3 V4 V5 V6
@SECONDARY_CHANNEL	Other channels also meeting the ST elevation criteria, separated by commas. I II III aVR aVL aVF V1 V2 V3 V4 V5 V6
@MEAN_RATE	The mean HR (BPM) during the episode.
/HOLTER_STATISTICS/TACHYCARDIA_EPISODES	
/HOLTER_STATISTICS/TACHYCARDIA_EPISODE	An episode of tachycardia as defined by

XML Tag	Description
PISODES/TB_EPISODE	@TACHYCARDIA_LIMIT_BPM scan criteria.
@ONSET	The onset of the episode in yyyyMMddHHmmss format.
@END	The end of the episode in yyyyMMddHHmmss format.
@DURATION	The duration of the episode in HH:mm:ss format.
@EXTREME_RATE_BPM	The maximum HR (in BPM) occurring in the episode.
@MEAN_RATE_BPM	The mean HR (in BPM) for the episode.
@TOTAL_BEATS	Total number of beats in the episode.
/HOLTER_STATISTICS/BRADYCARDIA_E PISODES	
/HOLTER_STATISTICS/BRADYCARDIA_E PISODES/TB_EPISODE	An episode of bradycardia as defined by @BRADYCARDIA_LIMIT_BPM scan criteria.
@ONSET	The onset of the episode in yyyyMMddHHmmss format.
@END	The end of the episode in yyyyMMddHHmmss format.
@DURATION	The duration of the episode in HH:mm:ss format.
@EXTREME_RATE_BPM	The minimum HR (in BPM) occurring in the episode.
@MEAN_RATE_BPM	The mean HR (in BPM) for the episode.
@TOTAL_BEATS	Total number of beats in the episode.
/HOLTER_STATISTICS/STRIP_LIST	
/HOLTER_STATISTICS/STRIP_LIST/STRIP	
@ANNOTATION	The strip annotation.
@TIME	The time of the first sample in the strip, in yyyyMMddHHmmss format.
/HOLTER_STATISTICS/TRENDS	
/HOLTER_STATISTICS/TRENDS/TEND	
@TREND_TYPE	TREND_ST_LEAD_I = ST level in lead I TREND_ST_LEAD_II TREND_ST_LEAD_III TREND_ST_LEAD_AVR TREND_ST_LEAD_AVL TREND_ST_LEAD_AVF TREND_ST_LEAD_V1 TREND_ST_LEAD_V2 TREND_ST_LEAD_V3 TREND_ST_LEAD_V4 TREND_ST_LEAD_V5 TREND_ST_LEAD_V6 TREND_SVPB = Supraventricular rate TREND_VPB = Ventricular rate TREND_VPB2 = Couplets per 5min period TREND_VPB3PLUS = Runs per 5min period TREND_HR = Heart rate

XML Tag	Description
	TREND_RR = RR intervals TREND_STD_DEV_RR = RR standard deviation
@TREND_LABEL	Label of the trend.
@TREND_VALID	TRUE = trend has valid information. FALSE = no trend.
@MAX_VALID	TRUE = has valid max values. FALSE = max values should be ignored.
@MIN_VALID	TRUE = has valid min values. FALSE = min values should be ignored.
@AVG_DURATION_SEC	Average number of seconds represented by each trend value. E.g. 5, 300.
@MAX_MIN_DURATION_SEC	
@UNITS	Units the values are expressed in. UV (for ST trends) BPM (for SVPB, VPB, HR trends) VPB_COUPLETS_PER_5MIN (for VPB2 trends) VPB_RUNS_PER_5MIN (for VPB3PLUS trends) MSEC (for RR, STD_DEV_RR trends)
/HOLTER_STATISTICS/TRENDS/TEND/TR END_VALUE	
@DATE_TIME_HL7	Time of trend value in yyyyMMddHHmmss format.
@MIN_VALUE	Minimum value in the trend value period. Ignore if @MIN_VALUE_VALID=FALSE.
@AVG_VALUE	Average value in the trend value period.
@MAX_VALUE	Maximum value in the trend value period. Ignore if @MAX_VALID=FALSE.
@VALID	TRUE = trend value has valid values. FALSE = trend value should be ignored.

HSCRIBE STRIP MORTARA XML

APPENDIX F

XML Schema File: **HolterECG_V5.xsd**

XML Tag	Description
/HOLTER_ECG	
@RECORDER_TYPE	Type and version of the recorder. E.g. "H12.Cont.3.12"
@SCAN_NUMBER	Number assigned by H-Scribe when data is downloaded from device. Can be overridden by user.
@DATE_RECORDED	The date and time when the ECG recording was started. In the format yyyyMMddHHmmss.
@DATE_PROCESSED	Date when data was downloaded from device in yyyyMMdd format.
@RECORDER_NUMBER	Holter recorder number as entered by the H-Scribe user.
@HOOKUP_TECH	Name of the hookup technician.
@ANALYST	Name of the Holter analyst.
@REFERRING_PHYSICIAN	Name of the referring physician.
@REVIEWING_PHYSICIAN	Name of the physician reviewing/confirming the Holter report.
@ACQUISITION_TIME	The date and time of the first sample of this waveform strip. In the format yyyyMMddHHmmss.
@ANNOTATION	The strip annotation.
@WORKSTATION	Name of the patient list where the recording is stored.
@ORDER_NUMBER	
@ACCESSION_NUMBER	DICOM Accession Number.
@ADMISSION_ID	DICOM Admission ID.
/HOLTER_ECG/PATIENT	
@NAME	Full name of the patient as entered in the Name field.
@LAST_NAME	Last name of the patient if a comma was used to separate the last name from the first.
@FIRST_NAME	First name of the patient if a comma was used to separate the last name from the first.
@MIDDLE_NAME	Middle name of the patient if it can be parsed.
@ID	Patient's primary medical record number.
@SECOND_ID	Patient's secondary ID, like an admission ID.
@AGE	Patient's age in years.
@SEX	Unknown Male Female
@INDICATIONS	Indications for the Holter test, separated by commas.
@MEDICATIONS	Name of medications, separated by commas.
@DOB	Patient's date of birth formatted according to the local regional settings.

XML Tag	Description
@DOB_EX	Patient's date for birth formatted as yyyyMMdd.
/HOLTER_ECG/SOURCE	
@TYPE	HOLTER
@MANUFACTURER	Mortara Instrument, Inc.
@MANUFACTURER_ID	8 = Mortara
@MODEL	Type and version of the recorder. E.g. "H12.Cont.3.12"
@ID	Recorder number entered by the user.
@RECORDER_SERIAL_NUMBER	Recorder serial number, if available.
/HOLTER_ECG/DEMOGRAPHIC_FIELD_LIST	Complete list of all demographics fields. Useful when field labels have been customized.
/HOLTER_ECG/DEMOGRAPHIC_FIELD_LIST/DEMOGRAPHIC_FIELD	
@NAME	Name of the field. FULL_NAME LAST_NAME FIRST_NAME MIDDLE_NAME ID SECOND_ID AGE SEX REFERRING_PHYSICIAN REVIEWING_PHYSICIAN INDICATIONS MEDICATIONS RECORDER_TYPE RECORDER_NUMBER HOOKUP_TECH ANALYST SCAN_NUMBER RECORD_DATE RECORD_START_TIME SCAN_DATE DOB COMMENT
@LABEL	Label of the field displayed to the H-Scribe user.
@VALUE	Value of the field.
/HOLTER_ECG/BEAT_LIST/BEAT	
@TYPE	0 = Normal 1 = Supraventricular Premature Beat 2 = Ventricular Premature Beat 3 = Fusion 4 = Ventricular Paced 5 = Ventricular Escape

XML Tag	Description
	7 = R on T 8 = Artificial 9 = Unknown 10 = Bundle Branch Block 11 = Aberrant 12 = Interpolated 13 = Atrial Paced 14 = Dual Paced
@TYPE_EX	This attribute is maintained for backward compatibility, but doesn't offer any more information than the TYPE attribute. Use the TYPE attribute when possible. 0 = Normal 1 = Supraventricular Premature Beat 3 = Fusion 4 = Paced 7 = Unknown 10 = Ventricular Premature Beat (including Interpolated) 13 = Ventricular Escape 40 = R on T
@QON	QRS onset in milliseconds from the beginning of the strip.
@RR	RR interval in milliseconds from the preceding R-peak to the R-peak of this beat.
@FILTERED_RR	Average of this RR interval, the prior 32 RR intervals, and the following 32 RR intervals (i.e. a 65-beat sliding window, centered on this beat). Expressed in milliseconds.
@QT	Average of this QT interval, the prior 32 QT intervals, and the following 32 QT intervals (i.e. a 65-beat sliding window, centered on this beat). Expressed in milliseconds.
/HOLTER_ECG/CHANNEL	
@OFFSET	This channel's offset, milliseconds, from the beginning of the strip. Always 0 because Mortara recorders capture all leads simultaneously.
@BITS	16
@FORMAT	SIGNED
@UNITS_PER_MV	The value of 1 mV. E.g. 160 means each unit represents 1000 / 160 = 6.25 μ V.
@DURATION	The duration of the channel in milliseconds.
@SAMPLE_FREQ	The sampling frequency in Hertz.
@AC_FILTER_HZ	DISABLED ENABLED 50 60
@HIGH_PASS_FILTER	DISABLED ENABLED

XML Tag	Description
@HIGH_PASS_FILTER_CUTOFF_FREQ_HZ	Typically “0.05” Hz.
@NAME	I II III aVR aVL aVF V1 V2 V3 V4 V5 V6
@ENCODING	BASE64
@DATA	The Base64-encoded waveform samples.