Codonics Virtua DICOM Structured Reports

Overview

This Technical Brief provides instructions for installing and configuring the Codonics® Virtua® Medical Disc Publisher to support receiving and recording DICOM Structured Reports (DSRs). There are two types of DSR installations, one for receiving patient reports from a PACS and one for receiving patient reports from a broker.

Operational Description

DSR is a format of Patient Reports that is defined in the DICOM standard. DSR provides for excellent workflow within a facility, especially when they are stored on the PACS. When a study is sent or retrieved from the PACS, the DSR is sent to Virtua with the study.

Most PACS systems support the use of DSRs, but the option is not always enabled or in use. Facilities that do not or cannot store the reports on the PACS may use a DICOM broker, PACS broker, or MITRA broker to provide Structured Reports to the DICOM systems on the network. Sometimes the broker is built into the Radiology Information System (RIS) and called a connectivity manager.

> **NOTE:** Virtua Version 2.3.0 software supports DICOM Basic Text SR. Other DICOM report types (Enhanced and Comprehensive) are not supported.

Pre-Requisites

Confirm that each of the following items are available:

- A DSR feature key, provided by Codonics Technical Support.

- A custom report logo, obtained from your Codonics Representative or created on site.

- A custom label must support the report icon with each study. Verify that the label to be used allows placement of the report icon with the study information or request a new custom disc label from your Codonics Representative.

- 2.3.0 software or later is installed.

> **NOTE:** It is recommended the Virtua administrator perform this upgrade.

Enabling DSR

DSR requires a feature key on Virtua SmartDrive. Contact Codonics Technical Support or your Codonics Representative to purchase the proper feature key.

> **NOTE:** Additional setup may be required on PACS or brokers. Consult the appropriate DICOM Conformance Statements for further information.

If reports are accessed through a broker interface, then Query/Retrieve Service Class Provider (QRSCP) and Query/Retrieve Service Class User (QRSCU) Profiles need to be set up and stored on the Virtua SmartDrive. The PACS administrator will need to provide the IP address, Query port number, and AE Title of the broker interface. In the QRSCU Profile, the information_model parameter must be set to **MITRA** for most brokers or **MITRA S** for the Siemens Novius.

Once the QRSCP and QRSCU Profiles have been created, the parameter queryProfileName in the Report Profile must be set to the name of the QRSCU Profile, which points to the broker. Using the default profiles to query the broker is not recommended.

Several customizations are also available in the Report Profile.

Setting Up DSR on Virtua

1. Add the DSR feature key to Virtua by entering the key on the Utility tab in the user interface.

2. Remove the SmartDrive from Virtua and mount it in a PC so that the profiles can be created and modified.

3. Copy the custom logo to the \profiles\report\images directory on the SmartDrive.

4. Delete the existing logo.jpg file in the \profiles\report\images directory on the SmartDrive.

5. Rename the new custom logo to logo.jpg.

6. The next step depends on whether the DSRs are coming from a PACS or from a broker:

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- **From a PACS:** Return the SmartDrive to Virtua and reboot Virtua. Once Virtua reboots, it is ready to receive reports and record them to disc. However, it may be necessary to configure the PACS to send reports to Virtua. You may also want to change Report Profile parameters, which control certain features of the Virtua Patient Reports function. For more information, refer to "Report Profile Settings."

- **From a broker:** You have to edit the QRSCP and QRSCU Profiles to configure them with information about the broker. Go to the next topic, "Additional Setup for a Broker."

Additional Setup for a Broker

1. Obtain the following information about the broker:

   IP address
   Query port
   AE Title

2. Copy the preinstalled qrscp.default.txt and qrscu.default.txt files to create a new pair of QRSCP and QRSCU Profiles in the \profiles\dicom directory on the SmartDrive named qrscu.MITRA.txt and qrscp.MITRA.txt:

   - Edit qrscp.MITRA.txt to specify the broker's AE Title, IP address, and Query port.

   - Edit qrscu.MITRA.txt to specify the QRSCU parameters.

   For information on QRSCP and QRSCU Profile parameters, refer to "DSR-Related Profile Settings" below.

3. In the Report Profile, set the queryProfileName parameter to **MITRA**, to match this parameter to the MITRA QRSCP and QRSCU Profiles you created.

4. Return the SmartDrive to Virtua and reboot.

At this point, Virtua is configured to query for a report when a study arrives.

> **NOTE:** It may be necessary to configure the broker to accept C-Find query requests from Virtua. The calling_ae_title and destination_ae_title in qrscu.MITRA.txt may need to match the values configured in the broker.

You may also want to change Report Profile parameters, which control certain features of the Virtua Patient Reports function. For more information, refer to "Report Profile Settings."

DSR-Related Profile Settings

QRSCP Profile Parameters

Below is a list of the QRSCP Profile parameters that must be defined in the qrscp.MITRA.txt file. Other parameters in the file are not used for DSR.

Parameter:	**scp_ae_title**
Settings:	*QR_Server_AE_Title*
Description:	AE Title of the server to query.

Parameter:	**scp_ip_address**
Settings:	*QR_Server_IP_Address*
Description:	IP address of the server to query.

Parameter:	**scp_port**
Settings:	*QR_Server_Port_Number*
Description:	Port used by the server for query reports.

QRSCU Profile Parameters

Below is a list of the QRSCU Profile parameters that must be defined in the qrscu.MITRA.txt file. Other parameters in the file are not used for DSR.

Parameter:	**qrscp_profile**
Settings:	**MITRA**
Description:	Defines which QRSCP server that the QRSCU Profile will use. This parameter matches the server name portion of the DSR QRSCP Profile.

Parameter:	**calling_ae_title**
Settings:	**VIRTUA**
Description:	Identifies the Calling AE Title of Virtua when it makes a query request. Most servers will use this AE Title to determine if Virtua is on its "allowed to query" list.

Parameter:	**destination_ae_title**
Settings:	**VIRTUA**
Description:	Identifies the AE Title to which the query server will store reports.

> **NOTE:** It is recommended that the entries for the calling_ae_title and destination_ae_title fields be the same name, and that they correspond to a valid custom Virtua Job Profile.

Parameter:	**information_model**
Settings:	**MITRA** or **MITRA S**
Description:	Information model to use when querying the server. If this broker is a Siemens Novius RIS interface, then set this to **MITRA S**. Otherwise, use **MITRA**.

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Report Profile Settings

The Report Profile file, report.default.txt, is stored in the \profiles\report\ directory on the SmartDrive. Below is a list of the parameters used by the Patient Reports feature, their default values, and a short description of their use.

Parameter: **doIncludeXMLReport**
Settings: **True** or **False**
Default: **True**
Description: If this setting is **True**, then the standard Codonics report is included on the study disc. This report can be viewed with a standard web browser.

Parameter: **doIncludeStructuredReport**
Settings: **True** or **False**
Default: **False**
Description: If this setting is **True**, then a DSR is included on the study disc. This setting is effective only if the source report is a DSR. This format can be viewed only by a limited number of DICOM viewers.

Parameter: **reportTemplateFileName**
Settings: *Report_Template*
Default: **template.default.xsl**
Description: The name of the template file that contains the report layout. This file must be located on the SmartDrive in the \profiles\report directory.

Parameter: **reportSeriesNumber**
Settings: **1** to **65535**
Default: **8192**
Description: Controls the series number of the DICOM Report Image attached to the study. This should be changed only if a site would like the report image to have a different series number.

Parameter: **doKeepOnlyLatestReport**
Settings: **True** or **False**
Default: **True**
Description: Determines whether or not to keep only the most recently received copy of a report, or all of the versions of a report.

Parameter: **queryProfileName**
Settings: *QRSCU_Profile_Root_Name*
Default: **None**
Description: The root name of the QRSCU Profile to use when querying a broker for a report. When set to **None**, a query will not be performed. Set the parameter to **MITRA**, to match this parameter to the MITRA QRSCP and QRSCU Profiles you created.

Parameter: **queryReportFields**
Settings: **name**, **id**, **dob**, **sex**, **acc**, **date**, **uid**
Default: **id_acc**
Description: This setting defines the fields that will be used to query the broker interface, separated by an underscore (_) character. For example, **id_acc** indicates the Patient ID and Accession Number fields. This setting should contain the least number of fields necessary to uniquely identify a single patient report.

The following is a sample Report Profile:

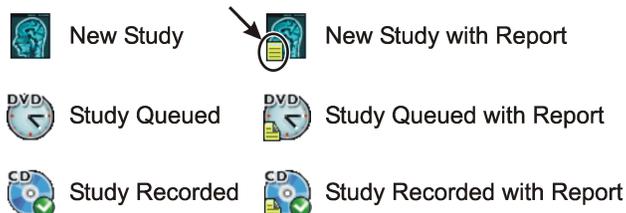| report.default.txt |
| --- |
| doIncludeXMLReport = True |
| doIncludeStructuredReport = False |
| reportTemplateFileName = template.default.xsl |
| reportImageTemplateFileName = template.image.xsl |
| reportSeriesNumber = 8192 |
| doKeepOnlyLatestReport = True |
| queryProfileName = MITRA |
| queryReportFields = id_acc |

The Report Template and Logo

The final format of the report is controlled by the report template file, template.default.xsl, located in the \profiles\report directory on the SmartDrive. This file is in a format similar to HTML and can be edited by an experienced user to create a layout tailored to a specific facility.

The report logo that is placed on the patient report is the image named logo.jpg in the \profiles\images directory on the SmartDrive. This file should be replaced with another image to create a custom report logo for each facility.

User Interface Report Indicators

The Virtua user interface indicates when a study includes a report by placing a small, yellow "page" in the bottom-left corner of icons on the Status column of the Studies and Discs tabs:

New Study   New Study with Report

Study Queued   Study Queued with Report

Study Recorded   Study Recorded with Report

Disc Label Report Indicators

The standard Virtua disc labels have been modified to include graphics that indicate when a study includes a report. A small, yellow "page" icon is placed in front of the text that describes the study:
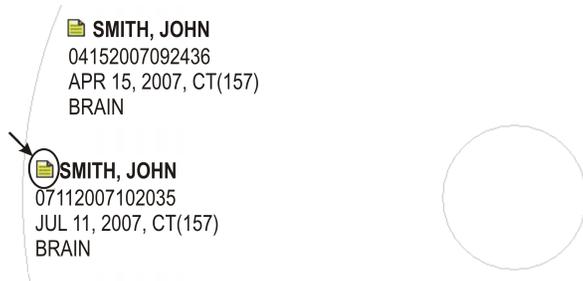
Viewing Reports

Discs produced by Virtua include a LaunchPad that allows reports to be viewed in a web browser.

When a disc that includes a report is mounted in a PC, the LaunchPad starts automatically and provides controls for selecting the report or study images. When the report is selected, a web browser is launched and the report is displayed as an HTML web page.

Troubleshooting

◆ **Verify that the DSR feature key has been installed and not expired, and that Virtua is configured as expected.**

◆ **DSR is properly configured for a broker interface, but Virtua is not receiving any reports.**

◆ Try configuring the broker to accept connections from Virtua.

◆ Open the StoreSCP log file and look for an information message that starts with: "Sending Query request for …". If this message is not present, then the queryProfileName parameter is probably not configured correctly in the Report Profile.

◆ Look for another message that starts with "Found one report for …". If this and similar messages are not present, then the query attempt failed. Either the query profiles are not configured properly, or the broker needs to be configured properly.

◆ Similar messages may indicate that no reports were found. These indicate that the report is not present on the broker. Try another patient.

◆ **DSR is properly configured for a PACS interface, but Virtua is not receiving any reports.**

◆ If a PACS is storing the reports, verify that the PACS is configured to send the reports with the studies.

◆ **Virtua is receiving reports, but they are missing text.**

◆ If this is a broker connection, try changing the information_model parameter in the QRSCU Profile to **MITRA S**.

◆ Follow these steps and contact Codonics Technical Support for additional help:

1. Delete the test study from Virtua.

2. Change the Report Profile doIncludeStructuredReport parameter setting to **False**.

3. Reboot Virtua.

4. Resend the test study with a report to Virtua.

5. Record the study with report to disc.

6. Record Virtua Logs to disc.

7. Supply the discs to Codonics for further review.

Validated Systems

Virtua has been successfully tested with the following systems and 2.3.0 software at the time of publication. Contact Codonics Technical Support for information on systems not listed.

PACS:

◆ Fuji Synapse Version 3.1 and 3.2

◆ Philips iSite Version 3.6

◆ McKesson Version 11.7

◆ Emageon 5.10.9

Brokers:

◆ Siemens Novius Version 26.2 (requires MITRA Report Management interface to be enabled)

◆ AGFA PACS Broker Version 1.5.3

◆ AGFA IMPAX Version 6.0 (Connectivity Manager)

◆ IDXRad Broker

Technical Support

If problems occur that are not covered by this Technical Brief, contact Codonics Technical Support between the hours of 8:30AM and 5:30PM EST (weekends and U.S. holidays excluded).

Phone: 440-243-1198
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Get it all with just one call
1-800-444-1198

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