

Technical Data Sheet—DataCaptor™ Connectivity Software

Capsule's DataCaptor Connectivity software manages the communication between the medical devices and the destination Clinical Information System(s). It is the core software component of Capsule's Enterprise Device Connectivity Solution.

Continuous vs. Periodic Connectivity Software

Hospitals can choose to run DataCaptor Continuous Connectivity Software or Periodic Connectivity Software or a combination of the two depending upon the needs of the environment. DataCaptor Continuous Connectivity Software enables the automatic collection of data continuously from multiple devices for a single patient in environments such as the ICU where continuous vitals collection is required. DataCaptor Periodic Connectivity Software enables the automatic collection of vital signs from a single device, such as a spot check monitor, as well as the validation and submission of those vitals to the patients record right from the point of care.

Continuous Connectivity Software is ideal for higher acuity environments such as ICU where a patient is connected to multiple medical devices and where charting is required on a more frequent basis. The automatic collection of all vitals and device data, from all connected devices, allows clinicians in these environments to focus on patient care and chart when they are ready and with the confidence of knowing that no data is lost and that all values are completely accurate. Periodic Connectivity Software is ideal for environments such as med-surg where charting is less frequent but where there are more patients and where vitals need to be in the patients record in near real time for rapid decision making.

Local Application

DataCaptor Connectivity Software runs locally on the Capsule Neuron as well as on the Capsule server. The local application features data caching to ensure that no data is lost during a network outage or EMR downtime; all data will continue to be stored locally and uploaded to the Capsule server once connection is restored. The local application includes the user interface, the drivers for managing connectivity of supported devices, and wireless connectivity to the hospital network.

Server Application

The DataCaptor Connectivity Server manages the communication between the medical devices and the destination Clinical Information System(s). The DataCaptor Connectivity Server runs on a customer provided, standard Microsoft Windows Server. It is implemented by the following set of services:

- DataCaptor Communication Service
- DataCaptor Device Interfaces
- DataCaptor Management Modules
- DataCaptor CIS Connector
- DataCaptor Management Console



DataCaptor Communication Service (DCS)

The DCS provides access to the communication services used by medical devices (i.e., serial, network, terminal server). The DCS identifies the hardware communication protocols and is responsible for ensuring that the correct DataCaptor Device Driver (DDI) is loaded for a device and for controlling the physical device ports.

DataCaptor Device Interfaces (DDIs)

DDIs implement the proprietary protocols required to provide access to specific medical devices. Each DDI is responsible for the protocol-level communication and relies on a DataCaptor Communication Service (DCS) to communicate with the device. The DDIs read and translate the device protocol as required and monitor for problems with their respective devices. DDIs can read all available parameters and alarms output from connected devices. DDI's for particular devices can be downloaded directly from the DDI Library maintained on the Capsule Web-site.

DataCaptor Management Modules (DMMs)

DataCaptor Management Modules provide a configurable mechanism to format the data being captured by the DataCaptor Connectivity Server. A stack of DMMs will be configured for each connectivity server to get the data into the format the receiving HIS needs with each individual DMM performing a unique function.. Users can choose the rate, quantity and identification of the data they receive and otherwise modify it by configuring specific DMMs. DataCaptor Management modules provide the ability to:

- Specify the frequency with which variables will be sent to a client application;
- Specify which values are sent;
- Set new names and units for received variables;
- Filter redundant data;

DataCaptor CIS Connector (DCC)

The DCC manages the transfer of data from the DataCaptor Connectivity Server to the destination Clinical Information and Alarm Management System(s). The DCC can generate HL7 ORU messages (compliant with HL7 Standard versions 2.0-2.3) as required and support queuing of outbound HL7 to ensure reliability in the face of HCIS or network outages.

DataCaptor Management Console (DMC)

The DataCaptor Management Console is an easy to use, graphical user interface that users go to for management of devices. Users go to the DMC to: view connectivity status of devices, add and manage devices, configure DMMs, and troubleshoot connectivity issues. Configuration of all aspects of the application can be done locally or remotely from other servers on the network. The DataCaptor Management Console can also generate email alerts to administrative users in the event of issues with device connectivity.

Specifications

Device Interface Types Supported

- RS-232
- RS-422
- Ethernet (10/100Mbps)

Network Type

Server - TCP/IP, 10/100Base-T Ethernet. A dedicated network is not required.

Platforms

- Certified on Windows Server 2003 SP 2 Standard Edition—US version
- Supported on Windows XP Service Pack 2 – US version
- Recommended hardware requirements for each instance of DataCaptor system software are:
 - Internet Explorer 6
 - 2.5 GHz Pentium Class System
 - 1 GB RAM minimum
 - 10 Mbps Ethernet network card
 - Network with a throughput equivalent to at least a 10

Capacity

DataCaptor Connectivity Server can support up to 130 devices on one system with the minimum requirement specifications. To increase the number of supported devices, the system server configuration can be upgraded; for example:

- A dual core processor 2.6 GHz system with 2 GB RAM can support up to 500 concurrent DDI connections.
- A quad processor or quad core processor 2.8 GHz system with 4 GB RAM can support up to 1000 concurrent DDI connections.

Capsule will assist you in determining the appropriate sizing for your server hardware based on your deployment; please contact Capsule directly for additional information concerning scalability.

Bandwidth Requirements

DataCaptor uses minimal bandwidth to collect and send variables, events, and alarms from devices. The average bandwidth used per device interface is 1.1 Kb / second outbound. Special considerations are necessary when collecting waveforms.

Ordering Information:

The Capsule Connectivity Solution is licensed by the physical device connection or by bed. Additional hardware charges will apply.

Order Code Description

CT-0001 Capsule Device Connection License

CT-0005 Capsule Bed License*

*Bed licenses deliver connection to over 500 devices supported by the Capsule Connectivity Solution. Visit www.capsuletech.com for the most up-to-date list.