

## Technical Specifications

Updated June 01, 2011

### GENERAL INFORMATION

SmartLink is a Web Application made of four main components:

- Data acquisition driver.
- Data storage system (database, applications to compress data and to maintain database with daily actions, backup system).
- Web Application (server side).
- Web Application (client side).

#### **Data acquisition driver:**

Collects data from Mindray's CMSs or Mindray's PDS gateways.

Full disclosure data are collected and saved into SmartLink's database.

#### **Data storage system:**

Based on MySQL database.

Data are stored as they come from CMS or PDS Gateway.

Every day, at a scheduled time:

- data are compressed and saved into the database.
- a pre-elaboration is performed to enhance the speed of trend graphics display,
- data older than a configurable number of days are deleted from the database.

The system administrator can start backup functions to:

- save SmartLink's configuration,
- save SmartLink's database contents.

Data are saved on the hard disk of the same PC where SmartLink is running and can be saved on external devices.

#### **Web Application (server side):**

Provides an engine to:

- compress and send parameters and waveforms data to the clients connected to the system,
- generate, compress, and transmit trends data to the connected clients,
- generate alarms notifications when alarm situations match configurable rules.

On the server side must be installed an authentication certificate (provided by Software Team).

Web Application (client side):

This application is downloaded (or updated) after the SmartLink's login page, as a browser extension.

The application provide the user interface to:

- View and arrange parameters and waveforms
- View trend graphics, enlarge them, find alarm positions, view tabular data with values and alarms
- Start waveforms and parameters replay from the trends page
- Display alarms to be taken in charge.

On the client side must be installed an authentication certificate (the same for all clients).

### **DEVELOPMENT TOOLS**

- Data acquisition drivers: Delphi (server side).
- SmartLink Server Application: Delphi (server side).
- SmartLink Web Client: Visual Studio - WPF Framework .NET.

### **SERVER CONFIGURATION**

Operating system:	Windows XP Professional, Windows 7, Windows Server 2003 to 2008
Memory:	3 to 8 Gbyte RAM
Hard disk:	60 Gbyte (or more) of free space (space requirements depend on the number of replays to keep active for each monitor)
Network:	Two Ethernet 100 Mbps cards: <ul style="list-style-type: none"><li>– one to connect the CMS or PDS Gateway,</li><li>– one to connect the server to the Hospital Network.</li></ul>
Internet:	IIS vers. 5.1, 6.0, 7.0, 7.5 (The web server must be configured to run xbp (.NET) applications).

### **CLIENT CONFIGURATION**

Operating system:	Windows XP Professional, Windows 7
Memory:	3 Gbyte RAM
Hard disk:	5 Mbyte of free space (1147 KB Smartlink + 815 KB test)
Network:	Ethernet 100 Mbps card
Browser:	I.E. 6 or later; Mozilla Firefox 3.11 or later.
Screen Resolution:	1280 x 800

### **RESOURCES MANAGEMENT**

#### **Server side:**

- Software and configuration size: 100 Mbyte.
- Data base initial size: 2 Mbyte.
- Data base additional space for 1 day of 1 monitor data (first 24 hours of data storage): 100 Mbyte (average).
- Data base additional space for 1 day of 1 monitor data (compressed data after the first 24 hours of data storage): 25 Mbyte (average).
- Bandwidth for data transmission to remote clients - 1 patient monitor (hospital network sections and/or gateway to Internet):
  - minimum: 100 Kbps,
  - maximum: 400 Kbps,
  - average.....: 250 Kbps.