SWITCHBOARD™

LAUREL BRIDGE

DICOM® CONNECTIVITY PROBLEMS?

COMPASS™ SWITCHBOARD™

DICOM® ROUTING, FILTERING, LOGGING & CONNECTIVITY UTILITIES

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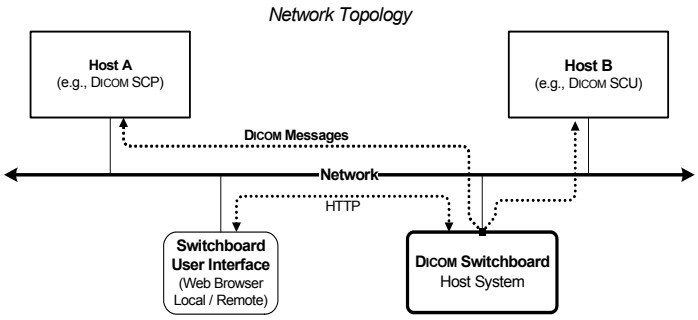
Transparently monitor, log, filter, and convert DICOM datasets during DICOM network communications.

Designed primarily for network or PACS administrators, developers, field service engineers, migration specialists, or anyone responsible for integrating DICOM devices, it facilitates interconnection of otherwise incompatible DICOM devices through rule-based routing and correction of dataset elements in real-time and for all SOP classes.

The user configures two DICOM network devices to communicate through the Switchboard, which acts as an intermediate node: inspecting, forwarding, and optionally filtering and logging DICOM PDUs sent by each DICOM Application Entity. The user may configure, monitor, or control the application via any web browser that has network access to the device running the Switchboard.



DICOM Connectivity Problems?

- Frustrated trying to add new DICOM devices to your network?
- Aggravated because you have a DICOM tag that needs to be changed before your PACS will accept the data?
- Struggling trying to log or monitor your DICOM connections?
- Discouraged that your modality or PACS won't support compression and you need it today?
- Under pressure to route certain devices based on their hostname or AE-Title?
- Irritated that you need to move data from a private DICOM tag to a public DICOM tag so your PACS can use it?
- Exasperated that your network sniffer is dropping packets?
- Overwhelmed by needing to log all the DICOM network traffic, not just yours?

Routing, Filtering and Monitoring Options:

- Alter DICOM message elements in real-time, "fixing" selected DIMSE messages, using configurable filters.
- Route DICOM Messages and select filter sets based on hostname or AE Titles by using custom mapping rules.
- Record all dataset modifications in the appropriate DICOM Sequence, all automatically.
- Add, delete, or modify DICOM elements on the fly. Regular expression matching filters select and alter dataset elements in complex ways.
- Look up modifications to apply from a text-based list.
- Alter the transfer syntax encoding to provide capabilities not supported by one host, e.g., convert a dataset from ELE to JPEG-lossless compression.
- Capture all messages by actively participating in the DICOM association – all completely immune to packet dropping.
- Monitor what you need - just the connection of interest.
- Control and monitor remotely using web-based GUIs.
- Re-package PDUs into different sizes, if required.
- Configure your log verbosity: association setup, ACSE PDUs, DIMSE reads/writes, PDU contents - summary or a full hexadecimal byte dump - and TCP/IP transactions.
- Dual modes: Transparent vs. Filtering with logging.
- Display associations and network activity in real-time.

Why choose Switchboard?

- Selects only transactions of interest
- Flexible filtering choices for all SOPs
- Dynamic, real-time control
- Low cost, software only solution
- Ease of use
- Convenient web access

Normally provided for installation on Windows, Switchboard can also be supplied for a variety of popular platforms.

MOVING FORWARD?
MOVE YOUR DATA WITH INTEGRITY
MOVE WITH LAUREL BRIDGE

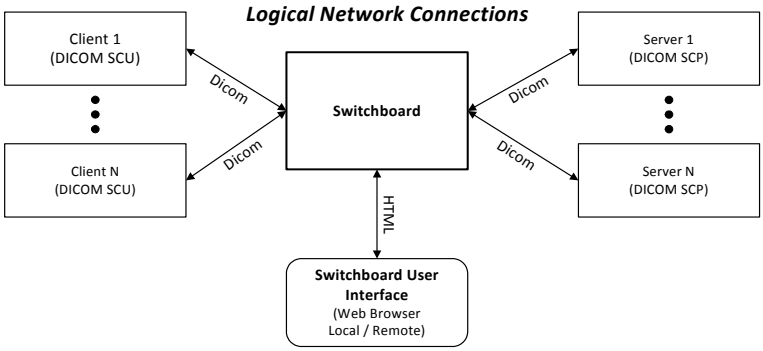
Tel: 302-453-0222 ■ E-mail: info@laurelbridge.com ■ Web: www.laurelbridge.com
LAUREL BRIDGE SOFTWARE, INC. ■ 160 EAST MAIN STREET ■ NEWARK, DE 19711 USA

SWITCHBOARD

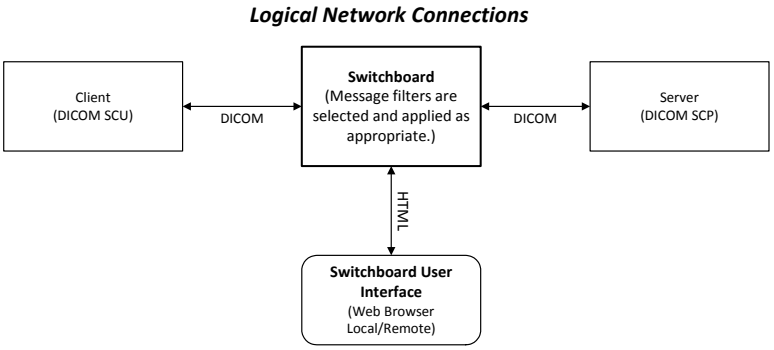
Switchboard is an in-line, network-switching device that accepts DICOM associations (where clients connect using the host, port, and AE Title) and then creates a corresponding association to a remote device, the address of which is determined by a set of user-configurable mapping rules. DICOM messages are forwarded bi-directionally between the two devices while Switchboard performs optional logging, diagnostic, and filtering operations. All SOP classes are handled by Switchboard, not simply storage.

Application Examples:

- The Switchboard can function similar to an interface engine providing a common interface for a particular DICOM service; all modalities (clients, SCU) connect to a device (server, SCP) via the Switchboard. If the server has to be replaced, serviced, or modified, no modifications to clients are required, only the Switchboard configuration needs to be modified. If a server is replaced, the Switchboard configuration is updated with the new server's identity and subsequent communications from clients are forwarded to the new server as shown in the illustration to the right.



- The Switchboard may be used to connect two devices that have some incompatibility in their implementation of the DICOM protocol, such that certain protocol fields need to have their values provided or altered, see below. The DICOM DIMSE message filtering services in the Switchboard can handle the detection and modification of the appropriate fields without requiring modifications to either the DICOM SCU or SCP (client or server) devices. Once the connection is functioning as desired, the service engineer can leave the Switchboard in place or pursue permanent corrections to the offending device by consulting with the manufacturer.



- Referring to the same diagram at the right, the Switchboard may also be used to alter the encoding (transfer syntax) of messages as they pass from one system to another. For example, a modality (client, SCU) sends the Switchboard implicit-little-endian syntax (ILE) and the Switchboard passes messages to a remote archive (server, SCP) using one of the various JPEG compression transfer syntaxes.

- The Switchboard functionality may be used as a supplementary tool to assist in the migration of DICOM data from one archive to another. It is provided as an integrated feature in the premium version of our Exodus[tm] application or it may be used as a standalone application to support some other similar tool. Logically Switchboard is placed between the source and destination devices and provides the ability to apply user-defined filters to the DICOM data sets as they are being moved. Data set elements may be altered in real-time, for instance, tags may be added to the datasets – e.g., the Contributing Equipment Sequence could be set to record the original source archive for a data set – tags may have their values dynamically modified, or unneeded tags could be removed. The Original Attributes Sequence may be automatically added or appended to preserve a record of any changes made.