
***NxtGate Enterprise Connector***

Product Brochure

# *Connect Data; Connect Workflow*; *Connect to Industry Standards*

**Introduction**

The *NxtGate Enterprise Connector* is your first step towards transforming your existing proprietary Information System to the world of medical industry standards – thereby preserving or prolonging your current investment!

The *NxtGate Enterprise Connector* provides the bridge between your existing Hospital Information System (HIS) - or any Information Systems - and standards-based systems in the healthcare IT landscape. The *NxtGate Enterprise Connector* transforms data in the repositories to workflow-based data, hence enabling to interface existing systems to the IHE / HL7 / DICOM conformance systems. These repositories can be common technologies such as the following:

- ✓ *Microsoft MS SQL Database*
- ✓ *Oracle Database*
- ✓ *MySQL Database*
- ✓ *ODBC-compatible Databases*
- ✓ *Microsoft Access*
- ✓ *XML files*
- ✓ *Text files*
- ✓ *Web services*
- ✓ *Proprietary formats*
- ✓ *others …*

The data content is transformed to standards-based information – depending on the use cases defined. The outcome is to achieve system connectivity via the following industry standards:

- ✓ HL7
- ✓ DICOM

The support for the above standards enables feasibilities for the existing Information Systems to interface in the IHE landscape – thereby participating in standards-based operating outcome. The Information System is instantly transformed from proprietary and isolation to standards-based information provider and consumer. It is essential to implement open standards to promote functional scalability, hence preserving current investment.

While newer generation of Information Systems offer standards-based system interface capabilities, the same may not hold true for earlier generation of Information Systems. There are also real-world scenarios that locally deployed Information Systems may not support standards-based system interfacing.

A key objective of *NxtGate Enterprise Connector* is to avoid the costly re-investment in Information System. The resulted lower cost barrier enables investment protection of existing (proprietary) Information System, while opening broad range of possibilities to gain alignment with ever-evolving connectivity requirements as well as offering wider use cases and enriched patient experiences.

*The NxtGate Enterprise Connector* is offered as part of *NxtGate* suite of product and can be ordered as "vmware-only" package. Hardware components already existing at the customer site can be used provided they meet the minimum requirements.

***Stay at Forefront of the Trend; Protect Your Investment; Enable Standards-based Workflow***

With the fast-paced technology innovations and changing operating environment, current deployment and operations of Information System can be quickly outpaced. With the evolvement of industry technologies and ever-changing operating landscape, the need to acquire best-of-breed solution is fast becoming a necessity. The challenge remains on the ability to provide an integral IT landscape to interface or integrate various IT modules. The *Nxtgate Connector* overcomes the challenges with its elegant broker module to provide the seamless transformation from proprietary to standards-compliant communication in bi-directional format. Coupled with workflow know-how and professional services of the implementation team, the data content can be meaningfully transformed to fulfill workflow requirements as well as adapted to the overall IHE landscape.

***Challenges in Today's Environment***

***Non-Standards based Connectivity –*** While existing Information System may provide the operational requirement, it remains as an island of information – and at most an island of efficiency. The data is not well communicated to external Information Systems. As a result, data content cannot be communicated for better coordinated services between departments. The desired outcome of quality patient services may not be optimally achieved as such.

***Isolated Workflow –*** The constraints of data extend its impact to the overall workflow of the enterprise. As information cannot be freely communicated, workflow and collaboration between departments within the enterprise may not happen in a effective and efficient manner.

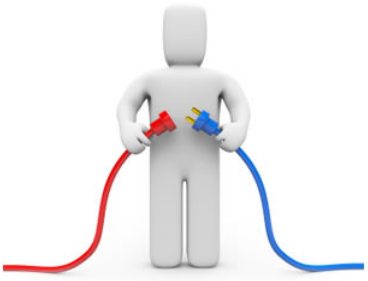
***Functional Limitations –*** Data isolation also creates functional limitations. Without appropriate, meaningful and accurate data, the data cannot be act upon by software applications effectively. In other words, the investment in external software applications or solution cannot be maximized.

***Solutions for Today's Challenges***

***Data Transformation –*** The *Nxtgate Connector* serves as an adaptor, connecting and transforming the native data repository via its built-in communication mechanism to standards-compliant system interfaces or even other proprietaryformats. The process is instant: As soon as new data or modification of data is detected, the transformation kickstarts and the workflow can be initiated with the external systems using the transformed data.

***Enabling Workflow –*** Data – as defined in the appropriate workflow messages – is communicated for the proper purpose timely. Co-ordination of communication and workflow among Information Systems occur meaningfully. Data flow leads to workflow.

***Data-driven applications –*** With the flow of appropriate data between Information Systems, the software applications would be able to maximize the rich content to operate to its full potential.



***Wide Range of Use-Cases***

The power of *NxtGate Enterprise Connector* goes beyond its capabilities to transform proprietary Information Systems to standards-compliant investment. The outcome of the transformation demonstrates the true values of the connector – the ability to address real-world issues and deliver operational requirements.

***Transforming Database to HL7 Communications***
It is common to encounter Information System that lacks healthcare-specific communication standards such as HL7. Apart from technical limitations, the lack of domain knowledge of existing (local) vendor posts great challenges to enable meaningful data content to be communicated.
*Blended with domain and workflow knowledge from the Professional Services team, NxtGate Enterprise Connector* solves the problems with its ability to transform the data content to industry-standard messaging.

***Overcome Double-Byte Language Challenges***
Local languages are always a great challenge in the world of system interfaces. Substantial effort is often required to perform encoding and decoding of languages for proper communication between systems. Such effort typically requires multiple parties' involvement. The outcome is normally undesirable or incomplete due to the technical complexity involved. *NxtGate Enterprise Connector* can process the raw nature of the *database fields* to reduce such difficulties. Subject to the language involved, language translation can also be performed to further communicate the data content to English-based Information Systems.

***The Broker between Web Services and HL7***
Web Services are common in today's IT world. The *NxtGate Enterprise Connector* facilitates the transformation of data content from the web services to HL7. Of course, the data is always transformed with relevance to workflow or data use-cases in mind.

***Transform HL7 ORU to DICOM Structured Report***
In a complex system architecture landscape, there can be multiple Information Systems co-existing. Each could require information in specific formats. Diagnostic reports generated from the Radiology Information System (RIS) may be consumed by the Picture Archival and Communication System (PACS) for enriched reading and reporting purposes.

***Customized Data Transformation***
Seamless data transformation from one proprietary format to another, ensuring system compatibility while maintaining data accuracy and integrity. It offers customizable data mapping to meet specific business requirements without the need for extensive development. By automating the transformation process, it significantly improves efficiency, reducing manual effort and saving time. Additionally, it is designed to handle large volumes of data, making it a scalable solution for businesses with growing data integration needs.

The delivery capabilities of *NxtGate Enterprise Connector* is endless. There is always another real-world issue that can be resolved.

# Automate Information Provisioning; Eliminate Error

Hospitals and other medical facilities typically use many different types of Information System Solutions to track and record everything from patient examinations and schedules to report information. In order for these various systems to communicate with each other, they must use a standard and robust interface. *NxtGate* supports both industry's standard interfaces – HL7 and DICOM – enabling you to share information seamlessly with other standards-conformant medical systems. Sharing information eliminates the need to enter the same data multiple times, saving you time while reducing the incidence of data entry errors.

## What interface do I need?

It depends on your facility. No two interface projects are identical. That's why we work with you on an individual basis to provide the best possible solution. Our field staffs are trained in managing complex interface deployments. They consult with you to identify your unique interface needs, then assist with project management – from initial specification through testing and go-live – in order to deliver a complete solution.

## What is *NxtGate Connect*

*NxtGate Connect* finds its niche within the Radiology department, enabling the information communication between various HL7 Information Systems with the DICOM devices such as modalities and Picture Archival and Communication System (PACS).

As a system-interface-connecting-hub, *NxtGate Connect* improves workflow and accuracy. It eliminates time consuming manual tasks of data entry at the modality console. It also eliminates data entry errors as a result. It enables imaging systems such as CT, MR, CR, ultrasound or PACS to receive patient demographics and examination data from scheduling applications electronically using a DICOM Worklist service.

*NxtGate Connect* communicates using industry-standard (HL7 and DICOM) interfaces, providing a robust platform of information communication within the radiology department.

## Beyond Boundaries

Through the valuable and practical field experiences gained throughout the years, *NxtGate Connect* is the next generation of cost-effective solution to bridge the information gaps within radiology department. *NxtGate Connect* addresses the technical challenges existing with the Information Systems or the modalities.

### File-Based Communication

Apart from supporting standard MLLP communication, *NxtGate* Connect also supports file-based communication. Text files can be used as alternatives to communicate HL7 information from the Information Systems.

### Practical Business Continuity

*NxtGate Connect* enables pragmatic business continuity. To ensure business continuity, the configuration is backup for quick restoration during hardware failure. The backup copy can be quickly deployed to provide continual operation of the solution. The approach avoids Windows Clustering solution, hence achieving cost effectiveness.

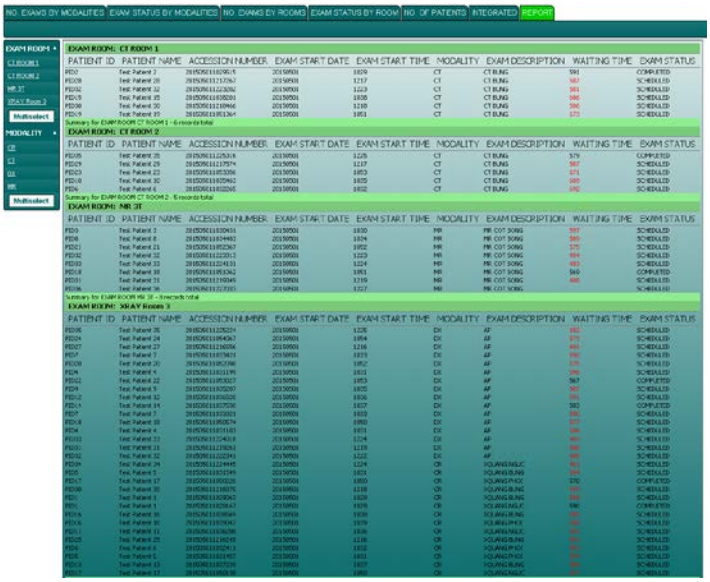
## Radiology KPI Dashboard

Do you know how your department is performing currently? Would you like to know the operational status of your department at your fingertips?

The *NxtGate Connect Dashboard* provides beyond backend system interface. It provides an overview on key performance indicators (KPI) on the operational statuses of your department.

### Web-based Dashboard

From any standard workstation within the hospital, you would be able to get up-to-date information on the examinations running through the department. With HTML5 technology, the information can even be presented on your mobile devices such as iPad etc. The information can be made available anywhere, anytime.



### Dataminine your Throughput

An elegant web-based Graphical User Interface is available to allow easy and quick access to the information residing in the application. Essential information such as status of examination etc can be quickly accessed from any standard PC and web browser application. Datamining function provides ease of extracting data out of the system for further analysis.

## Common Issues Addressed

***HIS / RIS cannot support MLLP protocol communication***

- ✓ *NxtGate Connect* supports file-based communication to overcome the technical challenge.

***Specific information needs to be provided to the modalities, but HIS/RIS cannot send the information according to defined specification***

- ✓ *NxtGate Connect* provides library of data-mapping ensuring that workflow objectives are met.

***Can I filter information to be received by modalities or PACS***

- ✓ *NxtGate Connect* provides inbound and outbound message customization capabilities. Queries from modalities can be fine-tuned, while outgoing messages can also be customized to address DICOM compatibility issues at the modalities.

***What is the advantage of having a VMWare approach?***

- ✓ The deployment is made much easier. In addition, the finalized VMWare session can be saved as an offline copy. In the event that the server hardware fails, the offline copy can be quickly deployed to facilitate business continuity.

***How can project schedule be enhanced with the solution?***

The HIS/RIS supplier can provide HL7 text messages to our interface specialist even when the server hardware is not yet ready. Our interface specialists would be able to start working on validating the HL7 messages offsite. Hence, the project schedule can be enhanced without causing bottleneck to the project schedule.

## Technical Recommendations

**Standard use configuration**

Processor: 1 x Quadcore CPU
RAM: 16 GB
Hard Disk (Operating System): 300 GB
Hard Disk (Data): 300 GB

**Intensive use configuration (multiple modalities, 24/7 use)**

Processor: 2 x Quadcore CPU
RAM: 32 GB
Hard Disk (Operating System): 2 x 300 GB RAID1
Hard Disk (Data): 2 x 300 GB RAID1

Globalcare
Your Solution Partner

***A Singapore Quality Company***