syngo Workflow SLR
New and improved administrative tools for enhancing operational control of the application

Patient-centric software platform with interoperability and workflow options for the entire enterprise
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Executive summary

Why a RIS upgrade pays off and is easier than you think

As your trusted partner, we’ve heard you and we understand that installations are time-consuming, costly, and complex to manage.

The result is our latest upgrade, syngo Workflow SLR, that is faster, more economical, and simpler to manage. Your RIS administrator will now have tools to enhance system ease of use in addition to the latest technology benefits like mobile applications, guided implementation methodologies, SQL Server platform support, SSRS reporting and more, and the cost of replacing the system is avoided.

A picture is worth a thousand words. But in healthcare, with its growing demand for value-based imaging and all associated data, the bar is raised even higher: Interoperability for linking imaging with patient care is a requirement (for example ophthalmology, pathology, dermatology, emergency room, and burn unit), regardless of the department using the technology. As the demand for integrated healthcare information technology platforms has evolved to improve efficiency, curb expenses, and provide quality healthcare, one thing has become even clearer:

It’s more important than ever to keep current with your healthcare infrastructure if your goals include improving outcomes while lowering costs.
Introduction

Why investing in an RIS upgrade business makes sense

First things first: infrastructure matters.

When your network or applications unexpectedly fail, it can have a direct and far-reaching impact on your bottom line and ongoing business operations. In some extreme cases, data and monetary losses from unplanned outages can even cause a company to close. In a healthcare organization, it can cost patients and physicians time, money, and also translate to patient safety issues.

For example, the average hourly downtime cost in healthcare in 2017 is $6.9 million.\(^1\) Despite all the advances in technology, database, hardware, and software downtime are an expected part of doing business. To mitigate this risk, your technology infrastructure must be prepared to provide real-time application monitoring, restoration, and restarts.

The future is bright, we continue to innovate.

Case in point: radiology IT solutions.

Staying on the cutting edge with your radiology information systems (RIS) is a clear advantage, as healthcare providers see many benefits from upgrading their systems to enterprise imaging. It’s always worth the time and effort if done professionally and on an ongoing basis. According to a survey by the Ponemon Institute, between HIPAA requirements and the lack of access to electronic patient information, it’s difficult to deliver effective patient care.

HIPAA rules, outdated tech cost U.S. hospitals

$8.3 billion\(^2\) per year

Challenges

Transformation of the healthcare sector

Consolidation of hospitals in IDNs

A growing number of hospitals are being consolidated into IDNs, and this is no longer a trend but rather a daily reality. According to the HIMSS database (not available to the general public), almost 3,900 hospitals have by now been consolidated into 600 IDNs.

This movement toward consolidation creates an opportunity for the radiology departments in these IDNs to re-align their service lines in a cooperative model.

Imaging services can now be consolidated in a single imaging service line. When a common IT infrastructure is activated across the IDN, the radiology departments can be seamlessly "wired" together. They can optimize their efficiency and quality by embracing the same best-in-class processes and practices across the service line. They can standardize common modality acquisition protocols, reporting formats, and ontologies. If a patient is close to Hospital A, the image acquisition can be performed there, while the study may be read by a sub-specialty radiologist in Hospital B. This means that patients won't have to endure unnecessary travel, imaging modality utilization will be more efficient, and the radiologist best-suited for a specific specialty – for example neuroradiology or MSK – can read the study any time and anywhere. A workflow orchestration engine is required to create this ideal "virtual" model of a multi-site radiology service line.

Cloud-based networks like our teamplay application provide real-time dashboards that display KPIs like modality utilization, wait time, dose outliers, report TAT, and other information across the virtually unified radiology service line.

Working with multiple vendors/multiple IT systems

Many IDNs prefer to work with a single vendor instead of multiple vendors out of fear of complexity and also to ensure that they ensure best in class service under one umbrella.

Integrating the RIS into the EHR

In 2012, the Office of the National Coordinator for Health Information Technology (ONC) required certified electronic health record technology (CEHRT) to be the central repository of patient health information (EHR). Since then, a majority of hospitals and IDNs have implemented these systems. The physician uses the EHR to document all patient information and to locate and read findings. Many in the IDN C-suite are looking for further consolidation of clinical IT applications into the EHR system with a single vendor for all apps. The EHR is great as an information repository, but it’s less suited to complex workflow management in a multi-site IDN.

Because workflows are tightly coupled with revenue generation, many CIOs are still interested in our solutions which can be integrated into their EHRs. As a leading global healthcare company, we have more than 3 decades of successfully integrating and supporting customers to reach their goals.
Optimize your IT investment.
Today and tomorrow.

The demands on healthcare organizations today are the same everywhere: Lower the total cost of ownership (TCO) of information technology, enhance performance, and improve quality and patient care.

Technology upgrades in syngo Workflow SLR VB30 can help support your business-critical systems and workflow processes. You’ll be able to access the imaging information you need any time, anywhere from your personal workstation or mobile devices.

Your system is designed for longevity.

It’s always easier, faster, and more cost-efficient to upgrade an existing system rather than investing in a new one. So keep your current system, simply optimize its performance. The timeline below gives a brief overview of the technology improvements in the past several syngo Workflow SLR releases.

Questions:
Do you want to optimize your IT investment?
Do you know what upgrades and technical features are available in syngo Workflow SLR?
How could your facility benefit from improved technology?

Answer:
This paper details the technology improvements in syngo Workflow SLR over the past several releases. An upgrade can help you optimize your IT investment and realize many new benefits.

Enhancement highlights

<table>
<thead>
<tr>
<th>Clinical benefits</th>
<th>Technical benefits</th>
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<tr>
<td>• Enhanced support for residents’ workflow</td>
<td>• Support for XDS-I, providing means to contribute and access imaging documents across health enterprises</td>
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<td>• Feature-rich procedure protocolling</td>
<td>• Increased system search speed and stability</td>
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<td>• Support for ED workflow using PACS-driven workflow</td>
<td>• Portal Technologist Web-based application helps techs monitor patients</td>
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<td>• New implementation methodology</td>
<td>• Microsoft SQL server and high availability</td>
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<td>• Enhanced integration with radiation dose module</td>
<td>• Updated model interfaces support easier implementation</td>
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<td>• Configurable home page</td>
<td>• Supports new versions of:</td>
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<td></td>
<td>• Red Hat Enterprise Linux</td>
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<td></td>
<td>• Easysoft ODBC SQL driver</td>
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<td></td>
<td>• Microsoft Office</td>
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<td>• Microsoft Windows</td>
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<td>• Microsoft Silverlight</td>
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<th>VA32A</th>
<th>VB10A</th>
<th>VB20</th>
<th>VB30</th>
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<tr>
<td>• KPI reporting with SSRS</td>
<td>• Healthcheck allows for continuous system monitoring by Siemens support</td>
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<td>• Mobile application provides flexible app access</td>
<td>• Centralized log files collect data from various areas and store them in central location</td>
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<td>• Auto-assign mammography Letters</td>
<td>• Fast-start capability: syngo.plaza starts immediately upon syngo Workflow application launch – eliminating start-up delays</td>
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<td>• Easily create IDOCs and clinical alerts</td>
<td>• Enhanced script document provides more user flexibility for identifying and perfecting/autoloading patient procedures</td>
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<td>• Receive and display AUC from CDSMs</td>
<td>• Solution to support procedure status updates on the inbound HIS/RIS model interface</td>
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<td>• Enhanced protocolling functionality</td>
<td>• MSI base installation package is available</td>
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<td>• Full client can run on a Windows 10 tablet</td>
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More Value through Enhanced Features

Enhanced features can help improve diagnostic accuracy and enable healthcare providers to expand precision medicine

Get the most out of your software investment. The technology upgrade for your imaging systems is ready.

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<tr>
<th>Tool</th>
<th>Description</th>
<th>Benefits</th>
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<tr>
<td>IDOC and Clinical Alert Builder</td>
<td>Point and click user interface to build documents</td>
<td>• No more time-consuming SQL programming and formatting needed to create interactive documents (IDOCs) and clinical alert documents</td>
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<tr>
<td></td>
<td></td>
<td>• Preview function</td>
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<td></td>
<td></td>
<td>• Build documents in minutes</td>
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<tr>
<td>Portal Administrator</td>
<td>Enhanced functionality</td>
<td>• Access to videos and documents</td>
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<td></td>
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<td>• Ability to set up notes</td>
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<td></td>
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<td>• Ability to view and track assigned implementation tasks</td>
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<td>Guided Implementation</td>
<td>Provides a step-by-step guided setup, with more information at the version, feature, and task levels, including online videos and user manuals</td>
<td>User can personalize their view of the work needed to be completed and have contextual guidance at their fingertips</td>
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<td>Active Server Monitoring</td>
<td>Monitoring solution for a) Application server b) Database server c) Web/format server</td>
<td>• Proactive support for improved system stability and uptime</td>
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<td>(syngo Workflow SLR)</td>
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<td>• Monitoring solution for file system space, excessive CPU use, configuration changes that doesn’t require the purchase of third-party software</td>
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<td></td>
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<td>• Automated alerts generated and reviewed by Siemens Service</td>
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<td>Portal Technologist</td>
<td>Enhanced status tracking</td>
<td>• Enables ease of communication with radiologist</td>
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<td></td>
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<td>• Status of procedures and other information is shown in different data elements on tracking screens (for example, “scheduled for”/“reason for exam”)</td>
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<td></td>
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<td>• Fields can easily be added, removed, and sorted</td>
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<td>• Actual procedure steps or date and time when the information was entered are displayed</td>
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<tr>
<td>Tool</td>
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<td>Benefits</td>
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| System Monitor               | Monitors all interfaces and processes and starts, restarts, and stops stop them as needed                                           | • Continuous monitoring of interfaces feeding syngo from other system  
• Information is at the fingertips of each user without help from professional programmers or Siemens Service                                   |
| Interface Transaction Handling| Interface transactions             | Re-send single and multiple accession numbers to any third-party system  
• Interface re-send                                                                                                                                 |
| Portal – for the Radiologist | Streamlined user interface          | • Enables ease of communication with technologist  
• Enhanced ability to view and access their work while providing key clinical components to make the best diagnoses  
• Supports precision medicine with functions including peer review, quality checks on the technologist and advanced protocolling functions |
| Mobile Devices Usage         | Provides ability to interact more directly with patients and have immediate access to the system                                   | • Full clients can be run on a Windows 10 tablet  
• Seamless exchange of imaging information  
• Paperless workflows will allow more time with patients and less time spent on technology interruptions                                                  |
| MSI Installer                | A Siemens Healthineers provided asset which is compatible with many standard desktop management systems and can be used directly or integrated into your update processing for SLR with little or no additional effort | Eliminates the need to build your own MSI package                                                                                                                                                    |
| Model Interface and Copy Interface | Status updates                   | • Inbound HIS/RIS model interface  
• Improved error handling for inbound interface transactions  
• Copy interfaces                                                                                                                                 |
| Additional file distribution methods | Flexibility                      | • Global worklist for a patient-centric view of imaging studies across multiple departments and systems  
• New methods include SFTP  
• Documents can be sent as email attachments  
• Support for Siemens Healthineers Desktop Connector, a software offering used to enhance desktop connectivity for a wide variety of integration scenarios involving Siemens Healthineers and 3rd party products |
| Troubleshooting support syngo Workflow SLR | InFocus alert levels             | • Integration of data sources  
• 24x7 support via the internet through the single-on LifeNet portal. Telephone service or chat capability is available for issues that require immediate attention. Siemens Healthineers support personnel call the customer within 30 minutes to discuss the issue. Siemens Healthineers accesses the system remotely and runs diagnostics based on the symptoms reported by the customer. Issues ( hardware vs. application vs. interface, etc.) are forwarded to the appropriate technical support group. |
Sample configuration of synigo Workflow SLR by multiple facilities

By providing a comprehensive RIS that can be adapted by customers on their own or with the help of Siemens Healthineers, we offer an upgrade to help manage standardized workflows across an enterprise. synigo Workflow SLR VB30 can be tailored to fit small, medium, and large organizations’ needs and budgets.
Meet all the needs of your diagnostic imaging department with *syngo* Workflow SLR

√ **DICOM, HL7, and HIPAA enabled**

Our solution complies with standards and coding systems acknowledged by medical and healthcare informatics agencies globally. Electronic messages and documents are in accordance with Health Level 7 (HL7) standards and Digital Imaging and Communications in Medicine (DICOM). The product also meets current HIPAA security requirements and patient auditing requirements.

√ **ACR Select**

ACR Select™, a licensed product of the ACR, is the digital version of the ACR Appropriateness Criteria®. Appropriate Use Criteria are evidence-based guidelines used to assist referring physicians in making the most appropriate decisions when placing imaging orders. *syngo* Workflow SLR provides support for ACR Select via an easily configurable and accessible Web link.

√ **Critical Test result management**

The Joint Commissions established the Hospital National Patient Safety Goals, 2009 Goal 2, that requires organizations to track their effectiveness at managing critical tests and results. *syngo* Workflow SLR Critical Results is a cost-effective solution that includes the ability to flag a critical finding in *syngo* Portal Radiologist, follow up on the critical finding, and track its status in the RIS.

√ **Mobile Technology**

Mobile Technology offers a direct link back into *syngo* Workflow SLR at specific points of entry. Users can leverage mobile technologies to increase bedside patient interaction without adding time to the radiology workflow.

“With the new version of *syngo* Workflow SLR, we have NEXT TO ZERO DOWNTIME. The stability and reliability of the system is as close to 100 percent uptime as you could want. Going back 18 months, I can’t remember the last time someone couldn’t get into the system.”

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Anne Osowski, RIS Administrator, Bethesda Health, Boynton Beach, Florida, USA
Meet the needs of your diagnostic imaging department with syngo Workflow SLR

√ Supports the commonly used database platform Microsoft SQL Server

To leverage the skills of your existing IT staff, we offer access to off-the-shelf system tools for reporting and productivity with SQL Server 2014 and 2016. When you use SQL Server Reporting Services (SSRS): Preconfigured with syngo Workflow SLR, you get reports that meet all industry standards. And with the SQL Server “Always On” option, automatic failover of the database results in only minimal outages and downtime, with enhanced access to your system.

√ Can be combined with other technologies to make the entire syngo Workflow SLR application highly available

Linux servers can be configured as part of a VM HA and in a Warm Standby design. Web servers can also be brought into the HA design and by default designed in a load-balanced configuration. Support for commonly requested technological features like SFTP (secure file transfer protocol), LDAP (lightweight directory access protocol), PDF (portable document format) and MSI (Microsoft Windows Installer) is guaranteed.

√ Professional support

A global support and service network

https://usalifenet.medical.siemens.com/irj/portal is available to ensure that syngo Workflow SLR meets the needs of its users and operates at the highest level.

It can be provided as service hosted by Siemens Healthineers instead of being deployed on site – an alternative for hospitals that want to save costs by outsourcing certain IT resources – or as a pre-paid offering.

“The functionality of Portal Administrator has made my job as a System Engineer much more manageable. Managing interfaces, exams, related groups, doctor master issues – it’s all much easier now. I feel that this tool improves our ability to do what we do best daily, making it easy to troubleshoot application issues for our end users and patients.”

Bart McKee, Senior Clinical Systems Engineer, Sarasota Memorial Healthcare System, Sarasota, Florida, USA
How your organization can benefit from **syngo** Workflow SLR

The convergence of informatics and services means a lot more than merely developing a stronger play in IT- or infrastructure-as-a-service.

Standards-based interoperability and integration between disparate clinical information and imaging informatics solutions have been shown to be instrumental in improving workflows, quality, and productivity across departments, all while lowering costs and improving both healthcare provider and patient satisfaction.

**syngo** Workflow SLR VB30 benefits at a glance:

- **Scalable to any size:**
  Enhanced speed and lower expense of implementation with the same vendor and single-platform approach that supports workflow efficiency with flexible worklist management.

- **Quick and easy user adoption and usage:**
  Less training required for staff and less clinical disruption thanks to portable profiles and similar user interfaces and systems; including single user log-in for all IT components combined into one workstation.

- **Resource optimization and cost reduction:**
  Results in simpler IT administration and professional service support; for example, a database that’s more responsive because tracking monitors that used to refresh in 30 seconds now refresh in two seconds.

- **Customized workflows:**
  Broad clinical coverage and capability because all modules for different workflows are integrated in the software.

- **Easier working with a single vendor with in-depth experience:**
  RIS software has an intuitive and easy-to-use interface, with everything the user needs located in the menu options and keyboard commands.

- **Future-oriented and sustainable:**
  It’s a move toward a collaborative clinical network approach, where you get the most out of RIS with efficient workflow and systems design that’s easy to integrate with other IT systems.

- **Improved clinical end-user experience:**
  Interoperability standards allow sharing of radiology images across organizations, including data migration, home reporting, the role of information systems in moving towards a seven-day service and delivering real time bedside imaging to improve patient care.
syngo Workflow SLR is available only in the U.S., Australia, New Zealand, and Canada. Due to regional workflow requirements, the available features may vary slightly, depending on where the product is being offered.

The statements by customers of Siemens Healthineers described herein are based on results that were achieved in the customer’s unique setting. Since there is no “typical” hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that other customers will achieve the same results.