Universal Tag Locator

Architecture / System Capabilities

Architecture Flexibility

The Universal Tag Locator (UTL) is a Web based application that runs on the Microsoft server platform. Its architecture consists of 4 functional server components – Web, Application, Database and File. The Architecture of the UTL is flexible to conform to your corporate IT infrastructure. The UTL can be hosted on physical or VM servers. The server components can be hosted local at the site or in corporate data centers or in the cloud. The UTL Components can be hosted on a single dedicated "UTL" server or added to existing shared SQL and Web servers.   The key part of determining the hosting location of the UTL is to balance IT costs with performance. For the optimal use of the UTL, it is important to have timely access to the outside data sources like PI, Alarm & Event data, ACM, etc.

Web Server

The Web Server component runs the application's user interface and generates the published End-of-Shift Reports (EOSR).

Operating System

Windows Server 2008 or higher

Necessary Server Components (comes with Microsoft Windows Server):
- IIS (Web Server Engine) 7.0 or higher
- SMTP (UTL Subscription Engine) – or the ability to send email to a remote host
- ODBC drivers and ability to connect to SQL, Oracle, and other data sources (i.e., ACM, Sample Manager, etc.)

Additional Software Recommended on Server:
- PI SDK – Allows for connection to PI data sources
- [Optional] Oracle 9.i client or higher – Allows connection to data stored on Oracle servers (ACM, Sample Manager, LIMS)
- [Optional] Data Access Drivers to other data sources (i.e., PHD, InfoPlus, etc.)

Application Server

The Application Server component runs scheduled tasks behind the scenes to retrieve and process data from outside sources (i.e., Alarm Data, Historian Data, etc.), making it available in UTL databases or in system-readable data files.

Operating System

Windows Server 2008 or higher

Necessary Server Components (comes with Microsoft Windows Server):
- .NET Framework 4.0
- ODBC drivers and ability to connect to SQL, Oracle and other data sources (i.e., IntelaTrac, ACM, Sample Manager, etc.)

Additional Software Recommended on Server:
- PI SDK – Allows for connection to PI data sources
- [Optional] Oracle 9.i client or higher – Allows for connection to data stored on Oracle Servers (ACM, Sample Manager, LIMS)
- [Optional] Data Access Drivers to other data sources (i.e., PHD, InfoPlus, etc.)

Notes: The requirements for the Web and Application Servers are similar. Many instances of UTL use a single server for both.

Database Server

The Database Server Component hosts the two UTL SQL Server databases required to run the application (UTL and UTL Alarm).

Database Engine

Microsoft SQL Server 2008 or higher
The SQL Server can be installed on the same machine as the application or on a separate machine. The full version of UTL consists of two SQL Server databases (UTL and UTL Alarm).

Notes: With the SQL Server located on the same machine as the web component, the system does not have to rely on a remote machine. However a dedicated SQL server may improve performance or may be necessary if IT rules don't allow running applications on a SQL server.

File System

The File System Component stores all End- of-Shift-Report (EOSR) output files in a plant-accessible file share.

Notes: On average, the existing instances of the system require about 2GB of disk space per year to store the system EOSR outputs. The system can be configured to either store the outputs locally on a server share directory or they can be sent to a network share directory.

User Interface

The UTL application is 100% server side coded – with all application processing performed on the Web Server. This allows it to be accessed by users from any standard web browser on the network (i.e., Google Chrome, Firefox, Safari, etc.). No client software is required on the user desktop to run UTL.

Other System Requirements/Items

Functional User Account

UTL requires a functional user account to be created. This "Run-As-User" has full control of the code pages and scheduled tasks as well as access to various output/input directories and read-only data sources.   When Run-As-User is first created, it should be setup to not allow local login capabilities. This restricts elevated Web Server privileges to the application and not individual users.

Remote Access to Corporate Network via VPN

Remote VPN access is required to support UTL.

Data Sources

To collect data, UTL requires read-only access to outside data sources. PI connections use the PI-SDK with a trust setup on the PI server. This allows the UTL server to retrieve PI data. Connections to database sources (i.e., ACM, LAB, etc.) require read-only login or access for the "Run-As-User."