

UT Integrator Overview - Technical Capabilities

Introduction

UT Integrator is a component of the UT for ArcGIS Product Suite – a Commercial-Off-The-Shelf (COTS) solution for utilities. The UT Integrator allows connecting GIS with other IT systems such as ERP (e.g. SAP), CRM, Inventory Systems, SCADA, DMS or other IT systems. Typically the main purposes of integration are (a) reduced data entry; (b) improved data quality; (c) better mapping between systems and (d) optimization of business processes. Processes such as asset management, maintenance, inspection, customer service and /or financial reporting are improved by system integration with GIS.

The UT Integrator is used mostly in three different ways: (1) Near real-time synchronization of certain assets and certain attributes thereof between GIS and other IT system; (2) direct call of the front end GUI of the GIS or of the other IT system; and (3) the unification of the graphical user interface, combining data and functions of the GIS and the other IT system in one web-based interface. The latter allows giving end-users a very specific GUI exactly tailored to his needs at a certain step in a business workflow.

The SAP Integration and Certification Center has certified that UT Integrator 10 integrates with SAP ERP 6.0.

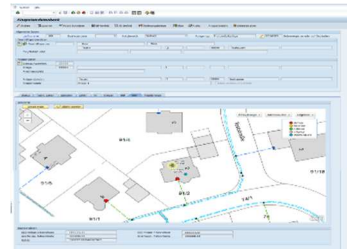
SAP® Certified
Integration with SAP Applications

Technical Overview – UT Integrator Backend Integration / IT Systems Synchronization

General message flow: External system to GIS	Messages from the external system are sent to the UT Integrator. The GIS Connector of the UT Integrator executes the relevant INSERT, DELETE or UPDATE operations in the selected ArcGIS Server version (typically in SDE.DEFAULT) and on the relevant objects / assets. The GIS Connector then sends a response to the external system containing the GIS Object ID of the new / updated asset and in the case of error the error number.
General message flow: GIS to external system	The UT Integrator checks with the PostManager what changes a user has done in a certain GIS job / version. Only these changes are sent to the external system. A filtering is possible (see object filter). Optionally, SAP sends a response. After success, all changes are posted to the default version.
Idempotent	All messages are idempotent, which means that these can be re-sent multiple times and will always have the same effect (e.g. no creation of duplicate entries).
Service End Points - Inbound	SOAP, REST, ODATA, SAP IDOC&RFC, external database, CSV file, Excel, email, HTTP
Service End Points - Outbound	SOAP, REST, ODATA, SAP IDOC&RFC, external database, CSV file, Excel, external program, HTTP, email
SOAP End Point	SOAP - Simple Object Access Protocol (a network protocol): Configuration by XSLT transformation and configuration in GUI of UT Integrator Control Center

SAP HANA	Since UT Integrator uses standard interfaces such as SOAP / REST, the UT Integrator can also be used to keep ArcGIS and SAP HANA databases in perfect sync. Thus, the UT Integrator can also be used to fill / keep in sync a GEF running under SAP HANA.
External database	Periodic reading / writing of external database tables
CSV file	Periodic reading / writing of comma separated text files
Excel	Periodic reading / writing of Excel files
Email	This endpoint is used to send emails in case certain events occur such as “send in regular intervals a report/statistics on messages”, “send email after completing a session”, “send email after start of UT Integrator on possible errors” etc. It is also used to receive emails and integrate this information.
External program	This endpoint is used to execute an external program (*.BAT or *.EXE), which may be used to e.g. execute batch files. An unlimited number of arguments can be passed on to this program.
Object filter	It is possible to filter the assets which have been determined by the GIS through comparison of versions. Only certain assets are then processed by the UT Integrator.
Authentication	UT Integrator supports Basic Authentication over HTTP or HTTPS protocol.
UT Integrator Control Center	Different functionalities are available such as check protocol of all messages, check all (GIS) jobs which were handled by the UT Integrator, manual creation of messages for e.g. certain object IDs and certain tasks; information on versions in Esri geodatabase, configurations for UT Integrator, SOAP monitor (checking all incoming external SOAP messages), information on ArcGIS Server services, log out.
Cron jobs	UT Integrator allows the creation of cron jobs to execute certain processes once or at certain times.
Logging	UT Integrator also logs all messages regarding its operation
Other EAI tools	Such as Microsoft BizTalk, IBM WBI or SAP PI may easily be integrated through the SOAP interface
System Requirements	ArcGIS for Server Enterprise Standard V10.2.1 –V10.6.1 , Java Runtime Environment JRE 8, Apache Tomcat 8.0; Operating system: Windows-based
SAP Certification	The SAP Integration and Certification Center has certified that UT Integrator 10 integrates with SAP ERP 6.0.

Technical Overview – Unification of GUIs and Frontend Integration

Unification of GUIs	 AED-SICAD developed specific expertise in integrating SAP or other IT System data and functionality jointly with GIS maps and functionality into one user interface (e.g. SAP GUI). This allows end users to access within a certain role and a certain business process only those SAP and GIS functions and data which they really need in this very moment. This type of front-end integration gives a completely new freedom of designing efficient business processes.
Frontend Web Technology	The front end is built in state-of-the-art web technology, i.e. JavaScript / HTML 5.
Geodatabase Access	Data from the external system (e.g. SAP) is mapped directly to your productive geodatabase. No intermediate GIS database is required.
GIS functionality	Within the unified GUIs, extensive, utility-specific functionality is available (excerpt): Information on assets, extensive navigation functionality to assets, search functionality, tracing (allowing e.g. shutoff notification), printing, etc.
Calling Remote GUI	Based on the mappings established by the UT Integrator between GIS Obj ID and Obj ID managed by the other IT System, the remote system can be easily called to display the exact position of a certain asset. For example: Call remote SAP GUI at a certain functional location / maintenance or call web GIS client from SAP.

Please see also: <https://www.sapappcenter.com/apps/22189/ut-integrator-for-sap>

UT Integrator does not require an UT for ArcGIS implementation; it can be implemented at ArcGIS or ArcGIS & ArcFM sites.