Esri and SAP HANA®: Real-Time Spatial Solutions
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Your customers. Your productive assets. Your supply chain. You know who they are, what they are, and how they drive your business. But do you know where they are located, how they’re connected, and how location impacts your success? Today most organizations, public and private, need to bring location and business data together to discover new customers, create new business models, streamline business processes, and jump ahead of competitors.

SAP and Esri provide the platforms, applications, and ecosystems needed to help organizations leverage the power of location to uncover new insights from business, social, and sensor data. Armed with this power, people work more efficiently, reveal new revenue opportunities, and realize significant cost savings.

Together, SAP and Esri cover the breadth and depth of geo-enabled business processes needed by organizations of all sizes, in all industries, greatly reducing or eliminating the need for multiple business or geospatial systems. Developers, internal or external, can extend those applications or create entirely new ones that work easily within the SAP® and Esri environments.

Customers can combine spatial and business data from any source into a single in-memory database.
Why SAP HANA®?

SAP HANA® is an in-memory database computing platform and a Web application development platform with an integrated application server. It includes native engines for text mining, predictive analytics, and graph processing along with an integrated spatial engine to accelerate spatial processing and analytics for real-time location insights.

This means that customers can combine spatial and business data from any source into a single in-memory database that:

• Accelerates business processes
• Tames Big Data analysis
• Keeps pace with streaming data from the Internet of Things (IoT)
• Provides a foundation for deploying accelerated applications from SAP, Esri, internal teams, or partners

With SAP HANA, business data is not just linked to an external spatial data source, but unified in-memory for instant access and accelerated spatial processing. No more broken links to fix, no more waiting hours for analysis to run.

ACID-compliant (atomicity, consistency, isolation, durability) properties and in-memory processing in SAP HANA empower better location-sensitive decisions with confidence and speed.

The comprehensive support SAP HANA offers for JavaScript, Node.js, R, JavaScript Object Notation (JSON), REST, and XML mirrors that of Esri’s ArcGIS platform. Developers can easily integrate SAP and Esri applications using common tools and familiar patterns. They can write new full-featured apps, or focused Web services, that blend data, business logic, and user interface components from both SAP and Esri. These apps or services can be easily created and used across SAP and Esri platforms.

No more will long development cycles delay critical new apps for the business.
Esri is one of the world’s leading suppliers of geographic information system (GIS) software. Esri brings the “Science of Where” to your enterprise digital transformation.

Esri’s ArcGIS is a full-featured mapping and analytics platform that includes a powerful ArcGIS Server plus dedicated Web-based GIS infrastructure for creating, organizing, and sharing your maps, geographic information, and analyses on any device, anywhere, at any time. Unlike other solutions, it is a complete, integrated platform, not an assortment of unrelated pieces.

ArcGIS lets organizations create and manage trusted, high-quality spatial data for provisioning to SAP HANA. Whether created with an Esri application or another mapping or CAD tool, spatial data that moves through ArcGIS into SAP HANA is cleansed, harmonized, and prepared for use by SAP, Esri, and other applications that access SAP HANA.

ArcGIS allows users and developers to access unified spatial and business data in SAP HANA to create informative maps and intuitive spatial visualizations, to perform advanced location analytics, and to access extensive data and imagery content from Esri, public, or private sources, such as the one shown in the Figure. All of this work can be easily shared between the SAP and Esri platforms through preintegrated, configurable, or custom applications and workflows.

Why Esri?

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For developers and IT shops, the ArcGIS platform includes APIs and software development kits, connected and disconnected mobile support, and support for distributed processing of Big Data. It also offers a flexible deployment model. ArcGIS can be used completely on premise – connected or disconnected from the open Internet – on physical hardware or virtualized environments, in the cloud on Amazon Web Services or Microsoft Azure, or as a managed service. It can be used with SAP HANA on premise, with SAP Cloud Platform, or in a hybrid mode offering complete flexibility for developing and deploying applications or geo-enabled Web services for consumption by SAP, Esri, or other applications.

Insights for ArcGIS is a cloud-based application that brings fast, powerful geographic data discovery to everyone. Use maps, charts, and tables to visualize and tell your story like never before. Advanced algorithmic spatial analysis is as simple as drag and drop. Insights for ArcGIS works with SAP HANA to blend spatial and nonspatial data, and you’re free to bring in your own data, from spreadsheets to ArcGIS data, to enrich your analysis and discover new insights.

Plus, SAP HANA is now Esri supported as a geodatabase. It can handle the complex GIS data types with ease and speed.

Unite Esri’s market-leading GIS and spatial analysis platform with the **integrated spatial engine and in-memory power and speed** of the SAP HANA platform.
Running Esri and SAP HANA: Together Is Better

Running Esri and SAP HANA together unites the market-leading GIS and spatial analysis platform with the integrated spatial engine and in-memory power and speed of the SAP HANA platform (see the figure below).

Figure: Integration of Esri and SAP HANA

Augment analytics through maps
SAP Lumira® and SAP® Analytics Cloud

Accelerate Esri performance
Esri ArcGIS desktop and server tools

Extend SAP business applications
SAP Geographical Enablement Framework

SAP HANA® platform
Load, integrate, and process spatial data

Engineering and business data
SAP application data
Real-time data
Spatial data
Esri and SAP HANA enable you to:
• Provision and manage trusted spatial and business data in one place
• Drag-and-drop SAP HANA spatial queries (data sets) into Esri ArcGIS desktop tools
• Integrate with SAP HANA without the burden and complexity of spatial joins, aggregate tables, specialized or materialized views, or subqueries – all tasks that require more data storage, development time, and lost productivity in operational management
• Streamline business processes using maps to help users visualize, select, and interact with business data
• Execute complex spatial analytics faster than ever before, giving your spatial consumers and end users the ability to make reliable decisions
• Reap the benefit of preintegrated applications delivered by SAP and Esri and their ecosystems
• Develop new applications that seamlessly work within the SAP and Esri platforms
• Focus on your application, not low-level integration and deployment tasks

SAP HANA is supported as an Esri geodatabase, which is used for storing geographic datasets, and brings the massively parallel and scalable SAP HANA engine to take advantage of Esri geographic data.

SAP customers, especially those in asset-intensive industries, need a solution that enables seamless integration with processes within SAP Business Suite applications and GIS systems such as Esri ArcGIS.

Specifically, customers need to view and interact with certain business objects on a map while using SAP Business Suite applications. They need to work with business objects from SAP and data from GIS systems at the same time in one map user interface, enabling them to gain more insights. Further, they need high-quality spatial data while having the flexibility of using any device.

SAP Geographical Enablement Framework works as the foundation to extend business data with geospatial attributes for SAP Business Suite applications and those based on SAP S/4HANA. As a framework leveraging the spatial capabilities inherent in SAP HANA, it enables organizations to develop geospatially enriched business data, make it accessible from within SAP applications as well as external GIS systems such as Esri ArcGIS, and streamline the processing of both enterprise and spatial data for greater location awareness across the whole enterprise.

Esri and SAP have a long history as partners, working together on development, integration, and product road maps to provide organizations with location analytics to grow their businesses or better serve their constituents.

A key goal has been to enable a seamless experience across the entire SAP portfolio through preintegrated applications and common tooling that greatly reduce developer time and effort where custom applications or workflows are needed.
FIND OUT MORE
It has been said that up to 80% of all data in business systems has a location component. This, coupled with mobile and social components, plus data from the Internet of Things, means traditional ways to visualize and analyze that volume of data simply don’t work. Together, Esri ArcGIS and SAP HANA help organizations leverage the power of spatial data to uncover new insights, exposing the geospatial patterns inherent in your business data and taking advantage of location-intensive data such as mobile app data and sensor data from the Internet of Things.

Find out how to get more customers, keep the ones you have, understand what’s happening now and where, and much more by contacting your local SAP representative or visiting us online at www.sap.com.

Esri ArcGIS allows users and developers to access unified spatial and business data in SAP HANA to create informative maps and intuitive spatial visualizations.

ADDITIONAL RESOURCES
SAP HANA® platform
www.sap.com/product/technology-platform/hana.html

Esri ArcGIS
www.arcgis.com/features/index.html

Esri ArcGIS Online on SAP App Center
www.sapappcenter.com

SAP HANA and ArcGIS
www.esri.com/landing-pages/sap-hana
www.sap.com/hana-spatial