1. What is SAP® Vora™?

SAP® Vora™ is an in-memory, distributed computing solution that helps organizations uncover actionable business insights from Big Data. SAP Vora runs on Hadoop and builds upon Apache Spark to provide enriched, interactive analytics.

2. What are the different licensing options for SAP Vora?

SAP Vora offers three licensing options to support different requirements:

• Developer edition, which is for nonproduction use only
• Standard and enterprise editions for production use; both are available as a perpetual or subscription license

Please talk with your SAP account manager to determine which option is best for your organization.

3. What is the best way to get started with SAP Vora?

You can get started with SAP Vora today by signing up for a test-drive or for the developer edition.

4. What is the relationship between SAP Vora and the SAP HANA® platform? Do I have to install SAP HANA first in order for SAP Vora to work?

Both the SAP HANA® platform and SAP Vora are independent products, and as such, they can be used separately to support different use cases. SAP Vora does not require SAP HANA to run, and vice versa. However, SAP Vora is designed to work synergistically with the SAP HANA platform to provide end-to-end in-memory computing across enterprise data in SAP HANA and Hadoop systems.
5. **What are the major differences between SAP Vora and the SAP HANA platform?**

The following table summarizes the major differences between SAP Vora and the SAP HANA platform.

<table>
<thead>
<tr>
<th>Products</th>
<th><strong>SAP® Vora™</strong></th>
<th><strong>SAP HANA® platform</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>An in-memory, distributed computing solution that runs on Hadoop and builds upon Apache Spark to deliver enriched, interactive analytics</td>
<td>SAP HANA® is an in-memory data platform that enables you to accelerate business processes, deliver more intelligence, and simplify your IT environment.</td>
</tr>
<tr>
<td><strong>Key capabilities</strong></td>
<td>Enriched analytics with Hadoop (for details, please see the key features table in question 6)</td>
<td>SAP HANA combines an ACID*-compliant database with application services, high-speed analytics, and flexible data acquisition tools in a single, in-memory platform. As an in-memory database, SAP HANA stores and retrieves data used by applications. It can also act as a modern-day warehouse, integrating data from a wide variety of data sources with live transactional data to deliver up-to-date insights.</td>
</tr>
</tbody>
</table>

*Atomicity, consistency, isolation, and durability*
6. What are the key features of SAP Vora?

SAP Vora provides enriched analytics as part of a comprehensive set of features summarized in the table below.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph engine</td>
<td>In-memory distributed computing engine with graph-specific algorithms to facilitate simple and rapid analysis of complex network structures</td>
</tr>
<tr>
<td>Time series engine</td>
<td>In-memory distributed computing engine enabling efficient compression and analysis of data collected at regular time intervals</td>
</tr>
<tr>
<td>Document store</td>
<td>In-memory distributed computing engine for analyzing schema-less JavaScript Object Notation (JSON) format files</td>
</tr>
<tr>
<td>Relational engine</td>
<td>In-memory distributed computing engine enhancing Spark SQL to include data hierarchies for online analytical processing (OLAP) and drill-down analysis</td>
</tr>
<tr>
<td>Disk-to-memory accelerator</td>
<td>Assurance of high performance even when data-set sizes exceed memory capacity</td>
</tr>
<tr>
<td>Data modeler</td>
<td>Web interface with a Structured Query Language (SQL) editor, data browser, and drag-and-drop interface, enabling the creation of OLAP data models using the various SAP® Vora™ engines</td>
</tr>
<tr>
<td>Distributed transaction log</td>
<td>Provision of metadata persistence by the distributed log manager for the SAP Vora catalog</td>
</tr>
</tbody>
</table>
| Streamlined integration with SAP HANA® platform | Ability to unify data with SAP HANA using various techniques – for example:  
  • Data scientists and Hadoop developers and business analysts can build models in SAP Vora that query data residing in SAP HANA by using SAP Vora interfaces built on top of the Spark SQL data source API  
  • SAP HANA users can query Hadoop data by pushing queries from SAP HANA into SAP Vora using SAP HANA smart data access technology                                                                 |
| Currency conversion                   | Support for built-in currency conversions                                                                                                                                                               |
7. What is the difference between SAP Vora and SAP HANA smart data access technology?

SAP HANA smart data access technology, which is part of SAP HANA, makes it possible to access Hadoop data using SAP HANA. In contrast, SAP Vora is an independent set of in-memory, distributed computing services deployed on the Hadoop infrastructure to provide analytics for Hadoop data. Additionally, SAP Vora allows for bidirectional data exchange between SAP HANA and data in Hadoop and Spark. This enables Hadoop and Spark users to integrate data from SAP HANA into their applications and analyses.

8. What kinds of visualization software can SAP Vora work with?

SAP Vora includes a component that allows Java Database Connectivity (JDBC) access, which enables many visualization tools to work with SAP Vora. However, there is currently no tool certification process in place.

9. Does SAP Vora work with relational databases other than SAP HANA?

You can use the Spark SQL data source API to access data in other relational databases. Access to SAP Vora from other relational databases may be achieved through the JDBC access layer.

10. What are the major differences between Apache Spark and SAP Vora?

The following table summarizes the differences between Apache Spark and SAP Vora.

<table>
<thead>
<tr>
<th>Products</th>
<th>Apache Spark</th>
<th>SAP® Vora™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A popular open-source, in-memory cluster computing framework for Hadoop</td>
<td>An enterprise-ready, easy-to-use, in-memory distributed computing solution that builds upon Apache Spark to provide enriched interactive analytics</td>
</tr>
</tbody>
</table>
| Key capabilities  | • Unified framework for building data pipelines  
                   • Support for streaming, interactive SQL queries, graph computations, and machine learning | • Combined relational, time series, JSON, and graph processing  
                   • SQL access to relational, time series, JSON, and graph computing engines  
                   • Additional Spark SQL syntax to support data hierarchies for OLAP and drill-down analysis  
                   • Web interface with an SQL editor, data browser, and drag-and-drop interface, enabling the creation of OLAP data models using the various SAP® Vora™ engines  
                   • Metadata persistence for the SAP Vora catalog  
                   • Streamlined integration with the SAP HANA® platform |
11. What is the relationship between SAP Vora and Hadoop?

SAP Vora runs on Hadoop. It is a computing solution that provides interactive analytics on data stored in Hadoop systems.

12. Does SAP Vora require any proprietary hardware?

No. You can deploy SAP Vora on an existing Hadoop installation as long as that installation meets the prerequisites stated in the installation manual for SAP Vora.

13. What Hadoop distributions does SAP Vora run on?

SAP Vora supports major Hadoop distributions, including Cloudera, Hortonworks, MapR, and SAP Cloud Platform Big Data Services (formerly known as Altiscale Data Cloud).

14. What are the major differences between the SAP Vora OLAP engine and other SQL-on-Hadoop solutions such as Spark SQL, Presto, Impala, and Drill?

SAP Vora delivers OLAP and SQL on Hadoop by enhancing Spark SQL to provide built-in enterprise functions such as hierarchy processing, currency conversions, and a graphical Web-based modeling environment for OLAP and drill-down analysis. In addition, because SAP Vora is an in-memory computing solution, it enables you to gain insights faster compared to solutions based on MapReduce or batch processing. And finally, SAP Vora provides an integrated framework that combines relational processing with time series, JSON documents, and graph processing.

15. What programming languages does SAP Vora support?

SAP Vora supports familiar programming languages including SQL, Java, Scala, Python, and C++.

16. Is there a cloud version of SAP Vora?

SAP Vora can be deployed with SAP Cloud Platform Big Data Services. You can also deploy SAP Vora in production to any cloud infrastructure running one of the supported Hadoop distributions using a bring-your-own-license model. In addition, SAP Vora is available through AWS Marketplace with community support.

17. Is SAP Vora the same product as SAP HANA Vora?

Yes.

18. Where do I find more information about SAP Vora?

For more information, visit www.sap.com/vora.

19. Is there a developer edition for SAP Vora?

Yes. You can access the developer edition here.