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SAP HANA Smart Data Streaming: Master Guide

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1 Introduction to Smart Data Streaming

SAP® HANA smart data streaming is an optional capability for SAP HANA. Installing this option enables you to collect, process, and analyze events from streaming sources in real time.

In this section:

[About this Document \[page 3\]](#)

This guide is the starting point for information about SAP HANA smart data streaming.

[What is Smart Data Streaming? \[page 4\]](#)

SAP HANA smart data streaming is a specialized option that processes streams of incoming event data in real time, and collects and acts on this information.

[Utilizing Streaming for the Internet of Things \[page 5\]](#)

The Internet of Things can produce an enormous amount of data to be analyzed and acted upon in real-time. Smart data streaming allows for real-time analysis and automated action.

[Machine Learning and Smart Data Streaming \[page 5\]](#)

You can combine smart data streaming and machine learning algorithms to learn from and make predictions based on incoming data in real time.

[SAP HANA Smart Data Streaming Documentation \[page 6\]](#)

Functionality specific to smart data streaming is detailed in the smart data streaming documentation. Some aspects of smart data streaming are also discussed in the SAP HANA documentation.

1.1 About this Document

This guide is the starting point for information about SAP HANA smart data streaming.

It provides the following information about smart data streaming:

- Overview
- Use cases
- Implementation and operation

For information about new features introduced in this release, see *What's New in SAP HANA Smart Data Streaming*.

Related Information

[What's New in SAP HANA Smart Data Streaming](#)

1.2 What is Smart Data Streaming?

SAP HANA smart data streaming is a specialized option that processes streams of incoming event data in real time, and collects and acts on this information.

Smart data streaming is ideally suited for situations where data arrives as events happen, and where there is value in collecting, understanding, and acting on this data right away. Some examples of data sources that produce streams of events in real time include:

- Sensors
- Smart devices
- Web sites (click streams)
- IT systems (logs)
- Financial markets (prices)
- Social media

Data flows into streaming projects from various sources, typically through adapters, which connect the sources to the smart data streaming server. The streaming projects contain business logic, which they apply to the incoming data, typically in the form of continuous queries and rules. These streaming projects are entirely event-driven, turning the raw input streams into one or more derived streams that can be captured in the SAP HANA database, sent as alerts, posted to downstream applications, or streamed to live dashboards.

Streaming Cluster Nodes

An SAP HANA smart data streaming cluster consists of one or more nodes, with one node per host. Streaming cluster nodes run and manage the streaming projects you deploy. Streaming nodes run on dedicated hosts, one node per host. You can start with one or more streaming nodes, and add additional nodes as needed for capacity.

Streaming Workspaces

Projects are deployed in at least one workspace on a streaming cluster. A workspace provides a namespace for the project and allows you to control permissions at the workspace level.

Streaming Projects

A project defines one or more event streams and the business logic applied to incoming event data to produce results. It may also include adapters to establish connections to event sources as well as destinations (including SAP HANA tables). At its most basic level, a project consists of streams and/or windows, and adapters.

- Adapters connect a stream or window to a data source or destination.

- A stream processes incoming events without retaining and storing data, and produces output events according to an applied continuous query.
- A window receives data, but can also retain and store data. Incoming events can add, update, or delete rows in the window's table.

1.3 Utilizing Streaming for the Internet of Things

The Internet of Things can produce an enormous amount of data to be analyzed and acted upon in real-time. Smart data streaming allows for real-time analysis and automated action.

With smart data streaming, you can capture data arriving as individual events (potentially vast numbers of events per second), and use micro-batching and parallel processing to optimize load speeds. You can capture only the data you want, in the form you need it, and prioritize, filter, transform or enrich the data as required.

You can actively monitor data arriving from sensors and smart devices, and set alerts to be triggered when immediate attention is warranted, for example, alerting operations staff to imminent equipment failure or targeting marketing offers to customers based on context.

For information on using smart data streaming with edge components, see [Introduction to Streaming Lite \[page 17\]](#).

1.4 Machine Learning and Smart Data Streaming

You can combine smart data streaming and machine learning algorithms to learn from and make predictions based on incoming data in real time.

Smart data streaming provides both supervised and unsupervised machine learning algorithms. Both types of algorithms are specifically optimized to deal with streaming data; the algorithms can respond in real time without onerous long-term storage of massive amounts of previously seen data.

Traditional supervised learning algorithms train data models based on historical, static data. In the traditional scenario, training and retraining are infrequent events that require a large pre-existing data set to be maintained. Once training is complete, a learned model is stored in a table. When new data arrives, the scoring function makes predictions based on this stored model. As patterns change, the model needs to be retrained with more historical, labelled, data to ensure the accuracy of the algorithm. In contrast, supervised learning in streaming can continuously learn as new data arrives and is labelled, thus allowing accurate scoring in real time, which adapts to changing situations.

Traditional unsupervised learning algorithms analyze a large dataset to detect hidden patterns in data, without any labels being provided to the algorithm. When new data needs to be analyzed, the entire dataset must be re-examined to determine patterns. Conversely, unsupervised learning in streaming is able to detect novel patterns in streaming data in real time without any re-analysis of previously examined data.

By combining smart data streaming with integrated machine learning algorithms, you can leverage both supervised and unsupervised learning to train models, score and cluster data all in real time with modest memory and storage requirements.

There are many applications for this capability. For example:

- You could train a model using census data such as age, education level, marital status, and postal region in order to predict, with a specific probability of certainty, the receptivity to purchasing a financial product such as a mortgage.
- You could cluster data from social media feeds to analyze public sentiment, and predict a response to a product.
- As data streams in, you could set up threat detection by analyzing malicious threats, and predicting how they might appear in the future.

You can use these functions from within a streaming project using CCL elements. To use machine learning functions in a streaming project, you need to define a predictive analysis model, and configure machine learning function parameters. You can add, edit or delete models within SAP HANA studio, using the data services view in the SAP HANA Streaming Development perspective. Once they are configured, you can use saved models in streaming projects to run analytic algorithms on sets of incoming data.

For more information, see *Machine Learning with Streaming* in the *SAP HANA Smart Data Streaming: Developer Guide*.

Related Information

[SAP HANA Smart Data Streaming: Developer Guide](#)

1.5 SAP HANA Smart Data Streaming Documentation

Functionality specific to smart data streaming is detailed in the smart data streaming documentation. Some aspects of smart data streaming are also discussed in the SAP HANA documentation.

The documentation for SAP HANA smart data streaming is available on the SAP Help Portal at http://help.sap.com/hana_options.

SAP HANA Smart Data Streaming: Master Guide

Use this guide as your entry point for getting familiar with SAP HANA smart data streaming at a high-level and some of its use cases. Plan your installation based on the provided implementation and operation details.

What's New in SAP HANA Smart Data Streaming

Use this guide to learn about new features or changed functionality. See concise feature summaries for each release.

SAP HANA Smart Data Streaming: Installation and Update Guide

Use this guide to learn how to install, update, or uninstall SAP HANA smart data streaming. Learn about hardware and software requirements, and how to troubleshoot your installation. This guide will also show you how to install the streaming lite specialized component.

Not applicable to SAP Cloud Platform Streaming Analytics.

SAP HANA Smart Data Streaming: Configuration and Administration Guide

Use this guide to learn how to configure and administer SAP HANA smart data streaming. You will be guided on everything from configuring smart data streaming for the first time, or configuring clusters and external database access, to deploying adapters and projects to a cluster and monitoring and administering smart data streaming using SAP HANA cockpit.

<i>SAP HANA Smart Data Streaming: Security Guide</i>	Use this guide to learn how to administer security across SAP HANA smart data streaming. Learn about security topics such as sandboxing, user authorization policies, SSL connections, generating keys and trust stores, and encrypting passwords.
<i>SAP HANA Smart Data Streaming: Developer Guide</i>	Use this guide to get started and get familiar with the concepts and components of smart data streaming. Learn about Continuous Computation Language (CCL) and how to use it to develop smart data streaming projects through the SAP HANA Streaming Development and SAP HANA Streaming Run-Test perspectives for SAP HANA studio.
<i>SAP HANA Smart Data Streaming: CCL Reference</i>	Use this guide as a reference point as you develop more complex SAP HANA smart data streaming projects. If you are experienced with CCL, learn how to customize your project beyond the basics with CCL language components, statements, clauses, and functions, as well as by incorporating CCL Script into a streaming project.
<i>SAP HANA Smart Data Streaming: Examples Guide</i>	Use this guide to learn more about SAP HANA smart data streaming, its components, and CCL by using the CCL examples included with it.
<i>SAP HANA Smart Data Streaming: Adapters Guide</i>	Use this guide to learn how to configure and optimize the input and output adapters, as well as the Streaming Web Service and Web Services Provider, that are included with smart data streaming to subscribe to and publish data.
<i>SAP HANA Smart Data Streaming: Building Custom Adapters</i>	Use this guide to learn how to design and create a custom adapter using the smart data streaming adapter toolkit.
<i>SAP HANA Smart Data Streaming: SDK Guide</i>	Use this guide to learn how to connect, publish, and subscribe to streaming projects using the SDK included with smart data streaming.
<i>SAP HANA Smart Data Streaming: Utilities Guide</i>	Use this guide to learn how to use the full suite of executables provided with SAP HANA smart data streaming. Use these executables to do everything from managing user permissions to starting and stopping an adapter.
<i>SAP HANA Smart Data Streaming: Error Messages Guide</i>	Use this guide as a reference for error messages in SAP HANA smart data streaming.
<i>SAP HANA Smart Data Streaming: Troubleshooting Guide</i>	Use this guide to work around common performance and connectivity issues. Troubleshoot issues such as connecting to a cluster or a project, or failure to start an adapter.

Related Information

- [What's New in SAP HANA Smart Data Streaming](#)
- [SAP HANA Smart Data Streaming: Installation and Update Guide](#)
- [SAP HANA Smart Data Streaming: Configuration and Administration Guide](#)
- [SAP HANA Smart Data Streaming: Security Guide](#)
- [SAP HANA Smart Data Streaming: Developer Guide](#)
- [SAP HANA Smart Data Streaming: CCL Reference](#)

[SAP HANA Smart Data Streaming: Examples Guide](#)
[SAP HANA Smart Data Streaming: Adapters Guide](#)
[SAP HANA Smart Data Streaming: Building Custom Adapters](#)
[SAP HANA Smart Data Streaming: SDK Guide](#)
[SAP HANA Smart Data Streaming: Utilities Guide](#)
[SAP HANA Smart Data Streaming: Troubleshooting Guide](#)

2 Use Cases

Smart data streaming can be applied to many different use cases.

The overall process is similar, regardless of the use case:

1. Equipment sensors can stream information about status and events back to a central SAP HANA system. These sensors could be monitoring statistics such as humidity level and temperature, or machine status.
2. The devices can post messages to the SAP HANA system through an adapter, or through a customized interface such as the Web Services Provider.
3. The messages are consumed by smart data streaming, which applies filters in order to transform or normalize the data, thus capturing high-value information in the SAP HANA database. For example, if you have sensors which track humidity levels and temperature data, as data from these sensors flows in, you can isolate the temperature and humidity values and join them to a table of values from the SAP HANA database.
4. The smart data streaming model continuously computes a set of summary information that is streamed to a live operational dashboard. For example, you could look at the current data (in the stream) and compare it with time-stamped entries in the SAP HANA table in order to compare current values to values that are 5, 10 or 15 minutes old. You could use this data to identify trends: Is your equipment heating up at a steady rate, or too quickly? What impact does humidity play on machine performance?
5. The smart data streaming data model also actively monitors the incoming data for conditions that warrant immediate action or attention, and generates alerts and notifications (by sending an email or text message) when those scenarios are detected.

3 Use Case Illustration: Bicycle Sharing Program

By way of illustration, smart data streaming could be used to enhance a solution designed to manage an urban bicycle sharing program.

Every bicycle share station in the Urban Bicycle Sharing Program sends information back to the operations center:

- Check-out events (bike ID, time, location, user)
- Check-in events (bike ID, time, location, user, bike status)
- Inventory events (periodic)
- Heartbeat events
- Service requests

Bicycle stations send this information as HTTP messages to the Web Services Provider connected through REST.

Smart data streaming filters and normalizes the data. Since the bike share stations are not all the same age, message formats differ by station. Smart data streaming normalizes the data into a common data model in SAP HANA.

- Check-in events are sent to one SAP HANA database table.
- Check-out events to another table.
- Service requests to a third.
- Inventory events and heartbeat events are not stored in the SAP HANA database, but are written to a file in order to maintain an archive.

Smart data streaming also correlates each check-in event with the preceding check-out event for that bicycle, computes the duration, and records a usage event in the SAP HANA database. This usage event contains the start and end times and locations.

Smart data streaming monitors available in-service inventory at each station. If the inventory falls below the set target number for a station (each station can have a different target inventory), an alert is sent to the re-distribution van to deliver bicycles to that station. Smart data streaming determines the alert priority using various factors, including the time of day, weather, and station location. In addition, smart data streaming monitors heartbeats and inventory, and issues an alert for a station that is not reporting data. Smart data streaming also monitors check-in events and sends an alert to the re-distribution van if a station has reached the maximum desirable capacity for that station.

The smart data streaming monitor compares inventory events to check-in and check-out events in order to detect discrepancies. It streams data to a live operational dashboard in the operations center, indicating healthy stations.

4 Implementation and Operation

The implementation and operation of the smart data streaming option depends on the installation scenario and technical deployment.

In this section:

[Deployment Options \[page 11\]](#)

You can install SAP HANA and SAP HANA smart data streaming each on a dedicated server (referred to as a dedicated host deployment) or on the same server (referred to as a same host deployment).

[License Keys \[page 12\]](#)

An SAP HANA smart data streaming license, separate from the SAP HANA license, is required for smart data streaming.

[Smart Data Streaming Installation \[page 12\]](#)

SAP HANA and SAP HANA smart data streaming are delivered on separate installation media. Smart data streaming has three installation packages available:

[Smart Data Streaming Security \[page 13\]](#)

User authentication for smart data streaming relies on standard SAP HANA authentication, whereas roles and permissions related to streaming are managed using either the SAP HANA cockpit or the streaming cluster administration utility.

[Smart Data Streaming Administration \[page 14\]](#)

Use the SAP HANA studio and the SAP HANA cockpit to administer and monitor SAP HANA smart data streaming.

[Smart Data Streaming Development \[page 15\]](#)

There are a number of ways to create, edit, and deploy SAP HANA smart data streaming projects. The most common approach is to start by using the design time tools that are available for SAP HANA.

4.1 Deployment Options

You can install SAP HANA and SAP HANA smart data streaming each on a dedicated server (referred to as a dedicated host deployment) or on the same server (referred to as a same host deployment).

Before installing SAP HANA and smart data streaming on the same host, make sure your host has sufficient resources for both. For example, it should have a good number of CPU cores and NUMA nodes. To help manage resource use, the system administrator can bind streaming processes to CPU cores. Use the `numactl - hardware` command to figure out how many NUMA nodes are available and what range of CPU cores are available on each node. Then, you can bind a smart data streaming server to CPU cores across NUMA nodes – utilizing all cores in a NUMA node before utilizing more NUMA nodes, as needed. You can do this by setting processor affinities in the CCR Project Configuration editor in the smart data streaming plugin for HANA studio or by using the `taskset -c <range>` command.

Additional streaming hosts can be added to the streaming cluster independently of the number of SAP HANA core hosts.

You can deploy SAP HANA smart data streaming in an SAP HANA system that is set up for multitenant database containers. For more information about the architecture of systems with multitenant database containers, see the section *Overview of SAP HANA Architecture* in the *SAP HANA Administration Guide*.

Related Information

[SAP HANA Smart Data Streaming: Installation and Update Guide](#)

[SAP HANA Administration Guide](#)

4.2 License Keys

An SAP HANA smart data streaming license, separate from the SAP HANA license, is required for smart data streaming.

i Note

SAP Cloud Platform Streaming Analytics requires a different license from smart data streaming on-premise. Please contact your account executive for more information.

Only one SAP HANA smart data streaming license is required per installation of smart data streaming, regardless of the number of streaming hosts within the single SAP HANA system.

License keys for smart data streaming are generated from SAP Service Marketplace and installed following the same process as SAP HANA core licenses. For more information, see *Managing Licenses* in the *SAP HANA Administration Guide*.

4.3 Smart Data Streaming Installation

SAP HANA and SAP HANA smart data streaming are delivered on separate installation media. Smart data streaming has three installation packages available:

i Note

Installing SAP Cloud Platform Streaming Analytics is different from smart data streaming on-premise. See the section on *Working with SAP Cloud Platform Streaming Analytics* in the SAP Cloud Platform documentation for complete details.

1. The streaming server package contains the smart data streaming server and all of the tools to administer the server, including adapters and the streaming command line tools. When you install this package, add one or more smart data streaming hosts, one for every streaming node.

2. The streaming client package contains the set of provided adapters for connecting to other data sources, the SDK, the streaming ODBC driver and driver manager, and the streaming command line tools.
3. The streaming studio plugin package contains the smart data streaming plugin for SAP HANA studio, which allows for visual development of streaming projects.

Both the SAP HANA server and the SAP HANA client are required in order to use smart data streaming (unless you have another system which already has the ability to connect to a smart data streaming server, in which case the SAP HANA client is not required). The installation procedure follows one of two installation scenarios:

Installation Scenario	Action
You have SAP HANA SPS 09 or later and want to install the smart data streaming option.	<ul style="list-style-type: none"> • SAP HANA Platform Edition SPS 09 or later is a prerequisite. If you do not have SPS 09 or later, you must upgrade. See the <i>SAP HANA Server Installation and Update Guide</i>. • Once you have upgraded to the latest SAP HANA support package stack, install the smart data streaming option. See the <i>SAP HANA Smart Data Streaming: Installation and Update Guide</i>.
You want to install SAP HANA SPS 09 or higher and the smart data streaming option at the same time.	<ul style="list-style-type: none"> • See the <i>SAP HANA Smart Data Streaming: Installation and Update Guide</i>.

i Note

After installing SAP HANA smart data streaming, use the `hdblcm` or `hdblcmgui` tool to add a smart data streaming host (one for each streaming node). For more information, see the *SAP HANA Smart Data Streaming: Installation and Update Guide*.

Related Information

[SAP HANA Smart Data Streaming: Installation and Update Guide](#)

[SAP HANA Server Installation and Update Guide](#)

4.4 Smart Data Streaming Security

User authentication for smart data streaming relies on standard SAP HANA authentication, whereas roles and permissions related to streaming are managed using either the SAP HANA cockpit or the streaming cluster administration utility.

You can access smart data streaming using your SAP HANA username and password. In addition to standard SAP HANA users, smart data streaming provides two preconfigured users:

- The `SYS_STREAMING` user can perform policy administration functions such as granting and revoking privileges in smart data streaming.
- The `SYS_STREAMING_ADMIN` user has privileges to perform all tasks in smart data streaming, except publishing or subscribing to streams.

The SAP HANA user `SYSTEM` has privileges to perform all tasks in smart data streaming.

Roles and permissions specifically related to smart data streaming are managed using either the SAP HANA cockpit or the `streamingclusteradmin` utility. For information on how to use the SAP HANA cockpit to manage roles and permissions, see the *SAP HANA Smart Data Streaming: Configuration and Administration Guide*. For more detailed information on managing access control for the streaming cluster and projects, see the *SAP HANA Smart Data Streaming: Security Guide*.

Related Information

[SAP HANA Smart Data Streaming: Security Guide](#)

[SAP HANA Security Guide](#)

4.5 Smart Data Streaming Administration

Use the SAP HANA studio and the SAP HANA cockpit to administer and monitor SAP HANA smart data streaming.

Most smart data streaming managing and monitoring tasks can be performed through the SAP HANA cockpit, which provides an enhanced view of your streaming environment within the context of your SAP HANA system. The SAP HANA cockpit displays content as tiles arranged in groups. From these tiles, you can drill down into the relevant application for more detailed information and functions. The SAP HANA cockpit implements a role-based concept so that users only have access to those tiles for which they are authorized. For an overview, see *SAP HANA Cockpit* in the *SAP HANA Administration Guide*. For smart data streaming-specific details, see *Managing Smart Data Streaming with SAP HANA Cockpit* in the *SAP HANA Smart Data Streaming: Configuration and Administration Guide*.

The SAP HANA studio runs on the Eclipse platform and is both the central development environment and the main administration tool for SAP HANA. Administrators use the SAP HANA studio, for example, to start and stop services, to monitor the system, to configure system settings, and to manage users and authorizations.

The SAP HANA studio presents its various tools in the form of perspectives. Administration and monitoring features are available primarily within the SAP HANA Administration Console perspective. For an overview, see *SAP HANA Studio* in the *SAP HANA Administration Guide*. Smart data streaming projects are developed and deployed in the SAP HANA studio, using the SAP HANA Streaming Development and SAP HANA Streaming Run-Test perspectives. For details, see the *SAP HANA Smart Data Streaming: Developer Guide*.

Related Information

[SAP HANA Smart Data Streaming: Configuration and Administration Guide](#)

[SAP HANA Smart Data Streaming: Developer Guide](#)

4.6 Smart Data Streaming Development

There are a number of ways to create, edit, and deploy SAP HANA smart data streaming projects. The most common approach is to start by using the design time tools that are available for SAP HANA.

SAP HANA Studio with the SAP HANA Smart Data Streaming Plugin

The streaming plugin for the SAP HANA studio includes a development perspective and a run-test perspective. The development perspective includes both a visual editor and a text editor for creating projects in CCL – the event processing language used by smart data streaming. For more information, see *Working with Projects in the Streaming Plugin for SAP HANA Studio* in the *SAP HANA Smart Data Streaming: Developer Guide*.

SAP Web IDE for SAP HANA

With SP 12, SAP HANA smart data streaming introduces a CCL editing plugin to be used with SAP Web IDE for SAP HANA. SAP Web IDE for SAP HANA is a browser-based integrated development environment (IDE) for building HANA applications. The SAP HANA smart data streaming plugin combined with SAP Web IDE for SAP HANA provides basic CCL editing capabilities, allowing users of the Web IDE to create and deploy simple CCL projects. SAP Web IDE for SAP HANA is not a replacement for the SAP HANA studio, and does not provide the breadth of streaming design time tools that are available in the SAP HANA studio. You should continue to use the SAP HANA studio as the primary development environment for SAP HANA smart data streaming projects.

For more information, see *Working with Projects in Web IDE* in the *SAP HANA Smart Data Streaming: Developer Guide*.

Application-Generated Content

Applications can generate and deploy dynamic streaming content. Similar to the way applications can create database content by executing SQL DDL commands, applications can create and deploy CCL projects. An application can deploy predefined CCL projects as needed, or alternatively, an application can dynamically create and deploy CCL. The SAP HANA smart data streaming server provides a REST interface that applications can use to deploy CCL to the server. Alternatively, there is a Java library that you can use for applications written in Java. These applications have the ability to connect to the SAP HANA system via TCP sockets. For Java programmers, there is also a library to read and write CCL files.

Text Editors, Command Line Tools and Other Methods

Because streaming projects are simple text files, you can also use any editor to create, view and edit CCL projects. You can compile and deploy through the command line tools (which are documented in the *SAP*

HANA Smart Data Streaming: Utilities Guide), the REST interface provided by the smart data streaming server, or the Java API.

Related Information

[SAP HANA Smart Data Streaming: Developer Guide](#)

5 Introduction to Streaming Lite

Streaming lite is a to-the-edge component that can gather, filter, aggregate, and send data through the Streaming Web Service to an SAP HANA smart data streaming project.

Streaming lite is designed to deploy streaming projects on remote gateway devices: you can use smart data streaming for CCL development and testing, and then deploy the project in streaming lite. Streaming lite is a self-contained, independent server that is not a part of the SAP HANA smart data streaming cluster. For more information on deploying streaming projects in streaming lite, see the *Streaming Lite* section of the *SAP HANA Smart Data Streaming: Developer Guide*. For more information on the Streaming Web Service, see the *SAP HANA Smart Data Streaming: Adapters Guide*.

Streaming Lite Platform and Installation

Streaming lite is optional and not required as part of a standard smart data streaming installation. The streaming lite package from SAP Service Marketplace is downloadable as a separate component only. As a separate component, streaming lite can run on the following platforms, independent of the platform on which you are running SAP HANA smart data streaming:

Platform for Streaming Lite	Product Build Environment	Product Build Compiler	Supported Operating System	Minimum Requirements
Linux -x86 64 bit	RHEL 5.5	GCC 4.6.2	RHEL 5.5 to 5.10	512MB RAM, 1GB HDD, 1 core CPU
Linux-ARM 32 bit (Version ARMv6l or higher)	Ubuntu 14.04 LTS x86_64	GCC (Crosstool-NG Linaro-1.13.1-4.8-2014.01 - Linaro GCC 2013.11) 4.8.3 20140106 (pre-release)	Raspbian 3.12.35 (wheezy)	Raspberry-pi device A + and above with default configuration

You can download the Linux and/or the ARM versions of the streaming lite tarball, provided that you have an SAP HANA smart data streaming license for any platform. For detailed instructions, see the *Installing the Streaming Lite Specialized Component* topic in the *SAP HANA Smart Data Streaming: Installation and Update Guide*.

Related Information

[SAP HANA Smart Data Streaming: Developer Guide](#)

[SAP HANA Smart Data Streaming: Installation and Update Guide](#)



[SAP HANA Smart Data Streaming: Adapters Guide](#)

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