SIEMENS

Insights Hub Private Cloud Software

Documentation

A. General

1. New Features. When we introduce new features, supplements, enhancements or capabilities (e.g. that were not previously included with the subscription, but added for no additional fee or offered separately for an additional fee), we may make updates to this Documentation that apply to your use of those new features, supplements, enhancements or capabilities. The then-current Documentation applies to you when you use these new features, supplements, enhancements, or capabilities.

2. Export Control Regulation. The features and capabilities described in this Documentation are classified as AL = N, ECCN = N/EAR99, unless expressly set out otherwise herein.

B. Features and Capabilities

Insights Hub Private Standard Software Package provides you with different features and capabilities (as described in this Chapter B) within your Customer Instance to get started with your private IoT journey. 3000 Asset Attributes are included. Additional Asset Attributes can be purchased separately for an additional fee. For general description of Asset Attributes please refer to the Insights Hub Glossary. Insights Hub Private Operations needed for deployment and continuous operation are included in your Insights Hub Private Standard Software Package.

Insights Hub Private Premium Software Package provides you with different features and capabilities (as described in this Chapter B) within your Customer Instance to get advanced functionalities for your IoT solution. 3000 Asset Attributes are included. Additional Asset Attributes can be purchased separately for an additional fee. Insights Hub Private Operations needed for deployment and continuous operation are included in your Insights Hub Private Premium Software Package.
Overview of features and capabilities included in the Insights Hub Private Standard Software Package and Insights Hub Private Premium Software Package listed below:

SIEMENS

Features and capabilities	Insights Hub Private Standard Software Package	Insights Hub Private Premium Software Package
Agent Management	Yes	Yes
Asset Management	Yes	Yes
Attribute Based Access Control		Yes
Insights Hub Digital Twin Applications		Yes
Data Contextualization		Yes
Data Sharing	Yes	Yes
Developer Cockpit	Yes	Yes
Event Management	Yes	Yes
Identity and Access Management	Yes	Yes
Identity Provider Federation	Yes	Yes
Integrated Data Lake	Yes	Yes
IoT and Storage Services	Yes	Yes
MindConnect API Services	Yes	Yes
MindConnect Device Management	Yes	Yes
MindConnect MQTT	Yes	Yes
MindConnect Software Agent	Yes	Yes
Notification Service	Yes	Yes
Operator Cockpit	Yes	Yes
Insights Hub Monitor	Yes	Yes
Insights Hub Predict	Yes	Yes
Predictive Learning	Yes	Yes
Subscription based notifications	Yes	Yes
Token Manager Service	Yes	Yes
Usage Transparency Service	Yes	Yes
Visual Flow Creator	Yes	Yes

MindConnect Library, Insights Hub Web Components, Insights Hub SDK for Java and Node.js, Python are made available for download on SIOS (Industry Online Support).

1. Agent Management

Agent Management is an Offering made available via its respective APIs. Agent Management can be used e.g. to create, update, request status or delete an Agent, and allows you to onboard or offboard an Agent.

An "Agent" is a software as part of a hardware device (e.g. MindConnect Nano) or in the form of an application provided by Siemens or a third party which you connect to your Account and which can ingest data into your Account and send data to one or more Asset Instances. The number of Agents equals the number of parallel data ingest channels. The data points that are ingested into the Account are associated to Asset Instances.

2. Asset Management

Asset Management is an offering available via its respective APIs. An Asset is the logical representation of a thing which can be a machine or an automation system with a single or multiple automation unit(s) e.g. PLC or even a factory site. This logical representation incorporates a data model describing properties and abilities of the respective thing. Assets can be set into relation with other Assets to create structures such as hierarchies. Asset Management allows you to create, read, update, and delete Assets through an appropriate user interface developed by you.

You shall not use Asset Management Services in connection with things manufactured by a third party without procuring and maintaining appropriate consent and licenses from such third party (as may be required) in your own responsibility. You shall not create representations of Assets which inaccurately represent the properties and abilities of a physical object.

3. Attribute Based Access Control

Attribute Based Access Control is a sub feature of the Integrated Data Lake feature. It allows users to create policies based on the Metadata Keys which could be either coming from artifacts present in Integrated Data Lake or from the User Attributes.

4. Insights Hub Digital Twin Applications

Insights Hub Digital Twin Applications enable you to define and manage the connections between virtual models (i.e. the digital representation for a physical object) and onboarded assets. They provide interfaces for sending time series data and events information from Insights Hub to supported enterprise applications (i.e. applications hosted by you or a Third Party authorized by you outside the wide area network of Insights Hub) in order to simulate, analyze, visualize and optimize your products and operations. The following applications are available as part of the Insights Hub Digital Twin Application suite:

Insights Hub Product Twin enables physical and virtual model mapping and connection to supported enterprise applications with Insights Hub. It also allows to configure the model for simulation and run it using operational data of an asset. This Application provides a communication channel between Insights Hub and enterprise applications.

It further allows you to create, manage and run simulations between onboarded assets and their system models. With this application, you can build a connection between an onboarded asset and its corresponding system model. This application leverages the connection to provide onboarded asset's IoT data as input to the system model. Simulations can be performed on the system model using this application. Simulation results are saved back into Insights Hub.

In addition, it enables tractability between product variants and asset events and helps to diagnose a problem by providing field feedback to the product. This application allows you to connect specific product configurations to onboarded assets, view operational events and related product defects for a specific configuration and to create new product defects for unaddressed events. It can also show you a summary of operational events generated for all product configurations. It allows you to view the complete design of a product with variant information, manage the summary of events from the fleet of assets of different product variants and to perform an analysis of events occurring on multiple assets which use a single design object.

Insights Hub Factory Twin enables physical and virtual model mapping and connection to supported enterprise applications with Insights Hub. It also allows to configure the model for simulation and run it using operational data of an asset. This application provides a communication channel between Insights Hub and enterprise applications.

It also allows you to create, manage and run simulations between physical assets and their discrete events models. With this application, you can build a connection between assets and their corresponding discrete events simulation models. This application leverages the connection to provide physical asset's IoT data as input into the discrete events simulation model.

Specific Terms.

(1) Enterprise applications are not part of our Offering. It is your responsibility to procure and maintain appropriate licenses for such enterprise applications. Such enterprise applications are solely operated by you. Enterprise applications currently supported are listed below (subject to change and for informational purposes only; please verify with your Insights Hub sales representative):

Insights Hub Digital Twin Application:	Supported enterprise application:	Supported connectors:
Insights Hub Product Twin	Simcenter Amesim, Teamcenter	Connector for Amesim, Connector for Teamcenter
Insights Hub Factory Twin	Tecnomatix Plant Simulation	Connector for Plant Simulation

(2) The connection of supported enterprise applications to Insights Hub Product Twin or Factory Twin requires the local installation of corresponding supported connector packages listed above which contain connector software and associated Deployment and Development Guides. The connector packages will be made available for download via the Siemens Support Center portal.

(3) If you wish to develop and create your own custom connector (e.g. to connect further enterprise applications to a Insights Hub Digital Twin Application), you are solely responsible for (i) developing such custom connector in accordance with the Connector Development Guide, (ii) properly installing, configuring and using it, (iii) properly connecting it to Insights Hub, (iv) deploying it in accordance with the relevant Deployment Guide (if applicable), and (iv) regularly monitoring the content, integrity, security, accuracy and timeliness of the data transmission (e.g. by monitoring such transmission over Insights Hub). Such custom connectors are not part of our Offering.

The connector software provided by us as part of the connector packages is classified as AL = 5D002C1A, ECCN = 5D002ENCB1.

Third-Party Terms. Third-Party Terms for Insights Hub Product Twin, Factory Twin, Connector for Amesim, Connector for Teamcenter and Closed-Loop Connector for Plant Simulation are available under "Closed-Loop Digital Twin Applications" via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

5. Data Sharing

Data Sharing enables you to share Asset across Environments within the same Account or with Environments of other Accounts. It enables customers to grant other Environment access to certain Customer Content (read or read and write) under a collaboration ("Collaboration"). Once the Collaboration is established, the sharing Environment will be able to share selected Customer Content with the receiving Environment ("Sharing").

For your information, an Environment (also known as "Tenant") is uniquely identified by its name and resulting URL. A User of this Environment can login via the respective URL. One Account can have multiple Environments for different purposes.

6. Developer Cockpit

Developer Cockpit can be used to:

- Assign a new application to your own developer tenant.
- Manage versions of your application. A User can perform an update of an application in order to transfer and assign it to an operator tenant.
- Transfer of new or updated applications to an operator tenant. You decide which application you want to make available for productive deployment by uploading it together with additional information to an intermediate repository. The transfer process cannot be withdrawn after the upload. You will be notified via the Developer Cockpit once the transfer of your application has been successful and the application is available on the operator tenant.

For detailed information on the individual process steps, please refer to the Insights Hub Private Cloud Developer Guide.

Third-Party Terms for Developer Cockpit are available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

7. Event Management

Managing events, creating, and publishing event types

Event Management is an Offering available via its respective APIs. Event Management is used to manage standardized and customized events. Events, alarms, warnings can be received from the field or other applications and be used to inform a User.

An event documents the occurrence of a defined situation (e.g. exceed temperature threshold or starting a motor). The order and the content of an event instance are specified in the corresponding event type (e.g. timestamp, priority, and description). Event instance represents the occurrence and includes the information defined in the event type (e.g. 2018-07-10 15:45:23 | HIGH | Temperature high).

When creating an event type, the respective creator ("Event Owner") can designate it as *local* or *global*: Local event types are private and can only be used by Users that have access to the Account of the relevant Event Owner. Global event types are listed and accessible to all users in the Customer Instance for their use. By default, a newly created event type is designated as *local*.

8. Identity and Access Management

Identity and Access Management are available via their respective APIs. Identity and Access Management are used to manage Users, customers, roles, and scopes.

9. Identity Provider Federation

We offer you the possibility to bring your own Identity Provider and federate it with your Account using Security Assertion Markup Language (SAML) or Open ID Connect protocol. Once the federation is established, you can achieve a Single Sign-On (SSO) access to Insights Hub from your Identity Provider.

Use Identity Provider Federation to:

- Configure & federate your Identity Provider with Insights Hub.
- Manage all your Identity Providers from a single user interface.
- Activate the Identity Provider of your choice.

We provide bootstrapped version of Keycloak to get you started with Insights Hub, but you should bring your own Identity Provider and federate with Insights Hub to achieve a SSO capability with your Identity Provider.

Third-Party Terms for Identity Provider Federation are available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

10. Integrated Data Lake

Integrated Data Lake allows you to store data as an object, bring together data from different sources and use it with applications and tools. You can organize data in different folders, associate it with metadata tags, search and delete objects.

You can organize data in different folders, search and delete objects. Users can associate data with metadata tags enhanced as key-value pair which makes it easier to organize/manage and provide fine grained access control based on user defined policies. In addition to native access, it allows user to upload data via APIs, seamlessly integrate with your existing subscribed Insights Hub Offerings and work. with big data tools of your choice from various cloud service providers.

Third-Party Terms. Third-Party Terms for Integrated Data Lake are available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

11. IoT and Storage Services

IoT & Storage Services are Offerings available via their respective APIs. It covers Aggregate Service, File Service, Time Series Service and Time Series Bulk Service:

- Aggregate Service is used to read aggregated time series values. Retrieve the following aggregated values per interval: Count, Sum, Average, Minimum, Maximum, First Value, Last Value and Standard Deviation.

  Aggregate Services use pre-calculated intervals to enhance performance upon retrieval. Performing queries that require on-the-fly calculations might perform slower than queries that make use of pre-calculated aggregates. Aggregates are pre-calculated based on incoming raw data with a slight delay. Therefore, it might be possible that the latest time series values are not available when reading aggregates.

- File Service is used to read, write, delete, upload and update files associated to Assets, store metadata information, and search for files by metadata. Since files are always related to an Asset, the instance of an Asset must have been created by you beforehand.

- Time Series Service can be used to create, read, update, and delete dynamic data. Since time series data are always related to an Asset, the instance of an Asset must have been created by you beforehand.

- Time Series Bulk Service can be used to upload historic time series data using files.

12. MindConnect API Services

MindConnect API Services are available via their respective API and allow you to transfer data between your Account on Insights Hub and on-premise hardware devices or on-premise connectivity software from Siemens or from third parties, provided such hardware or connectivity software is compatible with the MindConnect API Services. Connectivity software and hardware for the connection of devices, systems or other equipment to Insights Hub are not part of Insights Hub. It is your responsibility to procure and maintain appropriate licenses for such hardware and connectivity software. Such hardware and connectivity software are solely operated by you.

SIEMENS

13. MindConnect Device Management Services

MindConnect Device Management Services are available via their respective APIs. It covers the following Offerings:

- Device Management allows to maintain an inventory of all connected devices as well as to manage the lifecycle of device types. The device type is used when determining which software (especially firmware) can be installed on which device instance. A device can only be onboarded to Insights Hub via an Agent. Credentials for accessing Insights Hub are tied to Agents created by using Agent Management Service as described in Section B 1.
- Deployment Workflow allows to deploy software packages or configuration files to devices. You can model the deployment operations as a workflow state machine according to your needs, while deploying artifacts or configuration to your devices
- Device Configuration allows to (re-)configure devices. This Service uses Deployment Workflow for controlling the update process and for tracking the result of the update with a predefined deployment model. It also allows to store, manage and version configuration files.
- Device Status allows to monitor the health status (e.g. *online*/*offline*) of devices on Insights Hub.
- Firmware Deployment allows to initiate jobs for deploying firmware releases on devices. This Service initiates a job instance on Deployment Workflow to download firmware artifacts onto devices by using a predefined deployment model. It generates a URL for devices to download the artifacts files. Those generated pre-signed URLs may only be used to manage firmware releases to connected edge devices.

14. MindConnect Software Agent

MindConnect Software Agent is a software that allows you to connect supported third party hardware devices to your Account on Insights Hub. It also allows you to collect data from industrial devices using supported field protocols such as S7, OPC-UA, Ethernet/IP, and Modbus TCP and to transfer the collected data to your Account via an established connection.

The software will be made available for download on Insights Hub and must only be used on supported third party hardware devices. For further information as to which hardware devices are currently or will be supported, please verify with your Insights Hub sales representative. Specific Terms for MindConnect Software Agent. Hardware devices are not part of our Offering and are solely operated by you. It is your responsibility to procure such hardware devices. We grant you a Perpetual license to use the MindConnect Software Agent.

15. MindConnect MQTT

MindConnect MQTT Services are available via their respective API and allow you to transfer data between your Account on Insights Hub and on-premise hardware devices or on-premise connectivity software from Siemens or from third parties, provided such hardware or connectivity software is compatible with the MindConnect MQTT Services. Connectivity software and hardware for the connection of devices, systems or other equipment to Insights Hub are not part of our services. It is customer's responsibility to procure and maintain appropriate licenses for such hardware and connectivity software. Such hardware and connectivity software is solely operated by customer.

16. Notification Service

Notification Service is available via its respective APIs and requires a separate agreement between you and Siemens. Notification Service enables you to (i) send email in relation to certain events defined by you, or (ii) send email notifications to (a group of) individual recipients.

17. Operator Cockpit

Operator Cockpit can be used to:

- Accept the transfer of an application from a developer tenant to your operator tenant.
- Register self-hosted applications in the productive environment and operate.
- Get an overview of all your applications available on your operator tenant.
- Get information on usage and traffic.

- Check health status of all your applications.
- Receive and display notifications concerning your applications.
- Provision applications to your productive tenant.

For detailed information on the individual process steps, please refer to the Insights Hub Private Cloud Developer Guide.

18. Insights Hub Monitor

With Insights Hub Monitor it is possible to explore the performance and condition of assets, products or lines in real time, get full and harmonized transparency and root cause of the data from connected assets, calculate KPIs, drill-down analysis, assign work orders within your team and get automatically notified upon exceeded thresholds. This Offering offers the following functionalities in the categories “explore”, “analyze” and “configure”:

- Explore basic dashboards can be used to visualize time series data and other information (e.g. text, images) on one page.
- Explore Assets provides an overview of assets configured in the respective Account, allows to search and filter for relevant assets based on various criteria, and displays measured data and information from assets.
- Explore Events shows time series events of different severities and allows you to acknowledge events, start work orders and explore assets.
- Explore Work Orders is used to investigate issues and ongoing maintenance activities within your own production and assets, and it allows you to change status, priority, and assignee of a work order (in which case a message will be sent to the assignee).
- Analyze Time Series is a basic analytics application for time series data.
- Generate Forecasts based on our Insights Hub Predict framework to enable predictions of KPIs based on time series data.
- Generate Anomaly Detections based on our Insights Hub Predict framework to find anomaly spots from existing time series data.
- Configure KPIs is used to define and calculate KPIs on time series data by visually selecting input and output variables.
- Configure Rules is used to monitor one or more variables of the respective assets and define resulting actions such as sending notifications or setting a status indication after the occurrence of an event set, e. g. if the data relating to a certain asset exceeds a threshold defined.
- Configure advanced KPIs allows you to create KPIs with a graphical editor and analyze KPIs live, as well as start a root cause analysis:
- Explore advanced Dashboards has advanced refresh features as well as an added “KPI Analysis” widget to do KPI analytics right in the dashboard:

With Insights Hub Monitor it is also possible to create advanced KPIs and dashboards on time series data.

Third-Party Terms. Third-Party Terms for Insights Hub Monitor, Explore Dashboards, Explore Assets, Explore Events, Analyze Time Series, Configure Rules, Explore Work Orders, Configure KPIs, Rules Services, User Settings Services, Generate Forecasts and Generate Anomaly Detections based on Insights hub Predict framework are available under “Insights Hub Monitor” via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

19. Insights Hub Predict

The Insights Hub Predict framework is accessible from the ”Analyze” tab-category of Insights Hub Monitor. It offers end-to-end, out-of-the-box model building that identifies relevant features and generates a unique GAM (Generalized Additive Model) for each time series forecasting or anomaly detections use case, which allows you to –

- Forecast your future time series data values with assigned prediction horizon, validation dataset, confidence interval, etc.
- Detect anomaly spots from your existing time series data values based on different perspectives, normal behaviors configuration, etc.

With the user interface of Insights Hub Predict, you can start from “Use Case” and "Dataset" where your Forecast and Anomaly Detection models can be associated, built, and executed. You can make easy configuration of parameters for model building and leverage visualized execution results for further leveraging in your own use cases.

Specific Terms. Insights Hub Monitor allows you to generate 50 forecasts and 50 anomaly detections per month. Additional forecasts and anomaly detections can be purchased for an additional fee (for more details see Chapter C).

Third-Party Terms. Please note the Third-Party Terms set out above for Insights Hub Monitor. Additionally, Third-Party Terms for Configure advanced KPIs are available under “Insights Hub Monitor” via the following web link:

https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

20. Predictive Learning

Predictive Learning allows you to build predictive models through machine learning techniques, enabling companies to optimize product quality as well as reduce potential field failures and performance issues. You can employ machine learning algorithms including Naive Bayes, Random Forest, Logistic Regression, Decision Trees, Gradient Boosting, Support Vector Machines and others. It also allows you to build and execute predictive models in Python, R and Spark.

Predictive learning supports multi-coding language like Python, R and Spark. Predictive learning supports also scheduling functionality by managing jobs using a schedule.

Specific Terms. Pre-installed open source libraries are listed in the Third Party Terms available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms. Further libraries can be procured by you under separate terms via download from external repositories, i.e. pip (https://pypi.org/project/pip/) for Python and CRAN (https://cran.r-project.org/) for R. Such libraries are not part of our Offering and solely operated by you.

21. Data Contextualization

Data Contextualization is available via its respective APIs. It is a contextualized data integration framework that allows you to maximize the value of enterprise data from disparate sources along with IoT data. Data Contextualization enables you to infer relationships between various data points and to correlate design, financial and manufacturing data with operational data from physical assets. SDI provides a complete workflow to register, ingest and search data and associated metadata from external data, build semantic models and finally query to consume correlated data. Data Contextualization capabilities are delivered through the following APIs:

- Data Registry Service provides the functionality of data source, data lake and custom data type registration. Currently only Integrated Data Lake is supported for data lake registration.
- Data Ingest Service is used post registration to ingest files from various systems and trigger the data ingestion process. It allows application developers to integrate source systems. After the data ingestion is completed, Data Contextualization triggers automatic-schema discovery process and provides schema for ingested data into Data Contextualization
- Semantic Model Service provides end-to-end capability to create, store, update or delete semantic models
- Data Query Service enables you to create, store, update, and get results for semantic business queries and physical queries.

Third-Party Terms. Third-Party Terms for Data Contextualization are available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

22. Subscription based Notifications

This feature enables Insights Hub to send notifications to the subscribing Environments when new Time Series data or Events arrive. Apps can be configured to listen to these notifications for polling the subscribed data more efficiently. Thus, eliminating the need for cyclic polling. For existing applications, this feature needs modifications in the app by the app developer. For new applications, the use of Subscription Based Notifications must be planned beforehand during design phase. The notifications work with a minimum window of 1 minute. Currently the apps outside the Insights Hub ecosystem are not supported. Works only with latest Message Broker Service Version.

23. Token Manager Service

Token Manager Service is available via its respective APIs. This Token Manager Service is necessary if your applications shall access data without user interaction by issuing access tokens. Before an application can issue access tokens for a productive tenant, the application must be provisioned to the productive tenant and explicit approval for the data access must be obtained by you from the application customer. We will provide technical means for you to obtain such approval via a standard process and template as currently described in more detail in the user documentation for the *Operator Cockpit*.

24. Usage Transparency Service

Usage Transparency Service is an Offering available via its respective APIs. This Offering offers insight on your consumption of certain resources, e.g. API calls, number of Users, inbound traffic and data storage volume. Moreover, developers can define metrics within this Offering so that consumption can be tracked.

25. Visual Flow Creator

Visual Flow Creator enables you to design your own workflows via a drag and drop functionality to develop graphic depiction of workflows. You can choose from a variety of pre-configured nodes provided by Siemens or you can deploy your own nodes to Visual Flow Creator for use in your workflows. Create the workflows with the web-based editor to analyze and generate new virtual data points or deliver the formatted data for reporting tools. The workflows can be triggered manually, time-based or via RESTful call. You can calculate KPIs or trigger actions.

Specific Terms. The number of worksheets is limited to 10 per User. The number of nodes for one sheet is limited to 100. The amount of data stored in the context of function node is limited to 128 KB and only one context variable is allowed. The file size is limited to 1 MB for read and write and 100 file transfers per day. Only 2 000 values can be processed per time series request. The calculation duration of a flow must be less than 30 seconds. The number of node context variables in a function node is limited to 5 per node per User. The number of flow context variables in a function node is limited to 20 per node per User. The number of global context variables in a function node is limited to 100 per node per User.

The execution time of all nodes for one Account could be limited depending on the Application and Platform load. All created workflows are visible for all Users of your Account.

It is your responsibility to procure and maintain appropriate licenses for any nodes you deploy to Visual Flow Creator.

Third-Party Terms. Third-Party Terms for Visual Flow Creator are available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

C. Add-ons

For the access and use of Offerings described in this Chapter, a valid subscription to a Insights Hub Private Standard Package or a Insights Hub Private Premium Package, respectively, is required. The Offerings described herein can be added for an additional fee as additional Offering to your respective Insights Hub Private Package.

1. Insights Hub Predict Anomaly Detection Upgrade

Anomaly Detection Upgrade allows you to extend the number of anomaly detections every month that you can execute via your predictive models built from essential anomaly detection capabilities. You can have additional 500 anomaly detections every month via one upgrade or get more purchasing multiple upgrades.

2. Insights Hub Predict –Forecast Upgrade

Forecast Upgrade allows you to extend the number of forecasts every month that you can execute via your predictive models built from essential forecast capabilities. You can have additional 500 forecasts every month via one upgrade or get more purchasing multiple upgrades.

3. Insights Hub Edge Analytics

Insights Hub Edge Analytics allows you to collect high frequency data, pre-process raw data and use an analytic edge functionality to calculate your KPIs. These KPIs allow condition monitoring (e.g. vibration analysis) of your asset. Your subscription to Insights Hub Edge Analytics comprises (i) a subscription license to the Insights Hub Edge Analytics Engine software for use on your connectivity hardware in the field to collect data and perform edge analytics of the data to calculate KPIs and send the calculated KPIs to Insights Hub, and (ii) a subscription to the application Insights Hub Edge Analytics that allows you to configure your data points and KPIs on your Account.

The Insights Hub Edge Analytics Engine software will be made available for download and must only be used on supported connectivity hardware. The MindConnect Nano and MindConnect Software Agent from Siemens are currently supported connectivity hardware. For further information as to which connectivity hardware is currently or will be supported, please verify with your respective sales representative. The quantity of external data points can be purchased as required as a subscription in packages of 5 data points, which can be used by any edge analytics engine onboarded on the user's tenants.
You can also use the trial mode for up to 5 external datapoints to explore and test the Edge Analytics functionalities within 7 days. After expiration, the Edge Analytics Engine needs to be restarted again.

Third-Party Terms. Third-Party Terms for Insights Hub Edge Analytics are available within Industry Online Support via the following web links:
MindConnect IoT2050: https://support.industry.siemens.com/cs/ww/en/view/109813714
MindConnect Nano: https://support.industry.siemens.com/cs/us/en/view/109745561
MindConnect Software Agent: https://support.industry.siemens.com/cs/us/en/view/109809640
Third-Party Terms for Insights Hub Edge Analytics are integrated into MindConnect firmware, therefore the above mentioned web links will depend on the MindConnect products you are using.

4. Insights Hub Dashboard Designer

Insights Hub Dashboard Designer enables you to create simple & advanced Grafana based dashboards from IoT data. It is accessible directly from the Launchpad. The following Grafana visualization panels are available, e.g. Alert List, Bar Gauge, Clock, Dashboard List, Gauge, Graph, Heatmap, Pie Chart, Separator, Singles Table, Text. Additionally, the following third-party visualization plugins are available, e.g. Breadcrumb, ImageIt, Cal-Heatmap, SVG, Traffic Lights. Those visualization panels can be combined into dashboards. Insights Hub Dashboard Designer can be subscribed to in different types (Creator/ Viewer) of Authorized Users. An Authorized Creator User can create view, modify and delete existing dashboards. An Authorized Viewer User can view existing dashboards. Your subscription to Insights Hub Dashboard Designer includes 10 Authorized Creator and 50 Viewer Users; additional upgrade subscriptions to upgrade the number of Creators or to subscribe as Viewer are available separately for an additional fee.

Please note that creating dashboards by Authorized Creator Users, certain technical limitations may apply. For more information, please refer to https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/technical-limitations

Third-Party Terms. - Third-Party Terms for the Insights Hub Dashboard Designer are available under "Dashboard Designer" via the following web link: https://siemens.mindsphere.io/en/docs/ProductDescriptions-Overview/Third-Party-Terms

5. MindConnect Advanced Driver Extension

MindConnect Advanced Driver Extension is an optional extension to the MindConnect Software Agent to which you can subscribe. A subscription to this extension allows you to use additional adapters within the supported hardware devices and to enable various additional supported field protocols such as S7+, IEC61850, or SINUMERIK PL.

Specific Terms for MindConnect Advanced Driver Extension. With your subscription to this extension, we grant you the non-transferable, non-sublicensable, and revocable right to use, and permit Third Parties to use, the extension for using one adapter within one supported hardware device during the Subscription Term.

6. Insights Hub OEE Private

Insights Hub OEE Private allows you to calculate Overall Equipment Effectiveness (OEE) and additional KPIs for lines and machines, in order to better understand the efficiency of underlying production processes and to be able to continuously improve. Additionally, it also helps the user to track the success of measures taken. OEE Hub offers you the following core capabilities:

- Calculate OEE, Mean Time To Repair (MTTR), Mean Time Between Failure (MTBF) and further relevant KPIs for machines and lines
- Filter capabilities for timeframe, products, and orders
- Support of single- and/or multiproduct production systems
- Reason tree modeling and ability to change recorded downtime reasons afterwards
- Customization of OEE formulas for OEE calculation

• Set up production times, breaks, maintenances etc. in calendars

Your subscription to Insights Hub OEE Private includes 100 Assets and 100 Users. Additional Assets and Users can be upgraded for additional fees.

Third-Party Terms. Third-Party Terms for Insights Hub OEE Private – are available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

7. Insights Hub Business Intelligence

Insights Hub Business Intelligence enables you to visualize certain parts of Customer Content. Such visualizations can be combined into dashboards, which may be used to analyze the performance of connected assets.

Insights Hub Business Intelligence can be subscribed to in different types (Creator/ Viewer) of Authorized Users. Your subscription to Private Cloud Business Intelligence Creator includes 100 Creators. Your subscription to Private Cloud Business Intelligence Viewer includes 500 Viewers.

A Creator can access Insights Hub Business Intelligence application, which is built on Tableau®, and the supplemental tool Insights Hub Business Intelligence – Connector from the Insights Hub Launchpad. Insights Hub Business Intelligence – Connector can be used to select Assets and Aspects and transform those into data sources, which can later be used to create visualizations with the main application. The main application further enables you to create or publish a workbook (i.e. a combination of visualizations and dashboards), modify an existing workbook or create subscriptions, alerts or comments on a published workbook.

A Viewer gets access to a subset of features and functionalities via the Insights Hub Business Intelligence application. A Viewer may interact with or export an existing visualization but may not use Insights Hub Business Intelligence – Connector.

Third-Party Terms. Third-Party Terms for the Insights Hub Business Intelligence main application and Insights Hub Business Intelligence – Connector belonging to Insights Hub Business Intelligence are available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

8. Insights Hub Quality Prediction

Insights Hub Quality Prediction represents a solution for production managers, quality engineers, manufacturing engineers and machine operators to discover complex relationship between production machine parameters and resulting product quality with application of Machine Learning (ML) technique. The ML model of the process established in the application is used to predict resulting product quality characteristics with input of actual manufacturing parameters in real time before a defect and quality loss occurs.

Key capabilities of the solution:

- Automatic prediction of the quality results by production data analytics
- Selection of machine data, quality data and ML model parameters with user interface in wizard form
- Visualization of machine and quality data including run-time charts, distribution histograms and correlation map
- Automatic pre-processing, aggregation and feature generation for machine and quality data
- Automatic training of selected ML model to solve regression problem for quality prediction
- Visualization of prediction results with true vs. predicted values chart, feature importance diagram and model accuracy analysis
- Output of predicted quality results in relation to specified tolerances

Your subscription to Insights Hub Quality Prediction includes 3 Prediction Models and 50 Users. Additional Prediction Models and Users can be upgraded for additional fees.

Third-Party Terms. The Third-Party Terms for Insights Hub Quality Prediction are made available via the following web link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms.

SIEMENS

9. Insights Hub Asset Health and Maintenance

Insights Hub Asset Health & Maintenance enables your maintenance team to transform your maintenance processes by making them more efficient. Lower maintenance costs and quickly detect and respond to anomalies before they become problems or downtime. Asset Health & Maintenance offers you the following key capabilities:

- Consolidation, visualization, and notification about findings from condition monitoring systems
- Quick overview of the condition and history of the machine
- Capabilities for initial and/or expert root cause analysis
- Interplay with various IH applications for an efficient workflow
- Automated creation of maintenance/ service requests on CMMS / ESM

Third-Party Terms. The Third-Party Terms for Insights Hub Asset Health & Maintenance are made available via the following link: https://siemens.mindsphere.io/en/docs/Product-Descriptions-Overview/Third-Party-Terms