Planon Workplace Insights

Planon Software Suite

Version: L100

Planon

Building Connections

About this Document

Intended Audience

This document is intended for *Planon Software Suite* users.

Contacting us

If you have any comments or questions regarding this document, please send them to: support@planonsoftware.com.

Document Conventions

Bold
Names of menus, options, tabs, fields and buttons are displayed in bold type.

Italic text
Application names are displayed in italics.

CAPITALS
Names of keys are displayed in upper case.

Special symbols

💡	Text preceded by this symbol contains additional information or a tip.
⚠️	Text preceded by this symbol is intended to alert users about consequences if they carry out a particular action in Planon.
📑	Text preceded by this symbol refers users to other parts of the user documentation for more information.

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Overview

Confidently analyze your workplace to meet businesses and employees evolving needs.

Planon Workplace Insights is a cloud-based, data analytics and visualization subscription software underpinned by IOT sensor technology that provide actionable insights in 4 key areas occupancy, utilization, flow and indoor air quality (IAQ) to enable organizations to -

- Deliver a frictionless workplace experience by understanding how employees use the space and adapt workplace design to support their patterns, habits and needs

- Enhance occupant health and well-being

- Maximize existing Real Estate footprint

- Reduce facilities operating costs

For a short introductory video, click Planon Workplace Insights.

Concepts

The following topics describe the concepts that are key to understanding the functionality.

Dashboards and Analytics

This section describes some key aspects and terminology of Dashboards & Analytics.

Terminology

Module	Name	Value	Unit of measurement	Description
Occupancy	Time-based occupancy	Time occupied	%	100% means that the room is 100% of the time within office hours (conform linked company calendar) occupied. This value is calculated by the length of time a space was occupied by at least one person, divided by the total available time.
		Daily peak	%	The highest (hourly) time occupied measured during a day. 💡 This value is only available for a daily

Module	Name	Value	Unit of measurement	Description
				aggregate and therefore only visible for a week and a month view.
	Space-based occupancy	Spaces occupied	%	100% means that all spaces within your selection where occupied (at least 1 minute) during the selected time.
		Daily peak	%	The highest (hourly) spaces occupied measured during a day.
				💡 This value is only available for a daily aggregate and therefore only visible for a week and a month view.
Utilization	Net utilization	Net utilization	%	100% means that during occupancy the entire capacity of the room is

Module	Name	Value	Unit of measurement	Description
				used. Occupant count vs net capacity.
				Calculation gives you an impression on how well your spaces are utilized during the time they are used. It tells you if the capacity of the rooms suits the need of your building users.
		Daily peak	%	The highest (hourly) net capacity utilized measured during a day.
				💡 This value is only available for a daily aggregate and therefore only visible for a week and a month view.
	Occupant count	Net occupant count	Number	The (hourly) average number of people present in the room during occupancy

Module	Name	Value	Unit of measurement	Description
		Daily peak	Number	The highest (hourly) average number of people present in the room during occupancy.
				💡 This value is only available for a daily aggregate and therefore only visible for a week and a month view.
Flow	Inflow	Occupant count	Number	Total number of people entering a location
	Outflow	Occupant count	Number	Total number of people leaving a location
	Occupant count	Net occupant count	Number	The (hourly) average number of occupants present in the room during occupancy
		Daily peak (maximum)	Number	The **single highest number** of occupants that were measured

Module	Name	Value	Unit of measurement	Description
				during a certain time period.
Environment	Comfort score	Score	0 - 100	Comfort score provides an indication of how well a space complies with comfort expectations. It does so by approximating the scores per hour that the temperature, humidity, CO# and/or VOC values stay within target ranges, within margin and/ or outside the target ranges.
	Temperature	Degrees	°	This can be either Fahrenheit or Celsius
	CO_2	CO_2	ppm	
	Humidity	Relative humidity	%	
	Light		Lx	
	Sound		DbA	
	VOCs		ppb	
	Radon			
	PM2.5	Decimal number	Micrograms per cubic meter ($\mu g/m^3$)	PM2.5 are very small particles usually found in smoke. They have a diameter of 2.5 micrometers

Module	Name	Value	Unit of measurement	Description
				(0.0025 mm) or smaller.
	PM10	Decimal number	Micrograms per cubic meter (**μg/ m**^{3})	PM10 are very small particles found in dust and smoke. They have a diameter of 10 micrometers (0.01 mm) or smaller.

Profiles & targets

Nowadays, measuring office space comfort levels is more than just measuring temperature. Science has shown that personal health and productivity may be impacted by various environmental values.

By specifying targets per property, you can define comfort levels on a large number of factors that contribute to well-being.

How it works

Depending on the factor, you can specify:

- An upper limit (high)
- A lower limit (low)
- A margin

The result, in a diagram, is visualized as follows:
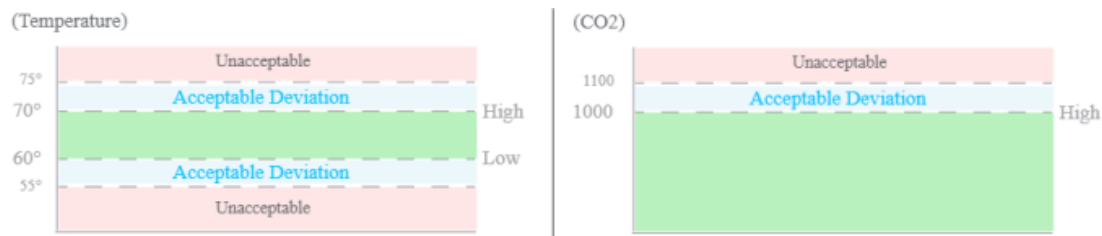
This will quickly enable you to verify whether a given value falls within the acceptable parameters as specified. Any value beyond the margin automatically becomes *unacceptable*.

In addition of showing data in floor maps or dashboards, the data is also transformed into a profile score - an indication of how well a space complies with its defined limits.

	The coloring of the spaces has been adapted to the target values of the environmental dashboards.

Occupancy

Occupancy is used to indicate whether a location is actually in use (physically).

A location's occupancy is detected by using sensors.
In Planon Software Suite, a location's occupancy (to which an active measurement point is linked) is represented by an Occupancy status and a Reading value (displaying the number of people, in API 3).

	Reading value in API 3 displays the number of people. In API 4, the value can be 0 or 1, for the actual number of people a different field is assigned).

Occupancy statuses

The data engine continuously updates occupancy statuses into Planon Software Suite. For calculating an occupancy status, the readings of the sensoring system and the previous occupancy status are taken into account.

The following occupancy statuses are updated by the data engine:

- Occupied
- Non-occupied
- Reservation imminent
- Idle
- Inactive
- Immeasurable
- Pause

Utilization

Net utilization

This set of graphs shows the net utilization (occupant count versus room capacity) during occupancy for a selected set of workplace locations in a time series.

Calculation examples

Example for room 'SIM01'

Office calendar from 9:00 – 18:00, that makes 540 minutes of 'workplace service'.

SIM01 has a capacity for 8 occupants.

On Wednesday 01-12-2021 the following occupant count cumulative values were measured for SIM01:

Office hours	Cum. Occupant count	Cum. Capacity	Mins occupied	Net utilization per period
9:00 – 9:59	0	0	0 mins	0%
10:00 – 10:59	40	80	10 mins	40/80*100.0 = 50.0%
11:00 – 11:59	205	480	60 mins	205/480*100.0 = 42.7%
12:00 – 12:59	120	200	25 mins	120/200*100.0 = 60.0%
13:00 – 13:59	300	440	55 mins	300/440*100.0 = 68.2%
14:00 – 14:59	60	240	30 mins	60/240*100.0 = 25.0%
15:00 – 15:59	200	400	50 mins	200/400*100.0 = 50.0%
16:00 – 16:59	60	480	60 mins	60/480*100.0 = 12.5%
17:00 – 17:59	5	40	5 mins	5/40*100.0 = 12.5%
Day total:	990	2360	295 mins	990/2360*100.0 = 41.9%

Average net utilization for SIM01 for this day: 41.9%

Average peak value for SIM01 for this day is 68.2.% (13:00 - 13:59)

On Wednesday 01-12-2021 the following max occupant count values were measured for SIM01:

Office hours	Cum. Occupant count	Cum. Capacity	Mins occupied	Net utilization per period based on max number of occupants
9:00 – 9:59	0	0	0 mins	n.a.
10:00 – 10:59	60	80	10 mins	60/80*100.0 = 75.0%
11:00 – 11:59	420	480	60 mins	420/480*100.0 = 87.5%
12:00 – 12:59	125	200	25 mins	125/200*100.0 = 62.5%
13:00 – 13:59	440	440	55 mins	440/440*100.0 = 100.0%
14:00 – 14:59	60	240	30 mins	60/240*100.0 = 25.0%
15:00 – 15:59	200	400	50 mins	200/400*100.0 = 50.0%
16:00 – 16:59	60	480	60 mins	60/480*100.0 = 12.5%
17:00 – 17:59	5	40	5 mins	5/40*100.0 = 12.5%

Absolute peak value for SIM01 for this day is 100% (13:00 - 13:59)

Example for room 'SIM01' and 'SIM02' combined

SIM01

Office calendar from 9:00 – 18:00, that makes 540 minutes of 'workplace service'.

SIM01 has a capacity for 8 occupants.

SIM02

Office calendar from 8:00 – 19:00, that makes 660 minutes of 'workplace service'.

SIM02 has a capacity for 4 occupants.

On Wednesday 01-12-2021 the following occupant count cumulative values were measured for SIM01 and SIM02:

Room	Office hours	Cum. Occupant count	Cum. Capacity	Mins occupied	Net utilization per period
SIM01	9:00 – 9:59	0	0	0 mins	0%
	10:00 – 10:59	40	80	10 mins	40/80*100.0 = 50.0%
	11:00 – 11:59	205	480	60 mins	205/480*100.0 = 42.7%
	12:00 – 12:59	120	200	25 mins	120/200*100.0 = 60.0%
	13:00 – 13:59	300	440	55 mins	300/440*100.0 = 68.2%
	14:00 – 14:59	60	240	30 mins	60/240*100.0 = 25.0%
	15:00 – 15:59	200	400	50 mins	200/400*100.0 = 50.0%
	16:00 – 16:59	60	480	60 mins	60/480*100.0 = 12.5%
	17:00 – 17:59	5	40	5 mins	5/40*100.0 = 12.5%
	Day total:	990	2360	295 mins	
SIM02	8:00 – 8:59	40	40	10 mins	40/80*100.0 = 50.0%

Room	Office hours	Cum. Occupant count	Cum. Capacity	Mins occupied	Net utilization per period
	9:00 – 9:59	0	0	0 mins	0%
	10:00 – 10:59	240	240	60 mins	240/240*100.0 = 50.0%
	11:00 – 11:59	50	200	50 mins	50/200*100.0 = 25.0%
	12:00 – 12:59	5	20	5 mins	5/20*100.0 = 25.0%
	13:00 – 13:59	50	60	15 mins	50/60*100.0 = 83.3%
	14:00 – 14:59	60	120	30 mins	60/120*100.0 = 50.0%
	15:00 – 15:59	200	240	60 mins	200/240*100.0 = 83.3%
	16:00 – 16:59	40	40	10 mins	40/40*100.0 = 100.0%
	17:00 – 17:59	40	40	10 mins	40/80*100.0 = 100.0%
	18:00 – 18:59	0	0	0 mins	0%
	Day total SIM02	725	1000	250 mins	

Room	Office hours	Cum. Occupant count	Cum. Capacity	Mins occupied	Net utilization per period
	Combined total	1715	3360	545 mins	1715/3360*100.0 = 51.0%

Average net utilization for SIM01 and SIM02 combined for this day: 51.0%

People flow

People flow monitors and records the inflow and outflow of people of a given space.

Typically, this feature is not used to count the actual number of people in order to measure capacity use, but rather it is used to measure density. In the office world, it is used, for example, to measure and possibly predict the waiting queue at the company restaurant. Or, it can also be used to measure the inflow and outflow of people of a building or of an event. It can help building managers to:

- Assess the size of meetings rooms to match usage
- Display wait times for amenities
- Optimize cleaning based on usage levels
- Detect when fire-loading limits are crossed
- Optimize layout based on people flow

People flow is measured by a specify type of sensor. The readings of these sensors provide real-time data. This sensor type is reset at the end of the day and starts measuring anew at the beginning of each new day (specified at the connector or at the sensoring system).

Environment (Indoor air quality)

Indoor air quality

This module contains a set of graphs showing environmental values for a selected set of workplace locations in a time series.

More than just your household measurements, the data behind these graphs intricately measure and express wellbeing.

Calculation examples

Example for room 'SIM01'

Office calendar from 9:00 – 18:00, that makes 540 minutes of 'workplace service'.

On Wednesday 01-12-2021 the following temperature cumulative values were measured for SIM01:

Office hours	Cum. temperature	Reading mins	AVG temp per period
9:00 – 9:59	1320	60 mins	1320 / 60 = 22.0 °C
10:00 – 10:59	1330	60 mins	1330 / 60 = 22.2 °C
11:00 – 11:59	1329	60 mins	1329 / 60 = 22.2 °C
12:00 – 12:59	1345	60 mins	1345 / 60 = 22.4 °C
13:00 – 13:59	1342	60 mins	1342 / 60 = 22.4 °C
14:00 – 14:59	1367	60 mins	1367 / 60 = 22.8 °C
15:00 – 15:59	1370	60 mins	1370 / 60 = 22.8 °C
16:00 – 16:59	1365	60 mins	1365 / 60 = 22.8 °C
17:00 – 17:59	1368	60 mins	1368 / 60 = 22.8 °C
Day total:	12136	540 mins	12136 / 540 = 22.5 °C

Average measured temperature for SIM01 for this day: 22.5 °C

Example for room 'SIM01' and 'SIM02' combined

SIM01:

Office calendar from 9:00 – 18:00, that makes 540 minutes of 'workplace service'.

SIM02:

Office calendar from 8:00 – 19:00, that makes 660 minutes of 'workplace service'.

On Wednesday 01-12-2021 the following temperature cumulative values were measured for SIM01 and SIM02:

Room	Office hours	Cum. temperature	Reading mins	AVG temp per period
SIM01	9:00 – 9:59	1320	60 mins	1320 / 60 = 22.0 °C
	10:00 – 10:59	1330	60 mins	1330 / 60 = 22.2 °C
	11:00 – 11:59	1329	60 mins	1329 / 60 = 22.2 °C
	12:00 – 12:59	1345	60 mins	1345 / 60 = 22.4 °C
	13:00 – 13:59	1342	60 mins	1342 / 60 = 22.4 °C
	14:00 – 14:59	1367	60 mins	1367 / 60 = 22.8 °C
	15:00 – 15:59	1370	60 mins	1370 / 60 = 22.8 °C
	16:00 – 16:59	1365	60 mins	1365 / 60 = 22.8 °C
	17:00 – 17:59	1368	60 mins	1368 / 60 = 22.8 °C
	Day total SIM01:	12136	540 mins	
SIM02	8:00 – 8:59	1150	60 mins	1150 / 60 = 19.2 °C

Room	Office hours	Cum. temperature	Reading mins	AVG temp per period
	9:00 – 9:59	1125	60 mins	1125 / 60 = 18.8 °C
	10:00 – 10:59	1195	60 mins	1195 / 60 = 19.9 °C
	11:00 – 11:59	1210	60 mins	1210 / 60 = 20.2 °C
	12:00 – 12:59	1220	60 mins	1220 / 60 = 20.3 °C
	13:00 – 13:59	1225	60 mins	1225 / 60 = 20.4 °C
	14:00 – 14:59	1250	60 mins	1250 / 60 = 20.8 °C
	15:00 – 15:59	1280	60 mins	1280 / 60 = 21.3 °C
	16:00 – 16:59	1275	60 mins	1275 / 60 = 21.3 °C
	17:00 – 17:59	1235	60 mins	1235 / 60 = 20.6 °C
	18:00 – 18:59	1190	60 mins	1190 / 60 = 19.8 °C
	Day total SIM02	13335	660 mins	

Room	Office hours	Cum. temperature	Reading mins	AVG temp per period
	Combined total	25491	1200	25491 / 1200 = 21.2 °C

Average measured temperature for SIM01 and SIM02 combined for this day: 21.2 °C

Deep dives

Each Planon Workplace Insights module has a corresponding Deep dive section.

These are charts that have been specifically designed to enable workplace strategists to

- Analyze a broader trailing 12-month data set to make strategic decisions about their RE & workplace portfolio.

- Aggregate or combine data for multiple properties to get a bird's eye view of the selected portfolio.

- Benchmark properties to analyze time-based occupancy and net utilization metrics.

Occupancy

The following screen capture is an example of the **Occupancy** deep dive, displaying the occupancy and daily peak values in one chart.
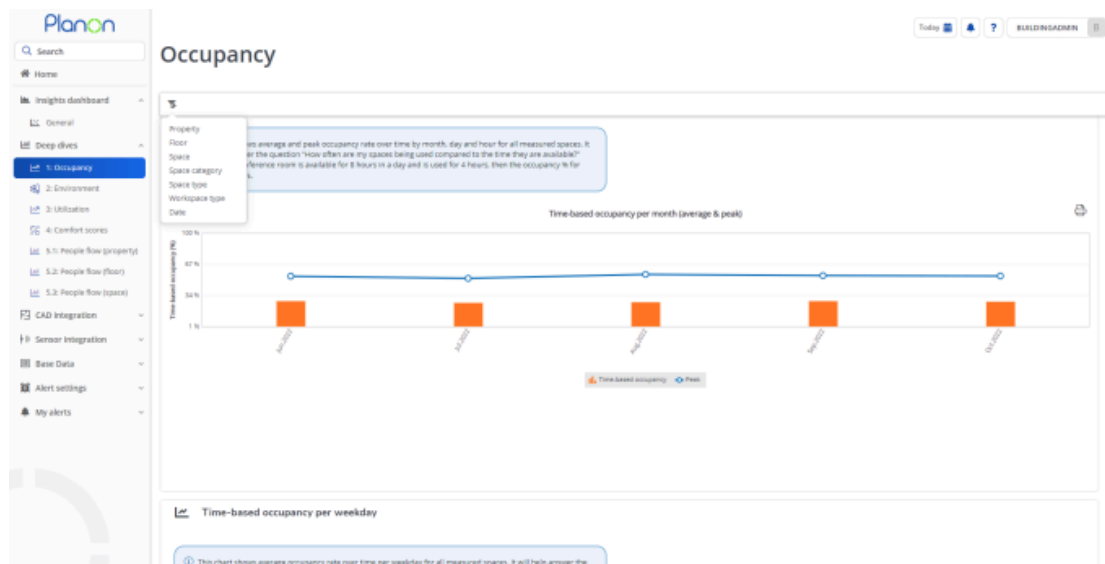
Note that you can further zoom into details by using the filtering options available.

CAD integration

This section describes some key aspects and terminology related to CAD integration.

CAD drawing definition

A CAD drawing definition defines the relation between the data in Planon ProCenter and the information in the AutoCAD drawing.

The CAD drawing definition allows you to define the entities in the drawing, so you can map them onto the Planon business objects.

For example, drawing entities such as polylines and blocks can be mapped onto CAD business objects such as floors, spaces, flexible workspaces, assets, persons, 'Rent to' and 'Rent from' units.

Typically, a drawing definition is based on a single drawing. However, it can be used to import multiple drawings provided that the data structure is the same in all the drawings that are going to be imported.

CAD import definitions

A CAD import definition defines the various parameters for importing Planon data such as floors, spaces, persons, flexible workspaces, 'Rent from' and 'Rent to' units from CAD drawings.

The import definition defines, for example, the location where the drawings to be imported are found, which business objects (floors, spaces, workspaces etc.) have to be imported, the date the changes will be active, file handling of the .dwg files etc.

Warning Drawings used in a Test environment should not be used in a Production environment. Importing the same drawing in Production would result in incorrect data, because different spaces, persons, assets, flexible/fixed workspaces, 'Rent to' and 'Rent from' units are updated. Also, do not import old drawings if more recent drawings have already been imported, because this may lead to discrepancy in data.
For example, if a space is ended during an import because its polyline is no longer in the drawing, importing the same drawing on an earlier date will not end the space on the earlier import date.

For more details see .

Spaces & Workspaces

This section describes some key aspects and terminology related to Spaces & Workspaces.

Spaces

Generic data and actions for spaces can be registered and viewed at **Spaces**.

Each space is linked to a specific property and floor. Spaces are time-dependent elements, which mean they have a start date and an optional end date. Spatial information that is linked to the start date and end date can be checked against a set reference date. This enables you to keep a history of the relevant space and its usage.

There is a second selection step at the **Spaces** selection level, which becomes available if you drill down as follows: **Properties** > **Components** > **Floors** > **Spaces** > **Floor attributes**. The purpose of this selection step is explained in the Floors and floor attributes section.

Workspaces

A fixed workspace is a fully equipped desk that an employee occupies regularly, for an indefinite period of time. It is located in a certain area or space on a floor and can have a start time and an end time.

Over time, a workspace might be assigned to a different space. For example, when a floor is rearranged and the related spaces are subdivided into multiple spaces. Obviously, this will also affect the workspaces.

With the appropriate authorization you can add, delete, end and resume workspaces. If you end a workspace, the workspace details active on the end date will also end. If this record already has an end date, it will be overwritten. All workspace details records starting after the end date of the workspace will be deleted.

If a workspace is resumed, a new *workspace details* record is created based for the date of resumption. The end date of the previous workspace detail record will be updated and it will be equal to the resumption date minus 1.

It is also possible to view selected workspaces in a floor drawing by clicking the CAD Integrator tab.

Floors and floor attributes

In the Spaces & Workspaces TSI, at **Components** > **Floors**, you can register relatively static data about a floor, such as the floor name and code the property to which a floor belongs. You can also **End** or **Resume** a floor here or view the linked AutoCAD drawing.

The more dynamic data on floors, such as its dimensions, flux line values, FM drawing, and AutoCAD drawing, is registered in Spaces & Workspaces at **Spaces** > **Floor attributes**. The floor attributes are shown with their active start date, floor code and name in the elements list. See also: Adding floor attributes and .

Sensor integration

This section describes some key aspects and terminology related to sensor integration.

API

A web service, published by the sensing system and used for data exchange between the sensing system and the Planon data engine.

The API version should be supported by Planon.

- Version 3 can handle the exchange of changed data only and it includes synchronization and polling with multiple systems.

- Version 4 is similar to Version 3, except that it has a specific field for storing the person count. This **Person count** field is only filled if occupancy is actually measured by the sensing system. The data of this field will be used to populate the Density chart, because of which this chart displays clear data.

The Planon IoT platform only supports API version 3. For API version 4, Planon requires the support of third-party sensing systems such as SWYCS, but using other vendors is possible.

Connector

The AWM connector configures the connection with the sensing system.

Connectors can be made available for different types of sensing systems.

- **Planon managed connector**: the sensing system publishes the Planon (REST) API.

- **Custom managed connector**: an AWM Platform app is used to links sensors. (Most of the AWM Platform apps will add this connector type automatically).

- **Planon IoT measurement point connector**: AWM can make use of a sensor system that is linked and managed by Planon IoT. A specific connector type is available 'PlanonIot connector, which requires an integration with Planon IoT. In this integration, most of the settings are already preconfigured.

  For most of the sensor systems a separate Platform app is available (same as for Custom managed connecter). The goal of such an app is to automate all various onboarding actions and change management. The sensing system determines the features that are available.

It is possible to create a combination of sensors and connector types.

Connector statuses

A connector has different statuses that indicate whether it is available for Planon Software Suite. These statuses must be set manually.

The following list is an overview of the available connector statuses:

Status	Description
Active	In this status, the data engine system connects to the sensoring system.
Inactive	In this status, the data engine does not connect to the sensoring system. This is the default status (manually set).
Immeasurable	This status is assigned if the connector has a connection problem (system set).
	If a connection with the API fails, the Connector will retry polling twice. If this still fails, the status is set to immeasurable. This rules out unrelated temporary disturbances such as internet connection issues.
	When this happens, the administrators (email list) are notified about this issue.

Data engine

The AWM component that drives the data exchange and data processing. On the **Data engine** level you can specify the polling interval.

The connector communicates with the sensoring system to retrieve the occupancy data for a selected set of locations. There are two methods available for retrieving data: pull- or push strategy.

Location

Any type of space or room whose occupancy can be detected by using sensors (reservable/available). The following locations are currently available:

- Reservation unit (workspace or room)
- Non-reservable workspace
- Non-reservable room
- Non-reservable zone
- Non-reservable floor
- Non-reservable building
- Non-reservable rentable unit

Measurement point

A representation of a location for which you want to measure and maintain occupancy data and, if applicable, environmental values. AWM only processes locations to which a measurement point is linked.

Measurement points can be linked to any of the locations defined in Planon. A location can be a space, a reservation unit, a rentable unit, a workspace, a property, a property zone or a floor.

A measurement point can have an Inactive or Active status and these can be set manually. AWM only processes measurement points in the Active status.

> 💡 The Planon application does not process data of individual sensors, but it expects the Sensoring system to accumulate this data on location level. Therefore, a measurement point in the Planon application represents a location and not an individual sensor.

Measurement point definition

The measurement point definition allows you to define the settings for all the related locations.

Consider, for example, an organization that has multiple properties and uses various methods for measuring occupancy. By using a measurement point definition, you can set up profiles for each property and group all its locations.

Polling

Periodically sampling the occupancy status of a set of locations by the data engine.

The polling capabilities are determined by the API version of the connector:

- API Version 3-4: all changed data is returned based on the time stamp that is given to the sensoring system.

> 💡 Polling from multiple Planon environments (for example for DTAP) is supported.

During polling, two actions can be performed:

- Synchronization: needs to be done manually.
- Data update (occupancy status): this is always done during polling.

Privacy

Planon uses sensors to determine whether a location is occupied.

Continuously, newer generations of sensors are being developed and put on the market. The sophistication, the quality and the range of sensors changes invariably. While this technological innovation is going on, both the thinking and the legislation around privacy is affected.

Planon does not store personal information nor does the Planon application track people by using sensors. Instead, Planon uses sensors to gain insight into workspace occupancy. In any case, Planon is held by and complies with GDPR legislation.

Sensor

A device that is linked to a location and measures its occupancy as well as environmental values, if applicable.

Sensors can use various measurement techniques, for example:

- Motion - occupancy is detected by motion.
- Heat - occupancy is detected based on body heat.
- Video - occupancy is detected by video interpretation.

More advanced sensors can support a combination of these methods/ and/or other methods (laser techniques, etc.).

Sensoring system

A network of sensors that communicates with the Data engine. When requested by the data engine, the sensoring system provides occupancy information on its locations, based on the sensor data.

In order to provide meaningful data to the data engine, the sensoring system maintains a configuration table mapping locations and sensors.

Summarization

The process of compressing data into smaller time components: hours, days and months, decreasing the number of historical data and feeding that data into the data warehouse (summarized readings).

By continuously retrieving and storing data from the data engine, data storage and analysis may become an issue. By compressing this data, less storage is needed and analyses are easier to perform.

- Almost all AWM analytics are based on summarized data.
- Not all measurement fields are included in the summarization process. Some fields are (Free field 1/3 for vendor specific readings) alphanumerical and cannot be summarized. Only numerical fields can be summarized.

Time-out monitoring

In addition to enabling monitoring logging and using condition-based notifications to notify system administrators, a third option is to enable time-out monitoring.

If there is a connection issue with the connector, data updates are stalled. It is therefore critical to intervene as soon as possible when such a situation occurs.

To help identify connection issues early, the Planon application provides time-out monitoring functionality. What it does is simply to monitor the connector response - if the IoT backend does not respond within 5 (minimum value) polling cycles, it will set the connector to *Immeasurable*.

A response can either be an update of the connector itself or a data update of any of the measurement points.

In addition to the monitoring the connector, the same time-out monitoring is available for measurement points. If the measurement point does not receive a response within x polling cycles, it will be set to *Immeasurable*.

- This functionality only works for IoT systems that periodically (with a fixed specified time interval) send a heartbeat/update message for all its measurement points.
- Activating this feature results in additional processing time needed on the Planon side. This could affect the system performance, so use with care and only when strictly necessary!
- The connector monitoring is only performed if the AWM connector is *Active* or *Immeasurable*
- If it is configured that updates should only occur during office hours, connector monitoring is restricted to office hours too.

Alerts

This section describes some key aspects and terminology of Alerts.

Alarm definition

The general properties of an alarm comprising a filter that defines a condition to be periodically checked and a schedule that determines how often and when the condition is checked.

In Alerts , alarm definitions are added and maintained at Alerts > Alarm definitions.

Notify once definition

The general properties of the **Notify once definition** comprise a filter that defines a condition to be periodically checked and a schedule that determines how often and when

the condition is checked. The notification will only be sent once. To avoid unwanted email traffic, notification of subsequent matches of the condition will be skipped.

- If you delete and recreate the **Notify once definition**, the items for which a notification was already sent will be notified again.

- If you change the condition filter or choose another condition for the same business object definition, the items for which a notification is sent will not be notified again.

- If you change the condition to another business object definition, (Reservations first and then Persons) you will get all new matching items.

  The **Notify once definitions** are added and maintained at Alerts > Notify once definitions.

My alarms

A location in Planon where users can view pending items requiring their attention.

Users can assess their pending alarm items by viewing them on the **My alarms** selection**My alerts** step. On this step, they can directly navigate to the element requiring attention via the **Show results** action, snooze the alarm, or forward the item to someone else.

Troubleshooting - Software

This section describes possible errors and how to mitigate them.

Data engine stopped working

The data engine represents all the communication with the sensoring system and processing the data received.

Description

The data engine **Last response date-time** field should be updated every 10 minutes (date-time value is in UTC timezone). If the field is empty or not updated in time, the AWM data engine is malfunctioning.

Cause

This is a very rare situation, probably the system has run out of memory because of a very large load of data to process. Maybe the Planon 'WildFly' log (home page) can give more information about the exact cause of stopping.

Solution

First check if the user AWMDATAENGINEADMIN is available and has 'full functionality' function profile.

If this looks good, go to **Home** > **Environment management gadget** > **Danger zone** and restart the Planon instance.

Make sure that no users are still active in the Planon application.

A restart can take 10–20 minutes, during this time, the Planon application is not available.

Sensoring system connector is in status 'Immeasurable'

The Sensoring system connector describes the direct communication with the external sensoring system.

Description

If the Sensoring system connector is malfunctioning, the data engine will set its status to 'Immeasurable'.

The monitoring mode of the connector is automatically switched on if the connector is in the *Immeasurable* status. Information about the issue is displayed in **Configuration & logging** > **Event logs**. You can also enable monitoring manually.

Cause

If the sensoring system connector is put on 'Immeasurable' by the Planon system, it means that communication with the related sensoring system is no longer possible.

First check the error message in the Connector's event log (at **Configurations & logging**), maybe it already points to the reason of the malfunctioning.

Possibly, the Planon web server 'Tomcat' log (home page) can provide more information about the exact cause of the Connector being *Immeasurable*.

Solution

1. **Check Data Engine (Planon processing system)**

   Where: AWM/Sensor management - Data engine

   - Make sure that data engine is running

   - Check the **Last response date-time** field. The value should be updated with the current UTC time every 10 minutes.

   - If this is not the case, please contact Planon Support.

2. **Check related connector app**

   Where: AppCenter

   - Check if related connector app status is **Active**.

   - Check if connector app settings are configured properly (see specific app documentation for more information).

   > Beware, app settings can be also added to the connector directly on the **Settings** tab (see Connector fields)

○ Check if The connector app license is valid and not expired - If not: update the connector app settings if possible, or contact Planon Support.

Measurement point is in status 'Immeasurable'

The measurement point describes the Planon location for which (sensor) measurements can be received.

Description

If a measurement point is malfunctioning, the data engine will set its (occupancy) status to *Immeasurable*.

The measurement point's monitoring mode is automatically switched on if the measurement point is in the *Immeasurable* status. Information about the issue is displayed in the (**Measurement points** > **Error monitoring** tab) **System feedback** field. You can also enable monitoring manually.

Cause

If the Planon application sets a measurement point to (occupancy) status *Immeasurable*, it means that no measurement information can be received for that specific measurement point.

Most common reasons are:

- Related Connector is in status *Immeasurable*.
- Sensoring system does not recognize the measurement ID (error code -1).
- Sensoring system has received no data for the specific measurement point (error code -2) in a time-out period.

At the **Error monitoring** > **System feedback** more information is given about the error.

Solution

1. **Check Connector**

    Where: AWM/Sensor management – Connectors

    ○ Check if the related connector is not in status *Immeasurable*.

    ○ Investigate and resolve the issue with connector.

2. **Check measurement point**

Where: AWM/Sensor management – Measurement points

- ◦ Check if the measurement point is available in the partner sensoring system (error code -1)

  Missing measurement point must be onboarded or *Inactivated*.

- ◦ Check if the measurement point receives measured data (error code -2, -9, -10, -98).

  Mostly identified by a time-out check of the measurement point.
  Resolve issue at the sensoring system, the related sensors or other hardware have issues.

In some situations, a measurement point will be kept in the *Pause* status with reason 'Waiting for an upcoming update' for a long period. In that case, also no data is received for that specific measurement point.

Troubleshooting - Hardware

This section lists a number of resources for solving hardware related issues.

The resources are listed by hardware vendor:

- Density.io
- Airthings
- VergeSense
- Relogix

Density.io

If you encounter malfunctions with sensor hardware from our partner **Density.io**, please use these resources to troubleshoot first:

Resources

- Entry Sensors
  - Offline Entry Sensor
- Open Area Sensors
  - Offline Open Area Sensor

If these resources still do not resolve your issues, please contact Density.io via:

Contact

- Support Email:support@density.io
- Support Hours: Monday to Friday, 9 a.m.-8 p.m. ET

Airthings

If you encounter malfunctions with sensor hardware from our partner **Airthings**, please use these resources to troubleshoot first:

Resources

- Airthings Business Support page – troubleshoot section
- Airthings Youtube Channel
- Airthings Set Up Manual

If these resources still do not resolve your issues, please contact Airthings Support via:

Contact

- Support Email:business-support@airthings.com
- General availability within office hours: 9AM-10PM (CET)
- Availability exceptions can be made during severe or critical support cases
- Initial response time within 24h

VergeSense

If you encounter malfunctions with sensor hardware from our partner **VergeSense**, please submit a ticket for VergeSense Support via:

Contact

- VergeSense Support Portal
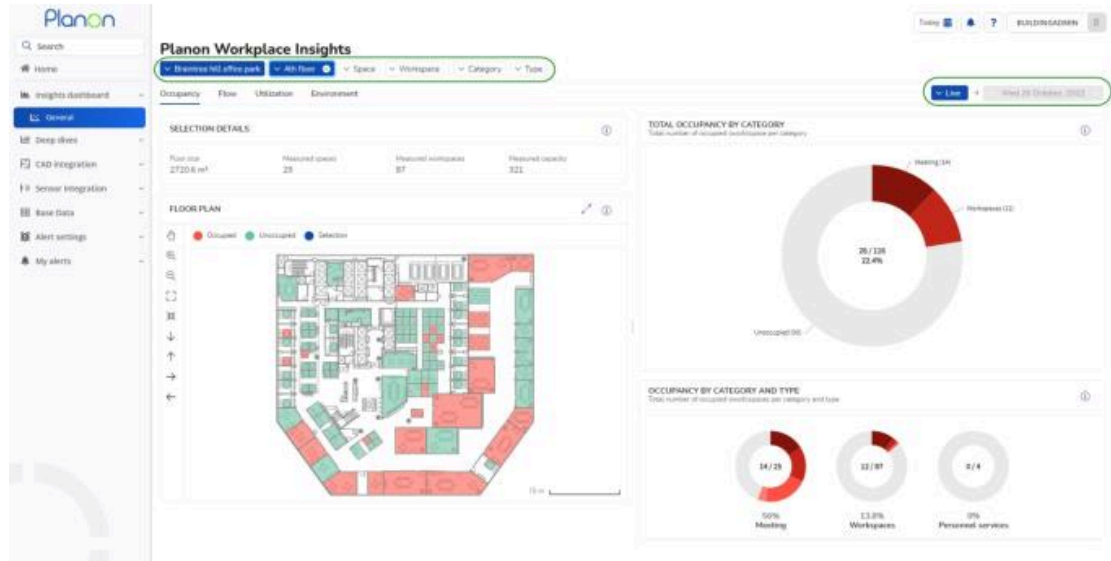- Support Email:Support@VergeSense.com

Relogix

If you encounter malfunctions with sensor hardware from our partner **Relogix**, please submit a ticket for Relogix Support via:

Contact
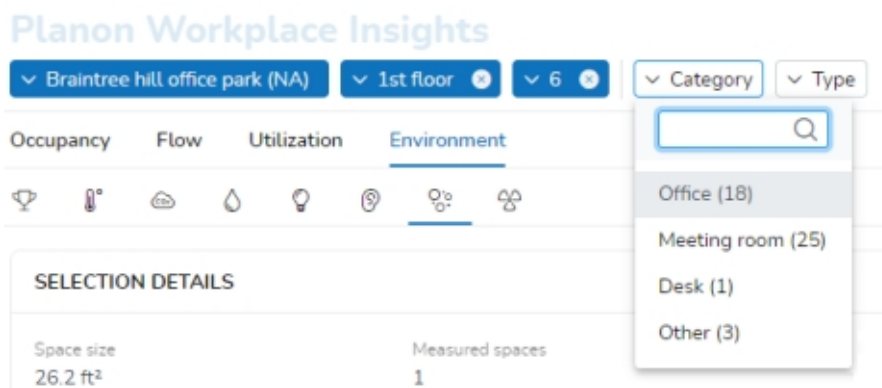
- Support Email:support@relogix.com

Working with Dashboards & Analytics

This section describes instructions for working with Planon Workplace Insights dashboard.

Filter options

Use filters to analyze aggregated datasets quickly. Standard filter options include:

- Property
- Floor
- Space

- Workspace

- Space category

- Space type

- Workspace type

Prerequisites to ensure dashboard is properly populated with summarized sensor reading -

1. The dashboard supports a single select filter for *category* and *type*.

a. A category is either a *space category* or a *dummy category* for grouping workspaces.

b. A type is a *space type* or a *workspace type*.

2. The dashboard expects a link between the space category and space type. Workspace types will automatically be grouped under the dummy category *Workspaces*.

3. If a space is not linked to a category or type it will not be included in the dashboard.

   In the Flow module, the space category and space type selection is disabled (Flow always displays only 1 measurement point).

Data selection

Dashboard supports flexible aggregation by time to track trends like week-over-week, day of the week, or by hour of the day, allowing quick analysis at your fingertips. Customers are no longer required to download the data and do complex data analysis using spreadsheets.
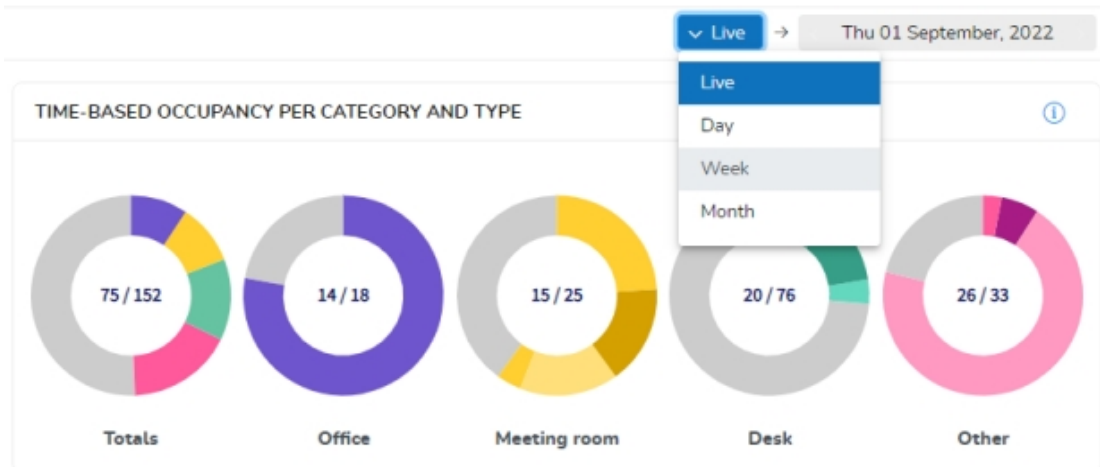
1. **Live**, provides near real-time view of your portfolio based on data captured from your sensor system.

2. **Day**, provides insights of measured values of a specific day (in history) usually displayed in an aggregate of hourly values.
3. **Week**, provides insights of measured values of a specific week (in history) usually displayed in an aggregate of daily values.
4. **Month**, provides insights of measured values of a specific month (in history) usually displayed in an aggregate of daily values.

Working with CAD integration

This section describes instructions for working with **CAD integration**.

CAD Integration enables you to visualize spatial Facility Management (FM) information in floor drawings in Planon . After a relatively easy conversion of your AutoCAD drawings, you can open, edit and print these drawings in **CAD Integration**. **CAD Integration** is available for many Planon ProCenter TSIs that refer to the physical workplace, such as **Spaces & Workspaces** , **Assets** , **Personnel** and **Reservations**.

CAD drawing requirements for CAD Import

The following sections are about importing AutoCAD drawings using CAD import.

General

Preconditions

- The versions of Planon (CAD Import) and the metadata version of the Connect for AutoCAD plug-in must be compatible in order to work together.

- The AutoCAD drawings should be present on a network share or the WebDAV location that can be addressed by both the server on which Planon is located and the server on which the CAD Workbench is located.

- XREF drawings must be located in the same folder or sub-folder as the main drawing referring to them. See for examples.

- The drawings must contain information of a single floor of a property.

- There must be only one single space usage per space.

- A layer carrying the information for a net floor polyline is required to perform a successful import with CAD Import (and to create an ORJ file when the Create CAD Integrator file file is **Yes**).

- The scaling factor of blocks on supported drawings must be *1* - this is applies to all entities to be imported.

Limitations

- Planon only supports drawings with a building size less than 3,000 x 3,000 m (~ 10,000 x 10,000 ft). If parts of the drawing are outside of this area, they will be filtered out during CAD import. This is also true for block definitions with an origin outside this area.

- Only drawings saved in compatible AutoCAD versions and in .dwg format can be imported into Planon .

  For information on which AutoCAD versions are supported by which Planon version, see Planon Supported Configurations.

- The drawings must contain their information in *entities*, such as polylines, blocks, block attributes, single/multi line text objects, or Connect for AutoCAD. These entities can exist in multiple layers or be present in drawings attached as Xref.

- Only data stored in the "Model space layout" can be imported.

Warning The following layer names are no longer supported:
- PLANON (used by Planon ProCenter Windows Client)
- Layers starting with: 'Planon mapping…'

- A drawing may only contain one net floor polyline and/or one gross floor polyline.

The net polyline should always fall within or coincide with the gross polyline. For non-StabiCAD drawings these floor polylines should be on different layers as well.

Recommendations

- Each layer in an AutoCAD drawing can contain entities. Each entity has impact on the size and complexity of the drawing.
  With regard to **CAD Import** and **CAD Integrator** the following applies: the fewer entities, the better.
  A drawing with more than 15,000 entities may lead to serious performance problems and possibly to unworkable situations in **CAD Import** and **CAD Integrator**. Therefore, we recommend to restrict the number of entities to a maximum of 15,000.

- A polyline can represent a Space, Floor, 'Rent to unit', 'Rent from unit' or Fixed Workspace. It is recommended that you draw closed polylines in a such way that a single polyline is not used in two objects at the same time.

  For example, a single polyline should not be used to draw the boundary of both Space-1 and Space-2. Each space should have its own polylines.

Additional

- Entities on frozen layers (which as a result are not visible in AutoCAD) are imported and will be converted into the CAD Integrator drawing (ORJ).

- It is not recommended to import old drawings while more recent drawings have already been imported as this may, in some cases, lead to different data.

  For example, if during an import, a space is ended because its polyline is no longer in the drawing, importing the same drawing on an earlier date will not end the space on the earlier import date.

- It is not recommended to copy a polyline of a space or a workspace that is already imported in Planon because the metadata will be written back to the CAD objects resulting in an incorrect import of the drawing. If this has already happened, use EOS-CAD tools to delete the old Planon data.

- If a block is explicitly made invisible in the AutoCAD drawing, the block is not imported into Planon .

- The AUDIT command in AutoCAD is not supported, as the AUDIT command can corrupt the drawing. To clean the drawing, use the PURGE command.

Additional requirements for AutoCAD drawings created using StabiCAD

The following conditions must be fulfilled additionally, to import the StabiCAD drawings into the Planon :

- Only the drawings saved in compatible StabiCAD versions are supported. For information on which StabiCAD versions are supported, see Planon Supported Configurations.

- In contrast to the regular AutoCAD drawings, space and floor polylines are allowed to be on the same layer.

Space entities (gross & net)

- Space entities must be of the space polyline type "LWPOLYLINE" or of the type "CIRCLE" or "ELLIPSE".

- Space polylines can be located in several layers. The specified layers are treated as a logical unit of polylines.

- Space polylines may be located in XREF drawings.

Warning The XREF drawings do not work correctly in combination with Connect for AutoCAD because the polylines must be stored in the main drawing.

- Space polylines can be closed during the CAD Import.

If you are using Connect for AutoCAD, you must close the polylines in AutoCAD in order to be able to perform space mapping.

- The use of *Net polylines* is mandatory when using *Gross polylines*. You should have at least one net polyline. The idea behind allowing gross polylines is to import the gross surface and perimeter data on a space / floor directly from the drawing. Space selection and space mapping will take place on the net polylines.

- The *Gross polylines* of a space must be stored in a different layer than its *Net polylines*. Note: the net polyline should always fall within / coincide with the gross polyline.
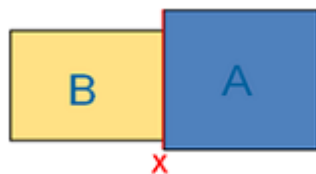

💡 Space polylines must be stored in a different layer than Floor, Rent From, Rent To and Fixed workspace polylines.

- Only if you are dealing with Stabicad drawings, can the polylines be located in the same layer. CAD Import will recognize the type of polyline itself.

- Gross polylines from Stabicad cannot be imported using CAD Import.

- In a drawing, polylines should not overlap. Touching polylines are allowed.
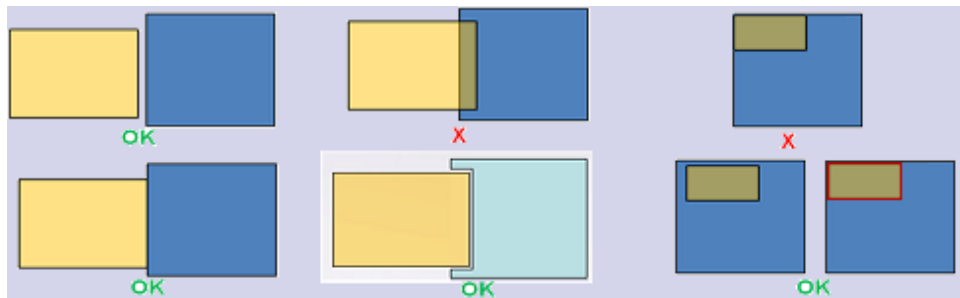
- A polyline of Space A (red one), cannot be used to "close" Space B. Also, Space B needs its own 4 polylines (in this example).

- Enclosed polylines can be stored on a different layer as their surrounding polyline. The whole set of specified (enclosed) polylines layers will be treated as one logical unit.

- Enclosed polylines can be treated as:

1 Space

The Enclosed polyline will be treated as a **Space** (a Space Code must exist or must be created) whereas the area of the Enclosed polyline will be subtracted from the surrounding Space.

x1 Hole

The Enclosed polyline will be treated as a **Hole** and the area of the Enclosed polyline will be subtracted from the Surrounding Space. This is true only if no Space norm is applied.

The subtraction of the area also depends on the applied Space norm as specified in the drawing definition.

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x2 Construction data should be on the same level as x1 Hole

The Enclosed polyline will be treated as **constructional data** and the area of the Enclosed polyline will not be subtracted from the Surrounding Space. This is true only if no Space norm is applied.

The subtraction of the area also depends on the applied Space norm as specified in the drawing definition.

- Spaces should only contain one space usage.

If a space has more than one space usage (in the Planon database) on the import date, only the space size will be imported. This implies that Planon will only update the space usage if the net area of the space usage is identical to the net area of the space size.

Also, the Connect for AutoCAD plug-in can only deal with one space usage per space at a time.

Space code

- Can have a maximum length of 15 characters.
- Must be unique within a floor.
- Can be stored in a single line TEXT object in a specific layer.

That layer may not contain other single line TEXT objects (like Space name).

The insert point of the TEXT object must be inside the Space polyline.

Drawing definition (TAB: Details Step: Field mapping)

In the **Source** field, select option: 1 – Drawing.

In the **CAD-layer** field, select the layer that contains the TEXT objects.

- 2011.A (onwards): The Space code can be stored as an attribute of a static BLOCK.

- 2013 (onwards): The Space code can be stored in a Multi line TEXT object.

  The Multi line TEXT object that contains the Space code must have the same structure for each space.

  On the layer that contains the Multi-line TEXT objects per Space, do <u>not</u> store Multi line TEXT objects for other business objects.

  The insert point of the (Multi-line) TEXT objects or BLOCKS must be inside the Space polyline.

  The insert point of a BLOCK attribute can be outside the Space polyline.

- Each block (containing the Space code) must have the same structure (attributes).

  Drawing definition (TAB: Details Step: Field mapping)

In the **Source** field, select option: 1 – Drawing.

In the **CAD layer** field, select the layer that contains the blocks.

In the **CAD block** field, select the block name containing the Space code.

In the **CAD attribute** field, select the attribute of the block containing the Space code.

- 2013 (onwards): The Space code can be stored in the XDATA of a polyline.

  However, a few third-party applications write lot more information than the Space code in the XDATA of a polyline.

- 2013 (onwards): The Space code can be stored in AEC Space objects.

  When Spaces are drawn with AEC Space objects, these objects can also contain data and can be read directly by CAD import.

- For drawings created with Stabicad, the space code/name may also present in the StabiCAD part of the XDATA.

- For drawings using Connect for AutoCAD, the space code/name may also be present in the Connect part of the Data dictionary.

- You cannot combine the storage of the Space codes in TEXT objects and/or in BLOCK objects and/or in XDATA and/or the DATA DICTIONARY (PlugIn) in 1 drawing.

  Choose one or the other method (per drawing definition.)

- All Space codes must be located on 1 layer.

  The exception to this rule are Stabicad drawings. In this type of drawing the Space code may be located on several layers.
  Planon figures out in which layer(s) they are stored.
  The user must choose the **Stabicad** option.

- Space codes can be generated by Planon with &CODEGEN(####,T) in FieldDefiner.
 In that case, you do not specify anything for the Space code in the drawing definition.

- Space codes can be generated by CAD Import by choosing a layer that does not contain a TEXT object and filling in the &CODEGEN(####,T) macro in the field: CAD default value.

- Space codes can be generated by CAD Import by choosing the option **Drawing – retrieve from layer** in the **Source** field.

  The Space code will be generated from the polyline layer name:
  first 10 characters of Space polyline layer name + _####

  If polylines are located on several layers, you'll see several layer names used in the Space code.

  By default, the layers of the Net Space polylines will be used (if available, otherwise the layer(s) of the Gross Space polylines will be used).

- Space code can be generated by CAD-import by selecting the **Drawing – handle ID** option.
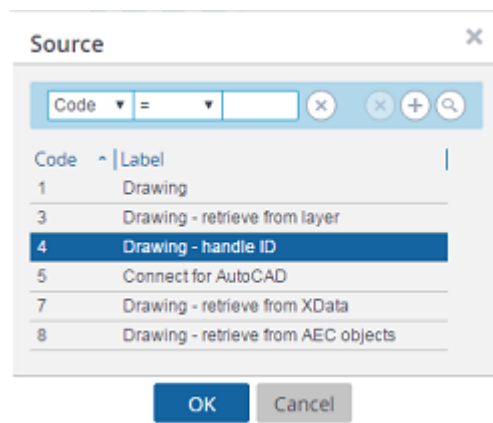
The Space code will be equal to the handle ID of the Space polyline of the AutoCAD drawing.

By default, the handle numbers of the Net Space polylines will be used (if available, otherwise the handle IDs of the Gross Space polylines will be used).

- The Space code can be generated by applying the code generator on the **CAD Import** > **CAD Drawing Definitions** > **CAD business objects** level.

  Example:

  ?-##, 1: Generates the following codes for the 1st floor, such as: 1-01, 1-02, 1-03.

  ??_###, 1: Generates the following codes for the 1st floor, such as: 01_001, 01_002, 01_003.

  F??_S###, 1: Generates the following codes for the 1st floor, such as: F01_S001, F01_S002, F01_S003.

Floor entities (gross & net)

- See: Space entities (gross & net)
- Different:

 Enclosed polylines are not supported.

  Store the Gross and Net Floor polylines on different layers from the 'Space-', 'Rent From-', 'Rent To-' and 'Fixed workspaces' polylines.

  You do not need a Floor Code, because it is retrieved from the drawing-floor mapping table or from the file name.

Crossing polylines

In a CAD drawing, the polylines of different spaces / workspaces may cross one another. This crossing can also take place within a space / workspace. You can identify such faults by performing a CAD verification in the **CAD Import definitions**. The **Import log details** of faulty drawings will list the different types of crossing polylines as follows:

- **Self-crossing polylines**: Overlapping polylines in the same space / workspace. For example, in a CAD drawing, a Self-crossing polyline looks like this:
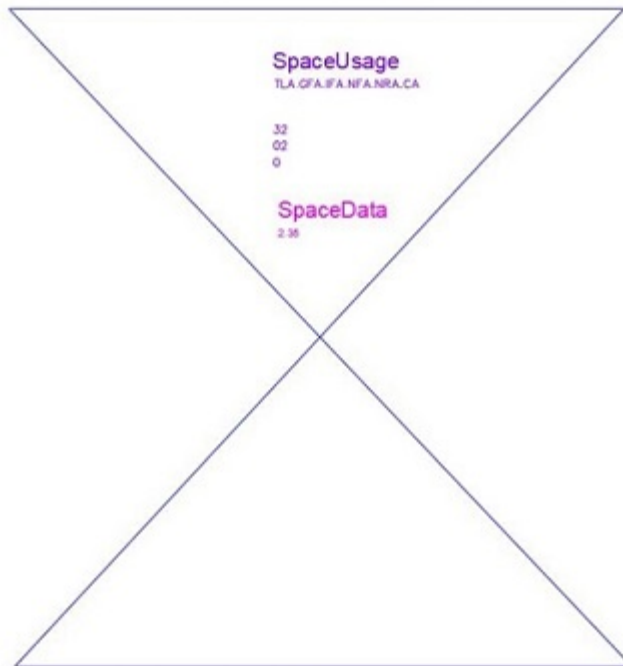
- **Overlapping polylines**: Overlapping polylines between two or more spaces / workspaces. For example, in a CAD drawing, Overlapping polylines looks as follows:

To view the crossing polylines in the **Import log details**, open the AutoCAD drawing and use the EOS CAD tool to identify them using the AutoCAD Handle ID. For more information, see .
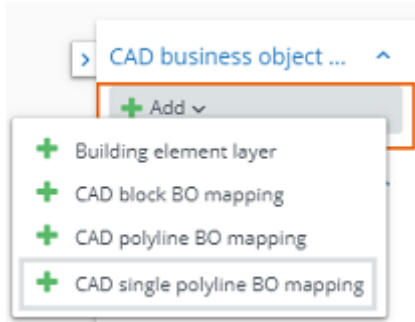
Fixed workspaces

The CAD linked fixed workspaces are single polyline objects, ellipses or circles. These workspaces are located inside spaces in a CAD drawing.

💡 Workspace polylines must fully be inside the space polylines and should not overlap.

In **CAD business objects** select **CAD linked workspaces** and go to **CAD business object mappings** to add the special type of polyline: **CAD single polyline BO mapping**.

This will make it clear that these are *workspaces* and not spaces. Inside each fixed workspace, you can store a *workspace code* which can be saved in a TEXT, MTEXT or BLOCK, or can be generated automatically with the CODEGEN macro. The code of the fixed workspace must be unique within a single space and can have a maximum length of 20 characters. The insert point of the fixed workspace determines to which space the fixed workspace belongs. This can change in time and will also be stored in time in the Planon database (Workspace details). Occupants of fixed workspaces can only be imported via Planon Enterprise Talk.

💡 Workspaces are implemented only for AutoCAD, not for Stabicad.

Adding a CAD drawing definition

The drawing definition defines the relation between the Planon ProCenter data and the information in the AutoCAD drawing.

Procedure

1. Go to **CAD drawing definitions** > **CAD drawing definitions**.

2. On the action panel, click **Add**.

3. In the data section, complete the relevant fields. For a description of these fields, refer to CAD drawing definition fields.

4. Click **Save**.

   You have now added a CAD drawing definition. You can proceed adding the business objects that you want to import.

💡 When you start creating the CAD drawing definition, the status is set to **Under construction** automatically.
Set the status to **Completed** after you complete the steps to create a drawing definition together with the business object mappings and field mappings.

If there are any errors, solve these first.

Warning If the server location for **CAD Workbench** is not specified in System settings, an error message is displayed, indicating that the server setting is missing.

Adding CAD business objects

You must specify the business objects to be imported from the CAD drawing into Planon ProCenter.
In addition, you can also specify construction data such as pillars, holes and other constructional elements that need to be imported into CAD Integrator FM drawings or constructional drawings.

Procedure

1. Go to **CAD drawing definitions** > **CAD business objects**.
2. On the action panel, click **Add [CAD linked …]**.

Adding CAD linked floors

1. Select **CAD linked floors**.
2. Enter a description for the CAD linked floors.
3. Click **Save**.

Adding CAD linked spaces

1. Select **CAD linked spaces**.
2. Complete the relevant fields in the data section. For a description of these fields, refer to .
3. Click **Save**.

Adding CAD linked flexible workspaces

1. Select **CAD linked flexible workspace**.
2. In the **Description** field, enter a description for the CAD linked flexible workspace.
3. Click **Save**.

Adding CAD linked fixed workspaces

1. Select **CAD linked fixed workspace**.
2. In the **Description** field, enter a description for the CAD linked fixed workspace.
3. In the **User-defined business object** field, select the user defined workspace.

Workspace should be added as a user-defined business object to the base CAD linked business object.

Click **Save**.

Adding CAD linked 'Rent to' units

1. Select **CAD linked 'Rent to' units**.
2. Complete the relevant fields in the data section. For a description of these fields, refer to CAD linked 'Rent to' units fields.
3. Click **Save**.

Adding CAD linked 'Rent from' units

1. Select **CAD linked 'Rent from' units**.
2. Complete the relevant fields in the data section. For a description of these fields, refer to CAD linked 'Rent from' units fields.
3. Click **Save**.

Tip For more information on adding user-defined business objects, see Field Definer.

Adding CAD linked assets

1. Select **CAD linked assets**.
2. Complete the relevant fields in the data section. For a description of these fields, refer to CAD linked assets fields.
3. Click **Save**.

Adding CAD linked persons

1. Select CAD linked persons.
2. Complete the relevant fields in the data section. For a description of these fields, refer to CAD linked persons fields.
3. Click **Save**.

Adding CAD linked construction data

1. Select **CAD linked construction data**.
2. Complete the relevant fields in the data section.
3. Enter a description for the CAD linked construction data.
4. Click **Save**.

   You have now added the business objects.

Mapping CAD business objects

At **CAD business object mapping**, you can select the layer(s) in the drawing that contain(s) the polylines/blocks for the business object (like floors, spaces, workspaces, …) that you selected on the second level.

You can also define the colors which should be used to display the object in CAD integrator. By default, the AutoCAD color is applied.

Procedure

1. Go to **CAD drawing definitions** > **Details**.

2. On the action panel:

   ◦ Click **CAD polyline BO mapping**, if you are mapping a business object whose information comes from a polyline. For example, a floor, a space, a 'Rent to' unit or a 'Rent from' unit.

   ◦ Complete the relevant fields in the data section. For a description of these fields, refer to .

3. Click **Save**.

   or

   ◦ Click **CAD block BO mapping**, if you are mapping a business object whose information comes from a block. For example, asset, person and flexible workspace.

   ◦ Complete the relevant fields in the data section. For a description of these fields, refer to .

4. Click **Save**,

   or

   ◦ Click **Building element layer**, to convert the elements of a layer as construction data. For example, pillars, hole, staircase and so on.

   ◦ Complete the relevant fields in the data section. For a description of these fields, refer to .

5. Click **Save**.

Mapping a CAD drawing to a floor

To map a drawing to a floor of a property.

Procedure

1. Go to **CAD Import definitions**, and select **Mapping.**
2. On the action menu, click **Add**.
3. In the data section, complete the relevant fields.

For a description of these fields, refer to .

4. Click **Save**.

You have now mapped a drawing to a floor.

Performing CAD drawing verification

For a successful CAD Import, a CAD drawing must meet various conditions. Typically, an import of complicated drawings or multiple drawings can produce errors. In such cases, it is difficult to find which drawing and which layer is giving the error.

The majority of failed imports are due to Crossing polylines or overlapping Space entities (gross & net). These errors can be avoided by verifying a drawing before importing. CAD verification functionality enables you to inspect the entire drawing and locate where the faults are.

Currently, the CAD verification checks that:

- Polylines do not cross
- Drawing location
- Filter-text is used (for more simple reproduction)
- The Planon version is filled
- An entity is inside another entity
- Workspaces are inside the space
- Workspaces do not overlap other workspaces
- Fixed workspaces are surrounded by a space
- Fixed and flexible workspace are surrounded by a net space polyline
- There are no endless loops
  ◦ main drawing with an xref referring back to the main drawing
  ◦ block definition that refers to another block that refers back to the first one.

  A critical error will be logged and the import process is stopped.

- The version of AutoCAD used for creating drawings is available and logs that in the CAD drawing verification log.

- Each gross floor polyline contains a net floor polyline.

- Dimensions are acceptable (for example: a floor with a width of less than 2 or more than 4500 meters is considered as a mistake).

- Verify the connection with the CAD Workbench server. If a connection cannot be established, a pop-up message is displayed and a log entry is created in the verification log.

- Elevation is auto corrected to 0 for xref layers such as spaces, workspaces.

- There are no missing, duplicate, or orphaned data entities. If so, a log entry will be created.

Procedure

1. Go to **CAD import definitions** > **CAD import definitions**.
2. Select the CAD import definition you want to verify.
3. On the action panel, click **Perform CAD verification**.

The process starts running in the background.

4. After completion, go to the **Import logs** step to see the verification results.

The event logs of the CAD verification are preceded with the text '[VERIFICATION]'. Any faulty drawings are preceded with an error icon ( ). For detailed information of the fault, go to the Import log details step.

💡 • To understand the different crossing polylines listed in the **Import log details**, see Crossing polylines

• To view the crossing polylines listed in the **Import log details**, open the AutoCAD drawing and use the EOS CAD tool to identify them by ussing the AutoCAD Handle ID. For more information, see .

CAD Import settings

CAD Integrator settings

Field	Description
Update CAD Integrator FM drawing?	Select **Yes** to update the existing .orj file during the import. A prerequisite is that the **Create CAD Integrator file** option is set to **Yes**. If you move text boxes or assets in CAD Integrator,

Field	Description
	these locations will keep their old position after the import.
	Select **No** to always generate a new .orj file. Text positions and manually moved assets in CAD Integrator will be located in the center of the space or location of the AutoCAD drawing.

Output folder

Field	Description
Add month to output folder	When you enable this option, a folder is created with the month and year in YYYYMM format in the output location.
	It is added as a subfolder directly under the output location or directly under the (optionally) added history folder.
Add date to output folder	When you enable this option, a folder is created with the date of import definition in YYYYMMDD format in the output location.
	It is added as a subfolder directly under the output location or directly under the (optionally) added history folder. **No** is selected by default.
Add file as folder to output subfolders	When you enable this option, a subfolder with the name of the drawing is created in the output location. **No** is selected by default.
Add month to output subfolders	When you enable this option, a subfolder is created with the year and month in YYYYMM format in the output location.
	It is added as a subfolder under every subfolder in the output location. **No** is selected by default.
	When all the Boolean options are enabled, the hierarchy of the folders/subfolders is as follows:
	Outputlocation/HistoryFolder*/ AddMonthToOutputFolder/ AddDateToOutputFolder/.... OutputSubFolders/HistoryFolder/.... / AddFileasFolderToOutputSubfolders/ ....AddMonthToOutputSubfolders/ AddDateToOutputSubfolders/ Drawing.dwg.
	HistoryFolder* is added in case of AddMonthToOutPutFolder or AddDateToOutPutFolder is selected.

Field	Description
Add date to output subfolders	When you enable this option, a folder is created with the date of import definition in YYYYMMDD format in the output location.
	It is added as a subfolder under every subfolder in the output location. **No** is selected by default.
History folder	Specify a name to automatically create a history folder in which all the imported drawings are saved.
	This is especially important if your input folder is same as the output folder. Drawings in any history folder are automatically excluded during the import.
Overwrite output files (Y/N)	Select **Yes** to overwrite the existing files of the output folder.
	When the imported file is copied into the output folder, it may be possible that the file is already present in the output folder.
	In that case, this setting defines whether or not the existing file should be overwritten.

Import spaces

Field	Description
Threshold new space dimensions	Specify a value. If the difference between the net or gross area of the database and drawing is above this threshold value, then a new space size/usage unit linked to a floor instance is created on the effective date of the import. Otherwise, a new space size/usage instance is created on the effective date of the import.
New space size / usage after data change?	Select **Yes** to create a new space dimensions / space usage record on the effective date of the import, after any data change on space dimensions / space usage. A data change is typically caused by the import of one of the mapped fields in the **Drawing definition**.
	Select **No** to update the existing space dimensions / usage.
	💡 If the data change causes the new space dimensions to exceed the set threshold value, this setting is not taken into account. In that case, new space dimensions and

Field	Description
	usage records are created, regardless of this setting.
End spaces	Select **Yes** to end spaces that are no longer present in the drawing on the effective date of import.
Resume spaces	Select **Yes** to resume spaces that are ended in the database, but are visible again in the drawing.
Resume workspaces	Select **Yes** to automatically resume the ended workspaces of a resumed space. This field can only be enabled if you have selected **Yes** in **Resume spaces**.
Space code wildcard filter	Specify a code to filter spaces from an imported drawing. Planon ProCenter imports only those spaces whose space code matches with the code specified in this field. The following wildcards are supported: ?: any single character *: either 0 or more characters

Import fixed workspaces

Field	Description
End fixed workspaces	Select **Yes** to end fixed workspaces that are no longer present in the drawing on the effective date of import, but are present in Planon ProCenter.
Resume fixed workspaces	Select **Yes** to resume fixed workspaces that are ended in the database, but are visible in the drawing. The end date gets cleared for the resumed fixed workspaces.
New workspace details after change	Select **Yes** to create a new workspace detail record when updates for the workspace are found. (for example, different department, cost center, space, etc). Select **NO** to overwrite the existing Workspace Detail of the updated Workspace.

Field	Description
Workspace code wildcard filter	Specify a workspace code to filter the workspaces to import. CAD Import imports workspaces whose workspace code matches with the workspace code specified in this field. This field accepts the following wildcards:
	* = none or multiple characters
	For example: **ab*c** matches: abc, abbc, abbbc, abdc. But does not match: ac
	? = any single character (but not none)
	For example: **ab?c** matches: abbc, abdc. But does not match: ac, abc, abbbc
Workspace update area	Select **Yes** to update the area of the fixed workspaces in case this differs from the area in Planon.

Working with Spaces & Workspaces

This section provides instructions for working with **Spaces & Workspaces**.

Adding spaces

You can add a space to a floor by following the below procedure:

Procedure

1. Go to **Spaces**.
2. On the action panel, click **Add**.

For a description of fields available at Spaces, refer to Space data fields.

3. Click **Save**.

   A new space is added.

Modifying space usage data from the Spaces selection level

You can modify space usage data, such as the department or cost center, from the **Spaces** selection level.

Procedure

1. Go to the **Spaces** selection level (in **Data view** or **CAD Integrator**).
2. Select the space(s) whose space usage data you want to modify (use **Action on selection** to select multiple spaces).
3. On the action panel, click **Modify space usage**. The **Enter values** dialog box appears.
4. In the **Modification date** field, specify the date on which the modification is to become effective. By default, the reference date is selected. Click **OK** to use this date.
5. To select another date, click **Select a date** button in the **Modification date** field, select the required date in the date picker and click **OK**.

   The Modify space usage dialog box appears.

6. Modify the required **Space usage** field(s) and click **OK** to save your changes.

The space usage field(s) is (are) now modified for the selected space(s).

For this feature to work correctly, it is necessary that the **Split** action is available on the **Space usage** selection step. If not, you will get an error message. In this case, ask your Planon system administrator to make the **Split** action available on the **Space usage** layout.

Adding floor attributes

If you add a new floor in the **Floors** selection step at the **Components** selection level, floor attributes are automatically populated on the **Floor attributes** step for the set reference date. You can enter the remaining data yourself. For a description of these fields, refer to Floor attributes fields.

Font sizes are default sizes if you open a drawing for the first time. After that you can store your own preferences.

For details on defining and using texts and tooltips in CAD Integrator drawings, see the CAD Integrator and *Report Manager* parts of the Planon user documentation.

- New floor attributes apply from the set reference date.
- After adding new floor attributes, the previous attributes are automatically ended.
- By changing the reference date, you can add or retrieve floor attributes in past, present and future.
- Floor attributes are consecutive elements, hence, overlaps are not allowed.
- You can modify the start date of a particular set of floor attributes. In this case, the end date of the previous set of floor attributes will also be altered.
- If the start date of a set of floor attributes is changed to an earlier date, the sequence of the various sets of floor attributes may be modified as well.

Adding workspaces

You can add workspaces in **Spaces & Workspaces**.

Typically, a workspace resides inside a property > floor > space. If you want to add a workspace, you can start by using the Planon navigation feature to add the workspace to the proper location.

Procedure

1. Select a **Property** > **Floor** > **Space** and navigate to the **Workspaces** level.

2. On the action panel, click **Add**.

The data panel displays a number of autopopulated fields based on the selection you've made.

3. Enter a **Code** -or accept the predefined code- and a **Name** for the workspace.

4. Click **Save** to confirm.

You have added a workspace.

Modifying workspace details

Workspace details is any kind of data that relates to the workspace.

On **Workspace** level, a number of actions are available which you can use to maintain the workspace details.

Action	Description
End	Use this action to end a workspace. When clicking this action, you are prompted to specify a date on which to end the workspace.
Modify	Use this action to change either workspace details or occupancy data. 1. In the **Modification date** field, select the date on which the modification is to become effective. By default, the reference date is selected. Use the date picker to select a different date. 2. Select either **Modify workspace details** or **Modify occupancy data**. 3. Click **OK**. The **Modify workspace details** or **Modify occupancy** dialog box appears.

Action	Description
	4. Modify the required **Workspace details** or **Occupancies** field(s) and click **OK** to save your changes. The workspace detail field(s) or occupancy fields is (are) now modified for the selected workspace(s).
Resume	This action allows you to resume a workspace that was ended.
Copy	Use this action to copy the selected workspace (as a kind of template).
Delete	Use this action to delete a workspace.

Working with Sensor integration

This section describes instructions for working with Sensor integration.

Sensor Integration enables you to measure the actual occupancy and environmental variables of workspaces, meeting rooms, in general referred to as locations in this document. Measuring the occupancy of locations serves a twofold purpose:

- Enabling your staff to find available locations (a workspace, meeting room) based on real-time occupancy data.

- Enabling business intelligence analyses of locations (are there sufficient locations available, are the locations sufficiently large to accommodate staff). This will allow your organization to improve efficiency in location supply

Sensor Integration consists of a set of components that collaborate dynamically:

- **Sensoring system**: A set of measurement devices providing real-time sensor data displaying the actual location occupancy. Sensors can be any kind of measurement equipment, see also Sensors.

- **Data engine**: Agile Workplace Management module receiving occupancy data from the sensoring system and providing it to Planon Software Suite.

- **Connector**: A reference to the Sensoring System web service (Planon managed) or Platform app (Custom managed) that provides sensor data to the data engine system. The connector is an interface between the sensoring system and the data engine system.

  The following image depicts the AWM components and how they interact.
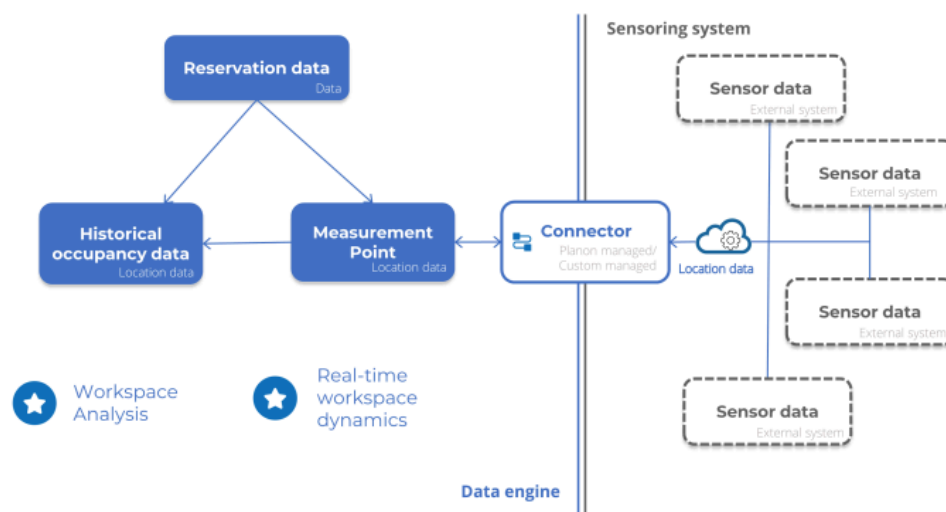
Adding a data engine

Specify the details of your data engine. Here, you specify and maintain the data engine's schedule for polling the sensoring system.

1. Go to **Data engines** > **Data engines** step.
2. On the action menu, click **Add**.
3. Complete the fields in the data section.

For an overview of the available fields, refer to .

4. Click **Save**. A new data engine is added to AWM. You can continue to add a connector to this data engine.

Currently it is only possible to add a single data engine.

Adding a connector

Based on configuration, a connection is established between the data engine and the sensoring system.

Specify the details of the sensoring system connector. You can choose to add two different types of connectors:

- **Planon managed connector**

  The sensoring system has a Restful API to which the AWM connector interfaces. This connector is system-specific. In order to update the occupancy information, Planon regularly polls the sensoring system for updates.

- **Custom managed connector**

  The connection with the sensoring system is handled via Event Connector, a generic gateway between third-party applications and Planon. A great many configuration details (connection, transformation of raw messages into messages) is handled by a Platform app. Unlike the Planon managed connector, the custom managed connector receives the data as soon as it is available (real time).

Currently, AWM can only process inbound messages.

- **Planon IoT measurement point connector**: Planon IoT is used to manage sensor readings. Because of the integration with the Planon application, the setup is simplified to take the burden off the customer.

AWM can have multiple connectors for different kinds of sensoring systems.

1. Go to **Connectors** > **Connectors**.
2. On the action menu, click **Add**.

Select the type of connector that you want to add.

3. Complete the fields in the data section.

    For a description of these fields, refer to Connectors - fields / .

4. Click **Save**.
   A new connector is added to AWM. You can now add measurement point definitions to this connector.

Adding measurement point definitions

A measurement point definition defines settings for a group of measurement points and links them to a connector.

Complete the following steps to add a new measurement point definition.

Procedure

1. Go to **Configurations & logging** > **Definitions**.
2. On the action menu, click **Add**.
3. Complete the fields in the data section.

    For a description of these fields, refer to Configurations & logging - fields.

4. Click **Save**.

    A new measurement point definition is added. Now, you can add measurement points to this definition. AWM can contain multiple measurement point definitions simultaneously.

Adding measurement points

Measurement points are added to their location to be able to store actual reading data received from the connector. A measurement point also displays its occupancy status.

Complete the following steps to add a new measurement point.

Procedure

1. Go to **Measurement points** > **Measurement points**.
2. On the action menu, click **Add**.
3. Complete the fields in the data section.

For a description of these fields, refer to Measurement point - fields.

4. Click **Save**.

A new measurement point is added. Now, the actual readings from the data engine can be analyzed. The measurement point readings store the actual readings from the sensoring system.

For information on measurement point reading fields, refer to Sensor - fields.

Automatic onboarding of measurement points

You can manually add measurement points in Agile Workplace Management, but it is also possible to automatically onboard measurement points in bulk.

Automatically onboarding measurement points only works for custom-managed connectors; consequently, it requires an app to communicate with the sensoring system.

Data preparation

The data in the Planon application is mapped to the data of the sensoring system. A mapping table ensures that both parties can identify their components uniquely. This unique ID, known as an external ID, is used to identify the stored objects.

Onboarding app

A 'Connector app' that communicates with an IoT vendor system. This app offers a class for polling data (IAWMPollingTask) and, optionally, a class for onboarding (IAWMOnboardingTask). Developing an app is part of the Planon as a Platform solution.

Subsequently, this app needs to be installed in the AppCenter.

AWM

On **Connectors**/**Onboarding** step, you can select your onboarding app and specify its settings.

To continue the process, proceed with .

Adding sensors

Sensors are referring to the real measuring equipment that can be used to measure occupancy. A sensor is always linked to its corresponding measurement point. More than one sensor can be linked to a measurement point. The sensors are identified by their IDs. The sensor IDs can be used to publish to the sensoring system, this process is called synchronization.

Complete the following steps to add a new measurement point sensor.

Procedure

1. Go to **Details** > **Sensors**.
2. On the action menu, click **Add**.
3. Complete the fields in the data section.

   For a description of these fields, refer to Sensor - fields.

4. Click **Save**.

A new sensor is added.

Working with Alerts

The **Alerts** TSI allows you to specify alarms and notifications for an action that is to be completed at a set time. **Alerts** uses data added in other TSIs. This is dependent on the business object for which the notification is selected.

For **Alerts** to operate as intended, careful configuration is required. Although **Alerts** is available as standard in Planon, some configuration is required to set up the scheduling mechanism before using this functionality.

Alerts settings

If you have created multiple Alerts TSIs in your navigation panel, you can specify in **Alert settings** to which **My Alarms** step you want users to navigate when they click the active **Alarm** button on the Planon toolbar.

Most users will only require the **My Alarms** step for *viewing* alarms, whereas a Planon administrator will require all selection steps in order to configure notifications and alarm definitions.

Adding a notify once definition

Allows you to specify the conditions for sending notifications only once via email or SMS.

However, contrary to the regular notification definitions, when the condition continues to be met, Planon checks whether a notification on this specific item has already been sent. If **Yes**, the subsequent notifications will be skipped.

Procedure

1. Go to **Notify once definitions**.

2. On the action panel, click **Add**.

   The procedure to add the **Notify once definition** is the same as adding a regular notification definition.
   Perform the steps as described in Adding a notification definition.

3. The recipient linked to the definition will receive a notification per matching item. If multiple items are found, this will result in an equal number of emails.

4. If you discard a **Notify once definition**, the corresponding list of notifications will also be purged (and these can subsequently be re-notified).

Adding an alarm definition

Allows you to specify the alarm conditions for alerting the Planon users.

Procedure

1. Go to **Alarm definitions.**
2. Click **Add** on the action panel.
3. In the data panel, complete the relevant fields.

   For a description of these fields, refer to Alarm definition fields.

4. Click **Save**, your alarm definition is added.

   To use the alarm definition, set its status to **Active**.

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