



## Information About Analysis

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This chapter describes the different types of analysis that you can perform on devices in a building or environment. You can perform the following two types of analysis:

- [“Typical Location Analysis” on page 1](#)
- [“Typical Path Analysis” on page 3](#)

### Typical Location Analysis

The typical location analysis creates and analyzes different areas of the building and measures the movement of people within building. The location analysis is a way of segmenting all the points detected into representative areas on which parameters are calculated.

The process starts by clustering mathematically all the devices into areas determined by the geographical layout of the observations. Each point is allocated to an area and each area is represented by a center point. Once the set of areas have been established, parameters associated with each area can be calculated which reflects the movement of people through that part of the building.

The results of carrying out a location analysis is a set of areas represented by center points indicating the spread of device parameters over the Wi-Fi detected area.

#### Areas and Zones

The concept of areas and zones are different but they work together. You need to consider the following:

- A zone is a user defined space with a name and can be used for reporting or for path rule purposes.
- Zones can be overlapping and need not cover all the building.
- Areas are defined by mathematical clustering on the observable Wi-Fi points.
- Cluster areas can be used when there are no known zones established or to ensure all parts of the location space are accounted for.
- Each area is associated with a set of behavior parameters that are represented by icons.

There following are the different behavior measurements:

- Dwell Time— Dwell time or wait time is an estimate of the time, a person is spending in an area as they move through the building. Dwell times are color coded as follows:
  - Yellow—Displays areas of low dwell time where people movement is fast.
  - Red—Displays areas of high dwell time where people movement is slow.

- Crowding— Crowding is measured by the density of people within a particular area over a time period. Crowding is a relative measure of crowding across all areas. It is derived from the number of observed devices in that area and a measure of the size of the area.
- Number of devices passing—This indicates the number of unique MAC addresses identified in that area and is defined by your filtered conditions. The number of visits is also calculated. In case a device re-appear in the same area after an elapsed time, then it is counted as a second visit.

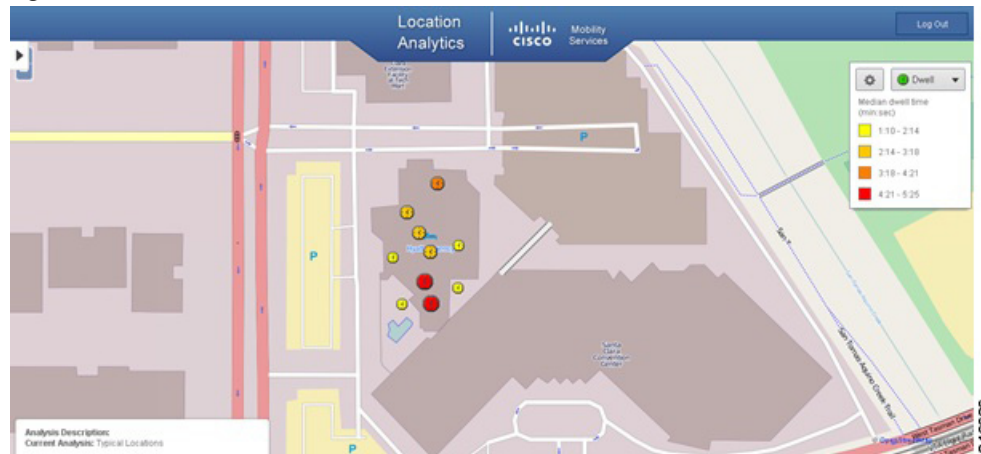
The following figure shows the number of device parameters in the same locations.

**Figure 5-1** Distribution of Number of Devices Across One Floor



The following figure shows the distribution of median dwell times in the 2D map.

**Figure 5-2** Distribution of Median Dwell Times



## Typical Path Analysis

Typical paths analyses the behavior of devices or people as they move through the building. The typical path presents you with a set of paths taken and the parameters associated with them. This analysis is carried out through clustering, which aggregates the paths into sets which are equivalent. Each resulting set is represented by an actual path and shown graphically by a set of observed points linked by edges. The clustering allows you to identify the common routes that people usually take.

This section contains Analyzing areas of building using Typical Path analysis

## Analyzing Areas of the Building Using the Typical Path Analysis

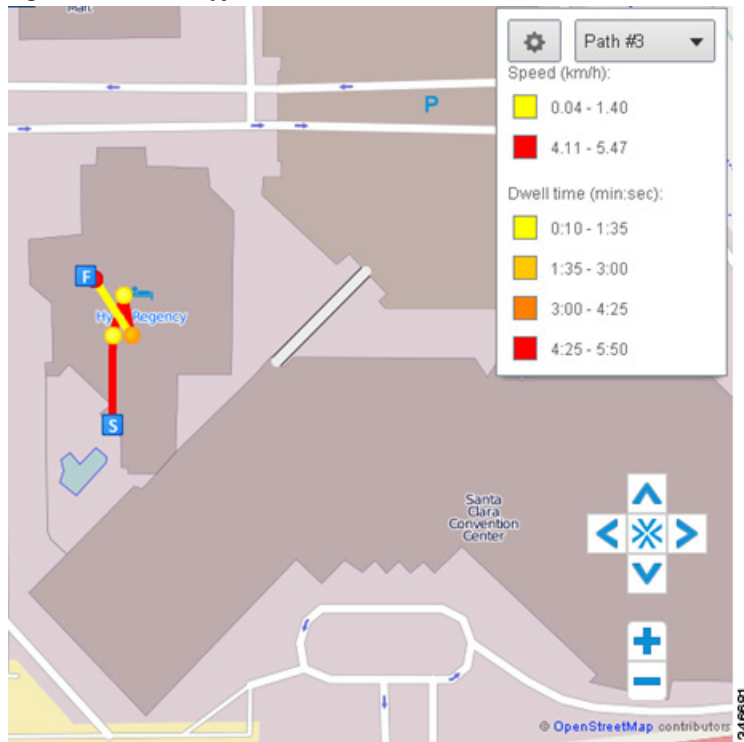
To analyze different areas of the building using the typical path analysis, follow these steps:

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- Step 1** Do the following in the Analysis group box:
- From the Type drop-down list, choose Typical Path.
  - Click the black inverted triangle icon to configure the number of locations or path that you want to include in the analysis.
    - In the Number of Locations text box, enter the number of locations or path.
  - From the Building drop-down list, select the building that you want to analyze.
- Step 2** You can apply the parameterised rules to your analysis from the Rules group box. See [Rules Group Box, page 4-2](#) for more information.
- Step 3** Click Run.
- Step 4** Click 3D Analytics to view the results in 3D environment or 2D to view the results in 2D environment.

The typical path presents you with a set of paths taken and the parameters associated with them in the right pane. The following figure shows the typical path across a shopping mall on a particular day and time in 3D. The observed points on the path are shown and lined with a straight line.

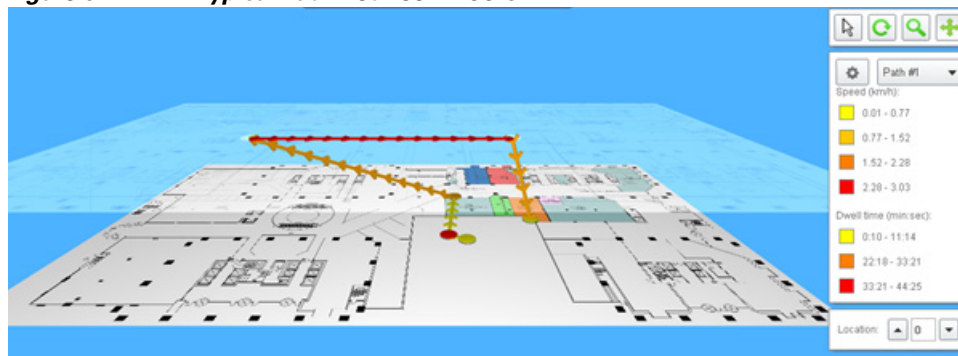
The following figure shows the typical path across a shopping mall on a particular day and time in 2D.

**Figure 5-3** Typical Path Across One Floor in 2D Environment



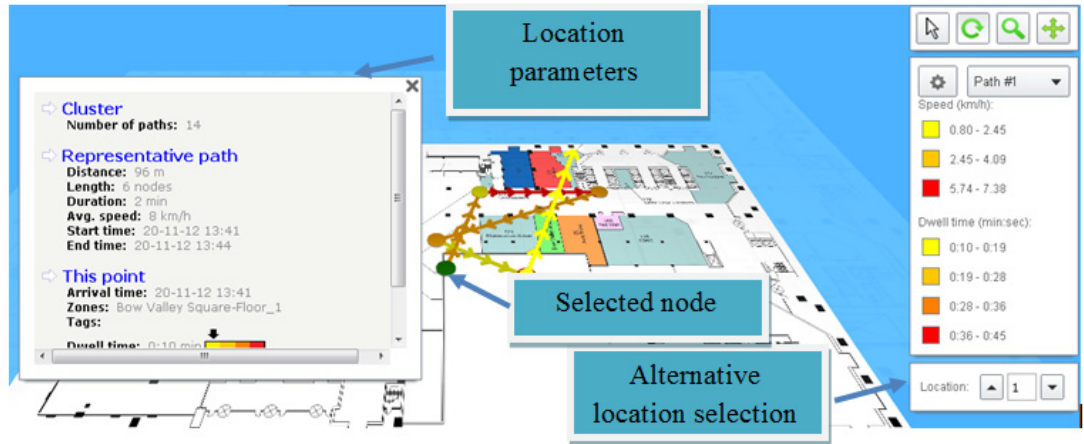
The following figure shows typical path between floors

**Figure 5-4** Typical Path Between Floors



- Step 5** To obtain information associated with the parameter, click the node or use the location selector from the Auxiliary Information dashlet. The following figure shows the path parameters at Start Node.

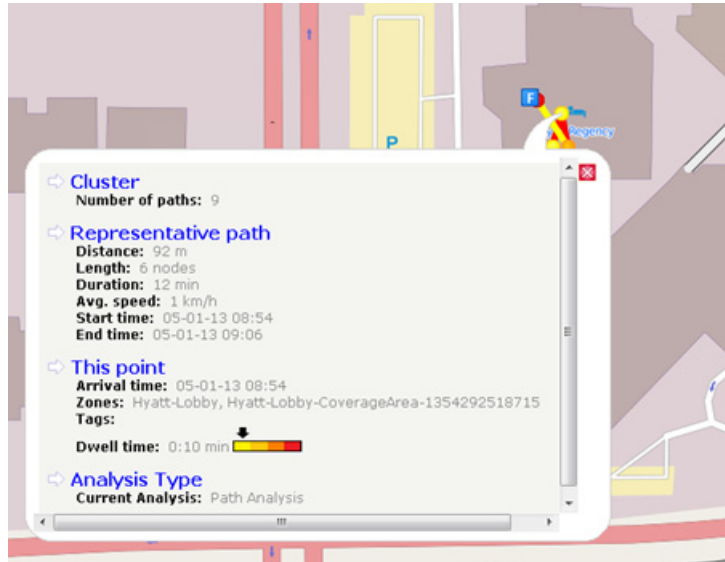
Figure 5-5 Path Parameters at Start Node



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The below figure shows the path parameters at the intermediate node.

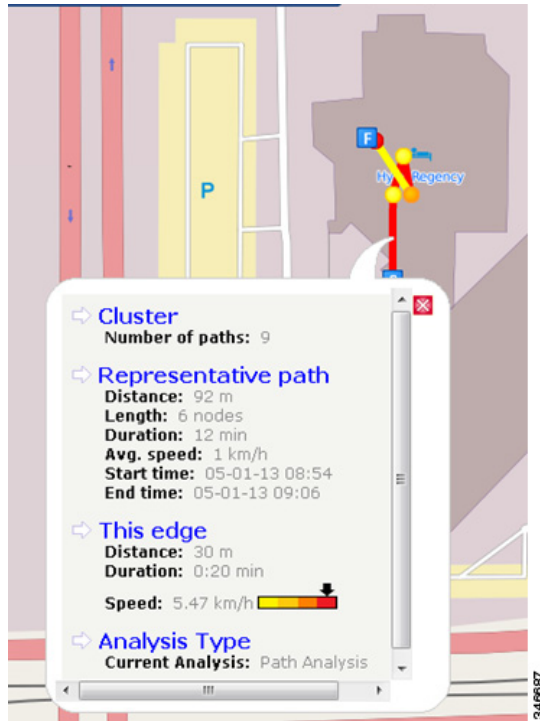
Figure 5-6 Path Parameters at Intermediate Node



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The below figure shows the path parameters at the edge node.

Figure 5-7 Path Parameters at Edge Node



The following information is displayed when you click on the node:

- Number of paths in the cluster
- Overall distance travelled
- Number of point observations recorded along the path
- Time took to complete the particular path
- Average speed along the path (km/hr)
- Date and time of the first and the last recorded point on the path

The following are the parameters for a particular point:

- Arrival date and time
- Zones located within
- Any tags associated with this point

The following are the parameters displayed for a particular edge:

- Crow- files distance between the two points it joins
- Difference in time between two points
- Estimated speed between the two points.