



Data Pipeline Usage Guide

Version 0.9

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1. Scope

This document outlines how a Data Pipeline is generated. This document is a reference for those implementing either a Device or an App which is using the Data Pipeline.

2. Overview

An App or Data Service that is constructing a Data Pipeline shall follow the Use Case outlined in this document.

3. Use Cases

The configuration of the Data Pipeline shall comprise the following sequential steps:

1. Creating a Control Session between the Source Node and the Sink Node.
2. Sink Node shall request the capabilities of each Source Node by making a GetCapabilities request to each Node.
3. The Sink Node shall define a pipeline of processes by defining the interconnections between Nodes, the Transducer (Image Sensor, Microphone or Speaker) configuration of each Node and the Process Definition for the Node.
4. The Sink Node shall configure each Source Node. The configuration triggers each Node to create the interconnections with other Nodes in the Pipeline using the SetSceneMode command.
5. The Sink Node triggers each Node individually to start the Scene Mode using the StartScene command.
6. The Sink Node shall receive the SceneMarks and SceneData generated by the Node to which it has a direct connection.

The SceneMode shall be distributed through the Control Interface to different Nodes. Nodes shall process and distribute SceneMarks and SceneData using the Data Interface.

The Sink Node shall send a SetSceneMode command to the Source Node. The SetSceneMode shall determine:

- Which data that shall be prioritized - for example faces for Face SceneMode.
- The triggers that shall result in a SceneMark being generated.
- The type and amount of SceneData that shall be generated when a trigger occurs. For example, a JPEG or 3 seconds of video before the trigger and 20 seconds after the trigger etc.
- Any processing that the Device shall perform on the SceneData to extract information for the SceneMark.

A data pipeline shall be constructed by linking the inputs and outputs of Nodes. Each SceneMode Object shall define the following items:

- Inputs - each input shall have a configuration of the type of data that is expected to be received over the input, its encryption status, references to rights objects and the source URI for the source data to the input.
Each input shall have a PortID that in combination with the NodeID is a unique system wide ID.
- Outputs - each output shall have a configuration similar to that of the input port.
The output shall have a PortID which together with the NodeID is a unique system.

- Transducers - A Transducer shall either be a sensor or actuator. The output or input of the Transducer may be routed to one or more outputs, an input (for an actuator) as well as to the Process in the Node (for example SceneMode processing or CustomMode processing).
- Process - the process shall perform an analysis of the data that is generated by the Transducer or is routed from other Nodes. The data may be in the form of SceneMarks or SceneData from other Nodes. The Process shall perform the analysis and if a defined threshold is reached the Process shall generate a trigger condition that results in a SceneMark and SceneData being generated according to the SceneMode configuration.
- Storage - the Node may store data that is generated on the Node or received from other Nodes.

The location of the input or output of a port shall be defined by the URI provided in the configuration of the port. The URI may reference Nodes internal or external to the device.

When the SceneMode is set the Device that hosts the Node shall create the connection necessary to either local Node or remote Node in another Device or Service.

The following is the sequence of commands that are sent between the cloud and the Device to set up and stream the Marks and Data.

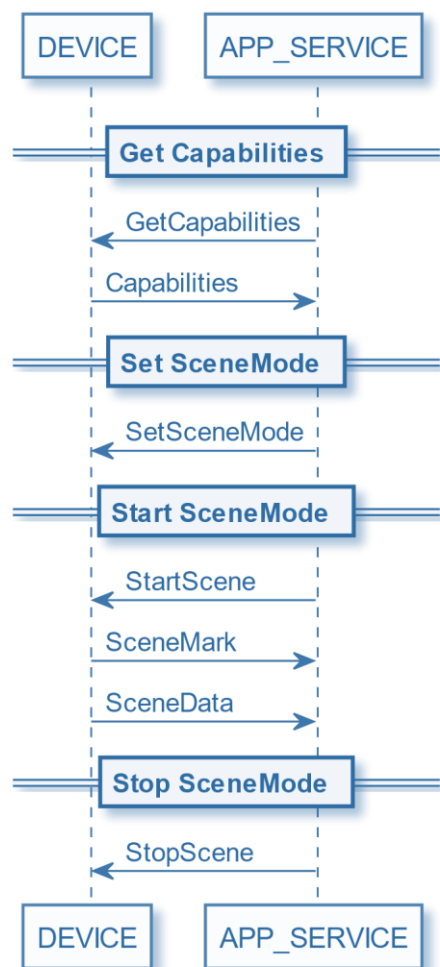


Figure 1. Data Pipeline Configuration Flow Diagram