

Sample Mapping #	Mapping Type	Topics/Substitutions	API	Template-Source	Target-Payload	Expected Result
01	JSON	<pre> mappingTopic: /plant1/+/ mappingTopicSample: /plant1/line1/device1_measure1_Type check: Create non existing device sub: 1.[* _TOPIC_LEVEL_[1]&"_&_TOPIC_LEVEL_[2]&"_&\$substringBefore(_TOPIC_LEVEL_[3],".") -> _IDENTITY_.externalId] 2.[\$substringAfter(_TOPIC_LEVEL_[3],"_") -> type] 3.[\$now() -> time] 4.[value -> measure1_Type.V.value] </pre>	M	<pre> { "value": 100 } </pre>	<pre> { "measure1_Type": { "V": { "value": 110, "unit": "C" } }, "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_TemperatureMeasurement" } </pre>	For the device with external id: plant1_line1_device1 a measurement c8y_TemperatureMeasurement should be created. The device is created implicitly.
02	JSON	<pre> mappingTopic: devices/+ mappingTopicSample: devices/device_best_01 check: Create non existing device sub: 1.[* _TOPIC_LEVEL_[1] -> _IDENTITY_.externalId] 2.[mea.values[0].value -> c8y_ProcessLoadMeasurement.L.value] 3.[mea.values.timestamp.\$fromMillis(\$) -> time] check expand to array for this substitution </pre>	M	<pre> { "mea": [{ "tid": "uuid_01", "psid": "Crest", "devicePath": "path01_80_X03_VB001statusB_Crest", "values": [{ "value": 4.6, "timestamp": 1648562285347 }] }, { "tid": "uuid_02", "psid": "Crest", "devicePath": "path01_80_X03_VB001statusB_Crest", "values": [{ "value": 5.6, "timestamp": 1648563285347 }] }] } </pre>	<pre> { "c8y_ProcessLoadMeasurement": { "L": { "value": 110, "unit": "%" } }, "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_ProcessLoadMeasurement" } </pre>	For the device with external id: device_best_01 multiple measurements should be created. The device is created implicitly.
03	JSON	<pre> mappingTopic: device/express/+ mappingTopicSample: device/express/berlin_01 check: Use external id sub: 1.[* _TOPIC_LEVEL_[2] -> _IDENTITY_.externalId] 2.[customType -> type] 3.[operator&"-&line -> name] 4.[capacity -> capacity] </pre>	I	<pre> { "line": "Bus-Berlin-Rom", "operator": "EuroBus", "customFragment": { "customFragmentValue": "Express" }, "capacity": 64, "customArray": ["ArrayValue1", "ArrayValue2"], "customType": "type_International" } </pre>	<pre> { "c8y_IsDevice": {}, "com_cumulocity_model_Agent": {}, "name": "Bus Name", "type": "type_bus", "capacity": 100, "time": "2022-08-05T00:14:49.389+02:00", } </pre>	Create device with: 1.external id: berlin_01 2.name: EuroBus-Bus-Berlin-Rom 3.type: type_International
04	JSON	<pre> mappingTopic: event/+ mappingTopicSample: event/berlin_01 check: Use external id sub: 1.[* _TOPIC_LEVEL_[1] -> _IDENTITY_.externalId] 2.[txt->text] 3.[msg_type -> type] </pre>	E	<pre> { "msg_type": "c8y_BusStopEvent", "txt": "Bus stopped at petrol station today!", "td": "2022-09-08T16:21:53.389+02:00", "ts": "1665473038000" } </pre>	<pre> { "text": "This is a new test event.", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_GeneralBusEvent" } </pre>	Event for existing device should be created mention [\$fromMillis(\$number(deviceTimestamp))->time]
05	JSON	<pre> mappingTopic: measurement/+/gazoline mappingTopicSample: measurement/berlin_01/gazoline check: Use external id sub: 1.[* _TOPIC_LEVEL_[1] -> _IDENTITY_.externalId] 2.[fuel -> c8y_FuelMeasurement.F.value] 3.[\$now() -> time] </pre>	M	<pre> { "fuel": 65, "ts": "2022-08-05T00:14:49.389+02:00", "mea": "c8y_FuelMeasurement" } </pre>	<pre> { "c8y_FuelMeasurement": { "L": { "value": 110, "unit": "L" } }, "time": "2022-10-18T00:14:49.389+02:00", "type": "c8y_FuelMeasurement" } </pre>	Add c8y_FuelMeasurement to bus.

06	JSON	<pre> mappingTopic: multiarray/devices mappingTopicSample: multiarray/devices check: Use external id sub: 1. [* device -> _IDENTITY_.externalId] , choose option "Expand Array" 2.[types.type_A -> type] 3.[\$map(used_name, function(\$v, \$i, \$a) { \$contains(\$v,'dl') ? \$join(['Special_i0', \$string(\$i)]) : \$join([\$string(\$v), \$string(\$i)]) }) -> name] , choose option "Expand Array" </pre>	I	<pre> { "device": ["d1_id", "d2_id"], "types": { "type_A": "type_A", "type_B": "type_B" }, "used_name": ["Pressure_d1", "Pressure_d2"] } </pre>	<pre> { "c8y_IsDevice": {}, "name": "Vibration Sensor", "type": "maker_Vibration_Sensor" } </pre>	<p>New Devices: 1.Pressure_d21 2.Special_i00 should be created.</p> <p>All device have the same type "type_A"</p>
07	JSON	<pre> mappingTopic: arrayType/devices mappingTopicSample: arrayType/devices check: Create non existing device check: Use external id sub: 1. [\$substringBefore(\${0}.devicePath,"_AL") -> _IDENTITY_.externalId] 2. [\${}.values[0].value -> c8y_TemperatureMeasurement.T.value] , choose option "Expand Array" 3. [\$map(\$map(\${}.values[0].timestamp, \$number), function(\$v){ \$fromMillis(\$v)}) -> time] , choose option "Expand Array" </pre>	M	<pre> [{ "tid": "5e4bac9f-b47a-499e-8601-68fc16a9847c", "psid": "Crest", "devicePath": "c2818e07-4c09-42f0-ba24-ddb712573ab5_AL1352_192168221_80_X03_VVB001StatusB_Cre st", "processDataUnit": "20", "values": [{ "value": 4.6, "timestamp": 1648562285347 }] }, { "tid": "5e4bac9f-b47a-499e-8601-68fc16a9847c", "psid": "Crest", "devicePath": "c2818e07-4c09-42f0-ba24-ddb712573ab5_AL1352_192168221_80_X03_VVB001StatusB_Cre st", "processDataUnit": "20", "values": [{ "value": 5.6, "timestamp": 1648562285347 }] }] </pre>	<pre> { "c8y_TemperatureMeasurement": { "T": { "value": 110, "unit": "C" } }, "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_TemperatureMeasurement" } </pre>	Create one device implicitly with the name: device_c8y_Serial_c2818e07-4c09-42f0-ba24-ddb712573ab5 and for this device create two measurements of type: "c8y_TemperatureMeasurement"
08	JSON	<pre> mappingTopic: eventObject/ mappingTopicSample: eventObject/berlin_01 check: Use external id sub: 1. [_TOPIC_LEVEL_[1] -> _IDENTITY_.externalId] 2. [txt -> text] 3. [msg_type -> type] 4. [\$now() -> time] 5. [model -> customProperties] choose Repair Strategy: REMOVE_IF_MISSING_OR_NULL </pre>	E	<pre> { "msg_type": "c8y_BusStopEvent", "txt": "Bus stopped at petrol station today!", "td": "2022-09-08T16:21:53.389+02:00", "model": { "name": "MAN e-Bus" } } </pre>	<pre> { "text": "This is a new test event.", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_TestEvent", "customProperties": "dummy" } </pre>	<p>Create event for device.</p> <p>If the source payload contains the fragment model it is mapped to customProperties.</p> <p>If it does not contain the fragment the customProperties is removed from the target payload.</p>

09	JSON	<pre> mappingTopic: measurementObject/+/gazoline mappingTopicSample: measurementObject/berlin_01/gazoline check: Use external id sub: 1.[* _TOPIC_LEVEL_[1] -> _IDENTITY_.externalId] 2.[mea -> type] 3.[\$now() -> time] 4.[fuel*3.78541 -> c8y_FuelMeasurement.Tank.value] 5.[(oil?{"Motor": {"value":oil, "unit":"l"}):null) -> c8y_OilMeasurement] choose Repair Strategy: REMOVE_IF_MISSING_OR_NULL </pre>	M	<pre> { "fuel": 65, "oil": 4.5, "ts": "2022-08-05T00:14:49.389+02:00", "mea": "c8y_FuelMeasurement" } </pre>	<pre> { "c8y_FuelMeasurement": { "Tank": { "value": 110, "unit": "l" } }, "c8y_OilMeasurement": "undefined", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_FuelMeasurement" } </pre>	This mapping makes use of the option "REMOVE_IF_MISSING_OR_NULL". The incoming payload can contain either properties: "fuel", "oil" or both. Depending on this the relevant fragments in the Cumulocity measurement are created.
10	HEX	<pre> mappingTopic: hex/ mappingTopicSample: hex/berlin_01 check: Use external id sub: 1.[* _TOPIC_LEVEL_[1] -> _IDENTITY_.externalId] 2.[\$number(\$substring(message,0,6)) -> value] </pre>	E	Hex Code: 0x41b1 No leading 0x, only the plain payload as hexadecimal numbers	<pre> { "text": "This is a new test event.", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_TestEvent", "value": 99 } </pre>	Snoop recorded message
11	JSON	<pre> mappingTopic: operation/ mappingTopicSample: operation/berlin_01 check: Use external id sub: 1.[* _TOPIC_LEVEL_[1] -> deviceId] </pre>	O	<pre> { "text": "Special operation restart" } </pre>	<pre> { "description": "New camera operation!", "type": "maintenance_operation" } </pre>	Create operation "maintenance_operation" for device with externalId berlin_01
12	HEX	<pre> mappingTopic: hexEvent/ mappingTopicSample: hexEvent/berlin_01 check: Use external id sub: 1. ["Temp: "&\$number(\$substring(message,0,4))&" C" -> text] 2. [* _TOPIC_LEVEL_[1] -> _IDENTITY_.externalId] 3. [\$now() -> time] </pre>	E	Hex Code: 0x5a75 No leading 0x, only the plain payload as hexadecimal numbers	<pre> { "text": "This is a new test event.", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_TestEvent" } </pre>	Send c8y_TestEvent to device with externalId berlin_01
13	JSON	<pre> mappingTopic: device/update/ mappingTopicSample: device/update/berlin_01 check: Use external id sub: 1.[* _TOPIC_LEVEL_[2] -> _IDENTITY_.externalId] </pre>	I	<pre> { "customType": "type_Ovenight" } </pre>	<pre> { "type": "type_any" } </pre>	Update type of existing device.
14	PROTOBUF_INTERNAL	<pre> mappingTopic: protobuf/measurement mappingTopicSample: protobuf/measurement check: Use external id sub: Defined in cumulocity-dynamic-mapper/dynamic-mapping-service/src/main/java/dynamic/mapping/processor/processor/fixed/StaticProtobufProcessor.java </pre>	M	Send message in protobuf format: <pre> option java_package = "mqtt.mapping.processor.protobuf"; option java_outer_classname = "MeasurementProto"; message CustomMeasurement { int64 timestamp = 1; float value = 2; string unit = 3; string externalIdType = 4; string externalId = 5; string measurementType = 6; } Use test client: cumulocity-dynamic-mapper/dynamic-mapping-service/src/test/java/dynamic/mapping/ProtobufMqttClient </pre>	<pre> { "c8y_GenericMeasurement": { "Module": { "value": 110, "unit": "l" } }, "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_GenericMeasurement_type" } </pre>	Use test client: cumulocity-dynamic-mapper/dynamic-mapping-service/src/test/java/dynamic/mapping/ProtobufMqttClient.java to create a new measurement for bus "berlin_01"

15	EXTENSION_SOURCE	<pre> mappingTopic: protobuf/event mappingTopicSample: protobuf/event check: Use external id sub: Defined in cumulocity-dynamic-mapper/dynamic-mapping-extension/src/main/java/dynamic/mapping/processor/extension/external/ProcessorExtensionCustomEvent.java In selection: Extensions for PROCESSOR_EXTENSION choose: dynamic-mapping-extension In selection: Events for dynamic-mapping-extension choose: CustomEvent </pre>	E	<pre> Send message in protobuf format: syntax = "proto3"; package processor.protobuf; option java_package = "mqtt.mapping.processor.extension.external"; option java_outer_classname = "CustomEventOuter"; message CustomEvent { int64 timestamp = 1; string txt = 2; string unit = 3; string externalIdType = 4; string externalId = 5; string eventType = 6; } Use test client: cumulocity-dynamic-mapper/dynamic-mapping-extension/src/test/java/dynamic/mapping/ProtobufMqttClient.java </pre>	<pre>{ "text": "This is a new test event.", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_TestEvent" }</pre>	Use test client: cumulocity-dynamic-mapper/dynamic-mapping-extension/src/test/java/dynamic/mapping/ProtobufMqttClient.java to create a new event for bus "berlin_01"
16	JSON	<pre> mappingTopic: panel mappingTopicSample: panel check: Create non existing device check: Use external id sub: 1.[* deviceId -> _IDENTITY_.externalId] 2.[\$fromMillis(\$number(deviceTimestamp)) -> time] 3.[temperature -> c8y_TemperatureMeasurement.T.value] </pre>	M	<pre>{ "deviceId": "863859042393327", "version": "1", "deviceType": "20", "deviceTimestamp": "1665473038000", "deviceStatus": "BTR", "temperature": 90 }</pre>	<pre>{ "c8y_TemperatureMeasurement": { "T": { "value": 110, "unit": "C" } }, "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_TemperatureMeasurement" }</pre>	Devices with external id: 863859042393327 does not exist and is implicitly created. For this device an new measurement is created.
17	JSON	<pre> mappingTopic: panel mappingTopicSample: panel check: Use external id sub: 1.[deviceId -> _IDENTITY_.externalId] 2.[[Snow() -> time]] 3.[New device status: !& deviceStatus & !! -> text] </pre>	E	<pre>{ "deviceId": "863859042393327", "version": "1", "deviceType": "20", "deviceTimestamp": "1665473038000", "deviceStatus": "BTR", "temperature": 90 }</pre>	<pre>{ "text": "New device status: BTR!", "time": "2022-11-24T00:14:49.389+02:00", "type": "c8y_GeneralPanelEvent" }</pre>	For this device an new event is created.
18	JSON	<pre> mappingTopic: flexM/+/gazoline mappingTopicSample: flexM/berlin_01/gazoline check: Use external id sub: 1. [* _TOPIC_LEVEL_[1] > _IDENTITY_.externalId] 2. [Measurementname & "_type" -> type] 3. [Measurementname = "Airsensor" ? {Seriesname:{value": value, "unit": unit}} : null -> Airsensor] select: Repair Strategy: REMOVE_IF_NULL_OR_MISSING 4. [Measurementname = "Liquidsensor" ? {Seriesname:{value": value, "unit": unit}} : null -> Liquidsensor] select: Repair Strategy: REMOVE_IF_NULL_OR_MISSING 5. [Snow() -> time] </pre>	M	<pre>{ "Measurementname": "Airsensor", "Seriesname": "Humidity", "value": 10, "unit": "%" }</pre>	<pre>{ "Airsensor": "dummy", "Liquidsensor": "dummy", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_measurementtype" }</pre>	Depending on the content in the payload: 1. is "Airsensor" present 2. is "Liquidsensor" present either mapping 3. or 4. is evaluated and the relevant fragment in the measurement is created.
19	JSON	<pre> mappingTopic: alarm/tires mappingTopicSample: alarm/tires check: Use external id sub: 1.[bus_id -> _IDENTITY_.externalId] 2.[msg_type -> type] 3.[tx -> text] </pre>	A	<pre>{ "msg_type": "c8y_FlatTireAlarm", "tx": "Left rear tire loses air!", "bus_id": "berlin_01" }</pre>	<pre>{ "type": "c8y_FlatTireAlarm", "text": "Left rear tire loses air!", "severity": "MAJOR", "status": "ACTIVE", "time": "2022-03-19T12:03:27.845Z" }</pre>	An alarm should be created for the device berlin_01.

20	EXTENSION_SOURCE	<pre> mappingTopic: measurementExt mappingTopicSample: measurementExt mappingType: Processor Extension Source check: Use external id sub: Extension for PROCESSOR_EXTENSION_SOURCE: dynamic-mapping-extension Events for dynamic-mapping-extension: CustomMeasurement Defined in cumulocity-dynamic-mapper/dynamic-mapping-extension/src/main/java/dynamic/mapping/processor/extension/external/ProcessorExtensionCustomMeasurement.java </pre>	M	<pre>{ "temperature": 120.5, "unit": "Celsius", "time": "2023-07-12T16:21:53.389+02:00", "externalId": "berlin_01", "unexpected": 17.5 }</pre>	<pre>{ "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_Temperature", "c8y_Temperature": "dummy", "c8y_Fragment_to_remove": "remove_me" }</pre>	<p>A measurement should be created for the device <code>berlin_01</code>. The fragment <code>"c8y_Fragment_to_remove"</code> is not included in the created measurement, as the repair strategy is <code>"REMOVE_IF_NULL"</code>. In addition the repair strategy <code>"CREATE_IF_MISSING"</code> is used. This is required to map the node <code>"unexpected"</code> to the target fragment <code>"c8y_Unexpected"</code>. This is created, due to the used repair strategy.</p>
21	JSON	<pre> mappingTopic: v2/things/ mappingTopicSample: v2/things/berlin_01 check: Use external id 1. [* _TOPIC_LEVEL_[2] -> _IDENTITY_.externalId] 2. [\$now() -> time] 3. [values(key: { 'Measurement':{ 'value':value, 'key': 'U'}}) -> \$] </pre>	M	<pre>{ "values": [{ "key": "velocidad_cabezal", "value": 136.34 }, { "key": "temperature", "value": 25 }] }</pre>	<pre>{ "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_FlexibleMeasurement" }</pre>	<p>A measurement with two fragments: 1. <code>velocidad_cabezal</code> 2. <code>temperature</code> is created. It demonstrates the use of a substitution using <code>"\$"</code> as a target. This results in merging the extracted content with the predefined target template.</p>
22	JSON	<pre> mappingTopic: v3/things/ mappingTopicSample: v3/things/berlin_01 check: Use external id 1. [* _TOPIC_LEVEL_[2] -> _IDENTITY_.externalId] 2. [\$now() -> time] 3. [\$map(values, function (\$v) { \${v.key: { 'Measurement':{ 'value':\$v.value, 'unit': 'U'}}}}) -> \$]] select: Expand as array </pre>	M	<pre>{ "values": [{ "key": "velocidad_cabezal", "value": 136.34 }, { "key": "temperature", "value": 25 }] }</pre>	<pre>{ "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_FlexibleMeasurement" }</pre>	<p>Two measurements with different fragments: 1. <code>velocidad_cabezal</code> 2. <code>temperature</code> are created. It demonstrates the use of a substitution using <code>"\$"</code> as a target. This results in merging the extracted content with the predefined target template in combination with the attribute <code>"expand2Array"</code>. See as well mapping 21.</p>
23	JSON	<pre> mappingTopic: datalogger/0018 mappingTopicSample: datalogger/0018 check: Use external id 1. [* ID -> _IDENTITY_.externalId] 2. [\$replace(ts, ' ', 'T') -> time] 3. [\$map(\$spread(meas), function(\$v, \$k) { { \$keys(\$v): { "value": \$lookup(\$v,\$keys(\$v))[0], "unit": "l/h" } } })->\$merge() -> onguardMeasurement] </pre>	M	<pre>{ "ID": "0018", "meas": { "Product1_Flow": [14.93], "Water_Flow": [18.54], "Product2_Flow": [272.9], ... }, "ts": "2024-06-18 13:20:45.000Z" }</pre>	<pre>{ "onguardMeasurement": null, "time": "2022-08-05T00:14:49.389+02:00", "type": "onguardMeasurement" }</pre>	<p>Map the structure under <code>meas</code> as fragments in the measurements. The number of keys in <code>meas</code> can vary and must therefore be generated dynamically.</p>
24	EXTENSION_SOURCE_TARGET	<pre> mappingTopic: extension/source_target mappingTopicSample: extension/source_target check: Use external id Extensions for Processor Extension Source Target: select Events for: select Defined in cumulocity-dynamic-mapper/dynamic-mapping-extension/src/main/java/dynamic/mapping/processor/extension/external/ProcessorExtensionCustomAlarm.java </pre>	A	<pre>{ "alarmType": "MAJOR", "message": "This is an alarm for the extension!", "type": "c8y.ExtensionAlarm", "externalId": "berlin_01", "time": "2024-06-18T13:20:45.000Z" }</pre>	<pre>{ "onguardMeasurement": null, "time": "2022-08-05T00:14:49.389+02:00", "type": "onguardMeasurement" }</pre>	<p>the extraction and the substitution in the <code>tagetPayload</code> are implemented in java, see <code>ProcessorExtensionCustomAlarm.java</code>. This is useful if the processing of the source payload can't be achieved in JSONata and the building of the <code>tagetP</code> payload (Cumulocity) cant be achieved by standard substitutions.</p>

25	JSON	<pre> mappingTopic: alarm/tires_c8ySourceId mappingTopicSample: alarm/tires_c8ySourceId check: Use external id sub: 1. [bus_c8ySourceId -> _IDENTITY_.c8ySourceId] 2. [msg_type -> type] 3. [tx -> text] </pre>	A	<pre> { "msg_type": "c8y_FlatTireAlarm", "tx": "Left rear tire loses air!", "bus_c8ySourceId": "10203040" } </pre>	<pre> { "type": "c8y_FlatTireAlarm", "text": "Left rear tire loses air!", "severity": "MAJOR", "status": "ACTIVE", "time": "2022-03-19T12:03:27.845Z" } </pre>	An alarm should be created for the device identified by a Cumulocity id. This is in contrast to the mapping 19, which uses the external id: "Berlin_01"
26	FLAT_FILE	<pre> mappingTopic: flatfile/quec_msg mappingTopicSample: flatfile/quec_msg check: Use external id sub: 1. [* \$split(payload,',')[2] -> _IDENTITY_.externalId] 2. [\$split(payload,',')[11] -> c8y_Position.lng] 3. [\$split(payload,',')[10] -> c8y_Position.alt] 4. [\$split(payload,',')[12] -> c8y_Position.lat] 5. [\$replace(\$split(payload,',')[13], /(^(\d{4})) (\d{2}) (\d{2}) (\d{2}) (\d{2}) \$/, "\$1-\$2-\$3T\$4:\$5:\$6.00+02:00") -> time] </pre>	E	<p>this is the wrapped message to be used in the UI:</p> <pre> { "payload": "+RESP:GTRI,740B02,862524060786163,GV350CEU,,10,10,1, 0.0,0,683.1,46.764443,24.818146,20250821072739" } </pre> <p>the original payload would be just the csv string to be send from the device:</p> <pre> +RESP:GTRI,740B02,862524060786163,GV350CEU,,10,10,1,0 .0,0,683.1,46.764443,24.818146,20250821072739 </pre>	<pre> { "text": "Locaiton Update Event", "time": "2022-08-05T00:14:49.389+02:00", "type": "c8y_LocationUpdate", "c8y_Position": { "lng": 6.95173, "alt": 67, "lat": 51.151977 } } </pre>	An event should be created for the device identified by an external id which is found at the 3rd position (starting from position 3).