

# PM Streaming

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## Scope

This page discusses the possibilities for PM streaming. In D-Release a use case and effort driven PM streaming of non-standardized VES message was implemented.

Forward looking a (more) standardized way of PM streaming should be evaluated.

## O-RAN OAM Interface Specification

The O-RAN Operation and Maintenance Interface Specification v10.00 from June 2023 refers in chapter 6.3.2 Performance Data Streaming to the websocket protocol based on the requirements documented in [3GPP TS 28.550 v17.1.0](#) clause 5.2.3. With respect to the data model the specification references [3GPP TS 28.532 v17.3.0](#) clause 11.5.1.1.2.

## Idea

- Data Model
  - SerializationFormat : GPB ( > /[Google] Protocol Buffers )
  - yang to GPB ([https://en.wikipedia.org/wiki/Protocol\\_Buffers](https://en.wikipedia.org/wiki/Protocol_Buffers))
  - 3GPP-xml > yang > GPB
    - (fallback for O-DU (if needed) 3GPP-xml yang JSON VES-stndDefined)

file-based

- file ready
- filtered message based on the rApp Subscription

Info: xml to [s3](#) and kafka for control

- Flow
  - MNS (SMO) - does the subscription on the node
    - node starts streaming
    - messages to SMO as GPB
      - GPB termination
        - <here the magic happens>
        - send json to kafka

AI [Martin Skorupski](#)

- description and explain PM- job
- show example of the GPB data format
  
- Protocol
  - HTTP2
  - websocket

## Overview of "possibilities"

	E2	O1 file base	O1 streaming		O2 DMS	O2 IMS	others	
Protocol	SCTP (Stream Control Transmission Protocol)	FTP(es)	websocket		?	?	gRPC	gNMI
	UDP/TCP		TCP				http/2	
Modelling Language	ASN.1	3GPP XML  (xsd: 3GPP TS 28.550 Annex C)	ASN.1	GBP  (xsd: 3GPP TS 28.550 Annex C) requires manual translation from xsd to GBP  The measData.xsd should be converged with a xslt to a measData.proto3 file.	?	?	GPB	yang->GBP

## Use Case Data Flow

The specific data flow is defined by 3GPP TS 28.550 clause 5.1.1.2 and referenced by O-RAN.WG10.O1-Interface.0-R003-v10.00 6.3.2 Performance Data Streaming.

[illegible]

## Data Model

template: <https://wiki.o-ran-sc.org/download/attachments/82706888/o-ran-sc-oam-meas-data.template.json?api=v2>

- <https://protobuf.dev/programming-guides/proto3/>
- <https://forge.3gpp.org/rep/sa5/MnS/-/blob/Rel-18/xsd/measData.xsd>
- <https://github.com/openconfig/ygot/blob/master/docs/yang-to-protobuf-transformations-spec.md>
- <https://datatracker.ietf.org/meeting/101/materials/slides-101-netconf-grpc-network-management-interface-gnmi-00>
- <https://datatracker.ietf.org/doc/html/draft-openconfig-rtgwg-gnmi-spec-01>
- [https://gerrit.o-ran-sc.org/ditweb/?p=sim/o1-interface.git;a=blob;f=ntsimulator/deploy/base/pm\\_files/pm-bulk-a2.xml;h=0b18040358fd469583edb6a2de5bcfa6654cdf0b;hb=HEAD](https://gerrit.o-ran-sc.org/ditweb/?p=sim/o1-interface.git;a=blob;f=ntsimulator/deploy/base/pm_files/pm-bulk-a2.xml;h=0b18040358fd469583edb6a2de5bcfa6654cdf0b;hb=HEAD)