# Scope

This paper defines Streaming Service (SS) as a medium to deliver data in the framework of S-100. The SS that is described in this document is based on a client-server data exchange, where the client takes the initiative to get the data.

# References and Standards

The following standards may be relevant when defining an update to the S-100 standard v1.0.0:

ISO-19115 – Geographic Information - Metadata

ISO-19119 – Geographic Information - Services

ISO-19128 – Geographic Information - Web Map Server Interface

ISO-19142 - Geographic Information – Web Feature Service

ISO-20022 – Extensible Mark-up Language

ISO-19136 – Geographic Mark-up Language

# Definition of a Streaming Service

The following bullet points summarise the main characteristics of a Streaming Service and its foreseen use:

* A basic assumption is the use of a point-to-point connection, where the connection is initiated by the client
  + Data connection issues, e.g. maintaining the integrity of data and signalling transmission failure are assumed to be handled by the system providing the connection
  + A new connection implies a new session
  + Clients may have several concurrent sessions
  + A disconnection always ends a session
* Session
  + Stateful, i.e. the fact that the client did authenticate; service profiles established
  + Session control and status
  + Trust relationship between client and server needs to be setup (confidentiality, accounting)
  + Service (0 or more)
    - Definition of the service profile
      * What types of services are available?
      * What data is the client allowed to receive?
      * What service(s) did the client select (area, type of data)?
        + Data maintenance

Single delivery

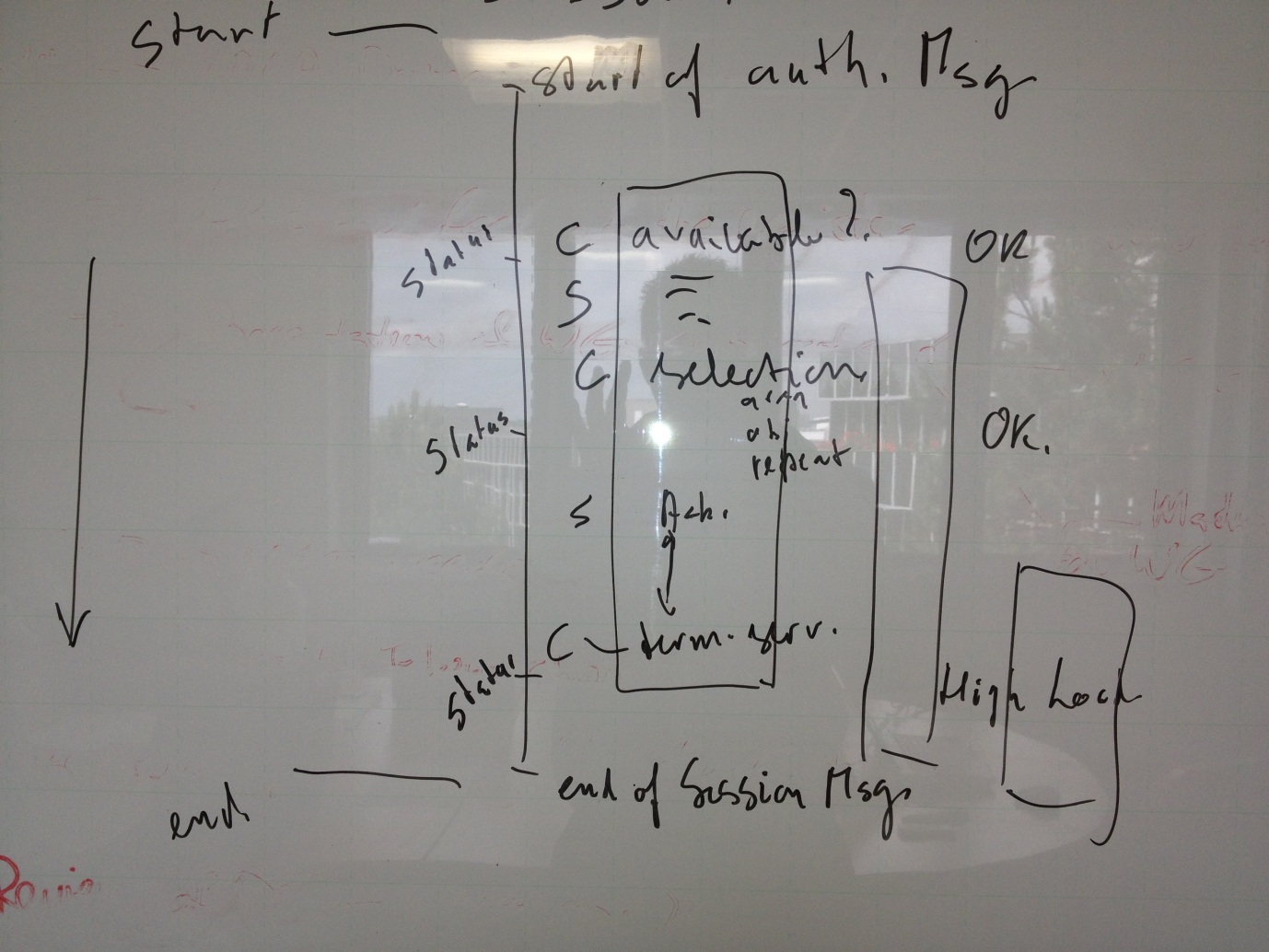
Periodic delivery

At change

* + - * Every service has a unique identification within the session
      * A service profile may be changed during a session
      * A service can be terminated by the client
      * A client can have no services during a session
    - Data delivery according to the defined service profile
      * Full data set delivery
      * Incremental updates
  + Sessions may be terminated by a “end session” message;

# Example

The following example illustrates the sequence of events

*Session and Services*

# The Relationship with the S-100 Dataset Concept

In a Streaming Service, discovery metadata describes the data available on the server side. The dataset is defined by the service profile as selected by the client. This also means that file-based exchange sets are irrelevant; the data is directly made available by the server. The concept of a service identification replaces the concept of a dataset identification.

Note: the IVEF PS may have to be re-evaluated with respect to section 11-9 of the S-100 standard.

Note: section 11-13 of the S-100 standard v1.0.0 should be rewritten to take into account the mandatory control and status messages that are needed to setup and maintain a Streaming Service.

# Further Remarks

It may be appropriate to consider the delivery of data as a “broadcast service” in addition to data streaming. At the least, it should be considered at the highest level of abstraction.

# Definition of Terms

“must” – mandatory

“should” - recommended

“may” – optional

Point-to-point connection – a network connection between two communication nodes.

Session – the established connection between client and server, from beginning to end.

Service – the definition of data transfer parameters (such as area of interest) and the subsequent delivery of the data.

Client – the initiator and receiving node of the data stream.

Server – the data stream provider.

Stateful – the history of previous inputs by the client affects the processing of current input; in other words the server keeps track of relevant events that impact service delivery.