# C1-150139: Transport protocol for ProSe usage information reporting

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# Agenda

- Possible alternatives
- Pros and Cons
- Proposed way forward

# Alternative 1: FTPS

- FTP + TLS and SSL cryptographic protocols
- UE connects to FTP server at IP address provisioned in ProSe Public Safety MO or via the USIM, over the PC3ch interface
  - If no IP address is provisioned, UE uses IP address of ProSe Function in HPLMN
- UE uploads a binary or ASCII file containing the charging data to the server using FTP
- Would require:
  - Addition of format for binary/ASCII charging data in TS 24.334 (parameters names, range, format, and ordering within the file)
  - Addition of FTP user name and password to be used by the UE to MO/USIM files

# Alternative 2: HTTP

- UE sends HTTP request to IP address provisioned in ProSe Public Safety MO or via the USIM over the PC3ch interface
  - If no IP address is provisioned, UE sends HTTP request to ProSe Function in HPLMN

- Charging data is either:
  - contained in a binary file uploaded via POST method using media-type multipart/form-data defined in RFC 1867 (Alternative 2a);
  - contained in a binary file uploaded via COPY method as defined in RFC 2518 (Alternative 2b);
  - sent as a single XML parameter of format hexbinary in a POST request (Alternative 2c); or
  - sent as XML content in a POST request, with each charging data point (e.g “amount of data transmitted”) mapping to a specific parameter defined in an XML schema (Alternative 2d);

- Would require:
  - Definition of format for binary or XML charging data in TS 24.334
  - Addition of new PC3ch message for charging data upload

# FTPS vs HTTP comparison

| | Pros | Cons | Comments |
|---|---|---|---|
| FTPS | 1) No added meta data in files, just raw binary/ASCII -> less overhead<br>2) Simple and widely used for file transfer | 1) Command/response flow creates extra round-trip<br>2) Requires 2 connections (one to send control commands and one to send data)<br>3) Cannot be used if both parties are behind NATs<br>4) May not work well with all firewalls<br>5) Built-in run length encoding that compresses the amount of data to send, but not by a great deal on ordinary binary data<br>6) Use over proxies is not standardized<br>7) Requires FTP client at the UE | |
| HTTP | 1) Provides a way for the client and server to negotiate and choose among several compression algorithms<br>2) No command/response flow minimizes extra round-trip<br>3) Built-in proxy support<br>4) Does not require new client at the UE (since HTTP is already required for direct discovery)<br>5) Security mechanism specified in TS 33.303 for PC3 can be re-used | 1) Always includes a set of headers that send meta data -> more overhead (which may not be significant if size of files to upload is large) | |

# HTTP variants comparison

| | Pros | Cons | Comments |
|---|---|---|---|
| Alternative 2a (Using media-type multipart/form-data) | 1) Makes use of standardized HTTP file upload mechanism | 1) Requires ProSe UE to support RFC 1867<br>2) Requires separate definition of binary charging data format | |
| Alternative 2b (using COPY method) | 1) Makes use of standardized HTTP file upload mechanism | 1) Requires ProSe UE to support RFC 2518<br>2) Requires separate definition of binary charging data format | |
| Alternative 2c (data sent as a single XML parameter of format hexbinary) | 1) Does not require support for new RFC | 1) Single parameter will be very large and in hexbinary format (not human-readable without being parsed, which makes debugging more difficult)<br>2) Requires separate definition of binary charging data format | |
| Alternative 2d (data sent as XML contents) | 1) Does not require support for new RFC<br>2) Upload of charging data can be added to existing PC3 framework by:<br>- creating a new PC3ch message for report upload; and<br>- defining charging data points in XML schema in TS 24.334 | 1) More overhead that Alternative 2c since requires XML parameters name for each charging data point. | |

# Proposed way forward

- Specify Alternative 2d in CT1 by agreeing:
  - C1-150140: adds HTTP as transport protocol for PC3ch
  - C1-150070: adds XML data format for usage information reporting
  - C1-150071: adds procedures for usage information reporting

# Thank you

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