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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

This document specifies the functional architecture, procedures and information flows needed to support the Mission Critical Data (MCData) services. MCData is a suite of services which utilizes the common functional architecture defined in 3GPP TS 23.280 [5] to support MC services over LTE including the common services core.

MCData services suite consists of the following sub-services:

- short data service (SDS);
- file distribution (FD).

MCData features include:

- conversation management;
- transmission and reception control;
- communication release; and
- enhanced status.

The corresponding service requirements are defined in 3GPP TS 22.282 [3] and 3GPP TS 22.280 [2].

The present document is applicable primarily to MCData service using E-UTRAN access based on the EPC architecture defined in 3GPP TS 23.401 [4]. Certain application functions of the MCData service could also be supported via non-3GPP access networks but no additional functionality is specified to support non-3GPP access.

The MCData service can be used for public safety applications and also for general commercial applications e.g. utility companies and railways.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.280: "Mission Critical Common Requirements (MCCoRe); Stage 1".
- [3] 3GPP TS 22.282: "Mission Critical Data services".
- [4] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".
- [5] 3GPP TS 23.280: "Common functional architecture and information flows to support mission critical communication services; Stage 2".
- [6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [7] 3GPP TS 23.303: "Proximity-based services (ProSe); Stage 2".
- [8] 3GPP TS 23.468: "Group Communication System Enablers for LTE (GCSE_LTE); Stage 2".
- [9] 3GPP TS 23.237: "IP Multimedia Subsystem (IMS) Service Continuity; Stage 2".

- [10] 3GPP TS 23.002: "Network Architecture".
- [11] 3GPP TS 23.379: "Functional architecture and information flows to support Mission Critical Push To Talk (MCPTT); stage 2".
- [12] 3GPP TS 29.283: "Diameter data management applications".
- [13] 3GPP TS 33.180: "Security of the Mission Critical Service".
- [14] 3GPP TS 23.203: "Policy and charging control architecture".
- [15] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".
- [16] 3GPP TS 29.468: "Group Communication System Enablers for LTE (GCSE_LTE); MB2 reference point; Stage 3".
- [17] 3GPP TS 29.214: "Policy and charging control over Rx reference point".
- [18] 3GPP TS 23.283: "Mission Critical Communication Interworking with Land Mobile Radio Systems; Stage 2".
- [19] 3GPP TS 26.348: "Northbound Application Programming Interface (API) for Multimedia Broadcast/Multicast Service (MBMS) at the xMB reference point".
- [20] 3GPP TS 29.116: "Representational state transfer over xMB reference point between content provider and BM-SC".
- [21] 3GPP TS 26.346: "Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

Auto-receive: A mechanism where data smaller than a configured size threshold are delivered to the receiving MCDATA client(s) from the MCDATA server i.e. without waiting for the receiving user to indicate a present need for the data.

Conversation identifier: A universally unique identifier that identifies a series of related MCDATA transactions.

Data stream: A sequence of data that is agnostic to any underlying media (e.g. audio, video, telemetry data), on which processing of data (e.g. semantic, syntactic, save or filter operation) can begin before all the content is received.

FD disposition: is one of "not downloaded" and "download completed".

Folder Identifier: A unique identifier that identifies a folder in the MCDATA message store

IP Data: Structured or unstructured payload that is transparent to the MCDATA transport service.

MCDATA client: An instance of an MC service client that provides the client application function for the MCDATA service.

MCDATA emergency communication: An MC service emergency group communication or MC service emergency private communication within the MCDATA service.

MCDATA group: An MC service group configured for MCDATA service.

MCDATA group affiliation: An MC service group affiliation for MCDATA.

MCDATA group communication: A one-to-many communication using an MCDATA service.

MCDData group de-affiliation: An MC service group de-affiliation for MCDData.

MCDData ID: An instance of an MC service ID within the MCDData service.

MCDData imminent peril communication: An MC service imminent peril group communication within the MCDData service.

MCDData server: An instance of an MC service server that provides the server application function for the MCDData service.

MCDData service: A data communication service comprising at least one underlying generic capability (e.g. SDS, file distribution, data streaming) with strong security, high availability, reliability and priority handling to support applications for mission critical organizations and mission critical applications for other businesses and organizations (e.g. utilities, railways).

MCDData UE: An MC service UE that can be used to participate in MCDData services.

MCDData user: An MC service user who is authorized for MCDData services suite via an MCDData UE.

Metadata: data associated with a stored message, consisting of information retrieved from the incoming message (e.g. MCDData IDs, conversation ID) and other information.

Object: An MCDData communication information (such as a message or a file) that is stored in the MCDData message store with its associated metadata.

Object identifier: A unique identifier that identifies an object stored in the MCDData message store.

Reception control: A mechanism that allows the MCDData service to regulate data reception to the receiving MCDData clients.

Reply identifier: A reference to the original MCDData transaction to which the current transaction is a reply.

SDS data: A payload with limited size and variable content type used in SDS transactions.

SDS disposition: is one of "undelivered", "delivered" and "read".

Standalone communication: A unidirectional one-to-one or group data communication completed after one transaction.

Transaction identifier: A unique identifier that identifies a MCDData transaction within a conversation.

Transmission control: A mechanism that allows the MCDData service to regulate data transmission requests from the sending MCDData users, either prior to or after active sending from the MCDData UE.

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.280 [2] apply:

**Mission Critical
Mission Critical Applications
Mission Critical Service
Mission Critical Organization**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.282 [3] apply:

MCDData system

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.280 [5] apply:

**MC service client
MC service group
MC service group affiliation
MC service group de-affiliation
MC service ID
MC service server**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.203 [14] apply:

Dynamic PCC rule

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

DS	Data Streaming
E2EE	End to End Encryption
FD	File Distribution
ITSI	Individual TETRA Subscriber Identity
LMR	Land Mobile Radio
MC	Mission Critical
MCDData ID	MCDData user identity
PCC	Policy and Charging Control
PCRF	Policy and Charging Rules Function
QCI	QoS Class Identifier
RSI	Radio Set Identity
SDS	Short Data Service
UM	Unacknowledged Mode

4 Introduction

The MCDData service suite provides a set of generic capabilities and specific services to enable one-to-one and group data communications between MCDData users.

The MCDData architecture utilises the common functional architecture to support mission critical services over LTE defined in 3GPP TS 23.280 [5] and aspects of the IMS architecture defined in 3GPP TS 23.228 [6], the Proximity-based Services (ProSe) architecture defined in 3GPP TS 23.303 [7], the Group Communication System Enablers for LTE (GCSE_LTE) architecture defined in 3GPP TS 23.468 [8], the MBMS User Service architecture defined in 3GPP TS 26.348 [19], the Security of the Mission Critical Service in 3GPP TS 33.180 [13] and the PS-PS access transfer procedures defined in 3GPP TS 23.237 [9] to enable support of the MCDData service.

The MCDData UE primarily obtains access to the MCDData service via E-UTRAN, using the EPS architecture defined in 3GPP TS 23.401 [4]. Certain application functions of MCDData service can be accessed using MCDData UEs via non-3GPP access networks.

The MCDData system provides the function to support interworking with LMR systems defined in 3GPP TS 23.283 [18].

5 Architectural requirements

5.1 Transmission control

The MCDData service supports the ability to transmit SDS messages automatically towards the selected recipient user (private communication) or members of the selected MCDData group. The MCDData server may still reject the sent message (e.g. if there is no authority to send).

NOTE: If a MCDData group is configured for lossless communication, all members of the selected MCDData group will receive the transmitted SDS messages, at a time dependent on affiliation status. **An affiliated group member of this MCDData group will receive the SDS messages when they are sent. A group member that is not affiliated at the time an SDS message is sent, the SDS message will be stored in the group member's personal account in the MCDData message store. The stored message will be available to the group member when he synchronizes with the MCDData message store.** If a MCDData group is not configured for lossless communication, only the affiliated members of the selected MCDData group will receive the transmitted SDS messages.

For MCDData types other than SDS using signalling control plane, the MCDData service invokes a transmission request grant approach before data is permitted to be transmitted. The MCDData service provides configurable limits for the maximum amount of data for and/or maximum amount of time that an MCDData user can transmit in a single request, which may be configured by the MCDData administrator.

Editor's note: Additional criteria such as frequency of transmission, category/type of data, etc., for transmission control arbitration is FFS.

For congestion control, related to transmission requests, the MCDData service may perform the following:

- reject the data transmission requests and then shall notify the MCDData user of the rejection;
- queue the data transmission requests; or
- at any time, withhold the permission to transmit data automatically.

The MCDData service shall notify the transmitting MCDData group member if there are no other MCDData group members affiliated to the MCDData group.

5.2 Reception control

The MCDData service shall support the ability to receive small amounts of data automatically. The MCDData service may store data waiting for delivery in a temporary store, and notify availability to the receiving MCDData users. The data which is temporarily stored may be configured with "time to live" value, and subsequently, the data may be purged from the temporary store upon expiry of "time to live".

The recipient individual user (private communication) or affiliated members of the MCDData group(s) shall be notified of the list of available data either on request or periodically.

The MCDData service shall provide a mechanism for the MCDData user to select data to be downloaded from the list corresponding to the temporary store, subject to limitations such as expiry time and size.

The MCDData service shall support the ability to automatically deliver files with a size less than a configured threshold value (i.e. auto-receive). The data size for auto-receive shall be configured by the MCDData administrator.

5.3 Short Data Service capability

The MCDData service shall support SDS capability for one-to-one and group communications.

The SDS capability shall support messages with a maximum payload of at least 1000 bytes. The supported message types shall include text, binary, or hyperlinks. Multiple message types may be interleaved within in a single message payload. The payload shall support inclusion of location information of the sending MCDData user, with or without user or application provided data.

The MCDData service shall support messages to be sent over the signalling plane or the media plane.

The SDS capability shall allow for multiple related messages to be correlated and sequenced within the MCDData service.

The MCDData user shall be able to selectively request read and delivery receipt indication for the sent messages. The message delivery history information should be made available to an authorized MCDData user.

5.4 File distribution capability

The MCDData service shall support distribution of files for one-to-one and group communications.

The MCDData service shall allow the MCDData user to send a file or a URL of a file to another MCDData user. The source of the file can originate either from an MCDData client or from a network functional entity. The generated URL shall be a reference to a stored file to allow for subsequent retrieval. The file storage policy may determine the availability of the file to be retrieved, and is subject to expiry time and size limitations.

When the file delivery request is set by the sending user to mandatory download, the MCDData service shall proceed to deliver the file to the recipient when possible. The file distribution mechanisms shall support both unicast and broadcast delivery methods.

Editor's note: Requirements for automatic re-try mechanisms and maximum retry count is FFS.

The MCDData service shall support aggregation of download completion and disposition notification reports when files are distributed to multiple recipients.

The MCDData service shall support mechanisms for detection and recovery of lost data. A receiving MCDData client should be able to:

- detect and report when a transfer did not complete properly and request retransmission;
- identify and re-request the missing parts of an incompletely received file; and
- accept partial retransmissions and use them to reconstitute the original file.

Editor's note: File repair when end-to-end encryption is used is FFS.

When employing MBMS delivery:

- MCDData may use the MB2 interface specified in 3GPP TS 23.468 [8]. See also Group Communication Delivery Method in 3GPP TS 26.346 [21]; or
- if MBMS user services and Download Delivery Method (see 3GPP TS 26.346 [21]) are utilized, MCDData shall use the xMB interface specified in 3GPP TS 26.348 [19]. For the MBMS path, figure 5.4-1 shows both the MB2 and the xMB interfaces.

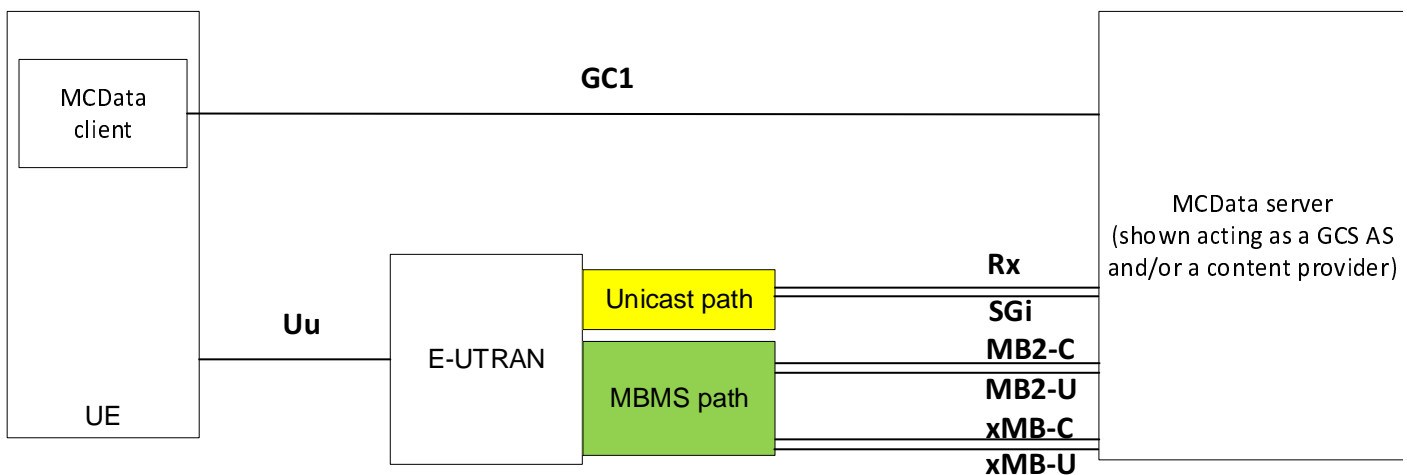


Figure 5.4-1 MCDData on-network architecture showing the unicast and MBMS delivery paths

5.5 Data streaming capability

The MCDData service shall support data streaming capability for one-to-one and group communications.

The MCDData service shall allow the MCDData user to send a data stream or a URL of a data stream to another MCDData user. The source of the data stream can originate either from an MCDData client or from a network functional entity. For a data stream originating at a network functional entity, the data stream may be provided by an MCDData user. The data streaming mechanisms shall support both unicast and broadcast delivery methods.

Editor's note: The minimum bitrate support for data streaming is FFS.

When the data streaming request is set to automatic reception, the MCDData service shall not require consent from the receiving MCDData user.

The MCDData user shall be able to apply controls (i.e. start, stop, cancel) to the streams, and on a per recipient basis.

Editor's note: The applicability of pause and resume controls to one-to-one communication is FFS

The stream shall be terminated through an explicit user control (i.e. stop, cancel operation) or by reaching the end of the streamed content.

5.6 MCDData group affiliation and MCDData group de-affiliation

MCDData groups may be configured with one or more MCDData sub-services (e.g. SDS, FD, DS) as specified within the MCDData service. When an MCDData user affiliates to an MCDData group, the MCDData user is affiliated to each of those MCDData sub-services configured in the MCDData group. The list of MCDData sub-services configured for an MCDData group shall be included in the MCDData group configuration data.

MCDData group affiliation shall be as specified in clause 5.2.5 of 3GPP TS 23.280 [5]. In addition, the following requirements shall be fulfilled by the MCDData service for MCDData users affiliated to MCDData groups:

- MCDData users receive notifications for participating in MCDData sub-services and invitations for their affiliated MCDData group(s).
- MCDData users select an affiliated MCDData group to initiate a new message, file distribution, data stream, etc.
- MCDData users receive messages, files, data streams, enhanced status updates, etc, from their affiliated MCDData group(s).

5.7 Conversation management

The conversation management:

1. shall include a service indication for conversation management in each SDS and FD transaction.
2. may be comprised of SDS transactions or FD transactions or a combination of both.
3. shall include a conversation identifier in each SDS and FD transaction.
4. shall treat conversation between different set of users (either in one-to-one or group) as a separate conversation.
5. shall treat conversation between the same set of users (either in one-to-one or group), but with a different conversation identifier as a separate conversation.

5.8 Bearer management

5.8.1 General

The MCDData UE shall use the APNs as defined in subclause 5.2.7.0 and table A.6-1 of 3GPP TS 23.280 [5]. The MCDData UE shall use the MC services APN as defined in subclause 5.2.7.0 and table A.6-1 of 3GPP TS 23.280 [5] for the SIP-1 reference point.

5.8.2 EPS bearer considerations

The EPS bearer considerations specified in subclause 5.2.7.2 of 3GPP TS 23.280 [5] shall apply.

5.8.3 EPS unicast bearer considerations for MCDData

For an MCDData session request, resources shall be requested utilising interaction with dynamic PCC. The MCDData system shall request resources over Rx to a PCRF. The dedicated bearer for MCDData media shall utilise the QCI value of 70 (as specified in 3GPP TS 23.203 [14]). The request of resources over Rx shall include an application identifier for MCDData in order for the PCRF to evaluate the correct QCI.

The UE is required to support at minimum one bearer, which is used for MCDData (see annex A in 3GPP TS 36.331 [15]).

Depending on operator policy, for media plane:

- the MCDData system may be able to request modification of the priority (ARP) of an existing bearer without the need to initiate a new dedicated GBR bearer; or
- the EPS bearers for MCDData communication may enable pre-emption of lower priority EPS bearers if the maximum number of bearers has been reached in favour of the newly initiated MCDData EPS bearer, if the EPS bearer used for MCDData communication has higher priority level (ARP) than the bearer(s) used for other application(s) and if the bearers for non MCDData application are pre-emptable. In this case, the EPS bearer for MCDData communication pre-empts one of the existing EPS bearers when the maximum number of bearers is established for other applications.

NOTE: Operator policy takes into account regional/national requirements.

The EPS bearer for MCDData emergency communication shall have highest priority level among MCDData communication types. The EPS bearer for MCDData imminent peril communication shall have higher priority level than one for MCDData communication but lower than the priority level for MCDData emergency communication.

5.8.4 MBMS bearer management

The MBMS bearer management for MC services is specified in subclause 5.2.7.1 of 3GPP TS 23.280 [5].

5.9 Disposition

Disposition requests and notifications can be sent "in-band" using the same mechanism used for transport of the data, or can be sent "out-of-band" when the mechanism used for transport of the data is no longer available.

For standalone SDS and FD, the MCDData UE shall use the signalling plane for disposition request and disposition notifications. For session SDS, the MCDData UE shall use:

- the media plane for disposition request and disposition notifications; and
- the signalling plane for disposition notifications when the media plane is no longer available.

5.10 MCDData message store

MCDData message store is used by MCDData users to store their MCDData communications permanently; it shall provide secured storage area for each authorized MCDData user having a user account. The storage area is identified by the MCDData user's MCDData ID. The MCDData message store shall allow an MCDData user to access only the storage area that he is authorized to access. A user (i.e. a dispatcher) other than the user account holder shall be able to access the account holder's storage area if authorized.

During an active MCDData communication, the participating function on the MCDData server of a MCDData user participant shall, if requested by the MCDData user, deposit messages and files exchanged in the conversation to the MCDData user's storage area in the MCDData message store. When depositing the MCDData communication into the MCDData message store, if no such MCDData user account is available on the MCDData message store the MCDData server shall create the user's account first and then deposit the MCDData communications. The MCDData message store shall support user account creation and deposit MCDData communications operations from the MCDData server after successful authentication and authorization. The MCDData message store shall support the message store client to retrieve, update, delete, search and synchronize MCDData communications stored in the MCDData message store, after successful authentication and authorization.

The MCDData user shall have an option if he wants to store the MCDData communications in the MCDData message store or not.

All messages and files exchanged in an active MCDData communication shall be stored as objects in the MCDData message store. A stored object shall contain the following information:

1. The message or file itself; and

2. Associated metadata, consisting of:
 - a. information retrieved from the information elements of the message or file, such as MCDData IDs, Conversation identifier etc.; and
 - b. other information, such as content type (message or file), status ("seen", "received by", "read by", "downloaded by" etc).

NOTE: It is the decision of SA3 on the mechanism to store an encrypted message or file in the MCDData message store.

When a MCDData user logs onto a UE with successful authentication and authorization and obtains the user service profile, the message store client on the UE shall synchronize with the user's account on the MCDData message store, either automatically or manually (i.e. interacts with the user on which option to synchronize or no synchronization at all), before any MCDData service starts.

5.11 IP connectivity (IPcon) capability

IP connectivity service enables the exchange of IP Data using MCDData transport service and provides the transport of IP Data for e.g. data hosts, servers, etc. that do not have mission critical communication capabilities. The exchange of IP Data is not limited in a transaction.

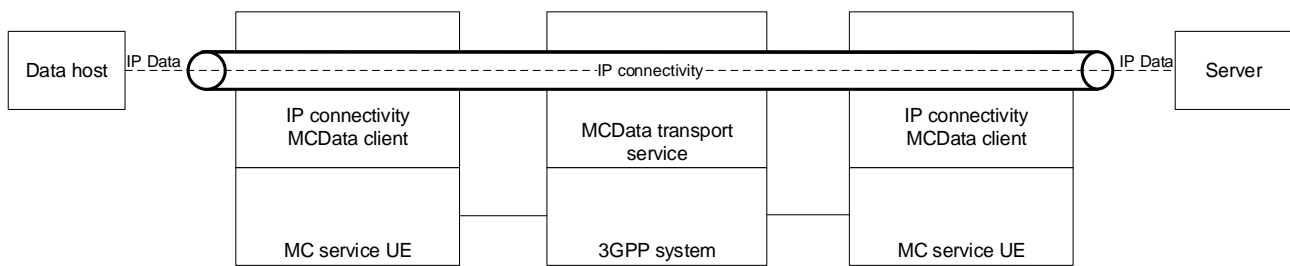


Figure 5.11-1: IP connectivity model

The corresponding MCDData client enables bidirectional IP Data communication with the support of the IP connectivity service and thus forms the gateway to data hosts or servers. Therefore, the IP connectivity MCDData client requests the MCDData transport service with the associated QoS requirement and communication priority.

An authorised MCDData client supporting IP connectivity capabilities is able to bar incoming IP connectivity requests either on demand or by providing a list of excluded origins identified by the MCDData ID and, if available, by the functional alias.

For IP connectivity, the MCDData server may support following limitation to exchange IP Data:

- limit the total data volume between the authorized MCDData clients, divided by transmission and reception;
- max time limit, e.g. total minutes or allow exchange between predefined start and end time.

IP connectivity MCDData service supports MCDData transport services for one-to-one and group communication.

The IP address allocation necessary for user-IP connectivity MCDData transport service is independent to the IP address allocation of the individual data hosts attached with the MCDData client supporting IP connectivity capabilities. The required IP address pools for the user-IP connectivity MCDData service are managed by the IP connectivity MCDData transport service.

Editor's note: The withdrawal of an IP connectivity connection by an authorized user is FFS.

Editor's note: The remote initiation of IP connectivity service is FFS.

Editor's note: The control of QoS based on per packet priority is FFS.

Editor's note: The impact of IP connectivity services on interworking is FFS.

5.12 MBMS user service architecture requirements

The MBMS user service architecture offers a set of delivery methods to applications, specified in 3GPP TS 26.346 [21]. The MBMS download delivery method is used for the delivery of files over MBMS and provides reliability control by means of forward-error-correction.

The MCDData File Distribution capability can use the MBMS download delivery method by including, in the MC service-on-network architecture (subclause 5.2.6 from 3GPP TS 23.280 [5]), the MBMS user service architecture (3GPP TS 26.346 [21]), with the MCDData server assuming the role of the content provider.

The MCDData server may determine the MBMS broadcast area based on the cell identities of the affiliated group members received over GC1.

When the xMB interface is used, the MCDData server uses the xMB mission critical extension, specified in 3GPP TS 26.348 [19] to control the QoS and the MBMS broadcast area of the MBMS user services. The MCDData server also provides a file delivery manifest over xMB-C (see subclause 5.6.2 from 3GPP TS 26.348 [19]) describing the list of files to be broadcasted, and, for each file, the target completion date and the number of repetitions.

The MBMS user service metadata, which provides the delivery and schedule parameters, are returned to the MCDData server after the MBMS session creation or update, under the form of a SA file (annex L.3A from 3GPP TS 26.346 [21]). The MCDData server signals this SA file, together with the service id and the uri of the file to be received to the targeted MCDData clients.

Editor's note: it is FFS how the service announcement channel (3GPP TS 26.346) to deliver the MBMS user service metadata can be used.

5A Involved business relationships

The description of the involved business relationships for the MCDData service is contained in clause 6 of 3GPP TS 23.280 [5].

6 Functional model

6.1 General

This clause defines the functional model for MCDData service.

The security solution for the MCDData service, including end-to-end encryption, is specified in 3GPP TS 33.180 [13].

6.2 Description of the planes

The functional model for the support of MCDData is defined as a series of planes to allow for the breakdown of the architectural description.

The description of the planes and the relationship between the planes are contained in the common functional architecture to support MC services in 3GPP TS 23.280 [5].

6.3 Transmission and reception control aspects

6.3.1 General

The transmission and reception control are functions of the MCDData server.

For small data transmissions there is no need for prior grant of request to transmit. The procedures in the present document describe when data is automatically sent.

For large data transmissions, i.e. large files, the data is transmitted only after request to transmit is granted. The data to be transmitted and/or received may be stored in a data repository associated with the transmission and reception control functions.

NOTE: An overview of transmission control process and possible arbitration mechanisms is provided in the Annex B.

6.4 Generic functional model

6.4.1 On-network functional model

Figure 6.4.1-1 shows the generic application plane functional model.

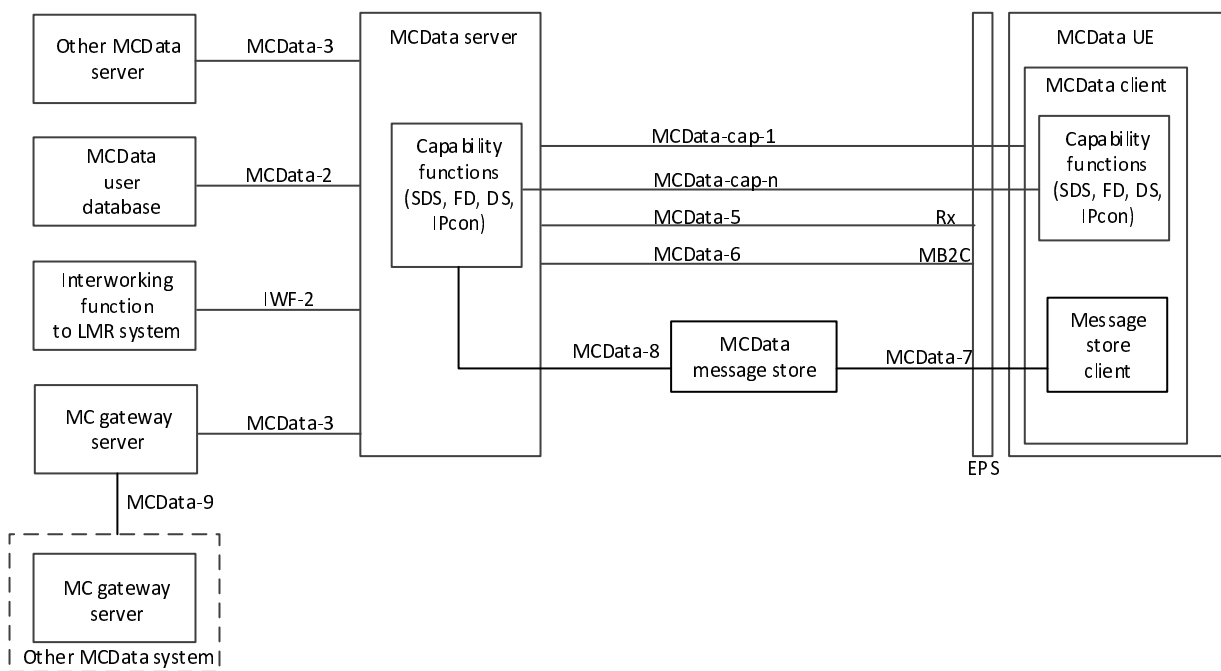


Figure 6.4.1-1: Generic application plane functional model

In the model shown in figure 6.4.1-1, capability functions (SDS, FD, DS, IPcon) of the MCDData client and the MCDData server along with their reference points (MCDData-cap-1 to MCDData-cap-n) are described in the respective functional models for each capability.

NOTE: The security aspects of new network components (MCDData message store and Message store client) and its two new reference points are the responsibility of SA3 and thus outside the scope of the present document.

6.4.2 Off-network functional model

6.4.3 Functional entities description

Editor's note: Combining functional models describing each capability into one functional model is FFS.

6.4.3.1 Application plane

6.4.3.1.1 MCDData client

The MCDData client functional entity acts as the user agent for all MCDData application transactions. The client supports SDS, file distribution, data streaming and IP connectivity MCDData capabilities utilized by MCDData services like conversation management, robots control, enhanced status, database enquiries and secured internet.

6.4.3.1.2 MCDATA server

The MCDATA server functional entity provides centralised support for MCDATA services suite. Conversation management, robots, enhanced status, database enquiries and secured internet MCDATA services requiring one-to-one or group data communication are realized using SDS, file distribution, data streaming and IP connectivity MCDATA communication capabilities.

All the MCDATA clients supporting users belonging to a single group are required to use the same MCDATA server for that group. An MCDATA client supporting a user involved in multiple groups can have relationships with multiple MCDATA servers.

For MBMS delivery, the MCDATA server functional entity represents a specific instantiation of the GCS AS described in 3GPP TS 23.468 [8] to control multicast and unicast operations for group communications.

If the MBMS user service architecture is utilized, the MCDATA server functional entity represents a specific instantiation of the content provider as described in 3GPP TS 26.346 [21] to control multicast operations for file distribution.

The MCDATA server functional entity is supported by the SIP AS functional entity of the signalling control plane.

The MCDATA server shall support the controlling role and the participating role. The MCDATA server may perform the controlling role for one-to-one and group data communication. The MCDATA server performing the controlling role for a one-to-one or group data communication may also perform a participating role for the same one-to-one or group data communication. For each one-to-one and group data communication, there shall be only one MCDATA server assuming the controlling role, while one or more MCDATA servers in participating role may be involved.

The MCDATA server performing the controlling role is responsible for:

- handling transmission and reception control (e.g. policy enforcement for participation in the MCDATA group communication) towards all the MCDATA users of the one-to-one and group data communication;
- interfacing with the group management server for group policy and affiliation status information of this MCDATA server's served affiliated users;
- managing SDS and FD data distribution during MCDATA group communication; and
- managing the MCDATA transport service for IP connectivity.

The MCDATA server performing the participating role is responsible for:

- handling transmission control (e.g. authorization for participation in the MCDATA group communication) to MCDATA users of the one-to-one and group data communication;
- group affiliation support for MCDATA user, including enforcement of maximum Nc2 number of simultaneous group affiliations by a user;
- interfacing with the group management server for group policy and affiliation status information of this MCDATA server's served affiliated users;
- relaying the MCDATA communication messages between the MCDATA client and the MCDATA server performing the controlling role; and
- handling reception control (e.g. temporarily storing the data to present to the MCDATA user as required) to its MCDATA users of the one-to-one and group data communication.

NOTE: The MCDATA server in the controlling role and the MCDATA server in the participating role can belong to the same MCDATA system.

6.4.3.1.3 MCDATA user database

This functional entity contains information of the MCDATA user profile associated with an MCDATA ID that is held by the MCDATA service provider at the application plane. The MCDATA user profile is determined by the mission critical organization, the MCDATA service provider, and potentially the MCDATA user.

6.4.3.1.4 Interworking function to LMR system

The functional entity is specified in 3GPP TS 23.283 [18].

6.4.3.1.5 MC gateway server

The MC gateway server provides support for MCDData interconnection services with a partner MCDData system in a different trust domain whilst providing topology hiding. It acts as a proxy for one or more MCDData servers in the partner MCDData system without needing to expose the MCDData servers in the primary MCDData system outside the trusted domain of the primary MCDData system. It may be a role of the MCDData server described in subclause 6.4.3.1.2 of the present document.

The MC gateway server is responsible for relaying call control and transmission control signalling messages, and media between MCDData servers within the MCDData system and the interconnected MCDData system.

6.4.3.2 Signalling control plane

The description of the signalling control plane is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.4.3.3 MCDData message store

The MCDData message store is a network base persistent store that allows Mission Critical Organization to configure their MCDData users to permanently store their MCDData communications. Once configured a MCDData user will be allocated a secured storage area (i.e. size) in the MCDData message store that is only accessible by that configured MCDData user and any authorized users. The MCDData user can manage how and what will be stored in his personal message store with the support of management operations such as creating, deleting and merging folders, moving stored messages and files around and synchronization all used devices to provide the same context view etc.

NOTE: The security aspects of access and management (such as read/write/update/sync etc.) of personal message store are the responsibility of SA3 and thus outside the scope of the present document.

6.4.3.4 Message store client

The Message store client is used to support MCDData client to manage the MCDData communication history stored in MCDData message store for a particular MCDData user, It supports the secure access to a MCDData user's configured MCDData message store area and operations relevant to the stored communication history such as folders management and synchronization to the device local message store.

6.4.4 Reference points

6.4.4.1 Application plane

6.4.4.1.1 General

The reference points for the application plane of MCDData service are described in the following subclauses.

6.4.4.1.2 Reference point MCDData-2 (between the MCDData server and the MCDData user database)

The MCDData-2 reference point, which exists between the MCDData server and the MCDData user database, is used by the MCDData server to obtain information about a specific user. The MCDData-2 reference point utilises a diameter management application protocol as defined in 3GPP TS 29.283 [12] and shall be intra-network.

6.4.4.1.3 Reference point MCDData-3 (between the MCDData server and the MCDData server)

The MCDData-3 reference point, which exists between the MCDData server and the MCDData server for MCDData application signalling for establishing MCDData sessions, shall use the SIP-2 reference point for transport and routing of signalling. If each MCDData server is served by a different SIP core then the MCDData-3 reference point shall also use the

SIP-3 reference point for transport and routing of signalling. Media is also transferred using the MCDData-3 reference point.

6.4.4.1.3A Reference point MCDData-5 (between the MCDData capability function and the EPS)

The MCDData-5 reference point, which exists between the MCDData capability function and the EPS, is used, subject to the conditions below, by the MCDData capability function of the MCDData server to obtain unicast bearers with appropriate QoS from the EPS. It utilises the Rx interface of the EPS according to 3GPP TS 23.203 [14].

MCDData-5 is not used when the MCDData service provider and the PLMN operator do not have an operational agreement for QoS control to be provided directly from the MCDData service provider domain.

MCDData-5 may be used when the MCDData service provider and the PLMN operator have an operational agreement where QoS control is provided directly from the MCDData service provider domain.

NOTE: Any coordination between the P-CSCF use of Rx and the MCDData server use of Rx (via MCDData-5) from the MCDData service provider domain is not specified in this release of this specification.

6.4.4.1.4 Reference point MCDData-6 (between the MCDData server and the EPS)

The MCDData-6 reference point, which exists between the MCDData server and the EPS, is used to request the allocation and activation of multicast transport resources for MCDData application usage. The MCDData-6 reference point uses the MB2-C interface as defined in 3GPP TS 29.468 [16]. The MCDData-6 reference point also uses the xMB-C interface as defined in 3GPP TS 29.116 [20] for file distribution.

6.4.4.1.5 Reference point IWF-2 (between the interworking function to LMR system and the MCDData server)

The IWF-2 reference point is specified in 3GPP TS 23.283 [18].

6.4.4.1.6 Reference point MCDData-7 (between the Message store client and MCDData message store)

The MCDData-7 reference point, which exists between the Message store client and the MCDData message store, is used by the Message store client to manage the information stored in the MCDData message store and synchronization between the MCDData client and the MCDData message store.

6.4.4.1.7 Reference point MCDData-8 (between the MCDData message store and MCDData server)

The MCDData-8 reference point, which exists between the MCDData server and the MCDData message store, is used by the MCDData server to access and manage the MCDData message store such as creating MCDData user folders and depositing the communications history.

6.4.4.1.8 Reference point MCDData-9 (between the MC gateway server and the MC gateway server in a different MCDData system)

The MCDData-9 reference point, which exists between the MC gateway server and the MC gateway server in an interconnected MCDData system for MCDData application signalling for establishing MCDData sessions, shall use the SIP-3 reference point for transport and routing of signalling. The MCDData-9 reference point also carries application data where the data size is too great to be transferred on the signalling plane.

6.5 Functional model for short data service

6.5.1 On-network functional model

Figure 6.5.1-1 shows the application plane functional model for SDS.

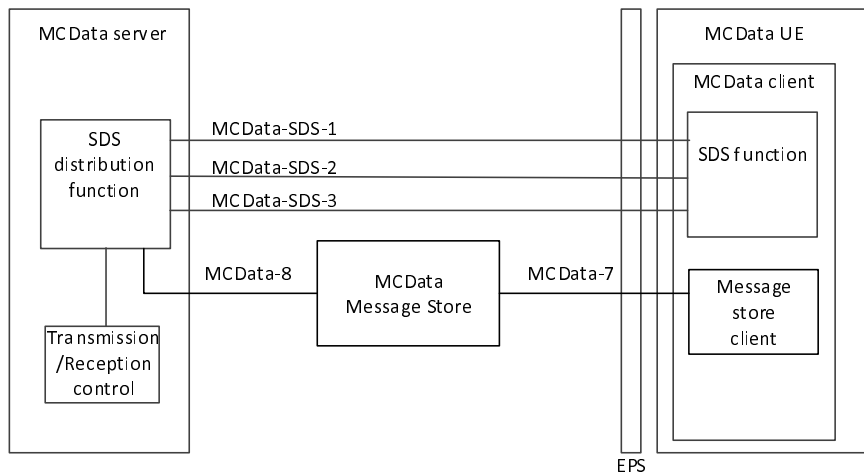


Figure 6.5.1-1: Application plane functional model for SDS

In the model shown in figure 6.5.1-1, the following apply:

- MCDATA-SDS-1 reference point is used for uplink and downlink unicast SDS data transaction over signalling control plane by the SDS distribution function of the MCDATA server and SDS function of the MCDATA client. This reference point is also used for MCDATA application signalling during session establishment in support of SDS data transfer.
- MCDATA-SDS-2 reference point carries uplink and downlink unicast SDS data over media plane between the SDS distribution function of the MCDATA server and the SDS function of the MCDATA client.
- MCDATA-SDS-3 reference point carries downlink multicast SDS data over media plane from the SDS distribution function of the MCDATA server to the SDS function of the MCDATA client.

Examples of SDS data (in the form of text, binary, application data, URL or combinations of these) are:

- information pertaining to applications e.g. health parameters of MCDATA user for situational awareness application;
- information pertaining to enhanced status service;
- text or URL data between MCDATA users;
- application data (e.g. health parameters) to the MCDATA user;
- location information (independent or along with user or application provided data);
- command instructions to invoke certain operations on the MCDATA UE e.g. invoking UE specific applications; and
- application plane identities for the MCDATA user and MCDATA application.

6.5.2 Off-network functional model

Figure 6.5.2-1 shows the off-network application plane functional model for SDS.

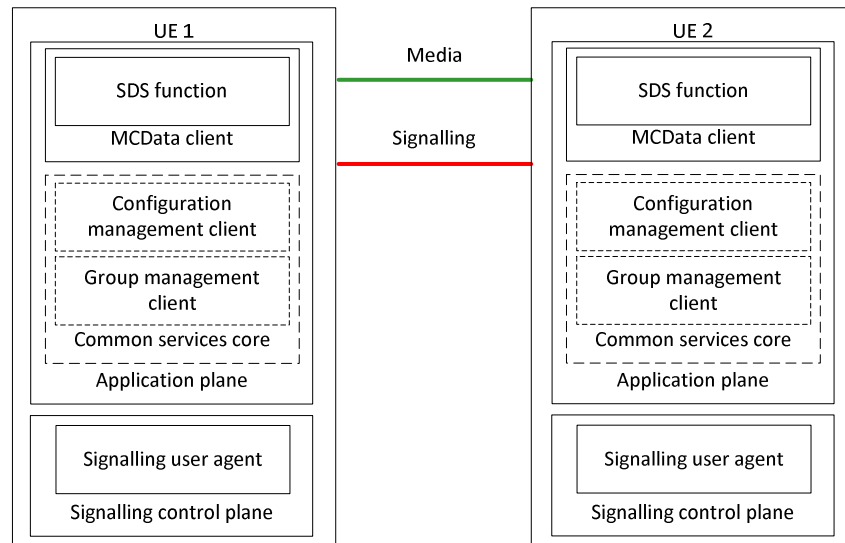


Figure 6.5.2-1: Application plane functional model for SDS

6.5.3 Functional entities description

6.5.3.1 Application plane

6.5.3.1.1 SDS function

SDS function of the MCDData client is responsible to handle SDS capability related requests and responses.

6.5.3.1.2 SDS distribution function

The SDS distribution function of the MCDData server is responsible for the SDS data transaction to MCDData communication participants. The SDS distribution function of the MCDData server provides the following functionality:

- reception of uplink SDS data transaction by means of the MCDData-SDS-1 and MCDData-SDS-2 reference points;
- replicate the SDS data as needed for distribution to those MCDData communication participants using unicast transport;
- distribute downlink data by IP unicast transmission to those MCDData communication participants utilizing unicast transport by means of the MCDData-SDS-1 and MCDData-SDS-2 reference points; and
- distribute downlink SDS data using multicast downlink transport by means of the MCDData-SDS-3 reference point.

6.5.3.1.3 Transmission/Reception control

This functional entity is responsible for transmission and reception control of MCDData SDS data transaction between the sending MCDData UE, the MCDData server, and the receiving MCDData UE. For SDS capability, due to small data size, the SDS messages can be automatically sent.

6.5.3.2 Signalling control plane

The description of the signalling control plane is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.5.4 Reference points

6.5.4.1 Application plane

6.5.4.1.1 Reference point MCDData-SDS-1 (between the SDS distribution function and the SDS function)

MCDData-SDS-1 reference point is used for uplink and downlink unicast SDS data transaction over signalling control plane by the SDS distribution function of the MCDData server and SDS function of the MCDData client. This reference point is also used for MCDData application signalling during session establishment in support of SDS data transfer.

The MCDData-SDS-1 reference point shall use the SIP-1 and SIP-2 reference points for transport and routing of SIP signalling. MCDData-SDS-1 reference point can be used when the SDS payload data size does not exceed the configured maximum payload data size for SDS over signalling control plane, otherwise MCDData-SDS-2 and MCDData-SDS-3 may be used appropriately.

Reference point MCDData-SDS-1 also provides support to delivered and read requests and notifications as appropriate.

6.5.4.1.2 Reference point MCDData-SDS-2 (unicast between the SDS distribution function and the SDS function)

The MCDData-SDS-2 reference point, which exists between the SDS distribution function and the SDS function of the MCDData client, is used unicast SDS data transaction (when the SDS payload data size exceeds the configured maximum payload data size for SDS over signalling control plane) between the MCDData server and the MCDData client. The MCDData-SDS-2 reference point uses the SGi reference point defined in 3GPP TS 23.002 [10].

Reference point MCDData-SDS-2 also provides support to message thread indication using conversation identifier, delivered and read notifications as appropriate.

6.5.4.1.3 Reference point MCDData-SDS-3 (multicast between the SDS distribution function and the SDS function)

The MCDData-SDS-3 reference point, which exists between the SDS distribution function of the MCDData server and the SDS function of the MCDData client, is used by the SDS distribution function of the MCDData server to send downlink multicast SDS data to the SDS function of the MCDData client. The MCDData-SDS-3 reference point uses the MB2-U interface defined in 3GPP TS 23.468 [8].

6.5.4.2 Signalling control plane

The description of the signalling control plane reference points is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.6 Functional model for file distribution

6.6.1 On-network functional model

Figure 6.6.1-1 shows the application plane functional model for file distribution.

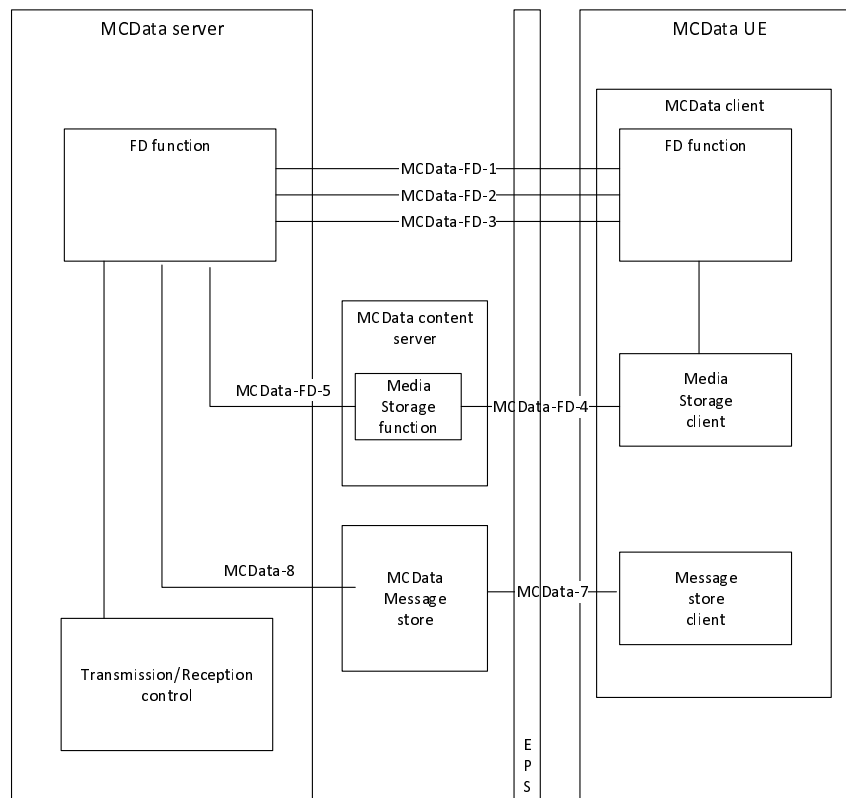


Figure 6.6.1-1: Application plane functional model for file distribution

In the model shown in figure 6.6.1-1, the following apply:

- MCDATA-FD-1 reference point is used for MCDATA application signalling for establishing a session in support of MCDATA file distribution. The bearer is also used for both uplink and downlink unicast data (e.g., URL associated to file, file download completed report).
- MCDATA-FD-2 reference point carries uplink and downlink unicast file data between the FD functions of the MCDATA server and the MCDATA UE.
- MCDATA-FD-3 reference point carries downlink multicast file data from the FD function of the MCDATA server to the FD function of the MCDATA UE.
- MCDATA-FD-4 reference point carries uplink and downlink unicast file data between the media storage function of the MCDATA Content server and the media storage client of the MCDATA UE.
- MCDATA-FD-5 reference point supports the MCDATA server to access the stored files in the MCDATA content server for certain file distribution functions, such as retrieval a file to be distributed through multicast etc. This reference points also supports any necessary operational requirements.

NOTE 1: The security aspects of MCDATA-FD-5 reference point are the responsibility of SA3 and thus outside the scope of the present document.

Editor's note: It is FFS on what the operational requirements (such as QoS control of file upload and download) are needed to be supported by this reference point.

- MCDATA content server is a repository area in the MCDATA trust domain that allows authorized MCDATA user to temporarily store files that are intended to share to other MCDATA users. It provides common pool of storage area (i.e. size) to all authorized MCDATA users to use, no personal space is allocated. An authorized MCDATA user can use the supported operations on the defined reference point to upload shared files and download the files that are shared to him. The MCDATA server will use the defined reference point to access the files stored in the MCDATA content server and support the necessary operational supports. As part of the file life cycle management the temporarily stored files will be removed periodically based on the Mission Critical service provider policy. An MCDATA content server may share files with another MCDATA content server in another MCDATA system to support interconnection.

NOTE 2: The security aspects of MCDData content server and its operational supports are the responsibility of SA3 and thus outside the scope of the present document.

6.6.1a On-network functional model for interconnection

Figure 6.6.1a-1 shows the application plane functional model for file distribution with interconnection.

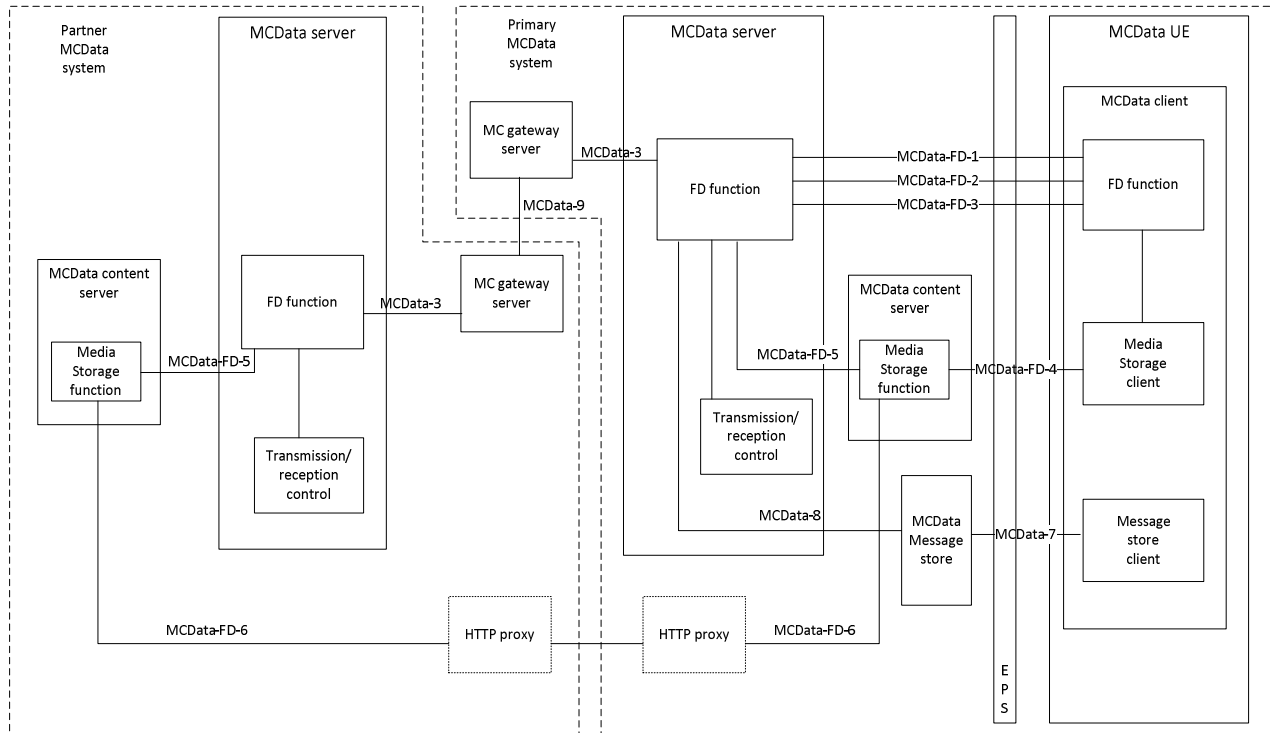


Figure 6.6.1a-1: Application plane functional model for file distribution

In the model shown in figure 6.6.1a-1, the following apply:

- MCDData-FD-1, MCDData-FD-2, MCDData-FD-3, MCDData-FD-4, MCDData-FD-5 reference points are described in subclause 6.6.1.
- MCDData-7 and MCDData-8 reference points are described in subclause 6.4.4.1.
- The MC gateway server is described in subclause 6.4.3.1.5.
- MCDData-3 and MCDData-9 allow the MCDData server in the primary MCDData system to share URLs related to files for upload and download with the MCDData server in the partner MCDData system.
- MCDData-FD-6 allows file contents and metadata to be shared between the MCDData content server in the primary MCDData system and the MCDData content server in the partner MCDData system. MCDData-FD-6 is based on HTTP.
- The HTTP proxies are contained in the signalling plane. They provide topology and IP address hiding between MCDData systems.

6.6.2 Off-network functional model

Figure 6.6.2-1 shows the off-network application plane functional model for FD.

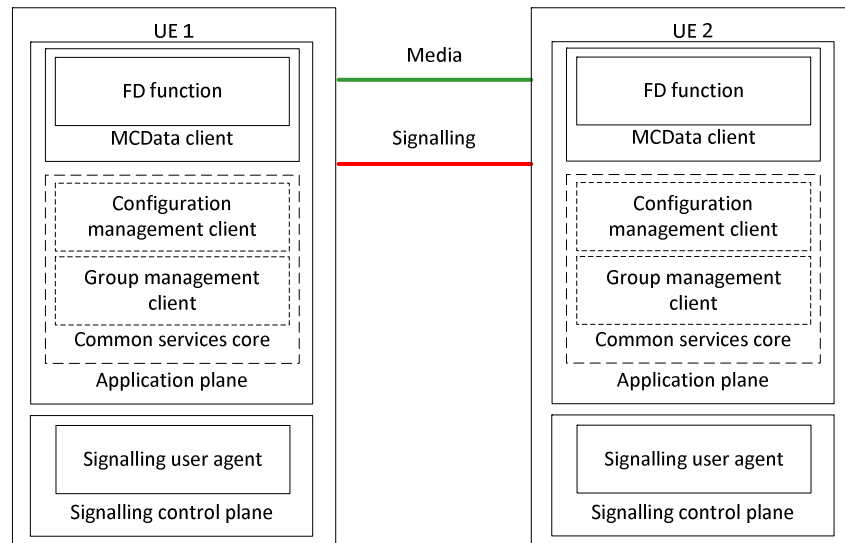


Figure 6.6.2-1: Application plane functional model for FD

6.6.3 Functional entities description

6.6.3.1 Application plane

6.6.3.1.1 FD function

FD function of the MCDData client and the MCDData server is responsible to handle file distribution capability related requests and responses.

The FD function of the MCDData server is responsible for the distribution of file to the MCDData communication participants. The FD function of the MCDData server provides the following functionality:

- reception of uplink file data by means of the MCDData-FD-2 reference point;
- replicate the file data as needed for distribution to those MCDData communication participants using unicast transport;
- distribute downlink file data by IP unicast transmission to those MCDData communication participants utilizing unicast transport by means of the MCDData-FD-2 reference point; and
- distribute downlink file data using multicast downlink transport by means of the MCDData-FD-3 reference point.

6.6.3.1.2 Media storage client

The media storage client is used to support FD function of the MCDData client for file distribution capability. FD function of the MCDData client interacts with media storage client for uploading and downloading file to or from the media storage function of the MCDData content server.

6.6.3.1.3 Transmission/Reception control

This functional entity is responsible for transmission and reception control of MCDData file data between the sending MCDData UE, the MCDData server, and the receiving MCDData UE. Transmission and reception control function is used to provide arbitration between multiple data requests and apply the necessary policy to ensure that appropriate data is transmitted between the MCDData UE. However, when the file distribution requests are exceeding a certain size, it may be necessary to control the data that is transmitted or received by the MCDData UEs. The control is subject to criteria like application level priorities (e.g. user priority, group priority), service type, emergency nature of the communication, etc.

6.6.3.1.4 Media storage function

The media storage function is responsible for the storing of media uploaded by the media storage client of the MCDData UE in case of MCDData file distribution. It also supports download of stored media by the MCDData UE in case of file distribution via media storage client.

The media storage function supports partial download requests of stored media by the MCDData UE via media storage client.

6.6.3.2 Signalling control plane

The description of the signalling control plane is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.6.4 Reference points

6.6.4.1 Application plane

6.6.4.1.1 Reference point MCDData-FD-1 (between the FD functions of the MCDData client and the MCDData server)

MCDData-FD-1 reference point is used for MCDData application signalling for establishing a session in support of MCDData file distribution. The bearer is also used for both uplink and downlink unicast data (e.g., URL associated to file, file download completed report). The MCDData-FD-1 reference point shall use the SIP-1 and SIP-2 reference points for transport and routing of SIP signalling. MCDData-FD-1 reference point can be used as long as the file size does not exceed the capabilities (e.g. payload or transmission limits) provided by MCDData-FD-1.

Messages supported on this interface include the uplink and the downlink unicast file transaction between the MCDData clients in MCDData communication via the MCDData server for:

- metadata (file size, type etc.) of the file being distributed;
- URL of the file being distributed;
- sending download completed report;
- small size file;
- conversation identifier for message thread indication; and
- application plane identities for the MCDData user and MCDData application.

Messages supported on this interface may also include the MCDData client providing the MCDData server with

- MCDData application signalling for establishing a file distribution session in support of MCDData communication.

6.6.4.1.2 Reference point MCDData-FD-2 (unicast between the FD functions of the MCDData client and the MCDData server)

The MCDData-FD-2 reference point, which exists between the FD functions of the MCDData client and the MCDData server, is used for unicast file transaction between MCDData server and MCDData client. The MCDData-FD-2 reference point uses the SGi reference point defined in 3GPP TS 23.002 [10].

Reference point MCDData-FD-2 supports the following functions:

- file being distributed from and to the MCDData client;
- conversation identifier for message thread indication; and
- application plane identities for the MCDData user and MCDData application.

6.6.4.1.3 Reference point MCDData-FD-3 (multicast between the FD functions of the MCDData client and the MCDData server)

The MCDData-FD-3 reference point, which exists between the FD functions of the MCDData client and the MCDData server, is used by the FD function of the MCDData server to send downlink multicast file data to the FD function of the MCDData client. The MCDData-FD-3 reference point uses the MB2-U interface defined in 3GPP TS 23.468 [8] or the xMB-U interface as defined in 3GPP TS 26.348 [20].

6.6.4.1.4 Reference point MCDData-FD-4 (media storage function and media storage client)

The MCDData-FD-4 reference point, which exists between the media storage function and the media storage client, is used by the media storage client of MCDData UE to upload and download file to the media storage function of the MCDData content server. The MCDData-FD-4 reference point uses the HTTP reference point.

6.6.4.1.5 Reference point MCDData-FD-5 (FD function and media storage function)

The MCDData-FD-5 reference point, which exists between FD function and the media storage function, is used by the FD function of MCDData server to fetch the file in the MCDData content server that was uploaded by the media storage client of a MCDData UE for multicast delivery using MBMS. It also supports necessary operational functions such as size check for transmission control etc. The MCDData-FD-5 reference point uses the HTTP reference point.

6.6.4.2 Signalling control plane

The description of the signalling control plane reference points is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.7 Functional model for data streaming

6.7.1 On-network functional model

Figure 6.7.1-1 shows the application plane functional model for data streaming.

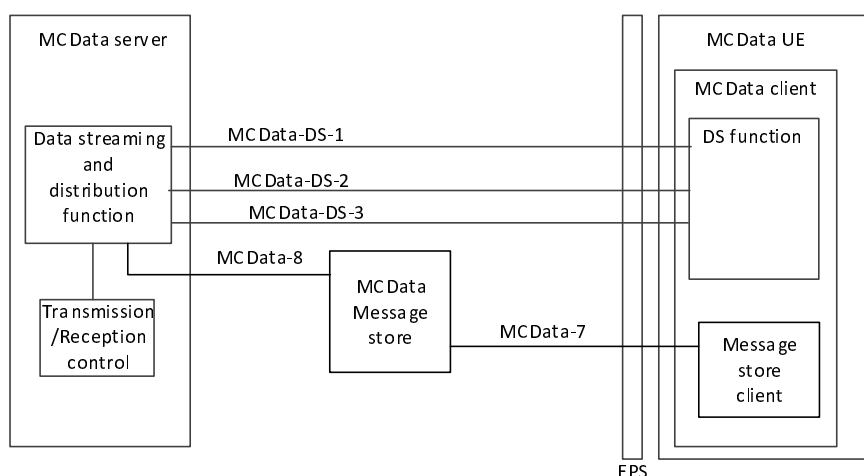


Figure 6.7.1-1: Application plane functional model for data streaming

In the model shown in figure 6.7.1-1, the following apply:

- MCDData-DS-1 reference point is used for MCDData application signalling for establishing a session in support of MCDData data streaming. The bearer is also used for both uplink and downlink unicast stream download reports (e.g. stream start and stop records).

- MCDData-DS-2 reference point carries unicast data stream between the data streaming and distribution function of the MCDData server and the DS function of the MCDData UE. The bearer is used for both uplink and downlink unicast data streaming.
- MCDData-DS-3 reference point carries multicast data stream from the data streaming and distribution function of the MCDData server to the DS function of the MCDData UE. The bearer is used for downlink multicast data streaming.

6.7.2 Off-network functional model

6.7.3 Functional entities description

6.7.3.1 Application plane

6.7.3.1.1 DS function

DS function of the MCDData client is responsible to handle DS capability related requests and responses for data streaming. FD function may interact with storage entity for retrieving the locally stored data for data streaming.

6.7.3.1.2 Data streaming and distribution function

The data streaming and distribution function is responsible for the distribution of data stream to MCDData communication participants. The data streaming and distribution function provides the following functionality:

- reception of uplink data stream transmission by means of the MCDData-DS-2 reference point;
- replicate the data stream as needed for distribution to those MCDData communication participants using unicast transport;
- distribute downlink data stream by IP unicast transmission to those MCDData communication participants utilizing unicast transport by means of MCDData-DS-2 reference point; and
- distribute downlink data stream using multicast downlink transport by means of the MCDData-DS-3 reference point.

6.7.3.1.3 Transmission/Reception control

This functional entity is responsible for transmission and reception control of data stream between the sending MCDData UE, the MCDData server, and the receiving MCDData UE. Transmission and reception control function is used to provide arbitration between multiple data requests and apply the necessary policy to ensure that appropriate data is transmitted between the MCDData UEs.

6.7.3.2 Signalling control plane

The description of the signalling control plane is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.7.4 Reference points

6.7.4.1 Application plane

6.7.4.1.1 Reference point MCDData-DS-1 (between the data streaming and distribution function and the DS function)

MCDData-DS-1 reference point is used for MCDData application signalling for establishing a session in support of MCDData data streaming. The bearer is also used for both uplink and downlink unicast stream download reports (e.g., stream start and stop records). The MCDData-DS-1 reference point shall use the SIP-1 and SIP-2 reference points for transport and routing of SIP signalling.

Messages supported on this interface includes the uplink and the downlink unicast data stream between the MCDData clients MCDData communication via the MCDData server for

- metadata of the data being streamed;
- URL of the data being streamed;
- sending stream download report;
- conversation identifier for message thread indication; and
- application plane identities for the MCDData user and MCDData application.

Messages supported on this interface may also include the MCDData client providing the MCDData server with

- MCDData application signalling for establishing a UE data streaming session in support of MCDData communication.

6.7.4.1.2 Reference point MCDData-DS-2 (unicast between the data streaming and distribution function and the DS function)

The MCDData-DS-2 reference point, which exists between the data streaming and distribution function and the DS function, is used to unicast data stream between the data streaming and distribution function of the MCDData server and the DS function of the MCDData client. The MCDData-DS-2 reference point uses the SGi reference point defined in 3GPP TS 23.002 [10].

MCDData-DS-2 supports the following functions:

- stream data from MCDData UE;
- stream data from network;
- data stream controls from the authorized MCDData UE;
- stream data stream controls from the MCDData UE over uplink;
- start and stop data stream from MCDData UE over downlink;
- conversation identifier for message thread indication; and
- application plane identities for the MCDData user and MCDData application.

6.7.4.1.3 Reference point MCDData-DS-3 (multicast between the data streaming and distribution function and the DS function)

The MCDData-DS-3 reference point, which exists between the data streaming and distribution function and the DS function, is used by the data streaming and distribution function of the MCDData server to send multicast data stream to the DS function of the MCDData client. The MCDData-DS-3 reference point uses the MB2-U interface defined in 3GPP TS 23.468 [8].

6.7.4.2 Signalling control plane

The description of the signalling control plane reference points is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.8 Functional model for IP connectivity

6.8.1 On-network functional model

Figure 6.5.1-1 shows the application plane functional model for User-IP connectivity.

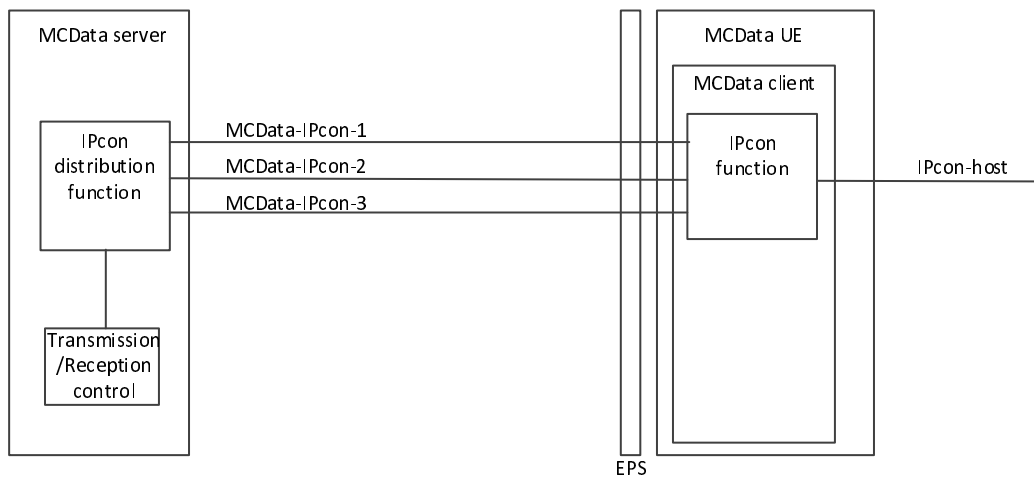


Figure 6.8.1-1: Application plane functional model for IP connectivity

In the model shown in figure 6.8.1-1, the following apply:

- MCDATA-IPcon-1 reference point is used for MCDATA application signalling for establishing a session in support of MCDATA IP connectivity.
- MCDATA-IPcon-2 reference point carries bidirectional IP Data for point-to-point MCDATA IP connectivity over the media plane between the U-IPcon distribution function of the MCDATA server and the IPcon function of the MCDATA client(s).
- MCDATA-IPcon-3 reference point is used by the IP-con distribution function of the MCDATA server to send unidirectional downlink IP Data to the IP-con function of the MCDATA clients.
- IPcon-host reference point is used for a data host, e.g. server, to use IPconnectivity service capabilities. This reference point is outside the scope of the present document.

6.8.2 Off-network functional model

6.8.3 Functional entities description

6.8.3.1 Application plane

6.8.3.1.1 IP connectivity function

IP connectivity function of the MCDATA client is responsible to handle IPcon capability related requests and responses.

6.8.3.1.2 IPcon distribution function

The IPcon distribution function of the MCDATA server is responsible for the distribution of IP Data to MCDATA communication participants. The IPcon distribution function of the MCDATA server provides the following functionality:

- reception of uplink IP Data transmission by means of the MCDATA-IPcon-2 reference points;
- replicate the IP Data as needed for distribution to those MCDATA communication participants using unicast transport;
- distribute downlink data by IP unicast transmission to those MCDATA communication participants utilizing unicast transport by means of the MCDATA-IPcon-2 reference points; and
- distribute downlink IP Data using multicast downlink transport by means of the MCDATA-IPcon-3 reference point.

6.8.3.1.3 Transmission/Reception control

This functional entity is responsible for transmission and reception control of IP Data transaction between the sending MCDData client, the MCDData server, and the receiving MCDData client. Transmission and reception control function is used to provide arbitration between multiple data requests and apply the necessary policy to ensure that appropriate IP Data are transmitted between the MCDData clients.

6.8.3.2 Signalling control plane

The description of the signalling control plane is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6.8.4 Reference points

6.8.4.1 Application plane

6.8.4.1.1 Reference point MCDData-IPcon-1 (between the IPcon distribution function and the U-IPcon function)

MCDData-IPcon-1 reference point is used for MCDData application signalling for establishing a session in support of MCDData IP connectivity.

6.8.4.1.2 Reference point MCDData-IPcon-2 (unicast between the U-IPcon distribution function and the U-IPcon function)

MCDData-IPcon-2 reference point carries bidirectional IP Data for point-to-point MCDData IP connectivity over the media plane between the IPcon distribution function of the MCDData server and the IPcon function of the MCDData client(s).

6.8.4.1.3 Reference point MCDData-IPcon-3 (multicast between the IPcon distribution function and the IPcon function)

MCDData-IPcon-3 reference point carries downlink unidirectional IP Data over the media plane between the IPcon distribution function of the MCDData server and the IPcon function of the MCDData client(s).

6.8.4.2 Signalling control plane

The description of the signalling control plane reference points is contained in the common functional architecture to support MC services as specified in 3GPP TS 23.280 [5].

6A Identities

The MCDData service specific identities (e.g. MCDData ID, MCDData group ID) are described in clause 8 of 3GPP TS 23.280 [5].

6B Application of functional model to deployments

The application of the functional model to deployments, and description of various deployment scenarios for the MCDData service, can be found in clause 9 of 3GPP TS 23.280 [5].

7 Procedures and information flows

7.1 MCDATA service configuration

The MCDATA service shall support the procedures and related information flows as specified in subclause 10.1 and Annex A of 3GPP TS 23.280 [5] with the following clarifications:

- The MC service client is the MCDATA client;
- The MC service server is the MCDATA server;
- The MC service ID is the MCDATA ID; and
- The MC service user profile index is the MCDATA user profile index.

7.2 Affiliation and de-affiliation to/from MCDATA group(s)

The MCDATA service shall support the procedures and related information flows as specified in subclause 10.8 of 3GPP TS 23.280 [5] with the following clarifications:

- The MC service client is the MCDATA client;
- The MC service server is the MCDATA server;
- The MC service group is the MCDATA group;
- The MC service ID is the MCDATA ID; and
- The MC service group ID is the MCDATA group ID.

When an MCDATA user has affiliated to an MCDATA group then the MCDATA user can send and receive MCDATA related media for that MCDATA group. When an MCDATA user has de-affiliated from an MCDATA group then the MCDATA user cannot send and receive MCDATA related media to and from that MCDATA group.

7.3 Use of MBMS transmission (on-network)

7.3.1 Information flows for MBMS Transmission

Information flows for generic MBMS procedures are defined in 3GPP TS 23.280 [5].

7.3.2 Use of pre-established MBMS bearers

The MCDATA service shall support the procedure for using pre-established MBMS bearers as specified in 3GPP TS 23.280 [5] with the following clarifications:

- The MC service client is the MCDATA client;
- The MC service server is the MCDATA server; and
- The MC service ID is the MCDATA ID.

The MCDATA service shall use the MCDATA-6, MCDATA-SDS-1, MCDATA-SDS-2, MCDATA-SDS-3, MCDATA-FD-1, MCDATA-FD-3, MCDATA-DS-1 and MCDATA-DS-3 reference points for this procedure.

MCDATA may use pre-established MBMS bearer for the MCDATA features short data service, file distribution and data streaming. The MBMS bearer can be used by any group. Depending on the capacity of the MBMS bearer, the bearer can be used to broadcast one or more services in parallel.

Both the media packets as well as the transmission control messages to the receiving users may be sent on the MBMS bearer. Optionally a separate MBMS bearer could be used for the transmission control messages, due to different bearer characteristic requirements.

7.3.3 Use of dynamic MBMS bearer establishment

The MCDData service shall support the procedure for using pre-established MBMS bearers as specified 3GPP TS 23.280 [5] with the following clarifications:

- The MC service client is the MCDData client;
- The MC service server is the MCDData server; and
- The MC service ID is the MCDData ID.

The MCDData service shall use the MCDData-6, MCDData-DS-1 and MCDData-DS-3 reference points for this procedure.

MCDData may use dynamic MBMS bearer for the MCDData feature data streaming. The MBMS bearer can be used by any group. Depending on the capacity of the MBMS bearer, the bearer can be used to broadcast one or more services in parallel.

For file distribution using the media plane (7.5.2.7), the use of dynamic MBMS bearer is not supported. Both the media packets as well as the transmission control messages to the receiving users may be sent on the MBMS bearer. Optionally a separate MBMS bearer could be used for the transmission control messages, due to different bearer characteristic requirements.

7.3.4 Switching from MBMS bearer to unicast bearer

The MCDData service shall support the procedure for switching from MBMS bearer to unicast bearer as specified 3GPP TS 23.280 [5] with the following clarifications:

- The MC service client is the MCDData client;
- The MC service server is the MCDData server; and
- The MC service ID is the MCDData ID.

The MCDData service shall use the MCDData-SDS-1, MCDData-SDS-2, MCDData-FD-1, MCDData-FD-3, MCDData-DS-1 and MCDData-DS-3 reference points for this procedure.

7.3.5 Use of MBMS user services for file distribution

7.3.5.1 General

This subclause defines information flows and procedures for usage of MBMS user services that applies to MCDData file distribution. MBMS user services can be used for any MC service group.

7.3.5.2 Information flows for MBMS user service usage

7.3.5.2.1 MBMS user service announcement

Table 7.3.5.2.1-1 describes the information flow MBMS bearer announcement from the MCDData server to the MCDData client.

Table 7.3.5.2.1-1: MBMS user service announcement

Information element	Status	Description
MBMS user service id	M	Id of the MBMS user service
SA file	M	The service announcement file as returned in the create/update session response (subclause 5.4 in 3GPP TS 26.348 [19]) (see NOTE)
Monitoring state	O	The monitoring state is used to control if the client is actively monitoring the reception quality or the MBMS bearer used by the MBMS user service.
Unicast status	O	An indication that the listening status of the unicast bearer is requested.
NOTE: The SA file provides the TMGI, the list of MBMS service area identifiers, the frequency and the delivery parameters.		

7.3.5.3 Procedures for MBMS user service usage

7.3.5.3.1 Use of pre-established MBMS user services

7.3.5.3.1.1 General

In this scenario, the MCDATA server pre-establishes MBMS user service(s) in certain pre-configured areas before the initiation of a group file distribution. When a user originates a request for a file distribution in one of these areas, the MCDATA server can use the pre-established MBMS user service(s) for the DL media transmission.

The MBMS user service can be announced prior to the file distribution or within the signalling message for the file distribution.

The MBMS user service does not transmit application level control signalling. An MBMS bearer could be used for the application level control messages according to the generic MBMS procedures defined in 3GPP TS 23.280 [5].

7.3.5.3.1.2 Procedure

Editor's note: The procedure in this clause needs to be revised considering that MBMS user services, as specified in 3GPP TS 26.346 [21], cannot be supported over the MB2 interface.

The procedure figure 7.3.5.3.1.2-1 shows only one of the receiving MCDATA clients using an MBMS user service.

Pre-conditions:

- The participating users are already affiliated.

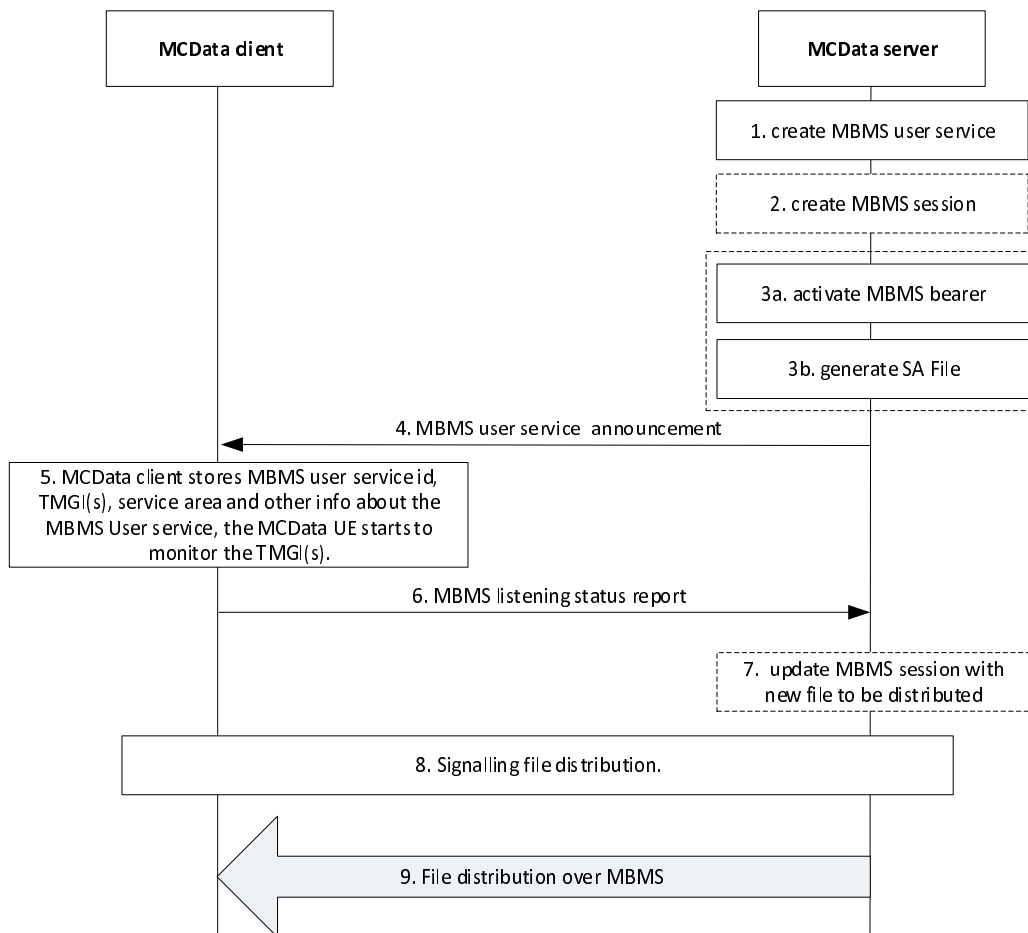


Figure 7.3.5.3.1.2-1: Use of pre-established MBMS user service

1. The MCData server determines to create an MBMS user service with a given MBMS user service id. If the MCData server makes use of the xMB interface, the MCData server creates an MBMS user service over xMB-C (subclause 5.3 from 3GPP TS 26.348 [19]).

NOTE 1: The procedure to determine the creation of MBMS user services is implementation specific.

2. If the MCData server makes use of the xMB interface, the MCData server creates an MBMS session over xMB-C for the MBMS user service (subclause 5.4 from 3GPP TS 26.348 [19]), with the type set to "Files" to use the MBMS download delivery method. This MBMS session will be used for file distribution. In response, the MCData server gets the TMGI of the MBMS bearer used for the MBMS session, and the SA file containing the metadata of the MBMS user service.
- 3a. Else, the MCData server activates an MBMS bearer over MB2-C for the MBMS user service.
- 3b. The MCData server, if not already in the possession of the SA file, generates the SA file containing the metadata of the MBMS user service.
4. The MCData server passes using control plane signalling the MBMS user service info for the service description associated with the pre-established MBMS user service to the MCData client. The MCData client obtains the TMGI, identifying the MBMS bearer, from the SA file included in the MBMS user service description.
5. The MCData client stores the information associated with the MBMS user service. The MCData client uses the TMGI and other MBMS user service related information to activate the monitoring of the MBMS bearer.
6. The MCData client that enters or is in the service area of at least one announced TMGI indicates to the MCData server that the MCData client is able to receive file distributed over MBMS, whereby the MCData server may decide to use this MBMS user service instead of unicast bearer for MC communication sessions.

NOTE 2: Step 4 is optional for the MCData UE on subsequent MBMS user service announcements.

NOTE 3: The information flow is specified in subclause 10.7.2.2 from 3GPP TS 23.280 [5].

7. If the MCDData server makes use of the xMB interface and wants to deliver a file to a group, the MCDData server updates the MBMS session to provide the file location and its uri.
8. The MCDData server signals the file transmission over the MBMS user service to the targeted MCDData clients.
9. The file, transmitted with the MBMS download delivery method, is received by the MCDData clients. If the MCDData server does not make use of the xMB interface, the MCDData server fragments the file to be sent, applies error correction according to the MBMS download delivery method (3GPP TS 26.346 [21]) and sent the FLUTE packets over MB2-U.

7.3.5.3.2 Use of dynamic MBMS user service establishment

Editor's note: The procedure in this clause needs to be revised considering that MBMS user services, as specified in 3GPP TS 26.346 [21], cannot be supported over the MB2 interface.

In this scenario depicted in figure 7.3.5.3.2-1, the MCDData server decides to establish an MBMS user service for the distribution of a given file. The MBMS user service is announced to the MCDData client, together with the file information to be received.

NOTE 1: The MCDData server logic for determining when to establish the new MBMS user service is implementation specific. For example, the MCDData server could decide to establish the MBMS delivery based on the location of the UE's that are a part of the targeted group.

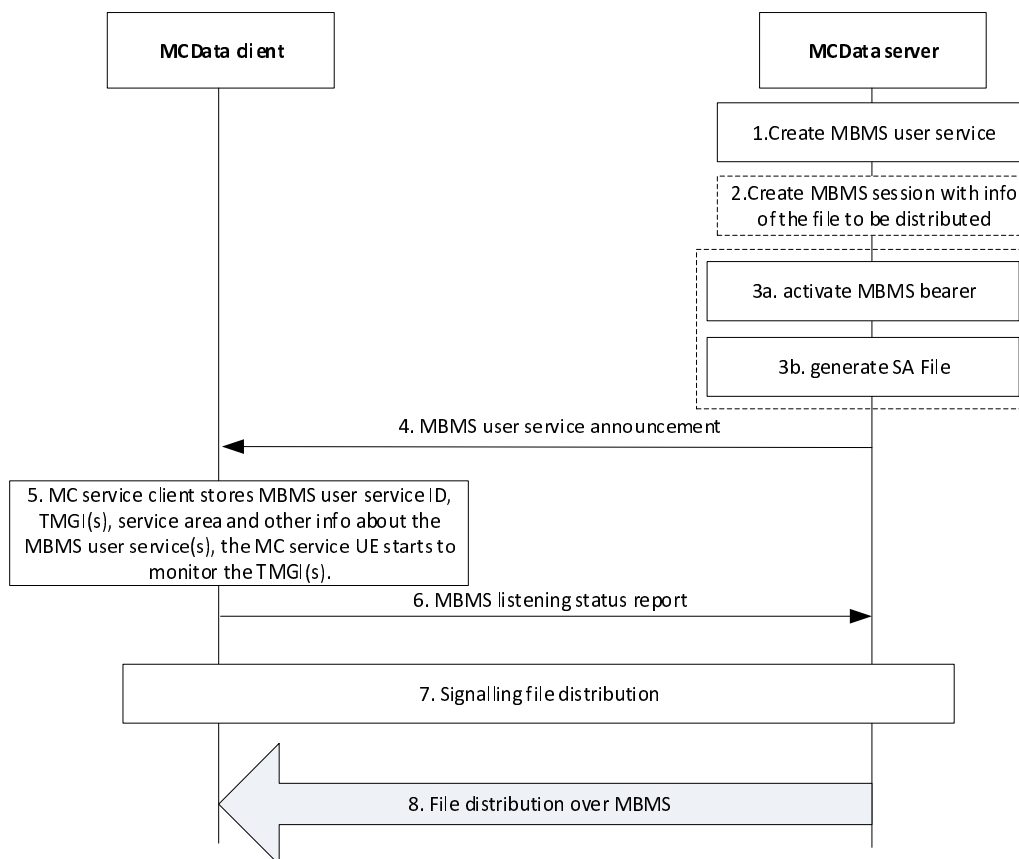


Figure 7.3.5.3.2-1: Use of dynamic MBMS user service establishment

1. The MCDData server determines to create an MBMS user service with a given MBMS user service id for the group communication session. If the MCDData server makes use of the xMB interface, the MCDData server creates an MBMS user service over xMB-C (subclause 5.3 from 3GPP TS 26.348 [19]).
2. If the MCDData server makes use of the xMB interface, the MCDData server creates a MBMS session for the MBMS user service (subclause 5.4 from 3GPP TS 26.348 [19]), with the type set to "Files" to use the MBMS download delivery method, and provide the file location and its uri. In response, the MCDData server gets the

TMGI of the MBMS bearer used for the MBMS session, the SA file containing the metadata of the MBMS user service and the scheduling parameter for the file delivery.

- 3a. Else, the MCDData server activates an MBMS bearer over MB2-C for the MBMS user service.
- 3b. The MCDData server, if not already in the possession of the SA file, generates the SA file containing the metadata of the MBMS user service.
4. The MCDData server passes using control plane signalling the SA file to the MCDData client. The MCDData client obtains the TMGI, identifying the MBMS bearer, from the SA file included in the MBMS user service description.
5. The MCDData client stores the information associated with the MBMS user service. The MCDData client uses the TMGI and other MBMS user service related information to activate the monitoring of the MBMS bearer.
6. The MCDData client that enters or is in the service area of at least one announced TMGI indicates to the MCDData server that the MCDData client is able to receive file distributed over MBMS, whereby the MCDData server may decide to use this MBMS user service instead of unicast bearer for MC communication sessions.
7. The MCDData server signals the file transmission over the MBMS user service to the targeted MCDData clients.
8. The file, transmitted with the MBMS download delivery method, is received by the MCDData clients. If the MCDData server does not make use of the xMB interface, the MCDData server fragments the file to be sent, applies error correction according to the MBMS download delivery method (3GPP TS 26.346 [21]) and sent the FLUTE packets over MB2-U.

7.4 Short data service

7.4.1 General

There are several procedures how an SDS message can be transported from the sender to the recipient. All of the following factors are used by MCDData client for selecting appropriate SDS procedures:

- Whether the data to transfer is within or outside the SDS data size limit to transport over signalling control plane;
- Whether the MCDData user has only one SDS transaction or multiple SDS transactions;
- Whether MCDData user, optionally using its associated and activated functional alias, is targeting SDS transaction to another MCDData user or MCDData group;
- Whether MCDData UE is on-network or off-network; and
- Security reasons.

7.4.2 Short data service for on-network

The procedures described in the following subclauses are limited to single MCDData system only.

7.4.2.1 Information flows for short data service

7.4.2.1.1 MCDData standalone data request

Table 7.4.2.1.1-1 describes the information flow for the MCDData standalone data request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.1-1: MCDData standalone data request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
Functional alias	O	The associated functional alias of the MCDData user sending data.
MCDData ID	M	The identity of the MCDData user towards which the data is sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Emergency indicator	O	Indicates that the data request is for MCDData emergency communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the payload is for application consumption or MCDData client consumption
Location	O	Location of the Originating MCDData user sending the SDS
Application identifier (see NOTE)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
Payload	M	SDS content
NOTE: The application identifier shall be included only if the payload destination type indicates that the payload is for application consumption.		

7.4.2.1.2 MCDData data disposition notification

Table 7.4.2.1.2-1 describes the information flow for the MCDData data disposition notification sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.2-1: MCDData data disposition notification

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user towards which the notification is sent
MCDData ID	M	The identity of the MCDData user sending notification
Conversation Identifier	M	Identifies the conversation
Disposition association	M	Identity of the original MCDData transaction
Disposition	M	Disposition which is delivered or read or both

7.4.2.1.3 MCDData standalone session data request

Table 7.4.2.1.3-1 describes the information flow for the MCDData standalone session data request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.3-1: MCDData standalone session data request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
Functional alias	O	The associated functional alias of the MCDData user sending data.
MCDData ID	M	The identity of the MCDData user towards which the data is sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Transaction type	M	Standalone transaction
Emergency indicator	O	Indicates that the data request is for MCDData emergency communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the SDS payload is for application consumption or MCDData user consumption
Location	O	Location of the Originating MCDData user sending the SDS message
Application identifier (see NOTE)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
SDP offer	M	Media parameters offered
NOTE: The application identifier shall be included only if the payload destination type indicates that the SDS message is for application consumption.		

7.4.2.1.4 MCDData standalone session data response

Table 7.4.2.1.4-1 describes the information flow for the MCDData standalone session data response sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.4-1: MCDData standalone session data response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user receiving data
MCDData ID	M	The identity of the MCDData user sent data
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected

7.4.2.1.5 MCDData session data request

Table 7.4.2.1.5-1 describes the information flow for the MCDData session data request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.5-1: MCDData session data request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
Functional alias	O	The associated functional alias of the MCDData user sending data.
MCDData ID	M	The identity of the MCDData user towards which the data is sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Transaction type	M	Session based transactions
Emergency indicator	O	Indicates that the data request is for MCDData emergency communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the SDS payload is for application consumption or MCDData user consumption
Location	O	Location of the Originating MCDData user sending the SDS message
Application identifier (see NOTE)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
SDP offer	M	Media parameters offered
Requested priority	O	Application priority level requested for this communication session
NOTE: The application identifier shall be included only if the payload destination type indicates that the SDS message is for application consumption.		

7.4.2.1.6 MCDData session data response

Table 7.4.2.1.6-1 describes the information flow for the MCDData session data response sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.6-1: MCDData session data response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user receiving data
MCDData ID	M	The identity of the MCDData user sent data
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected

7.4.2.1.7 MCDData group standalone data request (MCDData client – MCDData server)

Table 7.4.2.1.7-1 describes the information flow for the MCDData group standalone data request (in subclause 7.4.2.5.2) sent from the MCDData client to the MCDData server.

Table 7.4.2.1.7-1: MCDData group standalone data request (MCDData client – MCDData server)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
Functional alias	O	The associated functional alias of the MCDData user sending data.
MCDData group ID	M	The MCDData group ID to which the data is to be sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the payload is for application consumption or MCDData client consumption
Location	O	Location of the Originating MCDData user sending the SDS
Application identifier (see NOTE 3)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
Payload	M	SDS content
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		
NOTE 3: The application identifier shall be included only if the payload destination type indicates that the SDS message is for application consumption.		

7.4.2.1.8 MCDData group standalone data request (MCDData server – MCDData client)

Table 7.4.2.1.8-1 describes the information flow for the MCDData group standalone data request (in subclause 7.4.2.5.2) sent from the MCDData server to the MCDData client.

Table 7.4.2.1.8-1: MCDData group standalone data request (MCDData server – MCDData client)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
Functional alias	O	The associated functional alias of the MCDData user sending data.
MCDData group ID	M	The MCDData group ID to which the data is to be sent
MCDData ID	M	The identity of the MCDData user towards which the data is sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the payload is for application consumption or MCDData client consumption
Location	O	Location of the Originating MCDData user sending the SDS
Application identifier (see NOTE 3)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
Payload	M	SDS content
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		
NOTE 3: The application identifier shall be included only if the payload destination type indicates that the payload is for application consumption.		

7.4.2.1.9 MCDData data disposition notification(s) (MCDData server – MCDData client)

Table 7.4.2.1.9-1 describes the information flow for the MCDData data disposition notification(s) sent from the MCDData server to the MCDData client.

Table 7.4.2.1.9-1: MCDData data disposition notification(s) (MCDData server – MCDData client)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user towards which the notification is sent
MCDData ID	M	The identity of the MCDData user sending notification
Conversation Identifier	M	Identifies the conversation
Disposition association	M	Identity of the original MCDData transaction
Disposition	M	Disposition which is delivered or read or both

7.4.2.1.10 MCDData group session standalone data request (MCDData client – MCDData server)

Table 7.4.2.1.10-1 describes the information flow for the MCDData group session standalone data request (in subclause 7.4.2.6.2) sent from the MCDData client to the MCDData server.

Table 7.4.2.1.10-1: MCDATA group session standalone data request (MCDATA client – MCDATA server)

Information element	Status	Description
MCDATA ID	M	The identity of the MCDATA user sending data
Functional alias	O	The associated functional alias of the MCDATA user sending data.
MCDATA group ID	M	The MCDATA group ID to which the data is to be sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDATA transaction
Reply Identifier	O	Identifies the original MCDATA transaction to which the current transaction is a reply to
Transaction type	M	Standalone transaction
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDATA emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDATA imminent peril communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the SDS payload is for application consumption or MCDATA user consumption
Location	O	Location of the Originating MCDATA user sending the SDS message
Application identifier (see NOTE 3)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
SDP offer	M	Media parameters offered
Requested priority	O	Application priority level requested for this communication session
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		
NOTE 3: The application identifier shall be included only if the payload destination type indicates that the SDS message is for application consumption.		

7.4.2.1.11 MCDATA group session standalone data request (MCDATA server – MCDATA client)

Table 7.4.2.1.11-1 describes the information flow for the MCDATA group session standalone data request (in subclause 7.4.2.6.2) sent from the MCDATA server to the MCDATA client.

Table 7.4.2.1.11-1: MCDATA group session standalone data request (MCDATA server – MCDATA client)

Information element	Status	Description
MCDATA ID	M	The identity of the MCDATA user sending data
Functional alias	O	The associated functional alias of the MCDATA user sending data.
MCDATA group ID	M	The MCDATA group ID to which the data is to be sent
MCDATA ID	M	The identity of the MCDATA user towards which the data is sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDATA transaction
Reply Identifier	O	Identifies the original MCDATA transaction to which the current transaction is a reply to
Transaction type	M	Standalone transaction
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDATA emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDATA imminent peril communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the SDS payload is for application consumption or MCDATA user consumption
Location	O	Location of the Originating MCDATA user sending the SDS message
Application identifier (see NOTE 3)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
SDP offer	M	Media parameters offered
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		
NOTE 3: The application identifier shall be included only if the payload destination type indicates that the SDS message is for application consumption.		

7.4.2.1.12 MCDATA group session standalone data response

Table 7.4.2.1.12-1 describes the information flow for the MCDATA group standalone data response (in subclause 7.4.2.6.2) sent from the MCDATA client to the MCDATA server and from the MCDATA server to another MCDATA client.

Table 7.4.2.1.12-1: MCDATA group session standalone data response

Information element	Status	Description
MCDATA ID	M	The identity of the MCDATA user receiving data
MCDATA group ID	M	The MCDATA group ID to which the data is to be sent
MCDATA ID	M	The identity of the MCDATA user sent data
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected

7.4.2.1.13 MCDATA group data request (MCDATA client – MCDATA server)

Table 7.4.2.1.13-1 describes the information flow for the MCDATA group data request sent from the MCDATA client to the MCDATA server.

Table 7.4.2.1.13-1: MCDData group data request (MCDData client – MCDData server)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
Functional alias	O	The associated functional alias of the MCDData user sending data.
MCDData group ID	M	The MCDData group ID to which the data is to be sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Transaction type	M	Session based transactions
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the SDS payload is for application consumption or MCDData user consumption
Location	O	Location of the Originating MCDData user sending the SDS message
Application identifier (see NOTE 3)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
SDP offer	M	Media parameters offered
Requested priority	O	Application priority level requested for this communication session
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		
NOTE 3: The application identifier shall be included only if the payload destination type indicates that the SDS message is for application consumption.		

7.4.2.1.14 MCDData group data request (MCDData server – MCDData client)

Table 7.4.2.1.14-1 describes the information flow for the MCDData group data request sent from the MCDData server to the MCDData client.

Table 7.4.2.1.14-1: MCDData group data request (MCDData server – MCDData client)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
Functional alias	O	The associated functional alias of the MCDData user sending data.
MCDData group ID	M	The MCDData group ID to which the data is to be sent
MCDData ID	M	The identity of the recipient MCDData user
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Transaction type	M	Session based transactions
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Payload Destination Type	M	Indicates whether the SDS payload is for application consumption or MCDData user consumption
Location	O	Location of the Originating MCDData user sending the SDS message
Application identifier (see NOTE 3)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
SDP offer	M	Media parameters offered
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		
NOTE 3: The application identifier shall be included only if the payload destination type indicates that the SDS message is for application consumption.		

7.4.2.1.15 MCDData group data response

Table 7.4.2.1.15-1 describes the information flow for the MCDData group data response sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.15-1: MCDData group data response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user receiving data
MCDData group ID	M	The MCDData group ID to which the data is to be sent
MCDData ID	M	The identity of the MCDData user sent data
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected

7.4.2.1.16 MCDData one-to-one SDS communication upgrade request

Table 7.4.2.1.16-1 describes the information flow for the MCDData one-to-one SDS communication upgrade request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.16-1: MCDData one-to-one SDS communication upgrade request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identity of the MCDData user receiving data (when initiated by MCDData server).
Functional alias	O	The associated functional alias of the MCDData user sending data or receiving data.
Conversation Identifier	M	Identifies the conversation
Emergency indicator	M	Indicates that the data request is for MCDData emergency communication

7.4.2.1.17 MCDData one-to-one SDS communication upgrade response

Table 7.4.2.1.17-1 describes the information flow for the MCDData one-to-one SDS communication upgrade response sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.17-1: MCDData one-to-one SDS communication upgrade response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identity of the MCDData user receiving data (when initiated by MCDData server).
Conversation Identifier	M	Identifies the conversation

7.4.2.1.18 MCDData group SDS communication upgrade request

Table 7.4.2.1.18-1 describes the information flow for the MCDData group SDS communication upgrade request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.18-1: MCDData group SDS communication upgrade request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identify of the MCDData user receiving data (when initiated by MCDData server).
Functional alias	O	The associated functional alias of the MCDData user sending data or receiving data.
MCDData group ID	M	The MCDData group ID on which the emergency upgrade request is made
Conversation Identifier	M	Identifies the conversation
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		

7.4.2.1.19 MCDData group SDS communication upgrade response

Table 7.4.2.1.19-1 describes the information flow for the MCDData group SDS communication upgrade response sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.19-1: MCDData group SDS communication upgrade response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identify of the MCDData user receiving data (when initiated by MCDData server).
MCDData group ID	M	The MCDData group ID on which the emergency upgrade request is made
Conversation Identifier	M	Identifies the conversation

7.4.2.1.20 MCDData group SDS communication in-progress priority state cancel request

Table 7.4.2.1.20-1 describes the information for the MCDData group SDS communication in-progress priority state cancel request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.4.2.1.20-1: MCDData group SDS communication in-progress priority state cancel request

Information Element	Status	Description
MCDData ID	M	The identity of the cancelling party
MCDData group ID	M	The MCDData group ID on which the MCDData in-progress emergency state is to be cancelled.
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
Conversation Identifier	M	Identifies the conversation
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		

7.4.2.1.21 MCDData group SDS communication in-progress priority state cancel response

Table 7.4.2.1.21-1 describes the information flow for the MCDData group SDS communication in-progress priority state cancel response sent from the MCDData server to the MCDData client.

Table 7.4.2.1.21-1: MCDData group SDS communication in-progress priority state cancel response

Information Element	Status	Description
MCDData ID	M	The identity of the cancelling party
MCDData group ID	M	The MCDData group ID on which the MCDData in-progress emergency in-progress is to be cancelled.
Conversation Identifier	M	Identifies the conversation

7.4.2.2 One-to-one standalone short data service using signalling control plane

7.4.2.2.1 General

A MCDData user initiates a standalone SDS data transfer with another MCDData user. For the SDS data transfer signalling plane is used.

7.4.2.2.2 Procedure

The procedure in figure 7.4.2.2.2-1 describes the case where an MCDData user is initiating one-to-one MCDData data communication for sending standalone SDS data to other MCDData user, with or without disposition request. Standalone refers to sending unidirectional data in one transaction.

Pre-conditions:

1. The SDS payload data size is below the configured maximum payload data size for SDS over signalling control plane.
2. MCDData users on MCDData client 1 and MCDData client 2 are already registered for receiving MCDData service.
3. MCDData client 1 and MCDData client 2 belong to the same MCDData system.
4. Optionally, the MCDData client may have activated functional alias to be used.
5. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

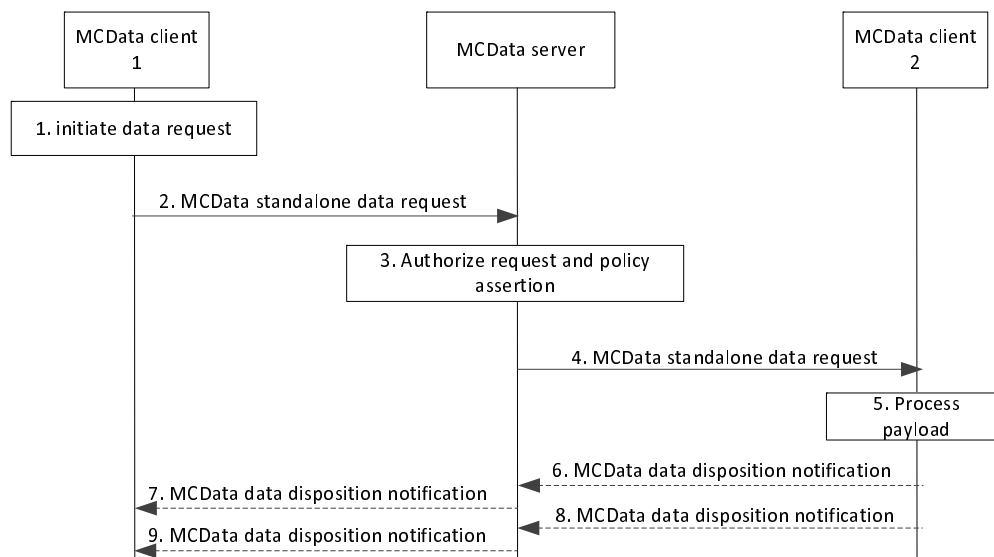


Figure 7.4.2.2.2-1: One-to-one standalone short data service using signalling control plane

1. The user at MCDData client 1 initiates an SDS data transfer for the chosen MCDData user.
2. MCDData client 1 sends a MCDData standalone data request towards the MCDData server. The MCDData standalone data request contains conversation identifier for message thread indication. The MCDData standalone data request may contain disposition request if indicated by the user at MCDData client 1. MCDData user at MCDData client 1 may include a functional alias within the SDS data transfer.
 - a) If the MCDData user at the MCDData client 1 initiates an MCDData emergency short data service communication or MCDData emergency state is already set for the MCDData client 1 (due to previously triggered MCDData emergency alert):
 - i) The MCDData standalone data request shall contain emergency indicator; and
 - ii) If MCDData emergency state is not set already, MCDData client 1 sets its MCDData emergency state. The MCDData emergency state is retained until explicitly cancelled.
3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData standalone data request. MCDData server verifies whether the provided functional alias, if present, can be used and has been activated for the user. The MCDData server also checks whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege or affiliation.

NOTE: The MCDData server prioritizes the MCDData emergency communication over the other MCDData communication. How the MCDData server prioritizes MCDData emergency communication is not in the scope of the present document.

4. MCDData server initiates the MCDData standalone data request towards the MCDData user. The MCDData standalone data request towards the MCDData user contains the emergency indicator if it is present in the received MCDData standalone data request from MCDData client 1.
5. If the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the MCDData user of MCDData client 2 may be notified. Otherwise if the payload is not for MCDData user consumption, then the MCDData user of MCDData client 2 shall not be notified. The action taken when the payload contains application data or command instructions are specific based on the contents of the payload. Payload content received by MCDData client 2 which is addressed to a known local non-MCDData application that is not yet running shall cause the MCDData client 2 to start the local non-MCDData application (i.e., remote start application) and shall pass the payload content to the just started application.
6. If the MCDData data disposition for delivery was requested by the user at MCDData client 1, then the receiving MCDData client initiates a MCDData data disposition notification for delivery report. The MCDData data disposition notification from MCDData client may be stored by the MCDData server for disposition history interrogation from authorized MCDData users.
7. MCDData data disposition notification is sent to the disposition requesting user at MCDData client 1.
8. If the MCDData data disposition for read was requested by the user at MCDData client 1, then once the receiving user reads the data, the receiving MCDData client 2 initiates a MCDData data disposition notification for read report. The MCDData data disposition notification from MCDData client may be stored by the MCDData server for disposition history interrogation from authorized MCDData users. The MCDData data disposition notification from MCDData client may be stored by the MCDData server for disposition history interrogation from authorized MCDData users.
9. MCDData data disposition notification is sent to the disposition requesting user at MCDData client 1.

7.4.2.3 One-to-one standalone short data service using media plane

7.4.2.3.1 General

A MCDData user initiates a standalone SDS data transfer with another MCDData user. For the SDS data transfer media plane is used.

7.4.2.3.2 Procedure

The procedure in figure 7.4.2.3.2-1 describes the case where an MCDData user is initiating one-to-one MCDData data communication for sending standalone SDS data to other MCDData user, with or without disposition request. Standalone refers to sending unidirectional data in one transaction. The SDS payload data size is assumed to be above the configured maximum payload data size for SDS over signalling control plane.

Pre-conditions:

1. MCDData users on MCDData client 1 and MCDData client 2 are already registered for receiving MCDData service.
2. MCDData client 1 and MCDData client 2 belong to the same MCDData system.
3. Optionally, the MCDData client may have an activated functional alias to be used.
4. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

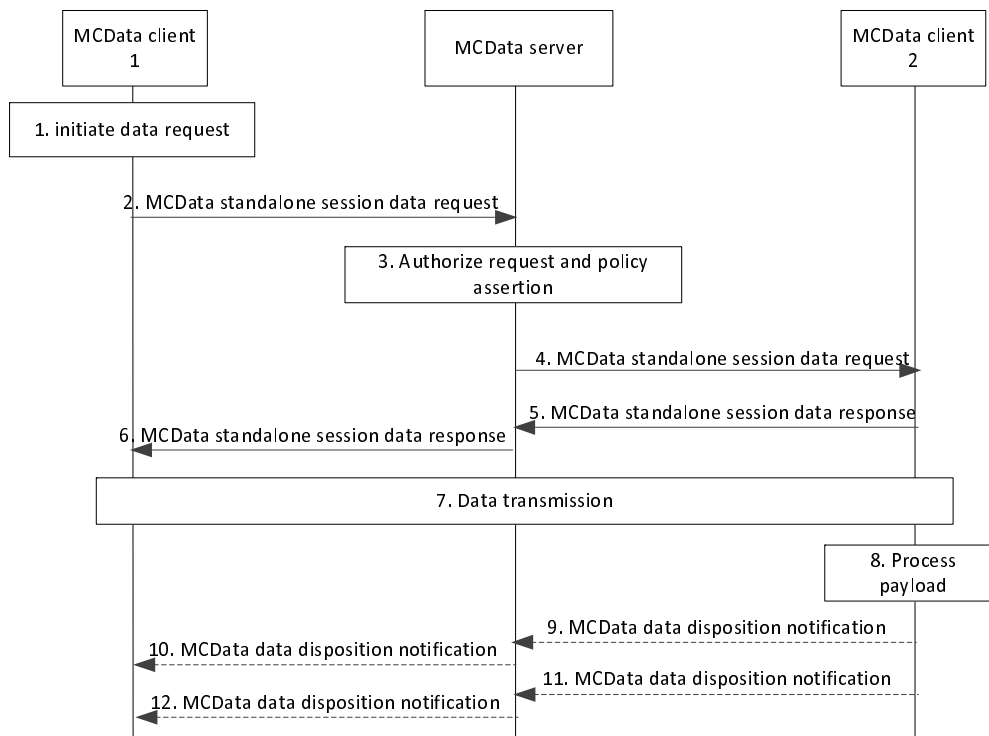


Figure 7.4.2.3.2-1: One-to-one standalone short data service using media plane

1. User at MCData client 1 would like to initiate a SDS data transfer request for the chosen MCData user.
 2. MCData client 1 sends a MCData standalone session data request towards the MCData server. The MCData standalone session data request contains one MCData user for one-to-one data communication as selected by the user at MCData client 1. The MCData standalone session data request contains conversation identifier for message thread indication. The MCData data request may contain disposition request if indicated by the user at MCData client 1. MCData user at MCData client 1 may include a functional alias within the SDS data transfer.
 - a) If the MCData user at the MCData client 1 initiates an MCData emergency short data service communication or MCData emergency state is already set for the MCData client 1 (due to previously triggered MCData emergency alert):
 - i) The MCData standalone session data request shall contain emergency indicator; and
 - ii) If MCData emergency state is not set already, MCData client 1 sets its MCData emergency state. The MCData emergency state is retained until explicitly cancelled.
 3. MCData server checks whether the MCData user at MCData client 1 is authorized to send MCData standalone session data request. MCData server verifies whether the provided functional alias, if present, can be used and has been activated for the user. The MCData server also checks whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege. MCData server determines the eligible MCData user(s) after policy assertion for sending the MCData standalone session data request.
- NOTE: The MCData server prioritizes the MCData emergency communication over the other MCData communication. How the MCData server prioritizes MCData emergency communication is not in the scope of the present document.
4. MCData server initiates the MCData standalone session data request towards the MCData user. The MCData standalone session data request towards the MCData user contains an emergency indicator if it is present in the received MCData standalone session data request from MCData client 1.
 5. The receiving MCData client 2 automatically accepts the MCData standalone session data request and responds with MCData standalone session data response towards MCData server.

6. MCDData server forwards the MCDData client 2 accepted response to the MCDData user initiating the MCDData standalone session data request.
7. MCDData client 1 and MCDData client 2 have successfully established media plane for data communication and the MCDData client 1 transmits the SDS data.
8. If the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the MCDData user of MCDData client 2 may be notified. Otherwise if the payload is not for MCDData user consumption, then the MCDData user of MCDData client 2 shall not be notified. The action taken when the payload contains application data or command instructions are specific based on the contents of the payload. Payload content received by MCDData client 2 which is addressed to a known local non-MCDData application that is not yet running shall cause the MCDData client 2 to start the local non-MCDData application (i.e., remote start application) and shall pass the payload content to the just started application.
9. If the MCDData data disposition for delivery was requested by the user at MCDData client 1, then the receiving MCDData client initiates a MCDData data disposition notification for delivery report. The MCDData data disposition notification from the receiving MCDData client may be stored by the MCDData server for disposition history interrogation from authorized MCDData users.
10. MCDData data disposition notification is sent to the disposition requesting user at MCDData client 1.
11. If the MCDData disposition for read was requested by the user at MCDData client 1, then once the receiving user reads the data, the receiving MCDData client 2 initiates a MCDData disposition notification for read report. The MCDData data disposition notification from the receiving MCDData client may be stored by the MCDData server for disposition history interrogation from authorized MCDData users.
12. MCDData data disposition notification is sent to the disposition requesting user at MCDData client 1.

7.4.2.4 One-to-one short data service session

7.4.2.4.1 General

A MCDData user triggers an establishment of a MCDData session with another MCDData user for the exchange of SDS data.

7.4.2.4.2 Procedure

The procedure in figure 7.4.2.4.2-1 describes the case where an MCDData user is initiating data communication session with another MCDData user for exchanging at least one SDS data transaction between them, with or without disposition request using MCDData-SDS-1 and MCDData-SDS-2 or MCDData-SDS-3 reference points.

Pre-conditions:

1. MCDData users on MCDData client 1 and MCDData client 2 are already registered for receiving MCDData service.
2. Optionally, the MCDData client may have activated functional alias to be used.
3. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

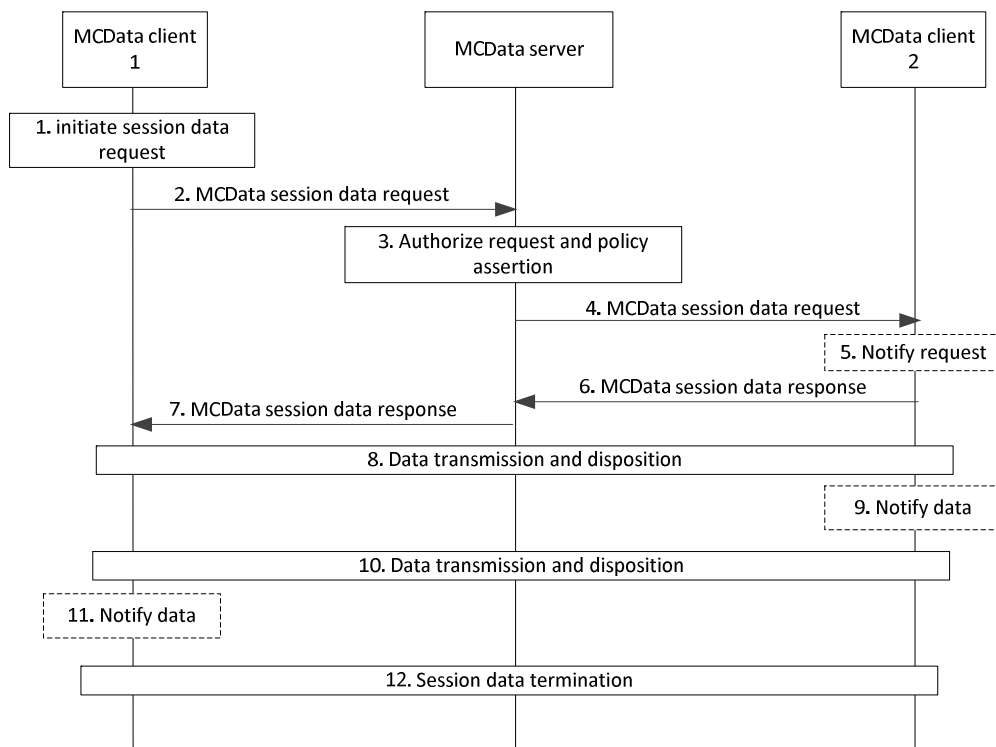


Figure 7.4.2.4.2-1: One-to-one short data service session

1. User at MCDData client 1 would like to initiate a SDS data communication session request for the chosen MCDData user.
2. MCDData client 1 sends a MCDData session data request towards the MCDData server. The MCDData session data request contains one MCDData user for one-to-one data communication as selected by the user at MCDData client 1. The MCDData session data request contains conversation identifier for message thread indication. MCDData user at MCDData client 1 may include a functional alias within the SDS data transfer.
 - a) If the MCDData user at the MCDData client 1 initiates an MCDData emergency short data service communication or MCDData emergency state is already set for the MCDData client 1 (due to previously triggered MCDData emergency alert):
 - i) The MCDData session data request shall contain emergency indicator; and
 - ii) If MCDData emergency state is not set already, MCDData client 1 sets its MCDData emergency state. The MCDData emergency state is retained until explicitly cancelled.
3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData session data request. The MCDData server also checks whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege. MCDData server determines the eligible MCDData user(s) after policy assertion for sending the MCDData session data request. MCDData server also verifies whether the provided functional alias, if present, can be used and has been activated for the user.

NOTE: The MCDData server prioritizes the MCDData emergency communication over the other MCDData communication. How the MCDData server prioritizes MCDData emergency communication is not in the scope of the present document.

4. MCDData server initiates the MCDData session data request towards the MCDData user determined. The MCDData session data request towards the MCDData user contains the emergency indicator if it is present in the received MCDData session data request from MCDData client 1.
5. If the emergency indicator is present, the receiving MCDData client 2 notifies the user about the incoming MCDData session data request.

6. The receiving MCDData client 2 accepts the MCDData session data request and responds with MCDData session data response towards MCDData server.
7. MCDData server forwards the MCDData client 2 accepted response to the MCDData user initiating the MCDData session data request.
8. and 10. MCDData client 1 and MCDData client 2 have successfully established media plane for data communication and either MCDData client can transmit SDS data. The MCDData data request may contain disposition request if indicated by the client sending data. If MCDData data disposition was requested by the user, then the receiving MCDData client initiates a MCDData data disposition notification for delivery, read reports to the disposition requesting user. The MCDData data disposition notification from MCDData user may be stored by the MCDData server for disposition history interrogation from authorized users.
9. and 11. If the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the MCDData user of MCDData client 2 may be notified, otherwise the MCDData user of MCDData client 2 shall not be notified.
12. After SDS data transaction is complete, the established media plane is released.

7.4.2.5 Group standalone short data service using signalling control plane

7.4.2.5.1 General

The initiation of a group standalone SDS to a selected group results in affiliated group members receiving the SDS data. The SDS payload data size is assumed to be below the configured maximum payload data size for SDS over signalling control plane.

7.4.2.5.2 Procedure

The procedure in figure 7.4.2.5.2-1 describes the case where an MCDData user is initiating group standalone MCDData data communication with or without disposition request, to a group.

Pre-conditions:

1. MCDData users on MCDData clients 1 to n belong to the same group and are already registered for receiving MCDData service and affiliated.
2. Optionally, the MCDData client may have activated functional alias to be used.
3. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

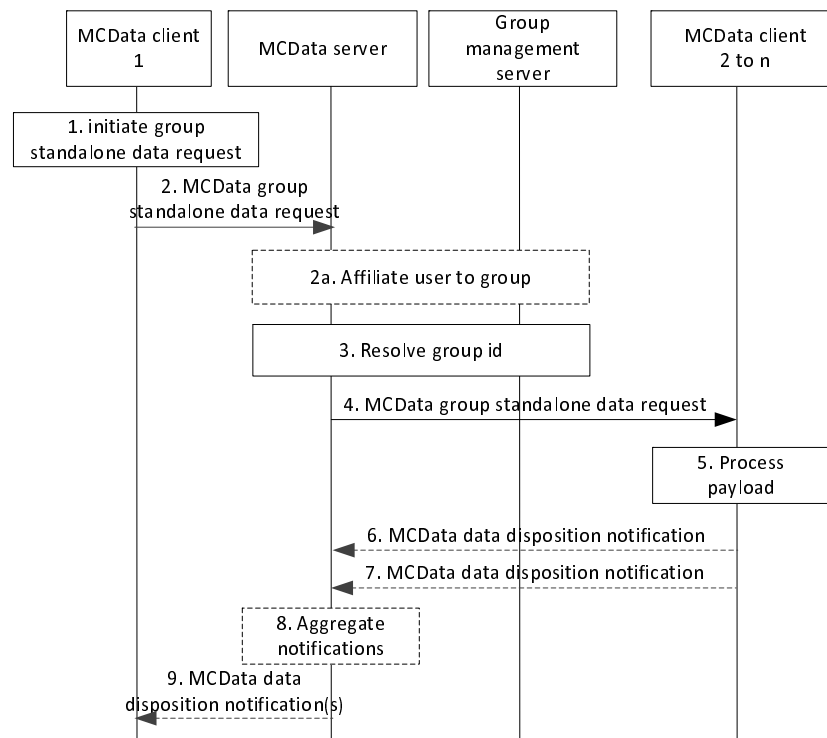


Figure 7.4.2.5.2-1: Group standalone SDS using signalling control plane

1. The user at MCDData client 1 initiates an SDS data transfer to multiple MCDData users selecting a pre-configured group (identified by MCDData group ID) and optionally particular members from that group.
2. MCDData client 1 sends a MCDData group standalone data request towards the MCDData server. The MCDData group data request contains MCDData group ID as selected by the user at MCDData client 1. The MCDData group standalone data request contains conversation identifier for message thread indication. The MCDData group standalone data request may contain disposition request if indicated by the user at MCDData client 1. MCDData user at MCDData client 1 may include a functional alias within the SDS data transfer.

If the MCDData user at MCDData client 1 initiates an MCDData emergency short data service communication or the MCDData emergency state is already set for the MCDData client 1 (due to a previously triggered MCDData emergency alert):

- i) the MCDData group standalone data request shall contain an emergency indicator;
- ii) the MCDData group standalone data request shall set an alert indicator if configured to send an MCDData emergency alert while initiating an MCDData standalone data request for the emergency short data service communication;
- iii) if the MCDData emergency state is not set already, MCDData client 1 sets its MCDData emergency state. The MCPTT emergency state is retained until explicitly cancelled; and
- iv) once an MCDData emergency communication has been initiated, the MCDData group is considered to be in an in-progress emergency state until cancelled;

If the MCDData user at MCDData client 1 initiates an MCDData imminent peril short data service communication:

- i) the MCDData group standalone data request shall contain imminent peril indicator; and
- ii) once an MCDData imminent peril communication has been initiated, the MCDData group is considered to be in an in-progress imminent peril state until cancelled.

- 2a. If either emergency indicator or imminent peril indicator is present in the received MCDData group standalone data request, the MCDData server implicitly affiliates MCDData client 1 to the MCDData group if the client is not already affiliated.
3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData group standalone data request. The MCDData server resolves the MCDData group ID to determine the members of that group and their affiliation status, based on the information from the group management server. The MCDData server also checks whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege or affiliation. MCDData server also verifies whether the provided functional alias, if present, can be used and has been activated for the user.
 - i) If an emergency indicator is present in the received MCDData group standalone data request and if the MCDData group is not in the in-progress emergency state, the MCDData group is considered to be in the in-progress emergency state until cancelled;
 - ii) If an imminent peril indicator is present in the received MCDData group standalone data request and if the MCDData group is not in the in-progress imminent peril state, the MCDData group is considered to be in the in-progress imminent peril state until cancelled;
4. MCDData server initiates the MCDData group standalone data request towards each MCDData client determined in Step 3. The MCDData group standalone data request towards each MCDData client contains:
 - i) an emergency indicator if it is present in the received MCDData group standalone data request from the MCDData client 1;
 - ii) an imminent peril indicator if it is present in the received MCDData group standalone data request from the MCDData client 1; and
 - iii) an alert indicator if requested to initiate an emergency alert in the received MCDData group standalone data request from the MCDData client 1.
5. If the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the MCDData user of MCDData clients 2 to n may be notified. Otherwise if the payload is not for MCDData user consumption, then the MCDData user of MCDData clients 2 to n shall not be notified. The action taken when the payload contains application data or command instructions are specific based on the contents of the payload. Payload content received by MCDData client 2 which is addressed to a known local non-MCDData application that is not yet running shall cause the MCDData client 2 to start the local non-MCDData application (i.e., remote start application) and shall pass the payload content to the just started application.
6. If the MCDData data disposition for delivery was requested by the user at MCDData client 1, then the receiving MCDData client(s) initiates a MCDData data disposition notification for delivery report.
7. If the MCDData data disposition for read was requested by the user at MCDData client 1, then once the receiving user reads the data, the receiving MCDData client 2 initiates a MCDData data disposition notification for read report.
8. The MCDData data disposition notification(s) from MCDData client may be stored by the MCDData server for disposition history interrogation from authorized MCDData users. The MCDData data disposition notification(s) from each MCDData user may be aggregated.
9. Aggregated or individual MCDData data disposition notification(s) is sent to the disposition requesting user at MCDData client 1.

7.4.2.6 Group standalone short data service using media plane

7.4.2.6.1 General

The initiation of a group standalone SDS to a selected group results in affiliated group members receiving the SDS data. The SDS payload data size is assumed to be above the configured maximum payload data size for SDS over signalling control plane.

7.4.2.6.2 Procedure

The procedure in figure 7.4.2.6.2-1 describes the case where an MCDData user is initiating group standalone MCDData data communication with or without disposition request to a group.

Pre-conditions:

1. MCDData users on MCDData client 1 to n belong to the same group and are already registered for receiving MCDData service and affiliated.
2. Optionally, the MCDData client may have activated functional alias to be used.
3. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

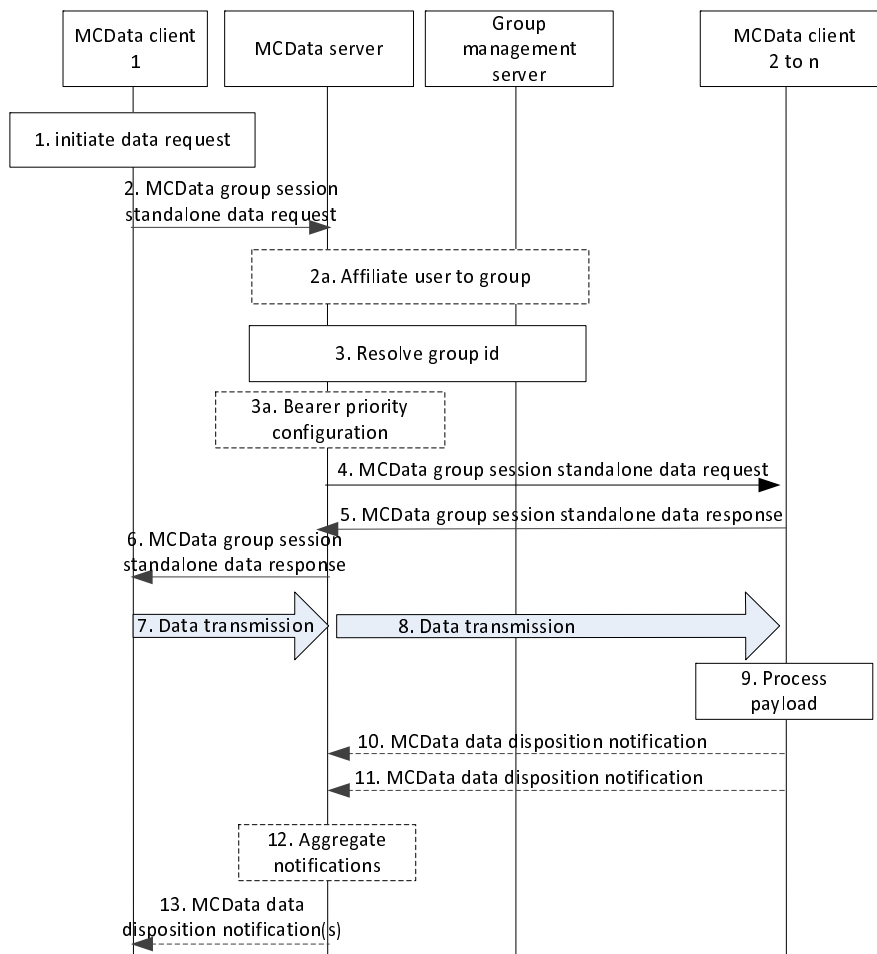


Figure 7.4.2.6.2-1: Group standalone SDS using media plane

1. User at MCDData client 1 would like to initiate a SDS data transfer request to multiple MCDData users selecting a pre-configured group (identified by MCDData group ID) and optionally particular members from that group.
2. MCDData client 1 sends a MCDData group session standalone data request towards the MCDData server. The MCDData group session standalone data request contains target recipient(s) as selected by the user at MCDData client 1. The MCDData session group standalone data request contains conversation identifier for message thread indication. The MCDData session group standalone data request may contain disposition request if indicated by the user at MCDData client 1. MCDData user at MCDData client 1 may include a functional alias within the SDS data transfer.

If the MCDData user at MCDData client 1 initiates an MCDData emergency short data service communication or the MCDData emergency state is already set for MCDData client 1 (due to a previously triggered MCDData emergency alert):

- i) the MCDData group session standalone data request shall contain an emergency indicator;
- ii) the MCDData group session standalone data request shall set the alert indicator if configured to send an MCDData emergency alert while initiating an MCDData standalone data request for the emergency short data service communication;
- iii) if the MCDData emergency state is not set already, MCDData client 1 sets its MCDData emergency state. The MCPTT emergency state is retained until explicitly cancelled; and
- iv) once an MCDData emergency communication has been initiated, the MCDData group is considered to be in an in-progress emergency state until cancelled.

If the MCDData user at MCDData client 1 initiates an MCDData imminent peril short data service communication:

- i) the MCDData group session standalone data request shall contain an imminent peril indicator; and
- ii) once an MCDData imminent peril communication has been initiated, the MCDData group is considered to be in an in-progress imminent peril state until cancelled;

- 2a. If either an emergency indicator or an imminent peril indicator is present in received MCDData group session standalone data request, the MCDData server implicitly affiliates MCDData client 1 to the MCDData group if the client is not already affiliated.
3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData session group standalone data request. The MCDData server resolves the MCDData group ID to determine the members of that group and their affiliation status, based on the information from the group management server. The MCDData server also checks whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege. MCDData server also verifies whether the provided functional alias, if present, can be used and has been activated for the user.
 - i) if an emergency indicator is present in the received MCDData group session standalone data request and if the MCDData group is not in the in-progress emergency state, the MCDData group is considered to be in the in-progress emergency state until cancelled;
 - ii) if an imminent peril indicator is present in the received MCDData group session standalone data request and if the MCDData group is not in the in-progress imminent peril state, the MCDData group is considered to be in the in-progress imminent peril state until cancelled;
- 3a. The MCDData server configures the priority of the underlying bearers for all participants in the MCDData group.
4. MCDData server initiates the MCDData group session standalone data request towards each MCDData user determined in Step 3. The MCDData group session standalone data request towards each MCDData client contains:
 - i) an emergency indicator if it is present in the received MCDData group session standalone data request from the MCDData client 1;
 - ii) an imminent peril indicator if it is present in the received MCDData group session standalone data request from the MCDData client 1; and
 - iii) an alert indicator if requested to initiate an emergency alert in the received MCDData group session standalone data request from MCDData client 1;
5. The receiving MCDData clients 2 to n automatically accepts the MCDData group session standalone data request and responds with MCDData group standalone data response towards MCDData server.
6. MCDData server forwards the MCDData clients 2 to n accepted response to the MCDData user initiating the MCDData group session standalone data request.

NOTE 1: Step 6 can occur at any time following step 4, and prior to step 7 depending on the conditions to proceed with the data transmission.

7. MCDData client 1 and MCDData server have successfully established media plane for data communication and the MCDData client 1 transmits the SDS data.
8. MCDData server distributes the data received from MCDData client 1 to MCDData clients 2 to n over the established media plane. After completion of the MCDData transfer from MCDData client 1, media plane resources associated to the data communication are released.

NOTE 2: MCDData server is not required to wait for the complete reception of SDS data from MCDData client 1 prior to initiating transmission to MCDData client 2 to n.

9. If the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the MCDData user of MCDData client 2 to n may be notified. Otherwise if the payload is not for MCDData user consumption, then the MCDData user of MCDData client 2 to n shall not be notified. The action taken when the payload contains application data or command instructions are specific based on the contents of the payload. Payload content received by MCDData client 2 which is addressed to a known local non-MCDData application that is not yet running shall cause the MCDData client 2 to start the local non-MCDData application (i.e., remote start application) and shall pass the payload content to the just started application.
10. If the MCDData data disposition for delivery was requested by the user at MCDData client 1, then the receiving MCDData client(s) initiates a MCDData data disposition notification for delivery report.
11. If the MCDData data disposition for read was requested by the user at MCDData client 1, then once the receiving user reads the data, the receiving MCDData client 2 initiates a MCDData data disposition notification for read report.
12. The MCDData data disposition notification(s) from MCDData client may be stored by the MCDData server for disposition history interrogation from authorized MCDData users. The MCDData data disposition notification(s) from each MCDData user may be aggregated.
13. Aggregated or individual MCDData data disposition notification(s) is sent to the disposition requesting user at MCDData client 1.

7.4.2.7 Group short data service session

7.4.2.7.1 General

The initiation of a group SDS to a selected group results in affiliated group members exchanging SDS data.

7.4.2.7.2 Procedure

The procedure in figure 7.4.2.7.2-1 describes the case where an MCDData user is initiating SDS data communication session with an MCDData group for exchanging SDS data transactions between the group participants, with or without disposition request, using MCDData-SDS-1 and MCDData-SDS-2 reference points.

Pre-conditions:

1. MCDData users on MCDData client 1 to n belong to the same group and are already registered for receiving MCDData service and affiliated.
2. Optionally, the MCDData client may have activated functional alias to be used.
3. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

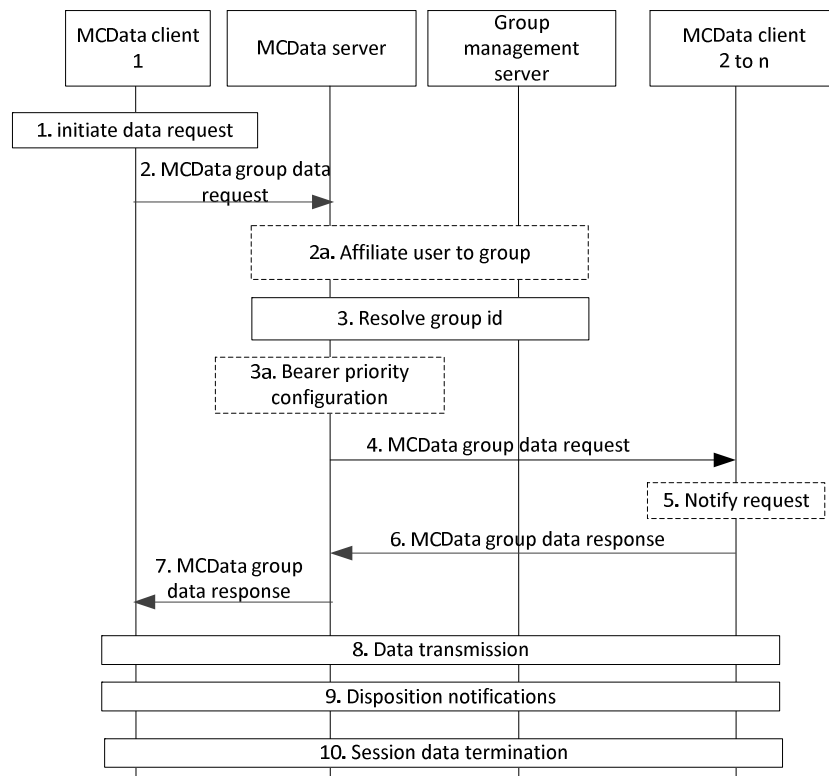


Figure 7.4.2.7.2-1: Group SDS session

1. User at MCData client 1 would like to initiate a SDS group data transfer request to multiple MCData users selecting a pre-configured group (identified by MCData group ID) and optionally particular members from that group.
2. MCData client 1 sends a MCData group data request towards the MCData server. The MCData group data request contains MCData group ID as selected by the user at MCData client 1. The MCData session data request contains conversation identifier for message thread indication. MCData user at MCData client 1 may include a functional alias within the SDS data transfer.

If the MCData user at MCData client 1 initiates an MCData emergency short data service communication or the MCData emergency state is already set for the MCData client 1 (due to a previously triggered MCData emergency alert):

- i) the MCData group data request shall contain an emergency indicator;
- ii) the MCData group data request shall set an alert indicator if configured to send an MCData emergency alert while initiating an MCData standalone data request for the emergency short data service communication;
- iii) if MCData emergency state is not set already, MCData client 1 sets its MCData emergency state. The MCPTT emergency state is retained until explicitly cancelled; and
- iv) once an MCData emergency communication has been initiated, the MCData group is considered to be in an in-progress emergency state until cancelled.

If the MCData user at MCData client 1 initiates an MCData imminent peril short data service communication:

- i) the MCData group data request shall contain an imminent peril indicator; and

- ii) once an MCDData imminent peril communication has been initiated, the MCDData group is considered to be in an in-progress imminent peril state until cancelled;
- 2a. If either emergency indicator or imminent peril indicator is present in received MCDData group data request, the MCDData server implicitly affiliates MCDData client 1 to the MCDData group if the client is not already affiliated.
 3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData group data request. The MCDData server resolves the MCDData group ID to determine the members of that group and their affiliation status, based on the information from the group management server. The MCDData server also checks whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege. MCDData server also verifies whether the provided functional alias, if present, can be used and has been activated for the user.
 - i) if an emergency indicator is present in the received MCDData group data request and if MCDData group is not in in-progress emergency state, the MCDData group is consider to be in the in-progress emergency state until cancelled;
 - ii) if an imminent peril indicator is present in the received MCDData group data request and if the MCDData group is not in the in-progress imminent peril, the MCDData group is consider to be in the in-progress imminent peril state until cancelled;
 - 3a. The MCDData server configures the priority of the underlying bearers for all participants in the MCDData group.
 4. MCDData server initiates the MCDData group data request towards each MCDData user determined in Step 3. The MCDData group data request towards each MCDData client contains:
 - i) an emergency indicator if it is present in the received MCDData group data request from the MCDData client 1;
 - ii) an imminent peril indicator if it is present in the received MCDData group data request from the MCDData client 1; and
 - iii) an alert indicator if requested to initiate an emergency alert in the received MCDData group data request from MCDData client 1;
 5. The receiving MCDData clients 2 to n optionally notify the user about the incoming MCDData session data request.
 6. The receiving MCDData client 2 to n accept or reject the MCDData group data request and the corresponding result is in the MCDData group data response towards MCDData server.
 7. MCDData server forwards the MCDData client 2 accepted response to the MCDData user initiating the MCDData session data request.
- NOTE: Step 7 can occur at any time following step 4, and prior to step 8 depending on the conditions to proceed with the data transmission.
8. MCDData client 1 and the MCDData group data request accepted clients have successfully established media plane for data communication and either MCDData client can transmit SDS data. The MCDData data request may contain disposition request if indicated by the client sending data. If the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the SDS data receiving MCDData users may be notified, otherwise those MCDData users shall not be notified.
 9. If MCDData data disposition was requested by the user, then the SDS data receiving MCDData client initiates a MCDData data disposition notification for delivery, read reports to the disposition requesting user. The MCDData data disposition notification from MCDData user may be stored by the MCDData server for disposition history interrogation from authorized users.
 10. Based on the MCDData user action or conditions to release, the established media plane for SDS data exchange is released.

7.4.2.8 One-to-one SDS communication upgrade to an emergency one-to-one SDS communication

7.4.2.8.1 General

This clause is for adding procedures related to upgrading an existing MCDData one-to-one SDS communication to an MCDData emergency one-to-one SDS communication.

7.4.2.8.2 Procedure

The procedure in figure 7.4.2.8.2-1 describes the case where an authorized MCDData user is upgrading an ongoing MCDData one-to-one SDS communication to an MCDData emergency one-to-one SDS communication. This procedure is applicable only when MCDData one-to-one SDS communication is established as described in subclause 7.4.2.3 "One-to-one standalone short data service using media plane" or as described in subclause 7.4.2.4 "One-to-one short data service session".

Pre-conditions:

1. Both members of the MCDData one-to-one SDS communication belong to the same MCDData system.
2. MCDData one-to-one SDS communication is already in progress.

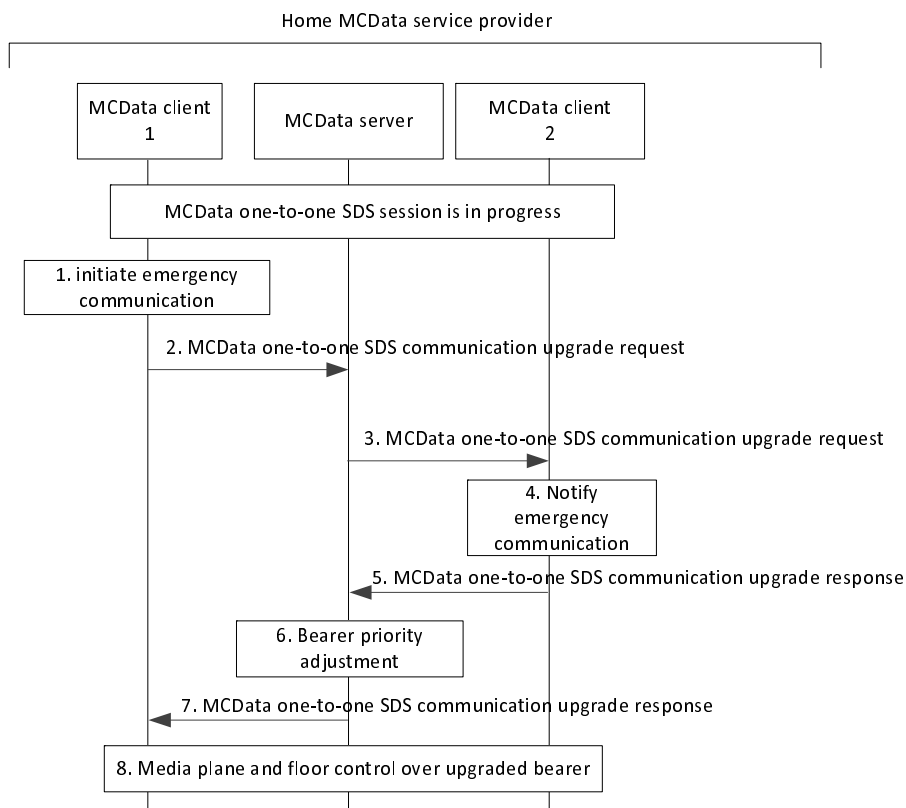


Figure 7.4.2.8.2-1 MCDData one-to-one SDS communication upgraded to MCDData emergency one-to-one SDS communication

1. The MCDData user at MCDData client 1 initiates an emergency. MCDData client 1 sets its MCDData emergency state. The MCDData emergency state is retained until explicitly cancelled.
2. MCDData client 1 requests the MCDData server to upgrade the one-to-one MCDData SDS communication to in-progress emergency by sending a MCDData one-to-one SDS communication upgrade request.

3. The MCDData server sends the MCDData one-to-one SDS communication upgrade request towards the MCDData client of the other participant.
4. The MCDData user is notified of the in-progress emergency of the MCDData emergency one-to-one SDS communication.
5. The receiving MCDData client acknowledges the MCDData one-to-one SDS communication upgrade request and sends MCDData one-to-one SDS communication upgrade response to the MCDData server.
6. The MCDData server adjusts the priority of the underlying bearer for both participants of the MCDData one-to-one SDS communication. The priority is retained until the communication session ends.
7. The MCDData server sends MCDData one-to-one SDS communication upgrade response to MCDData client 1.
8. MCDData client 1 and MCDData client 2 continue with the MCDData one-to-one SDS communication, which has been transformed into an MCDData emergency one-to-one SDS communication.

7.4.2.9 Group SDS communication upgrade to an group emergency SDS communication

7.4.2.9.1 General

This clause is for adding procedures related to upgrading an existing MCDData group SDS communication to an MCDData emergency group SDS communication.

7.4.2.9.2 Procedure

The procedure in figure 7.4.2.9.2-1 describes the case where an authorized MCDData user is upgrading an ongoing MCDData group SDS communication to an MCDData emergency group SDS communication. This procedure is applicable only when group MCDData communication is established as described in subclause 7.4.2.6 "Group standalone short data service using media plane" or as described in subclause 7.4.2.7 "Group short data service session".

NOTE 1: For simplicity, a single MCDData server is shown in place of a user home MCDData server and a group hosting MCDData server.

Pre-conditions:

1. The MCDData group is previously defined on the group management server with MCDData client 1, MCDData client 2 and MCDData client 3 are affiliated to that MCDData group.
2. All members of the MCDData group belong to the same MCDData system.
3. MCDData group SDS communication is already in progress.
4. The initiating MCDData client 1 has been configured to send an MCDData emergency alert when upgrading an MCDData emergency group communication.

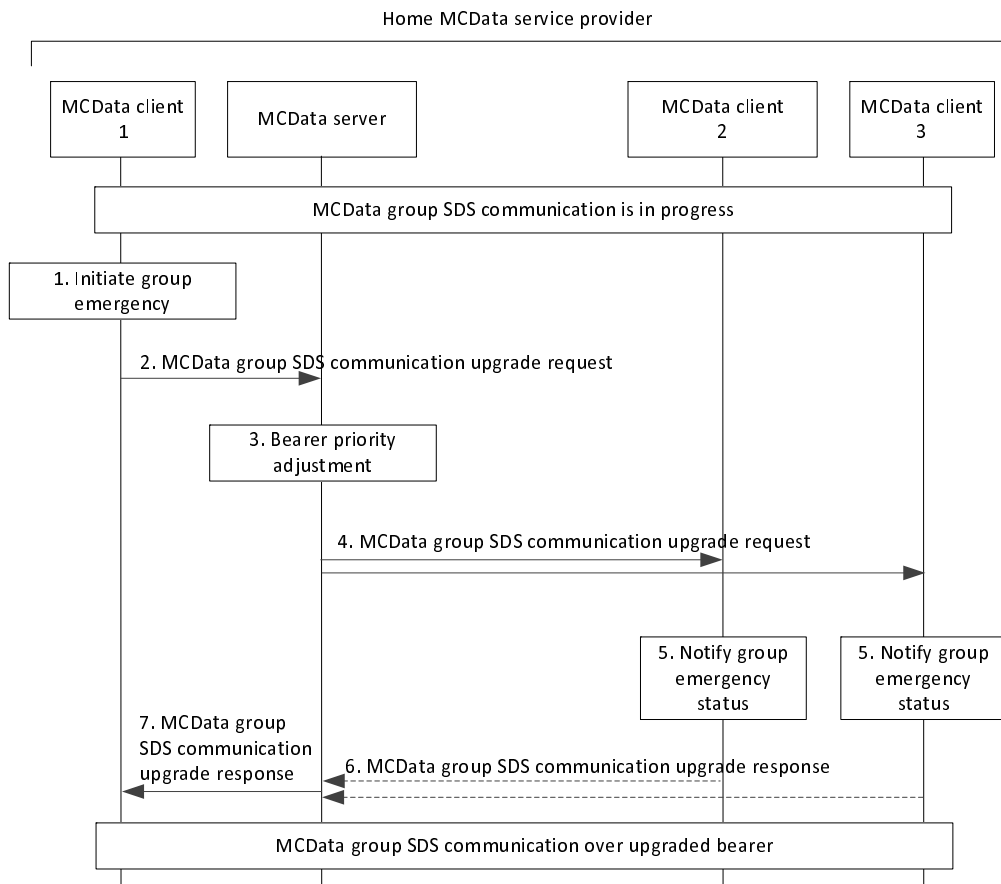


Figure 7.4.2.9.2-1: MCDATA group SDS communication upgraded to MCDATA emergency group SDS communication

1. The MCDATA user at MCDATA client 1 initiates a group emergency. MCDATA client 1 sets its MCDATA emergency state. The MCDATA emergency state is retained until explicitly cancelled.
2. MCDATA client 1 requests the MCDATA server to upgrade the MCDATA group to an in-progress emergency state by sending a MCDATA group SDS communication upgrade request. The MCDATA client 1 sets emergency indicator in the request. If configured to send an MCDATA alert when initiating an MCDATA emergency group SDS upgrade, the request also contains an indication that an MCDATA alert is to be initiated.
3. The MCDATA server adjusts the priority of the underlying bearer for all or selected participants in the MCDATA group SDS communication that receive the communication over unicast.

NOTE 2: The determination of the selected participants whose bearers have to be upgraded is left to implementation.

4. MCDATA server sends the MCDATA group SDS communication upgrade request towards the MCDATA clients of each of those affiliated MCDATA group members. The request contains an indication of an MCDATA emergency alert if the request from the originator indicated MCDATA emergency alert.
5. MCDATA users are notified of the in-progress emergency state of the MCDATA group.
6. The receiving MCDATA clients send the MCDATA group SDS communication upgrade response to the MCDATA server to acknowledge the MCDATA group emergency request. For a multicast call, these acknowledgements are not sent.
7. The MCDATA server sends the MCDATA group SDS communication upgrade response to the MCDATA user 1 to confirm the upgrade request.

NOTE 3: Step 7 can occur at any time following step 3, and prior to step 8 depending on the conditions to proceed with the call.

MCDData client 1, MCDData client 2 and MCDData client 3 continue with the MCDData group SDS communication, which has been transformed into an MCDData emergency group SDS communication.

7.4.2.10 Group SDS communication in-progress emergency group state cancel

7.4.2.10.1 General

This clause is for adding procedures related to MCDData in-progress emergency group state cancel.

7.4.2.10.2 Procedure

The procedure in figure 7.4.2.10.2-1 describes the case where an authorized MCDData user cancels MCDData group's in-progress emergency.

Pre-conditions:

1. The MCDData group is previously defined on the group management server with MCDData client 1, MCDData client 2 and MCDData client 3 affiliated to that MCDData group.
2. All members of the MCDData group belong to the same MCDData system.
3. MCDData group members have been notified about the in-progress emergency.
4. The MCDData group is in the in-progress emergency state and has prioritized bearer support.
5. MCDData client 1 previously initiated the in-progress emergency for the group.

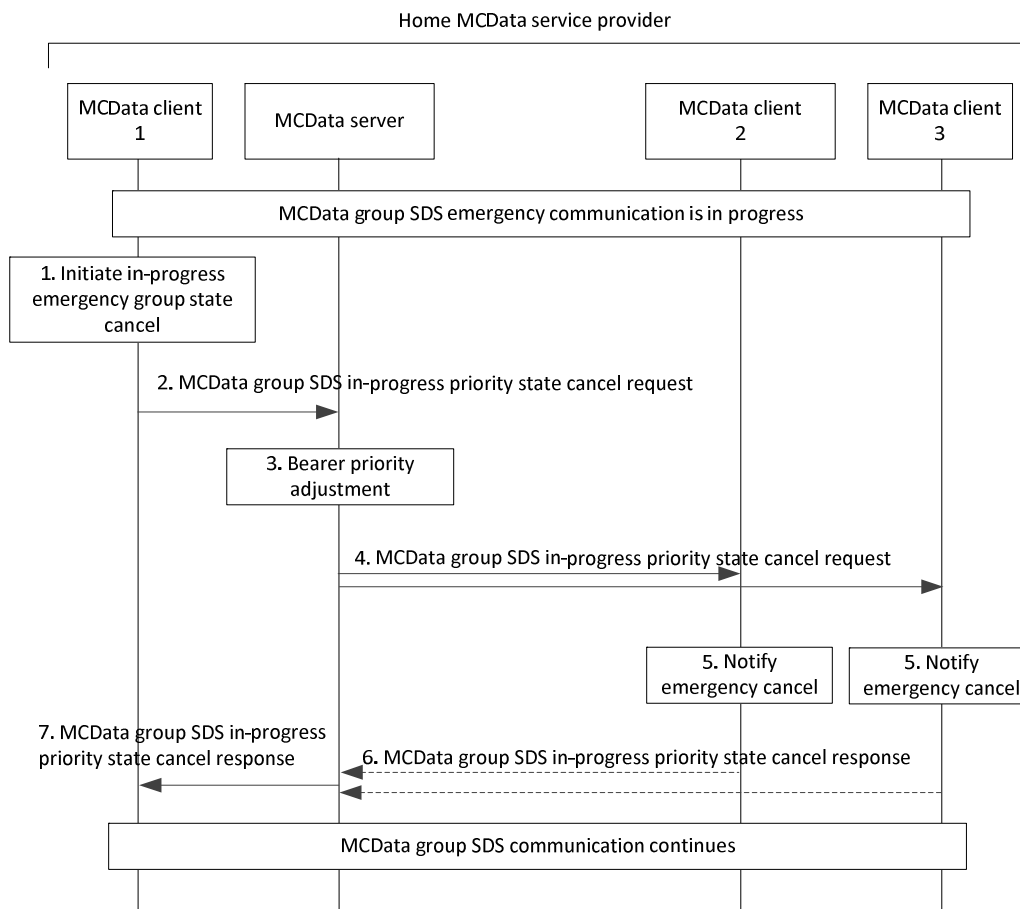


Figure 7.4.2.10.2-1: MCDATA group SDS in-progress emergency group state cancel

1. The user at the MCDATA client 1 initiates an MCDATA group SDS in-progress emergency group state cancel.

NOTE 1: An MCDATA user authorized to cancel in-progress emergencies on the MCDATA group can also be authorised to cancel the MCDATA emergency alert in addition to the initiator. However, only the initiator can cancel the initiator's local MCDATA emergency state.

2. The MCDATA client 1 sends an MCDATA group SDS communication in-progress priority state cancel request to the MCDATA server. The MCDATA client 1 also resets emergency indicator in the request to inform MCDATA server about cancelation of in-progress emergency group state.

NOTE 2: When MCDATA emergency alerts are in effect together with an MCDATA in-progress emergency group state on the same MCDATA group, the MCDATA emergency alert can, under some circumstances be cancelled at the same time. In that case, the MCDATA group SDS in-progress priority group state cancel request carries an indication that the alert is also being cancelled.

3. The MCDATA server adjusts the priority of the underlying bearer; priority treatment is no longer required. The MCDATA server cancels/resets the emergency in-progress state of the MCDATA group.
4. The MCDATA server sends an MCDATA group SDS in-progress priority state cancel request to the MCDATA group members.
5. MCDATA group members are notified of the MCDATA group SDS in-progress emergency state cancel.
6. The receiving MCDATA clients send the MCDATA group SDS in-progress priority state cancel response to the MCDATA server to acknowledge the MCDATA in-progress emergency group state cancel. For a multicast call scenario, these acknowledgements are not sent.

7. The MCDData server sends the MCDData group SDS in-progress priority state cancel response to the MCDData user 1 to confirm the MCDData in-progress emergency group state cancel. If the MCDData in-progress emergency group state cancel request (in step 2) contained the "Alert indicator" IE, the MCDData client 1 resets its local emergency status.

NOTE 3: Step 7 can occur at any time following step 3, depending on the conditions to proceed with the call.

7.4.2.11 Group SDS communication upgrade to an imminent peril group SDS communication

7.4.2.11.1 General

This clause is for adding procedures related to upgrade to an imminent peril group SDS communication.

7.4.2.11.2 Procedure

This procedure is applicable only when group MCDData SDS communication is established as described in subclause 7.4.2.6 "Group standalone short data service using media plane" or as described in subclause 7.4.2.7 "Group short data service session". The MCDData service shall support the procedures and related information flows as specified in subclause 7.4.2.9 "Group SDS communication upgrade to an group SDS emergency communication" with the following clarifications:

- In step 2), The MCDData client 1 set imminent peril indicator; and
- In step 5), MCDData users are notified of the in-progress imminent peril state of the MCDData group.

7.4.2.12 Group SDS communication in-progress imminent peril group state cancel

7.4.2.12.1 General

This clause is for adding procedures related to group SDS communication in-progress imminent peril group state cancel.

7.4.2.12.2 Procedure

The MCDData service shall support the procedures and related information flows as specified in subclause 7.4.2.10 "Group SDS communication in-progress emergency group state cancel" with the following clarifications:

- In step 2), The MCDData client 1 set imminent peril indicator; and
- In step 6), MCDData users are notified of the group SDS communication in-progress imminent peril state cancel.

7.4.3 Short data service for off-network

7.4.3.1 General

7.4.3.2 Information flows for short data service

7.4.3.2.1 MCDData standalone data request

Table 7.4.3.2.1-1 describes the information flow for the MCDData standalone data request sent from the MCDData client to another MCDData client.

Table 7.4.3.2.1-1: MCDData standalone data request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data
MCDData ID	M	The identity of the MCDData user towards which the data is sent
Date and Time	M	Date and time of transmission
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Emergency indicator (see NOTE 1)	O	Indicates that the MCDData communication is an MCDData emergency communication
Payload Destination Type	M	Indicates whether the payload is for application consumption or MCDData client consumption
Application identifier (see NOTE 2)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
Payload	M	SDS content
NOTE 1: This information element shall be included for the MCDData emergency communication.		
NOTE 2: The application identifier shall be included only if the payload destination type indicates that the payload is for application consumption.		

7.4.3.2.2 MCDData data disposition notification

Table 7.4.3.2.2-1 describes the information flow for the MCDData data disposition notification sent from the MCDData client to another MCDData client.

Table 7.4.3.2.2-1: MCDData data disposition notification

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user towards which the notification is sent
MCDData ID	M	The identity of the MCDData user sending notification
Conversation Identifier	M	Identifies the conversation
Reply Identifier	M	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition	M	Disposition which is delivered or read or both
Payload Destination Type	M	Indicates whether the SDS payload is for application consumption or MCDData user consumption

7.4.3.2.3 MCDData group standalone data request

Table 7.4.3.2.3-1 describes the information flow for the MCDData group standalone data request sent from the MCDData client to another MCDData client.

Table 7.4.3.2.3-1: MCDATA group standalone data request

Information element	Status	Description
MCDATA ID	M	The identity of the MCDATA user sending data
MCDATA group ID	M	The MCDATA group ID to which the data is to be sent
Date and Time	M	Date and time of transmission
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDATA transaction
Reply Identifier	O	Identifies the original MCDATA transaction to which the current transaction is a reply to
Disposition Type	O	Indicates the disposition type expected from the receiver (i.e., delivered or read or both)
Emergency indicator (see NOTE 1)	O	Indicates that the MCDATA communication is an MCDATA emergency communication
Imminent peril indicator (see NOTE 1)	O	Indicates that the MCDATA communication is an MCDATA imminent peril communication
Payload Destination Type	M	Indicates whether the payload is for application consumption or MCDATA client consumption
Application identifier (see NOTE 2)	O	Identifies the application for which the payload is intended (e.g. text string, port address, URI)
Payload	M	SDS content
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: The application identifier shall be included only if the payload destination type indicates that the payload is for application consumption.		

7.4.3.3 One-to-one standalone short data service using signalling control plane

7.4.3.3.1 General

This subclause describes the detailed procedures for the scenario where SDS data is to be sent to MCDATA user in off-network.

7.4.3.3.2 Procedure

Figure 7.4.3.3.2-1 describes procedures for an off-network MCDATA client 1 initiating one-to-one MCDATA data communication for sending standalone SDS data to other MCDATA client, with or without disposition request. Standalone refers to sending unidirectional data in one transaction. The SDS data size is assumed to be pre-configured.

Pre-conditions:

1. MCDATA user 1 has initiated communication for sending standalone SDS data to other MCDATA user 2.
2. MCDATA client 1 and MCDATA client 2 are members of the same ProSe Discovery group and are ProSe 1:1 direct communication capable.
3. MCDATA client 1 has discovered MCDATA client 2 in proximity, associated with MCDATA user B, using ProSe Discovery procedures.

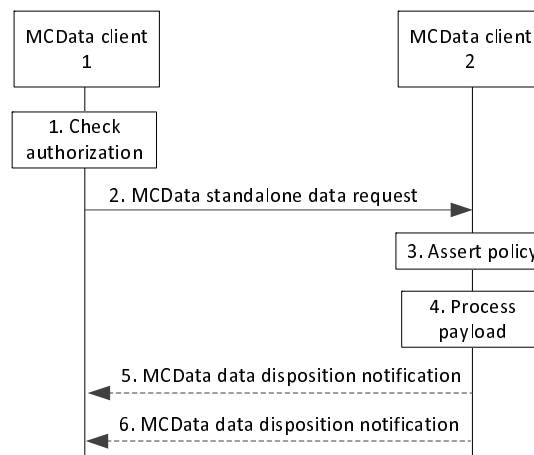


Figure 7.4.3.3.2-1: One-to-one standalone short data service using signalling control plane

1. MCDData client 1 checks whether the MCDData user 1 is authorized to send MCDData standalone data request.
2. If MCDData user 1 is authorised MCDData client 1 sends a MCDData standalone data request towards the MCDData client 2. The MCDData standalone data request contains conversation identifier for message thread indication. The MCDData standalone data request may contain disposition request if indicated by the user at MCDData client 1. If MCDData user at the MCDData client 1 initiates an MCDData emergency communication, then emergency indicator is included in the MCDData standalone data request. If an MCDData emergency state is not set already when MCDData emergency communication is initiated, the MCDData client 1 sets its MCDData emergency state and is retained until explicitly cancelled. The value of ProSe Per Packet Priority is upgraded according to the state of the MCDData communication.
3. On receiving a MCDData standalone data request, the MCDData client 2 checks whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege.
4. If the policy assertion is positive and the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the MCDData user of MCDData client 2 may be notified. Otherwise if the payload is not for MCDData user consumption, then the MCDData user of MCDData client 2 shall not be notified. The action taken when the payload contains application data or command instructions are specific based on the contents of the payload. Payload content received by MCDData client 2 which is addressed to a known local non-MCDData application that is not yet running shall cause the MCDData client 2 to start the local non-MCDData application (i.e., remote start application) and shall pass the payload content to the just started application.

NOTE: If the policy assertion was negative, the MCDData client 2 sends an appropriate notification to MCDData client 1.

5. If the MCDData data disposition for delivery was requested by the user at MCDData client 1, then the receiving MCDData client 2 initiates a MCDData data disposition notification for delivery report.
6. If the MCDData data disposition for read was requested by the user at MCDData client 1, then once the receiving user reads the data, the receiving MCDData client 2 initiates a MCDData data disposition notification for read report.

7.4.3.4 Group standalone short data service using signalling control plane

7.4.3.4.1 General

The initiation of a group standalone SDS to a selected group results in off-network MCDData group members receiving the SDS data.

7.4.3.4.2 Procedure

Figure 7.4.3.4.2-1 describes procedures for an off-network MCDData client 1 initiating group MCDData data communication for sending SDS data to a MCDData group, with or without disposition request. The SDS data size limit is pre-configured.

Pre-conditions:

1. MCDData user 1 has initiated group communication for sending SDS data to the MCDData group.
2. Information for ProSe direct communications corresponding to the MCDData group and its mapping to ProSe Layer-2 Group ID are pre-configured in MCDData client 1.
3. MCDData client 1 to MCDData client N are members of the same MCDData group.

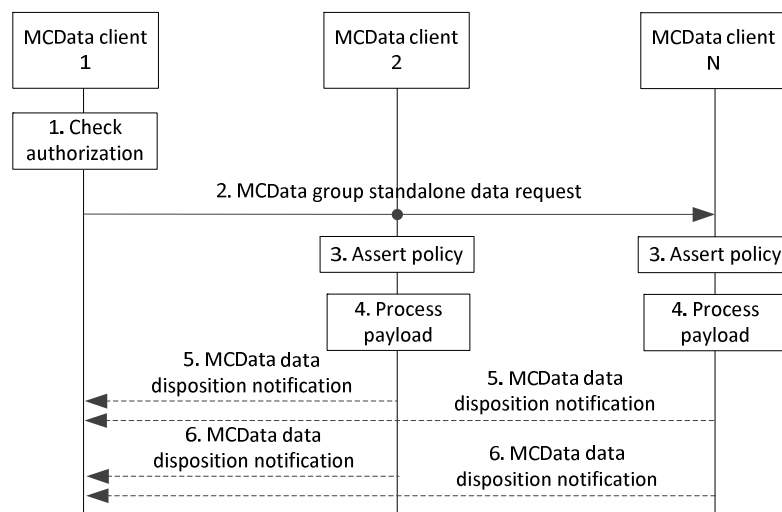


Figure 7.4.3.4.2-1: Group standalone short data service using signalling control plane

1. MCDData client 1 checks whether the MCDData user 1 is authorized to send MCDData group standalone data request.
2. If MCDData user 1 is authorised MCDData client 1 sends a MCDData group standalone data request towards the MCDData group. The MCDData group standalone data request contains conversation identifier for message thread indication. The MCDData group standalone data request may contain disposition request if indicated by the user at MCDData client 1. If MCDData group standalone data request contains disposition request, MCDData group standalone data request shall also contain the IP address of the MCDData client 1. If MCDData user at the MCDData client 1 initiates an MCDData emergency communication, then the emergency indicator or the imminent peril indicator is included in the MCDData standalone data request. If an MCDData emergency state is not set already when MCDData emergency communication is initiated, the MCDData client 1 sets its MCDData emergency state and is retained until explicitly cancelled. The value of ProSe Per Packet Priority is upgraded according to the state of the MCDData communication.
3. On receiving a MCDData group standalone data request, the MCDData clients check whether any policy is to be asserted to limit certain types of message or content to certain members due, for example, to location or user privilege.
4. If the policy assertion is positive and the payload is for MCDData user consumption (e.g. is not application data, is not command instructions, etc.) then the MCDData user may be notified. Otherwise if the payload is not for MCDData user consumption, then the MCDData user shall not be notified. The action taken when the payload contains application data or command instructions are specific based on the contents of the payload. Payload content received by MCDData client 2 which is addressed to a known local non-MCDData application that is not yet running shall cause the MCDData client 2 to start the local non-MCDData application (i.e., remote start application) and shall pass the payload content to the just started application.

NOTE: If the policy assertion was negative, the MCDData client sends an appropriate notification to MCDData client 1.

5. If the MCDData data disposition for delivery was requested by the user at MCDData client 1, then the receiving MCDData clients initiate a MCDData data disposition notification for delivery report.
6. If the MCDData data disposition for read was requested by the user at MCDData client 1, then once the receiving user reads the data, the receiving MCDData client 2 initiates a MCDData data disposition notification for read report.

7.4.3.5 Providing data for a user entering an ongoing MCDData group conversation

7.4.3.5.1 General

The MCDData service shall support mechanisms that allow a MCDData user be presented with the whole content of a group conversation in a group that he is a member of. This includes the content (messages) exchanged before the MCDData user joins the group conversation.

7.4.3.5.2 Procedure

Figure 7.4.3.5.2-1 describes procedures for a MCDData user joins late to a group conversation.

Pre-conditions:

1. The MCDData group is provisioned for lossless communication.
2. All members of the MCDData group have an account created in the MCDData message store.
3. MCDData client 1, MCDData client 2 and MCDData client 3 are members of the same MCDData group,
4. MCDData client 1 and 2 are served by MCDData server 1 and have registered and affiliated to the MCDData group.
5. MCDData client 3 is served by MCDData server 2 and has not affiliated to the MCDData group yet.

NOTE 1: The interactions of MCDData client 1 and MCDData client 2 to MCDData message store are not shown in the figure.

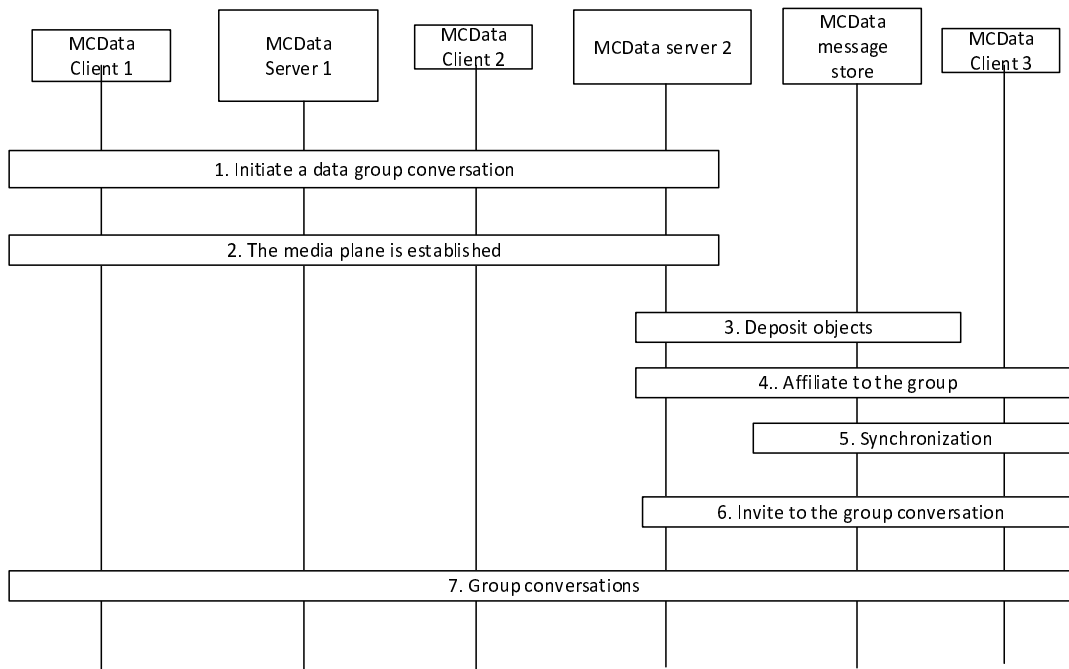


Figure 7.4.3.5.2-1: Providing data for a user entering an ongoing MCDData group conversation

1. A group conversation is initiated according to procedures in subclause 7.4.2.6, and all members of the group are invited into the communication whether affiliated or not. As MCDData user 3 is not affiliated at this time, MCDData server 2 accepts the invitation to the group conversation on behalf of MCDData user 3.

2. The media plane is established for the group conversation. MCDData server 2 is in the media plane to receive the conversation on behalf of MCDData user 3.
3. MCDData server 2 stores the received conversation to MCDData user 3 account in the MCDData message store.

NOTE 2: If the received conversation requests delivery notification the MCDData server 2 will send message delivered to the message sender. If the received conversation requests read notification the MCDData client 3 will send message read to the message sender once it has presented the message to the user.

4. MCDData user 3 is online and using MCDData client 3 to affiliate to the MCDData group.
5. MCDData client 3, through the message store client, synchronizes with the MCDData user 3 account in the MCDData message store.
6. MCDData server 2 invites MCDData client 3 to the MCDData group conversation.
7. MCDData user 3 joins the MCDData group conversation.

7.4.3.6 Group standalone short data service with MCDData message store

7.4.3.6.1 General

A MCDData user's off-network communication needs to be part of his communication history when the MCDData user has an account in the MCDData message store.

7.4.3.6.2 Procedure

Figure 7.4.3.5.2-1 describes procedures of a MCDData user, MCDData user 2, that has an account in MCDData message store and how his off-network SDS group communication is stored in his account in the MCDData message store. All other MCDData clients in the figure follow the procedures described in subclause 7.4.3.4.

Pre-conditions:

1. MCDData user 1 to N are in an off-network group communication.
2. Information for ProSe direct communications corresponding to the MCDData group and its mapping to ProSe Layer-2 Group ID are pre-configured to MCDData client 1 to N.
3. MCDData client 1 to N are members of the same MCDData group.
4. MCDData user 2 has an account in the MCDData message store.

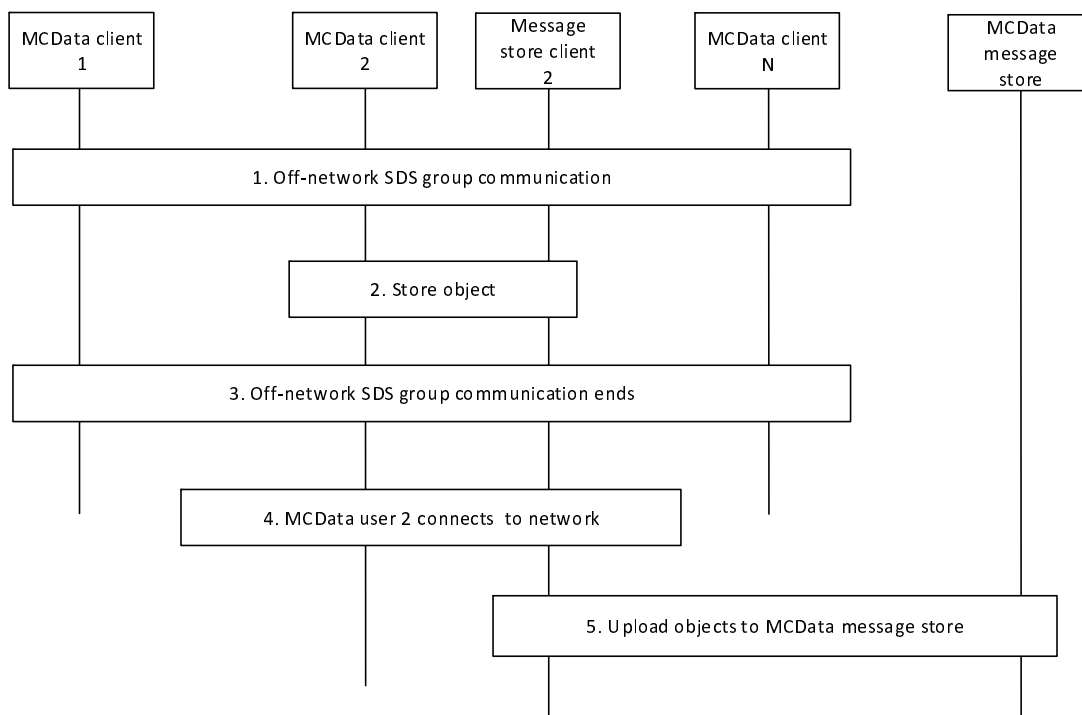


Figure 7.4.3.6.2-1: Group standalone short data service with MCDATA message store

1. MCDATA client 1 to MCDATA client N are in an off-network group communication according to the procedures in subclause 7.4.3.4, SDS are exchanged among all MCDATA clients.
2. If the SDS is for MCDATA user consumption, the SDS is stored in the local message store on the MCDATA UE of MCDATA user 2.

NOTE: A pre-configured folder for off-network communication objects can be provisioned both on the UE and the user account on the MCDATA message store to be used for synchronization.

3. The off-network group communication comes to an end.
4. The MCDATA user 2 connects back to the network.
5. The MCDATA user 2 decides to keep the off-network communication in his account on the MCDATA message store. The message store client 2 uploads the off-network communication objects from the local message store to the MCDATA message store.

7.5 File distribution

7.5.1 General

File distribution (mandatory and non-mandatory download) is enabled for both one-to-one and group.

7.5.2 File distribution for on-network

7.5.2.1 Information flows for file distribution

7.5.2.1.1 MCDATA upload data request

Table 7.5.2.1.1-1 describes the information flow for the MCDATA upload data request sent from the media storage client to the MCDATA content server.

Table 7.5.2.1.1-1: MCDData upload data request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user uploading data
Content	M	Content to upload
Emergency indicator	O	Indicates that the data request is for MCDData emergency communication

7.5.2.1.2 MCDData upload data response

Table 7.5.2.1.2-1 describes the information flow for the MCDData upload data response sent from the MCDData content server to the media storage client.

Table 7.5.2.1.2-1: MCDData upload data response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user requesting to upload data
Upload confirmation	M	An indication whether the upload to the content storage is successful or not
Content reference	O	URL reference of the content stored (see NOTE).
NOTE:	Content reference shall be present when the upload confirmation is successful.	

7.5.2.1.3 MCDData download data request

Table 7.5.2.1.3-1 describes the information flow for the MCDData download data request sent from the MCDData media storage client to the MCDData content server.

Table 7.5.2.1.3-1: MCDData download data request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user downloading data
Content reference	M	URL reference to the content to download
Emergency indicator	O	Indicates that the data request is for MCDData emergency communication

Editor's note: it is FFS how the media storage client requests a file repair and indicates the missing data.

7.5.2.1.4 MCDData download data response

Table 7.5.2.1.4-1 describes the information flow for the MCDData download data response sent from the MCDData content server to the media storage client.

Table 7.5.2.1.4-1: MCDData download data response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user requesting to download data
Content (see NOTE)	O	Requested content to download
Result	M	Indicates success or failure of MCDData download data request
NOTE:	Content shall be present when the result of the MCDData download data request indicates success.	

Editor's note: it is FFS how the content sever indicates a full file download versus a patch file to be used in a repair.

7.5.2.1.5 MCDData FD request (using HTTP)

Table 7.5.2.1.5-1 describes the information flow for the MCDData FD request (in subclause 7.5.2.4.2) sent from the MCDData client to the MCDData server, from the MCDData server to another MCDData client and from an MCDData server to a partner MCDData server.

Table 7.5.2.1.5-1: MCDData FD request (using HTTP)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending file
Functional alias	O	The functional alias associated with MCDData user sending the file.
MCDData ID	M	The identity of the MCDData user receiving file
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition indication	O	Indicates whether file download completed reported is expected or not
Download indication	O	Indicates mandatory download
Content reference	M	URL reference to the content and file metadata information
Emergency indicator	O	Indicates that the data request is for MCDData emergency communication

7.5.2.1.6 MCDData FD response (using HTTP)

Table 7.5.2.1.6-1 describes the information flow for the MCDData FD response (in subclause 7.5.2.4.2) sent from the MCDData client to the MCDData server, from the MCDData server to another MCDData client and from an MCDData server to a partner MCDData server.

Table 7.5.2.1.6-1: MCDData FD response (using HTTP)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation

7.5.2.1.7 MCDData download completed report

Table 7.5.2.1.7-1 describes the information flow for the MCDData download completed report sent from the MCDData client to the MCDData server, from the MCDData server to another MCDData client and from an MCDData server to a partner MCDData server.

Table 7.5.2.1.7-1: MCDData download completed report

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	M	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition confirmation	M	An indication that the client has completed downloading file

7.5.2.1.8 MCDData FD request (using media plane)

Table 7.5.2.1.8-1 describes the information flow for the MCDData FD request (in subclause 7.5.2.5.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.8-1: MCDData FD request (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending file
Functional alias	O	The functional alias associated with MCDData user sending the file.
MCDData ID	M	The identity of the MCDData user receiving file
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition indication	O	Indicates whether file download completed reported is expected or not
Download indication	O	Indicates mandatory download. (i.e. auto accept this media plane setup request)
SDP offer	M	Media parameters offered
Content reference	M	URL reference to the content and file metadata information
Requested priority	O	Application priority level requested for this communication session
Emergency indicator	O	Indicates that the data request is for MCDData emergency communication

7.5.2.1.9 MCDData FD response (using media plane)

Table 7.5.2.1.9-1 describes the information flow for the MCDData FD response (in subclause 7.5.2.5.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.9-1: MCDData FD response (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected

7.5.2.1.10 MCDData group standalone FD request (using HTTP)

Table 7.5.2.1.10-1 describes the information flow for the MCDData group standalone FD request (in subclause 7.5.2.6.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.10-1: MCDData group standalone FD request (using HTTP)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending file
Functional alias	O	The functional alias associated with MCDData user sending the file.
MCDData group ID	M	The MCDData group ID to which the file is to be sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition indication	O	Indicates whether file download completed reported is expected or not
Download indication	O	Indicates mandatory download
Content reference	M	URL reference to the content and file metadata information
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		

7.5.2.1.11 MCDData group standalone FD response (using HTTP or MBMS download delivery method)

Table 7.5.2.1.11-1 describes the information flow for the MCDData group standalone FD response (in subclause 7.5.2.6.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.11-1: MCDData group standalone FD response (using HTTP)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData group ID	M	The MCDData group ID to which the file is to be sent
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation

7.5.2.1.12 MCDData group standalone FD request (using media plane)

Table 7.5.2.1.12-1 describes the information flow for the MCDData group standalone FD request (in subclause 7.5.2.7.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.12-1: MCDData group standalone FD request (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending file
Functional alias	O	The functional alias associated with MCDData user sending the file.
MCDData group ID	M	The MCDData group ID to which the data is to be sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition indication	O	Indicates whether file download completed reported is expected or not
Download indication	O	Indicates mandatory download. (i.e. auto accept this media plane setup request)
SDP offer	M	Media parameters offered
Content reference	M	URL reference to the content and file metadata information
Requested priority	O	Application priority level requested for this communication session
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		

7.5.2.1.13 MCDData group standalone FD response (using media plane)

Table 7.5.2.1.13-1 describes the information flow for the MCDData group standalone FD response (in subclause 7.5.2.7.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.13-1: MCDData group standalone FD response (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData group ID	M	The MCDData group ID to which the file is to be sent
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected

7.5.2.1.14 MCDData remove file request by user

Table 7.5.2.1.14-1 describes the information flow for the MCDData remove file request by user sent from the media storage client to the media storage function of the MCDData content server, and from the MCDData content server to another MCDData content server in a partner MCDData system.

Table 7.5.2.1.14-1: MCDData remove file request by user

Information element	Status	Description
MCDData ID (see NOTE 1)	O	The identity of the MCDData user removing file
Partner MCDData system identity (see NOTE 2)	O	The identity of the partner MCDData system where the file has also been downloaded
Content reference	M	URL of the content to be removed

NOTE 1: The identity of the MCDData user removing the file is present when sent from MCDData client to MCDData content server

NOTE 2: The identity of the partner MCDData system is present when sent from MCDData content server to MCDData content server.

7.5.2.1.15 MCDData remove file response by user

Table 7.5.2.1.15-1 describes the information flow for the MCDData remove file response by user sent from the media storage function of the MCDData content server to the media storage client, and from the MCDData content server to another MCDData content server in a partner MCDData system.

Table 7.5.2.1.15-1: MCDData remove file response by user

Information element	Status	Description
MCDData ID (see NOTE 1)	O	The identity of the MCDData user removing file
Partner MCDData system identity (see NOTE 2)	O	The identity of the partner MCDData system where the file has also been downloaded
Result	M	Indicates the success or failure of the file removal
NOTE 1: The identity of the MCDData user removing the file is present when sent from MCDData content server to MCDData client		
NOTE 2: The identity of the partner MCDData system is present when sent from MCDData content server to MCDData content server.		

7.5.2.1.16 Void

7.5.2.1.17 Void

7.5.2.1.18 MCDData remove file notify

Table 7.5.2.1.18-1 describes the information flow for the MCDData remove file notify sent from the MCDData server to the MCDData client that the shared file has been removed.

Table 7.5.2.1.18-1: MCDData remove file notify

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user uploaded the file
Content reference	M	URL of the content that has been removed
Reason	O	The reason the file is removed

7.5.2.1.19 MCDData file retrieve request

Table 7.5.2.1.19-1 describes the information flow for the MCDData file retrieve request sent from an MCDData content server in a partner MCDData system to an MCDData content server in the primary MCDData system of the source of the content.

Table 7.5.2.1.19-1: MCDData file retrieve request

Information element	Status	Description
Content reference	M	URL reference to the content to download

7.5.2.1.20 MCDData file retrieve response

Table 7.5.2.1.20-1 describes the information flow for the MCDData file retrieve response sent from the MCDData content server in the primary MCDData system of the source of the content to an MCDData content server in a partner MCDData system.

Table 7.5.2.1.20-1: MCDData file retrieve response

Information element	Status	Description
Content (see NOTE)	O	Requested content to download
Result	M	Indicates success or failure of MCDData download data request
NOTE: Content shall be present when the result of the MCDData file retrieve request indicates success.		

7.5.2.1.21 MCDData group standalone FD over MBMS request

Table 7.5.2.1.21-1 describes the information flow for the MCDData group standalone FD request (in subclause 7.5.2.6.2) sent from from the MCDData server to another MCDData client.

Table 7.5.2.1.21-1: MCDData group standalone FD over MBMS request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending file
MCDData group ID	M	The MCDData group ID to which the file is to be sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition indication	O	Indicates whether file download completed reported is expected or not
Download indication	M	Indicates mandatory download
Content reference	M	URL reference to the content and file metadata information
MBMS user service id	M	Id of the MBMS user service delivering the file
MBMS content URI	M	URI upon which the content is delivered in the MBMS user service

7.5.2.1.22 MCDData one-to-one FD upgrade request

Table 7.5.2.1.22-1 describes the information flow for the MCDData one-to-one FD upgrade request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.22-1: MCDData one-to-one FD upgrade request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identity of the MCDData user receiving data (when initiated by MCDData server).
Functional alias	O	The associated functional alias of the MCDData user sending data or receiving data.
Conversation Identifier	M	Identifies the conversation
Emergency indicator	M	Indicates that the data request is for MCDData emergency communication

7.5.2.1.23 MCDData one-to-one FD upgrade response

Table 7.5.2.1.23-1 describes the information flow for the MCDData one-to-one FD upgrade response sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.23-1: MCDData one-to-one FD upgrade response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identity of the MCDData user receiving data (when initiated by MCDData server).
Conversation Identifier	M	Identifies the conversation

7.5.2.1.24 MCDData group FD upgrade request

Table 7.5.2.1.24-1 describes the information flow for the MCDData group FD upgrade request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.24-1: MCDData group FD upgrade request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identify of the MCDData user receiving data (when initiated by MCDData server).
Functional alias	O	The associated functional alias of the MCDData user sending data or receiving data.
MCDData group ID	M	The MCDData group ID on which the emergency upgrade request is made
Conversation Identifier	M	Identifies the conversation
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		

7.5.2.1.25 MCDData group FD upgrade response

Table 7.5.2.1.25-1 describes the information flow for the MCDData group FD upgrade response sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.25-1: MCDData group FD upgrade response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending data (when initiated by MCDData client); The identify of the MCDData user receiving data (when initiated by MCDData server).
MCDData group ID	M	The MCDData group ID on which the emergency upgrade request is made
Conversation Identifier	M	Identifies the conversation

7.5.2.1.26 MCDData group FD in-progress priority state cancel request

Table 7.5.2.1.26-1 describes the information for the MCDData group FD in-progress priority state cancel request sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.5.2.1.26-1: MCDData group FD in-progress priority state cancel request information elements

Information Element	Status	Description
MCDData ID	M	The identity of the cancelling party
MCDData group ID	M	The MCDData group ID on which the MCDData in-progress emergency state is to be cancelled.
Emergency indicator (see NOTE 1)	O	Indicates that the data request is for MCDData emergency communication
Alert indicator (see NOTE 2)	O	Indicates whether an emergency alert is to be sent
Imminent peril indicator (see NOTE 1)	O	Indicates that the data request is for MCDData imminent peril communication
Conversation Identifier	M	Identifies the conversation
NOTE 1: If used, only one of these information elements shall be present.		
NOTE 2: This information element may be present only when Emergency indicator is present.		

7.5.2.1.27 MCDData group FD in-progress priority state cancel response

Table 7.5.2.1.27-1 describes the information flow for the MCDData group FD in-progress priority state cancel response sent from the MCDData server to the MCDData client.

Table 7.5.2.1.27-1: MCDData group FD in-progress priority state cancel response information elements

Information Element	Status	Description
MCDData ID	M	The identity of the cancelling party
MCDData group ID	M	The MCDData group ID on which the MCDData in-progress emergency in-progress is to be cancelled.
Conversation Identifier	M	Identifies the conversation

7.5.2.2 File upload using HTTP

7.5.2.2.1 General

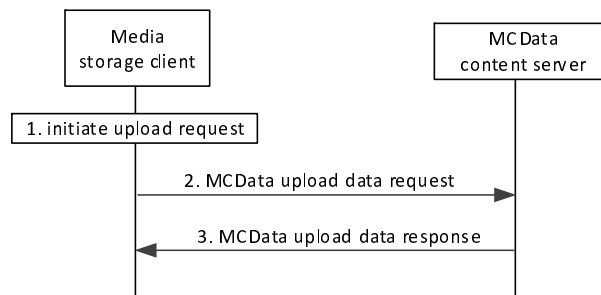
The media storage client uses HTTP for a standalone data file upload towards the MCDData content server.

7.5.2.2.2 Procedure

The procedure in figure 7.5.2.2.2-1 describes the case where an MCDData user is uploading a file to media storage function on the MCDData content server.

Pre-conditions:

1. The MCDData user on the media storage client is registered for receiving MCDData service.
2. The MCDData content server has the ability to verify if the requesting MCDData user is authorised to upload.

**Figure 7.5.2.2.2-1: File upload using HTTP**

1. The user at the media storage client initiates a file upload request of the chosen file. If MCDData emergency state is already set for the media storage client (due to previously triggered MCDData emergency alert), the media storage client sets emergency indicator in the request. The media storage client verifies that the size of the file is within the maximum data size for FD for the intended MCDData FD request (by checking the group configuration for a group FD request and by checking the service configuration for a one-to-one FD request).
2. The file to be uploaded is received by the media storage client and sent to the media storage function on the MCDData content server for storing using the MCDData upload data request.
3. The MCDData content server may apply transmission control policy before storage and provides a MCDData upload data response indicating success (along with file URL to the media storage client) or failure.

7.5.2.3 File download using HTTP

7.5.2.3.1 General

The media storage client uses HTTP for a standalone data file download from the MCDData content server.

7.5.2.3.2 Procedure

The procedure in figure 7.5.2.3.2-1 describes the case where an MCDData user is downloading a file from the media storage function of the MCDData content server.

Pre-conditions:

1. The MCDData user on the media storage client is registered for receiving MCDData service.

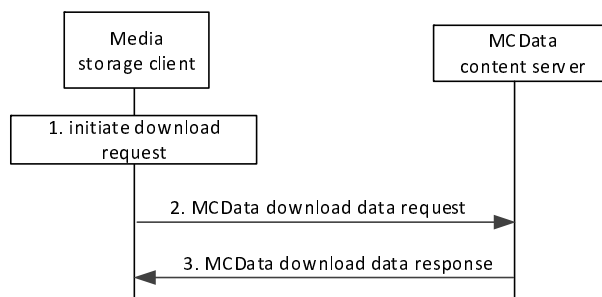


Figure 7.5.2.3.2-1: File download using HTTP

1. The user at the media storage client initiates a file download request available at the indicated URL.
2. The file available at the URL (received in MCDData FD request or MCDData group standalone FD request) is requested to be downloaded by the media storage client from the media storage function on the MCDData content server using a MCDData download data request. If emergency indicator is set in received in MCDData FD request or MCDData group standalone FD request, the media storage client sets emergency indicator in MCDData download data request.

NOTE: the Media storage client can perform partial download requests to complete the missing parts after an incomplete transmission.

3. The media storage function on the MCDData content server may apply reception control policy and provides a MCDData download data response including the file to the media storage client.

7.5.2.4 One-to-one file distribution using HTTP

7.5.2.4.1 General

The MCDData client uses HTTP file distribution to download a file that is uploaded by another MCDData client. The procedure is appropriate for both mandatory and non-mandatory download cases.

7.5.2.4.2 Procedure for single MCDData system

The procedure in figure 7.5.2.4.2-1 describes the case where a MCDData user is initiating one-to-one data communication for sending file to the other MCDData user, with or without download completed report request.

Pre-conditions:

1. The MCDData users on the MCDData client 1 and the MCDData client 2 are already registered for receiving MCDData service.
2. File to be distributed is uploaded to media storage function on MCDData content server using the procedures defined in subclause 7.5.2.2.
3. Optionally, the MCDData client may have activated functional alias to be used.
4. The MCDData server has subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

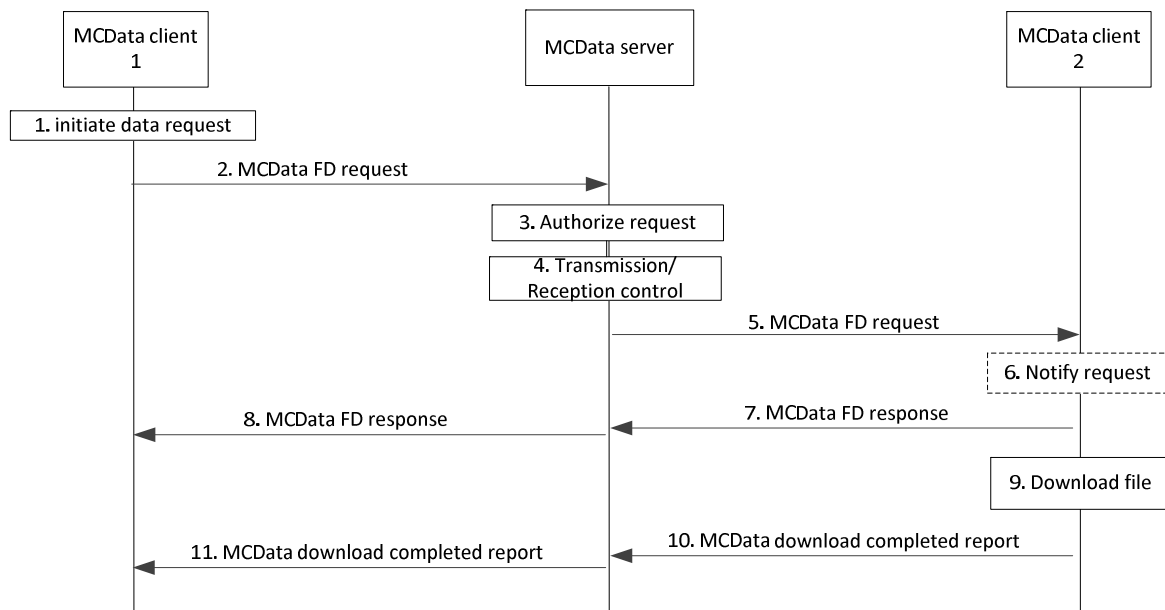


Figure 7.5.2.4.2-1: One-to-one file distribution using HTTP

1. The user at the MCData client 1 initiates a file distribution request to the chosen MCData user.
2. The MCData client 1 sends a MCData FD request towards the MCData server. The MCData FD request contains content payload in the form of file URL and may contain the file metadata information. The MCData FD request contains one MCData user for one-to-one data communication as selected by the user at MCData client 1. The MCData FD request contains conversation identifier for message thread indication. If MCData user at MCData client 1 has requested to mandatory download at the recipient side, then MCData FD request contains mandatory download indication. The MCData FD request may contain download completed report indication if selected by the user at MCData client 1. MCData user at MCData client 1 may include a functional alias within the FD data transfer.
 - a) If the MCData user at the MCData client 1 initiates an MCData emergency file distribution using HTTP or MCData emergency state is already set for the MCData client 1 (due to previously triggered MCData emergency alert):
 - i) The MCData FD request shall contain emergency indicator; and
 - ii) If MCData emergency state is not set already, MCData client 1 sets its MCData emergency state. The MCData emergency state is retained until explicitly cancelled.
3. MCData server checks whether the MCData user at MCData client 1 is authorized to send MCData FD request and that the size of the file is below maximum data size for FD from the service configuration. MCData server verifies whether the provided functional alias, if present, can be used and has been activated for the user.
4. The MCData server also applies transmission and reception control and the necessary policy control to ensure that appropriate data is transmitted between the MCData users.
5. MCData server initiates the MCData FD request towards the MCData user. The MCData FD request towards the MCData user contains an emergency indicator if it is present in the received MCData FD request from MCData client 1.
6. The receiving MCData client 2 notifies the user about the incoming MCData FD request (including file metadata, if present) which may be either accepted or rejected or ignored.
7. MCData user 2 may provide a response (accept or reject) or not (ignore) to the notification, then MCData client 2 sends the MCData FD response to the MCData server. MCData client 2 automatically sends accepted MCData FD response when the incoming request includes mandatory download indication.
8. The MCData server forwards the MCData FD response to the MCData client 1.

9. Media storage client of MCDData client 2 downloads the file using the procedures defined in subclause 7.5.2.3, either automatically (for mandatory download) or based upon the MCDData user 2 subsequent action. The MCDData client 2 records file download completed and notifies MCDData user 2.
10. MCDData client 2 initiates a MCDData download completed report for reporting file download completed, if requested by the user at MCDData client 1.
11. The MCDData file download completed report from MCDData user may be stored by the MCDData server for download history interrogation from the authorized MCDData users. MCDData download completed report is sent by the MCDData server to the MCDData user at MCDData client 1.

7.5.2.4.3 Procedure with interconnection between MCDData systems

The procedure in figure 7.5.2.4.3-1 describes the case where a MCDData user initiates a one-to-one data communication for sending a file to another MCDData user where that other MCDData user is receiving MCDData service on a partner MCDData system, and where interconnection is in use between the two MCDData systems. In this procedure, the file has not previously been downloaded in the partner MC system.

Pre-conditions:

1. The MCDData users on the MCDData client 1 and the MCDData client 2 are already service authorized and receiving MCDData service. MCDData client 1 is receiving service on its primary MCDData system, and MCDData client 2 is receiving MCDData service in the partner MCDData system of MCDData client 1.
2. The file to be distributed has been uploaded to the media storage function on the MCDData content server in the primary MCDData system of MCDData client 1 using the procedures defined in subclause 7.5.2.2.
3. There is a service agreement between the primary and partner MCDData systems to allow files to be shared between MCDData content servers in the two systems.

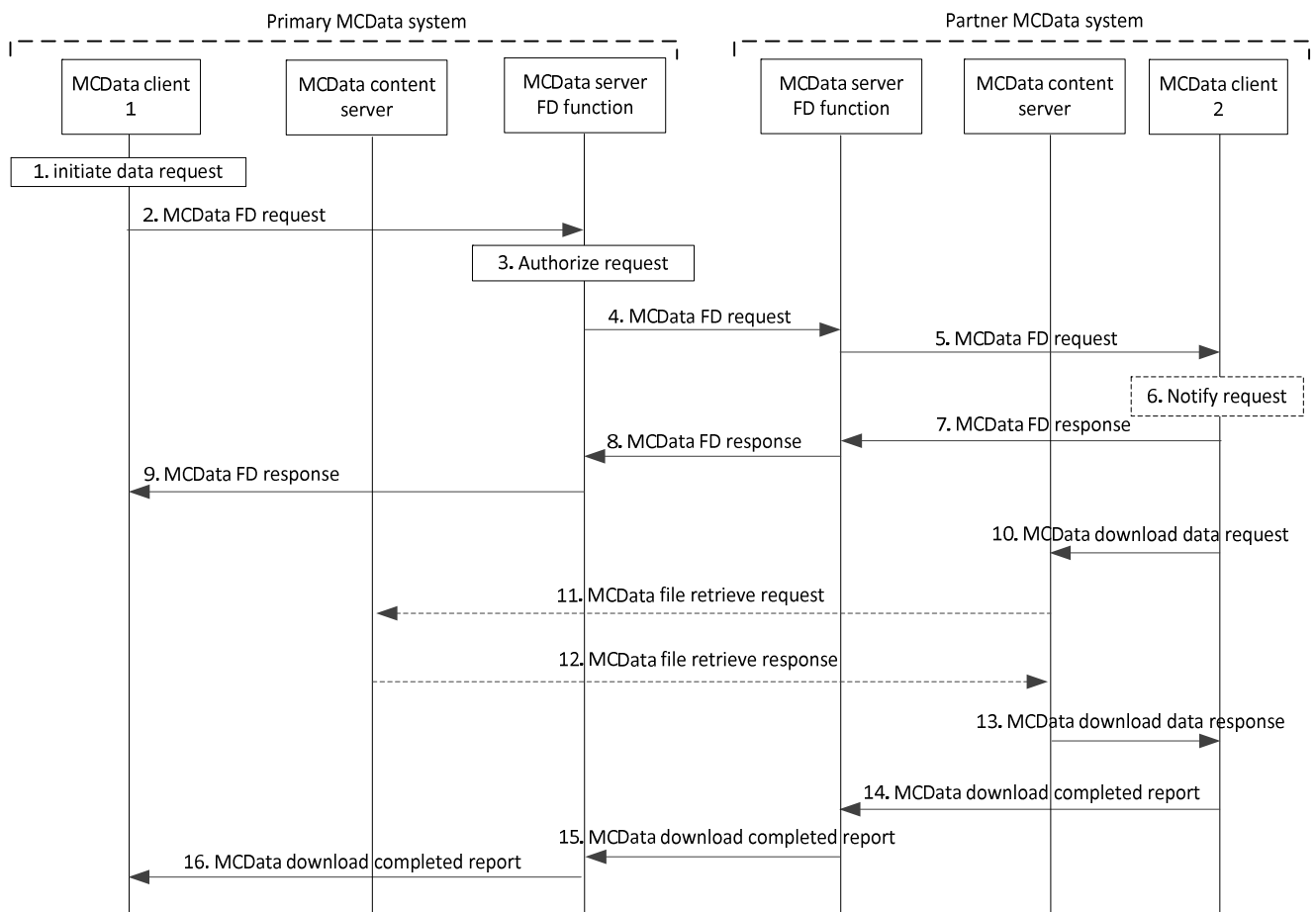


Figure 7.5.2.4.3-1: One-to-one file distribution using HTTP with interconnection

1. The user at the MCDATA client 1 initiates a file distribution request to the MCDATA user at MCDATA client 2.
2. MCDATA client 1 sends an MCDATA FD request towards the primary MCDATA server. The MCDATA FD request contains content payload in the form of a file URL with the necessary access authorization information and may contain the file metadata information. The MCDATA FD request indicates the target MCDATA user for the one-to-one data communication. The MCDATA FD request contains a conversation identifier for message thread indication. If the MCDATA user at MCDATA client 1 has requested to mandatory download at the recipient side, then the MCDATA FD request contains the mandatory download indication. The MCDATA FD request may contain a request for a download completed report indication if selected by the user at MCDATA client 1.
3. MCDATA server checks whether the MCDATA user at MCDATA client 1 is authorized to send the MCDATA FD request and that the size of the file is below maximum data size for FD from the service configuration.
4. The MCDATA server in the primary MCDATA system initiates the MCDATA FD request towards the MCDATA server in the partner MCDATA system, which contains the URL of the file which is stored in the primary MCDATA content server. The request includes the necessary access authorization information as MCDATA client 2 will retrieve the file while receiving service in the partner MCDATA system.

NOTE 1: The contents of and mechanisms to use the authorization information are outside the scope of the present document.

5. The partner MCDATA server sends the MCDATA FD request to MCDATA client 2. The file URL being provided in MCDATA FD request to MCDATA client 2 is prepended with server URI of the partner MCDATA content server, such that the URL identifies a file location in the partner MCDATA content server.

6. The receiving MCDData client 2 may notify the user about the incoming MCDData FD request (including file metadata, if present) which may be either accepted, rejected or ignored.
7. MCDData user 2 may provide a response (accept or reject) or not (ignore) to the notification, then MCDData client 2 sends the MCDData FD response to the partner MCDData server. MCDData client 2 automatically sends an accepted MCDData FD response when the incoming request includes mandatory download indication.
8. The partner MCDData server forwards the MCDData FD response to the MCDData server in the primary MCDData system.
9. The primary MCDData server forwards the MCDData FD response to MCDData client 1.
10. MCDData client 2 requests the file from the partner MCDData content server.

NOTE 2: Step 10 may occur any time after step 7, before or after steps 8 and 9.

11. The partner MCDData content server checks whether the file is stored locally, and if this is not the case, sends an MCDData file retrieve request to the primary MCDData content server. The MCDData file retrieve request contains the URL of the file location in the primary MCDData system, generated by removing the prepended local path from the requested URL.

NOTE 3: The means of proving authorization for the request is outside the scope of the present document.

12. The primary MCDData content server responds to the partner MCDData content server with an MCDData file retrieve response which contains the content of the file to be retrieved. File metadata may include the lifetime of the file. The primary MCDData content server records that the file has been sent to the indicated partner MCDData system.

NOTE 4: The partner MCDData content server may store the local copy of the file in case future requests arise until the expiry time sent from the primary MCDData system for the file is reached or until a request is received to delete the file.

13. The partner MCDData content server sends the file to MCDData client 2 in the MCDData download data response. MCDData client 2 records file download completed and notifies MCDData user 2.
14. MCDData client 2 initiates an MCDData download complete report for reporting file download completed, if this was requested by the user at MCDData client 1 in the initial MCDData FD request.
15. The MCDData download complete report is sent to the primary MCDData server. The partner MCDData server may store the download complete report for download history interrogation from authorized MCDData users in the partner MCDData system.
16. The MCDData download completed report is sent by the primary MCDData server to the MCDData user at MCDData client 1. The MCDData file download completed report from MCDData user may be stored by the primary MCDData server for download history interrogation from authorized MCDData users in the primary MCDData system.

7.5.2.5 One-to-one file distribution using media plane

7.5.2.5.1 General

The MCDData client uses the media plane for a standalone data file download from another MCDData client. The procedure is appropriate for mandatory download case.

7.5.2.5.2 Procedure

The procedure in figure 7.5.2.5.2-1 describes the case where an MCDData user is initiating one-to-one data communication for sending file to the other MCDData user, with or without download completed report request.

Pre-conditions:

1. The MCDData users on the MCDData client 1 and the MCDData client 2 are already registered for receiving MCDData service.
2. Optionally, the MCDData client may have an activated functional alias to be used.

3. The MCDData server has subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

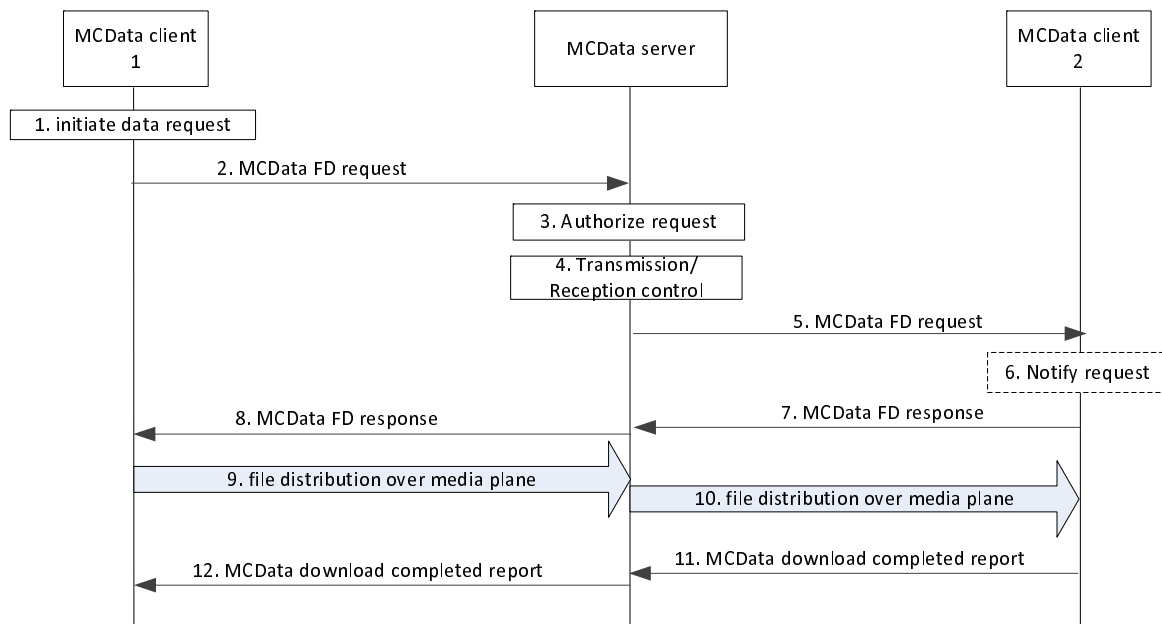


Figure 7.5.2.5.2-1: One-to-one file distribution using media plane

1. The user at the MCDData client 1 initiates a file distribution request to the chosen MCDData user.
2. MCDData client 1 sends a MCDData FD request towards the MCDData server. The MCDData FD request may contain the file metadata information. The MCDData FD request contains one MCDData user for one-to-one data communication as selected by the user at MCDData client 1. The MCDData FD request contains conversation identifier for message thread indication. MCDData FD request may contain mandatory download indication. The MCDData FD request may contain download completed report indication if selected by the user at MCDData client 1. MCDData user at MCDData client 1 may include a functional alias within the FD data transfer.
 - a) If the MCDData user at the MCDData client 1 initiates an MCDData emergency file distribution communication or MCDData emergency state is already set for the MCDData client 1 (due to previously triggered MCDData emergency alert):
 - i) The MCDData FD request shall contain emergency indicator; and
 - ii) If MCDData emergency state is not set already, MCDData client 1 sets its MCDData emergency state. The MCDData emergency state is retained until explicitly cancelled.
3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData FD request. MCDData server verifies whether the provided functional alias, if present, can be used and has been activated for the user.
4. The MCDData server also applies transmission and reception control and the necessary policy to ensure that appropriate data is transmitted between the MCDData UEs.
5. MCDData server initiates the MCDData FD request towards the MCDData user. The MCDData FD request towards the MCDData user contains the emergency indicator if it is present in the received MCDData FD request from MCDData client 1.
6. The receiving MCDData client 2 notifies the user about the incoming MCDData FD request (including file metadata, if present) which may be either accepted or rejected or ignored. If the request includes mandatory download indication in the MCDData FD request an accepted response is assumed.
7. If the target MCDData user 2 provides a response (accept or reject) to the notification, then the MCDData client 2 sends the MCDData FD response to the MCDData server. MCDData client 2 automatically sends accepted MCDData FD response when the incoming request included mandatory download indication.

8. MCDATA server forwards the MCDATA FD response from MCDATA client 2 back to MCDATA client 1.
9. MCDATA client 1 distributes the file over the established media plane to MCDATA server.
10. MCDATA server distributes the file received from MCDATA client 1 to MCDATA client 2 over the established media plane. File download report is shared by the MCDATA client 2, if requested by the user at MCDATA client 1. After file transaction is completed, the media plane is released. The MCDATA client 2 records file download completed and notifies MCDATA user 2.

NOTE: MCDATA server is not required to wait for the complete download of file from MCDATA client 1 prior to initiating file distribution to MCDATA client 2.

11. MCDATA client 2 initiates a MCDATA download completed report for reporting file download completed, if requested by the user at MCDATA client 1.
12. The MCDATA file download completed report from MCDATA client may be stored by the MCDATA server for download history interrogation from the authorized MCDATA users. MCDATA download completed report is sent by the MCDATA server to the user at MCDATA client 1.

7.5.2.6 Group standalone file distribution using HTTP

7.5.2.6.1 General

The initiation of a group standalone FD using HTTP to a selected group, results in affiliated group members receiving the file data.

7.5.2.6.2 Procedure

The procedure in figure 7.5.2.6.2-1 describes the case where a MCDATA user is initiating group standalone data communication for sending file to multiple MCDATA users, with or without download completed report request.

Pre-conditions:

1. The MCDATA users on the MCDATA client 1 to n belong to the same group and are already registered for receiving MCDATA service and affiliated.
2. File to be distributed is uploaded to media storage function on MCDATA content server using the procedures defined in subclause 7.5.2.2.
3. Optionally, the MCDATA client may have an activated functional alias to be used.
4. The MCDATA server has subscribed to the MCDATA functional alias controlling server within the MC system for functional alias activation/de-activation updates.

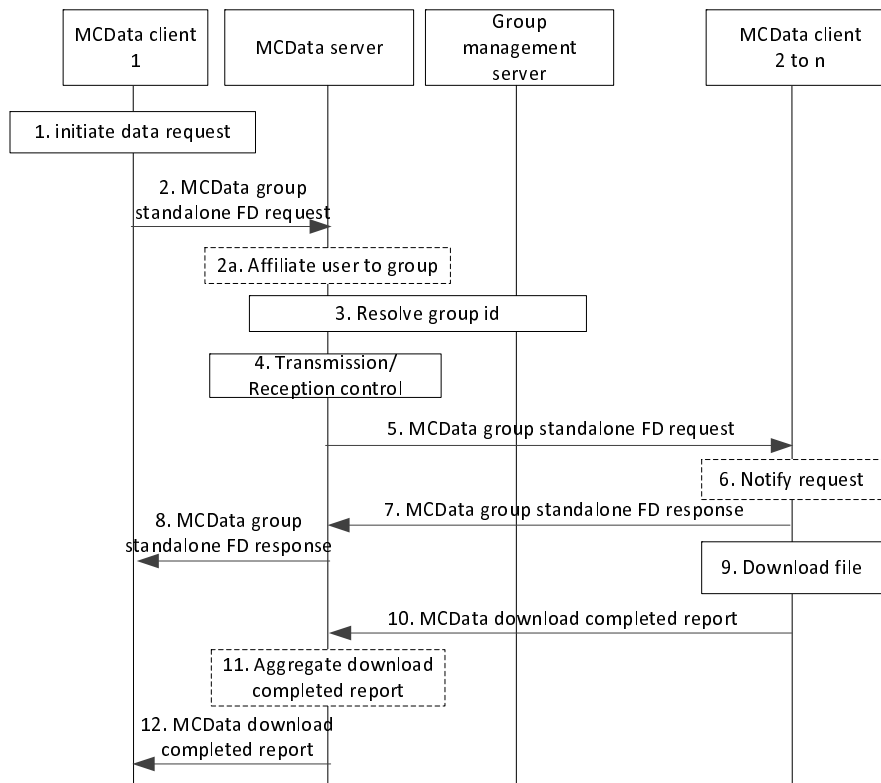


Figure 7.5.2.6.2-1: Group standalone FD using HTTP

1. The user at the MCData client 1 initiates a file distribution request to multiple MCData users selecting a pre-configured group (identified by MCData group ID) and optionally particular members from that group.
2. The MCData client 1 sends a MCData group standalone FD request towards the MCData server. The MCData FD request contains content payload in the form of file URL and may contain the file metadata information. The MCData group standalone data request contains either the selected MCData group ID or the target recipients as selected by the user at MCData client 1. The MCData group standalone FD request contains conversation identifier for message thread indication. If MCData user at MCData client 1 has requested to mandatory download at the recipient side, then MCData group standalone FD request contains mandatory download indication. The MCData group standalone FD request may contain download completed report indication if selected by the user at MCData client 1. MCData user at MCData client 1 may include a functional alias within the FD data transfer.

If the MCData user at MCData client 1 initiates an MCData emergency FD communication or the MCData emergency state is already set for the MCData client 1 (due to a previously triggered MCData emergency alert):

- i) the MCData group standalone FD request shall contain an emergency indicator;
- ii) the MCData group standalone FD request shall set an alert indicator if configured to send an MCData emergency alert while initiating an MCData group standalone FD request for the emergency FD communication;
- iii) if the MCData emergency state is not set already, MCData client 1 sets its MCData emergency state. The MCData emergency state is retained until explicitly cancelled; and
- iv) once an MCData emergency communication has been initiated, the MCData group is considered to be in an in-progress emergency state until cancelled;

If the MCData user at MCData client 1 initiates an MCData imminent peril FD communication:

- i) the MCData group standalone FD request shall contain imminent peril indicator; and
- ii) once an MCData imminent peril communication has been initiated, the MCData group is considered to be in an in-progress imminent peril state until cancelled.

- 2a. If either emergency indicator or imminent peril indicator is present in the received MCDData group standalone FD request, the MCDData server implicitly affiliates MCDData client 1 to the MCDData group if the client is not already affiliated.
 3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData group standalone FD request and that the size of the file is below maximum data size for FD from the group configuration. MCDData server verifies whether the provided functional alias, if present, can be used and has been activated for the user. If the MCDData group ID is used, the MCDData server resolves the MCDData group ID to determine the members of that group and their affiliation status, based on the information from the group management server.
 - i) If an emergency indicator is present in the received MCDData group standalone FD request and if the MCDData group is not in the in-progress emergency state, the MCDData group is considered to be in the in-progress emergency state until cancelled;
 - ii) If an imminent peril indicator is present in the received MCDData group standalone FD request and if the MCDData group is not in the in-progress imminent peril state, the MCDData group is considered to be in the in-progress imminent peril state until cancelled;
 4. The MCDData server also applies transmission and reception control and the necessary policy control to ensure that appropriate data is transmitted between the MCDData users.
 5. MCDData server initiates the MCDData group standalone FD request towards each MCDData user determined in step 3. The MCDData group standalone FD request towards each MCDData client contains:
 - i) an emergency indicator if it is present in the received MCDData group standalone FD request from the MCDData client 1;
 - ii) an imminent peril indicator if it is present in the received MCDData group standalone FD request from the MCDData client 1; and
 - iii) an alert indicator if requested to initiate an emergency alert in the received MCDData group standalone FD request from the MCDData client 1.
 6. The receiving MCDData clients 2 to n notify the user about the incoming MCDData group standalone FD request (including file metadata, if present) which may be either accepted or rejected or ignored.
 7. MCDData user on MCDData clients 2 to n provides a response (accept or reject or ignore) to the notification, then respective MCDData client sends the MCDData group standalone FD response to the MCDData server. MCDData client 2 to n automatically sends accepted MCDData group standalone FD response when the incoming request included mandatory download indication.
 8. The MCDData server forwards the MCDData group standalone FD responses to the MCDData client 1.
- NOTE: Step 8 can occur at any time following step 5, and prior to step 9 depending on the conditions to proceed with the file transmission.
9. Media storage client of the MCDData client(s) downloads the file using the procedures defined in subclause 7.5.2.3, either automatically (for mandatory download) or based upon the MCDData user subsequent action. The MCDData clients successfully receiving the file through the media storage clients, record file download completed and notify MCDData users.
 10. The MCDData clients, successfully receiving the file through the media storage client, initiate a MCDData download completed reports for reporting file download completed, if requested by the user at MCDData client 1.
 11. The MCDData file download completed reports from MCDData clients may be stored by the MCDData server for download history interrogation from the authorized MCDData users. The MCDData file download completed report from each MCDData user may be aggregated.
 12. Aggregated or individual MCDData download completed report is sent by the MCDData server to the MCDData user at MCDData client 1.

7.5.2.7 Group standalone file distribution using media plane

7.5.2.7.1 General

The initiation of a group standalone FD using media plane to a selected group, results in affiliated group members receiving the file data.

7.5.2.7.2 Procedure

The procedure in figure 7.5.2.7.2-1 describes the case where an MCDData user is initiating group standalone data communication for sending file to multiple MCDData users, with or without download completed report request.

Pre-conditions:

1. The MCDData users on the MCDData client 1 to n belong to the same group and are already registered for receiving MCDData service and affiliated.
2. Optionally, the MCDData client may have an activated functional alias to be used.
3. The MCDData server has subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

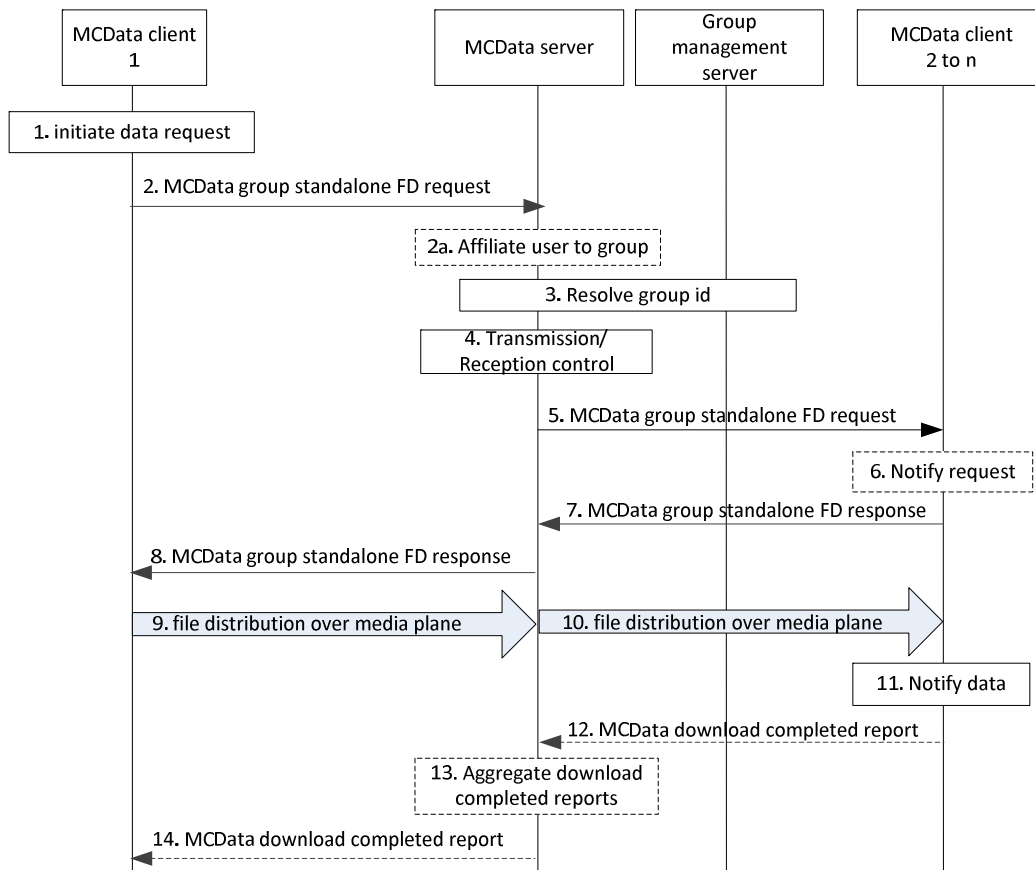


Figure 7.5.2.7.2-1: Group standalone FD using media plane

1. The user at the MCDData client 1 initiates a file distribution request to multiple MCDData users selecting a pre-configured group (identified by MCDData group ID) and optionally particular members from that group.
2. MCDData client 1 sends a MCDData group standalone FD request towards the MCDData server. The MCDData group standalone FD request may contain the file metadata information. The MCDData group standalone data request contains target recipient(s) as selected by the user at MCDData client 1. The MCDData group standalone FD request contains conversation identifier for message thread indication. MCDData group standalone FD request may contain mandatory download indication. The MCDData group standalone FD request may contain download

completed report indication if selected by the user at MCDData client 1. MCDData user at MCDData client 1 may include a functional alias within the FD data transfer.

If the MCDData user at MCDData client 1 initiates an MCDData emergency file distribution communication or the MCDData emergency state is already set for the MCDData client 1 (due to a previously triggered MCDData emergency alert):

- i) the MCDData group standalone FD request shall contain an emergency indicator;
- ii) the MCDData group standalone FD request shall set an alert indicator if configured to send an MCDData emergency alert while initiating an MCDData group standalone FD request for the emergency file distribution service communication;
- iii) if the MCDData emergency state is not set already, MCDData client 1 sets its MCDData emergency state. The MCDData emergency state is retained until explicitly cancelled; and
- iv) once an MCDData emergency communication has been initiated, the MCDData group is considered to be in an in-progress emergency state until cancelled;

If the MCDData user at MCDData client 1 initiates an MCDData imminent peril short data service communication:

- i) the MCDData group standalone FD request shall contain imminent peril indicator; and
- ii) once an MCDData imminent peril communication has been initiated, the MCDData group is considered to be in an in-progress imminent peril state until cancelled.

- 2a. If either emergency indicator or imminent peril indicator is present in the received MCDData group standalone data request, the MCDData server implicitly affiliates MCDData client 1 to the MCDData group if the client is not already affiliated.
3. MCDData server checks whether the MCDData user at MCDData client 1 is authorized to send MCDData group standalone FD request. MCDData server verifies whether the provided functional alias, if present, can be used and has been activated for the user. The MCDData server resolves the MCDData group ID to determine the members of that group and their affiliation status, based on the information from the group management server.
 - i) If an emergency indicator is present in the received MCDData group standalone FD request and if the MCDData group is not in the in-progress emergency state, the MCDData group is considered to be in the in-progress emergency state until cancelled;
 - ii) If an imminent peril indicator is present in the received MCDData group standalone FD request and if the MCDData group is not in the in-progress imminent peril state, the MCDData group is considered to be in the in-progress imminent peril state until cancelled;
4. The MCDData server also applies transmission and reception control and the necessary policy to ensure that appropriate data is transmitted between the MCDData UEs.
5. MCDData server initiates the MCDData group standalone FD request towards each MCDData user determined in step 3. The MCDData group standalone data request towards each MCDData client contains:
 - i) an emergency indicator if it is present in the received MCDData group standalone FD request from the MCDData client 1;
 - ii) an imminent peril indicator if it is present in the received MCDData group standalone FD request from the MCDData client 1; and
 - iii) an alert indicator if requested to initiate an emergency alert in the received MCDData group standalone FD request from the MCDData client 1.
6. The receiving MCDData clients 2 to n notifies the user about the incoming MCDData group standalone FD request (including file metadata if present) which may be either accepted or rejected or ignored. If the request includes mandatory download indication in the MCDData group standalone FD request an accepted response is assumed.
7. If the target MCDData user on MCDData clients 2 to n provides a response (accept or reject) to the notification, then the respective MCDData client sends the MCDData group standalone FD response to the MCDData server. MCDData client 2 to n automatically sends accepted MCDData group standalone FD response when the incoming request included mandatory download indication.

8. MCDATA server forwards the MCDATA group standalone FD response to the MCDATA client 1.

NOTE 1: Step 8 can occur at any time following step 5, and prior to step 9 depending on the conditions to proceed with the file transmission.

9. MCDATA client 1 and MCDATA server have successfully established media plane for file transmission and the MCDATA client 1 transmits the file data.

10. MCDATA server distributes the file received from MCDATA client 1 to MCDATA clients 2 to n over the established media plane. Distribution of file can be via unicast or via MBMS bearer(s). For distribution via MBMS bearer(s), the procedure described in subclause 7.3 Use of MBMS transmission (on-network) is executed. File download report is shared by the receiving MCDATA clients, if requested by the user at MCDATA client 1. After file transaction is completed, the media plane is released.

NOTE 2: MCDATA server is not required to wait for the complete download of file from MCDATA client 1 prior to initiating file distribution to MCDATA client 2.

11. The MCDATA clients successfully receiving the file, records file download completed and notifies MCDATA user.

12. MCDATA client 2 initiates a MCDATA download completed report for reporting file download completed, if requested by the user at MCDATA client 1.

13. The MCDATA file download completed report from MCDATA client(s) may be stored by the MCDATA server for download history interrogation from the authorized MCDATA users. The MCDATA file download completed report from each MCDATA user may be aggregated.

14. Aggregated or individual MCDATA file download completed report is sent to the disposition requesting user at MCDATA client 1.

7.5.2.8 File removal using HTTP by authorized user

7.5.2.8.1 General

The media storage client uses HTTP to remove a file that was previously uploaded to the MCDATA content server.

7.5.2.8.2 Procedure for single MCDATA system

The procedure in figure 7.5.2.8.2-1 describes the case where a MCDATA user is removing the file that was previously uploaded to the MCDATA content server.

Pre-conditions:

1. The MCDATA user on the media storage client is registered for receiving MCDATA service.
2. The file has been successfully uploaded by the MCDATA user using the procedures defined in subclause 7.5.2.2.
3. The MCDATA content server has the ability to verify if the requesting MCDATA user is authorised to remove.

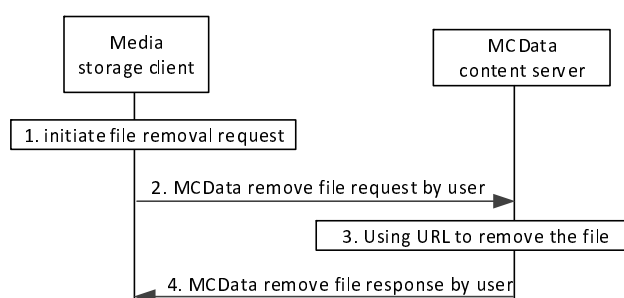


Figure 7.5.2.8.2-1: File removal using HTTP by authorised user

1. The user on the media storage client decides to remove a file that was previously uploaded.
2. The URL of the file to be removed is included in the request sent to the media storage function on the MCDData content server.
3. The MCDData content server remove the file indicated by the URL.
4. The MCDData content server informs the media storage client if the file is successfully removed.

Editor's note: It is FFS if and how the recipients of the file URL need to be notified if the file is no longer available to be downloaded

7.5.2.8.3 Procedure for interconnection between MCDData systems

The procedure in figure 7.5.2.8.3-1 describes the case where an MCDData user removes the file that was previously uploaded to the primary MCDData system MCDData content server, and where the file has been made available in the partner MCDData system MCDData content server.

Pre-conditions:

1. The MCDData user on the media storage client is registered for receiving MCDData service.
2. The file has previously been uploaded to the MCDData content server in the primary MCDData system of MCDData client 1.
3. The file has been successfully transferred to the MCDData content server in the partner MCDData system.

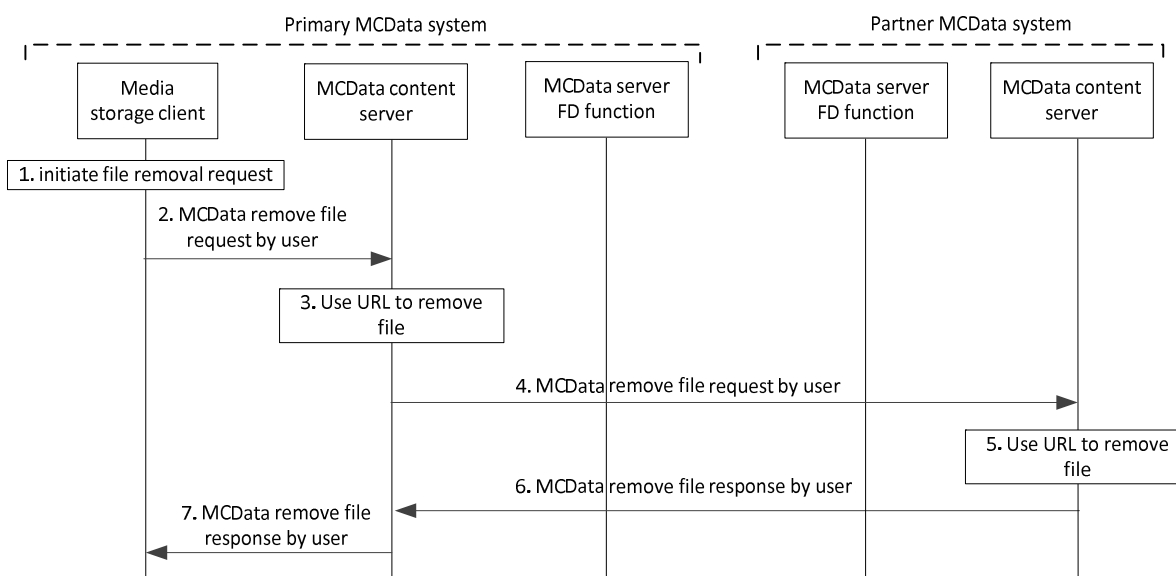


Figure 7.5.2.8.3-1: File removal using HTTP by authorized user

1. The user on the media storage client decides to remove a file that was previously uploaded.
2. The URL of the file to be removed is included in the request sent to the media storage function on the primary MCDData content server.
3. The primary MCDData content server removes the file indicated by the URL.

NOTE: Step 3 may occur at any time following step 2 and before step 6.

4. As the primary MCDData content server has recorded that the file has previously been sent to the partner MCDData system, the primary MCDData content server sends the MCDData remove file request to the partner MCDData content server, containing the URL of the file which was stored on the primary MCDData content server.

5. The partner MCDData content server removes the file indicated by the URL.
6. The partner MCDData content server informs the primary MCDData content server that the file has been successfully removed.
7. The primary MCDData content server informs the media storage client if the file is successfully removed.

Editor's note: It is FFS if and how the recipients of the file URL need to be notified if the file is no longer available to be downloaded

7.5.2.9 Void

7.5.2.10 Group standalone file distribution using the MBMS download delivery method

7.5.2.10.1 General

The initiation of a group standalone FD to a selected group results in affiliated group members receiving the file data over MBMS.

The first steps of the procedure are identical to the procedure Group standalone file distribution using HTTP (7.5.2.6). Based on the density and distribution of target group members, the MCDData server may decide to deliver the file over MBMS.

7.5.2.10.2 Procedure

The procedure in figure 7.5.2.10.2-1 describes the case where a MCDData user is initiating group standalone data communication for sending file to multiple MCDData users, with or without download completed report request.

Pre-conditions:

1. The MCDData users on the MCDData client 1 to n belong to the same group and are already registered for receiving MCDData service and affiliated.
2. File to be distributed is uploaded to media storage function on MCDData content server using the procedures defined in subclause 7.5.2.2.

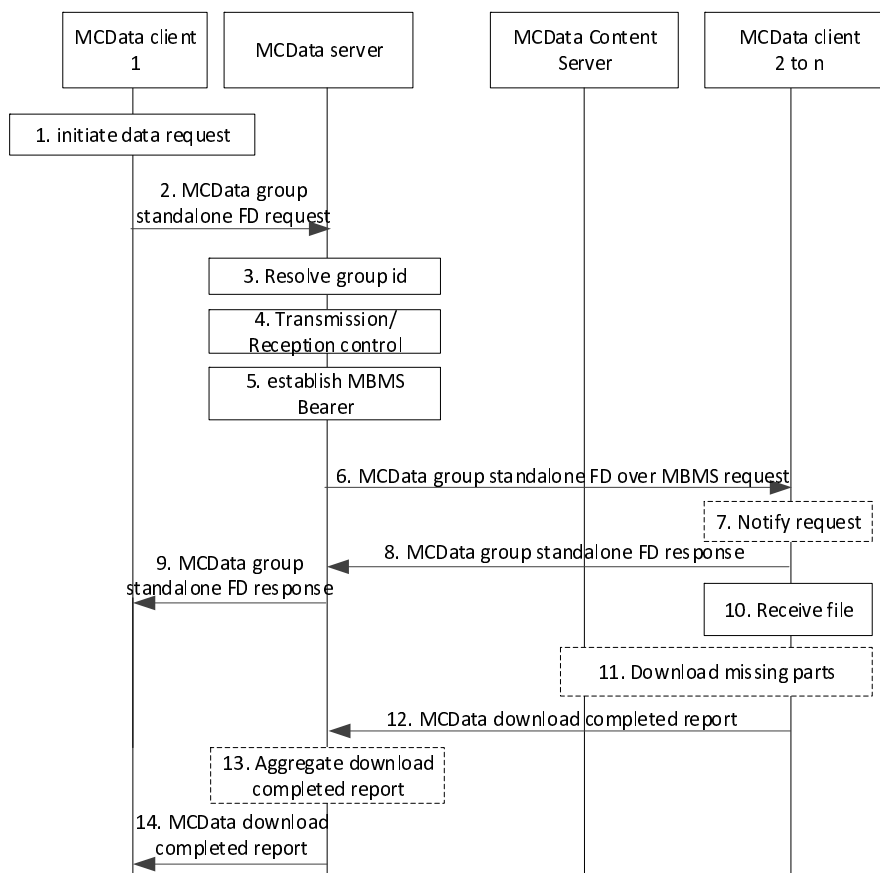


Figure 7.5.2.10.2-1: Group standalone FD using the MBMS download delivery method

- 1-4. Steps 1-4 are the same as in the procedure for Group standalone FD using HTTP (7.5.2.6).
5. The MCData server executes the procedure described in subclause 7.3.5 Use of MBMS user services for file distribution. The MCData server provides, in the MBMS session properties (subclause 5.4 of 3GPP TS 26.348 [19]), the file location on the media storage function and sets the earlier fetch time with a long enough delay so that steps 6 to 8 are executed before the delivery over MBMS.
6. MCData server initiates the MCData group standalone FD over MBMS request towards each MCData user determined in step 3. The request is sent over unicast or within an MBMS bearer for application level control signalling.
7. The receiving MCData clients 2 to n notify the user about the incoming MCData group standalone FD request (including file metadata, if present).
8. MCData client 2 to n automatically sends accepted MCData group standalone FD response when the incoming request included mandatory download indication.

NOTE 1: When the UE is in idle mode, MCData clients may skip step 8.

9. The MCData server forwards the MCData group standalone FD responses to the MCData client 1.

NOTE 2: Step 8 can occur at any time following step 6, and prior to step 10 depending on the conditions to proceed with the file transmission.

10. The MCData client receives the file delivered over MBMS.

11. If losses occurred after the end of the file delivery over MBMS, the MCData client downloads the missing parts using the procedures defined in subclause 7.5.2.

Editor's note: whether any enhancements are required on MCDData-FD5 are FFS.

NOTE 3: If the MBMS reception quality is too bad, the Media storage client of the MCDData client(s) downloads the file using the procedures defined in subclause 7.5.2.3.

12. The MCDData clients, after a successfully reception, initiate a MCDData download completed reports for reporting file download completed, if requested by the user at MCDData client 1.
13. The MCDData file download completed reports from MCDData clients may be stored by the MCDData server for download history interrogation from the authorized MCDData users. The MCDData file download completed report from each MCDData user may be aggregated.
14. Aggregated or individual MCDData download completed report is sent by the MCDData server to the MCDData user at MCDData client 1.

7.5.2.11 One-to-one FD communication upgrade to an emergency FD communication

7.5.2.11.1 General

This clause is for adding procedures related to upgrading an existing one-to-one FD communication to an emergency one-to-one FD communication.

7.5.2.11.2 Procedure

The procedure in figure 7.5.2.11.2-1 describes the case where an authorized MCDData user is upgrading a MCDData one-to-one FD communication to a MCDData emergency one-to-one FD communication. This procedure is applicable only when MCDData one-to-one file distribution communication is established as described in subclause 7.5.2.5 "One-to-one file distribution using media plane".

Pre-conditions:

1. Both members of the one-to-one FD communication belong to the same MCDData system.
2. One-to-one FD communication is already in progress.

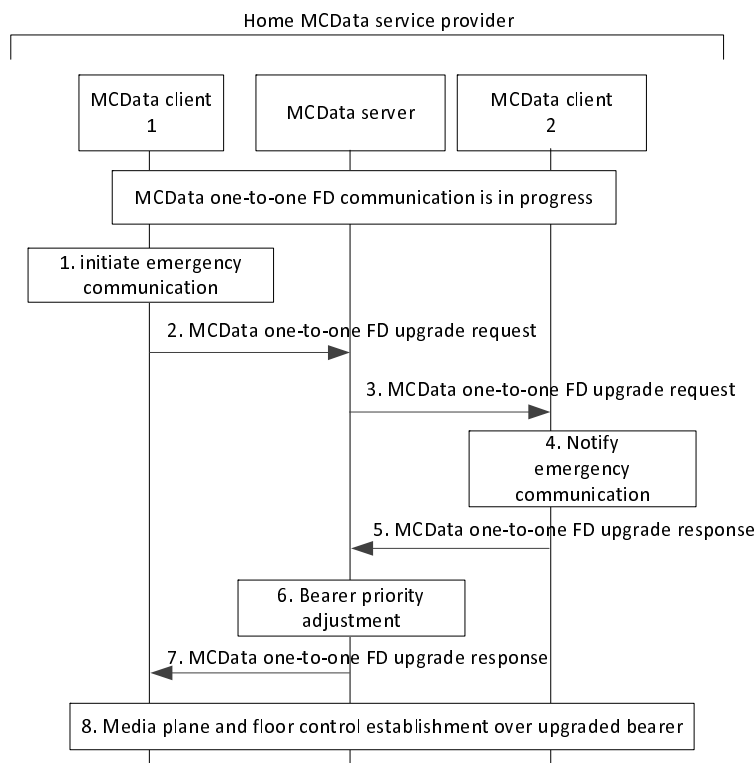


Figure 7.5.2.11.2-1 One-to-one FD communication upgrade to an emergency one-to-one FD communication

1. The MCDData user at MCDData client 1 initiates an emergency. MCDData client 1 sets its MCDData emergency state. The MCDData emergency state is retained until explicitly cancelled.
2. MCDData client 1 requests the MCDData server to upgrade the MCDData one-to-one FD communication to in-progress emergency by sending a MCDData one-to-one FD upgrade request.
3. The MCDData server sends the MCDData one-to-one FD upgrade request towards the MCDData client of the other participant.
4. The MCDData user is notified of the in-progress emergency of the MCDData emergency one-to-one FD communication.
5. The receiving MCDData client acknowledges the MCDData one-to-one FD upgrade request and sends MCDData one-to-one FD upgrade response to the MCDData server.
6. The MCDData server adjusts the priority of the underlying bearer for both participants of the MCDData one-to-one FD communication. The priority is retained until the communication ends.
7. The MCDData server sends MCDData one-to-one FD upgrade response to MCDData client 1.
8. MCDData client 1 and MCDData client 2 continue with the MCDData one-to-one FD communication, which has been transformed into an MCDData emergency one-to-one FD communication.

7.5.2.12 Group FD communication upgrade to an emergency group FD communication

7.5.2.12.1 General

This clause is for adding procedures related to upgrading an existing MCDData group FD communication to an MCDData emergency group FD communication.

7.5.2.12.2 Procedure

The procedure in figure 7.5.2.12-1 describes the case where an authorized MCDData user is upgrading an ongoing MCDData group FD communication to an MCDData emergency group FD communication. This procedure is applicable only when group MCDData FD communication is established as described in subclause 7.5.2.7 "Group standalone file distribution using media plane".

NOTE 1: For simplicity, a single MCDData server is shown in place of a user home MCDData server and a group hosting MCDData server.

Pre-conditions:

1. The MCDData group is previously defined on the group management server with MCDData client 1, MCDData client 2 and MCDData client 3 are affiliated to that MCDData group.
2. All members of the MCDData group belong to the same MCDData system.
3. An MCDData group FD communication is already in progress.
4. The initiating MCDData client 1 has been configured to send an MCDData emergency alert when upgrading an MCDData emergency group communication.

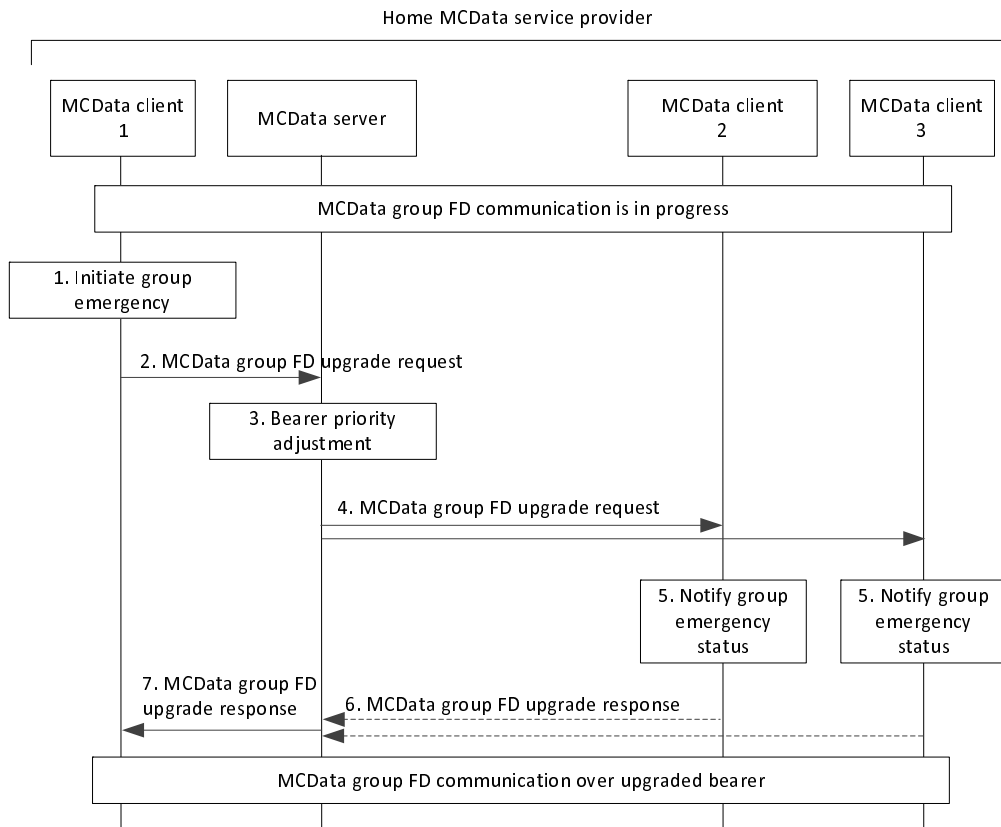


Figure 7.5.2.12-1: MCDData group FD communication upgraded to an MCDData emergency group FD communication

1. The MCDData user at MCDData client 1 initiates a group emergency. MCDData client 1 sets its MCDData emergency state. The MCDData emergency state is retained until explicitly cancelled.
2. MCDData client 1 requests the MCDData server to upgrade the MCDData group to an in-progress emergency state by sending a MCDData group FD upgrade request. The MCDData client 1 sets emergency indicator in the request. If configured to send an MCDData alert when initiating an MCDData emergency upgrade, the request also contains an indication that an MCDData alert is to be initiated.

3. The MCDData server adjusts the priority of the underlying bearer for all or selected participants in the MCDData group FD communication that receive the communication over unicast.

NOTE 2: The determination of the selected participants whose bearers have to be upgraded is left to implementation.

4. MCDData server sends the MCDData group FD upgrade request towards the MCDData clients of each of those affiliated MCDData group members. The request contains an indication of an MCDData emergency alert if the request from the originator indicated MCDData emergency alert.
5. MCDData users are notified of the in-progress emergency state of the MCDData group.
6. The receiving MCDData clients send the MCDData group FD upgrade response to the MCDData server to acknowledge the MCDData group emergency request. For a multicast call, these acknowledgements are not sent.
7. The MCDData server sends the MCDData group FD upgrade response to the MCDData user 1 to confirm the upgrade request.

NOTE 3: Step 7 can occur at any time following step 3, and prior to step 8 depending on the conditions to proceed with the call.

MCDData client 1, MCDData client 2 and MCDData client 3 continue with the MCDData group FD communication, which has been transformed into an MCDData emergency group FD communication.

7.5.2.13 Group FD communication in-progress emergency group state cancel

7.5.2.13.1 General

This clause is for adding procedures related to an MCDData in-progress emergency group state cancel.

7.5.2.13.2 Procedure

The procedure in figure 7.5.2.13-1 describes the case where an authorized MCDData user cancels MCDData group's in-progress emergency.

Pre-conditions:

1. The MCDData group is previously defined on the group management server with MCDData client 1, MCDData client 2 and MCDData client 3 affiliated to that MCDData group.
2. All members of the MCDData group belong to the same MCDData system.
3. MCDData group members have been notified about the in-progress emergency.
4. The MCDData group is in the in-progress emergency state and has prioritized bearer support.
5. MCDData client 1 previously initiated the in-progress emergency for the group.

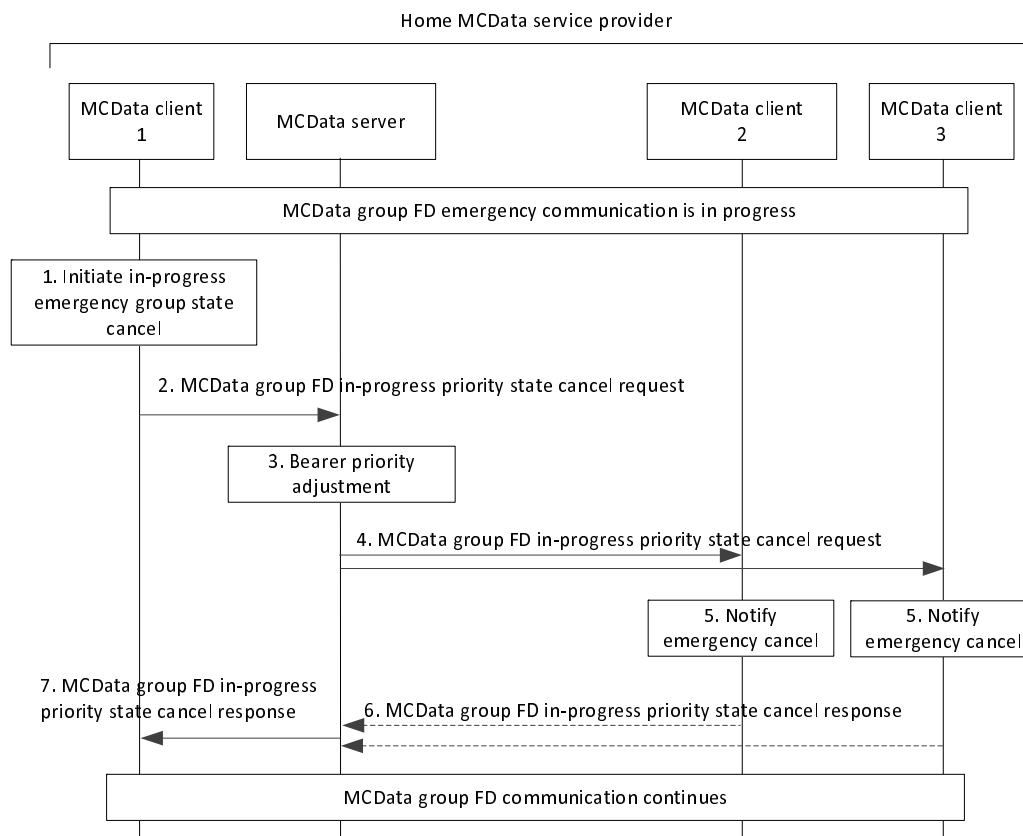


Figure 7.5.2.13-1: MCDATA group FD in-progress emergency group state cancel

1. The user at the MCDATA client 1 initiates an MCDATA group FD in-progress emergency group state cancel.

NOTE 1: An MCDATA user authorized to cancel in-progress emergencies on the MCDATA group can also be authorised to cancel the MCDATA emergency alert in addition to the initiator. However, only the initiator can cancel the initiator's local MCDATA emergency state.

2. The MCDATA client 1 sends an MCDATA group FD in-progress priority state cancel request to the MCDATA server. The MCDATA client 1 also resets emergency indicator in the request to inform MCDATA server about cancelation of in-progress emergency group state.

NOTE 2: When MCDATA emergency alerts are in effect together with an MCDATA in-progress emergency group state on the same MCDATA group, the MCDATA emergency alert can, under some circumstances be cancelled at the same time. In that case, the MCDATA group FD in-progress priority group state cancel request carries an indication that the alert is also being cancelled.

3. The MCDATA server adjusts the priority of the underlying bearer; priority treatment is no longer required. The MCDATA server cancels/resets the emergency in-progress state of the MCDATA group.
4. The MCDATA server sends an MCDATA group FD in-progress priority state cancel request to the MCDATA group members.
5. MCDATA group members are notified of the MCDATA group FD in-progress emergency state cancel.
6. The receiving MCDATA clients send the MCDATA group FD in-progress priority state cancel response to the MCDATA server to acknowledge the MCDATA in-progress emergency group state cancel. For a multicast call scenario, these acknowledgements are not sent.
7. The MCDATA server sends the MCDATA group FD in-progress priority state cancel response to the MCDATA user 1 to confirm the MCDATA in-progress emergency group state cancel. If the MCDATA in-progress emergency group

state cancel request (in step 2) contained the "Alert indicator" IE, the MCDData client 1 resets its local emergency status.

NOTE 3: Step 7 can occur at any time following step 3, depending on the conditions to proceed with the call.

7.5.2.14 Group FD communication upgrade to an imminent peril group FD communication

7.5.2.14.1 General

This clause is for adding procedures related to an imminent peril group FD communication.

7.5.2.14.2 Procedure

This procedure is applicable only when group MCDData communication is established as described in subclause 7.5.2.7 "Group standalone file distribution using media plane". The MCDData service shall support the procedures and related information flows as specified in subclause 7.5.2.12 "Group FD communication upgrade to an emergency group FD communication" with the following clarifications:

- In step 2), The MCDData client 1 set imminent peril indicator; and
- In step 5), MCDData users are notified of the in-progress imminent peril state of the MCDData group.

7.5.2.15 Group FD communication in-progress imminent peril group state cancel

7.5.2.15.1 General

This clause is for adding procedures related to an imminent peril group state cancel.

7.5.2.15.2 Procedure

The MCDData service shall support the procedures and related information flows as specified in subclause 7.5.2.13 "Group FD communication in-progress emergency group state cancel" with the following clarifications:

- In step 2), The MCDData client 1 set imminent peril indicator; and
- In step 5), MCDData users are notified of the in-progress imminent peril state cancel.

7.5.3 File distribution for off-network

7.5.3.2 Information flows for file distribution

7.5.3.2.1 MCDData FD request (using media plane)

Table 7.5.3.2.1-1 describes the information flow for the MCDData FD request sent from the MCDData client to another MCDData client.

Table 7.5.3.2.1-1: MCDData FD request (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending file
MCDData ID	M	The identity of the MCDData user receiving file
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition indication	O	Indicates whether file download completed reported is expected or not
Download indication	O	Indicates mandatory download. (i.e. auto accept this media plane setup request)
SDP offer	M	Media parameters offered
Content reference	M	URL reference to the content and file metadata information

7.5.3.2.2 MCDData FD response (using media plane)

Table 7.5.3.2.2-1 describes the information flow for the MCDData FD response sent from the MCDData client to another MCDData client.

Table 7.5.3.2.2-1: MCDData FD response (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected
Acceptance confirmation	M	An indication whether the client has positively accepted the request

7.5.3.2.3 MCDData download completed report

Table 7.5.3.2.3-1 describes the information flow for the MCDData download completed report sent from the MCDData client to another MCDData client.

Table 7.5.3.2.3-1: MCDData download completed report

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Disposition association	M	Identifies the original MCDData transaction
Disposition confirmation	M	An indication that the client has completed downloading file

7.5.3.2.4 MCDData group standalone FD request (using media plane)

Table 7.5.3.2.4-1 describes the information flow for the MCDData group standalone FD request sent from the MCDData client to another MCDData client.

Table 7.5.3.2.4-1: MCDData group standalone FD request (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending file
MCDData group ID	M	The MCDData group ID to which the data is to be sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Reply Identifier	O	Identifies the original MCDData transaction to which the current transaction is a reply to
Disposition indication	O	Indicates whether file download completed reported is expected or not
Download indication	O	Indicates mandatory download. (i.e. auto accept this media plane setup request)
SDP offer	M	Media parameters offered
Content reference	M	URL reference to the content and file metadata information

7.5.3.2.5 MCDData group standalone FD response (using media plane)

Table 7.5.3.2.5-1 describes the information flow for the MCDData group standalone FD response sent from the MCDData client to another MCDData client.

Table 7.5.3.2.5-1: MCDData group standalone FD response (using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user sending FD request
MCDData group ID	M	The MCDData group ID to which the file is to be sent
MCDData ID	M	The identity of the MCDData user sending response
Conversation Identifier	M	Identifies the conversation
SDP answer	M	Media parameters selected
Acceptance confirmation	M	An indication whether the client has positively accepted the request

7.5.3.3 One-to-one standalone file distribution using media plane

7.5.3.3.1 General

The MCDData client uses media plane for a standalone FD download from another MCDData client in off-network.

7.5.3.3.2 Procedure

Figure 7.5.3.3.2-1 describes procedures for an off-network MCDData client 1 initiating one-to-one MCDData data communication for sending standalone FD data to other MCDData client, with or without download completed report request.

Pre-conditions:

1. MCDData user 1 has initiated communication for sending standalone FD data to other MCDData user 2.
2. MCDData client 1 and MCDData client 2 are members of the same ProSe Discovery group and are ProSe 1:1 direct communication capable.
3. MCDData client 1 has discovered MCDData client 2 in proximity, associated with MCDData user 2, using ProSe Discovery procedures.

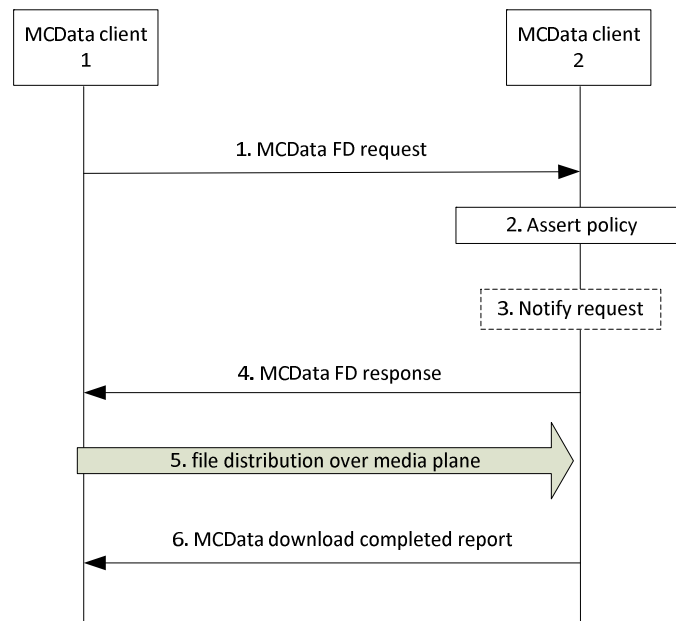


Figure 7.5.3.3.2-1: One-to-one standalone file distribution using media plane

1. MCData client 1 sends a MCData FD request towards the MCData client 2. The MCData FD request may contain the file metadata information. The MCData FD request contains one MCData user for one-to-one data communication as selected by the user at MCData client 1. The MCData FD request contains conversation identifier for message thread indication. MCData FD request may contain mandatory download indication. The MCData FD request may contain download completed report indication if selected by the user at MCData client 1.
2. On receiving a MCData FD request, the MCData client 2 checks whether any policy is to be asserted to limit certain types of message or content to certain members, for example, due to location or user privilege.
3. The receiving MCData client 2 notifies the user about the incoming MCData FD request (including file metadata if present) which may be either accepted or rejected or ignored. MCData user may not be sought consent if the request includes mandatory download indication in the MCData FD request and instead only notify the MCData user about file downloading.
4. If the target MCData user 2 provides a response (accept or reject) to the notification, then the MCData client 2 sends the MCData FD response to the MCData client 1. MCData client 2 automatically sends accepted MCData FD response when the incoming request included mandatory download indication.
5. MCData client 1 distributes the file over the established media plane to MCData client 2.
6. The MCData client 2 records file download completed and notifies MCData user 2. MCData client 2 initiates a MCData download completed report for reporting file download completed, if requested by the user at MCData client 1.

7.5.3.4 Group standalone file distribution using media plane

7.5.3.4.1 General

The initiation of a group standalone FD to a selected group results in off-network MCData group members receiving the file data.

7.5.3.4.2 Procedure

Figure 7.5.3.4.2-1 describes procedures for an off-network MCData client 1 initiating group MCData data communication for sending FD data to a MCData group, with or without download completed report request.

Pre-conditions:

1. MCDData user 1 has initiated group communication for sending FD data to the MCDData group.
2. Information for ProSe direct communications corresponding to the MCDData group and its mapping to ProSe Layer-2 Group ID are pre-configured in MCDData client 1.
3. MCDData client 1 to MCDData client N are members of the same MCDData group.

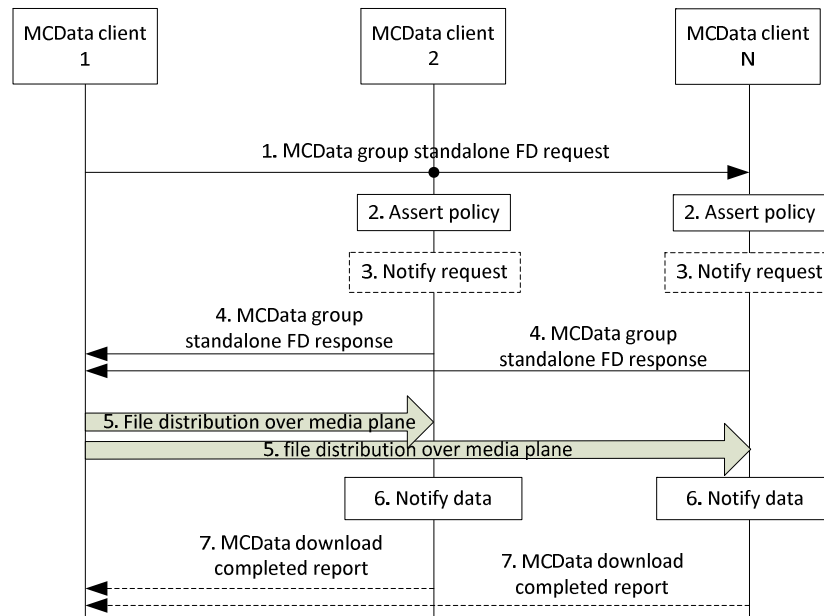


Figure 7.5.3.4.2-1: Group standalone file distribution using media plane

1. MCDData client 1 sends a MCDData FD request towards the MCDData group. The MCDData group standalone FD request may contain the file metadata information. The MCDData group standalone data request contains MCDData group ID as selected by the user at MCDData client 1. The MCDData group standalone FD request contains conversation identifier for message thread indication. MCDData group standalone FD request may contain mandatory download indication. The MCDData group standalone FD request may contain download completed report indication if selected by the user at MCDData client 1.
2. On receiving a MCDData FD request, the MCDData clients check whether any policy is to be asserted to limit certain types of message or content to certain members, for example, due to location or user privilege.
3. If the policy assertion is positive, the receiving MCDData clients 2 to n notifies the user about the incoming MCDData group standalone FD request (including file metadata if present) which may be either accepted or rejected or ignored. MCDData user may not be sought consent if the request includes mandatory download indication in the MCDData group standalone FD request and instead only notify the MCDData user about file downloading.
4. If the target MCDData user on MCDData clients 2 to n provides a response (accept or reject) to the notification, then the respective MCDData client sends the MCDData group standalone FD response to the MCDData client 1. MCDData client 2 to n automatically sends accepted MCDData group standalone FD response when the incoming request included mandatory download indication.
5. MCDData client 1 and MCDData client 2 to n have successfully established media plane for file transmission and the MCDData client 1 transmits the file data.
6. The MCDData client 2 to n successfully receiving the file, records file download completed and notifies MCDData users.
7. MCDData client 2 to n initiate a MCDData download completed report for reporting file download completed, if requested by the user at MCDData client 1.

7.6 Transmission and reception control

7.6.1 General

Based on the configurations (available in MCDData user profile, group configuration and service configuration), the MCDData transmission and reception control provides a necessary capability for an authorized user of the MCDData service to transmit, receive notification messages due to various trigger conditions, advocates reception mode and terminate transmission when there is no longer a need to transmit. The subclauses below describe the transmission and reception control procedures using signalling control plane.

7.6.2 Transmission and reception control for on-network

7.6.2.1 Information flows for transmission and reception control

7.6.2.1.1 MCDData control indication

Table 7.6.2.1.1-1 describes the information flow for the MCDData control indication sent from the MCDData server to the MCDData client.

Table 7.6.2.1.1-1: MCDData control indication

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user towards which the control indication is sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Control indication type	M	One of the following: - No permission to transmit data - No affiliated members found to the selected MCDData group - Rejected due to exceeding data transmit size - Rejected due to exceeding data transmit time - Request to transmit is queued

7.6.2.1.2 MCDData indication

Table 7.6.2.1.2-1 describes the information flow for the MCDData indication sent from the MCDData server to the MCDData client.

Table 7.6.2.1.2-1: MCDData indication

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user towards which the MCDData indication is sent
Conversation Identifier	M	Identifies the conversation
Transaction Identifier	M	Identifies the MCDData transaction
Deferred data list	M	List of references to deferred data awaiting download

7.6.2.1.3 MCDData get deferred list request

Table 7.6.2.1.3-1 describes the information flow for the MCDData get deferred list request sent from the MCDData client to the MCDData server.

Table 7.6.2.1.3-1: MCDData get deferred list request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user requesting deferred list

7.6.2.1.4 MCDData get deferred list response

Table 7.6.2.1.4-1 describes the information flow for the MCDData get deferred list response sent from the MCDData server to the MCDData client.

Table 7.6.2.1.4-1: MCDData get deferred list response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user requesting deferred list
Deferred data list	M	List of references to deferred data awaiting download

7.6.2.2 Automatic transmission for SDS

7.6.2.2.1 General

When SDS message is sent, the data is transferred from the sending MCDData client to the receiving MCDData client without any request/grant procedure or any explicit actions on the part of the receiving MCDData client.

7.6.2.2.2 Procedure

The procedure in figure 7.6.2.2.2-1 describes the case where MCDData SDS is automatically transmitted to the selected recipient user or affiliated members of the selected MCDData group.

Pre-conditions:

1. MCDData user is configured with permission to transmit data.
2. Optionally, MCDData client may have an activated functional alias to be used.
3. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

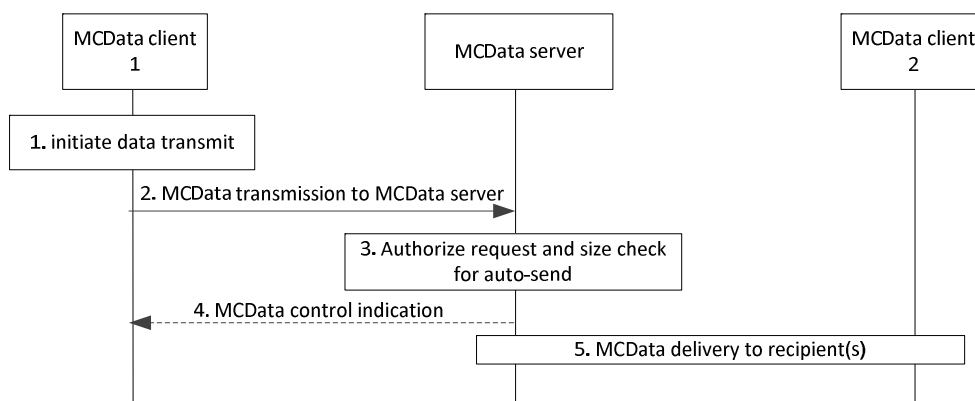


Figure 7.6.2.2.2-1: Automatic transmission for SDS

1. MCDData user selects the data to transmit and the recipient MCDData user or MCDData group. The MCDData user at MCDData client 1 may include a functional alias used within the SDS data transmission.

2. MCDData client checks for MCDData user's permission to transmit data and checks if the data size is less than the maximum data size for SDS. MCDData client calculates the total transmission request size and determines to select one of the appropriate procedures described in subclause 7.4.2.2, 7.4.2.3, 7.4.2.5 or 7.4.2.6.
3. Transmission control on the MCDData server verifies if the MCDData user is authorized to transmit and the data size in the received transmission request does not exceed the maximum data size for SDS. MCDData server verifies whether the provided functional alias, if present, can be used and has been activated for the MCDData user.
4. MCDData server may send one of the following MCDData control indications:
 - a) If the MCDData user does not have permission to transmit data to another MCDData user or MCDData group then the "No permission to transmit data" control indication is sent.
 - b) If the selected transmission is for a MCDData group and there are no affiliated group members, then the transmission control on MCDData server sends the "No affiliated members found to the selected MCDData group" control indication.
 - c) MCDData server may queue the data transmit request for later transmission with control indication "Request to transmit is queued".Otherwise continue with step 5.
5. MCDData server automatically transmits the data and, if available, the functional alias of the originating MCDData client 1 to the selected MCDData user or the affiliated members or all group members (in the case of lossless communication) of the selected MCDData group according to the procedures selected in step 2.

7.6.2.3 Send data with mandatory download

7.6.2.3.1 General

The mandatory download procedure allows a sending MCDData client to send data to a receiving MCDData client, where the receiving MCDData client is compelled to download the data.

7.6.2.3.2 Procedure

The procedure in figure 7.6.2.3.2-1 describes the case where MCDData user is using FD. The FD is subjected to transmission control prior to transmitting data to the selected recipient user or affiliated members of the selected MCDData group for mandatory download.

Pre-conditions:

1. MCDData user is configured with permission to transmit data.
2. MCDData administrator has configured maximum data size for FD.
3. Maximum amount of data that a MCDData user can transmit in a single request is configured.
4. Maximum amount of time that a MCDData user can transmit in a single request is configured.
5. Optionally, MCDData client may have an activated functional alias to be used.
6. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

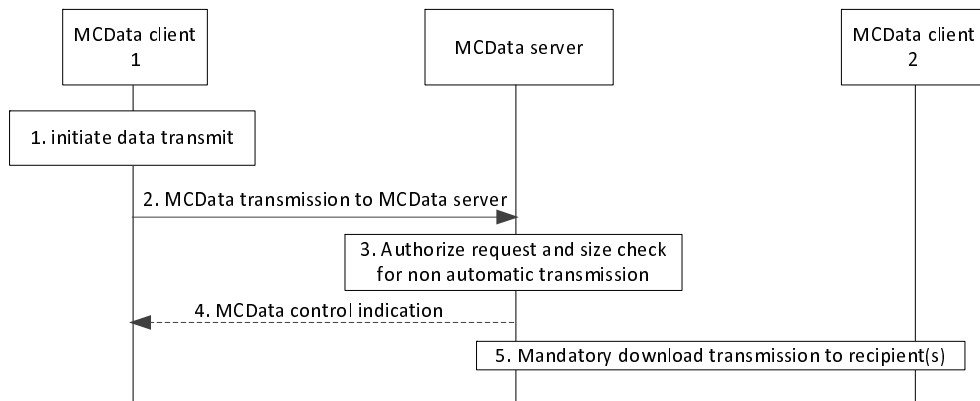


Figure 7.6.2.3.2-1: Send data with mandatory download

1. MCDData user selects the data to transmit, the recipient MCDData user or MCDData group and the indication for mandatory download. The MCDData user at MCDData client 1 may include a functional alias used within the FD data transfer.
2. MCDData client has checked for MCDData user's permission to transmit data. MCDData client calculates the total transmission request size and determines to select one of the appropriate procedures described in subclause 7.5.2.4, 7.5.2.5, 7.5.2.6 or 7.4.2.7 and including the mandatory download indication.
3. Transmission control on the MCDData server verifies if the MCDData user is authorized to transmit, the data size in the received transmission request is within the maximum size allowed for FD transmission and is within the maximum amount of time that a MCDData user can transmit in a single request. MCDData server verifies whether the provided functional alias, if present, can be used and has been activated for the MCDData user.
4. MCDData server may send one of the following MCDData control indications:
 - a) If the MCDData user does not have permission to transmit data to another MCDData user or MCDData group then the "No permission to transmit data" control indication is sent.
 - b) If the data size requested to be transmitted is more than the maximum amount of data that an MCDData user can transmit in a single request, the transmission control on MCDData server rejects the data transmission request and sends the rejection control indication "Rejected due to exceeding data transmit size".
 - c) If the data transmission time exceeds the maximum amount of time that an MCDData user can transmit in a single request, the transmission control on MCDData server rejects the data transmission request and sends the rejection control indication "Rejected due to exceeding data transmit time".
 - d) If the selected transmission is for a MCDData group and there are no affiliated group members, then the transmission control on MCDData server sends the "No affiliated members found to the selected MCDData group" control indication.
 - e) MCDData server may queue the data transmit request for later transmission with control indication "Request to transmit is queued".

Otherwise continue with step 5.
5. MCDData server transmits the data and, if available, the functional alias of the originating MCDData client 1 to the selected MCDData user or the affiliated members or all group members (in the case of lossless communication) of the selected MCDData group according to the procedures selected in step 2 (where the recipient MCDData client receives the data automatically).

7.6.2.4 Send data without mandatory download

7.6.2.4.1 General

The send data without mandatory download procedure allows the receiving MCDData client to accept download, defer download (i.e. no response) or refuse (e.g. by the user deleting the notification item) the data sent from the sending MCDData client.

7.6.2.4.2 Procedure

The procedure in figure 7.6.2.4.2-1 describes the case where MCDData user selected data is subjected to transmission control prior to transmitting data to the selected recipient user or affiliated members of the selected MCDData group for downloading with recipient MCDData user consent.

Pre-conditions:

1. MCDData user is configured with permission to transmit data.
2. Maximum amount of data or time that an MCDData user can transmit in a single request is configured.
3. Time limit for the temporarily stored data waiting to be delivered to a receiving user is configured.
4. Optionally, MCDData client may have an activated functional alias to be used.
5. The MCDData server may have subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.

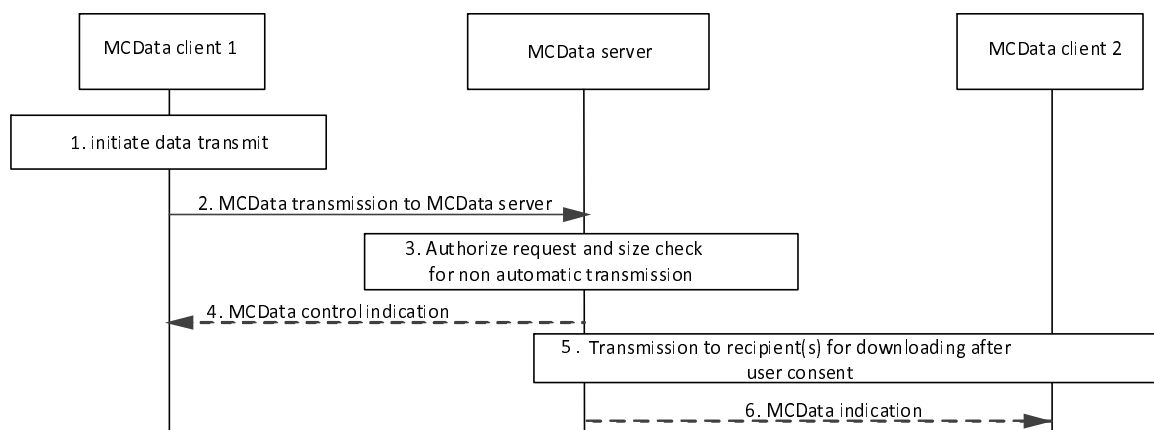


Figure 7.6.2.4.2-1: Send data without mandatory download

1. MCDData user selects the data to transmit and the recipient MCDData user or MCDData group and does not select the mandatory download indication. The MCDData user at MCDData client 1 may include a functional alias used within the data transmission.
2. MCDData client has checked for MCDData user's permission to transmit data and the data size is within the maximum data size allowed. The MCDData client calculates the total transmission request size and determines to select procedure described in subclause 7.5.2.4 or 7.5.2.6 and without including the mandatory download indication.
3. Transmission control on the MCDData server verifies if the MCDData user is authorized to transmit, the data size in the received transmission request is within the maximum data size allowed and is within the maximum amount of time that a MCDData user can transmit in a single request. MCDData server verifies whether the provided functional alias, if present, can be used and has been activated for the MCDData user.
4. MCDData server may send one of the following control indications:
 - a) If the MCDData user does not have permission to transmit data to another MCDData user or MCDData group then the "No permission to transmit data" control indication is sent.

- b) If the selected transmission is for a MCDData group and there are no affiliated group members, then the transmission control on MCDData server sends the "No affiliated members found to the selected MCDData group" control indication.
- c) If the data size requested to be transmitted is more than the maximum amount of data that an MCDData user can transmit in a single request, the transmission control on MCDData server rejects the data transmission requests and sends the rejection control indication "Rejected due to exceeding data transmit size".
- d) If the data transmission time exceeds the maximum amount of time that an MCDData user can transmit in a single request (applies to DS only), the transmission control on MCDData server rejects the data transmission request and sends the rejection control indication "Rejected due to exceeding data transmit time".
- e) MCDData server may queue the data transmit request for later transmission with a control indication "Request to transmit is queued".

Otherwise, continue with step 5.

- 5. MCDData server transmits the data and, if available, the functional alias of the originating MCDData client 1 to the selected MCDData user or the affiliated members or all group members (in the case of lossless communication) of the selected MCDData group according to the procedures selected in step 2 (where the recipient MCDData client may receive the data automatically).
- 6. The MCDData server may store the data in temporary storage (e.g. if the recipient is not available at the time of data delivery or network congestion or data deferred by the user) and may send MCDData indication to notify the recipient of available data for retrieval:
 - a) If the timer expired for periodic announcement with the list of available recently invited data communications, the recipient MCDData client waiting to receive the temporarily stored data receives MCDData indication with the list of available temporarily stored data waiting to download in the Deferred data list .
 - b) If the temporarily stored data is expired, the data may be purged from the temporary store and the recipient MCDData user may be informed in MCDData indication with "Data expired and not available to download anymore" in the Deferred data list.

7.6.2.5 Accessing list of deferred data group communications

7.6.2.5.1 General

This procedure allows an MCDData client to obtain a list of deferred data communications.

Editor's note: Due to the introduction of new MCDData content server for HTTP FD in R16, this procedure is FFS.

7.6.2.5.2 Procedure

The procedure in figure 7.6.2.5.2-1 describes the case where the recipient MCDData client receives the list of available temporarily stored data waiting to download for the deferred data group communications.

Pre-conditions:

- 1. MCDData server has temporarily stored data for the deferred data group communications e.g. due to recipient MCDData client deferred to download.

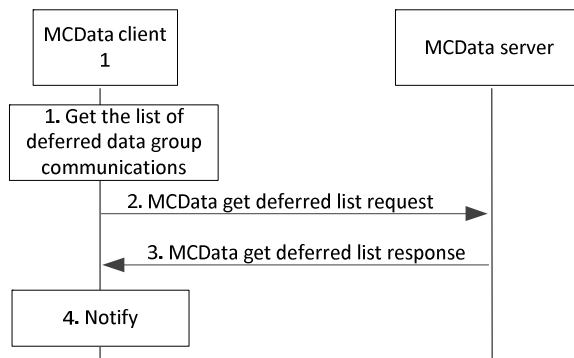


Figure 7.6.2.5.2-1: Accessing list of deferred data group communications

1. MCDData user initiates the request to get the list of temporarily stored data for the deferred data group communications on the MCDData server e.g. due to recipient MCDData client deferred to download.
2. MCDData client sends a MCDData get deferred list request to the MCDData server.
3. MCDData server generates the list of temporarily stored data for the affiliated group(s), available to download for the requesting MCDData client and sends the list in the MCDData get deferred list response.
4. MCDData client notifies the list of temporarily stored data for the deferred data group communications, upon which the MCDData user may decide to retrieve the corresponding data.

7.7 Communication release

7.7.1 General

The subclauses below describe the MCDData communication release procedures, which may be initiated either by the sender or the MCDData server or the authorized MCDData user.

7.7.2 Communication release for on-network

7.7.2.1 Information flows for communication release

7.7.2.1.1 MCDData communication release request (one-to-one communication using media plane)

Table 7.7.2.1.1-1 describes the information flow for the MCDData communication release request (in subclause 7.7.2.2.2.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.7.2.1.1-1: MCDData communication release request (one-to-one communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user uploading data
MCDData ID	M	MCDData ID on which the communication is to be released

7.7.2.1.2 MCDData communication release response (one-to-one communication using media plane)

Table 7.7.2.1.2-1 describes the information flow for the MCDData communication release response (in subclause 7.7.2.2.2.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.7.2.1.2-1: MCDData communication release response (one-to-one communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user requesting to upload data
MCDData ID	M	MCDData ID on which the communication is released
Release confirmation	M	Communication released or not indication

7.7.2.1.3 MCDData communication release request (group communication using media plane)

Table 7.7.2.1.3-1 describes the information flow for the MCDData communication release request (in subclause 7.7.2.2.2.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.7.2.1.3-1: MCDData communication release request (group communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user uploading data
MCDData group ID	M	MCDData group ID on which the communication is to be released

7.7.2.1.4 MCDData communication release response (group communication using media plane)

Table 7.7.2.1.4-1 describes the information flow for the MCDData communication release response (in subclause 7.7.2.2.2.2) sent from the MCDData client to the MCDData server and from the MCDData server to another MCDData client.

Table 7.7.2.1.4-1: MCDData communication release response (group communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user requesting to upload data
MCDData group ID	M	MCDData group ID on which the communication is released
Release confirmation	M	Communication released or not indication

7.7.2.1.5

Void

7.7.2.1.6

Void

7.7.2.1.7

Void

7.7.2.1.8 MCDData server communication release request (one-to-one communication using media plane)

Table 7.7.2.1.8-1 describes the information flow for MCDData server communication release request (in subclause 7.7.2.3.2.2) sent from the MCDData server to the MCDData clients involved in one-to-one communication.

Table 7.7.2.1.8-1: MCDData server communication release request (one-to-one communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user to which communication is released
Conversation Identifier	M	Identifies the conversation
Release Reason	M	Indicates reason for the release

7.7.2.1.9 MCDData server communication release response (one-to-one communication using media plane)

Table 7.7.2.1.9-1 describes the information flow for the MCDData server communication release response (in subclause 7.7.2.3.2.2) sent from the MCDData client to the MCDData server.

Table 7.7.2.1.9-1: MCDData server communication release response (one-to-one communication using media plane)

Information element	Status	Description
MCDData ID	M	MCDData ID to which the communication is released
Conversation Identifier	M	Identifies the conversation
Release confirmation	M	Communication released or not indication

7.7.2.1.10 MCDData server communication release request (group communication using media plane)

Table 7.7.2.1.10-1 describes the information flow for MCDData server communication release request (in subclause 7.7.2.3.2.2) sent from the MCDData server to the MCDData clients involved in group communication.

Table 7.7.2.1.10-1: MCDData server communication release request (group communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user to which communication is released
MCDData group ID	M	MCDData group ID on which the communication is released
Conversation Identifier	M	Identifies the conversation
Release Reason	M	Indicates reason for the release

7.7.2.1.11 MCDData server communication release response (group communication using media plane)

Table 7.7.2.1.11-1 describes the information flow for the MCDData server communication release response (in subclause 7.7.2.3.2.2) sent from the MCDData client to the MCDData server.

Table 7.7.2.1.11-1: MCDData server communication release response (group communication using media plane)

Information element	Status	Description
MCDData ID	M	MCDData ID to which the communication is released
MCDData group ID	M	MCDData group ID on which the communication is released
Conversation Identifier	M	Identifies the conversation
Release confirmation	M	Communication released or not indication

7.7.2.1.12

Void

7.7.2.1.13 MCDData release intent request (one-to-one communication using media plane)

Table 7.7.2.1.13-1 describes the information flow for MCDData release intent request (in subclause 7.7.2.4.2, 7.7.2.6.2) sent from the MCDData server to the MCDData client.

Table 7.7.2.1.13-1: MCDData release intent request (one-to-one communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user who is originator of the one-to-one communication
Conversation Identifier	M	Identifies the conversation
Request for more info	O	Indicates what MCDData server needs more information (e.g. to know the remaining data volume to transmit) about the communication which has been identified to be released

7.7.2.1.14 MCDData more information response (one-to-one communication using media plane)

Table 7.7.2.1.14-1 describes the information flow for MCDData more information response (in subclause 7.7.2.4.2, 7.7.2.6.2) sent from the MCDData client to the MCDData server and from MCDData server to authorized MCDData user.

Table 7.7.2.1.14-1: MCDData more information response (one-to-one communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user who is originator of the one-to-one communication
Conversation Identifier	M	Identifies the conversation
More info	M	Information as requested by MCDData server

7.7.2.1.15 MCDData release intent request (group communication using media plane)

Table 7.7.2.1.15-1 describes the information flow for MCDData release intent request (in subclause 7.7.2.4.2, 7.7.2.6.2) sent from the MCDData server to the MCDData client.

Table 7.7.2.1.15-1: MCDData release intent request (group communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user who is the originator of the group communication
Conversation Identifier	M	Identifies the conversation
MCDData group ID	M	MCDData group ID on which the communication is released
Request for more info	O	Indicates what MCDData server needs more information about the communication which has been identified to be released

7.7.2.1.16 MCDData more information response (group communication using media plane)

Table 7.7.2.1.16-1 describes the information flow for MCDData more information response (in subclause 7.7.2.4.2, 7.7.2.6.2) sent from the MCDData client to the MCDData server and from MCDData server to authorized MCDData user.

Table 7.7.2.1.16-1: MCDData more information response (group communication using media plane)

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user who is originator of the group communication
Conversation Identifier	M	Identifies the conversation
MCDData group ID	M	MCDData group ID on which the communication is released
More info	M	Information as requested by MCDData server

7.7.2.1.17 MCDData auth user communication release request (one-to-one communication using media plane)

Table 7.7.2.1.17-1 describes the information flow for MCDData auth user communication release request (in subclause 7.7.2.5.2, 7.7.2.6.2) sent from the authorized MCDData user to the MCDData server.

Table 7.7.2.1.17-1: MCDData auth user communication release request (one-to-one communication using media plane)

Information element	Status	Description
Conversation Identifier	M	Identifies the conversation
Request for more info	O	Indicates what MCDData server needs more information about the communication which has been identified to be released
Release Reason	M	Indicates reason for the release

7.7.2.1.18 MCDData auth user communication release response (one-to-one communication using media plane)

Table 7.7.2.1.18-1 describes the information flow for the MCDData server communication release response (in subclause 7.7.2.5.2, 7.7.2.6.2) sent from the MCDData server to the authorized MCDData user.

Table 7.7.2.1.18-1: MCDData auth user communication release response (one-to-one communication using media plane)

Information element	Status	Description
Conversation Identifier	M	Identifies the conversation
Release confirmation	M	Communication released or not indication

7.7.2.1.19 MCDData auth user communication release request (group communication using media plane)

Table 7.7.2.1.19-1 describes the information flow for MCDData auth user communication release request (in subclause 7.7.2.5.2, 7.7.2.6.2) sent from the authorized MCDData user to the MCDData server.

Table 7.7.2.1.19-1: MCDData auth user communication release request (group communication using media plane)

Information element	Status	Description
Conversation Identifier	M	Identifies the conversation
MCDData group ID	M	MCDData group ID on which the communication is to be released
Request for more info	O	Indicates what MCDData server needs more information about the communication which has been identified to be released
Release Reason	M	Indicates reason for the release

7.7.2.1.20 MCDData auth user communication release response (group communication using media plane)

Table 7.7.2.1.20-1 describes the information flow for the MCDData server communication release response (in subclause 7.7.2.5.2, 7.7.2.6.2) sent from the MCDData server to the authorized MCDData user.

Table 7.7.2.1.20-1: MCDData auth user communication release response (group communication using media plane)

Information element	Status	Description
Conversation Identifier	M	Identifies the conversation
MCDData group ID	M	MCDData group ID on which the communication is to be released
Release confirmation	M	Communication released or not indication

7.7.2.1.21 MCDData request for extension

Table 7.7.2.1.21-1 describes the information flow for the MCDData request for extension (in subclause 7.7.2.4.2, 7.7.2.6.2) sent from the MCDData client to the MCDData server and from MCDData server to authorized MCDData user.

Table 7.7.2.1.21-1: MCDData request for extension

Information element	Status	Description
Conversation Identifier	M	Identifies the conversation

7.7.2.1.22 MCDData response for extension

Table 7.7.2.1.22-1 describes the information flow for the MCDData response for extension (in subclause 7.7.2.4.2, 7.7.2.6.2) sent from the authorized MCDData user to the MCDData server and MCDData client to the MCDData server and from MCDData server to MCDData client.

Table 7.7.2.1.22-1: MCDData response for extension

Information element	Status	Description
Conversation Identifier	M	Identifies the conversation
Extension response	M	Indicates whether request for extension has been accepted or not

7.7.2.2 MCDData user initiated communication release

7.7.2.2.1 General

During MCDData communication, a transmitting participant can at any time indicate to stop transmission to the MCDData server.

7.7.2.2.2 Release of MCDData communication using media plane

7.7.2.2.2.1 General

The subclause describes the procedure for MCDData user initiated MCDData communication release where MCDData communication is established as SDS using media plane or SDS session or file distribution using media plane.

Editor's note: Release of MCDData communication over MBMS is FFS.

7.7.2.2.2.2 Procedure

The procedure in figure 7.7.2.2.2-1 describes signalling control plane procedure for the case where MCDData communication is ongoing and transmitting participant initiates MCDData communication release. The procedure is applicable for one-to-one and group MCDData communications.

Pre-conditions:

1. MCDData users on MCDData client 1 and client 2 are already registered for receiving MCDData service.
2. MCDData communication is established between MCDData client 1 and MCDData client 2 and MCDData client1 is the initiator of the MCDData communication.

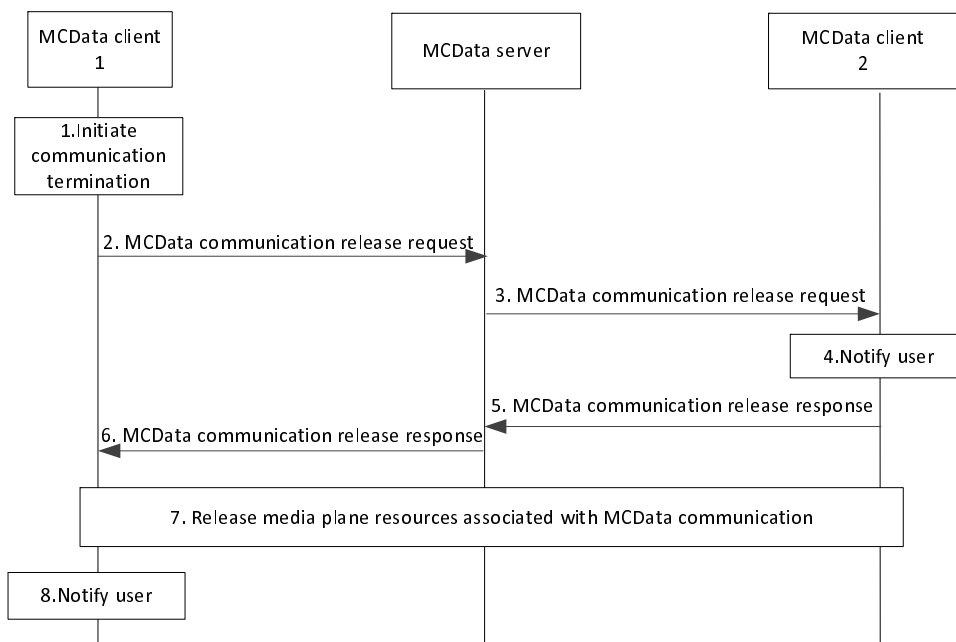


Figure 7.7.2.2.2-1: Release of MCDData communication using media plane

1. MCDData user at MCDData client 1 requests to release ongoing MCDData communication.
2. MCDData client 1 sends MCDData communication release request towards MCDData server, for tearing down the communication with the other MCDData client(s).
3. MCDData server sends MCDData communication release request to all the participants of the MCDData communication.
4. Recipient MCDData clients notifies respective MCDData user about the release of MCDData communication.
5. MCDData clients receiving the MCDData communication release request provide communication release response back towards MCDData server.
6. MCDData server sends MCDData communication release response back to MCDData client 1.
7. All participants of the MCDData communication have successfully released the media plane resources associated with the MCDData communication that is released.
8. MCDData client 1 notifies the MCDData user about the communication release.

7.7.2.2.3 Release of MCDData communication using HTTP

NOTE: The backward compatibility handling of this procedure is outside the scope of the present document.

7.7.2.3 MCDData server initiated communication release without prior indication

7.7.2.3.1 General

MCDData server initiates the release of an ongoing MCDData communication, since at least one of the communication release conditions are met e.g. lack of bearer capacity, limit for the maximum amount of data or time that a participant transmits from a single request to transmit exceeded. Based on the configuration, MCDData server either pre-empts the MCDData communication without giving prior indication to MCDData client or notifies the intent of release to the MCDData client initiating communication. Latter scenario allows the MCDData user to request for extension of MCDData communication and defer the communication release.

7.7.2.3.2 Release of MCDData communication using media plane

7.7.2.3.2.1 General

The subclause describes the procedure for MCDData server initiated MCDData communication release without prior indication, where MCDData communication is established as SDS using media plane or file distribution using media plane.

Editor's note: Release of MCDData communication over MBMS is FFS.

7.7.2.3.2.2 Procedure

The procedure in figure 7.7.2.3.2.2-1 describes signalling control plane procedure for the case where during an ongoing MCDData communication, based on communication release conditions, MCDData server initiates the communication release. The procedure is applicable for one-to-one and group communication.

Pre-conditions:

1. MCDData users on MCDData client 1, client 2 and client 3 are already registered for receiving MCDData service.
2. A MCDData administrator has configured the limits for the maximum amount of data and time that a participant transmits from a single request to transmit.
3. A MCDData communication is ongoing between MCDData client 1, client 2 and client 3.

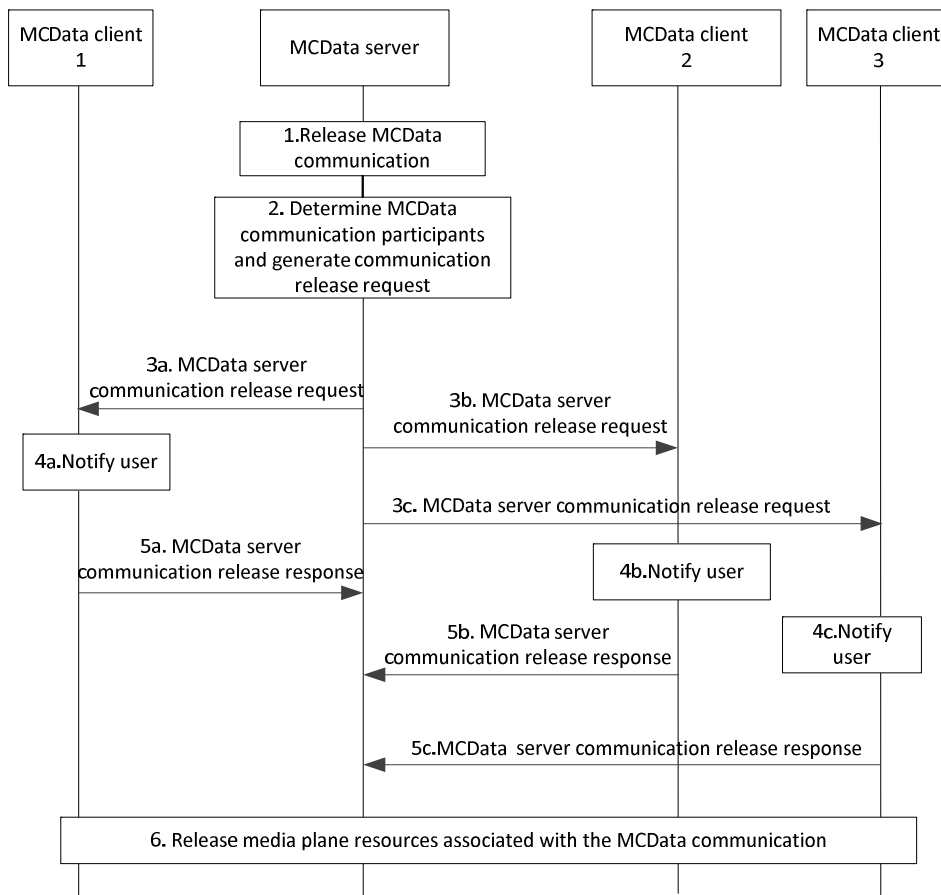


Figure 7.7.2.3.2.2-1: MCDATA server initiated release of MCDATA communication using media plane

1. MCDATA server would like to release the ongoing MCDATA communication, identified by conversation identifier, since at least one of the release conditions are met e.g. lack of capacity, limit for the maximum amount of data or time that a participant transmits from a single request to transmit exceeded. Based on configuration, MCDATA server decides to pre-empt the MCDATA communication without giving prior indication to MCDATA client 1.
2. MCDATA server identifies the participants of the ongoing MCDATA communication and generates communication release request to release ongoing MCDATA communication.
3. MCDATA server sends server MCDATA communication release request towards each participant of the MCDATA communication.
4. MCDATA users are notified about the release of the MCDATA communication.
5. MCDATA client at each MCDATA communication participant sends server MCDATA communication release response towards the MCDATA server.
6. All participants of the MCDATA communication have successfully released the media plane resources associated with the MCDATA communication that is released.

7.7.2.3.3 Release of MCDATA communication using HTTP

NOTE: The backward compatibility handling of this procedure is outside the scope of the present document.

7.7.2.4 MCDData server initiated communication release with prior indication

7.7.2.4.1 General

The subclause describes the procedure for MCDData server initiated MCDData communication release with prior indication, where MCDData communication is established as SDS using media plane or file distribution using media plane or file distribution using HTTP.

7.7.2.4.2 Procedure

The procedure in figure 7.7.2.4.2-1 describes signalling control plane procedure for the case where during an ongoing MCDData communication, based on communication release conditions, MCDData server initiates communication release. As a result of configuration check, MCDData server notifies the intent to release MCDData communication, optionally requesting for more information (e.g. to know the remaining data volume to transmit) from the MCDData client initiating MCDData communication.

Pre-conditions:

1. MCDData user on MCDData client 1 is already registered for receiving MCDData service.
2. MCDData administrator has configured the limits for the maximum amount of data and time that a participant transmits from a single request to transmit.
3. MCDData communication may be ongoing between MCDData participants and MCDData client 1 is the initiator of the communication.
4. MCDData administrator has configured the time for which MCDData server needs to wait for extension request from the MCDData user.

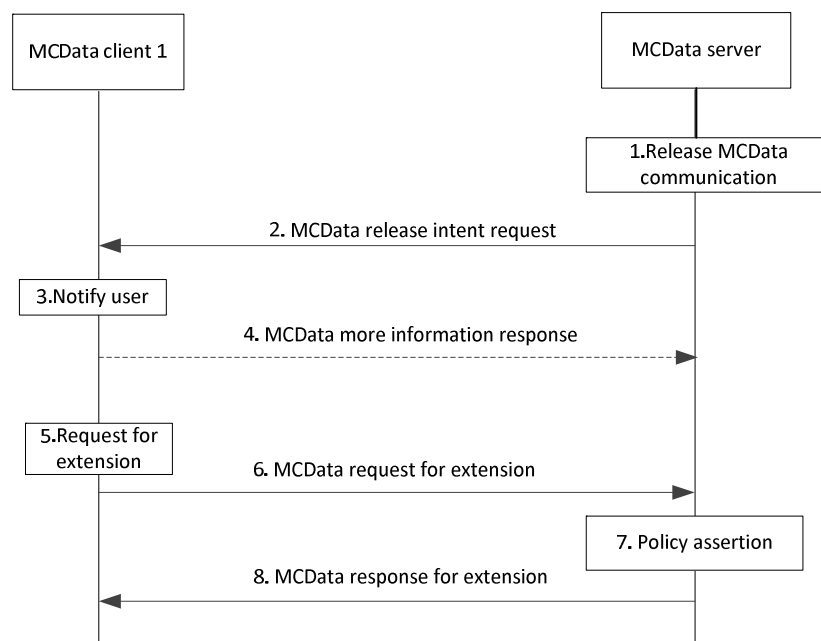


Figure 7.7.2.4.2-1: MCDData server initiates communication release with prior indication

1. MCDData server releases the ongoing MCDData communication, identified by the conversation identifier, since at least one of the release conditions are met e.g. lack of capacity, limit for the maximum amount of data or time that a participant transmits from a single request to transmit exceeded. Based on the configuration, MCDData server notifies the intent to release MCDData communication.
2. MCDData server sends the MCDData release intent request towards the communication initiating MCDData client 1. MCDData server may include request for more information (e.g. to know the remaining data volume to transmit).

3. MCDData client 1 informs MCDData user about the intent to release communication.
4. If request for more information is included in the received MCDData release intent request, MCDData client 1 sends MCDData more information response including the remaining amount of data to transmit. Upon receiving more information response from MCDData client 1, MCDData server may wait for the request for extension until the time configured by the MCDData administrator. If MCDData server does not receive MCDData request for extension within the configured timeout, the MCDData server releases MCDData communication as described in subclause 7.7.2.3. Otherwise, continue with remaining steps.
5. MCDData user at MCDData client 1 requests for extension of the ongoing MCDData communication.
6. MCDData client 1 sends MCDData request for extension of the MCDData communication.
7. Upon receiving the MCDData request for extension of MCDData communication from the MCDData client 1, MCDData server asserts policies to accept or reject the request for extension.
8. MCDData server sends MCDData response for extension with success or failure result to MCDData client 1. MCDData communication will continue if MCDData server accepted the request for extension from MCDData client 1. Otherwise, MCDData communication is released according to procedures described in subclause 7.7.2.3.

7.7.2.5 Authorized MCDData user initiated communication release without prior indication

7.7.2.5.1 General

An authorized MCDData user at any time during an ongoing MCDData communication decides to release communication. The authorized user may decide to release MCDData communication without prior indication to the initiator MCDData client.

7.7.2.5.2 Procedure

The procedure in figure 7.7.2.5.2-1 describes signalling control plane procedure for the case where during an ongoing MCDData communication, authorized MCDData user initiates MCDData communication release without prior indication to the initiator MCDData client. An authorized MCDData user is part of the ongoing MCDData communication.

Pre-conditions:

1. An authorized MCDData user on MCDData client is already registered for receiving MCDData service.
2. A MCDData communication is ongoing between MCDData participants and authorized MCDData user is keeping track of which participants are receiving communication e.g. through "message delivered" and/or "message read" indications for the MCDData communication.

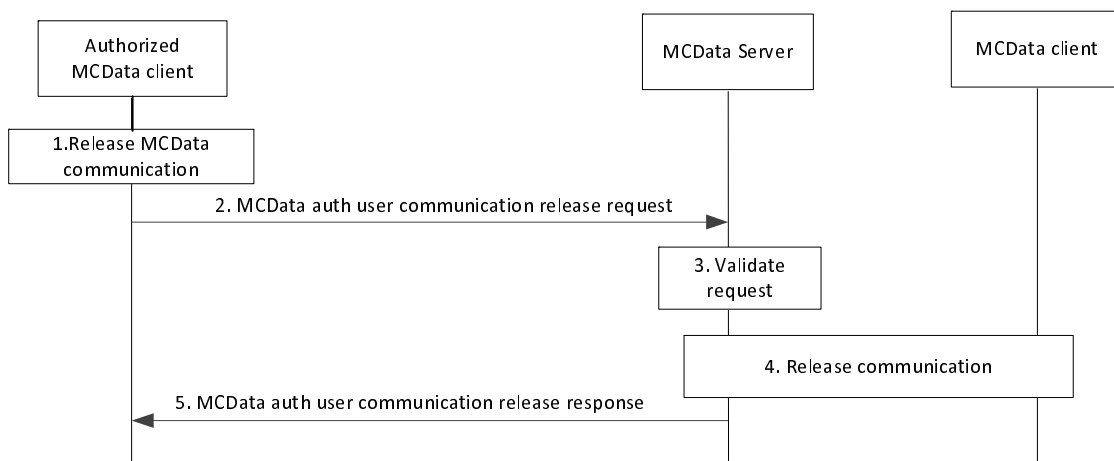


Figure 7.7.2.5.2-1: An authorized MCDData user initiates communication release without prior indication

1. An authorized MCDData user requests to release the ongoing MCDData communication, without providing prior indication to the initiator of the MCDData communication, MCDData client 1.
2. An authorized MCDData client sends MCDData auth user communication release request towards MCDData server identifying the MCDData communication to release. The request also includes indication to the MCDData server to release MCDData communication without prior indication to the initiator of the MCDData communication, MCDData client 1.
3. MCDData server validates the user from whom the MCDData communication release request is received and checks whether the requesting MCDData user is authorized to release communication or not.
4. If the user is authorized to release communication, then MCDData server releases the ongoing MCDData communication according to procedures described in subclause 7.7.2.3.
5. MCDData server sends MCDData auth user communication release response containing the result of MCDData communication release back to authorized MCDData client 1.

7.7.2.6 Authorized MCDData user initiated communication release with prior indication

7.7.2.6.1 General

An authorized MCDData user at any time during an ongoing MCDData communication decides to release communication. The authorized user may decide to release MCDData communication with prior indication to the initiator MCDData client. A prior indication allows initiator MCDData client to request for extension for the MCDData communication.

7.7.2.6.2 Procedure

The procedure in figure 7.7.2.6.2-1 describes signalling control plane procedure for the case where during an ongoing MCDData communication, authorized MCDData user initiates MCDData communication release with prior indication to the initiator MCDData client. An authorized MCDData user is part of the ongoing MCDData communication. An initiator MCDData user optionally decides to request for the extension of the ongoing communication.

Pre-conditions:

1. An authorized MCDData user on MCDData client is already registered for receiving MCDData service.
2. A MCDData communication is ongoing between MCDData participants and authorized MCDData user is keeping track of which participants are receiving communication e.g. through "message delivered" and/or "message read" indications for the MCDData communication
3. MCDData client 1 is the initiator of the MCDData communication.

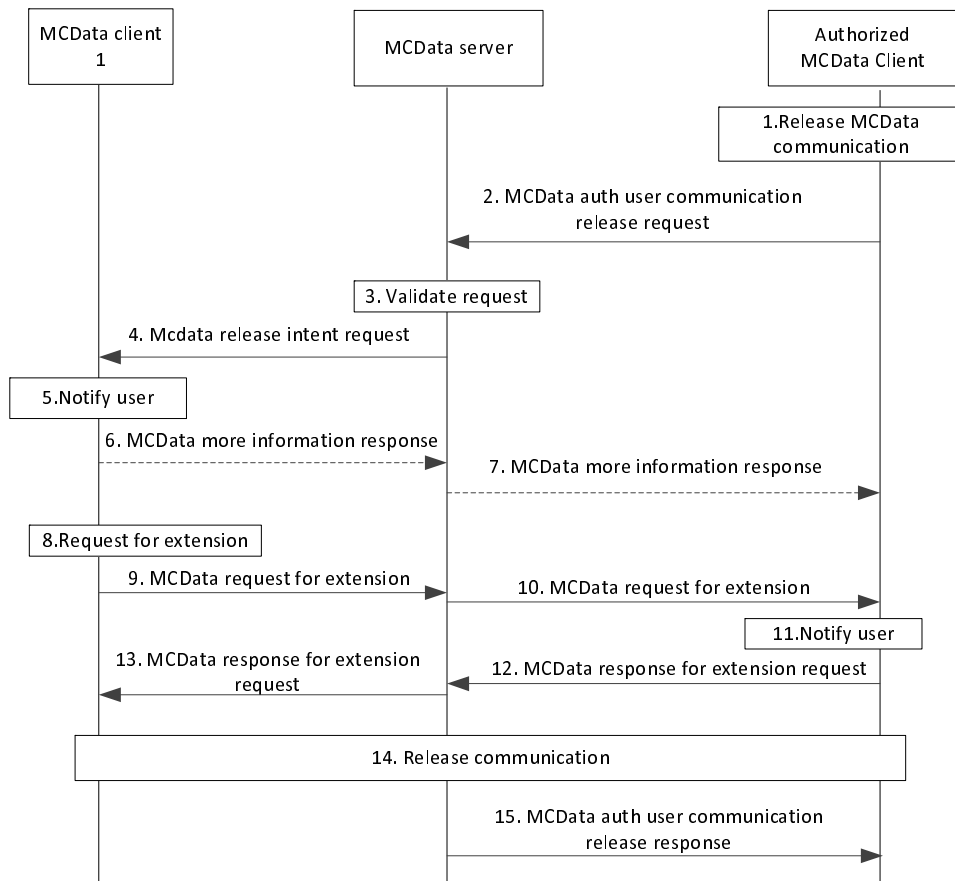


Figure 7.7.2.6.2-1: An authorized MCDData user initiates communication release with prior indication

1. An authorized MCDData user requests to release the ongoing MCDData communication by providing prior indication to the initiator of MCDData communication, MCDData client 1.
2. An authorized MCDData client sends MCDData auth user communication release request towards MCDData server including the communication identifier identifying the MCDData communication to release. Authorized MCDData client may include request for more information (e.g. to know the remaining data volume to transmit). The request also includes indication to MCDData server to release MCDData communication with prior indication to the initiator MCDData client.
3. MCDData server validates the user from whom the communication release request is received and checks whether the requesting user is authorized to release communication or not.
4. If the user is authorized to release communication, then the MCDData server sends MCDData release intent request, may be including the reason for the release. MCDData server may include request for more information as received in the request from the authorized MCDData client.
5. MCDData client informs MCDData user about the intent to release communication by the authorized MCDData user.
6. If request for more information is included in the received MCDData release intent request, MCDData client 1 sends MCDData more information response including the remaining amount of data to transmit.
7. MCDData server forwards the MCDData more information response to the authorized MCDData client.

NOTE: Upon receiving more information response from MCDData client 1, MCDData server may wait for the request for extension until the time configured by the MCDData administrator. If MCDData server does not receive request for extension within the configured timeout, the MCDData server releases MCDData communication as described in subclause 7.7.2.3. Otherwise, continue with remaining steps.

8. MCDData user at MCDData client 1 decides to request for extension of the ongoing MCDData communication.

- 9 and 10. MCDData client sends MCDData request for extension towards MCDData server. And MCDData server forwards the MCDData request for extension towards the authorized MCDData client.
- 11. Authorized MCDData client notifies the authorized user about the incoming request for extension. An authorized MCDData user decides to accept or reject the request for extension.
- 12 and 13. Authorized MCDData user decision is sent in MCDData response for extension request towards the MCDData server. MCDData server forwards the MCDData response for extension request to MCDData client 1.
- 14. MCDData communication will continue if the authorized user accepted the request for extension from MCDData client 1. Otherwise, MCDData communication will be released according to procedures described in subclause 7.7.2.3.
- 15. After MCDData communication is released, MCDData server sends the MCDData auth user communication release response back to the authorized MCDData client.

7.8 Conversation management

7.8.1 General

Conversation management is a collection of related MCDData transmissions for a given activity. Conversation management associates SDS and FD communication transmission and present them as a single thread to the user.

7.8.2 Conversation management for on-network

7.8.2.1 Information flows for conversation management

The information flow parameters related to conversation management are as described in the subclauses 7.4.2.1 and subclauses 7.5.2.1.5, 7.5.2.1.6, 7.5.2.1.7, 7.5.2.1.8, 7.5.2.1.9, 7.5.2.1.10, 7.5.2.1.11, 7.5.2.1.12, and 7.5.2.1.13.

7.8.2.2 One-to-one conversation management

7.8.2.2.1 Procedure

The procedure for an MCDData user to associate multiple MCDData transmissions between a pair of users for a given activity is illustrated in figure 7.8.2.2.1-1.

Pre-conditions:

- 1. MCDData user(s) on MCDData client 1 and 2 are registered for receiving MCDData service.

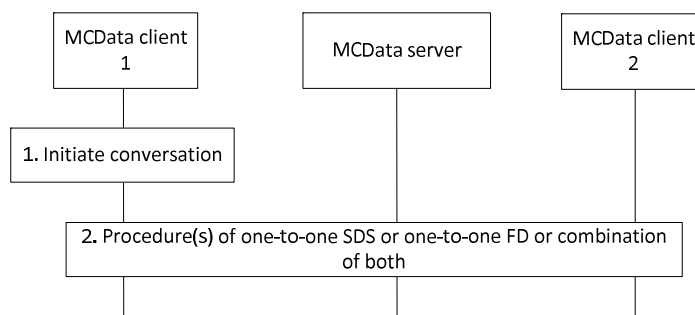


Figure 7.8.2.2.1-1: One-to-one conversation management

- 1. The user at MCDData client 1 initiates conversation. A universally unique conversation identifier is generated to identify new conversation. Conversation identifier is used in procedures mentioned in step 2. If the intent of the user at MCDData client 1 is to transmit within an existing conversation, then corresponding conversation identifier

is used in procedures mentioned in step 2. To allow multiple parallel conversations for the same pair of users, different conversation identifier is used for each conversation. The MCDData users can view the MCDData conversation at any time after the first MCDData transaction is initiated within the conversation.

2. The procedure of one-to-one SDS or one-to-one FD or combination of both these procedures can be executed.

7.8.2.3 Group conversation management

7.8.2.3.1 Procedure

The procedure for an MCDData user to associate multiple MCDData transmissions between users of a group for a given activity is illustrated in figure 7.8.2.3.1-1.

Pre-conditions:

1. MCDData user(s) on MCDData client 1, 2, and n are registered for receiving MCDData service.
2. The MCDData users 1, 2 and n are members of the same MCDData group and affiliated to the MCDData service.

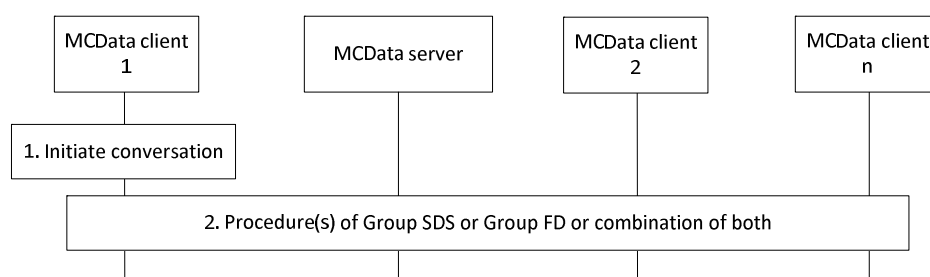


Figure 7.8.2.3.1-1: Group conversation management

1. The user at MCDData client 1 initiates conversation. A unique conversation identifier is generated to identify new conversation. Conversation identifier is used in procedures mentioned in step 2. If the intent of the user at MCDData client 1 is to transmit within an existing conversation, then corresponding conversation identifier is used in procedures mentioned in step 2. To allow multiple parallel conversations for the same group of users, different conversation identifier is used for each conversation. The MCDData users can view the MCDData conversation at any time after the first MCDData transaction is initiated within the conversation.
2. The procedure of group SDS or group FD or combination of both these procedures can be executed.

7.8.3 Conversation management for off-network

7.8.3.1 One-to-one conversation management

7.8.3.1.1 Procedure

The procedure for an MCDData user to associate multiple off-network MCDData transmissions between a pair of users is illustrated in figure 7.8.3.1.1-1.

Pre-conditions:

1. MCDData client 1 and MCDData client 2 are members of the same ProSe Discovery group and are ProSe 1:1 direct communication capable.
2. MCDData client 1 has discovered MCDData client 2 in proximity, associated with MCDData user B, using ProSe Discovery procedures.

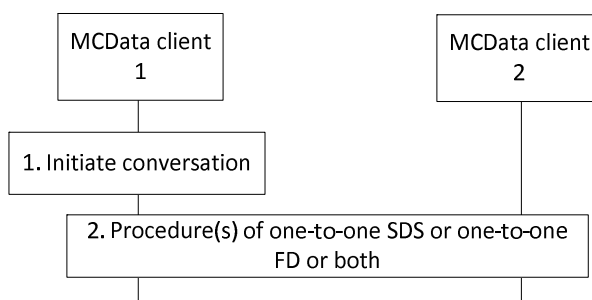


Figure 7.8.3.1.1-1: One-to-one conversation management

1. The user at MCDData client 1 initiates conversation. A universally unique conversation identifier is generated to identify the new conversation. Conversation identifier is used in the procedures mentioned in step 2. If the intent of the user at MCDData client 1 is to transmit within an existing conversation, then corresponding conversation identifier from the existing conversation is used in the procedures mentioned in step 2. To allow multiple parallel conversations for the same pair of users, different conversation identifier is used for each conversation. The MCDData users can view the MCDData conversation at any time after the first MCDData transaction is initiated within the conversation.
2. The procedure of one-to-one SDS or one-to-one FD or a combination of these can be executed.

7.8.3.2 Group conversation management

7.8.3.2.1 Procedure

The procedure for an MCDData user to associate multiple off-network MCDData transmissions between users of a group is illustrated in figure 7.8.3.2.1-1.

Pre-conditions:

1. Information for ProSe direct communications corresponding to the MCDData group and its mapping to ProSe Layer-2 Group ID are pre-configured in MCDData client 1.
2. MCDData client 1 to MCDData client N are members of the same MCDData group.

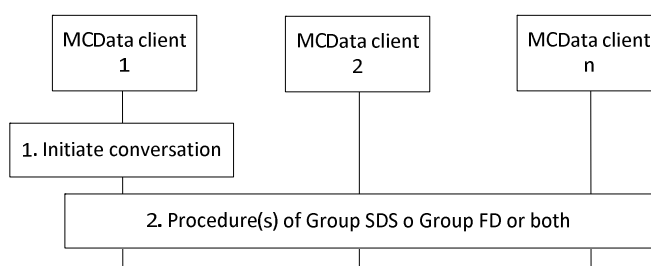


Figure 7.8.3.2.1-1: Group conversation management

1. The user at MCDData client 1 initiates conversation. A universally unique conversation identifier is generated to identify the new conversation. Conversation identifier is used in the procedures mentioned in step 2. If the intent of the user at MCDData client 1 is to transmit within an existing conversation, then corresponding conversation identifier from the existing conversation is used in the procedures mentioned in step 2. To allow multiple parallel conversations for the same group of users, different conversation identifier is used for each conversation. The MCDData users can view the MCDData conversation at any time after the first MCDData transaction is initiated within the conversation.

2. The procedure of group SDS or group FD or combination of both can be executed.

7.9 Enhanced status

7.9.1 General

Enhanced status corresponds to information specific to the activities performed by the mission critical service users during their operation(s) e.g. available, in operation on site, going to the operation site, or just arrived.

7.9.2 Preset values for enhanced status

The enhanced status information i.e. the set of possible values corresponding to the activities of the MCDData user, shall be configured by the MCDData administrator. The configuration of status values is applicable on a per-group basis, and therefore shall be part of the MCDData group configuration data as described in Annex A.4.

The configuration mechanism shall allow the MCDData administrator to configure a minimum of 32 possible values and allow up to 65536 separate values. The set of values may be divided into a fixed set of values defined by 3GPP standards which are common across all MCDData systems, and a set which may be freely configured for any purpose.

7.9.3 Enhanced status for on-network

7.9.3.1 Sharing enhanced status information

7.9.3.1.1 Procedure

The procedure for an MCDData user to share the enhanced status information to the members of the selected group is illustrated in figure 7.9.3.1.1-1.

Pre-conditions:

1. MCDData user(s) on MCDData client 1, 2, and n are registered for receiving MCDData service.
2. The MCDData users 1, 2 and n are members of the same MCDData group and affiliated to the MCDData service.
3. The MCDData group is pre-configured with the possible values for enhanced status information.

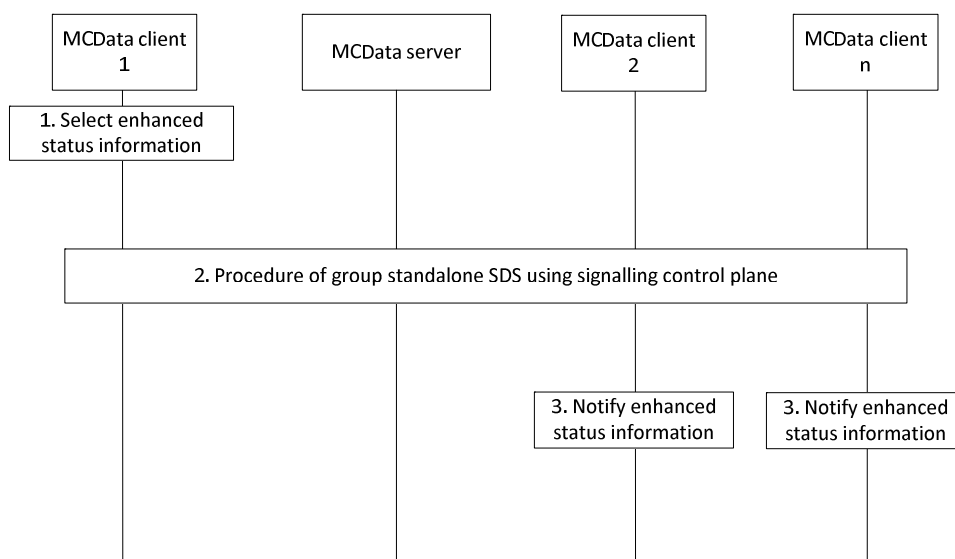


Figure 7.9.3.1.1-1: Sharing enhanced status information

1. The user at MCDData client 1 selects the MCDData group to share the enhanced status information. The user also selects the value of the status information to be shared from the list of pre-configured status values available for the MCDData group.
2. The procedure of group standalone SDS using signalling control plane as described in subclause 7.4.2.5, is used to deliver the enhanced status information.
3. The MCDData users at MCDData client 2 and n are notified of the enhanced status information.

7.9.4 Enhanced status for off-network

7.9.4.1 Sharing enhanced status information

7.9.4.1.1 Procedure

The procedure for an MCDData user to share the enhanced status information to the members of the selected group is illustrated in figure 7.9.4.1.1-1.

Pre-conditions:

1. Information for ProSe direct communications corresponding to the MCDData group and its mapping to ProSe Layer-2 Group ID are pre-configured in MCDData client 1.
2. MCDData client 1, 2 and n are members of the same MCDData group.
3. The MCDData group is pre-configured with the possible values for enhanced status information.

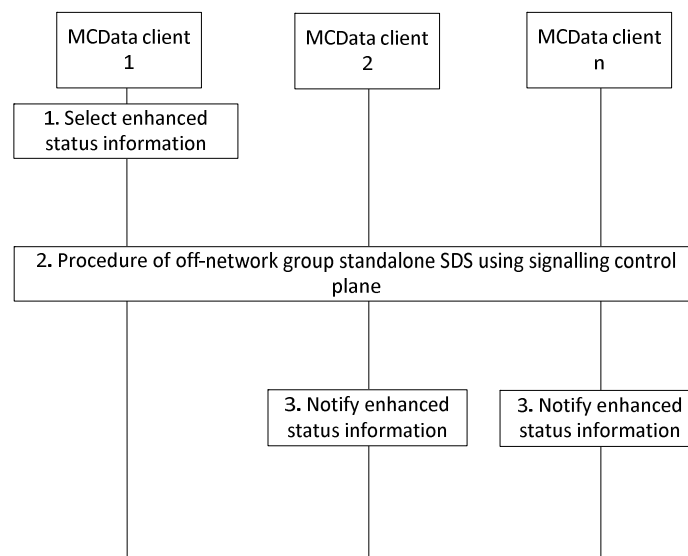


Figure 7.9.4.1.1-1: Sharing enhanced status information

1. The user at MCDData client 1 selects the MCDData group to share the enhanced status information. The user also selects the value of the status information to be shared from the list of pre-configured status values available for the MCDData group.
2. The procedure of off-network group standalone SDS using signalling control plane as described in subclause 7.4.3.4, is used to deliver the enhanced status information.
3. The MCDData users at MCDData client 2 and n are notified of the enhanced status information.

7.10 MCDData emergency alert (on-network and off-network)

The MCDData service shall support the procedures and related information flows as specified in subclause 10.10 of 3GPP TS 23.280 [5] with the following clarifications:

- The MC service client is the MCDData client;
- The MC service server is the MCDData server;
- The MC service group ID is the MCDData Group ID; and
- The MC service user profile index is the MCDData user profile index.

7.11 User authentication and authorization for MCDData service

NOTE: Flow 7.11-1 is a high level user authentication and authorization flow. 3GPP TS 33.180 [13] defines the specific user authentication and authorization architecture required by the MCDData service in order to realize the MCDData user authentication and authorization requirements as defined in 3GPP TS 22.280 [2].

A procedure for user authentication is illustrated in figure 7.11-1. The user authentication is performed based on the procedure specified in subclause 10.6 of 3GPP TS 23.280 [5].

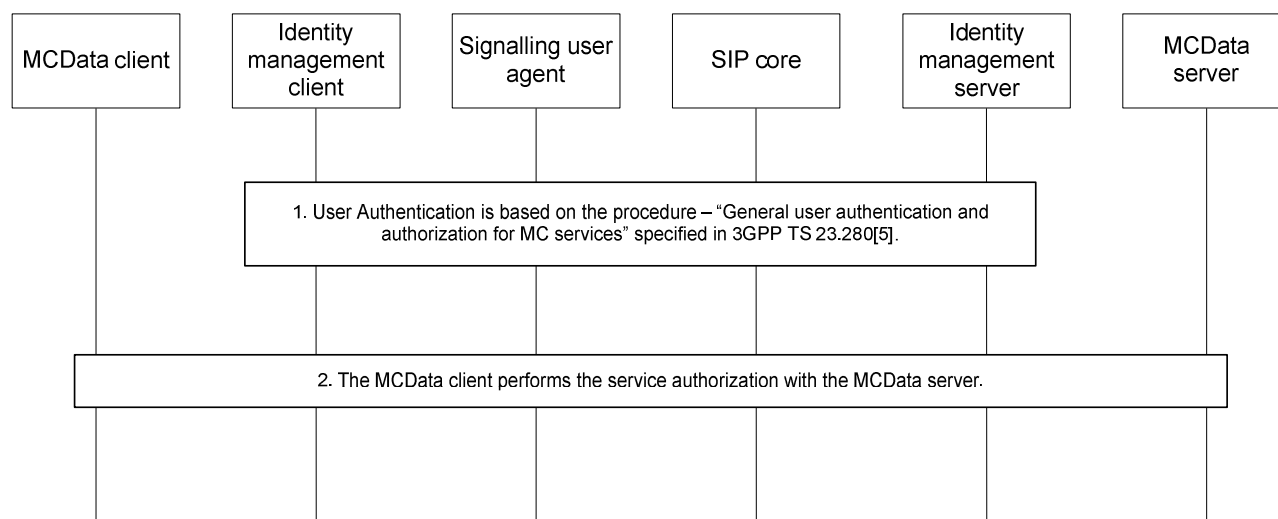


Figure 7.11-1: MCDData user authentication and registration, single domain

1. The user authentication is performed as per the general user authentication procedure specified in subclause 10.6 of 3GPP TS 23.280 [5].
2. MCDData client performs the MCDData service authorization for the user. Step 2 utilizes the results of step 1.

7.12 MCDData resource management (on-network)

7.12.1 General

Procedures for resource management are defined in subclause 10.x of 3GPP TS 23.280 [5].

7.12.2 MCDData services not handled by SIP core

MCDData services that do not utilize the SIP core e.g. IP connectivity, cannot utilize the resource control functionality of the local outbound / inbound proxy. For these types of service, resource management is handled directly by the Rx interface from the MCDData server to the PCRF, which is the MCDData-5 reference point. The Rx interface is defined in 3GPP TS 29.214 [17].

The same types of resource management procedures as defined for SIP based services in 3GPP TS 23.280 [5] may also be applied for non SIP based services. That is:

- Request for unicast resources at session establishment (in this case service initiation);
- Request for modification of unicast resources; and
- Request for resources with shared priority.

7.13 Operations on MCDData message store

The MCDData message store allows an MCDData user to deposit his MCDData communication information (i.e. messages or files) securely and permanently for later retrieval. During an active MCDData communication, a message or a file with its associated metadata is deposited as an object in the MCDData message store with an object identifier; this object identifier enabling a direct access to that object. The objects in the MCDData message store are managed from both the MCDData server and the message store client.

Each MCDData user is allocated a dedicated and secured storage area (i.e. with a user account) in the MCDData message store. All MCDData communications of a MCDData user can be stored in his dedicated storage area. The access to this secured storage area is possible only after successful authentication and authorization procedures. A message store client can create a local copy of the stored objects into the device by synchronizing with the MCDData message store for the MCDData user using the device.

7.13.1 MCDData message store structure

MCDData message store supports a tree like architecture to securely store MCDData communications for the MCDData users. Figure 7.13.1 below illustrates the high-level structure of a MCDData message store:

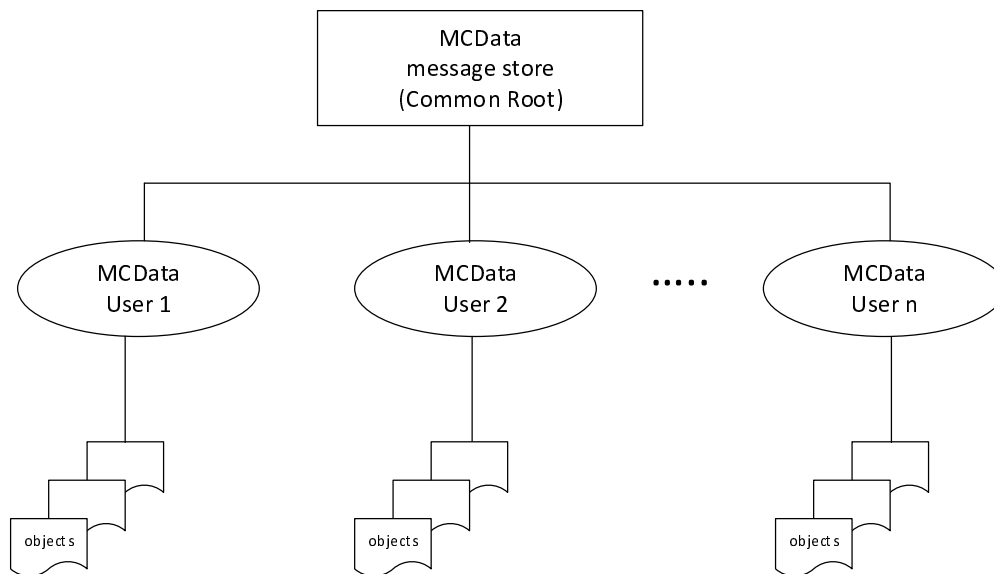


Figure 7.13.1 Message store structure

As illustrated in Figure 7.13.1 all MCDData user storage areas are accessed only through the common root. The authorized MCDData user shall only have the access to the MCDData user's storage area after the successful authentication and authorization procedures. A MCDData user shall not be able to access objects stored for other MCDData users.

The MCDData user shall manage his stored objects using message store client through the MCDData-7 reference point. The MCDData server shall use the MCDData-8 reference point to deposit MCDData communication information, during an active MCDData communication, into the designated MCDData user's storage area in the MCDData message store.

One way to manage user stored objects is using folder hierarchy structure like the popular email system today. Annex X provides a simple example of how it will look like in deployment. When the user account is created in the MCDData

message store, a default folder (such as Inbox) is also created to capture all the objects during an active communication. To group relevant stored objects together and provide easier navigation interactively, a MCDData user can create folders in his user account. Each folder is identified by its unique folder identifier that is composed with the location of the folder and the name of the folder. A folder may have child folders to further group the stored objects in more meaningful ways. For example, the folder identifier of the default Inbox folder is /MCDatamessagestore /MCDatauser1/Inbox. The folder identifier /MCDatamessagestore/MCDatauser1/Squad1/20190225 points to a folder named 20190225 which is a child folder of Squad1 folder in the MCDData user1 user account.

NOTE: The details of how the objects are stored in the MCDData message store is out of scope of the present document.

7.13.2 Authentication and authorization

The MCDData message store shall authenticate the credential of MCDData server or the authorized MCDData user before authorizing access to the MCDData user's storage area. The success of authentication and authorization shall allow access to that MCDData user's storage area only.

NOTE: The authentication and authorization aspects of MCDData message store access and its operational supports are the responsibility of SA3 and thus outside the scope of the present document.

7.13.3 Manage MCDData message store

7.13.3.1 Information flows for managing MCDData message store

7.13.3.1.1 MCDData retrieve a stored object request

Table 7.13.3.1.1-1 describes the information flow for the MCDData retrieve a stored object request sent from the message store client to the MCDData message store.

Table 7.13.3.1.1-1: MCDData retrieve a stored object request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object identifier	M	The object identifier of the object stored in the MCDData message store

7.13.3.1.2 MCDData retrieve a stored object response

Table 7.13.3.1.2-1 describes the information flow for the MCDData retrieve a stored object response sent from the MCDData message store to the message store client.

Table 7.13.3.1.2-1: MCDData retrieve a stored object response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Stored object	M	The stored object identified by the object identifier in the request. This information element shall be returned as empty when there is no stored object can be identified by the object identifier in the request

7.13.3.1.3 MCDData search stored objects request

Table 7.13.3.1.3-1 describes the information flow for the MCDData search stored objects request sent from the message store client to the MCDData message store.

Table 7.13.3.1.3-1: MCDData search stored objects request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Search criteria	M	Any part of the stored object can be the search criteria. Linking multiple parts of a stored object as the search criteria is possible

7.13.3.1.4 MCDData search stored objects response

Table 7.13.3.1.4-1 describes the information flow for the MCDData search stored objects response sent from the MCDData message store to the message store client.

Table 7.13.3.1.4-1: MCDData search stored objects response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Stored object(s)	M	The stored object(s) that meets the search criteria. This information element shall be returned as empty when there is no stored object can be identified by the search criteria in the request

7.13.3.1.5 MCDData update a stored object request

Table 7.13.3.1.5-1 describes the information flow for the MCDData update a stored object request sent from the message store client to the MCDData message store.

Table 7.13.3.1.5-1: MCDData update a stored object request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object identifier	M	The object identifier of the object stored in the MCDData message store
Metadata	M	The metadata that will be updated

7.13.3.1.6 MCDData update a stored object response

Table 7.13.3.1.6-1 describes the information flow for the MCDData update a stored object response sent from the MCDData message store to the message store client.

Table 7.13.3.1.6-1: MCDData update a stored object response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user storage area in the MCDData message store
Result	M	The result if the update is success or failure

7.13.3.1.7 MCDData delete a stored object request

Table 7.13.3.1.7-1 describes the information flow for the MCDData delete a stored object request sent from the message store client to the MCDData message store.

Table 7.13.3.1.7-1: MCDData delete a stored object request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object identifier	M	The object identifier of the object stored in the MCDData message store

7.13.3.1.8 MCDData delete a stored object response

Table 7.13.3.1.8-1 describes the information flow for the MCDData delete a stored object response sent from the MCDData message store to the message store client.

Table 7.13.3.1.8-1: MCDData delete a stored object response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user storage area in the MCDData message store
Result	M	The result if the delete is success or failure

7.13.3.1.9 MCDData synchronization request

Table 7.13.3.1.9-1 describes the information flow for the MCDData synchronization request sent from the message store client to the MCDData message store.

Table 7.13.3.1.9-1: MCDData synchronization request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Synchronization type	M	Indicates the type of synchronization is requested. It can be a full or partial synchronization
Filter criteria (see NOTE)	O	The filter criteria indicate what kind of stored objects needs to be synchronized to the device local message store
NOTE: Filter criteria information element shall be presented if the Synchronization type is partial.		

7.13.3.1.10 MCDData synchronization response

Table 7.13.3.1.10-1 describes the information flow for the MCDData synchronization response sent from the MCDData message store to the message store client.

Table 7.13.3.1.10-1: MCDData synchronization response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Stored objects	M	The stored objects that need to be synchronized with the device local message store. Empty information element means no stored objects need to be synchronized

7.13.3.1.11 MCDData create a user account request

Table 7.13.3.1.11-1 describes the information flow for the MCDData create a user account request sent from the MCDData server to the MCDData message store.

Table 7.13.3.1.11-1: MCDData create a user account request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user

7.13.3.1.12 MCDData create a user account response

Table 7.13.3.1.12-1 describes the information flow for the MCDData create a user account response sent from the MCDData message store to the MCDData server.

Table 7.13.3.1.12-1: MCDData create a user account response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result	M	The result if the account creation is success or failure

7.13.3.1.13 MCDData deposit an object request

Table 7.13.3.1.13-1 describes the information flow for the MCDData deposit an object request sent from the MCDData server to the MCDData message store.

Table 7.13.3.1.13-1: MCDData deposit an object request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object	M	The object needs to be stored

7.13.3.1.14 MCDData deposit an object response

Table 7.13.3.1.14-1 describes the information flow for the MCDData deposit an object response sent from the MCDData message store to the MCDData server.

Table 7.13.3.1.14-1: MCDData deposit an object response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object Identifier	M	The object identifier that will be used to retrieve this object in the MCDData message store directly. If this information element is empty it means the object is not stored

7.13.3.1.15 MCDData copy a stored object request

Table 7.13.3.1.15-1 describes the information flow for the MCDData copy a stored object request sent from the message store client to the MCDData message store.

Table 7.13.3.1.15-1: MCDData copy a stored object request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object identifier	M	The object identifier of the object stored in the MCDData message store
Destination folder identifier	M	Indicates where the object will be copied to

7.13.3.1.16 MCDData copy a stored object response

Table 7.13.3.1.16-1 describes the information flow for the MCDData copy a stored object response sent from the MCDData message store to the message store client.

Table 7.13.3.1.16-1: MCDData copy a stored object response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result	M	The result if the operation is success or failure

7.13.3.1.17 MCDData move a stored object request

Table 7.13.3.1.17-1 describes the information flow for the MCDData move a stored object request sent from the message store client to the MCDData message store.

Table 7.13.3.1.17-1: MCDData move a stored object request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object identifier	M	The object identifier of the object stored in the MCDData message store
Destination folder identifier	M	Indicates where the object will be moved to.

7.13.3.1.18 MCDData move a stored object response

Table 7.13.3.1.18-1 describes the information flow for the MCDData move a stored object response sent from the MCDData message store to the message store client.

Table 7.13.3.1.18-1: MCDData move a stored object response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result	M	The result if the operation is success or failure

7.13.3.1.19 MCDData create folder request

Table 7.13.3.1.19-1 describes the information flow for the MCDData create folder request sent from the message store client to the MCDData message store.

Table 7.13.3.1.19-1: MCDData create folder request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Parent folder identifier	O	The parent folder identifier of the created folder
Folder name	O	Indicates the name of the new folder

7.13.3.1.20 MCDData create folder response

Table 7.13.3.1.20-1 describes the information flow for the MCDData create folder response sent from the MCDData message store to the message store client.

Table 7.13.3.1.20-1: MCDData create folder response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result	M	The result if the operation is success or failure
Folder identifier	O	The identifier of the folder that is created

7.13.3.1.21 MCDData delete folder request

Table 7.13.3.1.21-1 describes the information flow for the MCDData delete folder request sent from the message store client to the MCDData message store.

Table 7.13.3.1.21-1: MCDData delete folder request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Folder identifier	M	The identifier of the folder to be deleted

7.13.3.1.22 MCDData delete folder response

Table 7.13.3.1.22-1 describes the information flow for the MCDData delete folder response sent from the MCDData message store to the message store client.

Table 7.13.3.1.22-1: MCDData delete folder response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result	M	The result if the operation is success or failure

7.13.3.1.23 MCDData copy folder request

Table 7.13.3.1.23-1 describes the information flow for the MCDData copy folder request sent from the message store client to the MCDData message store.

Table 7.13.3.1.23-1: MCDData copy folder request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Source folder identifier	M	The identifier of the folder to copy from
Destination folder identifier	M	The identifier of the folder to copy to
New folder name (see NOTE)	O	Indicates the name of the new folder
NOTE:	If no new folder name information element is provided, the new folder name will be the same as the source folder name.	

7.13.3.1.24 MCDData copy folder response

Table 7.13.3.1.24-1 describes the information flow for the MCDData copy folder response sent from the MCDData message store to the message store client.

Table 7.13.3.1.24-1: MCDData copy folder response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result	M	The result if the operation is success or failure
New folder identifier	M	Indicates the identifier of the new folder

7.13.3.1.25 MCDData move folder request

Table 7.13.3.1.25-1 describes the information flow for the MCDData move folder request sent from the message store client to the MCDData message store.

Table 7.13.3.1.25-1: MCDData move folder request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Source folder identifier	M	The identifier of the folder to be moved
Destination folder identifier	M	The identifier of the folder to move to
New folder name (see NOTE)	O	Indicates the name of the new folder
NOTE:	If no new folder name information element is provided, the new folder name will be the same as the source folder name.	

7.13.3.1.26 MCDData move folder response

Table 7.13.3.1.26-1 describes the information flow for the MCDData move folder response sent from the MCDData message store to the message store client.

Table 7.13.3.1.26-1: MCDData move folder response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result	M	The result if the operation is success or failure
New folder identifier	M	Indicates the identifier of the new folder

7.13.3.1.27 MCDData list folder request

Table 7.13.3.1.27-1 describes the information flow for the MCDData list folder request sent from the message store client to the MCDData message store.

Table 7.13.3.1.27-1: MCDData list folder request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Folder identifier	O	The identifier of the folder to be listed

7.13.3.1.28 MCDData list folder response

Table 7.13.3.1.28-1 describes the information flow for the MCDData list folder response sent from the MCDData message store to the message store client.

Table 7.13.3.1.28-1: MCDData list folder response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Result (see NOTE)	M	The result of the list operation
NOTE:		If no folder identifier information element is provided in the request, the MCDData message store returns folders from the root of the user account. If folder identifier information element is provided in the request, the MCDData message store returns the child folders from that folder identifier provided.

7.13.3.1.29 MCDData upload objects request

Table 7.13.3.1.29-1 describes the information flow for the MCDData upload objects request sent from the message store client to the MCDData message store.

Table 7.13.3.1.29-1: MCDData upload objects request

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Targeted folder identifier	M	The folder where the uploaded objects will be stored
Uploaded objects	M	The objects in the client that need to be uploaded to the MCDData message store

7.13.3.1.30 MCDData upload objects response

Table 7.13.3.1.30-1 describes the information flow for the MCDData upload objects response sent from the MCDData message store to the message store client.

Table 7.13.3.1.30-1: MCDData upload objects response

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user
Object upload result	M	Indicates if the objects upload is successful or not

7.13.3.1.31 MCDData synchronization notification

Table 7.13.3.1.31-1 describes the information flow for the MCDData synchronization notification sent from the MCDData message store to the message store client.

Table 7.13.3.1.31-1: MCDData synchronization notification

Information element	Status	Description
MCDData ID	M	The identity of the MCDData user that the notification is for

7.13.3.2 Retrieve a stored object

7.13.3.2.1 General

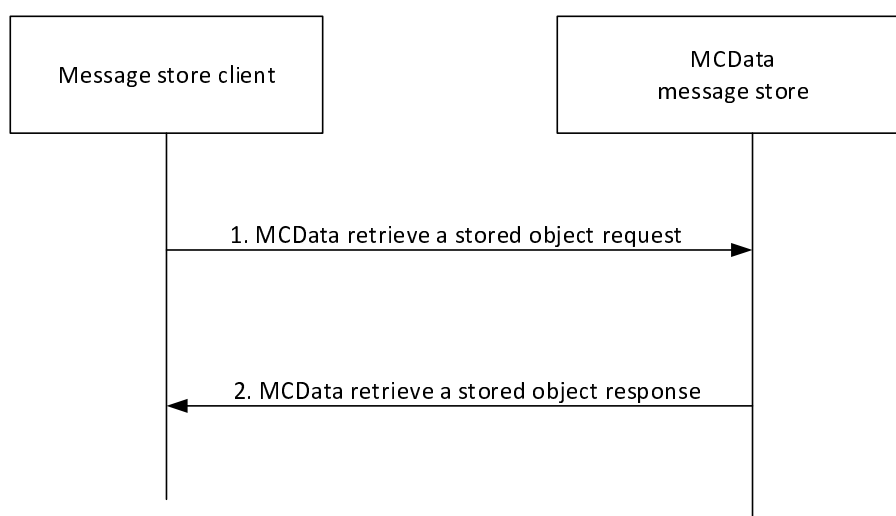
A stored object can be retrieved from the MCDData message store with the known object identifier that is generated by the MCDData message store when the object was deposited.

7.13.3.2.2 Procedure

The procedure in figure 7.13.3.2.2-1 describes the case when a message store client retrieves a stored object from the MCDData message store using the known object identifier.

Pre-conditions:

1. A successful authentication and authorization have been performed between the message store client and the MCDData message store.
2. The message store client knows the object identifier of the stored object.

**Figure 7.13.3.2.2-1: Retrieve a stored object**

1. The message store client would like to retrieve a stored object from the MCDData message store and initiates a MCDData retrieve a stored object request toward the MCDData message store. The unique object identifier of the stored object is included in the request.

2. The MCDData message store returns the stored object that is identified by the object identifier in the MCDData retrieve a stored object response.

7.13.3.3 Search stored objects

7.13.3.3.1 General

The message store client can search stored objects in the MCDData message store with certain criteria. This procedure allows the message store client to look for stored object(s) without knowing the object identifier(s) of the object. This procedure also allows the message store client to retrieve stored objects that are related to each other; such as all messages and files exchanged in a conversation.

7.13.3.3.2 Procedure

The procedure in figure 7.13.3.3.2-1 describes the case when a message store client searches and retrieves relevant stored objects from the MCDData message store.

Pre-conditions:

1. A successful authentication and authorization have been performed between the message store client and the MCDData message store.

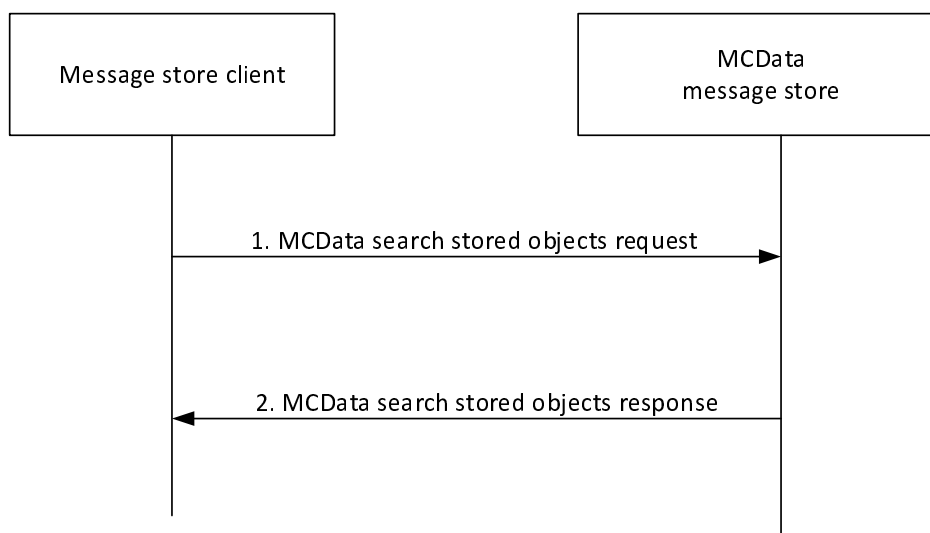


Figure 7.13.3.3.2-1: Search stored objects

1. The message store client would like to retrieve stored objects that meet certain criteria (such as with the same Conversation identifier) and initiates a MCDData search objects request toward the MCDData message store. The search criteria are included in the request.
2. The MCDData message store looks up all stored objects that meet the search criteria and returns them in the MCDData search objects response.

7.13.3.4 Update a stored object

7.13.3.4.1 General

The message store client can update the metadata of a stored object (such as mark a stored object as "flagged").

7.13.3.4.2 Procedure

The procedure in figure 7.13.3.4.2-1 describes the case when a message store client updates metadata of a stored object in the MCDData message store.

Pre-conditions:

1. A successful authentication and authorization have been performed between the message store client and the MCDData message store.
2. The message store client knows the object identifier of the stored object.

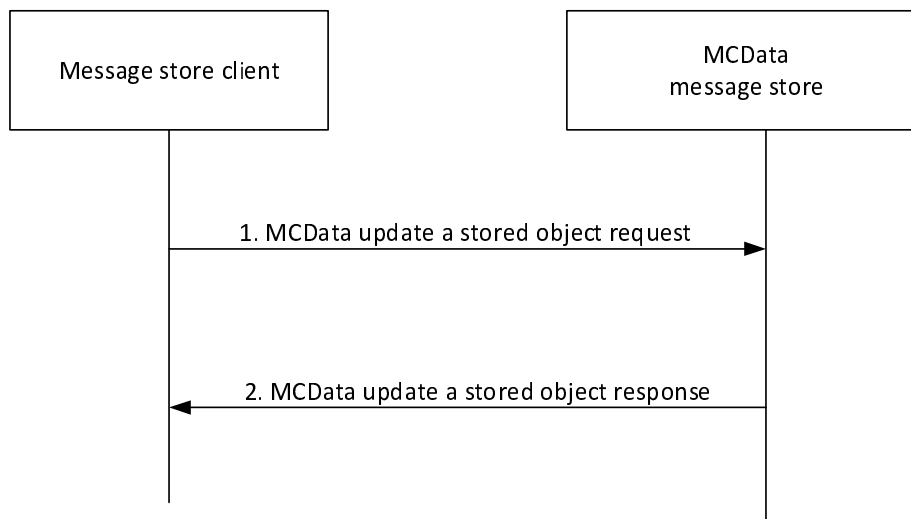


Figure 7.13.3.4.2-1: Update a stored object

1. The message store client would like to update the metadata of a stored object (such as "flagged") and initiates a MCDData update a stored object request toward the MCDData message store. The stored object's object identifier and the updated meta data are included in the request.
2. The MCDData message store locates the stored object with the object identifier and updates its metadata as carried in the MCDData update a stored object request and communicates the result in the MCDData update a stored object response.

7.13.3.5 Delete a stored object

7.13.3.5.1 General

The message store client of an authorized user can delete a stored object in the MCDData message store.

7.13.3.5.2 Procedure

The procedure in figure 7.13.3.5.2-1 describes the case when a stored object in the MCDData message store is deleted by the message store client of an authorized MCDData user.

Pre-conditions:

1. A successful authentication and authorization have been performed between the message store client and the MCDData message store.
2. The message store client knows the object identifier of the stored object.
3. The MCDData user is authorized to delete the stored object.

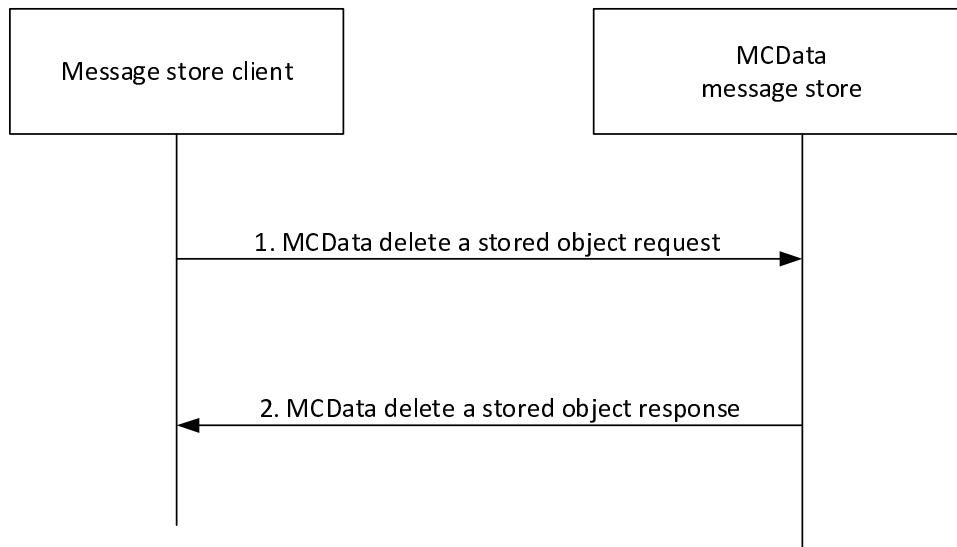


Figure 7.13.3.5.2-1: Delete a stored object

1. The message store client would like to delete a stored object in the MCDATA message store and initiates a MCDATA delete a stored object request toward the MCDATA message store. The stored object's object identifier is included in the request.
2. The MCDATA message store locates the stored object with the object identifier and permanently removes it from the MCDATA message store. It then communicates the result in the MCDATA delete a stored object response.

7.13.3.6 Synchronization

7.13.3.6.1 General

The message store client can synchronize its local message store with the MCDATA message store. Different level of synchronization shall be supported with a filter in the request.

7.13.3.6.2 Procedure

The procedure in figure 7.13.3.6.2-1 describes the case when a message store client synchronizes its local message store with the MCDATA message store for a MCDATA user.

Pre-conditions:

1. A successful authentication and authorization have been performed between the message store client and the MCDATA message store.

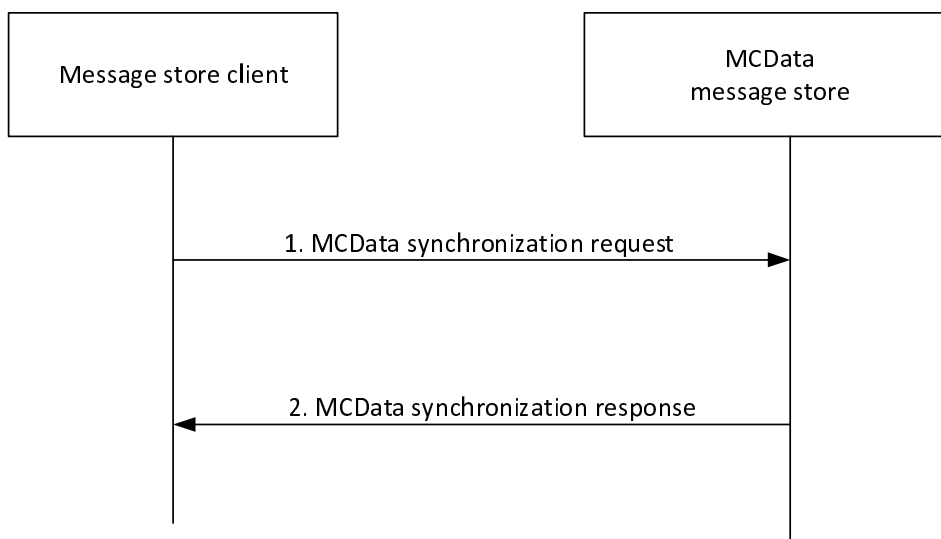


Figure 7.13.3.6.2-1: Synchronization

1. The message store client would like to synchronize its local message store with the MCDATA message store. It initiates the MCDATA synchronization request toward the MCDATA message store. The synchronization type and optional filter criteria are included in the request to indicate the type of synchronization (such as full synchronization, partial synchronization etc.) is requested.
2. The MCDATA message store returns all the stored objects, based on the synchronization filter criteria, to the message store client in the MCDATA synchronization response.

7.13.3.7 Create a user account

7.13.3.7.1 General

When the MCDATA server is ready to deposit an object into the MCDATA user's storage area in the MCDATA message store the MCDATA user's storage area (i.e. user account) needs to be created already. If the user account is not created, the MCDATA server shall create the user account (i.e. allocate the MCDATA user's storage area in the MCDATA message store) first and then deposit the subsequent MCDATA communications.

NOTE: Another possible way to create a user account on the MCDATA message store is through service provisioning which is out of the scope of the present document.

7.13.3.7.2 Procedure

The procedure in figure 7.13.3.7.2-1 describes how the MCDATA server creates a user account (allocate MCDATA user storage area) in the MCDATA message store.

Pre-conditions:

1. A successful authentication and authorization has been performed between the MCDATA server and the MCDATA message store.
2. No storage area in the MCDATA message store has been allocated for the MCDATA user; i.e. no user account has been created.
3. The MCDATA server is authorized to create user accounts on the MCDATA message store.

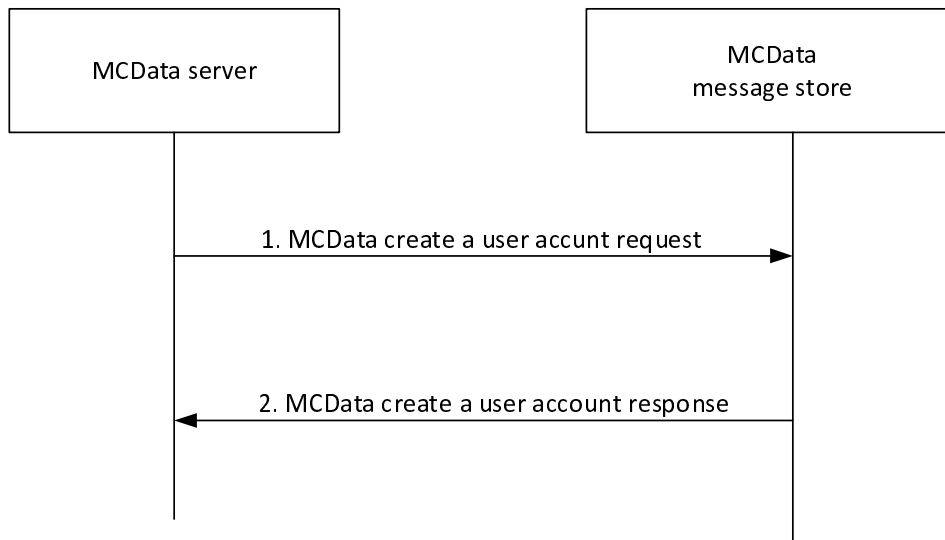


Figure 7.13.3.7.2-1: Create a user account

1. The MCDData server would like to create a MCDData user account in the MCDData message store to store the MCDData communication for that MCDData user and initiates a MCDData create a user account request toward the MCDData message store. The MCDData ID of the MCDData user is included in the request.
2. The MCDData message store creates a user account (i.e. allocate dedicated and secured storage area) for the MCDData user as specified in the request and communicates the result back to the MCDData server in the MCDData create a user account response.

7.13.3.8 Deposit an object

7.13.3.8.1 General

MCDData server needs to store the communication information (i.e. an object) for a MCDData user during an active MCDData communication.

7.13.3.8.2 Procedure

The procedure in figure 7.13.3.8.2-1 describes how the MCDData server deposit an object into the MCDData message store during an active MCDData communication.

Pre-conditions:

1. A successful authentication and authorization has been performed between the MCDData server and the MCDData message store.
2. The MCDData user has been allocated a secured storage area in the MCDData message store.

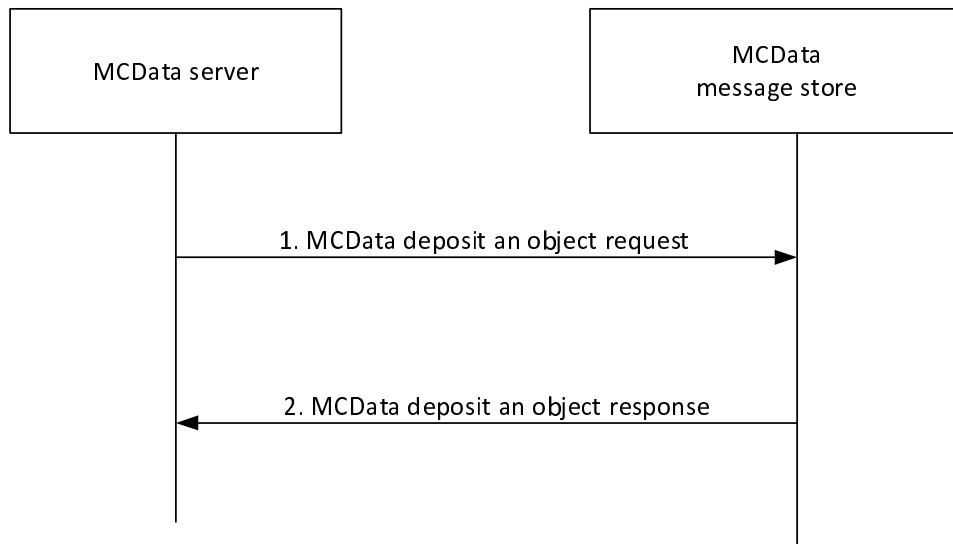


Figure 7.13.3.8.2-1: Deposit an object

1. The MCDATA server would like to deposit a MCDATA communication information (i.e. object) to the MCDATA user's storage area in the MCDATA message store and initiates a MCDATA deposit an object request toward the MCDATA message store. The object is constructed by the MCDATA server and is included in the request.
2. The MCDATA message store deposits the object into the MCDATA user's storage area and communicates the result back to the MCDATA server in the MCDATA deposit an object response. The object identifier for the stored is returned in the MCDATA deposit an object response.

7.13.3.9 Copy a stored object

7.13.3.9.1 General

A stored object in the MCDATA message store can be copied to another location (i.e. folder) in the same MCDATA user account where there is no such object stored. After the successful object copy operation, the object will exist in both the original and destination locations. This operation is only meaningful when the user account in the MCDATA message store is structured in the folder hierarchy.

7.13.3.9.2 Procedure

The procedure in figure 7.13.3.9.2-1 describes the case when a stored object is copied to a different location in the same MCDATA user account.

Pre-conditions:

1. The MCDATA user has an account in the MCDATA message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDATA message store.
3. The message store client knows the object identifier of the stored object and the destination folder identifier.

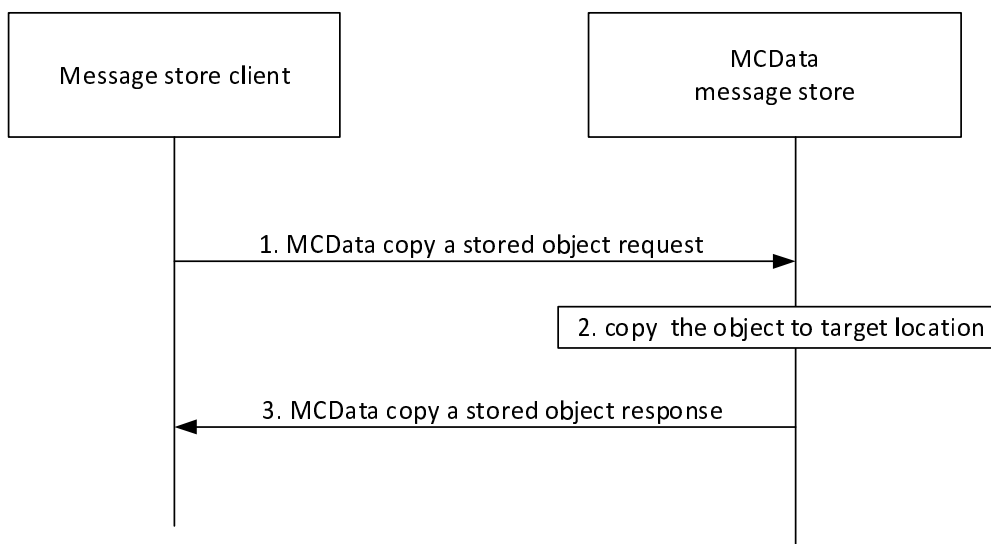


Figure 7.13.3.9.2-1: Copy a stored object

1. The message store client would like to copy a stored object in the MCDATA message store to a destination folder and initiates a MCDATA copy a stored object request toward the MCDATA message store. The unique identifier of the stored object and the destination folder are included in the request.
2. The MCDATA message store copies the object to the target location.
3. The MCDATA message store returns the result of the request in the MCDATA copy a stored object response.

7.13.3.10 Move a stored object

7.13.3.10.1 General

A stored object in the MCDATA message store can be moved to a different location (i.e. folder) in the same MCDATA user account. After the successful object move operation the object will only exist in the new location. This operation is only meaningful when the user account in the MCDATA message store is structured in the folder hierarchy.

7.13.3.10.2 Procedure

The procedure in figure 7.13.3.10.2-1 describes the case when a stored object is moved to a different location in the same MCDATA user account.

Pre-conditions:

1. The MCDATA user has an account in the MCDATA message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDATA message store.
3. The message store client knows the object identifier of the stored object and the destination folder identifier.

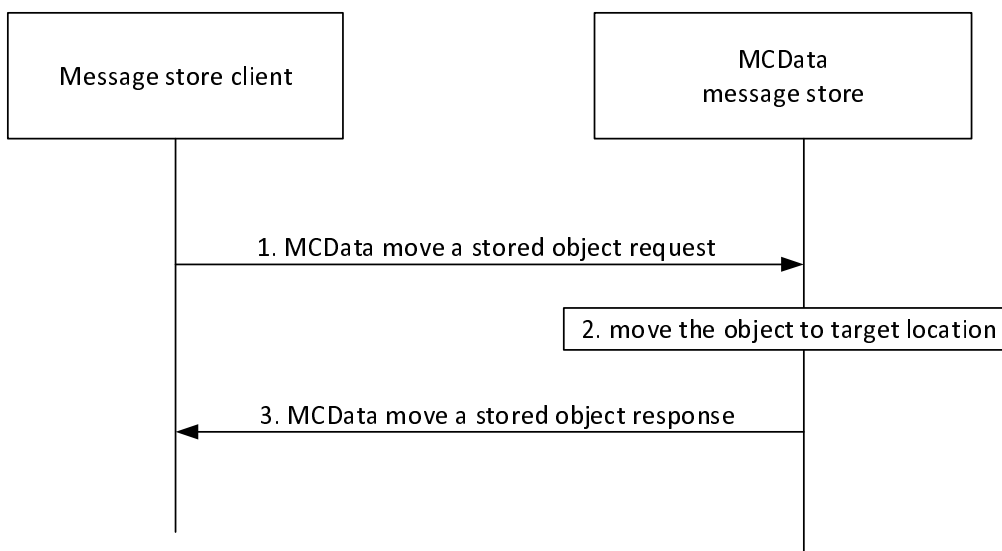


Figure 7.13.3.10.2-1: Move a stored object

1. The message store client would like to move a stored object in the MCDATA message store to a destination folder and initiates a MCDATA move a stored object request toward the MCDATA message store. The unique object identifier of the stored object and the destination folder are included in the request.
2. The MCDATA message store moves the object to the target location.
3. The MCDATA message store returns the result of the request in the MCDATA move a stored object response.

7.13.3.11 Folder create operation

7.13.3.11.1 General

A user can create a new folder in his user account in the MCDATA message store. This operation is only meaningful when the user account in the MCDATA message store is structured in the folder hierarchy.

7.13.3.11.2 Procedure

The procedure in figure 7.13.3.11.2-1 describes the case when a MCDATA user creates a new folder in the MCDATA message store.

Pre-conditions:

1. The MCDATA user has an account in the MCDATA message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDATA message store.

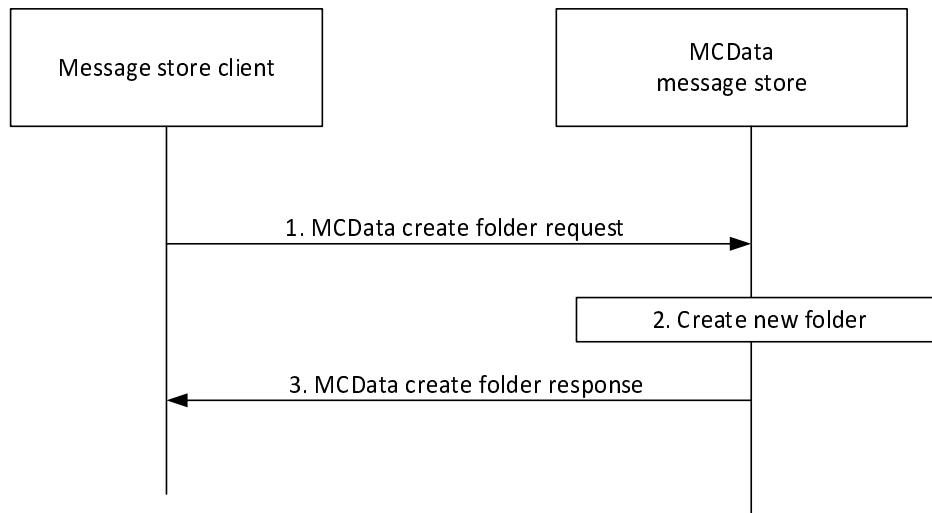


Figure 7.13.3.11.2-1: Create a new user folder

1. The MCDData user would like to create a new folder in his user account in the MCDData message store, the message store client initiates a MCDData create folder request toward the MCDData message store. The parent folder identifier and the folder name are included in the request to indicate where the new folder will be created.
2. The MCDData message store creates the user folder in the location specified in the request. If the folder name is provided in the request, the MCDData message store creates the folder with the provided folder name. If the provided folder name has a conflict or no folder name is provided in the request, the MCDData message store assigns a name for the new user folder.
3. The MCDData message store returns the result in the MCDData create folder response. The identifier of the new folder is returned in the response.

7.13.3.12 Folder delete operation

7.13.3.12.1 General

A user can delete an existing folder in his user account in the MCDData message store. All the child folders and objects stored in that folder will be deleted. This operation is only meaningful when the user account in the MCDData message store is structured in the folder hierarchy.

7.13.3.12.2 Procedure

The procedure in figure 7.13.3.12.2-1 describes the case when a MCDData user deletes an existing folder in the MCDData message store.

Pre-conditions:

1. The MCDData user has an account in the MCDData message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDData message store.

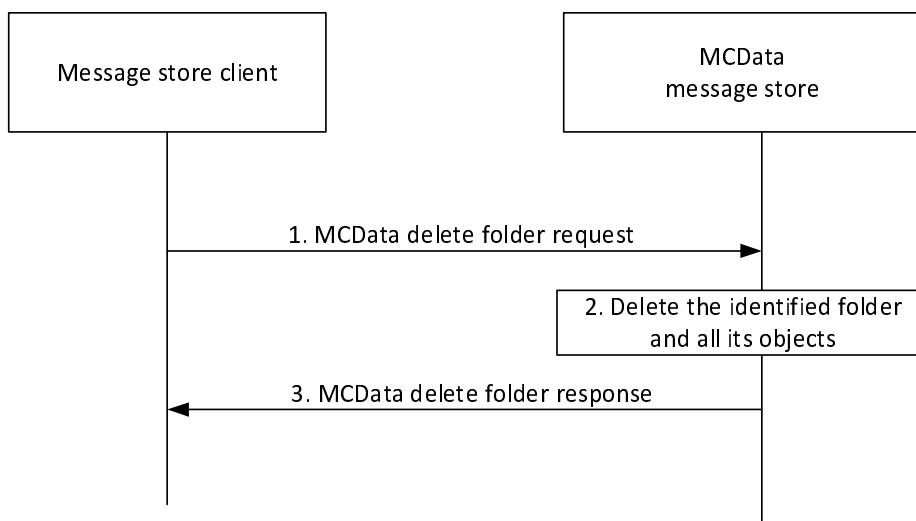


Figure 7.13.3.12.2-1: Delete a user folder

1. The MCDData user would like to delete an existing folder in his user account in the MCDData message store, the message store client initiates a MCDData delete folder request toward the MCDData message store. The folder identifier of the folder to be deleted is included in the request.
2. The MCDData message store identifies the target folder and deletes it from the user account. All the child folders and objects stored in this folder are also deleted.
3. The MCDData message store returns the result in the MCDData delete folder response.

7.13.3.13 Folder copy operation

7.13.3.13.1 General

A user can copy an existing folder in his user account to a different location. All the child folders and objects stored in that folder will be copied to the new folder. The name of the new folder will be the same as the folder it copies from or the name provided in the request. This operation is only meaningful when the user account in the MCDData message store is structured in the folder hierarchy.

7.13.3.13.2 Procedure

The procedure in figure 7.13.3.13.2-1 describes the case when a MCDData user copies an existing folder in the MCDData message store.

Pre-conditions:

1. The MCDData user has an account in the MCDData message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDData message store.

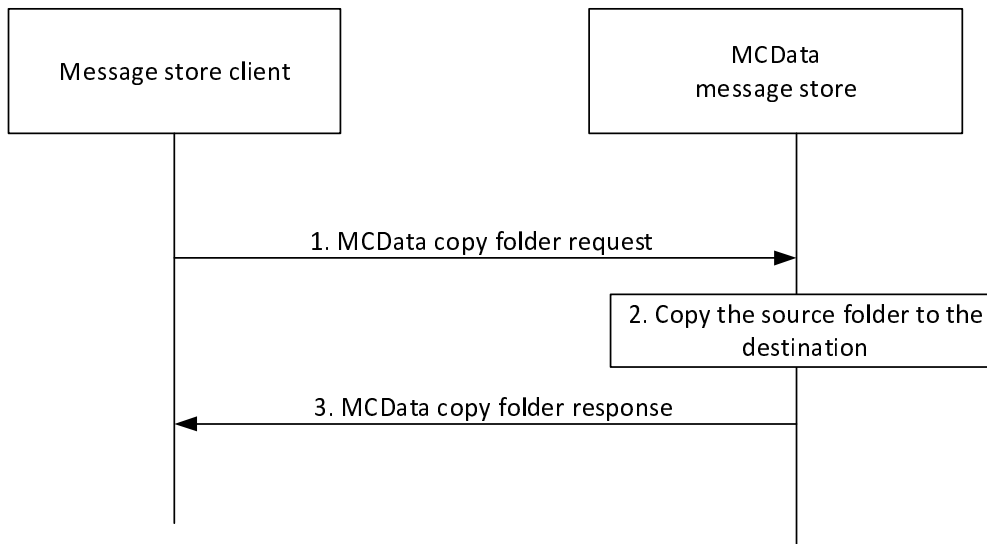


Figure 7.13.3.13.2-1: Copy a user folder

1. The MCDATA user would like to copy an existing folder in his user account in the MCDATA message store, the message store client initiates a MCDATA copy folder request toward the MCDATA message store. The folder identifiers of the source and destination folders and the new folder name are included in the request.
2. The MCDATA message store copy the source folder to the destination with the new folder name. If no new folder name is provided in the request, the source folder name will be used. All the child folders and objects stored in this folder are also copied to the new folder.
3. The MCDATA message store returns the result in the MCDATA copy folder response. The identifier of the new folder is returned in the response.

7.13.3.14 Folder move operation

7.13.3.14.1 General

A user can move an existing folder in his user account to a different location. All the child folders and objects stored in that folder will be moved to the new folder. The name of the new folder will be the same as the folder it moves from or the name provided in the request. This operation is only meaningful when the user account in the MCDATA message store is structured in the folder hierarchy.

7.13.3.14.2 Procedure

The procedure in figure 7.13.3.14.2-1 describes the case when a MCDATA user moves an existing folder in the MCDATA message store.

Pre-conditions:

1. The MCDATA user has an account in the MCDATA message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDATA message store.

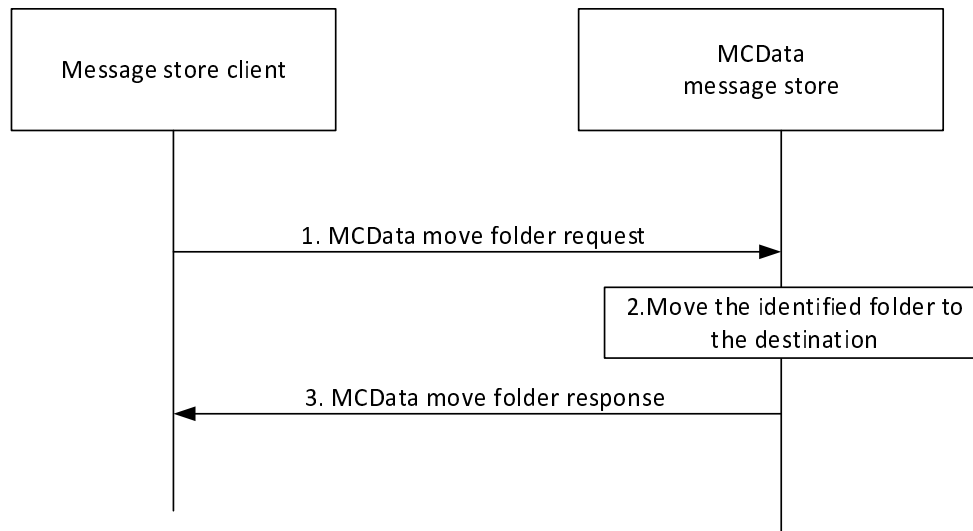


Figure 7.13.3.14.2-1: Move a user folder

1. The MCDData user would like to move an existing folder in his user account in the MCDData message store to a new location, the message store client initiates a MCDData move folder request toward the MCDData message store. The folder identifiers of the source and destination folders and the new folder name are included in the request.
2. The MCDData message store move the source folder to the destination with the new folder name. If no new folder name is provided in the request, the source folder name will be used. All the child folders and objects stored in this folder are also moved to the new folder.
3. The MCDData message store returns the result in the MCDData move folder response. The identifier of the new folder is returned in the response.

7.13.3.15 Folder list operation

7.13.3.15.1 General

A user can view the folder structure in his user account in the MCDData message store. The target folder hierarchy structure will be presented to the user; i.e. the folder and all its child folders. This operation is only meaningful when the user account in the MCDData message store is structured in the folder hierarchy.

7.13.3.15.2 Procedure

The procedure in figure 7.13.3.15.2-1 describes the case when a MCDData user lists an existing folder's hierarchy structure in the MCDData message store.

Pre-conditions:

1. The MCDData user has an account in the MCDData message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDData message store.

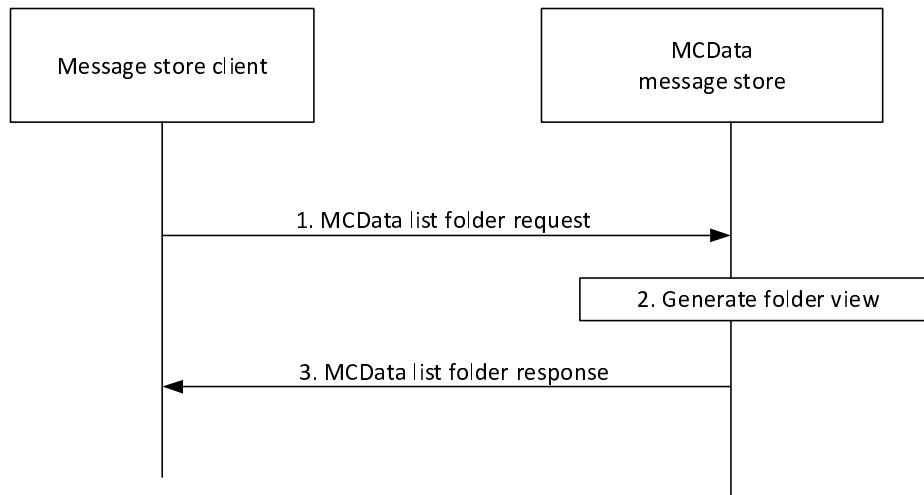


Figure 7.13.3.15.2-1: Folder list operation

1. The MCDATA user would like to view the folder structure of a targeted folder in his user account in the MCDATA message store, the message store client initiates a MCDATA list folder request toward the MCDATA message store. The folder identifier of the target folder is included in the request.
2. The MCDATA message store retrieves the target folder and all its child folders. If no target folder name is provided in the request, the MCDATA message store will use the root folder as the target folder.
3. The MCDATA message store returns the result in the MCDATA list folder response.

7.13.3.16 Upload objects

7.13.3.16.1 General

A MCDATA user, with an account in the MCDATA message store, involved in an off-network communication will store the communication as objects in a specific folder in the local message store on his UE. These objects can be uploaded to his user account in the MCDATA message store once he is connected to the network with MC data service again.

7.13.3.16.2 Procedure

The procedure in figure 7.13.3.16.2-1 describes the case when a message store client uploads new objects in its local message store to the MCDATA message store for a MCDATA user.

Pre-conditions:

1. The MCDATA user has an account with the MCDATA message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDATA message store.

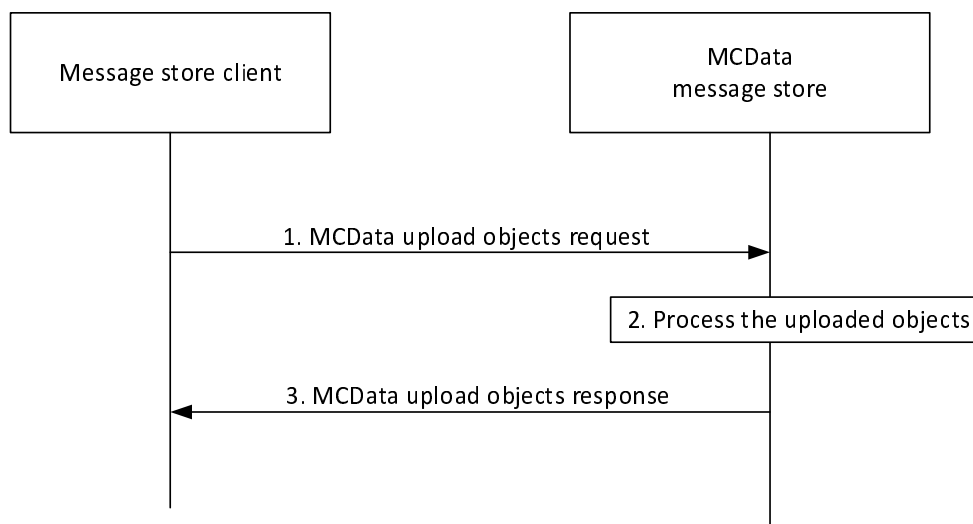


Figure 7.13.3.16.2-1: Upload objects

1. The message store client would like to upload new objects in its local message store to the MCDATA message store. It initiates the MCDATA upload objects request toward the MCDATA message store. The uploaded objects and the target folder identifier where the objects will be stored are included in the request.
2. The MCDATA message store stores the uploaded objects to the target folder. If the target folder doesn't exist, the MCDATA message store will create it.
3. The MCDATA message store returns the result in the MCDATA upload objects response.

7.13.3.17 Notify client to synchronize

7.13.3.17.1 General

MCDATA message store will send a notification to the MCDATA user when there are new objects in the MCDATA message store that need to be synchronized with his local message store.

7.13.3.17.2 Procedure

The procedure in figure 7.13.3.17.2-1 describes how the MCDATA message store notifies the message store client that there are new objects in the MCDATA message store need to be synchronized.

Pre-conditions:

1. The MCDATA user has an account with the MCDATA message store.
2. A successful authentication and authorization have been performed between the message store client and the MCDATA message store.

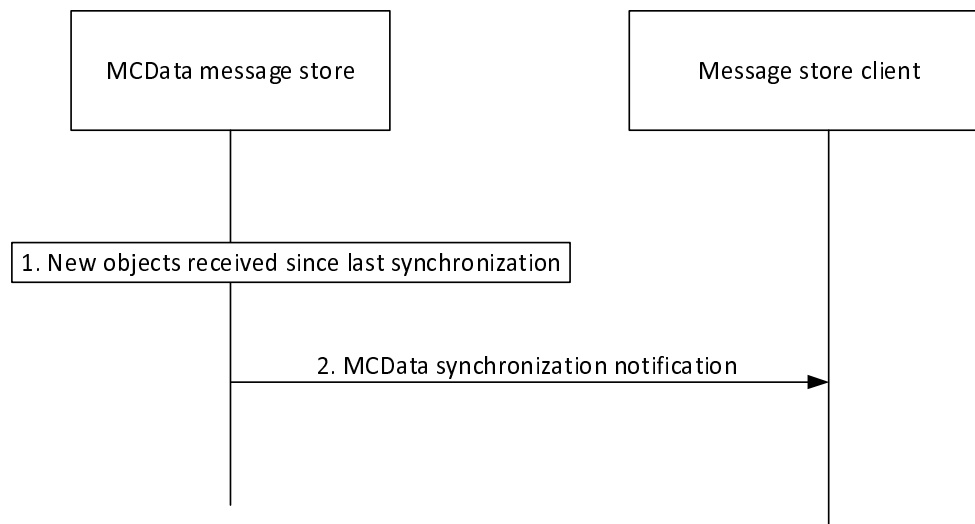


Figure 7.13.3.17.2-1: Notify client to synchronize

1. The MCDData message store receives new objects for the MCDData user and decides to send a notification to inform the MCDData user.

NOTE: How MCDData message store determines if a notification needs to be sent to the message store client is out of scope of the present specification.

2. The MCDData message store sends the MCDData synchronization notification to the message store client.

7.13.4 Generic outgoing SDS procedure with MCDData message store

7.13.4.1 General

When a MCDData user is supported with MCDData message store all his outgoing communications shall be stored in his account in the MCDData message store when he has requested. This generic SDS procedure applies to all procedures in subclause 7.4.2 when the MCDData user requests to store the MCDData communication.

7.13.4.2 Procedure

The procedure in figure 7.13.4.2-1 describes the generic SDS service where MCDData message store is supported.

Pre-conditions:

1. MCDData user has an account created with MCDData message store.
2. MCDData user has requested to store his MCDData communication.

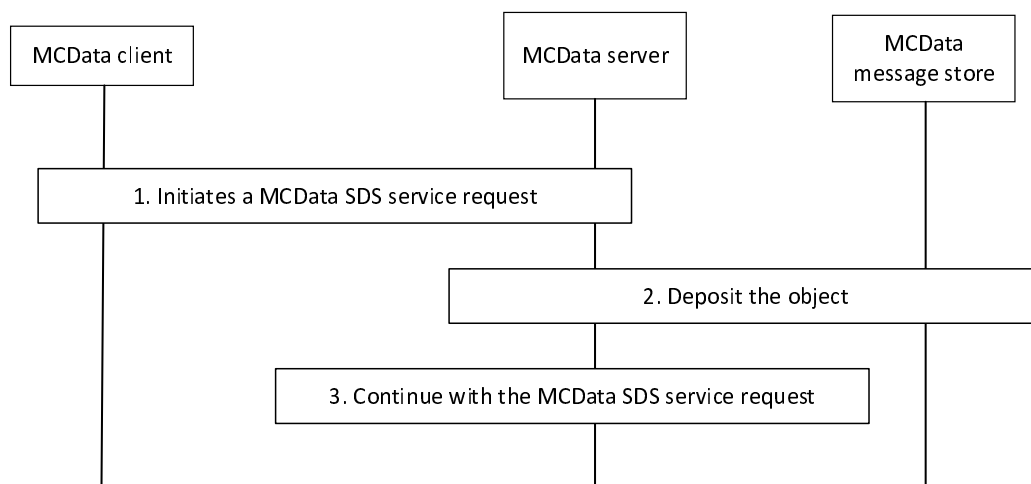


Figure 7.13.4.2-1 Generic outgoing SDS procedure with MCDData message store

1. MCDData client initiates an MCDData SDS service request; this service request can be a private or group communication.
2. MCDData server stores the communication as an object to the MCDData user account in the MCDData message store.
3. MCDData server checks and authorizes the service request and continue the service request toward the targeted recipient(s) as described in subclause 7.4.2.

7.13.5 Generic incoming SDS procedure with MCDData message store

7.13.5.1 General

When a MCDData user is supported with MCDData message store all his incoming communications shall be stored in his account in the MCDData message store when he has requested. This generic SDS procedure applies to all procedures in subclause 7.4.2 when the MCDData user requests to store the MCDData communication.

7.13.5.2 Procedure

The procedure in figure 7.13.5.2-1 describes the generic SDS service where MCDData message store is supported.

Pre-conditions:

1. MCDData user has an account created with MCDData message store.
2. MCDData user has requested to store his MCDData communication.

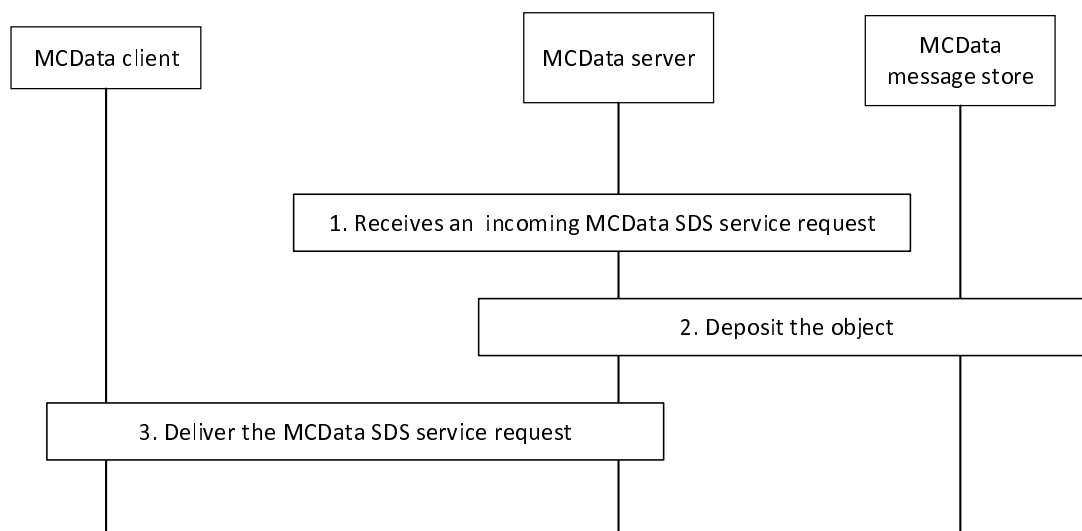


Figure 7.13.5.2-1 Generic incoming SDS procedure with MCDATA message store

1. The MCDATA server receives an incoming MCDATA SDS service request for the MCDATA user. This service request can be a response to an earlier service request sent by the MCDATA user or a new service request coming from any sender.
2. MCDATA server stores the communication as an object to the MCDATA user account in the MCDATA message store.
3. MCDATA server delivers the service request to MCDATA user as described in subclause 7.4.2.

7.13.6 Interconnection and migration with MCDATA message store

7.13.6.1 Interconnection

There is no interconnection of MCDATA message stores, as there are no defined reference points providing connection between message stores in different MCDATA systems.

7.13.6.2 Migration

A migrated MCDATA user may be provided with access to a local message store by the partner MCDATA system of the migrated MCDATA user. The MCDATA user is identified by the MCDATA ID used in the partner MCDATA system by that migrated MCDATA user in order to access the message store. There is no connection between this message store in the partner MCDATA system of the migrated MCDATA user and any message store that the MCDATA user has access to in the primary MCDATA system of that MCDATA user, and therefore access to a message store in the partner MCDATA system does not provide a means of accessing stored content in the primary MCDATA system of the migrated MCDATA user.

A migrated MCDATA user may be provided with a means of access to the message store in the primary MCDATA system of that MCDATA user, e.g. by providing the MCDATA user with a suitable APN and appropriate IP routing, or by use of the MCDATA IP connectivity service. Such access is outside the scope of the present document.

7.14 IP connectivity

7.14.1 General

IP data shall be exchanged between two or more data hosts. The MCDATA client as the link between data host and MC service system enables the exchange of IP Data. For addressing the corresponding MCDATA users either MCDATA ID or the functional alias can be used independently of each other. The MCDATA server provides the mechanisms to establish the association between MCDATA ID and corresponding functional alias.

7.14.2 IP connectivity for on-network

7.14.2.1 Information flows for IP connectivity

7.14.2.1.1 MCDData IPcon point-to-point request

Table 7.14.2.1.1-1 describes the information flow of the MCDData IPcon point-to-point request sent from the MCDData client to the MCDData server and from the MCDData server to the addressed MCDData client.

Table 7.14.2.1.1-1: MCDData IPcon point-to-point request

Information element	Status	Description
MCDData ID	M	The MCDData identity of the originator MCDData user;
Functional alias	O	The associated functional alias of the originator MCDData user;
MCDData ID	M	The MCDData identity of the target MCDData client IP connectivity is requested.
Application Priority	O	Contains the required application priority for the IP data communication. If not present, the MCDData applies the predefined default application priority after reception of MCDData IPcon response.
Location Information	O (see NOTE)	Actual location information of the originating MCDData user;
Time Limit	O	Proposed time limit of the requested IP connectivity (1min- infinite);
Establishment reason	O	IP connectivity establishment reason
NOTE:	This information contains the latest available location information of the requesting MCDData user that may be different to the latest available location information in the MC system.	

7.14.2.1.2 MCDData IPcon point-to-point response

Table 7.14.2.1.2-1 describes the information content of the MCDData IPcon point-to-point response as answer to MCDData IPcon point-to-point data request.

Table 7.14.2.1.2-1: MCDData IPcon point-to-point response

Information element	Status	Description
MCDData ID	M	The MCDData identity of the targeted MCDData user.
MCDData ID	M	The MCDData identity of the requesting MCDData user.
Time Limit	O	Negotiated time (1 min – infinite)
IP connectivity status	M	IP connectivity establishment result

7.14.2.2 IP connectivity point-to-point MCDData transport service

7.14.2.2.1 General

IP connectivity service capabilities enables MCDData unaware data host to use usual MCDData service capabilities, e.g. data communication between them. This subsection describes the establishment of a point-to-point connection between two IP connectivity clients using the media plane for IP Data transmission.

7.14.2.2.2 Procedure

The procedure in figure 7.14.2.2.2-1 describes the case where an IP connectivity capable MCDData client is initiating a point-to-point IP connectivity with another IP connectivity capable MCDData client.

Pre-conditions:

- The total data volume limit, e.g. daily time limit or total data volume per day does not restrict the establishment of an IP connectivity IP data exchange.

- MCDData clients are linked with individual data hosts.
- MCDData clients belong to the same MCDData system.
- The data hosts linked with the MCDData clients already have an IP address allocated.
- MCDData clients have IP connectivity capabilities.
- The linked data hosts are authorized to use the MCDData clients to establish an IP connectivity.

NOTE: How the data host is authorized to use the MCDData client is out of the scope of the present document.

- The MCDData server has subscribed to the MCDData functional alias controlling server within the MC system for functional alias activation/de-activation updates.
- MCDData client 1 understands the correspondence between the IP addresses of target data hosts and MCDData client 2. How this relationship is determined is out of scope of the present document.

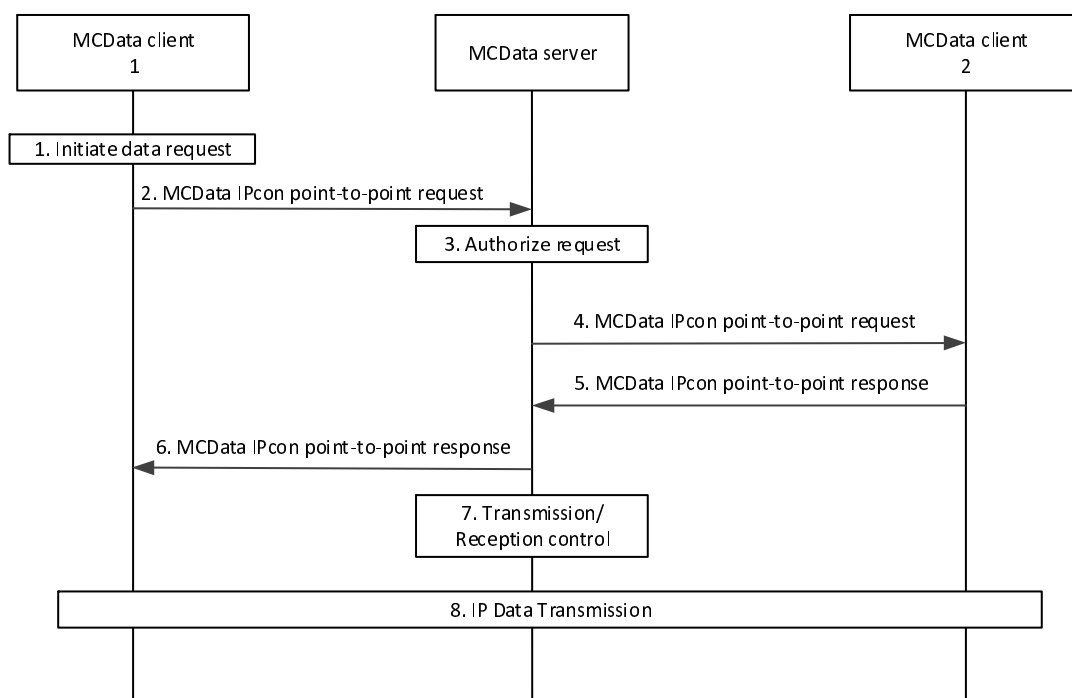


Figure 7.14.2.2-1: Establishment of a point-to-point IP connectivity

1. MCDData client 1 has IP Data to send to MCDData client 2 and initiates an IP connectivity point-to-point request.
2. MCDData client 1 sends a MCDData IPcon point-to-point request towards the MCDData server. The MCDData IPcon point-to-point request contains the MCDData ID of MCDData client 2. MCDData user at MCDData client 1 may include its associated functional alias.
3. MCDData server checks whether MCDData user at MCDData client 1 is authorized to send an MCDData IPcon point-to-point request and checks if MCDData client 2 is authorised to receive the IP connectivity service.
4. MCDData server initiates the MCDData IPcon point-to-point request towards the MCDData client 2.
5. MCDData client 2 sends a MCDData IPcon point-to-point response to the MCDData server that contains the information if the request is accepted or the reason of rejection. If accepted, the MCDData client 2 may include the data transmission time limit.
6. MCDData server forwards the MCDData IPcon point-to-point response of MCDData client 2 to MCDData client 1.
7. The MCDData server applies transmission and reception control and the necessary policy to ensure that appropriate data is transmitted between the MCDData clients.

8. MCDData client 1 and MCDData Client 2 have successfully established media plane for data communication and MCDData client 1 and MCDData client 2 exchange IP Data.

7.15 Location information (on-network)

The MCDData system makes use of all of the procedures for location management as specified in 3GPP TS 23.280 [5], utilising the CSC-14 reference point between the location management client and location management server and the CSC-15 reference point between the MCDData server and location management server.

- The MC service client is the MCDData client;
- The MC service server is the MCDData server;
- The MC service group is the MCDData group;
- The MC service ID is the MCDData ID; and
- The MC service group ID is the MCDData group ID.

Annex A (normative): MCDData related configuration data

A.1 General

This Annex provides information about the static data needed for configuration for the MCDData service, which belongs to one of the following categories:

- MCDData UE configuration data (see subclause A.2);
- MCDData user profile configuration data (see subclause A.3);
- MCDData related group configuration data (see subclause A.4); and
- MCDData service configuration data (see subclause A.5).

For each configuration category, data is split between configuration data that is applicable to both on network and off network, configuration data that is applicable to on-network only, and configuration data that is applicable to off-network only. The configuration data in each configuration category corresponds to a single instance of the category type i.e. the MCDData UE, MCDData group, MCDData user and MCDData service configuration data refers to the information that will be stored against each MCDData UE, MCDData group, MCDData user and MCDData service. This means that the three separate tables (on-network and off-network, on-network only, off-network only) for each configuration category represent the complete set of data for each configuration data category element.

The columns in the tables have the following meanings:

- Reference: the reference of the corresponding requirement in 3GPP TS 22.282 [3] or 3GPP TS 22.280 [2] or the corresponding subclause from either the present document or the referenced document.
- Parameter description: A short definition of the semantics of the corresponding item of data, including denotation of the level of the parameter in the configuration hierarchy.
 - When it is not clear to which functional entities the parameter is configured, then one or more columns indicating this are provided where the following nomenclature is used:
 - "Y" to denote "Yes" i.e. the parameter denoted for the row needs to be configured to the functional entity denoted for the column.
 - "N" to denote "No" i.e. the parameter denoted for the row does not need to be configured to the functional entity denoted for the column.

Parameters within a set of configuration data have a level within a hierarchy that pertains only to that configuration data. The hierarchy of the configuration data is common across all three tables of on-network and off-network, on network only and off network only. The level of a parameter within the hierarchy of the configuration data is denoted by use of the character ">" in the parameter description field within each table, one per level. Parameters that are at the top most level within the hierarchy have no ">" character. Parameters that have one or more ">" characters are child parameters of the first parameter above them that has one less ">" character. Parent parameters are parameters that have one or more child parameters. Parent parameters act solely as a "grouping" of their child parameters and therefore do not contain an actual value themselves i.e. they are just containers for their child parameters.

Each parameter that can be configured online shall only be configured through one online reference point. Each parameter that can be configured offline shall only be configured through one offline reference point. The most recent configuration data made available to the MCDData UE shall always overwrite previous configuration data, irrespective of whether the configuration data was provided via the online or offline mechanism.

A.2 MCDData UE configuration data

The general aspects of UE configuration are specified in 3GPP TS 23.280 [5]. Data in tables A.2-1 and A.2-2 have to be known by the MCDData UE after MCDData authorization.

Data in table A.2-1 can be configured offline using the CSC-11 reference point. Table A.2-1 contains the UE configuration required to support the use of off-network MCDData service.

Table A.2-1: UE configuration data (on and off network)

Reference	Parameter description
	Short data service
[R-5.4.2-002] of 3GPP TS 22.280 [2]	> Maximum number of simultaneous SDS transactions (Nc4)
[R-5.4.2-004] of 3GPP TS 22.280 [2]	> Requested presentation priority of SDS messages received (see NOTE)
	File distribution
[R-5.4.2-002] of 3GPP TS 22.280 [2]	> Maximum number of simultaneous file distribution transactions (Nc4)
	Transmission control
[R-5.4.2-002] of 3GPP TS 22.280 [2]	> Maximum number of simultaneous data transmissions (Nc4)
[R-5.4.2-003] of 3GPP TS 22.280 [2]	> Maximum number of data transmissions (Nc5) in a group
	Reception control
[R-5.4.2-002] of 3GPP TS 22.280 [2]	> Maximum number of simultaneous data receptions (Nc4)
[R-5.4.2-003] of 3GPP TS 22.280 [2]	> Maximum number of data receptions (Nc5) in a group
NOTE:	Priority of SDS messages includes enhanced status updates, since enhanced status updates utilise the SDS mechanism.

Table A.2-2: UE configuration data (on network)

Reference	Parameter description
Subclause 5.2.3 of 3GPP TS 23.280 [6]	Relay service (Y/N)
Subclause 5.2.3 of 3GPP TS 23.280 [6]	List of allowed relayed MCDData groups and their relay service code (as specified in 3GPP TS 23.303 [7]) (optional) (see NOTE)
	> MCDData group ID
	> Relay service code (as specified in 3GPP TS 23.303 [7])
NOTE:	When the value of the parameter Relay service is N, this parameter and its child parameters are not needed.

A.3 MCDData user profile configuration data

The general aspects of MC service user profile configuration data are specified in 3GPP TS 23.280 [5]. The MCDData user profile configuration data is stored in the MCDData user database. The MCDData server obtains the MCDData user profile configuration data from the MCDData user database (MCDData-2).

Tables A.3-1 and A.3-2 contain the MCDData user profile configuration required to support the use of on-network MCDData service. Tables A.3-1 and A.3-3 contain the MCDData user profile configuration required to support the use of off-network MCDData service. Data in table A.3-1 and A.3-3 can be configured offline using the CSC-11 reference point.

Table A.3-1: MCDATA user profile configuration data (on and off network)

Reference	Parameter description	MCDData UE	MCDData Server	Configuration management server	MCDData user database
Subclause 8.1.2 of 3GPP TS 23.280 [5]	MCDData identity (MCDData ID)	Y	Y	Y	Y
3GPP TS 33.180 [13]	KMSUri for security domain of MCDData ID (see NOTE 1)	Y	Y	Y	Y
Subclause 5.2.4 of 3GPP TS 23.280 [5]	Pre-selected MCDData user profile indication (see NOTE 2)	Y	Y	Y	Y
Subclause 5.2.4 of 3GPP TS 23.280 [5]	MCDData user profile index	Y	Y	Y	Y
Subclause 5.2.4 of 3GPP TS 23.280 [5]	MCDData user profile name	Y	Y	Y	Y
[R-5.17-007], [R-6.13.4-002] of 3GPP TS 22.280 [2]	User profile status (enabled/disabled)		Y	Y	Y
[R-5.7-001], [R-6.9-003] of 3GPP TS 22.280 [2]	Authorised to create and delete aliases of an MCDData user and its associated user profiles.			Y	Y
[R-5.7-002], [R-6.9-003] of 3GPP TS 22.280 [2]	Alphanumeric aliases of user	Y	Y	Y	Y
[R-5.1.1-005], [R-5.9-001] of 3GPP TS 22.280 [2]	Participant type of the user	Y	Y	Y	Y
[R-5.1.8-006], [R-5.3-002], [R-5.9-001], [R-5.16.2-001], [R-5.16.2-002] of 3GPP TS 22.280 [2]	User's Mission Critical Organization (i.e. which organization a user belongs to)	Y	Y	Y	Y
[R-5.2.2-003] of 3GPP TS 22.280 [2]	Authorisation to create a group-broadcast group			Y	Y
[R-5.2.2-003] of 3GPP TS 22.280 [2]	Authorisation to create a user-broadcast group			Y	Y
[R-5.6.2.4.1-002] of 3GPP TS 22.280 [2]	Authorised to activate MCDData emergency alert	Y	Y	Y	Y
[R-5.6.2.4.1-013] of 3GPP TS 22.280 [17]	Automatically trigger a MCDData emergency communication after initiating the MCDData emergency alert	Y	Y	Y	Y
[R-5.6.2.4.1-004] [R-5.6.2.4.1-008] [R-5.6.2.4.1-012] of 3GPP TS 22.280 [2]	Group used on initiation of an MCDData emergency group communication (see NOTE 3)				
[R-5.6.2.4.1-004], [R-5.6.2.4.1-008], [R-5.6.2.4.1-012] of 3GPP TS 22.280 [17]	Recipient for an MCDData emergency private communication (see NOTE 3)				
	> MCDData ID	Y	Y	Y	Y
3GPP TS 33.180 [19]	> KMSUri for security domain of MCDData ID (see NOTE 1)	Y	Y	Y	Y
[R-5.6.2.4.2-002] of 3GPP TS 22.280 [2]	Authorisation to cancel an MCDData emergency alert	Y	Y	Y	Y
[R-6.1.1.2-005], [R-6.1.1.2-006], [R-6.1.1.2-007] of 3GPP TS 22.282 [3]	Individual conversation hang time	Y	Y	Y	Y

	One-to-one communication				
[R-6.3.1.2-007] of 3GPP TS 22.282 [3] and 3GPP TS 33.180 [13]	> List of MCDData users this MCDData user is authorized to initiate a one-to-one communication				
	>> MCDData ID	Y	N	Y	Y
	>> Discovery Group ID	Y	N	Y	Y
	>> User info ID (as specified in 3GPP TS 23.303 [7])	Y	N	Y	Y
	>> KMSUri for security domain of MCDData ID (see NOTE 1)	Y	Y	Y	Y
[R-6.7.3-007] of 3GPP TS 22.280 [2]	Authorised to make one-to-one communications towards users not included in "list of MCDData user(s) this MCDData user is authorized to initiate a one-to-one communication"	Y	Y	Y	Y
	File distribution				
[R-5.3.2-010] of 3GPP TS 22.282 [3] and 3GPP TS 33.180 [13]	> List of MCDData users this MCDData user is allowed to cancel distribution of files being sent or waiting to be sent				
	>> MCDData ID	Y	Y	Y	Y
	>> KMSUri for security domain of MCDData ID (see NOTE 1)	Y	Y	Y	Y
	Transmission and reception control				
[R-6.2.2.1-001] of 3GPP TS 22.282 [3]	> Whether the MCDData user is permitted to transmit data	Y	Y	Y	Y
[R-6.2.3-005] of 3GPP TS 22.282 [3]	> Maximum amount of data that the MCDData user can transmit in a single request during one-to-one communication	Y	Y	Y	Y
[R-6.2.3-005] and [R-6.3.1.2-008] of 3GPP TS 22.282 [3]	> Maximum amount of time that the MCDData user can transmit in a single request during one-to-one communication	Y	Y	Y	Y
[R-6.2.3-001] of 3GPP TS 22.282 [3]	> List of MCDData users this MCDData user is allowed to request the release of an ongoing transmission that this MCDData user is participating in				
	>> MCDData ID	Y	Y	Y	Y
NOTE 1: If this parameter is absent, the KMSUri shall be that identified in the initial MC service UE configuration data (on-network) configured in table A.6-1 of 3GPP TS 23.280 [5].					
NOTE 2: As specified in 3GPP TS 23.280 [5], for each MCDData user's set of MCDData user profiles, only one MCDData user profile shall be indicated as being the pre-selected MCDData user profile.					
NOTE 3: This parameter is used for the emergency communication and also used as a target of the emergency alert request. At most one of them is configured; i.e. emergency communication will go to either a group or a user. If both are not configured the MCDData user's currently selected group will be used.					

Table A.3-2: MCDATA user profile configuration data (on network)

Reference	Parameter description	MCDData UE	MCDData Server	Configuration management server	MCDData user database
[R-5.1.5-001], [R-5.1.5-002], [R-5.10-001], [R-6.4.7-002], [R-6.8.1-008], [R-6.7.4-002] of 3GPP TS 22.280 [2]	List of on-network MCDData groups for use by an MCDData user				
	> MCDData Group ID	Y	Y	Y	Y
	> Application plane server identity information of group management server where group is defined				
	>> Server URI	Y	Y	Y	Y
	> Application plane server identity information of identity management server which provides authorization for group (see NOTE 1)				
	>> Server URI	Y	Y	Y	Y
3GPP TS 33.180 [13]	> KMSUri for security domain of group (see NOTE 2)	Y	Y	Y	Y
	> Presentation priority of the group relative to other groups and users (see NOTE 3)	Y	N	Y	Y
Subclause 5.2.5 of 3GPP TS 23.280 [5]	List of groups user implicitly affiliates to after MCDData service authorization for the user				
	> MCDData Group ID	Y	Y	Y	Y
[R-6.4.2-006] of 3GPP TS 22.280 [2]	Authorisation of an MCDData user to request a list of which MCDData groups a user has affiliated to		Y	Y	Y
[R-6.4.6.1-002], [R-6.4.6.1-003] of 3GPP TS 22.280 [2]	Authorisation to change affiliated groups of other specified user(s)		Y	Y	Y
[R-6.4.6.2-001], [R-6.4.6.2-002] of 3GPP TS 22.280 [2]	Authorisation to recommend to specified user(s) to affiliate to specific group(s)		Y	Y	Y
[R-6.6.1-004] of 3GPP TS 22.280 [2]	Authorisation to perform regrouping	Y	Y	Y	Y
[R-6.7.2-001] of 3GPP TS 22.280 [2]	Presence status is available/not available to other users	Y	Y	Y	Y
[R-6.7.1-002], [R-6.7.2-002] of 3GPP TS 22.280 [2]	List of MCDData users that MCDData user is authorised to obtain presence of				
	> MCDData IDs	Y	Y	Y	Y
[R-6.8.7.4.2-001], [R-6.8.7.4.2-002] of 3GPP TS 22.280 [2]	Authorisation of a user to cancel an emergency alert on any MCDData UE of any user		Y	Y	Y
[R-6.13.4-001] of 3GPP TS 22.280 [2]	Authorisation for an MCDData user to enable/disable an MCDData user		Y	Y	Y
[R-6.13.4-003], [R-6.13.4-005], [R-6.13.4-006], [R-6.13.4-007] of 3GPP TS 22.280 [2]	Authorisation for an MCDData user to (permanently /temporarily) enable/disable a UE		Y	Y	Y
[R-7.14-002], [R-7.14-003] of 3GPP TS 22.280 [2]	Authorization for manual switch to off-network while in on-network	Y	Y	Y	Y
[R-5.1.5-004] of 3GPP TS 22.280 [2]	Limitation of number of affiliations per user (N2)	N	Y	Y	Y
[R-6.4.6.1-001], [R-6.4.6.1-004] of 3GPP TS 22.280 [2]	List of MCDData users whose selected groups are authorized to be remotely changed				

	> MCDData ID	Y	Y	Y	Y
[R-6.7.3-007a] of 3GPP TS 22.280 [2] and 3GPP TS 33.180 [13]	List of MCDData users this MCDData user is authorized to receive a one-to-one communication				
	> MCDData ID	Y	Y	Y	Y
	> KMSUri for security domain of MCDData ID	Y	Y	Y	Y
	Conversation management				
[R-6.1.1.2-009] of 3GPP TS 22.282 [3].	> List of MCDData users to be sent message delivered disposition notifications in addition to the message sender	N	Y	Y	Y
	>> MCDData ID	N	Y	Y	Y
[R-6.1.1.2-009] of 3GPP TS 22.282 [3].	> List of MCDData users to be sent message read disposition notifications in addition to the message sender	N	Y	Y	Y
	>> MCDData ID	N	Y	Y	Y
3GPP TS 23.283 [18]	Authorised to use LMR E2EE for interworking	Y	Y	Y	Y
3GPP TS 23.283 [18]	> List of supported LMR technology types				
3GPP TS 23.283 [18]	>> LMR technology type (P25, TETRA etc.)	Y	N	Y	Y
3GPP TS 23.283 [18]	>> URI of LMR key management functional entity (see NOTE 4)	Y	N	Y	Y
3GPP TS 23.283 [18]	>> LMR specific identity (RSI for P25 or ITSI for TETRA) (see NOTE 5)	Y	N	Y	Y
3GPP TS 23.283 [18]	>> LMR specific security information (see NOTE 5)	Y	N	Y	Y
	List of servers used in the private and group communications				
	> MCDData content server where the HTTP FD file is uploaded				
	>> Server URI	Y	Y	Y	Y
	> MCDData message store where the communication history stores				
	>> Server URI	Y	Y	Y	Y
Subclause 5.2.9 of 3GPP TS 23.280 [16]	List of partner MCDData systems in which this profile is valid for use during migration				
Subclause 5.2.9 of 3GPP TS 23.280 [16]	> Identity of partner MCDData system	Y	Y	Y	Y
Subclause 10.1.1 of 3GPP TS 23.280 [16]	> Access information for partner MCDData system (see NOTE 6)	Y		Y	Y
[R-5.9a-012] of 3GPP TS 22.280 [2] [R-5.9a-013] of 3GPP TS 22.280 [2]	Authorised to request information query of the association between active functional alias(es) and the MCDData ID(s)		Y	Y	Y
[R-6.6.4.2-002a] and [R-6.6.4.2-002b] of 3GPP TS 22.280 [2]	List of groups the client affiliates/de-affiliates when criteria is met				
	> MCDData Group ID	Y	Y	Y	Y
	>> Criteria for affiliation (see NOTE 7)	Y	Y	Y	Y
	>> Criteria for de-affiliation (see NOTE 7)	Y	Y	Y	Y

	>> Manual de-affiliation is not allowed if criteria for affiliation are met	Y	Y	Y	Y
[R-6.6.4.2-002] of 3GPP TS 22.280 [2]	List of groups the client affiliates after receiving an emergency alert				
	> MCDData Group ID	Y	Y	Y	Y
	>> Manual de-affiliation is not allowed if criteria for affiliation are met	Y	Y	Y	Y
	List of functional alias(es) of the MCDData user				
[R-5.9a-005] of 3GPP TS 22.280 [2]	> Functional alias	Y	Y	Y	Y
[R-5.9a-018] of 3GPP TS 22.280 [2]	>> Trigger criteria for activation by the MCDData server (see NOTE 8)	N	Y	Y	Y
[R-5.9a-017], [R-5.9a-018] of 3GPP TS 22.280 [2]	>> Trigger criteria for de-activation by the MCDData server (see NOTE 8)	N	Y	Y	Y
[R-5.9a-019] of 3GPP TS 22.280 [2]	>> Trigger criteria for activation by the MCDData client (see NOTE 8)	Y	Y	Y	Y
[R-5.9a-019] of 3GPP TS 22.280 [2]	>> Trigger criteria for de-activation by the MCDData client (see NOTE 8)	Y	Y	Y	Y
	>> Manual de-activation is not allowed if the criteria are met (see NOTE 8)	Y	Y	Y	Y
[R-5.9a-012] of 3GPP TS 22.280 [2]	Authorised to take over a functional alias from another MCDData user		Y	Y	Y
	Authorised to participate in an IP connectivity session	Y	Y	Y	Y
[R-5.5.2-003], [R-5.5.2-004] 3GPP TS 22.282 [3]	>List of MCDData users which can be included in IP connectivity sessions.				
	>> MCDData ID	Y	Y	Y	Y
3GPP TS 33.180 [13]	>> KMSUri for security domain of the MCDData ID	Y	Y	Y	Y
	>>List of associated data host IP information				
	>>>IP information (see NOTE 9)	Y	Y	Y	Y
<p>NOTE 1: If this parameter is not configured, authorization to use the group shall be obtained from the identity management server identified in the initial MC service UE configuration data (on-network) configured in table A.6-1 of 3GPP TS 23.280 [5].</p> <p>NOTE 2: If this parameter is absent, the KMSUri shall be that identified in the initial MC service UE configuration data (on-network) configured in table A.6-1 of 3GPP TS 23.280 [5].</p> <p>NOTE 3: The use of this parameter by the MCDData UE is outside the scope of the present document.</p> <p>NOTE 4: The LMR key management functional entity is part of the LMR system and is outside the scope of the present document.</p> <p>NOTE 5: This is an LMR specific parameter with no meaning within MC services.</p> <p>NOTE 6: Access information for each partner MCDData system comprises the list of information required for initial UE configuration to access an MCDData system, as defined in table A.6-1 of 3GPP TS 23.280 [16]</p> <p>NOTE 7: The criteria may consist conditions such as the location of the MCDData user or the active functional alias of the MCDData user.</p> <p>NOTE 8: The criteria may consist of conditions such as MCDData user location or time.</p> <p>NOTE 9: IP information may contain IP addresses, corresponding subnet masks, gateway and DNS settings.</p>					

Table A.3-3: MCDData user profile configuration data (off network)

Reference	Parameter description	MCDData UE	MCDData Server	Configuration management server	MCDData user database
[R-7.2-003], [R-7.6-004] of 3GPP TS 22.280 [2]	List of off-network MCDData groups for use by this MCDData user				
	> MCDData Group ID	Y	N	Y	Y
	> Application plane server identity information of group management server where group is defined				
	>> Server URI	Y	N	Y	Y
	> Application plane server identity information of identity management server which provides authorization for group (see NOTE 1)				
	>> Server URI	Y	N	Y	Y
3GPP TS 33.180 [13]	> KMSUri for security domain of group (see NOTE 2)	Y	N	Y	Y
	> Presentation priority of the group relative to other groups and users (see NOTE 3)	Y	N	Y	Y
[R-7.12-002], [R-7.12-003] of 3GPP TS 22.280 [2]	Authorization for off-network services	Y	N	Y	Y
Subclause 10.7.2	User info ID (as specified in 3GPP TS 23.303 [7])	Y	N	Y	Y
NOTE 1: If this parameter is not configured, authorization to use the group shall be obtained from the identity management server identified in the initial MC service UE configuration data (on-network) configured in table A.6-1 of TS 23.280 [5].					
NOTE 2: If this parameter is absent, the KMSUri shall be that identified in the initial MC service UE configuration data (on-network) configured in table A.6-1 of 3GPP TS 23.280 [5].					
NOTE 3: The use of this parameter by the MCDData UE is outside the scope of the present document.					

A.4 MCDData related Group configuration data

The general aspects of group configuration are specified in 3GPP TS 23.280 [5].

Parameters specified in table A.4-1 are child parameters of the "MCDData configuration" parameter specified in table A.4-1 in 3GPP TS 23.280 [5]. Parameters specified in table A.4-2 are child parameters of the "MCDData configuration" parameter specified in table A.4-2 in 3GPP TS 23.280 [5]. Parameters specified in table A.4-3 are child parameters of the "MCDData configuration" parameter specified in table A.4-3 in 3GPP TS 23.280 [5].

Table A.4-1: Group configuration data (on and off network)

Reference	Parameter description	MCDData UE	MCDData Server	Group management server
[R-5.12-001] of 3GPP TS 22.280 [2]	>> Media confidentiality and integrity protection (see NOTE)	Y	Y	Y
[R-5.12-001] of 3GPP TS 22.280 [2]	>> Transmission control confidentiality and integrity protection (see NOTE)	Y	Y	Y
[R-5.12-001] of 3GPP TS 22.280 [2]	>> Group media protection security material (see NOTE)	Y	N	Y
Subclause 5	>> MCDData sub-services and features enabled for the group			
	>>> Short data service enabled	Y	Y	Y
	>>> File distribution enabled	Y	Y	Y
	>>> Conversation management enabled	Y	Y	Y
	>>> Transmission control enabled	Y	Y	Y
	>>> Reception control enabled	Y	Y	Y
	>>> Enhanced status enabled	Y	Y	Y
	>> Transmission and reception control			
[R-6.2.2.1-001] of 3GPP TS 22.282 [3]	>>> Whether MCDData user is permitted to transmit data in the group	Y	Y	Y
[R-6.2.3-006] of 3GPP TS 22.282 [3]	>>> Maximum amount of data that the MCDData user can transmit in a single request during group communication	Y	Y	Y
[R-6.2.3-006] of 3GPP TS 22.282 [3]	>>> Maximum amount of time that the MCDData user can transmit in a single request during group communication	Y	Y	Y
	>> Enhanced status			
[R-6.1.3.2-002] of 3GPP TS 22.282 [3]	>>> List of operational status values	Y	N	Y
[R-6.1.1.2-011] of 3GPP TS 22.282 [2]	>> Lossless communication	Y	Y	Y
[R-6.1.1.2-007] of 3GPP TS 22.282 [5]	>> Conversation hang time	Y	Y	Y
NOTE: Security mechanisms are specified in 3GPP TS 33.180 [13].				

Table A.4-2: Group configuration data (on network)

Reference	Parameter description	MCDData UE	MCDData Server	Group management server
[R-6.4.5-001], [R-6.4.5-003] of 3GPP TS 22.280 [2]	>> Authorisation of a user to request a list of affiliated members of a group	Y	Y	Y
[R-5.1.7-002], [R-6.2.2-001], [R-6.6.2.2-006], [R-6.8.7.2-003] of 3GPP TS 22.280 [2]	>> Priority of the group	N	Y	Y
Subclause 6.2.2 of 3GPP TS 22.282 [3]	>> Transmission and reception control			
	>>> Maximum data size for SDS	Y	Y	Y
	>>> Maximum data size for FD	Y	Y	Y
	>>> Maximum data size for auto-receive	N	Y	Y
3GPP TS 23.283 [18]	>> Indication whether use of LMR E2EE is permitted on the MCDData group	Y	N	Y
3GPP TS 23.283 [18]	>> LMR specific identity for MCDData group (see NOTE)	Y	N	Y
3GPP TS 23.283 [18]	>> Group to key binding (see NOTE)	Y	N	Y
NOTE: This is an LMR specific parameter with no meaning within MC services.				

Table A.4-3: Group configuration data (off network)

Reference	Parameter description	MCDData UE	MCDData Server	Group management server
Subclause 10.10 of 3GPP TS 23.280 [5]	>> Default ProSe Per-Packet priority (as specified in 3GPP TS 23.303 [7]) values			
	>>> MCDData group call signalling	Y	N	Y
	>>> MCDData group call media	Y	N	Y

A.5 MCDData service configuration data

The general aspects of MC service configuration are specified in 3GPP TS 23.280 [5]. The MCDData service configuration data is stored in the MCDData server.

Tables A.5-1 and A.5-2 describe the configuration data required to support the use of on-network MCDData service. Tables A.5-1 and A.5-3 describe the configuration data required to support the use of off-network MCDData service. Data in tables A.5-1 and A.5-3 can be configured offline using the CSC-11 reference point.

Table A.5-1: MCDATA service configuration data (on and off network)

Reference	Parameter description	MCDATA UE	MCDATA Server	Configuration management server
	Transmission and reception control			
[R-6.2.2.1-002d], [R-6.2.2.4-003] of 3GPP TS 22.282 [3]	> Time limit for the temporarily stored data waiting to be delivered to a receiving user	Y	Y	Y
[R-6.2.2.3-001] of 3GPP TS 22.282 [3]	> Timer for periodic announcement with the list of available recently invited data group communications	Y	Y	Y

Table A.5-2: MCDATA service configuration data (on network)

Reference	Parameter description	MCDATA UE	MCDATA Server	Configuration management server
Subclause 6.2.2 of 3GPP TS 22.282 [3]	Transmission and reception control			
	> Maximum data size for SDS	Y	Y	Y
	> Maximum payload data size for SDS over signalling control plane (NOTE)	Y	Y	Y
	> Maximum data size for FD	Y	Y	Y
	> Maximum data size for auto-receive	N	Y	Y
	List of functional alias identities			
[R-5.9a-005] of 3GPP TS 22.280 [17]	> Functional alias	N	Y	Y
[R-5.9a-005] of 3GPP TS 22.280 [17]	>> Limit number of simultaneous activations	N	Y	Y
[R-5.9a-005] of 3GPP TS 22.280 [17]	>> This functional alias can be taken over	N	Y	Y
	>> List of users			
[R-5.9a-005] of 3GPP TS 22.280 [17]	>>> MCDATA ID	N	Y	Y
[R-5.10-001a] of 3GPP TS 22.280 [2]	Maximum number of successful simultaneous service authorizations of clients from a user	N	Y	Y
NOTE: The maximum payload data size for SDS over signalling control plane shall be less than or equal to the maximum data size for SDS.				

Table A.5-3: MCDATA service configuration data (off network)

Reference	Parameter description	MCDATA UE	MCDATA Server	Configuration management server
Subclause 10.10 of 3GPP TS 23.280 [5]	Default ProSe Per-Packet priority (as specified in 3GPP TS 23.303 [7]) values			
	> MCDATA one-to-one call signalling	Y	N	Y
	> MCDATA one-to-one call media	Y	N	Y

Annex B (informative): Transmission control for MCDData

B.1 Overview of transmission control process

The MCDData server may receive several simultaneous requests for data transmission, which may be associated with different types of communication e.g. group, private, 1-to-many. For each communication, the how the requests are processed may be different. The requests that are not authorized shall be rejected by the transmission control function. For auto-send requests, the processing should be immediate and is delivered to the recipients either via unicast or broadcast. However, for requests exceeding the auto-send limits, transmission control arbitration (see Annex B.2) will be necessary. Subsequent to transmission control arbitration, and subject to the policy e.g. store and forward, the data is either delivered directly to the recipient MCDData user, or stored in the network repository and a corresponding URL is delivered. The end-to-end transmission control process is illustrated in figure B.1-1.

Editor's note: The aspects related to data streaming and accuracy of the process is FFS.

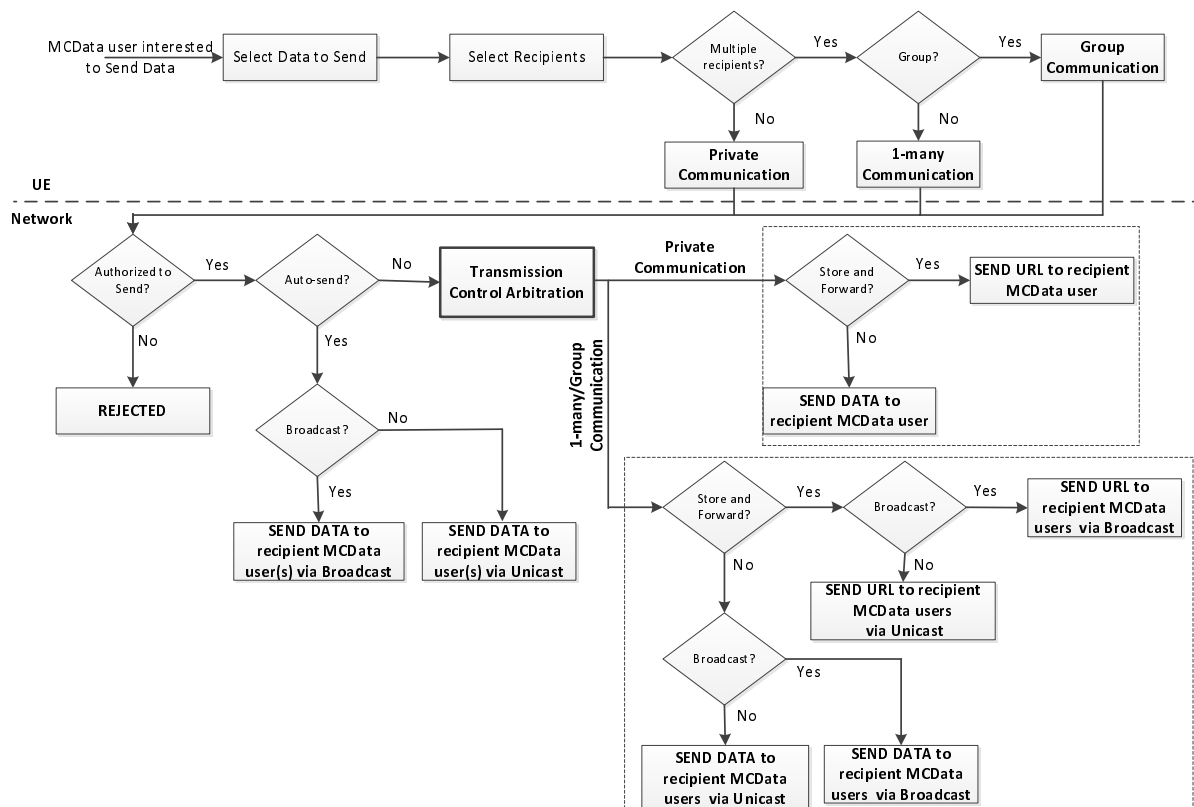


Figure B.1-1: Transmission control process

B.2 Transmission control arbitration

The transmission control arbitration is a central function of transmission control process. In a typical deployment, multiple or simultaneous requests can be received at the transmission control arbitration function. Each of these requests may be categorized into different request types with different queuing priorities, and therefore each request type will be maintained with separate queues. Each request shall not be present in more than one queue at any given time. The queue types and the order of queues may be configured by the MCDData administrator, as described below.

- Transmission control queue: It is the primary queue from which the request is processed for transmission e.g. emergency communication requests may result in this queue and processed at the highest priority.
- Communication type queue: This queue may be sorted in the order of the communication type associated with the request. For example, the group communication requests may always take precedence over one-to-many or private communication requests.
- Static attribute queue: This queue may be formed based on the static attributes associated with the request e.g. group priority, user priority, which may be pre-configured by the MCDData administrator.
- Dynamic attribute queue: This queue may be formed based on the dynamic attributes associated with the request e.g. location of the sending user, content size, etc.

Editor's note: The queue categories and the order of the queues is FFS.

Annex C VOID

Annex D (informative): Example of a User Message Storage Area

The figure in subclause 7.13.1 illustrates the high-level structure of the MCDData message store where objects are stored in a flat structure in the user storage area. This flat data structure provides maximum flexibility for UI implementation to present stored objects to the user. However, a folder hierarchy structure provides a better visual presentation of the stored objects to the MCDData user.

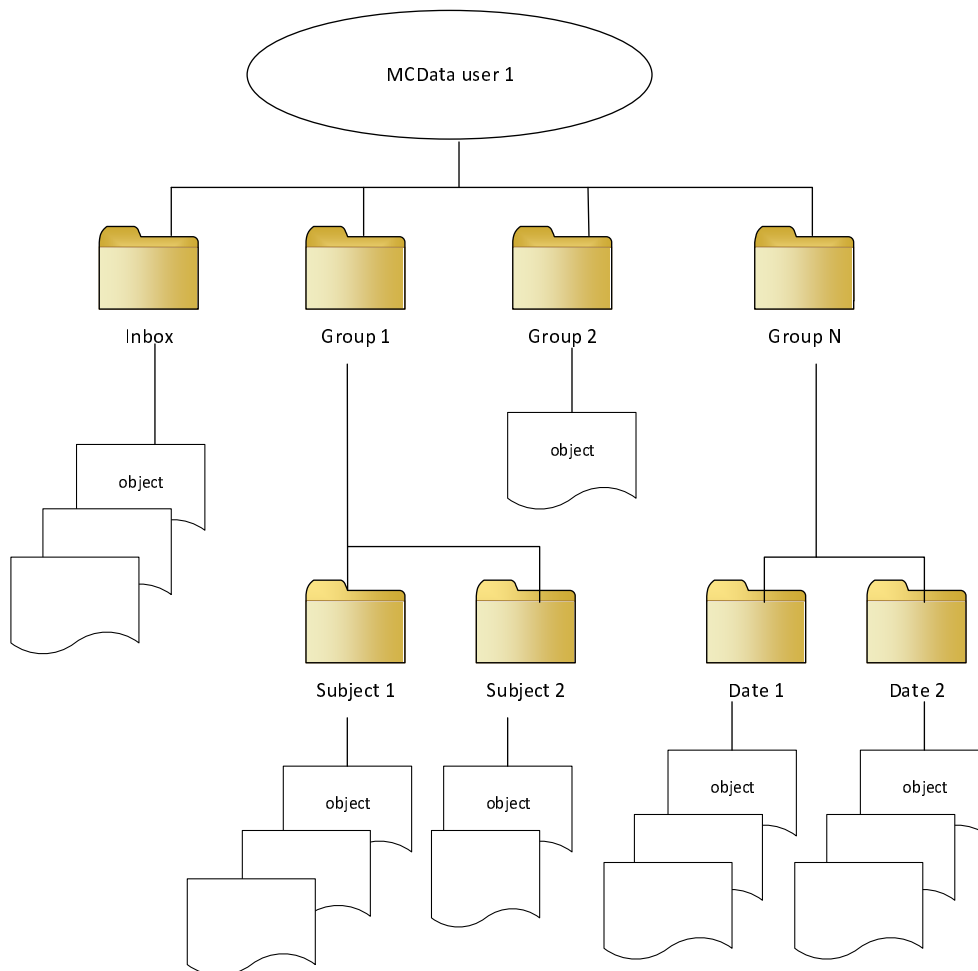


Figure D-1: User message storage area example

In figure D-1 the MCDData user 1 message storage area in the MCDData message store is constructed in folder hierarchical way. A system default folder, Inbox, is configured to receive all new objects coming from active communications. The MCDData user 1 creates Group 1, Group 2 and Group N folders to store communication history for different group communications that he is a member of. Once the Group 1 folder is created the MCDData user 1 can then move all the objects related to Group 1 communication from the Inbox to the Group 1 folder. The MCDData user 1 can also create child folders in Group 1 folder to further divide the stored objects into different groupings such as with different subjects, Subject 1 and Subject 2. Similarly, the MCDData user 1 creates child folders, Date 1 and Date 2, in Group N folder to store communication history in group N occurred in different dates. With this hierarchical folder structure, the MCDData user 1 can browse his user account in the MCDData message store interactively and navigate to the information he would like to see. For example, the MCDData user 1 can start with the top-level root folder and traverse down the folder hierarchy to reach to Date 2 folder and see the communication history of group N in that particular date.

Annex E (informative): Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2016-07						Initial version.	0.0.0
2016-08						Update following SA6#12 incorporating the following pCRs: S6-160810; S6-160875; S6-160876	0.1.0
2016-10						Update following SA6#13 incorporating the following pCRs: S6-161169; S6-161170; S6-161243; S6-161265; S6-161085; S6-161173; S6-161174; S6-161245; S6-161176; S6-161248; S6-161177; S6-161178; S6-161266; S6-161267; S6-161184	0.2.0
2016-11						Update following SA6#14 incorporating the following pCRs: S6-161316; S6-161586; S6-161609; S6-161587; S6-161589; S6-161506; S6-161576; S6-161507; S6-161326; S6-161508; S6-161577; S6-161511; S6-161512; S6-161616; S6-161514; S6-161515; S6-161516; S6-161580; S6-161581; S6-161519; S6-161498; S6-161642	0.3.0
2016-11	SA#74	SP-160878				Submitted for Approval at SA#74	1.0.0
2016-12	SA#74	SP-160878				MCC Editorial update for publication after TSG SA approval (SA#74)	14.0.0
2017-03	SA#75	SP-170071	0002	2	F	Alignment of definitions	14.1.0
2017-03	SA#75	SP-170071	0003	2	F	Alignment of group affiliation and de-affiliation requirements	14.1.0
2017-03	SA#75	SP-170071	0004	1	F	Alignment of bearer management	14.1.0
2017-03	SA#75	SP-170071	0005	2	D	Adding descriptive text for the FD procedure section	14.1.0
2017-03	SA#75	SP-170071	0006	2	D	Resolving editor's notes for the short data service feature	14.1.0
2017-03	SA#75	SP-170071	0007	1	D	Adding references for the signalling control plane	14.1.0
2017-03	SA#75	SP-170071	0008	2	D	Adding descriptive text for the transmission and reception control section	14.1.0
2017-03	SA#75	SP-170071	0009		F	MCDATA correction of reference	14.1.0
2017-03	SA#75	SP-170071	0010		F	Alignment of business relationships, identities, and application of functional model to deployments	14.1.0
2017-03	SA#75	SP-170071	0011	3	F	file download editorials	14.1.0
2017-03	SA#75	SP-170071	0013	1	F	Off-network conversation management	14.1.0
2017-03	SA#75	SP-170071	0014	1	D	Editorial corrections	14.1.0
2017-03	SA#75	SP-170071	0015	1	F	Resolving EN in Scope	14.1.0
2017-03	SA#75	SP-170071	0016	5	F	Resolving EN in Functional model	14.1.0
2017-03	SA#75	SP-170071	0017	1	F	Resolving EN in SDS procedures	14.1.0
2017-03	SA#75	SP-170071	0018		F	Referring generic procedures from CFA	14.1.0
2017-03	SA#75	SP-170071	0020	2	F	Conversation management definitions	14.1.0
2017-03	SA#75	SP-170071	0021	2	F	Disposition alignments and corrections in SDS and FD	14.1.0
2017-03	SA#75	SP-170071	0022	1	F	Tx and Rx control procedure corrections	14.1.0
2017-03	SA#75	SP-170071	0025	1	F	MCDATA functional model alignment	14.1.0
2017-03	SA#75	SP-170071	0027	1	F	Moving configuration data to on-network only	14.1.0
2017-03	SA#75	SP-170071	0028	3	F	Resolve SDS on-network information flows EN	14.1.0
2017-03	SA#75	SP-170071	0030	1	F	Resolve FD information flows EN	14.1.0
2017-03	SA#75	SP-170071	0031	2	F	Adding end-to-end encryption requirements	14.1.0
2017-03	SA#75	SP-170071	0032	1	F	Resolve transmission control information flows EN	14.1.0
2017-03	SA#75	SP-170071	0033	2	F	Resolve conversation management EN	14.1.0
2017-03	SA#75	SP-170071	0034	1	F	Addition of definition for MCDATA ID	14.1.0
2017-03	SA#75	SP-170071	0035		F	Addition of definition for MCDATA ID	14.1.0
2017-03	SA#75	SP-170071	0036	3	F	Off-network information flows for SDS	14.1.0
2017-03	SA#75	SP-170071	0037	1	F	Resolve communication release information flows EN	14.1.0
2017-03	SA#75	SP-170071	0038	1	F	Conditions for using SDS media plane	14.1.0
2017-06	SA#76	SP-170392	0039	2	F	Correction on MCDATA reference points when using MBMS	14.2.0
2017-06	SA#76	SP-170392	0048		D	Additions to Definition and Abbreviations	14.2.0
2017-06	SA#76	SP-170392	0049	2	F	Clarifications to section 5 Architecture requirements	14.2.0
2017-06	SA#76	SP-170392	0051	1	F	Clarifications to section 6.5.1 that SDS Distribution function in MCDATA server talks to SDS function in MCDATA client not UE	14.2.0
2017-06	SA#76	SP-170392	0052		F	Clarifications to section 6.5.3.1.2	14.2.0

2017-06	SA#76	SP-170392	0054	1	D	Correct wrong reference in section 7.2	14.2.0
2017-06	SA#76	SP-170392	0056	3	F	Correct the MCDData data disposition notification IEs	14.2.0
2017-06	SA#76	SP-170392	0058	1	D	Consistent use of pre-condition in section 7.4.2.2.2	14.2.0
2017-06	SA#76	SP-170392	0059	1	F	Inconsistent use of MCDData group ID or list of recipients in request	14.2.0
2017-06	SA#76	SP-170392	0061	3	F	Content reference URL should be a mandatory IE when uploading a file	14.2.0
2017-06	SA#76	SP-170392	0062	5	F	Addition of new configuration and miscellaneous corrections	14.2.0
2017-06	SA#76	SP-170392	0063	5	F	Addition of identity management server address per group	14.2.0
2017-06	SA#76	SP-170392	0064		F	Correction on sending data with mandatory download	14.2.0
2017-06	SA#76	SP-170392	0070	2	F	Inclusion of KMSUri to allow multiple security domains	14.2.0
2017-06	SA#76	SP-170392	0071	4	F	Clarification to Auto-send	14.2.0
2017-06	SA#76	SP-170392	0076		F	Corrections to Group configuration data for all MC services	14.2.0
2017-06	SA#76	SP-170392	0078	2	F	CR to 23.282 on Auto-receive	14.2.0
2017-06	SA#76	SP-170394	0040	4	B	Information flow of File Distribution for off-network	15.0.0
2017-06	SA#76	SP-170394	0041	1	B	Functional model of File Distribution for off-network	15.0.0
2017-06	SA#76	SP-170394	0075	1	C	Functional model of File Distribution for off-network	15.0.0
2017-09	SA#76	SP-170682	0079	2	B	Introduction of SDS application type identifiers	15.1.0
2017-09	SA#76	SP-170685	0080	1	B	Addition of IWF and IWF-2	15.1.0
2017-09	SA#76	SP-170681	0083	1	A	File size check for FD	15.1.0
2017-09	SA#76	SP-170681	0085	1	A	Correction to configuration for Auto-receive parameter	15.1.0
2018-01	SA#78	SP-170891	0087	1	F	SDS location field: Alignment of Stage 2 with Stage 1 & Stage 3	15.2.0
2018-01	SA#78	SP-170891	0088	1	D	Editorial changes to MCDData stage 2	15.2.0
2018-01	SA#78	SP-170895	0089	1	F	Adding application identifier in media plane SDSs	15.2.0
2018-01	SA#78	SP-170891	0090	1	F	Off-network Conversation Management clarifications	15.2.0
2018-01	SA#78	SP-170889	0094	2	A	PSI configuration for MCDData service	15.2.0
2018-01	SA#78	SP-170891	0095	1	F	Completion of Communication Release	15.2.0
2018-01	SA#78	SP-170894	0096	1	F	MBMS packet recovery	15.2.0
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2018-04	SA#79	SP-180148	0102	2	A	Payload size limit for standalone SDS over signalling control plane	15.3.0
2018-04	SA#79	SP-180151	0103	1	F	Update of references to stage 1 specifications	15.3.0
2018-04	SA#79	SP-180148	0107	1	A	Duplicated procedure name for MCDData Group SDS	15.3.0
2018-06	SA#80	SP-180367	0109		A	Clarification for presentation priority in MCDData UE configuration	15.4.0
2018-06	SA#80	SP-180370	0110	3	A	Modify MCDData download data response	15.4.0
2018-09	SA#81	SP-180677	0111	2	C	Media storage function in the MCDData server	16.0.0
2018-09	SA#81	SP-180677	0113	3	C	Adding the Network base Message Store	16.0.0
2018-12	SA#82	SP-181178	0116	1	F	Corrections on CR implementation errors	16.1.0
2018-12	SA#82	SP-181178	0117	1	F	Configuration parameters to support requirement [R-6.1.1.2-009] are incorrect	16.1.0
2018-12	SA#82	SP-181178	0118	2	F	Corrections to Table A.2-1, Table A.4-2 and Table A.5-2	16.1.0
2018-12	SA#82	SP-181178	0119	4	F	Corrections to "Release of MCDData communication using HTTP" procedures	16.1.0
2018-12	SA#82	SP-181178	0120	1	F	Alignment with the MCDData content server	16.1.0
2018-12	SA#82	SP-181178	0121	1	F	There is no file download when using media plane for FD	16.1.0
2018-12	SA#82	SP-181178	0122	2	B	Procedures for MCDData message store operations	16.1.0
2018-12	SA#82	SP-181178	0123	1	F	Correct misalignment on MCDData user usage	16.1.0
2019-03	SA#83	SP-190074	0124	-	F	Correct the location of MCDData content server and MCDData message store configuration parameters in table A.3-2 configuration table	16.2.0
2019-03	SA#83	SP-190074	0125	-	D	Editorial correction on the term of MCDData	16.2.0
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2019-03	SA#83	SP-190074	0134	2	C	Making data sync between MCDData message store and message store client bi-directional	16.2.0
2019-03	SA#83	SP-190074	0135	1	B	Add more operations to the MCDData message store	16.2.0
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2019-06	SA#84	SP-190488	0137	1	B	Restricting incoming private communications	16.3.0
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2019-06	SA#84	SP-190488	0140	2	B	User configuration for functional alias information query for MCDData	16.3.0
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2019-06	SA#84	SP-190488	0143	2	B	MCDData configuration for functional alias	16.3.0
2019-06	SA#84	SP-190488	0144	4	B	Functional alias support configuration items	16.3.0
2019-06	SA#84	SP-190488	0145	3	B	Functional alias supplements for the MCDData transmission and reception control procedures	16.3.0
2019-06	SA#84	SP-190488	0147	2	B	Functional alias support for Short Data Service (SDS)	16.3.0
2019-06	SA#84	SP-190488	0148	3	B	MC Data User IP connectivity service capability– part 1 Functional Architecture	16.3.0
2019-06	SA#84	SP-190488	0149	1	C	MCDData transport capabilities for IP connectivity service	16.3.0
2019-06	SA#84	SP-190485	0150	6	B	MCDData File Distribution using the MBMS download delivery method	16.3.0
2019-06	SA#84	SP-190485	0151	-	C	Remove the procedure in 7.5.2.9 File removal using HTTP by MCDData server	16.3.0
2019-06	SA#84	SP-190485	0152	2	F	Remove the duplicated MCDData server URI in UE configuration table	16.3.0
2019-06	SA#84	SP-190485	0153	3	F	Add lossless communication to network group configuration and fix missing configuration parameter	16.3.0
2019-06	SA#84	SP-190485	0154	2	F	Resolution proposals for some Editor's Notes	16.3.0
2019-06	SA#84	SP-190488	0155		B	MCDData client performs automatic activation and deactivation of functional aliases based on location	16.3.0
2019-06	SA#84	SP-190488	0156		B	MCDData server limits the number of simultaneous successful service authorisations	16.3.0
2019-06	SA#84	SP-190488	0157	3	B	Functional alias support for MCDData File Distribution	16.3.0
2019-06	SA#84	SP-190488	0159	3	B	MC Data User IP connectivity service capability– part 2 IP connectivity for Point-to-Point and Group communication	16.3.0
2019-09	SA#85	SP-190729	0161	3	F	Correct the configuration parameters for the MCDData emergency alert procedures	16.4.0
2019-09	SA#85	SP-190729	0169	1	F	Fix omission of location services in MCDData	16.4.0
2019-09	SA#85	SP-190729	0170	2	B	EPS bearer for emergency	16.4.0
2019-09	SA#85	SP-190729	0171	2	B	Emergency support for one-to-one SDS	16.4.0
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2019-09	SA#85	SP-190729	0174	2	C	Addition of Location information to SDS and Enhance Status	16.4.0
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2019-09	SA#85	SP-190729	0179	2	F	Clarification and corrections to support transmission control	16.4.0
2019-09	SA#85	SP-190729	0180	2	F	Corrections to the transmission and reception control procedures	16.4.0
2019-09	SA#85	SP-190729	0183	1	B	One-to-one SDS Session upgrade to emergency session	16.4.0
2019-09	SA#85	SP-190729	0184	1	B	Group SDS Session upgrade to emergency/imminent-peril session and cancel in-progress emergency/imminent-peril group state	16.4.0
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2019-09	SA#85	SP-190729	0186	1	B	Group emergency MCDData FD	16.4.0
2019-09	SA#85	SP-190729	0187	1	B	One-to-one FD Session upgrade to emergency session	16.4.0
2019-09	SA#85	SP-190729	0188	1	B	Group FD communication upgrade to emergency/imminent-peril communication and cancel in-progress emergency/imminent-peril group state	16.4.0

2019-12	SA#86	SP-191108	0195	2	F	File repair with the content storage function	16.5.0
2020-03	SA#87-E	SP-200113	0203	2	F	Clarification on prepending the MCData content server URI	16.6.0
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2020-03	SA#87-E	SP-200113	0205	1	F	Enhancements and clarifications for file repair and file delivery using MBMS	16.6.0
2020-03	SA#87-E	SP-200113	0206		F	Correction of internal clause references for Enhanced Status transmission	16.6.0
2020-03	SA#87-E	SP-200113	0209	1	F	Corrections to IP Connectivity	16.6.0
2020-04	-	-	-	-	-	Editorial correction adding missing line break in clause 6.6.2	16.6.1

History

Document history		
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