
Application Programming Interface Document

Online Charging System API Specification

Version 1.0

Document Information**Document Sign Off**

Project Manager (Solution Architecture & QA)	Mr. Inamullah
Development Lead (Diameter Project)	Mr. M.Taha Masood
Development Team	Technical Writing Department

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Prepared By	Qamar Ejaz.

History

Document Version Control

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April 22, 2008	1.0	Qamar Ejaz	Details of API specification

Objective

Document Scope

The information provided in this document specifies the Application Programming Interface for the Online Charging System of the IP Multimedia Subsystem, as well as for its Rf reference point. For complete scope of Online Charging System please see the Project Proposal.

1. Abbreviations

Following are the abbreviations that have been used in the document:

AVP	Attribute Value Pair
CC	Credit Control
CCA	Credit Control Answer
CCR	Credit Control Request
RAR	Re-Authorization Request
RAA	Re-Authorization Answer
CER	Capabilities Exchange Request
CEA	Capabilities Exchange Answer
DWR	Device Watchdog Request
DWA	Device Watchdog Answer
DPR	Disconnect Peer Request
DPA	Disconnect Peer Answer
ASR	Abort Session Request
ASA	Abort Session Answer

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2. Ro Reference Point

2.1. Ro Structures

2.1.1. RoAPIReturnVal_t

```
typedef enum RoAPIReturnVal  
{  
    RoAPI-Retval-Success,  
    RoAPI-Retval-Failure,  
} RoAPIReturnVal_t ;
```

Enumeration Explanation

This enumeration contains the possible return values for the Ro API.

Fields:

RoAPI-Retval-Success

This enumeration value is returned in case of success.

RoAPI-Retval-Failure

This enumeration value is returned in case of failure.

2.1.2. CCR_Params_t

```
typedef struct CCR_Params  
{  
    DAPI-HANDLE-AVP hAVP_SessionId;  
    DAPI-HANDLE-AVP hAVP_OriginHost;  
    DAPI-HANDLE-AVP hAVP_OriginRealm;  
    DAPI-HANDLE-AVP hAVP_DestinationRealm;  
    DAPI-HANDLE-AVP hAVP_AuthApplicationId;  
    DAPI-HANDLE-AVP hAVP_Service-Context-Id;  
    DAPI-HANDLE-AVP hAVP_CCRequestNumber;  
    DAPI-HANDLE-AVP hAVPDestinationHost;  
    DAPI-HANDLE-AVP hAVPUserName;  
    DAPI-HANDLE-AVP hAVP_CCSubSessionId;  
    DAPI-HANDLE-AVP hAVP_AcctMultiSessionId;  
    DAPI-HANDLE-AVP hAVP_OriginStateId;  
    DAPI-HANDLE-AVP hAVP_EventTimestamp;  
    DAPI-Dlist* pListOfSubscriptionIds;  
    DAPI-HANDLE-AVP hAVP_ServiceIdentifier;  
    DAPI-HANDLE-AVP hAVP_TerminationCause;  
    DAPI-HANDLE-AVP hAVP_RequestedServiceUnit;  
    DAPI-HANDLE-AVP hAVP_RequestedAction;  
    DAPI-Dlist* pListOfUsedServiceUnitAVPs;
```

```
DAPI-HANDLE-AVP hAVP_MultipleServicesIndicator;  
DAPI-Dlist* pListOfMultipleServicesCreditControlAVPs;  
DAPI-Dlist* pListOfServiceParameterInfoAVPs;  
DAPI-HANDLE-AVP hAVP_CCCorrelationId;  
DAPI-HANDLE-AVP hAVP_UserEquipmentInfo;  
DAPI-Dlist* pListOfProxyInfoAVPs;  
DAPI-Dlist* pListOfRouteRecordAVPs;  
DAPI-Dlist* pListOfFurtherAVPs;  
} CCR_Params_t;
```

Structure Explanation

This structure contains the list of parameters required for the creation of CCR Diameter message.

Fields:

DAPI-HANDLE-AVP hAVP_SessionId

This field contains the handle to the Session ID AVP.

DAPI-HANDLE-AVP hAVP_OriginHost

This field contains the handle to the Origin Host AVP.

DAPI-HANDLE-AVP hAVP_OriginRealm

This field contains the handle to the Origin Realm AVP.

DAPI-HANDLE-AVP hAVP_DestinationRealm

This field contains the handle to the Destination Realm AVP.

DAPI-HANDLE-AVP hAVP_AuthApplicationId

This field contains the handle to the Auth Application ID AVP.

DAPI-HANDLE-AVP hAVP_Service-Context-Id

This field contains the handle to the Service Context ID AVP.

DAPI-HANDLE-AVP hAVP_CCRequestNumber

This field contains the handle to the CC Request Number AVP.

DAPI-HANDLE-AVP hAVP_DestinationHost

This field contains the handle to the Destination Host AVP.

DAPI-HANDLE-AVP hAVP_UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP_CCSubSessionId

This field contains the handle to the CC Sub Session ID AVP.

- DAPI-HANDLE-AVP hAVP_AcctMultiSessionId
This field contains the handle to the Accounting Multi Session ID AVP.
- DAPI-HANDLE-AVP hAVP_OriginStateId
This field contains the handle to the Origin State Id AVP.
- DAPI-HANDLE-AVP hAVP_EventTimestamp
This field contains the handle to the Event Timestamp AVP.
- DAPI-Dlist* pListOfSubscriptionIds
This field contains a linked list containing the handles to one or more subscription ID AVPs.
- DAPI-HANDLE-AVP hAVP_ServiceIdentifier
This field contains the handle to the Service Identifier AVP.
- DAPI-HANDLE-AVP hAVP_TerminationCause
This field contains the handle to the Termination Cause AVP.
- DAPI-HANDLE-AVP hAVP_RequestedServiceUnit
This field contains the handle to the Requested Service Unit AVP.
- DAPI-HANDLE-AVP hAVP_RequestedAction
This field contains the handle to the Requested Action AVP.
- DAPI-Dlist* pListOfUsedServiceUnitAVPs
This field contains a linked list containing the handles to one or more Used Service Unit AVPs.
- DAPI-HANDLE-AVP hAVP_MultipleServicesIndicator
This field contains the handle to the Multiple Services Indicator AVP.
- DAPI-Dlist* pListOfMultipleServicesCreditControlAVPs
This field contains a linked list containing the handles to one or more Multiple Services Credit Control AVPs.
- DAPI-Dlist* pListOfServiceParameterInfoAVPs
This field contains a linked list containing the handles to one or more Service Parameter Info AVPs.
- DAPI-HANDLE-AVP hAVP_CCCorrelationId
This field contains a handle to the CC Correlation ID AVP.
- DAPI-HANDLE-AVP hAVP_UserEquipmentInfo
This field contains a handle to the User Equipment Info AVP.

DAPI-Dlist* pListOfProxyInfoAVPs

This field contains a linked list containing the handles to one or more Proxy Info AVPs.

DAPI-Dlist* pListOfRouteRecordAVPs

This field contains a linked list containing the handles to one or more Route Record AVPs.

DAPI-Dlist* pListOfFurtherAVPs

This field contains a linked list containing the handles to one or more arbitrary AVPs.

2.1.3. CCA_Params

```
typedef struct CCA_Params
{
    DAPI-HANDLE-AVP hAVP_SessionID;
    DAPI-HANDLE-AVP hAVP_ResultCode;
    DAPI-HANDLE-AVP hAVP_OriginHost;
    DAPI-HANDLE-AVP hAVP_OriginRealm;
    DAPI-HANDLE-AVP hAVP_AccountingRecordType;
    DAPI-HANDLE-AVP hAVP_AccountingRecordNumber;
    DAPI-HANDLE-AVP hAVP_AcctApplicationID;
    DAPI-HANDLE-AVP hAVP_VendorSpecificApplicationID;
    DAPI-HANDLE-AVP hAVP_UserName;
    DAPI-HANDLE-AVP hAVP_AccountingSubSessionID;
    DAPI-HANDLE-AVP hAVP_AcctSessionID;
    DAPI-HANDLE-AVP hAVP_AcctMultiSessionID;
    DAPI-HANDLE-AVP hAVP_ErrorReportingHost;
    DAPI-HANDLE-AVP hAVP_AcctInterimInterval;
    DAPI-HANDLE-AVP hAVP_AccountingRealtimeRequired;
    DAPI-HANDLE-AVP hAVP_OriginStateID;
    DAPI-HANDLE-AVP hAVP_EventTimestamp;
    DAPI-Dlist* pListOfProxyInfoAVPs;
    DAPI-Dlist* pListOfFurtherAVPs;
} CCA_Params_t;
```

Structure Explanation

This structure contains the list of parameters required for the creation of CCA Diameter message.

Fields:

DAPI-HANDLE-AVP hAVP_SessionID

This field contains the handle to the Session ID AVP.

DAPI-HANDLE-AVP hAVP_ResultCode

This field contains the handle to the Result Code AVP.

DAPI-HANDLE-AVP hAVP_OriginHost

This field contains the handle to the Origin Host AVP.

DAPI-HANDLE-AVP hAVP_OriginRealm

This field contains the handle to the Origin Realm AVP.

DAPI-HANDLE-AVP hAVP_AccountingRecordType

This field contains the handle to the Accounting Record Type AVP.

DAPI-HANDLE-AVP hAVP_AccountingRecordNumber;

This field contains the handle to the Accounting Record Number AVP.

DAPI-HANDLE-AVP hAVP_AcctApplicationID;

This field contains the handle to the Accounting Application ID AVP.

DAPI-HANDLE-AVP hAVP_VendorSpecificApplicationID;

This field contains the handle to the Vendor Specific Application ID AVP.

DAPI-HANDLE-AVP hAVP_UserName;

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP_AccountingSubSessionID;

This field contains the handle to the Accounting Sub Session ID AVP.

DAPI-HANDLE-AVP hAVP_AcctSessionID;

This field contains the handle to the Accounting Session ID AVP.

DAPI-HANDLE-AVP hAVP_AcctMultiSessionID;

This field contains the handle to the Accounting Multi Session ID AVP.

DAPI-HANDLE-AVP hAVP_ErrorReportingHost;

This field contains the handle to the Error Reporting Host AVP.

DAPI-HANDLE-AVP hAVP_AcctInterimInterval;

This field contains the handle to the Accounting Interim Interval AVP.

DAPI-HANDLE-AVP hAVP_AccountingRealtimeRequired;
 This field contains the handle to the Accounting Realtime Required AVP.

DAPI-HANDLE-AVP hAVP_OriginStateID;
 This field contains the handle to the Origin State ID AVP.

DAPI-HANDLE-AVP hAVP_EventTimestamp;
 This field contains the handle to the Event Timestamp AVP..

DAPI-Dlist* pListOfProxyInfoAVPs;
 This field contains a linked list containing the handles to one or more ProxyInfo AVPs.

DAPI-Dlist* pListOfFurtherAVPs
 This field contains a linked list containing the handles to one or more arbitrary AVPs.

2.2. Ro APIs

2.2.1. CreateCreditControlRequest

RoAPIReturnVal_t CreateCreditControlRequest(DAPI-HANDLE-DIAM-MSG phDiaMsgCCR , CCR_Params_t oCCR_Param);*

Purpose

The purpose of this API is to create a Diameter Message of type Credit Control Request (CCR).

Parameters

Name	Type	In/out	Description
phDiaMsgCCR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required CCR Diameter message will be created by this API.
oCCR_Param	CCR_Params_t	In	This is a structure containing various parameters for this API.

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.2. CreateCreditControlAnswer

RoAPIReturnVal_t CreateCreditControlAnswer(DAPI-HANDLE-DIAM-MSG phDiaMsgCCA , CCA_Params_t oCCA_Param);*

Purpose

The purpose of this API is to create a Diameter Message of type Credit Control Answer (CCA).

Parameters

Name	Type	In/out	Description
phDiaMsgCCA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required CCA Diameter message will be created by this API.
oCCA_Param	CCA_Params_t	In	This is a structure containing various parameters for this API.

Return value

The function returns ‘RoAPI-Retval-Success’ in case of success and ‘RoAPI-Retval-Failure’ in case of failure.

2.2.3. RoCreateRAR

RoAPIReturnVal_t RoAPIReturnVal_t RoCreateRAR(DAPI-HANDLE-DIAM-MSG phDiaMsgRAR , void* pData);*

Purpose

This is a wrapper function used to create a Diameter message of type RAR.

Parameters

Name	Type	In/out	Description
phDiaMsgRAR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required RAR Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.4. RoCreateRAA

```
RoAPIReturnVal_t RoCreateRAA(DAPI-HANDLE-DIAM-MSG* phDiaMsgRAA , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type RAA.

Parameters

Name	Type	In/out	Description
phDiaMsgRAA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required RAA Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.5. RoCreateCER

```
RoAPIReturnVal_t RoCreateCER(DAPI-HANDLE-DIAM-MSG* phDiaMsgCER , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type CER.

Parameters

Name	Type	In/out	Description
phDiaMsgCER	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required CER Diameter message will be created

			by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.6. RoCreateCEA

```
RoAPIRetVal_t RoCreateCEA(DAPI-HANDLE-DIAM-MSG* phDiaMsgCEA , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type CEA.

Parameters

Name	Type	In/out	Description
phDiaMsgCEA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required CEA Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.7. RoCreateDWR

```
RoAPIReturnVal_t RoCreateDWR(DAPI-HANDLE-DIAM-MSG* phDiaMsgDWR , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type DWR.

Parameters

Name	Type	In/out	Description
phDiaMsgDWR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required DWR Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.8. RoCreateDWA

```
RoAPIReturnVal_t RoCreateDWA(DAPI-HANDLE-DIAM-MSG* phDiaMsgDWA , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type DWA.

Parameters

Name	Type	In/out	Description
phDiaMsgDWA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required DWA Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns ‘RoAPI-Retval-Success’ in case of success and ‘RoAPI-Retval-Failure’ in case of failure.

2.2.9. RoCreateDPR

```
RoAPIReturnVal_t RoCreateDPR(DAPI-HANDLE-DIAM-MSG* phDiaMsgDPR , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type DPR.

Parameters

Name	Type	In/out	Description
phDiaMsgDPR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required DPR Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns ‘RoAPI-Retval-Success’ in case of success and ‘RoAPI-Retval-Failure’ in case of failure.

2.2.10. RoCreateDPA

```
RoAPIReturnVal_t RoCreateDPA(DAPI-HANDLE-DIAM-MSG* phDiaMsgDPA , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type DPA.

Parameters

Name	Type	In/out	Description
phDiaMsgDPA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required DPA Diameter message will be created by this API.

pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message
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Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.11. RoCreateASR

```
RoAPIRetVal_t RoCreateASR(DAPI-HANDLE-DIAM-MSG* phDiaMsgASR , void* pData );
```

Purpose

This is a wrapper function used to create a Diameter message of type ASR.

Parameters

Name	Type	In/out	Description
phDiaMsgASR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required ASR Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.

2.2.12. RoCreateASA

```
RoAPIRetVal_t RoCreateASA(DAPI-HANDLE-DIAM-MSG* phDiaMsgASA , void* pData  
);
```

Purpose

This is a wrapper function used to create a Diameter message of type ASA

Parameters

Name	Type	In/out	Description
phDiaMsgASA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to a Diameter message handle in which the required ASA Diameter message will be created by this API.
pData	void*	In	This parameter will contain any relevant data required for the creation of current diameter message

Return value

The function returns 'RoAPI-Retval-Success' in case of success and 'RoAPI-Retval-Failure' in case of failure.