
Software Requirement Specification Document

Online Charging System SRS

Version 1.0

Document Information**Document Sign Off**

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Document Purpose

The information provided in this document explains both functional and non functional requirements for Online Charging System and supported reference points. It clearly identifies the requirements and contains detailed information about it. For complete scope of Online Charging System, please see the **Project Proposal**.

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1. References & Abbreviations

1.1 Abbreviations

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

| | |
|-------------|---------------------------------------|
| CDR | Charging Data Record |
| OCS | Online Charging System |
| 3GPP | Third Generation Partnership Protocol |
| IMS | IP Multimedia Subsystem |
| CGF | Charging Gateway Function |
| CDF | Charging Data Function |
| CTF | Charging Trigger Function |

2. Project Overview

Online charging is a process where charging information for network resource usage is collected concurrently with that resource usage in the same fashion as in offline charging. However, authorization for the network resource usage must be obtained by the network prior to the actual resource usage to occur. This authorization is granted by the Online Charging System upon request from the network.

When receiving a network resource usage request, the network assembles the relevant charging information and generates a charging event towards the OCS in real-time. The OCS then returns an appropriate resource usage authorization. The resource usage authorization may be limited in its scope (e.g. volume of data or duration), therefore the authorization may have to be renewed from time to time as long as the user's network resource usage persists.

Note that the charging information utilized in online charging is not necessarily identical to the charging information employed in offline charging.

Hence online charging is a mechanism where charging information can affect, in real-time, the service rendered and therefore a direct interaction of the charging mechanism with the control of network resource usage is required.

In addition to describing the Requirement Specifications for the Online Charging System, this document also describes the Requirement Specifications for the following reference point used for communication between the Online Charging System and other IMS entities:

Ro

Ro is the Reference Point between an IMS element and the Online Charging System.

3. Functional Requirements

Following are the functional requirements of Online Charging System.

3.1 Online Charging System

Requirement: 1 - Reference points to be supported in Online Charging system

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|--------------------|---|
| ID | DIM – 00166 |
| Group Name | Online Charging System. |
| Name | Reference points to be supported in Online Charging system. |
| Description | The Ro reference point will be supported in the online charging system. |

Requirement: 2 - Support for account balance management

| | |
|--------------------|---|
| ID | DIM – 00167 |
| Group Name | Online Charging System. |
| Name | Support for account balance management. |
| Description | The online charging system will provide full support for account balance management towards external account management servers e.g. recharge server, hot billing server. |

Requirement: 3 - Support for CDR generation and transfer

| | |
|--------------------|---|
| ID | DIM – 00168 |
| Group Name | Online Charging System. |
| Name | Support for CDR generation and transfer. |
| Description | The online charging system will provide support for generation of Charging Data Records (CDRs) and their transfer to the operator's post-processing system. |

Requirement: 4 - Support for charging transaction control

| | |
|--------------------|---|
| ID | DIM – 00172 |
| Group Name | Online Charging System. |
| Name | Support for charging transaction control |
| Description | We will be implementing a basic charging transaction model. |

Requirement: 5 - Support for correlation

| | |
|--------------------|--|
| ID | DIM – 00169 |
| Group Name | Online Charging System. |
| Name | Support for correlation. |
| Description | The online charging system will provide support for correlation of bearer, service and IMS charging. |

Requirement: 6 - Support for correlation function

| | |
|--------------------|--|
| ID | DIM – 00173 |
| Group Name | Online Charging System. |
| Name | Support for correlation function. |
| Description | The online charging system will provide support for the following correlation function features: - Context handling of bearer, service and IMS charging events related to a given subscriber; - Generation of a combined multiple event and session requests to the rating function. |

Requirement: 7 - Support for rating (before and/or after service consumption)

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|--------------------|---|
| ID | DIM – 00170 |
| Group Name | Online Charging System. |
| Name | Support for rating (before and/or after service consumption). |
| Description | We will be implementing a basic rating function |

3.2 Reference Points Supported

3.2.1 Ro Reference Point

Requirement: 1 - Diameter protocol support required at Ro

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|--------------------|--|
| ID | DIM – 00178 |
| Group Name | Ro Reference Point. |
| Name | Diameter protocol support required at Ro. |
| Description | The following features from Diameter protocol will be required at the Ro Reference point: -Real-time transactions; -Stateless mode (“event based charging”) and statefull mode (“session based charging”) of operation; -Provide its own reliability mechanisms, e.g. retransmission of charging events |

Requirement: 2 - Protocol used at Ro

| | |
|--------------------|---|
| ID | DIM – 00177 |
| Group Name | Ro Reference Point. |
| Name | Protocol used at Ro. |
| Description | The diameter protocol will be used on the Ro Reference point. |

Requirement: 3 - Receive acknowledgements from online charging system to CTF

| | |
|--------------------|---|
| ID | DIM – 00176 |
| Group Name | Ro Reference Point. |
| Name | Receive acknowledgements from online charging system to CTF. |
| Description | The Acknowledgements from the Online Charging System to the CTF are sent over the Ro reference point. The acknowledgement grants or rejects the network resource usage requested in the charging event, according to the decision taken by the OCS. |

Requirement: 4 - Support for interaction between CTF and Online charging system

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|--------------------|---|
| ID | DIM – 00174 |
| Group Name | Ro Reference Point. |
| Name | Support for interaction between CTF and Online charging system. |
| Description | The Ro Reference point will provide support for the interaction between the Charging Trigger Function (CTF) and the online charging system. |

4. Non-Functional Requirements

Requirement: 1 - Extensibility will be provided for Ro reference point

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|--------------------|---|
| ID | DIM – 00189 |
| Group Name | Ro Reference Point. |
| Name | Extensibility will be provided for Ro reference point. |
| Description | The Ro reference point will be designed such that it will be easy to extend it when required. |

Requirement: 2 - Scalability provisions for Ro reference point

| | |
|--------------------|--|
| ID | DIM – 00190 |
| Group Name | Ro Reference Point. |
| Name | Scalability provisions for Ro reference point. |
| Description | The Ro reference point will be implemented in such a manner so as to make it scalable. |

5. Operating Environment Requirements

The system will primarily be developed and tested on Linux/Unix based Operating Systems. But our goal is to make it a platform independent solution. The target platforms are:

- Linux ,
- Microsoft Windows &
- Solaris.