



ATIS-0410002-0035

Unified Ordering Model (UOM)

Volume II - Analysis

For Access Service Ordering Guidelines (ASOG)

Version 60



As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's most pressing business priorities. ATIS' nearly 200 member companies are currently working to address the All-IP transition, network functions virtualization, big data analytics, cloud services, device solutions, emergency services, M2M, cyber security, network evolution, quality of service, billing support, operations, and much more. These priorities follow a fast-track development lifecycle — from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open source solutions, and interoperability testing.

ATIS is accredited by the American National Standards Institute (ANSI). The organization is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of the oneM2M global initiative, a member of and major U.S. contributor to the International Telecommunication Union (ITU), as well as a member of the Inter-American Telecommunication Commission (CITEL). For more information, visit www.atis.org.

ATIS – 0410002-0035

Unified Ordering Model (UOM) – Volume II - Analysis

Is an ATIS standard developed by the Access Service Ordering Committee under the ATIS Ordering and Billing Forum (OBF).

Published by

Alliance for Telecommunications Industry Solutions

1200 G Street, NW, Suite 500

Washington, DC 20005

Copyright © 2019 by Alliance for Telecommunications Industry Solutions

All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher. For information contact ATIS at 202.628.6380.

ATIS is online at <<http://www.atis.org>>.

Printed in the United States of America.

Notice of Disclaimer and Limitation of Liability

The information provided in this document is directed solely to professionals who have the appropriate degree of experience to understand and interpret its contents in accordance with generally accepted engineering or other professional standards and applicable regulations. No recommendation as to products or vendors is made or should be implied.

NO REPRESENTATION OR WARRANTY IS MADE THAT THE INFORMATION IS TECHNICALLY ACCURATE OR SUFFICIENT OR CONFORMS TO ANY STATUTE, GOVERNMENTAL RULE OR REGULATION, AND FURTHER, NO REPRESENTATION OR WARRANTY IS MADE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. ATIS SHALL NOT BE LIABLE, BEYOND THE AMOUNT OF ANY SUM RECEIVED IN PAYMENT BY ATIS FOR THIS DOCUMENT, WITH RESPECT TO ANY CLAIM, AND IN NO EVENT SHALL ATIS BE LIABLE FOR LOST PROFITS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. ATIS EXPRESSLY ADVISES ANY AND ALL USE OF OR RELIANCE UPON THIS INFORMATION PROVIDED IN THIS DOCUMENT IS AT THE RISK OF THE USER.

SUMMARY OF CHANGES ASOG V60

This issue of the Unified Ordering Model (UOM) – **Volume II** Analysis provides the analysis and details to support the Access Service Ordering Guidelines (ASOG) and the Unified Ordering Model – Volume I Business Requirements for Version 60.

Changes to this document have been made in support of the following issues:

3630 3634 3635

The following issues went into Final Closure; however, they resulted in no impact to the contents of this document:

3627 3629 3632 3633 3636 3637 3638

The following issues were Withdrawn:

N/A

Global Changes

- Change all ASOG 59 to ASOG 60; Version 59 to Version 60; Issue 34 to Issue 35
- Change ATIS document number from ATIS-0410002-0034 to ATIS-0410002-0035
- Update Issue Date
- Other grammatical and spelling corrections that do not impact the technical content of this document are not reflected in the Summary of Changes

Table of Contents

- Updated to reflect new sections, re-numbered sections, and document re-pagination

SUMMARY OF CHANGES ASOG V60

UOM-ASR VOLUME II – SUMMARY OF CHANGES FOR ASOG V60			
Section #	Issue #	Model Object or Section Name	Description of Change
6.4.1.2.1	3630	ADMIN	Renamed the existing attribute: AFG to GOV .
6.4.1.2.1	3635	BILLING	Renamed the existing attribute and Type: TLE and TLE_Type to TLR and TLR_Type .
6.6.1.3	3634	CN	Added the following attribute PNUM with Type PNUM_Type between existing attributes MCLAG_ID and REMARKS

Table of Contents

1	UOM DOCUMENTATION	6
2	INTRODUCTION TO UOM-ASR VOLUME II.....	7
2.1	INTENDED AUDIENCE	7
2.2	PURPOSE	7
2.3	SCOPE	7
2.4	DEVELOPMENT NOTE	8
3	OVERVIEW OF UOM-ASR VOLUME II.....	8
3.1	ASSUMPTIONS OF THIS DOCUMENT.....	8
3.2	STRUCTURE OF DOCUMENT	9
3.3	OVERALL PROCESS DESCRIPTION	9
3.4	UOM-ASR HIGH LEVEL PROCESS OVERVIEW	9
4	UOM REQUIREMENTS SUMMARY	10
4.1	BUSINESS REQUIREMENTS	10
4.2	SYSTEM REQUIREMENTS	10
4.3	SECURITY REQUIREMENTS:	10
4.4	MESSAGING REQUIREMENTS:	11
4.5	USER PROFILE REQUIREMENTS	12
4.6	REPORTING REQUIREMENTS.....	13
5	USE CASE REALIZATIONS USING SEQUENCE DIAGRAMS.....	13
5.1	UOM PRE-ORDER USE CASES	13
5.1.1	<i>Location Inquiry</i>	14
5.1.2	<i>Service Availability Inquiry</i>	15
5.1.3	<i>CFA Inquiry</i>	17
5.1.4	<i>Ethernet Service Inquiry</i>	18
5.2	UOM SERVICE REQUEST USE CASES	19
5.2.1	<i>Customer ↔ Provider Communication</i>	20
5.2.2	<i>Multiple Exchange Carrier Communication</i>	31
5.3	UOM POST-CONFIRMATION USE CASES.....	50
5.3.1	<i>Address Modification Notification</i>	51
5.3.2	<i>Jeopardy Status</i>	52
5.3.3	<i>Provider Initiated Jeopardy</i>	52
5.3.4	<i>Retrieve Service Request Information</i>	54
5.3.5	<i>Retrieve Service Request Information by Customer</i>	54
5.3.6	<i>Provider Test Acceptance Notification</i>	55
5.3.7	<i>Completion Notification</i>	57
5.3.8	<i>Design Notification</i>	57
6	INFORMATION MODEL	59
6.1	UOM-ASR HIGH LEVEL VIEW.....	60
6.2	INQUIRY REQUEST CLASSES	61
6.2.1	<i>ASR Inquiry Request Classes</i>	62
6.3	INQUIRY RESPONSE CLASSES.....	68
6.3.1	<i>ASR Inquiry Response Classes</i>	68
6.4	SERVICE REQUEST CLASSES	73
6.4.1	<i>ASR Service Request Classes</i>	73

6.4.2 *Multiple Exchange Carrier Communication Request Classes* 114

6.5 SERVICE RESPONSE CLASSES 117

6.5.1 *ASR Service Response Classes*..... 118

6.5.2 *Multiple Exchange Carrier Communication Response Classes*..... 119

6.6 NOTIFICATION CLASSES 122

6.6.1 *ASR Notification Classes*..... 123

6.6.2 *Multiple Exchange Carrier Communication Notification Classes*..... 131

6.7 ACKNOWLEDGEMENT CLASSES 134

6.7.1 *ASR Acknowledgement*..... 134

6.7.2 *MEC Acknowledgement* 135

6.8 EXCEPTION RESPONSE CLASS..... 135

7 BEHAVIOR MODEL..... 137

7.1 STATE AND ACTIVITY DIAGRAMS..... 137

7.1.1 *State Diagram Exhibit*..... 138

REFERENCES..... 140

APPENDIX A: MEET POINT COORDINATION PROCESS FLOW 141

1 UOM Documentation

The document, Unified Ordering Model Volume II – Analysis, (UOM-ASR Volume II) is part of a set of documents that provides an end-to-end structured systems engineering approach to perform the analysis related to unified ordering via electronic interfaces. This document provides the analysis of the detailed business and systems' requirements for an ordering model. It describes the information model and the behavioral model with the intent that service providers, customers, and their vendors understand how the data, business rules and systems rules work together with the behavior of the data and rules. Because of the level of complexities inherent in such an electronic ordering model, Unified Modeling Language (UML) tools by MyEclipse™ have been used to develop this volume. UOM-ASR Volume II utilizes UML for descriptive purposes and in some instances may not strictly adhere to existing UML specifications.

The intent of Unified Ordering Model (UOM) is to develop a complete set of system documentation using an end-to-end structured methodology. The scope of UOM encompasses business requirements, analysis, design, and implementation. Logically, these components are defined within the UOM in four volumes.

UOM-ASR Volume I - Business Requirements

This document describes the business requirements. This volume includes a high-level overview of the three primary processes in ordering: pre-ordering, service request, and post-confirmation activities. It also includes more detailed information in the use cases and activity diagrams. Two appendices include the data dictionary and the functional data matrix. The UOM-ASR Volume I is focused on ordering for access services only. As other services are added in the future, additional Volume I documents may be developed. The OBF Ordering Solutions Committee/Access Service Ordering Subcommittee maintains the UOM-ASR Volume I document.

UOM-ASR Volume II - Analysis

This analysis document provides the logical view of the business requirements stated in Volume I. The primary sections include the information model, sequence diagrams, and behavior model. Both the informational and behavioral models are described using the Unified Modeling Language (UML). UOM-ASR Volume II utilizes UML for descriptive purposes and in some instances may not strictly adhere to existing UML specifications. The UML provides the notation used within Volume II. Because of the level of complexities inherent in such an electronic ordering model, unified modeling language tools (MyEclipse™) have been used to develop this Volume II. Some additional requirements are included in Volume II in order to accommodate fundamental aspects of ordering services via electronic interexchange. Volume II is not specific to any particular technology or protocol. If additional Volume I documents are developed, this Volume II may need to be expanded to address additional requirements. The OBF Ordering Solutions Committee/Access Service Ordering Subcommittee maintains UOM-ASR Volume II.

UOM-ASR Volume III - Design

The logical view of the proposed resolution (model), created in the Analysis Phase, is translated into the language appropriate for the selected implementation technology. The first technology selected is XML; therefore UOM-ASR Volume III includes appropriate XML schemas related to unified ordering. This document does not specify a particular protocol as it is assumed that the trading partners will determine the appropriate transport protocol. It may be necessary to repeat the Design Phase when more than one implementation technology is selected. The OBF Ordering Solutions Committee/Access Service Ordering Subcommittee maintains UOM-ASR Volume III.

UOM-ASR Volume IV - Implementation

This document includes implementation specifications that must be addressed before the system specifications can be realized using the selected implementation technology. In addition, a sample Joint Implementation Agreement (JIA) may be included as an appendix for trading partners to use as a starting template. As with the *Design Phase*, the *Implementation Phase* may also have to be repeated in order to