ATIS-0410003-0032

Unified Ordering Model (UOM)

Volume III - Design

For Access Service Ordering Guidelines (ASOG)

Version 57

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Unified Ordering Model (UOM) – Volume III - Design

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

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SUMMARY OF CHANGES
ASOG V57

This issue of the Unified Ordering Model (UOM) – **Volume III** Design provides the XML schemas that support the Access Service Ordering Guidelines (ASOG) and the Unified Ordering Model – Volume I Business Requirements for Version 57. Changes to this document have been made in support of the following issues:

3602, 3606, 3609

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

3604, 3605, 3610

The following issues were Withdrawn:

3575

Global Changes

- Change all ASOG 56 to ASOG 57; Version 56 to Version 57; Issue 31 to Issue 32.
- Change ATIS document number from ATIS-0410003-0031 to ATIS-0410003-0032.
- Update Issue Date.
- Sort the placement of some element and complexType definition structures alphabetically. (Note: The sequence of elements within a structure are not changed.)
- Other grammatical and spelling corrections that do not impact the technical content of this document are not reflected in the Summary of Changes.

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- Updated to reflect document re-pagination.

SUMMARY OF CHANGES
ASOG V57

UOM-ASR VOLUME III – SUMMARY OF CHANGES FOR ASOG V57			
Schema	**Issue #**	**Element Name**	**Description of Change**
UOM-BASE			
UOM-BASE	n/a	ASOG_VER_Type	Updated the enumeration value from '56' to '57' and associated descriptive text for element ASOG_VER.
UOM-BASE	3602	ADDRESS_ComplexType	Added a metadata reference (PTA-020).
UOM-BASE	3606	LAT_LONG_ComplexType	Inserted a new LAT_LONG_ComplexType which include a sequence of 2 new elements LAT: LATITUDE_Type and LONG: LONGITUDE_Type.
UOM-BASE	3606	LATITUDE_Type	Added this new simpleType (maxLength=9) with a metadata reference for the new LAT (SALI-015) element.
UOM-BASE	3606	LONGITUDE_Type	Added this new simpleType (maxLength=10) with a metadata reference for the new LONG (SALI-015) element.
UOM-BASE	3602	NID_Type	Added this new simpleType (maxLength=3) with a metadata reference for the new NID_TYPE (PTA-020) element.
UOM-BASE	3602	DMARC_INFO_Type	Added this new simpleType (maxLength=120) with a metadata reference for the new ADD_DMARC_INFO (PTA-020) element(s) within the associated aggregate PTA_LOCATION_1, PTA_LOCATION_2.
UOM-BASE	3602	PORT_Type	Added this new simpleType (maxLength=4) with a metadata reference for the new PORT (PTA-020) element.
UOM-BASE	3602	EXT_WIRE_Type	Added this new simpleType (maxLength=1) with a metadata reference for the new EXT_WIRING_TYPE (PTA-020) element.
UOM-BASE	3602	INTERFACE_HAND_Type	Added this new simpleType (maxLength=10) with a metadata reference for the new INTERFACE_HANDOFF (PTA-020) element.
UOM-BASE	3602	INTERFACE_MODE_Type	Added this new simpleType (maxLength=8) with a metadata reference for the new INTERFACE_MODE (PTA-020) element.
UOM-BASE	3602	VER_Type	Added a metadata reference for the new VER, PTA_VER (PTA-020) element.
UOM-BASE	3602	Date_Type	Added metadata references for the new D_SENT, TACD (PTA-020) element.
UOM-BASE	3602	Time_Type	Added metadata references for the new T_SENT (PTA-020) element.
UOM-BASE	3602	ASRNO_Type	Added metadata references for the new ASRNO (PTA-020) element.
UOM-BASE	3602	Contact_Type	Added metadata references for the new AP_TECH, TLCON (PTA-020) element.
UOM-BASE	3602	TelNumberExt17_Type	Added metadata references for the new AP_TECH_TEL, TACTEL (PTA-020) element.
UOM-BASE	3602	TelNumber_Type	Added metadata references for the new AP_MTCE_TEL (PTA-020) element.
UOM-BASE	3602	EMAIL_Type	Added metadata references for the new AP_EMAIL, TLCON_EMAIL (PTA-020) element.

SUMMARY OF CHANGES
ASOG V57

UOM-ASR VOLUME III – SUMMARY OF CHANGES FOR ASOG V57			
Schema	**Issue #**	**Element Name**	**Description of Change**
UOM-BASE	3602	ECCKT28_Type	Added metadata references for the new RUID, LAG_ID, MCLAG_ID, VCID (PTA-020) element.
UOM-BASE	3602	ECCKT53_Type	Added metadata references for the new ECCKT (PTA-020) element.
UOM-BASE	3602	Remarks124_Type	Added metadata references for the new REMARKS, TEST_PERFORMED, TEST_RESULTS (PTA-020) elements.
UOM-BASE	3602	IndexNumber4_Type	Added a metadata references for the new REFNUM, VCNUM (PTA-020) elements.
UOM-BASE	3602	ECCKT42_Type	Added a metadata reference for the new ACCESS_ECCKT (PTA-020) element.
UOM-BASE	3602	CKR_Type	Added a metadata references for the new CKR, VCCKR (PTA-020) elements.
UOM-BASE	3602	JK_CODE_Type	Added a metadata reference for the new JK_CODE (PTA-020) element.
UOM-BASE	3602	RELAY_RACK_Type	Added a metadata reference for the new RACK (PTA-020) element.
UOM-BASE	3602	IndicatorYN_Type	Added a metadata reference for the new EXT_WIRING_IND (PTA-020) element.
UOM-BASE	3602	CFA_Type	Added a metadata reference for the new CFA (PTA-020) element.
UOM-BASE	3602	CCEA_Type	Added a metadata reference for the new CCEA (PTA-020) element.
UOM-BASE	3602	InformationRate_Type	Added a metadata references for the new PSPEED, CIR_I, BDW (PTA-020) elements.
UOM-BASE	3602	InformationRate8_Type	Added a metadata reference for the new ACCESS_SPEED (PTA-020) element.
UOM-BASE	3602	ORD_Type	Added a metadata references for the new ORD, VCORD and CRO (PTA-020) elements.
UOM-BASE	3602	IndexNumber2_Type	Added a metadata reference for the new UREF (PTA-020) element.
UOM-BASE	3602	VLAN_Type	Added a metadata references for the new S_VLAN_START, S_VLAN_END, CE_VLAN_START, CE_VLAN_END (PTA-020) elements.
UOM-BASE	3602	S_VLAN	Added a metadata reference for (PTA-020)
UOM-BASE	3602	CE_VLAN	Added a metadata reference for (PTA-020)
UOM-BASE	3602	CLLI_Type	Added a metadata references for the new ACTL_PRILOC, SECLOC (PTA-020) elements.
UOM-BASE	3602	LOS_Type	Added a metadata reference for the new LOS (PTA-020) element.
UOM-BASE	3602	SAPR_Type	Added a metadata reference for the new SAPR (PTA-020) element.
UOM-BASE	3602	SANO_Type	Added a metadata reference for the new SANO (PTA-020) element.
UOM-BASE	3602	SATH_Type	Added a metadata reference for the new SATH (PTA-020) element.
UOM-BASE	3602	SASF_Type	Added a metadata reference for the new SASF (PTA-020) element.
UOM-BASE	3602	SASD_Type	Added a metadata reference for the new SASD (PTA-020) element.
UOM-BASE	3602	SASN_Type	Added a metadata reference for the new SASN (PTA-020) element.
UOM-BASE	3602	SASS_Type	Added a metadata reference for the new SASS (PTA-020) element.
UOM-BASE	3602	LD_Type	Added a metadata references for the new LD1, LD2, LD3 (PTA-020) elements.
UOM-BASE	3602	LV_Type	Added a metadata references for the new LV1, LV2, LV3 (PTA-020) elements.

SUMMARY OF CHANGES
ASOG V57

UOM-ASR VOLUME III – SUMMARY OF CHANGES FOR ASOG V57			
Schema	**Issue #**	**Element Name**	**Description of Change**
UOM-BASE	3602	CITY32_Type	Added a metadata reference for the new CITY (PTA-020) element.
UOM-BASE	3602	State_Type	Added a metadata reference for the new STATE (PTA-020) element.
UOM-BASE	3602	ZIP_Type	Added a metadata reference for the new ZIP (PTA-020) element.
UOM-ASR			
UOM-ASR	3606	SALI	Added an optional LAT_LONG element of LAT_LONG_ComplexType after ADDR in the sequence.
UOM-ASRInquiry			
UOM-ASRInquiry	**No changes for ASOGv57**		
UOM-ASRMEC			
UOM-ASRMEC	**No changes for ASOGv57**		
UOM-ASRNotify			
UOM-ASRNotify	3602	ASR_NOTIFICATION_Type	Insert new aggregate PROVIDER_TEST_ACCEPTANCE_Type within ASR_NOTIFICATION_Type
UOM-ASRNotify	3602	PROVIDER_TEST_ACCEPTANCE_Type	Inserted aggregates PTA_ADMIN, PTA_CIRCUIT, PTA_VIRTUAL_CONNECTION, PTA_EVC, S_VLAN, CE_VLAN, PTA_UNI_ENNI_CIRCUIT, PTA_RESULTS, CLASS_OF_SERVICE, PTA_LOCATION_PRI, PTA_LOCATION_SEC, and Address_Complex_Type. Defined all elements associated with the corresponding aggregate.

Table Of Contents

1 Scope, Purpose, & Field of Application

1.1 Scope

The scope of this specification is to develop an Alliance for Telecommunications Industry Solutions (ATIS) standard that specifies an interface for the Unified Ordering Model – Access Service Request (UOM-ASR). The interface is specified using the telecommunications Markup Language (an extension of XML), as defined in tML Framework Document (ITU-T M.3030).

1.2 Purpose

This standard defines tML Schemas for the TMN X-interface (M.3010) to support the UOM-ASR.

This standard uses tML Schemas for conveying request, response, notification, acknowledgement, and exception response information across an interactive interface. This standard allows access service customers to do the following interactions:

- Request
- Response
- Notification
- Acknowledgement
- Exception Response

1.3 Application

The tML Schemas presented in this document are based on the packages in UOM, an information model described in UOM-ASR Volume II. The tML Schemas included in this document are: UOM-Base, UOM-ASR, UOM-ASRInquiry, UOM-ASRMEC and UOM-ASRNotify. The UOM-Base Schema defines all reusable domain specific and non-domain specific common types and elements that are used in tML Schemas for various UOM applications. The first application is UOM-ASR as described in this document.

The request, response, notification, acknowledgement, and exception response functions are supported in the UOM (information model in UOM-ASR Volume II) by defining object classes, their properties, and their relationships. While the UOM-ASR Volume II is the technology-independent specification of UOM, UOM-ASR Volume III is a technology-specific definition of the access domain interactions of the information model described in UOM-ASR Volume II. The tML Schemas (namely UOM-ASR, UOM-ASRInquiry, UOM-ASRMEC and UOM-ASRNotify) present the service request, inquiry, notification, acknowledgement, and exception response interactions in the access domain.

2 Standards/References

The following standards and industry guidelines provide supportive documentation to this document.

2.1 ATIS References

- *ATIS-0404000-0057: Access Service Ordering Guidelines (ASOG), Effective September 2018*
- *ATIS-0404120-0010: Multiple Exchange Carriers Ordering and Design (MECOD) Guidelines for Access Service, Version 10, Effective March 2018*

- *ATIS-0404130-0012: Design Layout Report Guidelines for Access Service Issue 12, Effective March 2014*
- *ATIS-0404110-0032: Unified Ordering Model – Access Service Request (UOM-ASR) Volume I Business Requirements for an Electronic Ordering Interface, Effective September 2018, Issue 32, ASOG Version 57*
- *ATIS-0410002-0032: Unified Ordering Model – Access Service Request (UOM-ASR) Volume II Analysis for ASOG Version 57, Effective September 2018, Issue 32*
- *ATIS-0300079 : tML Transport Profile, March 2006*

NOTE: ATIS/OBF Documents can be ordered from OBF Manager, ATIS, 1200 G Street N.W., Suite 500, Washington, DC 20005. A complete OBF document catalog and ordering form is available on the ATIS web site at: http://www.atis.org/obf/download.asp

2.2 Other Standards

- *ITU-T Rec. M.3010: Principles for a Telecommunications Management Network, 2000*
- *ITU-T M.3030: telecommunications Markup Language (tML) Framework, 2002*
- *ITU-T Rec. M.3400: TMN Management Functions, 2000*
- *World Wide Web Consortium (W3C) Recommendation XML: eXtensible Markup Language (XML) 1.0 (Second Edition), 6 October 2000*
- *World Wide Web Consortium (W3C) Recommendation, XML Schema Part 1: Structures, 2 May 2001*
- *World Wide Web Consortium (W3C) Recommendation, XML Schema Part 2: Datatypes, 2 May 2001*
- *World Wide Web Consortium (W3C) Recommendation, Namespaces in XML, 14 January 1999*

NOTE: ITU-T Recommendations and ISO standards are available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.

2.3 Acronyms

ASO	Access Service Ordering
ASR	Access Service Request
ANSI	American National Standards Institute
ATIS	Alliance for Telecommunications Industry Solutions
GTDD	Generic Telecom Data Dictionary
HTTP(s)	HyperText Transfer Protocol, Secure
IETF	Internet Engineering Task Force

ITU	International Telecommunications Union
MEC	Multiple Exchange Carrier
OAM&P	Operations, Administration, Maintenance & Provisioning
OBF	Ordering and Billing Forum
OMG	Object Management Group
RFC	Request For Comment
TMOC	Telecom Management and Operations Committee
tML	telecommunications Markup Language
TMN	Telecommunications Management Network
UML	Unified Modeling Language
UOM	Unified Ordering Model
URI	Universal Resource Identifier
URL	Universal Resource Locator
URN	Universal Resource Name
W3C	World Wide Web Consortium
XML	eXtensible Markup Language

Acronyms for OBF data elements used in this document are defined in ATIS/OBF documents.

3 Definitions

Namespace: A conceptual collection of unique names identified by a URI or a URN reference [IETF RFC2396]; used in XML documents as element types and attribute names. Namespaces are used in XML to qualify names in order to separate them from other names. Note: A URI has a similar format to a URL. It is not always possible to resolve a URI to find an instance of an XML schema.

Schema: A set of schema components. A collection (vocabulary) of type definitions and element declarations whose names belong to a particular namespace called a target namespace. A schema defines the allowable contents of a class of XML documents. The purpose of a schema is to define and describe a class of XML instance documents by using these constructs to constrain and document the meaning, usage and relationships of their constituent parts: datatypes, elements and their content, attributes and their values, entities and their contents, and notations. A class of documents refers to all possible permutations of structure in instance documents that

will still conform to the rules of the schema.

Schema Component: The generic term for the building blocks that comprise the abstract data model of the schema. There are 13 kinds of schema components defined: named components (Simple type definitions, Complex type definitions, Attribute declarations, Element declarations, attribute group definitions, identity-constraint definitions, model group definitions, notation declarations, annotations), and un-named components (model groups, particles, wildcards, and attribute uses).

tML Schema: Constructs to constrain and document the meaning, usage and relationships of the constituent parts of tML instance documents. tML Schemas are based on the W3C XML Schema Recommendation.

tML Namespace: A collection of names, identified by a URI reference [RFC2396], that is used in tML documents as element types and attributes

UML: An OMG specification to provide system architects working on object analysis and design with one consistent language for specifying, visualizing, constructing, and documenting the artifacts of software systems and for modeling of business processes

4 Overview of UOM-ASR Volume III

4.1 Introduction to UOM

The document, Unified Ordering Model – Access Service Request Volume III – Design, (UOM-ASR Volume III) is part of a set of documents that provides an end-to-end structured systems engineering approach to perform the design related to unified ordering via electronic interfaces. This document provides the design of the detailed business and analysis for an ordering model for the UOM interface. It describes the tML/XML Schemas with the intent that service providers and their vendors can use the tML/XML Schemas when exchanging data for an ASR application. Because of the level of complexities inherent in such an electronic ordering model, a *tML Framework Document (ITU-T M.3030)* has been used as a guide to develop this volume.

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 (RationalRose™ and MyEclipse™) have been used to develop 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, 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 was XML; therefore UOM-ASR Volume III includes appropriate XML schemas related to unified access ordering. This document does not specify a particular transport 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.

Volume III specifies the interface standard for the Unified Ordering Model for access services using the telecommunications Markup Language (an extension of XML), as defined in *tML Framework*. All Functions in this standard are designed as optional features. The implementation of the functions (use cases) will be determined between individual customer and provider negotiations.

UOM Volume IV – Generic Implementation Guideline

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 provide support for multiple technologies. The OBF Ordering Solutions Committee maintains UOM-ASR Volume IV – Generic Implementation Guideline.

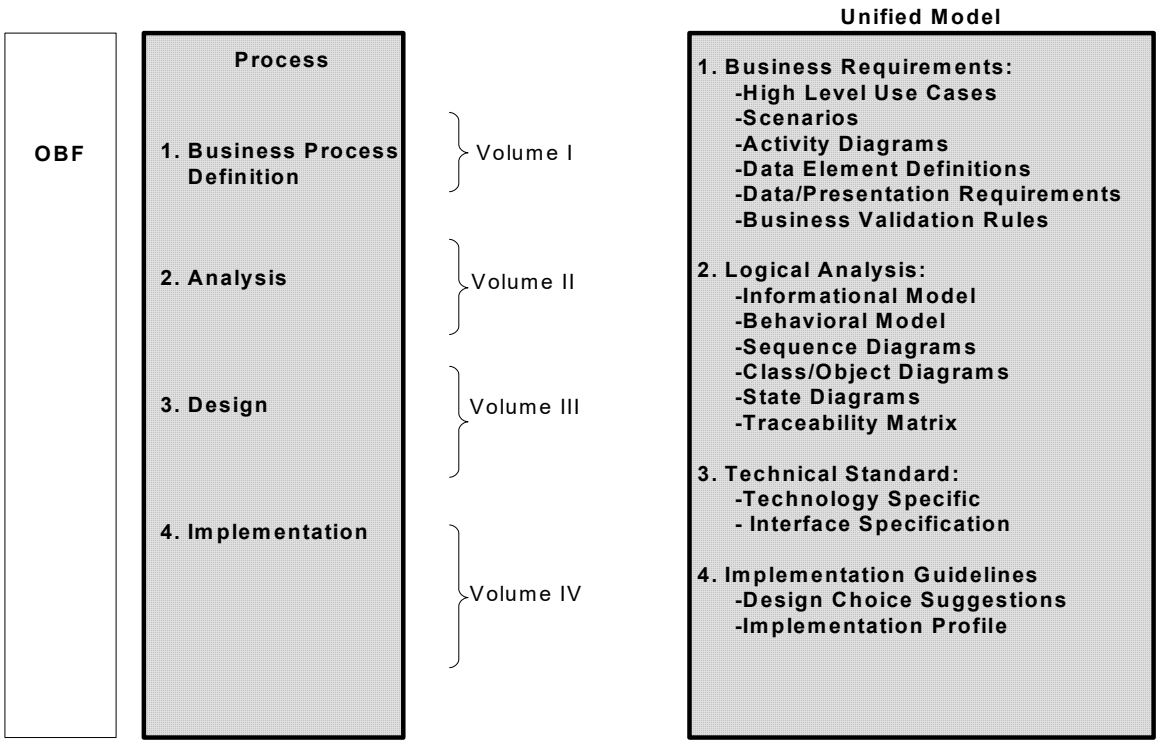

Figure 1 - UOM ASR Process and Document Development

4.2 Requirements of this document

The following requirements have been taken into account by the Ordering Solutions Committee/Access Service Ordering Subcommittee in the development of UOM-ASR Volume III:

- UOM-ASR Volume III should be technology-specific and tML is chosen to be the technology to present the syntax of information definition. Therefore, the tML Schemas defined for the UOM-ASR should conform to the *tML Framework Document (ITU-T M.3030)*.
- UOM-ASR Volume III tML Schemas for the Design phase of the UOM-ASR project should reflect the current analysis described in UOM-ASR Volume II (that reflects the requirements in UOM-ASR Volume I).
- UOM-ASR Volume III should be backward compatible with UOM-ASR Volume I and UOM-ASR Volume II.
- UOM-ASR Volume III should be generic, flexible, and have reusability.
- UOM-ASR Volume III edits in the tML Schemas are minimized to the maximum data length and a minimum subset of required fields. Other validation rules and processes are generally left to the customer/provider back-end systems.
- UOM-ASR Volume III will contain tag names not to exceed 20 characters in length and will be in upper case format to conform with the current OBF guidelines.

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4.3 Structure of this document

The remainder of the document consists of the following sections:

- Sections 5, 6 and 7 provide references to the documents that define the requirements, analysis, and implementation specifications for the UOM-ASR application.
- Section 8 consists of tML Schemas:
  - UOM-Base Schema, that defines all reusable domain specific and non-domain specific common types and elements that are used in tML Schemas for various UOM applications, and
  - UOM-ASR, UOM-ASRInquiry, UOM-ASRMEC and UOM-ASRNotify that present the service request, inquiry, notification, acknowledgement, and exception response interactions in the access domain.

4.4 How to use this document

This document should be used as a source to facilitate interoperability between trading partners on the TMN X interface using the UOM-ASR application.

The document provides tML Schemas that enable such interoperability by enabling interchange of data between trading partners.

The document serves as the repository for trading partners to find the UOM-ASR related tML Schemas. In addition, the responsible group of the OBF should process the maintenance of the tML Schemas in this document as revisions of the document.

5 Requirements Overview

The requirements process of UOM-ASR Volume III is defined in the UOM-ASR Volume I document. Please see UOM-ASR Volume I for ASR 55 dated March 2017 (*effective September 2017*) for the requirements.

6 Analysis Overview

The analysis process of UOM-ASR Volume III is defined in the UOM-ASR Volume II document. Please see UOM-ASR Volume II, Issue 29, dated September 2016 (*effective March 2017*) for the analysis.

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