

TITLE: Information technology - International Standardized Profile AMM11: MMS
General Applications Base Profile - Part 3: Specific MMS Requirements

SOURCE: Editor

STATUS: Submittal copy, June 1994

This document has been prepared based on the comments from the OIW's MMS SIG, EWOS's EG MMS and AOW's MMS SIG. The text has been revised to be as close to the final document as possible at this time. Additions to draft six text are denoted by highlighted text. Deletions are denoted by strikeout.

Contents

Foreword vi

Introduction vi

1. Scope 1

1.1. General 1

1.2. Position within the Taxonomy 1

2. Normative References 1

3. Definitions 2

4. Abbreviations 2

5. Conformance Requirements 2

5.1. General Requirements for use of all parts of MMS 2

5.2. Service-specific Requirements 2

Annex A - ISPICS Requirements List 5

A.1. General 5

A.2. Classification of Requirements 5

A.2.1. Base Column 5

A.2.2. F/S Column 5

A.2.3. Value/Reference 6

A.2.4. Conditional MACROs 6

A.3. Supported MMS PDU's 6

A.3.1. Environment and General Management 7

A.3.2. MMS Modifiers 7

A.3.3. Parameter CBBs 7

A.3.4. VMD Support 8

A.3.5. Domain Management 9

A.3.6. Program Invocation Management 9

A.3.7. Variable Access 9

A.3.8. Semaphore Management 11

A.3.9. Operator Communication 11

A.3.10. Event Management 11

A.3.11. Journal Management 12

A.3.12. File Access 12

A.3.13. File Management 12

A.3.14. Data Exchange Management 13

A.3.15. Additional PDUs 13

A.4. PDU-Specific Requirements 13

A.4.1. Environment and General Management 14

A.4.1.1. Initiate Request PDU 14

A.4.1.2. Initiate Response PDU 14

A.4.1.3. Initiate Error PDU 14

A.4.1.4. Conclude Request PDU 15

A.4.1.5. Conclude Response PDU 15

A.4.1.6. Conclude Error PDU 15

A.4.1.7. Cancel Request PDU 15

A.4.1.8. Cancel Response PDU 15

- A.4.1.9. Cancel Error PDU 16
- A.4.1.10. Reject PDU 16
- A.4.2. VMD Support 16
 - A.4.2.1. Status Request PDU 16
 - A.4.2.2. Status Response PDU 17
 - A.4.2.3. Status Error PDU 17
 - A.4.2.4. Unsolicited Status PDU 17
 - A.4.2.5. GetNameList Request PDU 18
 - A.4.2.6. GetNameList Response PDU 18
 - A.4.2.7. GetNameList Error PDU 18
 - A.4.2.8. Identify Request PDU 19
 - A.4.2.9. Identify Response PDU 19
 - A.4.2.10. Identify Error PDU 19
 - A.4.2.11. GetCapabilityList Request PDU 19
 - A.4.2.12. GetCapabilityList Response PDU 20
 - A.4.2.13. GetCapabilityList Error PDU 20
- A.4.3. Domain Management 20
 - A.4.3.1. InitiateDownloadSequence Request PDU 20
 - A.4.3.2. InitiateDownloadSequence Response PDU 21
 - A.4.3.3. InitiateDownloadSequence Error PDU 21
 - A.4.3.4. DownloadSegment Request PDU 21
 - A.4.3.5. DownloadSegment Response PDU 22
 - A.4.3.6. DownloadSegment Error PDU 22
 - A.4.3.7. TerminateDownloadSequence Request PDU 22
 - A.4.3.8. TerminateDownloadSequence Response PDU 23
 - A.4.3.9. TerminateDownloadSequence Error PDU 23
 - A.4.3.10. InitiateUploadSequence Request PDU 24
 - A.4.3.11. InitiateUploadSequence Response PDU 24
 - A.4.3.12. InitiateUploadSequence Error PDU 24
 - A.4.3.13. UploadSegment Request PDU 24
 - A.4.3.14. UploadSegment Response PDU 25
 - A.4.3.15. UploadSegment Error PDU 25
 - A.4.3.16. TerminateUploadSequence Request PDU 25
 - A.4.3.17. TerminateUploadSequence Response PDU 26
 - A.4.3.18. TerminateUploadSequence Error PDU 26
 - A.4.3.19. RequestDomainDownload Request PDU 26
 - A.4.3.20. RequestDomainDownload Response PDU 27
 - A.4.3.21. RequestDomainDownload Error PDU 27
 - A.4.3.22. RequestDomainUpload Request PDU 27
 - A.4.3.23. RequestDomainUpload Response PDU 28
 - A.4.3.24. RequestDomainUpload Error PDU 28
 - A.4.3.25. LoadDomainContent Request PDU 28
 - A.4.3.26. LoadDomainContent Response PDU 29
 - A.4.3.27. LoadDomainContent Error PDU 29
 - A.4.3.28. StoreDomainContent Request PDU 29
 - A.4.3.29. StoreDomainContent Response PDU 30
 - A.4.3.30. StoreDomainContent Error PDU 30
 - A.4.3.31. DeleteDomain Request PDU 30
 - A.4.3.32. DeleteDomain Response PDU 31
 - A.4.3.33. DeleteDomain Error PDU 31
 - A.4.3.34. GetDomainAttributes Request PDU 31
 - A.4.3.35. GetDomainAttributes Response PDU 32
 - A.4.3.36. GetDomainAttributes Error PDU 32
- A.4.4. Program Invocation Management 32
 - A.4.4.1. CreateProgramInvocation Request PDU 32
 - A.4.4.2. CreateProgramInvocation Response PDU 33
 - A.4.4.3. CreateProgramInvocation Error PDU 33
 - A.4.4.4. DeleteProgramInvocation Request PDU 33
 - A.4.4.5. DeleteProgramInvocation Response PDU 34

- A.4.4.6. DeleteProgramInvocation Error PDU 34
- A.4.4.7. Start Request PDU 34
- A.4.4.8. Start Response PDU 35
- A.4.4.9. Start Error PDU 35
- A.4.4.10. Stop Request PDU 35
- A.4.4.11. Stop Response PDU 36
- A.4.4.12. Stop Error PDU 36
- A.4.4.13. Resume Request PDU 36
- A.4.4.14. Resume Response PDU 37
- A.4.4.15. Resume Error PDU 37
- A.4.4.16. Reset Request PDU 37
- A.4.4.17. Reset Response PDU 38
- A.4.4.18. Reset Error PDU 38
- A.4.4.19. Kill Request PDU 38
- A.4.4.20. Kill Response PDU 39
- A.4.4.21. Kill Error PDU 39
- A.4.4.22. GetProgramInvocationAttributes Request PDU 39
- A.4.4.23. GetProgramInvocationAttributes Response PDU 39
- A.4.4.24. GetProgramInvocationAttributes Error PDU 40
- A.4.5. Variable Access 40
 - A.4.5.1. Read Request PDU 40
 - A.4.5.1.1. VariableAccessSpecification 41
 - A.4.5.1.2. VariableSpecification 41
 - A.4.5.1.3. Address 41
 - A.4.5.1.4. TypeSpecification 42
 - A.4.5.1.5. AlternateAccess 44
 - A.4.5.1.6. AccessSelection 44
 - A.4.5.1.7. SelectAccess 44
 - A.4.5.1.8. IndexRange 45
 - A.4.5.2. Read Response PDU 45
 - A.4.5.2.1. Data 45
 - A.4.5.3. Read Error PDU 46
 - A.4.5.4. Write Request PDU 46
 - A.4.5.5. Write Response PDU 47
 - A.4.5.6. Write Error PDU 47
 - A.4.5.7. InformationReport PDU 47
 - A.4.5.8. GetVariableAccessAttributes Request PDU 48
 - A.4.5.9. GetVariableAccessAttributes Response PDU 48
 - A.4.5.10. GetVariableAccessAttributes Error PDU 48
 - A.4.5.11. DefineNamedVariable Request PDU 49
 - A.4.5.12. DefineNamedVariable Response PDU 49
 - A.4.5.13. DefineNamedVariable Error PDU 49
 - A.4.5.14. DeleteVariableAccess Request PDU 49
 - A.4.5.15. DeleteVariableAccess Response PDU 50
 - A.4.5.16. DeleteVariableAccess Error PDU 50
 - A.4.5.17. DefineNamedVariableList Request PDU 50
 - A.4.5.18. DefineNamedVariableList Response PDU 51
 - A.4.5.19. DefineNamedVariableList Error PDU 51
 - A.4.5.20. GetNamedVariableListAttributes Request PDU 51
 - A.4.5.21. GetNamedVariableListAttributes Response PDU 52
 - A.4.5.22. GetNamedVariableListAttributes Error PDU 52
 - A.4.5.23. DeleteNamedVariableList Request PDU 52
 - A.4.5.24. DeleteNamedVariableList Response PDU 53
 - A.4.5.25. DeleteNamedVariableList Error PDU 53
 - A.4.5.26. DefineNamedType Request PDU 53
 - A.4.5.27. DefineNamedType Response PDU 54
 - A.4.5.28. DefineNamedType Error PDU 54
 - A.4.5.29. GetNamedTypeAttributes Request PDU 54
 - A.4.5.30. GetNamedTypeAttributes Response PDU 54

- A.4.5.31. GetNamedTypeAttributes Error PDU 55
- A.4.5.32. DeleteNamedType Request PDU 55
- A.4.5.33. DeleteNamedType Response PDU 55
- A.4.5.34. DeleteNamedType Error PDU 56
- A.4.6. Semaphore Management 56
- A.4.7. Operator Communication 57
 - A.4.7.1. Input Request PDU 57
 - A.4.7.2. Input Response PDU 57
 - A.4.7.3. Input Error PDU 57
 - A.4.7.4. Output Request PDU 58
 - A.4.7.5. Output Response PDU 58
 - A.4.7.6. Output Error PDU 58
- A.4.8. Event Management 59
- A.4.9. Journal Management 59
- A.4.10. File Access 59
- A.4.11. File Management 59
- A.4.12. Data Exchange Management 59

Annex B - Amendments and Corrigenda (Normative) 60

Foreword

The ISO/IEC ISP 14226 specifies the AMM11 MMS General Application international standardized profile. This ISP has three parts:

Part 1 - Specification of ACSE, Presentation, and Session Protocols for the use by MMS

Part 2 - Common MMS Requirements

Part 3 - Specific MMS Requirements

This part of the ISO/IEC ISP 14226 is produced and approved by ISO TC 184. This Group includes ISO/IEC Member Bodies and S-liaison organizations. The S-liaison organizations that have contributed to the production of this draft are

Asia-Oceania Workshop (AOW)

European Workshop for Open Systems (EWOS)

OSE Implementors Workshop (OIW)

Introduction

This draft for an International Standardized Profile (ISP) is defined within the context of Functional Standardization, in accordance with the principles specified by ISO/IEC TR 10000, "Framework and Taxonomy of International Standardized Profiles". The context of Functional Standardization is one part of the overall field of Information Technology (IT) standardization activities, covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognized system tests.

Information Technology - International Standardized Profile AMM11 - MMS General Applications Base Profile -

PART 3: Specific MMS Requirements

. Scope

. General

This part of ISO/IEC ISP 14226 specifies the MMS requirements specific to this ISP. This part, when used in conjunction with Part 1 and Part 2, forms the AMM11 Profile that specifies how the MMS standard shall be used to provide MMS functions required by general applications.

. Position within the Taxonomy

This part of ISO/IEC ISP 14226 is the third part of a multi-part ISP identified in ISO/IEC TR 10000-2 as "AMM11, MMS General Applications Base Profile".

It may be combined with any T-Profile specifying the OSI connection-mode transport service.

. Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this profile. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this profile are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and CCITT maintains published editions of its current Recommendations.

- ISO/IEC 9506-1:1990, Industrial automation systems - Manufacturing Message Specification - Part 1 - Service definition
- ISO/IEC 9506-2:1990, Industrial automation systems - Manufacturing Message Specification - Part 2 - Protocol specification
- ISO/IEC TR 10000-1:1992, Information Technology - Framework and taxonomy of International Standardized Profiles - Part 1 : Framework.
- ISO/IEC TR 10000-2:1992, Information Technology - Framework and taxonomy of International Standardized Profiles - Part 2 : Taxonomy of Profiles.
- ISO/IEC ISP 10607-3:1991, Information Technology - International Standardized Profiles AFT nn-File Transfer, Access and Management - Part 3: AFT 11 - Simple File

Transfer Service (unstructured)

- ISO/IEC 9506 - Technical Corrigenda 1 (1992-12-17)
- ISO/IEC DISP 14226-1, Information Technology - International Standardized Profile AMM11-MMS General Applications Base Profile - Part 1: Specification of ACSE, Presentation, and Session Protocols for the use by MMS
- ISO/IEC DISP 14226-2, Information Technology - International Standardized Profile AMM11-MMS General Applications Base Profile - Part 2: Common MMS Requirements

. Definitions

Terms used in this part are defined in ISO/IEC ISP 14226-2.

. Abbreviations

Abbreviations used in this part are defined in ISO/IEC ISP 14226-2.

. Conformance Requirements

This part of ISO/IEC ISP 14226 states requirements upon implementations to achieve interworking. A claim of conformance to this part of ISO/IEC ISP 14226 is a claim that all requirements in the relevant base standards are satisfied, and that all requirements in the following Clauses and in annex A are satisfied. Annex A states the relationship between these requirements and those of base standards.

The conformance requirements of this ISP are described in terms of "Client Conformance Requirements (Client-CR)" and "Server Conformance Requirements (Server-CR)" for each service.

An MMS implementation compliant with the Client-CR for all services in this ISP is called a "Client Implementation".

An MMS implementation compliant with the Server-CR for all services in this ISP is called a "Server Implementation".

. General Requirements for use of all parts of MMS

An MMS implementation compliant with this ISP shall be only required to support the abstract syntax defined in Clause 19 of ISO/IEC 9506-2.

. Service-specific Requirements

There are no requirements additional to those in ISO/IEC ISP 14226-2.

PART 3:

Annex A - ISPICS Requirements List

THIS PAGE IS INTENTIONALLY BLANK

Annex A - ISPICS Requirements List

A.. General

This annex describes the specific MMS requirements in terms of tables which were derived from the base standard and ISO/IEC ISP 14226-2. They are intended to give a precise specification of requirements for general MMS applications.

A.. Classification of Requirements

Throughout this annex, to specify the level of support for each feature, the following classification is used.

Client-CR : Client Conformance Requirement

Server-CR : Server Conformance Requirement

A.. Base Column

The "Base" column reflects the definitions and specifications in ISO/IEC 9506-1:1990 and ISO/IEC 9506-2:1990. Each entry in this column is chosen from the following list:

mandatory; m : That feature shall be supported, i.e. its syntax and procedures shall be implemented as specified in the base standard.

However, it is not a requirement that the feature shall be used in all instances of communication, unless mandated by the base standard .

optional; o : Any feature denoted by "o" is left to the implementation as to whether that feature is implemented or not.

If a parameter is optionally supported, then the syntax shall be implemented, but it is left to each implementation whether the procedures are implemented or not.

A.. F/S Column

The "F/S" column reflects the requirements of this Functional Standard. Each entry in this column is chosen from the following terminology:

supported; m : Any feature denoted by "m" is mandatory or optional in the base standard. That feature shall be supported, i.e. its syntax and procedures shall be implemented as specified in the base standard or in this ISP by all implementations claiming conformance to this ISP.

However, it is not a requirement that the feature shall be used in all instances of communication, unless mandated by the base standard or stated otherwise in this part of this A-Profile.

optionally supported; o : Any feature denoted by "o" is left to the implementation as to whether that feature is implemented or not.

If a parameter is optionally supported, then the syntax shall be implemented, but it is left to each implementation whether the procedures are implemented or not.

conditionally supported; c : Any feature denoted by "c<n>" shall be supported under the condition referenced c<n> specified in this ISP, where <n> stands for a number. If these conditions are not met, the feature is outside the scope of this ISP.

excluded; x : Any feature denoted by "x" is excluded in this ISP, i.e. an implementation shall behave as if the feature is not implemented.

outside of scope; i : Any feature denoted by "i" is outside the scope of this ISP, i.e. it may be ignored, and will therefore not be subject of an ISP conformance test. However the syntax of all parameters of supported PDUs shall be implemented, even if the procedures are not (i.e. the Receiver shall be able to decode the PDU).

A.. Value/Reference

The "Value/Ref." column specifies constraints on values for the parameter and/or contains references to text in this or other documents.

A.. Conditional MACROs

The following MACROs are used in the F/S Column:

STR1 : Any feature denoted by "STR1" is conditioned on the support of STR1 Parameter CBB.

STR2 : Any feature denoted by "STR2" is conditioned on the support of STR2 Parameter CBB.

VADR : Any feature denoted by "VADR" is conditioned on the support of VADR Parameter CBB.

VNAM : Any feature denoted by "VNAM" is conditioned on the support of VNAM Parameter CBB.

VLIS : Any feature denoted by "VLIS" is conditioned on the support of VLIS Parameter CBB.

VSCA : Any feature denoted by "VSCA" is conditioned on the support of VSCA Parameter CBB.

VALT : Any feature denoted by "VALT" is conditioned on the support of VALT Parameter CBB.

REAL : Any feature denoted by "REAL" is conditioned on the support of REAL Parameter CBB.

TPY : Any feature denoted by "TPY" is conditioned on the support of TPY Parameter CBB.

MOD : Any feature denoted by "MOD" is conditioned on the support of MMS modifiers.

A.. Supported MMS PDU's

A.. Environment and General Management

Ref	MMS PDU	Client-CR				Server-CR			
		Sending		Receiving		Sending		Receiving	
		Base	F/S	Base	F/S	Base	F/S	Base	F/S
1	InitiateRequest	o	m	o	o	o	o	m	m
2	InitiateResponse	o	o	o	m	m	m	o	o
3	InitiateError	o	o	o	m	m	m	o	o
4	ConcludeRequest	o	m	o	o	o	o	m	m
5	ConcludeResponse	o	o	o	m	m	m	o	o
6	ConcludeError	o	o	o	m	m	m	o	o
7	CancelRequest	o	o	o	o	o	o	o	o
8	CancelResponse	o	o	o	o	o	o	o	o
9	CancelError	o	o	o	o	o	o	o	o
10	Reject	m	m	m	m	m	m	m	m

Note: Abort service is provided by ACSE.

A.. MMS Modifiers

Ref	Modifier	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	attachToEventCondition	o	i	o	i
2	attachToSemaphore	o	i	o	i

A.. Parameter CBBs

Ref	Parameter	Base	Client-CR		Server-CR	
			F/S	Value/Ref.	F/S	Value/Ref.
1	str1	o	o		o	
2	str2	o	o		o	
3	vnam	o	o		o	
4	vamt	o	o		o	
5	vadr	o	o		o	
6	vsca	o	x		x	
7	tpy	o	o		o	
8	vlis	o	o		o	
9	real	o	i		i	

10	cei	o	i		i	
----	-----	---	---	--	---	--

A.. VMD Support

In this subsection and the following subsections of A.3 the column "MMS PDU's" contains one single entry for each MMS service. In case of a confirmed service this single entry stands for the corresponding Request-, Response- and Error-PDU'S. In case of an unconfirmed service it stands for the corresponding Request-PDU.

For responder role service CBBs, the Client-CR column indicates the support of sending the Request-PDU and receiving the Response-PDU and Error-PDU, whereas, the Server-CR column indicates the support of receiving the Request-PDU and sending the Response-PDU and Error-PDU.

For requester role service CBBs, the Client-CR column indicates the support of receiving the Request-PDU and (in case of a confirmed service) sending the Response-PDU and Error-PDU, whereas, the Server-CR column indicates the support of sending the Request-PDU and (in case of a confirmed service) receiving the Response-PDU and Error-PDU.

NOTE - As an example, the 'm' in the Server-CR column for the Identify service means that the Server implementation has to support the receiving of the Identify-Request PDU and the sending of the Identify-Response PDU and the Identify-Error PDU, whereas the 'o' in the Client-CR column means that the Client implementation may or may not support the sending of the Identify-Request PDU and the receiving of the Identify-Response PDU and the Identify-Error PDU.

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	Status	o	m	o	m
2	UnsolicitedStatus	o	o	o	o
3	GetNameList	o	o	o	o
4	Identify	o	m	m	m
5	Rename	o	i	o	i
6	GetCapabilityList	o	o	o	o

A.. Domain Management

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	InitiateDownloadSequence	o	o	o	o
2	DownloadSegment	o	o	o	o
3	TerminateDownloadSequence	o	o	o	o
4	InitiateUploadSequence	o	o	o	o
5	UploadSegment	o	o	o	o
6	TerminateUploadSequence	o	o	o	o

7	RequestDomainDownload	0	0	0	0
8	RequestDomainUpload	0	0	0	0
9	LoadDomainContent	0	0	0	0
10	StoreDomainContent	0	0	0	0
11	DeleteDomain	0	0	0	0
12	GetDomainAttributes	0	0	0	0

A.. Program Invocation Management

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	CreateProgramInvocation	0	0	0	0
2	DeleteProgramInvocation	0	0	0	0
3	Start	0	0	0	0
4	Stop	0	0	0	0
5	Resume	0	0	0	0
6	Reset	0	0	0	0
7	Kill	0	0	0	0
8	GetProgramInvocationAttributes	0	0	0	0

A.. Variable Access

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	Read	0	0	0	0
2	Write	0	0	0	0
3	InformationReport	0	0	0	0
4	GetVariableAccessAttributes	0	0	0	0
5	DefineNamedVariable	0	0	0	0
6	DefineScatteredAccess	0	x	0	x
7	GetScatteredAccessAttributes	0	x	0	x
8	DeleteVariableAccess	0	0	0	0
9	DefineNamedVariableList	0	0	0	0
10	GetNamedVariableListAttributes	0	0	0	0
11	DeleteNamedVariableList	0	0	0	0
12	DefineNamedType	0	0	0	0
13	GetNamedTypeAttributes	0	0	0	0
14	DeleteNamedType	0	0	0	0

A.. Semaphore Management

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	TakeControl	o	i	o	i
2	RelinquishControl	o	i	o	i
3	DefineSemaphore	o	i	o	i
4	DeleteSemaphore	o	i	o	i
5	ReportSemaphoreStatus	o	i	o	i
6	ReportPoolSemaphoreStatus	o	i	o	i
7	ReportSemaphoreEntryStatus	o	i	o	i

A.. Operator Communication

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	Input	o	o	o	o
2	Output	o	o	o	o

A.. Event Management

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	DefineEventCondition	o	i	o	i
2	DeleteEventCondition	o	i	o	i
3	GetEventConditionAttributes	o	i	o	i
4	ReportEventConditionStatus	o	i	o	i
5	AlterEventConditionMonitoring	o	i	o	i
6	TriggerEvent	o	i	o	i
7	DefineEventAction	o	i	o	i
8	DeleteEventAction	o	i	o	i
9	GetEventActionAttributes	o	i	o	i
10	ReportEventActionStatus	o	i	o	i
11	DefineEventEnrollment	o	i	o	i
12	DeleteEventEnrollment	o	i	o	i
13	GetEventEnrollmentAttributes	o	i	o	i
14	ReportEventEnrollmentStatus	o	i	o	i

15	AlterEventEnrollment	o	i	o	i
16	EventNotification	o	i	o	i
17	AcknowledgeEventNotification	o	i	o	i
18	GetAlarmSummary	o	i	o	i
19	GetAlarmEnrollmentSummary	o	i	o	i

A.. Journal Management

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	ReadJournal	o	i	o	i
2	WriteJournal	o	i	o	i
3	InitializeJournal	o	i	o	i
4	ReportJournalStatus	o	i	o	i
5	CreateJournal	o	i	o	i
6	DeleteJournal	o	i	o	i

A.. File Access

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	ObtainFile	o	i	o	i

A.. File Management

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	FileOpen	o	i	o	i
2	FileRead	o	i	o	i
3	FileClose	o	i	o	i

A.. Data Exchange Management

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	GetDataExchangeAttributes	o	i	o	i

2	ExchangeData	o	i	o	i
---	--------------	---	---	---	---

A.. Additional PDUs

Ref	MMS PDU	Client-CR		Server-CR	
		Base	F/S	Base	F/S
1	Additional PDU	o	x	o	x

A.. PDU-Specific Requirements

This clause contains tables for all PDUs which have been marked as 'm' or 'o' in the F/S columns of clause A.3.

Some of the PDU parameters represent complex structures which are described using the following conventions:

- a) If a parameter with label <x> is a CHOICE type, the corresponding alternatives are listed below this parameter, using the sub-labels <x>.a, <x>.b, <x>.c, etc.
- b) If a parameter with label <x> is a SEQUENCE or SEQUENCE OF SEQUENCE type, the sequence members are listed below that parameter using the sub-labels <x>.1, <x>.2, <x>.3, etc.
- c) Some of the complex parameters are described in separate tables. In these cases, parameter names start with an upper case letter, otherwise parameters start with a lower case letter.

A.. Environment and General Management

A.. Initiate Request PDU

Ref	Parameter	Sending			Receiving		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	localDetailCalling	o	m	Part 2, 5.2.1.1.3	m	m	
2	proposedMaxServOutstandingCa llin	m	m	Part 2, 5.2.1.1.2	m	m	
3	proposedMaxServOutstandingCa lled	m	m	Part2, 5.2.1.1.2	m	m	
4	proposedDataStructureNestingL evel	m	m		m	m	
5	initiateRequestDetail	m	m		m	m	
5.1	proposedVersionNumber	m	m		m	m	
5.2	proposedParameterCBB	m	m		m	m	

1	errorClass	m	m		m	m	
2	errorCode	m	m		m	m	
3	additionalCode	o	o		o	m	
4	additionalDescription	o	o		o	m	

A.. Cancel Request PDU

Ref	Parameter	Sending			Receiving		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	originalInvokeID	m	m		m	m	

A.. Cancel Response PDU

Ref	Parameter	Sending			Receiving		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	originalInvokeID	m	m		m	m	

A.. Cancel Error PDU

Ref	Parameter	Sending			Receiving		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	originalInvokeID	m	m		m	m	
2	errorClass	m	m		m	m	
3	errorCode	m	m		m	m	
4	additionalCode	o	o		o	m	
5	additionalDescription	o	o		o	m	

A.. Reject PDU

Ref	Parameter	Sending			Receiving		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	originalInvokeID	m	m		m	m	
2	rejectReason	m	m		m	m	

A.. VMD Support

A.. Status Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	extendedDerivation	m	m		m	m	
4	csStatusRequest	o	x		o	x	

A.. Status Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	vmdLogicalStatus	m	m		m	m	
3	vmdPhysicalStatus	m	m		m	m	
4	localDetail	o	m		o	o	
5	csStatusResponse	o	x		o	x	

A.. Status Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Unsolicited Status PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	vmdLogicalStatus	m	m		m	m	
2	vmdPhysicalStatus	m	m		m	m	

3	localDetail	o	m		o	o	
4	csStatusResponse	o	x		o	x	

A.. GetNameList Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	objectClass	m	m		m	m	
4	csObjectClass	o	x		o	x	
5	objectScope	m	m		m	m	
6	continueAfter	m	m		m	m	
7	csGetNameListRequest	o	x		o	x	

A.. GetNameList Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfIdentifier	m	m		m	m	
3	moreFollows	m	m		m	m	
4	csGetNameListResponse	o	x		o	x	

A.. GetNameList Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Identify Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	

A.. Identify Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	vendorName	m	m		m	m	
3	modelName	m	m		m	m	
4	revision	m	m		m	m	
5	listOfAbstractSyntaxes	o	m		m	m	

A.. Identify Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. GetCapabilityList Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	continueAfter	m	m		m	m	
4	csGetCapabilityListRequest	o	x		o	x	

A.. GetCapabilityList Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfCapabilities	m	m		m	m	Part2, 5.2.3.1
3	moreFollows	m	m		m	m	
4	csGetCapabilityListResponse	o	x		o	x	

A.. GetCapabilityList Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Domain Management

A.. InitiateDownloadSequence Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	listOfCapabilities	m	m	Part2, 5.2.3.1	m	m	
5	sharable	m	m		m	m	
6	csInitiateDownloadSequenceReq ues	o	x		o	x	

A.. InitiateDownloadSequence Response PDU

Ref	Parameter	Client-CR	Server-CR
-----	-----------	-----------	-----------

		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csInitiateDownloadSequenceRespon	o	x		o	x	

A.. InitiateDownloadSequence Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. DownloadSegment Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	csDownloadSegmentRequest	o	x		o	x	

A.. DownloadSegment Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	loadData	m	m		m	m	
2.a	non-coded	o	m		o	m	
2.b	coded	o	i		o	i	
3	moreFollows	m	m		m	m	
4	csDownloadSegmentResponse	o	x		o	x	

		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	o		o	m	
6	additionalDescription	o	o		o	m	

A.. InitiateUploadSequence Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	csInitiateUploadSequenceRequest	o	x		o	x	

A.. InitiateUploadSequence Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	ulsmID	m	m		m	m	
3	listOfCapabilities	m	m		m	m	Part2, 5.2.3.1
4	csInitiateUploadSequenceResponse	o	x		o	x	

A.. InitiateUploadSequence Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	

6	additionalDescription	o	m		o	o	
---	-----------------------	---	---	--	---	---	--

A.. UploadSegment Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	ulsmID	m	m		m	m	
4	csUploadSegmentRequest	o	x		o	x	

A.. UploadSegment Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	loadData	m	m		m	m	
2.a	non-coded	o	m		o	m	
2.b	coded	o	i		o	i	
3	moreFollows	m	m		m	m	
4	csUploadSegmentResponse	o	x		o	x	

A.. UploadSegment Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. TerminateUploadSequence Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.

1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	ulsmID	m	m		m	m	
4	csTerminateUploadSequenceRequest	o	x		o	x	

A.. TerminateUploadSequence Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csTerminateUploadSeqResponse	o	x		o	x	

A.. TerminateUploadSequence Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. RequestDomainDownload Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	listOfCapabilities	m	m		m	m	Part 2, 5.2.3.1
5	sharable	m	m		m	m	
6	filename	m	m		m	m	
7	csRequestDomainDownloadRequest	o	x		o	x	

A.. RequestDomainDownload Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csRequestDomainDownloadResponse	o	x		o	x	

A.. RequestDomainDownload Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	o		o	m	
6	additionalDescription	o	o		o	m	

A.. RequestDomainUpload Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	filename	m	m		m	m	
5	csRequestDomainUploadRequest	o	x		o	x	

A.. RequestDomainUpload Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csRequestDomainUploadResponse	o	x		o	x	

A.. RequestDomainUpload Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	o		o	m	
6	additionalDescription	o	o		o	m	

A.. LoadDomainContent Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	listOfCapabilities	m	m	Part 2, 5.2.3.1	m	m	
5	sharable	m	m		m	m	
6	filename	m	m		m	m	
7	thirdParty	o	TPY		o	TPY	
8	csLoadDomainContentRequest	o	x		o	x	

A.. LoadDomainContent Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csLoadDomainContentResponse	o	x		o	x	

A.. LoadDomainContent Error PDU

Ref	Parameter	Client-CR			Server-CR		
-----	-----------	-----------	--	--	-----------	--	--

		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. StoreDomainContent Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	filename	m	m		m	m	
5	thirdParty	o	TPY		o	TPY	
6	csStoreDomainContentRequest	o	x		o	x	

A.. StoreDomainContent Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csStoreDomainContentResponse	o	x		o	x	

A.. StoreDomainContent Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. DeleteDomain Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	csDeleteDomainRequest	o	x		o	x	

A.. DeleteDomain Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csDeleteDomainResponse	o	x		o	x	

A.. DeleteDomain Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. GetDomainAttributes Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	domainName	m	m		m	m	
4	csGetDomainAttributesRequest	o	x		o	x	

A.. GetDomainAttributes Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfCapabilities	m	m		m	m	Part 2, 5.2.3.1
3	state	m	m		m	m	
4	mmsDeletable	m	m		m	m	
5	sharable	m	m		m	m	
6	listOfProgramInvocations	m	m		m	m	
7	uploadInProgress	m	m		m	m	
8	csGetDomainAttributesResponse	o	x		o	x	

A.. GetDomainAttributes Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Program Invocation Management**A.. CreateProgramInvocation Request PDU**

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	listOfDomainNames	m	m		m	m	

5	reusable	m	m		m	m	
6	monitorType	o	i		o	i	
7	csCreateProgramInvocationRequest	o	x		o	x	

A.. CreateProgramInvocation Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csCreateProgramInvocationResponse	o	x		o	x	

A.. CreateProgramInvocation Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. DeleteProgramInvocation Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	csDeleteProgramInvocationRequest	o	x		o	x	

A.. DeleteProgramInvocation Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csDeleteProgramInvocationResponse	o	x		o	x	

A.. DeleteProgramInvocation Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Start Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	executionArgument	m	m		m	m	
4.a	simpleString	o	m		o	m	
4.b	encodedString	o	i		o	i	
5	csStartRequest	o	x		o	x	

A.. Start Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csStartResponse	o	x		o	x	

A.. Start Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	serviceSpecificInformation	m	m		m	m	Part2, 5.2.4.1

A.. Stop Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	csStopRequest	o	x		o	x	

A.. Stop Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csStopResponse	o	x		o	x	

A.. Stop Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	

5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	serviceSpecificInformation	m	m		m	m	Part2, 5.2.4.2

A.. Resume Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	executionArgument	m	m		m	m	
4.a	simpleString	o	m		o	m	
4.b	encodedString	o	i		o	i	
5	csResumeRequest	o	x		o	x	

A.. Resume Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csResumeResponse	o	x		o	x	

A.. Resume Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	serviceSpecificInformation	m	m		m	m	part 2, 5.2.4.3

A.. Reset Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	csResetRequest	o	x		o	x	

A.. Reset Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csResetResponse	o	x		o	x	

A.. Reset Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	serviceSpecificInformation	m	m		m	m	part 2, 5.2.4.4

A.. Kill Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	csKillRequest	o	x		o	x	

A.. Kill Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csKillResponse	o	x		o	x	

A.. Kill Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	serviceSpecificInformation	m	m		m	m	Part2, 5.2.4.5

A.. GetProgramInvocationAttributes Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	programInvocationName	m	m		m	m	
4	csGetPIAttributesRequest	o	x		o	x	

A.. GetProgramInvocationAttributes Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	State	m	m		m	m	
3	listOfDomainNames	m	m		m	m	
4	mmsDeletable	m	m		m	m	

5	reusable	m	m		m	m	
6	monitor	m	m		m	m	
7	executionArgument	m	m		m	m	
7.a	simpleString	o	m		o	m	
7.b	encodedString	o	i		o	i	
8	csGetPIAttributesResponse	o	x		o	x	

A.. GetProgramInvocationAttributes Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Variable Access

A.. Read Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	specificationWithResult	m	m		m	m	
4	VariableAccessSpecification	m	m	A.4.5.1.1.	m	m	A.4.5.1.1.

A.. VariableAccessSpecification

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1.a	listOfVariable	o	m		m	m	
1.a.1	VariableSpecification	m	m	A.4.5.1.2.	m	m	A.4.5.1.2.
1.a.2	AlternateAccess	o	VALT	A.4.5.1.5.	o	VALT	A.4.5.1.5.

1.b	variableListName	o	V LIS		o	V LIS	
-----	------------------	---	-------	--	---	-------	--

A.. VariableSpecification

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1.a	name	o	VNAM		o	VNAM	
1.b	Address	o	VADR	A.4.5.1.3.	o	VADR	A.4.5.1.3.
1.c	variableDescription	o	VADR		o	VADR	
1.c.1	Address	m	m	A.4.5.1.3.	m	m	A.4.5.1.3.
1.c.2	TypeSpecification	m	m	A.4.5.1.4.	m	m	A.4.5.1.4.
1.d	scatteredAccessDescription	o	VSCA		o	VSCA	
1.e	invalidated	m	m		m	m	

A.. Address

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1.a	numericAddress	o	m		o	c1	
1.b	symbolicAddress	o	m		o	c1	
1.c	unconstrainedAddress	o	o		o	o	

c1: at least one of these address types must be supported (see part 2, clause 5.2.5.6).

A.. TypeSpecification

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1.a	typeName	o	o		o	o	
1.b	array	o	STR1		o	STR1	
1.b.1	packed	m	m		m	m	
1.b.2	numberOfElements	m	m		m	m	
1.b.3	TypeSpecification	m	m		m	m	
1.c	structure	o	STR2		o	STR2	
1.c.1	packed	m	m		m	m	
1.c.2	components	m	m		m	m	
1.c.2.1	componentName	o	VALT		o	VALT	

1.c.2.2	TypeSpecification	m	m		m	m	
1.d	boolean	o	m		o	c1	
1.e	bit-string	o	m		o	c1	
1.f	integer	o	m		o	c1	
1.g	unsigned	o	m		o	c1	
1.h	floatingPoint	o	m		o	c1	
1.i	real	o	REAL		o	REAL	
1.j	octet-string	o	o		o	o	
1.k	visible-string	o	m		o	c1	
1.l	generalized-time	o	m		o	c1	
1.m	binary-time	o	o		o	o	
1.n	bcd	o	o		o	o	
1.o	objId	o	o		o	o	

c1: Each server implementation shall be capable of supporting at least one of the data types marked as c1

A.. AlternateAccess

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1.a	unnamed	o	STR1		o	STR1	
1.a.1	selectAlternateAccess	m	m		m	m	
1.a.1.1	AccessSelection	m	m	A.4.5.1.6.	m	m	A.4.5.1.6.
1.a.1.2	AlternateAccess	m	m		m	m	
1.a.2	SelectAccess	m	m	A.4.5.1.7.	m	m	A.4.5.1.7.
1.b	named	o	STR2		o	STR2	
1.b.1	componentName	m	m		m	m	
1.b.2	AlternateAccessSelection	m	m		m	m	
1.b.2.1	selectAlternateAccess	o	m		m	m	
1.b.2.2	SelectAccess	o	m	A.4.5.1.7.	m	m	A.4.5.1.7.

A.. AccessSelection

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1.a	component	o	STR2		o	STR2	
1.b	index	o	STR1		o	STR1	
1.c	IndexRange	o	STR1	A.4.5.1.8.	o	STR1	A.4.5.1.8.
1.d	allElements	o	STR1		o	STR1	

A. SelectAccess

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1.a	component	o	STR2		o	STR2	
1.b	index	o	STR1		o	STR1	
1.c	IndexRange	o	STR1	A.4.5.1.8.	o	STR1	A.4.5.1.8.
1.d	allElements	o	STR1		o	STR1	

A.. IndexRange

Ref	Parameter	Client-CR	Server-CR
-----	-----------	-----------	-----------

		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	lowIndex	m	m		m	m	
2	numberOfElements	m	m		m	m	

A.. Read Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	VariableAccessSpecification	m	m	A.4.5.1.1.	m	m	A.4.5.1.1.
3	listOfAccessResult	m	m		m	m	
3.a	failure	m	m		m	m	
3.b	Data	m	m	A.4.5.2.1.	m	m	A.4.5.2.1.

A.. Data

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
a	array	o	STR1		o	STR1	
b	structure	o	STR2		o	STR2	
c	boolean	o	m		o	c1	
d	bit-string	o	m	n2	o	c1	
e	integer	o	m	n1	o	c1	
f	unsigned	o	m	n1	o	c1	
g	floating-point	o	m		o	c1	
h	real	o	REAL		o	REAL	
i	octet-string	o	o	n2	o	o	
j	visible-string	o	m	n2	o	c1	
k	generalized-time	o	m		o	c1	
l	binary-time	o	o		o	o	
m	bcd	o	o		o	o	
n	booleanArray	o	o		o	o	
o	objectId	o	o		o	o	

c1: Each server implementation shall be capable of supporting at least one of the data types marked as c1

n1: Client implementations shall be capable of supporting a DataSize parameter of value 32.

n2: Client implementations shall be capable of supporting a DataSize parameter the value of which is determined by the InitiateResponse PDU localDetailCalled parameter.

A.. Read Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Write Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	VariableAccessSpecification	m	m	A.4.5.1.1.	m	m	A.4.5.1.1.
4	listOfData	m	m	A.4.5.2.1.	m	m	A.4.5.2.1.

A.. Write Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfWriteResult	m	m		m	m	
2.a	dataAccessError	m	m		m	m	
2.b	success	m	m		m	m	

A.. Write Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	

2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. InformationReport PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	VariableAccessSpecification	m	m	A.4.5.1.1.	m	m	A.4.5.1.1.
2	listOfAccessResult	m	m		m	m	
2.a	failure	m	m		m	m	
2.b	Data	m	m	A.4.5.2.1.	m	m	A.4.5.2.1.

A.. GetVariableAccessAttributes Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	variableName	o	VNAM		o	VNAM	
4	variableAddress	o	VADR		o	VADR	

A.. GetVariableAccessAttributes Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	mmsDeletable	m	m		m	m	
3	Address	o	VADR		o	VADR	
4	TypeSpecification	m	m		m	m	

A.. GetVariableAccessAttributes Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.

1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. DefineNamedVariable Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	variableName	m	m		m	m	
4	Address	m	m	A.4.5.1.3.	m	m	A.4.5.1.3.
5	TypeSpecification	o	o	A.4.5.1.4.	m	m	A.4.5.1.4.

A.. DefineNamedVariable Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	

A.. DefineNamedVariable Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. DeleteVariableAccess Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	scopeOfDelete	m	m		m	m	
4	listOfName	o	o		m	m	
5	domainName	o	o		m	m	

A.. DeleteVariableAccess Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	numberMatched	m	m		m	m	
3	numberDeleted	m	m		m	m	

A.. DeleteVariableAccess Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	numberDeleted	m	m		m	m	

A.. DefineNamedVariableList Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	variableListName	m	m		m	m	
4	listOfVariable	m	m		m	m	

4.1	VariableSpecification	m	m	A.4.5.1.2.	m	m	A.4.5.1.2.
4.2	AlternateAccess	o	VALT	A.4.5.1.5.	o	VALT	A.4.5.1.5.

A.. DefineNamedVariableList Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	

A.. DefineNamedVariableList Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. GetNamedVariableListAttributes Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	variableListName	m	m		m	m	

A.. GetNamedVariableListAttributes Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	mmsDeletable	m	m		m	m	
3	listOfVariable	m	m		m	m	

3.1	VariableSpecification	m	m	A.4.5.1.2.	m	m	A.4.5.1.2.
3.2	AlternateAccess	o	VALT	A.4.5.1.5.	o	VALT	A.4.5.1.5.

A.. GetNamedVariableListAttributes Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. DeleteNamedVariableList Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	scopeOfDelete	m	m		m	m	
4	listOfVariableListName	o	o		m	m	
5	domainName	o	o		m	m	

A.. DeleteNamedVariableList Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	numberMatched	m	m		m	m	
3	numberDeleted	m	m		m	m	

A.. DeleteNamedVariableList Error PDU

Ref	Parameter	Client-CR	Server-CR
-----	-----------	-----------	-----------

		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	numberDeleted	m	m		m	m	

A.. DefineNamedType Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	typeName	m	m		m	m	
4	TypeSpecification	m	m	A.4.5.1.4.	m	m	A.4.5.1.4.

A.. DefineNamedType Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	

A.. DefineNamedType Error PDU

Ref	Parameter	Server-CR			Client-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. GetNamedTypeAttributes Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	typeName	m	m		m	m	

A.. GetNamedTypeAttributes Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	mmsDeletable	m	m		m	m	
3	TypeSpecification	m	m	A.4.5.1.4.	m	m	A.4.5.1.4.

A.. GetNamedTypeAttributes Error PDU

Ref	Parameter	Server-CR			Client-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. DeleteNamedType Request PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	scopeOfDelete	m	m		m	m	
4	listOfTypeName	o	o		m	m	
5	domainName	o	o		m	m	

A.. DeleteNamedType Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	numberMatched	m	m		m	m	
3	numberDeleted	m	m		m	m	

A.. DeleteNamedType Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	
7	numberDeleted	m	m		m	m	

A.. Semaphore Management

Out of Scope.

A.. Operator Communication**A.. Input Request PDU**

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	operatorStationName	m	m		m	m	
4	echo	m	m		m	m	
5	listOfPromptData	o	o		o	o	
6	inputTimeOut	o	o		o	m	
7	csInputRequest	o	x		o	x	

A.. Input Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	inputString	m	m		m	m	
3	csInputResponse	o	x		o	x	

A.. Input Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Output Request PDU

Ref	Parameter	Client-CR			Server-CR		
-----	-----------	-----------	--	--	-----------	--	--

		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	listOfModifier	o	MOD		o	MOD	
3	operatorStationName	m	m		m	m	
4	listOfOutputData	m	m		m	m	
5	csOutputRequest	o	x		o	x	

A.. Output Response PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	csOutputResponse	o	x		o	x	

A.. Output Error PDU

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/Ref.	Base	F/S	Value/Ref.
1	invokeID	m	m		m	m	
2	modifierPosition	o	MOD		o	MOD	
3	errorClass	m	m		m	m	
4	errorCode	m	m		m	m	
5	additionalCode	o	m		o	o	
6	additionalDescription	o	m		o	o	

A.. Event Management

Out of Scope

A.. Journal Management

Out of Scope

A.. File Access

Out of Scope

A.. File Management

Out of Scope

A.. Data Exchange Management

Out of Scope