
NDCOS-OS Interface Functions and Architectures

Contents

Preface	Preface-1
1. Introduction	1-1
1.1 Strategic Direction for Traffic Data Administration	1-1
1.2 Assumptions	1-3
1.3 Business Drivers for the NDCOS-OS Interface	1-4
2. Architectural Considerations	2-1
2.1 Architectural Alternative 1	2-3
2.2 Architectural Alternative 2	2-4
2.3 Architectural Alternative 3	2-4
2.4 Architectural Alternative 4	2-4
2.5 Architectural Alternative 5	2-5
3. OS Function Descriptions	3-1
3.1 Candidate NDCOS Functions to Move from TIDE	3-2
3.1.1 Process Interval Summaries (Aggregate)	3-2
3.1.2 Actual Interval (Aggregate)	3-2
3.1.3 Screening (Edit)	3-2
3.1.4 Start/End Time (Label)	3-3
3.1.5 Start/End Date (Label)	3-3
3.1.6 Validations (Edit)	3-3
3.1.7 Manual On-Going and On-Demand Requests (Schedule)	3-4
3.1.8 Frequency (Schedule)	3-4
3.2 Candidate NDCOS Functions to Move from OSs	3-4
3.2.1 Sum Over Keywords (Aggregate)	3-5
3.2.2 Sum Over Subgroups (Aggregate)	3-5
3.3 Additional Candidate NDCOS Functions	3-5
3.3.1 Contract Interface On-Going and On-Demand Requests (Schedule)	3-5
3.3.2 EVE/TRBH Summarization (Aggregate)	3-6
4. Proposed OS Functional Architecture	4-1
5. NDCOS/OS Interface Protocol Stack	5-1
5.1 Application Interface Requirements	5-1
5.1.1 OS Architectures and Functions	5-1
5.1.2 Interface Functionality	5-3
5.1.3 Interface Data Communications Requirements	5-6
5.2 Communications Services	5-7
5.2.1 File Transfer	5-8
5.2.2 Transaction Shipping	5-8

5.2.3	Request/Reply	5-9
5.3	Communications Protocols	5-9
5.3.1	Protocol Preferences.....	5-9
5.3.2	Syntax Preferences	5-11
5.4	Protocol Selection Summary	5-12
6.	File Transfer of Interface Application Data.....	6-1
6.1	File Transfer Protocol (FTP) for the NDCOS/OS Interface	6-1
6.2	File Transfer, Access and Management (FTAM) for the NDCOS/OS Interface..	6-2
6.2.1	FTAM Overview	6-3
6.2.2	File Transfer Services and Protocol Overview	6-6
6.2.2.1	Document Types	6-7
6.2.2.2	Attributes	6-7
6.2.3	File Transfer Application Functional Description	6-9
6.3	Self-Defining ASN.1 Format	6-10
6.3.1	File Structure.....	6-10
6.3.2	Data Dictionary	6-11
6.3.3	Category Field Ordering	6-12
6.3.4	Data Values	6-14
6.4	Example of ASN.1 Format Mapped to TIDE FCIF	6-15
6.4.1	Abbreviated TIDE Section Formats.....	6-15
6.4.2	Abbreviated TIDE Format Mapped to Categories	6-16
6.4.3	Example TIDE Data Values.....	6-18
6.5	Example of ASN.1 Format Mapped to an NDC Model.....	6-18
6.5.1	Abbreviated NDC Object Model Example	6-19
6.5.2	Abbreviated NDC Object Model Mapped to Categories	6-21
6.5.3	Example NDC Object Model Data Values	6-23
7.	Ad-Hoc Query Functions and Data Views	7-1
7.1	General Description.....	7-1
7.2	NDC Information Model.....	7-2
7.2.1	Inheritance Structure of Managed Object Classes	7-2
7.2.2	Naming Structure of Managed Objects.....	7-2
7.3	Object Class to Relational Views Translation.....	7-3
7.3.1	SQL Virtual Views.....	7-3
7.3.2	SQL Commands	7-5
7.3.2.1	Naming of SQL Views	7-6
7.3.3	NDCOS History Data Elements.....	7-9
7.4	Interface Requirements	7-9
7.4.1	Association Services (ACSE)	7-9
7.4.2	Remote Operations Services (ROSE)	7-9
7.4.2.1	RO-INVOKE Service Mapping.....	7-10
7.4.2.2	RO-RESULT Service Mapping	7-11
7.4.2.3	RO-ERROR Service Mapping.....	7-11

7.5 Ad-Hoc Query Transaction Example	7-12
8. Summary	8-1
References	References-1