

Florida Department of Transportation (FDOT) Actuated Traffic Signal Controller (ASC) Management Information Base (MIB) and National Transportation Communications for ITS (Intelligent Transportation Systems) Protocol (NTCIP) Requirements

Final Draft

Introduction

This document contains the final draft of the FDOT ASC MIB NTCIP Requirements based on the following standards/documents:

- NTCIP 1201 v0303b – Global Object Definitions
- NTCIP 1202 v0219 – Object Definitions for Actuated Traffic Signal Controller Units
- NTCIP 1103 v02-10b – Transportation Management Protocols
- RFC 1213 – Management Information Base for Network Management of TCP/IP-Based internets: MIB-II
- FDOT Minimum Specifications for Traffic Control Signal Devices, July 2000 (referred to as the FDOT ASC Requirements.)

Some conformance groups have been added to the list corresponding to the NTCIP 1202 v0219 document. Of these new groups, the SNMP and system group are listed as mandatory for the NTCIP 1202 standard. It should also be noted that inclusion of the time base conformance group means both the global time base group and the ASC time base group according to the NTCIP 1202 document.

The tables provided below detail the requirements of NTCIP standards and the suggested requirements for FDOT statewide ASC MIB. The first column of each table provides the clause of the relevant NTCIP standard in which the given object is referenced. The second column provides the object name. Columns three and four provide the status of the object and allowed range for the object, respectively, as specified in the relevant NTCIP standard. Columns five and six provide the recommended status for the object and the recommended sub-range requirements for the object, respectively. In this case, this range represents the range of values that must be supported by the device, as opposed to the range of allowed values for the object.

Document Control Panel			
File Name:	ASC NTCIP Requirements.doc		
File Location:	TERL Bahcomm		
Version:	1.0		
Name		Initial	Date
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Notation

Table 1 Notation

<i>Symbol</i>	<i>Definition</i>
D	Indicates that this object was deprecated in the most recent standard.
M	Indicates mandatory status for objects and conformance groups.
(M)	Mandatory based on tabular status requirement.
NA	Not applicable.
O	Indicates optional status for objects and conformance groups.
S	Status / Information Object - this object is read only therefore a SET is not permitted.
P	Parameter Object - use of 'dbCreateTransaction' in NTCIP 1201 Clause 2.3.1 to SET this object is optional.
P2	Parameter Object - use of 'dbCreateTransaction' in NTCIP 1201 Clause 2.3.1 to SET this object is mandatory.

Table 2 Color Notation

<i>Color</i>	<i>Significance</i>
Black	Status and range requirements in black indicate that the relevant NTCIP standard and the final status are in agreement.
Red	Status and range requirements in red indicate deviations from other sources.
Blue	Indicates suggestions not yet agreed upon or finalized by the group.

Conformance Groups

Table 3 NTCIP Conformance Groups

Standard/ Clause	Conformance Group	Description	NTCIP Status	Final Status
NTCIP 1202v0219 – 2.2	Phase	Phase timing parameters and phase status variables.	M	M
NTCIP 1202v0219 – 2.3	Detector	Detector configuration parameters and detector status variables.	M	M
NTCIP 1202v0219 - 2.3	Volume Occupancy Report	Volume/occupancy reporting.	O	M
NTCIP 1202v0219 – 2.4	Unit	Objects related to overall controller configuration and state.	O	M
NTCIP 1202v0219 – 2.4	Special Function	Objects related to the control of special function outputs.	O	M

NTCIP 1202v0219 – 2.5	Coordination	Objects related to signal coordination.	O	M
NTCIP 1202v0219 – 2.6	Time Base	ASC specific objects related to time base operation.	O	M
NTCIP 1202v0219 – 2.7	Preempt	Preempt configuration parameters and preempt status variables.	O	M
NTCIP 1202v0219 – 2.8	Ring	Ring configuration parameters and status variables.	O	M
NTCIP 1202v0219 – 2.9	Channel	Channel configuration parameters and status variables.	O	M
NTCIP 1202v0219 -2.10	Overlap	Overlap configuration parameters and status variables.	O	M
NTCIP 1202v0219 – 2.11	TS 2 Port 1	TS-2 port 1 configuration parameters, status variables, and control objects.	O	M
NTCIP 1202v0219 – 2.12	Block Object	Used to obtain status information in bulk.	O	M
NTCIP 1201v0303b – 2.2	Global Configuration		M	M
NTCIP 1201v0303b – 2.3	Global Database Management		M	M
NTCIP 1103v0210b – A.8	Global Report		O	M
NTCIP 1201v0303b – 2.8	Auxiliary I/O		NA	O
NTCIP 1201v0303b – 2.7	PMPP		O	M
NTCIP 1103v0210b – A.9	Security		M	M
RFC 1213	SNMP		M	M
RFC 1213	System		M	M
NTCIP 1103v0210b – A.2	SFMP		NA	O
NTCIP 1103v0210b – A.3	STMP		O	M
NTCIP 1103v0210b – A.6	Logical Name		O	O

NTCIP 1103v0210b – A.10	Trap Management		O	O
RFC 1317	RS232		O	M
RFC 1381	HDLC		O	M
RFC 1213	Interfaces		O	O
RFC 1213	IP		O	O
RFC 1213	ICMP		O	O
RFC 1213	TCP		O	O
RFC 1213	UDP		O	O
RFC 1643	Ethernet		O	O

ASC Phase Objects

Table 4 NTCIP 1202 Phase Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Statu s	Final Sub- range
2.2	Phase Conformance Group	M	NA	M	NA
2.2.1	maxPhases	M	0-255	M	8-255
2.2.2	phaseTable phaseEntry	M	NA	M	NA
2.2.2.1	phaseNumber	M	1-255	M	1-255
2.2.2.2	phaseWalk	M	0-255	M	0-255
2.2.2.3	phasePedestrianClear	M	0-255	M	0-255
2.2.2.4	phaseMinimumGreen	M	0-255	M	0-255
2.2.2.5	phasePassage	M	0-255	M	0-255
2.2.2.6	phaseMaximum1	M	0-255	M	0-255
2.2.2.7	phaseMaximum2	M	0-255	M	0-255
2.2.2.8	phaseYellowChange	M	0-255	M	30-100
2.2.2.9	phaseRedClear	M	0-255	M	0-255
2.2.2.10	phaseRedRevert	O	0-255	M	0-255
2.2.2.11	phaseAddedInitial	M	0-255	M	0-255
2.2.2.12	phaseMaximumInitial	M	0-255	M	0-255
2.2.2.13	phaseTimeBeforeReduction	M	0-255	M	0-255
2.2.2.14	phaseCarsBeforeReduction	O	0-255	M	0-255
2.2.2.15	phaseTimeToReduce	M	0-255	M	0-255
2.2.2.16	phaseReduceBy	O	0-255	M	0-255
2.2.2.17	phaseMinimumGap	M	0-255	M	0-255
2.2.2.18	phaseDynamicMaxLimit	O	0-255	M	0-255
2.2.2.19	phaseDynamicMaxStep	O	0-255	M	0-255
2.2.2.20	phaseStartup	M	1-6	M	1-6
2.2.2.21	phaseOptions	M	0-65535	M	0-65535
2.2.2.22	phaseRing	M	0-255	M	0-255

2.2.2.23	phaseConcurrency	M	String	M	
2.2.3	maxPhaseGroups	M	1-255	M	1-255
2.2.4	phaseStatusGroupTable phaseStatusGroupEntry	M	NA	M	NA
2.2.4.1	phaseStatusGroupNumber	M	1-255	M	1-255
2.2.4.2	phaseStatusGroupReds	M	0-255	M	0-255
2.2.4.3	phaseStatusGroupYellows	M	0-255	M	0-255
2.2.4.4	phaseStatusGroupGreens	M	0-255	M	0-255
2.2.4.5	phaseStatusGroupDontWalks	M	0-255	M	0-255
2.2.4.6	phaseStatusGroupPedClears	M	0-255	M	0-255
2.2.4.7	phaseStatusGroupWalks	M	0-255	M	0-255
2.2.4.8	phaseStatusGroupVehCalls	M	0-255	M	0-255
2.2.4.9	phaseStatusGroupPedCalls	M	0-255	M	0-255
2.2.4.10	phaseStatusGroupPhaseOns	M	0-255	M	0-255
2.2.4.11	phaseStatusGroupPhaseNexts	M	0-255	M	0-255
2.2.5	phaseControlGroupTable phaseControlGroupEntry	O	NA	M	NA
2.2.5.1	phaseControlGroupNumber	(M)	1-255	M	1-255
2.2.5.2	phaseControlGroupPhaseOmit	(M)	0-255	M	0-255
2.2.5.3	phaseControlPedOmit	(M)	0-255	M	0-255
2.2.5.4	phaseControlGroupHold	(M)	0-255	M	0-255
2.2.5.5	phaseControlGroupForceOff	(O)	0-255	M	0-255
2.2.5.6	phaseControlGroupVehCall	(M)	0-255	M	0-255
2.2.5.7	phaseControlGroupPedCall	(M)	0-255	M	0-255

Detector Objects

Table 5 NTCIP 1202 Detector Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.3	Detector Conformance Group	M	NA	M	NA
2.3.1	maxVehicleDetectors	M	0-255	M	8-255
2.3.2	vehicleDetectorTable vehicleDetectorEntry	M	NA	M	NA
2.3.2.1	vehicleDetectorNumber	M	1-255	M	1-255
2.3.2.2	vehicleDetectorOptions	M	0-255	M	0-255
2.3.2.3	vehicleDetectorCallPhase	M	0-255	M	0-255
2.3.2.4	vehicleDetectorSwitchPhase	M	0-255	M	0-255
2.3.2.5	vehicleDetectorDelay	M	0-65535	M	0-2550
2.3.2.6	vehicleDetectorExtend	M	0-255	M	0-255
2.3.2.7	vehicleDetectorQueueLimit	O	0-255	M	0-255
2.3.2.8	vehicleDetectorNoAcitivity	M	0-255	M	0-255
2.3.2.9	vehicleDetectorMaxPresence	M	0-255	M	0-255
2.3.2.10	vehicleDetectorErraticCounts	M	0-255	M	0-255
2.3.2.11	vehicleDetectorFailTime	O	0-255	M	0-255
2.3.2.12	vehicleDetectorAlarms	M	0-255	M	0-255
2.3.2.13	vehicleDetectorReportedAlarms	O	0-255	M	0-255
2.3.2.14	vehicleDetectorReset	M	0-1	M	0-1
2.3.3	maxVehicleDetectorStatusGroups	M	1-255	M	1-255

2.3.4	vehicleDetectorStatusGroupTable vehicleDetectorStatusGroupEntry	M	NA	M	NA
2.3.4.1	vehicleDetectorStatusGroupNumber	M	1-255	M	1-255
2.3.4.2	vehicleDetectorStatusGroupActive	M	0-255	M	0-255
2.3.4.3	vehicleDetectorStatusGroupAlarms	M	0-255	M	0-255
2.3.6	maxPedestrianDetectors	M	0-255	M	0-255
2.3.7	pedestrianDetectorTable pedestrianDetectorEntry	M	NA	M	NA
2.3.7.1	pedestrianDetectorNumber	M	1-255	M	1-255
2.3.7.2	pedestrianDetectorCallPhase	M	0-255	M	0-255
2.3.7.3	pedestrianDetectorNoActivity	M	0-255	M	0-255
2.3.7.4	pedestrianDetectorMaxPresence	M	0-255	M	0-255
2.3.7.5	pedestrianDetectorErraticCounts	M	0-255	M	0-255
2.3.7.6	pedestrianDetectorAlarms	M	0-255	M	0-255

Volume Occupancy Report Objects

Table 6 NTCIP 1202 Volume Occupancy Report Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.3.5	Volume Occupancy Report Conformance Group	O	NA	M	NA
2.3.5.1	volumeOccupancySequence	M	0-255	M	0-255
2.3.5.2	volumeOccupancyPeriod	M	0-255	M	0-255
2.3.5.3	activeVolumeOccupancyDetectors	M	0-255	M	
2.3.5.4	volumeOccupancyTable volumeOccupancyEntry	M		M	0-255
2.3.5.4.1	detectorVolume	M	0-255	M	0-255
2.3.5.4.2	detectorOccupancy	M	0-255	M	0-255

Unit Conformance Objects

Table 7 NTCIP 1202 Unit Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.4	Unit Conformance Group	O	NA	M	NA
2.4.1	unitStartupFlash	M	0-255	M	0-255
2.4.2	unitAutoPedestrianClear	M	1-2	M	1-2
2.4.3	unitBackupTime	M	0-65535	M	0-65535
2.4.4	unitRedRevert	M	0-255	M	0-255
2.4.5	unitControlStatus	M	1-8	M	1-8
2.4.6	unitFlashStatus	M	1-8	M	1-8

2.4.7	unitAlarmStatus2	M	0-255	M	0-255
2.4.8	unitAlarmStatus1	M	0-255	M	0-255
2.4.9	shortAlarmStatus	M	0-255	M	0-255
2.4.10	unitControl	M	0-255	M	0-255
2.4.11	maxAlarmsGroup	M	0-255	M	0-255
2.4.12	alarmGroupTable alarmGroupEntry	M	NA	M	NA
2.4.12.1	alarmGroupNumber	M	0-255	M	0-255
2.4.12.2	alarmGroupState	M	0-255	M	0-255

Special Function Objects

Table 8 NTCIP 1202 Special Function Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
Sfg	Special Function Conformance Group	O	NA	M	NA
2.4.13	maxSpecialFunctionOutputs	M	0-255	M	0-255
2.4.14	specialFunctionOutputTable specialFunctionOutputEntry	M	NA	M	NA
2.4.14.1	specialFunctionOutputNumber	M	1-255	M	1-255
2.4.14.2	specialFunctionOutputState	D	0-1		
2.4.14.3	specialFunctionOutputControl	M	0-1	M	0-1
2.4.14.4	specialFunctionOutputStatus	M	0-1	M	0-1

Coordination Conformance Objects

Table 9 NTCIP 1202 Coordination Conformance Group

NTCIP 1202v0219 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.5	Coordination Conformance Group	O	NA	M	NA
2.5.1	coordOperationalMode	M	0-255	M	0-255
2.5.2	coordCorrectionMode	M	1-4	M	1-4
2.5.3	coordMaximumMode	M	1-4	M	1-4
2.5.4	coordForceMode	M	1-3	M	1-3
2.5.5	maxPatterns	M	1-253	M	1-253
2.5.6	patternTableType	M	1-4	M	1-4
2.5.7	patternTable patternEntry	M	NA	M	NA
2.5.7.1	patternNumber	M	1-253	M	1-253
2.5.7.2	patternCycleTime	M	0-255	M	0-255
2.5.7.3	patternOffsetTime	M	0-255	M	0-255
2.5.7.4	patternSplitNumber	M	1-255	M	1-255
2.5.7.5	patternSequenceNumber	M	1-255	M	1-255
2.5.8	maxSplits	M	1-255	M	1-255
2.5.9	splitTable splitEntry	M	NA	M	NA
2.5.9.1	splitNumber	M	1-255	M	1-255
2.5.9.2	splitPhase	M	1-255	M	1-255

2.5.9.3	splitTime	M	0-255	M	0-255
2.5.9.4	splitMode	M	1-7	M	1-7
2.5.9.5	splitCoordPhase	M	0-1	M	0-1
2.5.10	coordPatternStatus	M	0-255	M	0-255
2.5.11	localFreeStatus	M	1-11	M	1-11
2.5.12	coordCycleStatus	M	0-510	M	0-510
2.5.13	coordSyncStatus	M	0-510	M	0-510
2.5.14	systemPatternControl	M	0-255	M	0-255
2.5.15	systemSyncControl	M	0-255	M	0-255

Time Base Conformance Objects

Table 10 NTCIP 1201 Global Time Base Conformance Group

NTCIP 1201v03 03b Clause	Object Name	NTCIP 1201 Status	NTCIP 1201 Range	Final Status	Final Sub-range
2.4	Time Base Conformance Group	O	NA	M	NA
2.4.1	globalTime	M	Counter	M	Counter
2.4.2	globalDayLightSavings	M	1-19	M	1-19
2.4.3	timeBase	M	NA	M	NA
2.4.3.1	maxTimeBaseScheduleEntries	M	1-65535	M	1-65535
2.4.3.2	timeBaseScheduleTable timeBaseScheduleTableEntry	M	NA	M	NA
2.4.3.2.1	timeBaseScheduleNumber	M	1-65535	M	1-65535
2.4.3.2.2	timeBaseScheduleMonth	M	0..65535	M	0-65535
2.4.3.2.3	timeBaseScheduleDay	M	0..255	M	0-255
2.4.3.2.4	timeBaseScheduleDate	M	0-4294967295	M	0-4294967295
2.4.3.2.5	timeBaseScheduleDayPlan	M	0-255	M	0-255
2.4.4.1	maxDayPlans	M	1-255	M	1-255
2.4.4.2	maxDayPlanEvents	M	1-255	M	1-255
2.4.4.3	timeBaseDayPlanTable	M	NA	M	NA
2.4.4.3.1	dayPlanNumber	M	1-255	M	1-255
2.4.4.3.2	dayPlanEventNumber	M	1-255	M	1-255
2.4.4.3.3	dayPlanHour	M	0-23	M	0-23
2.4.4.3.4	dayPlanMinute	M	0-59	M	0-59
2.4.4.3.5	dayPlanActionNumberOID	M	OID	M	OID
2.4.4.4	dayPlanStatus	M	0-255	M	0-255
2.4.6	controllerStandardTimeZone	M	-43200/43200	M	-43200/43200
2.4.7	controllerLocalTime	M	Counter	M	Counter
2.4.8	daylightSavingNode	M	NA	M	NA
2.4.8.1	maxDaylightSavingEntries	M	1-100	M	1-100
2.4.8.2	daylightSavingTimeTable	M	NA	M	NA
2.4.8.2.1	dstEntryNumber	M	0-255	M	0-255
2.4.8.2.2	controllerBeginDSTMonth	M	1-15	M	1-15
2.4.8.2.3	controllerBeginDSTOccurrences	M	1-9	M	1-9
2.4.8.2.4	controllerBeginDSTDayOf	M	1-7	M	1-7

	Week				
2.4.8.2.5	controllerBeginDSTDayOfMonth	M	1-31	M	1-31
2.4.8.2.6	controllerBeginDSTSecondsToTransition	M	0-4294967295	M	0-4294967295
2.4.8.2.7	controllerBeginDSTSecondsToAdjust	M	-32768-32767	M	-32768-32767
2.4.8.2.8	controllerEndDSTMonth	M	1-15	M	1-15
2.4.8.2.9	controllerEndDSTOccurrences	M	1-9	M	1-9
2.4.8.2.10	controllerEndDSTDayOfWeek	M	1-7	M	1-7
2.4.8.2.11	controllerEndDSTDayOfMonth	M	1-31	M	1-31
2.4.8.2.12	controllerEndDSTSecondsToTransition	M	0-4294967295	M	0-4294967295
2.4.8.2.13	controllerEndDSTSecondsToAdjust	M	-32768-32767	M	-32768-32767

Table 11 NTCIP 1202 Time Base Conformance Objects

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.6	timebaseAsc	M	NA	M	NA
2.6.1	timebaseAscPatternSync	M	0-65535	M	0-65535
2.6.2	maxTimebaseAscActions	M	1-255	M	1-255
2.6.3	timebaseAscActionTable timebaseAscActionEntry	M	NA	M	NA
2.6.3.1	timebaseAscActionNumber	M	1-255	M	1-255
2.6.3.2	timebaseAscActionPattern	M	0-255	M	0-255
2.6.3.3	timebaseAscAuxillaryFunction	M	0-255	M	0-255
2.6.3.4	timebaseAscSpecialFunction	M	0-255	M	0-255
2.6.4	timebaseAscActionStatus	M	0-255	M	0-255

Preempt Conformance Objects

Table 12 NTCIP 1202 Preempt Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.7	Preempt Conformance Group	O	NA	M	NA
2.7.1	maxPreempts	M	1-255	M	1-255
2.7.2	preemptTable preemptEntry	M	NA	M	NA
2.7.2.1	preemptNumber	M	1-255	M	1-255
2.7.2.2	preemptControl	M	0-255	M	0-15
2.7.2.3	preemptLink	M	0-255	M	0-255
2.7.2.4	preemptDelay	M	0-	M	0-

			65535		65535
2.7.2.5	preemptMinimumDuration	M	0-65535	M	0-65535
2.7.2.6	preemptMinimumGreen	O	0-255	M	0-255
2.7.2.7	preemptMinimumWalk	O	0-255	M	0-255
2.7.2.8	preemptEnterPedClear	O	0-255	M	0-255
2.7.2.9	preemptTrackGreen	M	0-255	M	0-255
2.7.2.10	preemptDwellGreen	M	0-255	M	0-255
2.7.2.11	preemptMaximumPresence	M	0-65535	M	0-65535
2.7.2.12	preemptTrackPhase	M	String	M	String
2.7.2.13	preemptDwellPhase	M	String	M	String
2.7.2.14	preemptDwellPed	O	String	M	String
2.7.2.15	preemptExitPhase	M	String	M	String
2.7.2.16	preemptState	O	1-9	M	1-9
2.7.2.17	preemptTrackOverlap	M	String	M	String
2.7.2.18	preemptDwellOverlap	M	String	M	String
2.7.2.19	preemptCyclingPhase	M	String	M	String
2.7.2.20	preemptCyclingPed	M	String	M	String
2.7.2.21	preemptCyclingOverlap	M	String	M	String
2.7.2.22	preemptEnterYellowChange	M	0-255	M	0-255
2.7.2.23	preemptEnterRedClear	M	0-255	M	0-255
2.7.2.24	preemptTrackYellowChange	M	0-255	M	0-255
2.7.2.25	preemptTrackRedClear	M	0-255	M	0-255
2.7.3	preemptControlTable	O	NA	M	NA
2.7.3.1	preemptControlNumber	(M)	1-255	M	1-255
2.7.3.2	preemptControlState	(M)	0-1	M	0-1

Ring Conformance Objects

Table 13 Ring Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.8	Ring Conformance Group	O	NA	M	NA
2.8.1	maxRings	M	1-255	M	1-255
2.8.2	maxSequences	M	1-255	M	1-255
2.8.3	sequenceTable sequenceEntry	M	NA	M	NA
2.8.3.1	sequenceNumber	M	1-255	M	1-255
2.8.3.2	sequenceRingNumber	M	1-255	M	1-255
2.8.3.3	sequenceData	M	String	M	String
2.8.4	maxRingControlGroups	M	1-255	M	1-255
2.8.5	ringControlGroupTable ringControlGroupEntry	M	NA	M	NA
2.8.5.1	ringControlGroupNumber	M	1-255	M	1-255
2.8.5.2	ringControlGroupStopTime	M	0-255	M	0-255
2.8.5.3	ringControlGroupForceOff	M	0-255	M	0-255
2.8.5.4	ringControlGroupMax2	O	0-255	M	0-255
2.8.5.5	ringControlGroupMaxInhibit	O	0-255	M	0-255
2.8.5.6	ringControlGroupPedRecycle	M	0-255	M	0-255

2.8.5.7	ringControlGroupRedRest	O	0-255	M	0-255
2.8.5.8	ringControlGroupOmitRedClear	O	0-255	M	0-255
2.8.6	ringStatusTable ringStatusEntry	O	NA	M	NA
2.8.6.1	ringStatus	(O)	0-255	M	0-255

Channel Conformance Objects

Table 14 NTCIP Channel Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.9	Channel Conformance Group	O	NA	M	NA
2.9.1	maxChannels	M	1-255	M	1-255
2.9.2	channelTable channelEntry	M	NA	M	NA
2.9.2.1	channelNumber	M	1-255	M	1-255
2.9.2.2	channelControlSource	M	0-255	M	0-255
2.9.2.3	channelControlType	M	1-4	M	1-4
2.9.2.4	channelFlash	M	0-255	M	0,2,4,8,10,12.
2.9.2.5	channelDim	M	0-255	M	0-15
2.9.3	maxChannelStatusGroups	M	1-255	M	1-255
2.9.4	channelStatusGroupTable channelStatusGroupEntry	M	NA	M	NA
2.9.4.1	channelStatusGroupNumber	M	1-255	M	1-255
2.9.4.2	channelStatusGroupReds	M	0-255	M	0-255
2.9.4.3	channelStatusGroupYellows	M	0-255	M	0-255
2.9.4.4	channelStatusGroupGreens	M	0-255	M	0-255

Overlap Conformance Objects

Table 15 NTCIP Overlap Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.10	Overlap Conformance Group	O	NA	M	NA
2.10.1	maxOverlaps	M	1-255	M	1-255
2.10.2	overlapTable overlapEntry	M	NA	M	NA
2.10.2.1	overlapNumber	M	1-255	M	1-255
2.10.2.2	overlapType	M	1-3	M	1-3
2.10.2.3	overlapIncludedPhases	M	String	M	String
2.10.2.4	overlapModifierPhases	M	String	M	String
2.10.2.5	overlapTrailGreen	M	0-255	M	0-255
2.10.2.6	overlapTrailYellow	M	0-255	M	0-255
2.10.2.7	overlapTrailRed	M	0-255	M	0-255
2.10.3	maxOverlapStatusGroups	M	1-255	M	1-255
2.10.4	overlapStatusGroupTable	M	NA	M	NA

	overlapStatusGroupEntry				
2.10.4.1	overlapStatusGroupNumber	M	1-255	M	1-255
2.10.4.2	overlapStatusGroupReds	M	0-255	M	0-255
2.10.4.3	overlapStatusGroupYellows	M	0-255	M	0-255
2.10.4.4	overlapStatusGroupGreens	M	0-255	M	0-255

Block Object Conformance Objects

Table 16 NTCIP 1202 Block Object Conformance Group

NTCIP 1202v02 19 Clause	Object Name	NTCIP 1202 Status	NTCIP 1202 Range	Final Status	Final Sub-range
2.12	Block Object Conformance Group	O	NA	M	NA
2.12.1	ascBlockGetControl	M	String	M	String
2.12.2	ascBlockData	M	String	M	String
2.12.3	ascBlockErrorStatus	M	0-65535	M	0..65535

Configuration Conformance Objects

Table 17 NTCIP 1201 Global Configuration Conformance Group

NTCIP 1201v03 03b Clause	Object Name	NTCIP 1202 Status	NTCIP 1201 Range	Final Status	Final Sub-range
2.2	Global Config Conformance Group	M	NA	M	NA
2.2.1	globalSetIDParameter	M	0-65535	M	0-65535
2.2.2	globalMaxModules	M	1-255	M	1-255
2.2.3	globalModuleTable globalModuleEntry	M	NA	M	NA
2.2.3.1	moduleNumber	M	1-255	M	1-255
2.2.3.2	moduleDeviceNode	M	OID	M	OID
2.2.3.3	moduleMake	M	String	M	String
2.2.3.4	moduleModel	M	String	M	String
2.2.3.5	moduleVersion	M	String	M	String
2.2.3.6	moduleType	M	1-3	M	1-3
2.2.4	controllerBaseStandards	O	String	O	String

Database Management Conformance Objects

Table 18 NTCIP 1201 Global Database Management Conformance Group

NTCIP 1201v03 03b Clause	Object Name	NTCIP 1202 Status	NTCIP 1201 Range	Final Status	Final Sub-range
2.3	DB management Conformance Group	M	NA	M	NA

2.3.1	dbCreateTransaction	M	1,2,3,6	M	1,2,3,6
2.3.6	dbVerifyStatus	M	1-3	M	1-3
2.3.7	dbVerfiyError	M	String	M	String

Report Conformance Objects

Table 19 NTCIP 1201 Global Report Conformance Group

NTCIP 1103v02 10b Clause	Object Name	NTCIP 1202 Status	NTCIP 1201 Range	Final Status	Final Sub-range
A.8	Report Conformance Group	O	NA	M	NA
A.8.2	maxEventClasses	M	1-255	M	1-255
A.8.3	eventClassTable eventClassEntry	M	NA	M	NA
A.8.3.1.1	eventClassNumber	M	1-255	M	1-255
A.8.3.1.2	eventClassLimit	M	0-255	M	0-255
A.8.3.1.3	eventClassClearTime	M	counter	M	counter
A.8.3.1.4	eventClassDescription	O	string	M	string
A.8.3.1.5	eventClassNumRowsInLog	M	0-255	M	0-255
A.8.3.1.6	eventClassNumEvents	M	0-65535	M	0-65535
A.8.4	maxEventLogConfigs	M	1-65535	M	1-65535
A.8.5	eventLogConfigTable eventLogConfigEntry	M	NA	M	NA
A.8.5.1.1	eventConfigID	M	1-65535	M	1-65535
A.8.5.1.2	eventConfigClass	M	1-255	M	1-255
A.8.5.1.3	eventConfigMode	M	1-7	M	1-7
A.8.5.1.4	eventConfigCompareValue	M	INT	M	INT
A.8.5.1.5	eventConfigCompareValue2	M	INT	M	INT
A.8.5.1.6	eventConfigCompareOID	M	OID	M	OID
A.8.5.1.7	eventConfigLogOID	M	OID	M	OID
A.8.5.1.8	eventConfigAction	M	1-3	M	1-3
A.8.5.1.9	eventConfigStatus	M	1-4	M	1-4
A.8.6	maxEventLogSize	M	1-65535	M	1-65535
A.8.7	eventLogTable eventLogEntry	M	NA	M	NA
A.8.7.1.1	eventLogClass	M	1-255	M	1-255
A.8.7.1.2	eventLogNumber	M	1-255	M	1-255
A.8.7.1.3	eventLogID	M	1-65535	M	1-65535
A.8.7.1.4	eventLogTime	M	counter	M	counter
A.8.7.1.5	eventLogValue	M	opaque	M	opaque
A.8.8	numEvents	M	0-65535	M	0-65535

Security Objects

Table 20 NTCIP 1103 Security Group

NTCIP 1103v02 10b Clause	Object Name	NTCIP 1202 Status	NTCIP 1103 Range	Final Status	Final Sub-range
A.9	Security Group	M	NA	M	NA
A.9.1	communityNameAdmin	M	String	M	String
A.9.2	communityNamesMax	M	1..255	M	4-255
A.9.3	communityNameTable	M	NA	M	NA
A.9.3.1.1	communityNameIndex	M	1..255	M	1-255
A.9.3.1.2	communityNameUser	M	String	M	String
A.9.3.1.3	communityNameAccessMask	M	Gauge	M	Gauge

PMPP Objects

Table 21 NTCIP 1201 PMPP Group

NTCIP 1201v03 03b Clause	Object Name	NTCIP 1202 Status	NTCIP 1201 Range	Final Status	Final Sub-range
2.6	PMPP Group	O	NA	M	NA
2.6.1	maxGroupAddress	M	1-255	M	1-255
2.6.2	hdlcGroupAddressTable hdlcGroupAddressEntry	M	NA	M	NA
2.6.2.1	hdlcGroupAddressIndex	M	1-255	M	1-255
2.6.2.3	hdlcGroupAddressNumber	M	0-62	M	0-62

SNMP Objects

Table 22 RFC 1213 SNMP Group

RFC 1213 Clause	Object Name	NTCIP 1202 Status	RFC 1213 Range	Final Status	Final Sub-range
snmp	snmp Group	M	NA	M	NA
snmp.1	snmpInPkts	M	Counter	M	Counter
snmp.2	snmpOutPkts	M	Counter	M	Counter
snmp.3	snmpInBadVersions	M	Counter	M	Counter
snmp.4	snmpInBadCommunityNames	M	Counter	M	Counter
snmp.5	snmpInBadCommunityUses	M	Counter	M	Counter
snmp.6	snmpInASNParseErrs	M	Counter	M	Counter
snmp.8	snmpInTooBig	M	Counter	M	Counter
snmp.9	snmpInNoSuchNames	M	Counter	M	Counter
snmp.10	snmpInBadValues	M	Counter	M	Counter
snmp.11	snmpInReadOnly	M	Counter	M	Counter
snmp.12	snmpInGenErrs	M	Counter	M	Counter
snmp.13	snmpInTotalReqVars	O	Counter	O	Counter
snmp.14	snmpInTotalSetVars	O	Counter	O	Counter
snmp.15	snmpInGetRequests	M	Counter	M	Counter
snmp.16	snmpInGetNexts	M	Counter	M	Counter

snmp.17	snmpInSetRequests	M	Counter	M	Counter
snmp.18	snmpInGetResponses	M	Counter	M	Counter
snmp.19	snmpInTraps	M	Counter	M	Counter
snmp.20	snmpOutTooBigs	M	Counter	M	Counter
snmp.21	snmpOutNoSuchNames	M	Counter	M	Counter
snmp.22	snmpOutBadValues	M	Counter	M	Counter
snmp.24	snmpOutGenErrs	M	Counter	M	Counter
snmp.25	snmpOutGetRequests	M	Counter	M	Counter
snmp.26	snmpOutGetNexts	M	Counter	M	Counter
snmp.27	snmpOutSetRequests	M	Counter	M	Counter
snmp.28	snmpOutGetResponses	M	Counter	M	Counter
snmp.29	snmpOutTraps	O	Counter	O	Counter
snmp.30	snmpEnableAuthenTraps	O	INT	O	INT
NTCIP 1103 Clause A.1.2	snmpMaxPacketSize	M	484 - 65535	M	484- 65535

System Objects

Table 23 RFC 1213 System Group

RFC 1213 Clause	Object Name	NTCIP 1202 Status	RFC 1213 Range	Final Status	Final Sub- Range
System	System Group	M	NA	M	NA
System 1	sysDescr	M	String	M	String
System 2	sysObjectID	M	OID	M	OID
System 3	sysUpTime	M	Time Ticks	M	Time Ticks
System 4	sysContact	M	String	M	String
System 5	sysName	M	String	M	String
System 6	sysLocation	M	String	M	String
System 7	sysServices	M	0-127	M	0-127

STMP Objects

Table 24 NTCIP 1103 STMP Conformance Group

NTCIP 1103v02 10b Clause	Object Name	NTCIP 1202 Status	NTCIP 1103 Range	Final Status	Final Sub- range
A.3	Objects for STMP	O	NA	M	NA
A.3.3	dynObjDefTableMaxEntries	M	1-255	M	1-255
A.3.4	Dynamic Object Definition dynObjDef dynObjEntry	M	NA	M	NA
A.3.4.1.1	dynObjNumber	M	1-13	M	1-13
A.3.4.1.2	dynObjIndex	M	1-255	M	1-255
A.3.4.1.3	dynObjVariable	M	OID	M	OID
A.3.6	Dynamic Object Configuration dynObjConfigTable	M	NA	M	NA

	dynObjConfigEntry				
A.3.6.1.1	dynObjConfigOwner	M	string	M	string
A.3.6.1.2	dynObjConfigStatus	M	1-3	M	1-3

RS232 Objects

Table 25 RFC1317 RS232 Conformance Group

RFC 1317 Clause	Object Name	NTCIP 1202 Status	RFC 1317 Range	Final Status	Final Sub-range
rs232	RS232 Group	O	NA	M	NA
rs232.1	rs232Number	M	INT	M	INT
rs232.2	rs232PortTable rs232PortEntry	M	NA	M	NA
rs232.2.1	rs232PortIndex	M	INT	M	INT
rs232.2.2	rs232PortType	M	1-5	M	1-5
rs232.2.3	rs232PortInSigNumber	O	INT	O	INT
rs232.2.4	rs232PortOutSigNumber	O	INT	O	INT
rs232.2.5	rs232PortInSpeed	M	INT	M	INT
rs232.2.6	rs232PortOutSpeed	M	INT	M	INT
rs232.3	rs232AsyncPortTable rs232AsyncPortEntry	M	NA	M	NA
rs232.3.1	rs232AsyncPortIndex	M	INT	M	INT
rs232.3.2	rs232AsyncPortBits	O	5-8	O	5-8
rs232.3.3	rs232AsyncPortStopBits	O	1-4	O	1-4
rs232.3.4	rs232AsyncPortParity	O	1-5	O	1-5
rs232.3.5	rs232AsyncPortAutobaud	O	1-2	O	1-2
rs232.3.6	rs232AsyncPortParityErrs	O	counter	O	counter
rs232.3.7	rs232AsyncPortFramingErrs	M	counter	M	counter
rs232.3.8	rs232AsyncPortOverrunErrs	M	counter	M	counter

Table 32: Justifications for NTCIP Optional Objects being FDOT Recommended Mandatory

CONFORMANCE GROUP	NTCIP REQUIREMENT	TERL RECOMMENDATION	DESCRIPTION / RATIONALE
Phase Conformance Group	Mandatory	Mandatory	
phaseRedRevert	Optional	Mandatory	Required by FDOT Minimum Specs. (A671-1.11)
phaseCarsBeforeReduction	Optional	Mandatory	Recommended all NTCIP 1202 optional objects be mandatory.
phaseReduceBy	Optional	Mandatory	Recommended mandatory since some counties (i.e. Dade county) use phaseReduceBy over phaseTimeToReduce.
phaseControlGroupTable	Optional	Mandatory	Objects in this group are required by FDOT Minimum Specs. (A671-1.11) i.e. phaseOmit
phaseControlGroupForceOff	Optional	Mandatory	Required by FDOT Minimum

			Specs (A671-1.11 under Actuated phase operating in non-actuated mode)
Detector Conformance Group	Mandatory	Mandatory	
vehicleDetectorQueueLimit	Optional	Mandatory	Recommended all NTCIP 1202 optional objects be mandatory.
vehicleDetectorFailTime	Optional	Mandatory	This object should be opted in as mandatory, because it allows calls of variable lengths of time to be placed on failed detectors while in the green interval. A call is placed on the associated phase when the phase is in the non-green interval.
vehicleDetectorReportedAlarms	Optional	Mandatory	This Object should be opted in as mandatory, because it helps determine the possible cause for failure of inductive loops, i.e. shorted loop, open loop.
Volume Occupancy Report	Optional	Mandatory	This conformance group should be "opted in" as mandatory. It allows the collection of volume data from each detector and reports faults for each detector, such as no activity and max presence.
Unit Conformance Group	Optional	Mandatory	This conformance group should be "opted in" mandatory. It provides dimming, alarms for low battery and power restart, start up flash parameter after a power failure, and the unit red revert parameter (A671-2.20.10 of FDOT Specs)
Special Function	Optional	Mandatory	This conformance group should be "opted in" as mandatory. Advance warning beacons (A671-12.26.4 of FDOT Specs) can be implemented using this group.
Coordination	Optional	Mandatory	Required by FDOT Minimum Specs. (A671-1.20 of FDOT specs.)
Time Base	Optional	Mandatory	According to NTCIP 1202, if the device supports time base functions then this group must be included.
Preempt	Optional	Mandatory	Required by FDOT Minimum Specs. (A671-1.19 of FDOT specs)
preemptMinimumGreen	Optional	Mandatory	Required by FDOT Minimum

			Specs. (A671-1.19)
preemptEnterPedClear	Optional	Mandatory	Required by FDOT Minimum Specs. (A671-1.19)
preemptMinimumWalk	Optional	Mandatory	Recommended all NTCIP 1202 optional objects be mandatory.
preemptState	Optional	Mandatory	Required by FDOT Minimum Spec. (A671-2.20.6). This object provides a status of which state the preemption is in.
preemptDwellPed	Optional	Mandatory	Recommended all NTCIP 1202 optional objects be mandatory.
Ring	Optional	Mandatory	Required by FDOT Minimum Specs. (A671-1.12 of FDOT specs)
ringControlGroupMax2	Optional	Mandatory	A671-1.6 of FDOT Minimum Specifications. Ring inputs: Maximum II (selection)
ringControlGroupMaxInhibit	Optional	Mandatory	A671-1.6 of FDOT Minimum Specifications. Ring inputs: "Inhibit Maximum termination."
ringControlGroupRedRest	Optional	Mandatory	A671-1.6 of FDOT Minimum Specifications Ring inputs: "Red rest"
ringControlGroupOmitRedClear	Optional	Mandatory	A671-1.6 of FDOT Minimum Specifications Ring inputs: "Omit Red Clearance"
ringStatus	Optional	Mandatory	A671-1.16 of FDOT Minimum Specifications. "The following interval information shall be displayed for the phase in service on a per ring basis: Minimum Green, Passage time, Yellow Clearance, Red Clearance, Walk, Pedestrian clearance, Reason for termination, Rest state(dwell)"
Channel	Optional	Mandatory	This conformance group should be "opted in" mandatory. The dimming configuration is set in this group. Automatic flash states are set in this group.
Overlap	Optional	Mandatory	Required by FDOT Minimum Specs. (A671-1.18 of FDOT specs)
Block Object	Optional	Mandatory	This Conformance group should be "Opted in" as mandatory. This group is used to obtain bulk information for a block. Some example blocks are: AscPhaseBlock AscVehicleDetectorBlock AscPedDetector Block AscPatternBlock AscSplitBlock

			AscTimebaseBlock Etc.
Report Conformance Group	Optional	Mandatory	This group should be opted in Mandatory. It can be used to monitor objects and log information pertaining to changes in this objects value. An example is monitoring the unitFlashStatus object for a change. The report group would then log the value for this object when a change in its value occurs; possibly indicating the controller has entered a flash state.
eventClassDescription	Optional	Mandatory	This object should be opted in as mandatory to provide a better description for an event table.
PMPP Conformance Group	Optional	Mandatory	This Group should be opted in Mandatory. PMPP is used for NTCIP communications over rs232 (serial communications).
STMP Conformance Group	Optional	Mandatory	This Group should be opted in as Mandatory. It can be used to reduce the amount of bandwidth used for messages that may be sent frequently (polling the controller).
RS232 Conformance Group	Optional	Mandatory	This Group should be opted in Mandatory. Many districts in the state use rs232 (serial communication) to communicate with devices...
HDLC Conformance Group	Optional	Mandatory	This group should be required mandatory. It allows point to multipoint or point to point communications over asynchronous or synchronous links. (Data Link Layer).

Table 33: FDOT Recommended NTCIP Object Types

CONFORMANCE GROUP	NTCIP OBJECT TYPE	TERL RECOMMENDATION	DESCRIPTION / RATIONALE
Channel Conformance Group			
channelControlSource	P	P2	Use of 'dbCreateTransaction' in NTCIP 1201 Clause 2.3.1 to SET
channelControlType	P	P2	Use of 'dbCreateTransaction' in NTCIP 1201 Clause 2.3.1 to SET

channelControlFlash	P	P2	Use of 'dbCreateTransaction' in NTCIP 1201 Clause 2.3.1 to SET
channelControlDim	P	P2	Use of 'dbCreateTransaction' in NTCIP 1201 Clause 2.3.1 to SET
Overlap Conformance Group			
overlapType	S	P	Object's access should be read/write (P) instead of read only (S)