# PURPOSE

This document defines National Transportation Communications for ITS Protocol (NTCIP) and Open Network Video Interface Forum (ONVIF) requirements for closed-circuit television (CCTV) cameras. Please note that if the group is mandatory, then all objects within that group that are listed as mandatory shall be supported.

If the camera does not support the functionality associated with a specific object or group of objects, yet still meets Florida Department of Transportation (FDOT) specifications, then the device must respond with a noSuchName error response when NTCIP requests are made for those objects.

# NTCIP REQUIREMENTS

Ensure that the device complies with NTCIP 1205:2001 v01.08 Amendment 1 v08, 1102v01.15, 2101v01.19, 2103v02.07, 2201v01.15, 2202v01.05, and 2301v02.19, and section 3 of NTCIP 1103v02.17.

**Table 1: Abbreviations used in this section**

|  |  |
| --- | --- |
| **Abbreviation** | **Description** |
| M | *Mandatory* |
| O | *Optional* |
| D | *Deprecated* |

**Table 2: Supplemental CCTV Camera NTCIP Requirements Table**

| **Conformance Group /**  **Object Name** | **Reference** | **FDOT**  **Requirement** | **Additional Notes and Requirements** |
| --- | --- | --- | --- |
| **CCTV Configuration - Range** | **1205 v0108**  **3.2** | **M Group** |  |
| rangeMaximumPreset | 3.2.1 | M | Must support at least 32 presets |
| rangePanLeftLimit | 3.2.2 | M |  |
| rangePanRightLimit | 3.2.3 | M |  |
| rangePanHomePosition | 3.2.4 | M |  |
| rangeTrueNorthOffset | 3.2.5 | M |  |
| rangeTiltUpLimit | 3.2.6 | M |  |
| rangeTiltDownLimit | 3.2.7 | M |  |
| rangeZoomLimit | 3.2.8 | M |  |
| rangeFocusLimit | 3.2.9 | M |  |
| rangeIrisLimit | 3.2.10 | M |  |
| rangeMinimumPanStepAngle | 3.2.11 | M | Camera must be capable of a 1-degree incremental camera movement. |
| rangeMinimumTiltStepAngle | 3.2.12 | M | Camera must be capable of a 1-degree incremental camera movement. |
| **CCTV Configuration - Timeout** | **1205 v0108**  **3.3** | **M Group** |  |
| timeoutPan | 3.3.1 | M |  |
| timeoutTilt | 3.3.2 | M |  |
| timeoutZoom | 3.3.3 | M |  |
| timeoutFocus | 3.3.4 | M |  |
| timeoutIris | 3.3.5 | M |  |
| **Motion Control - Preset** | **1205 v0108**  **3.4** | **M Group** |  |
| presetGotoPosition | 3.4.1 | M |  |
| presetStorePosition | 3.4.2 | M |  |
| presetPositionQuery | 3.4.3 | M |  |
| **Motion Control - Position** | **1205 v0108**  **3.5** | **M Group** |  |
| positionPan | 3.5.1 | M |  |
| positionTilt | 3.5.2 | M |  |
| positionZoomLens | 3.5.3 | M |  |
| positionFocusLens | 3.5.4 | M |  |
| positionIrisLens | 3.5.5 | M |  |
| positionQueryPan | 3.5.6 | M |  |
| positionQueryTilt | 3.5.7 | M |  |
| positionQueryZoom | 3.5.8 | M |  |
| positionQueryFocus | 3.5.9 | O |  |
| positionQueryIris | 3.5.10 | O |  |
| **Extended Functions - System** | **1205 v0108**  **3.6** | **M Group** |  |
| systemCameraFeatureControl | 3.6.1 | M |  |
| systemCameraFeatureStatus | 3.6.2 | M |  |
| systemCameraEquipped | 3.6.3 | M |  |
| systemLensFeatureControl | 3.6.4 | M |  |
| systemLensFeatureStatus | 3.6.5 | M |  |
| systemLensEquipped | 3.6.6 | M |  |
| **Extended Functions - Alarm** | **1205 v0108**  **3.7** | **O Group** | **Note: None of the objects under 3.7 are required.** |
| alarmStatus | 3.7.1 | M |  |
| alarmLatchStatus | 3.7.2 | M |  |
| alarmLatchClear | 3.7.3 | M |  |
| alarmTemperatureHighLowThreshold | 3.7.4 | M |  |
| alarmTemperatureCurrentValue | 3.7.5 | M |  |
| alarmPressureHighLowThreshold | 3.7.6 | M |  |
| alarmPressureCurrentValue | 3.7.7 | M |  |
| alarmWasherFluidHighLowThershold | 3.7.8 | M |  |
| alarmWasherFluidCurrentValue | 3.7.9 | M |  |
| alarmLabelIndex | 3.7.10 | M |  |
| alarmLabelSource | 3.7.11 | M |  |
| **Extended Functions - Input** | **1205 v0108**  **3.8** | **O Group** | **Note: None of the objects under 3.8 are required.** |
| inputStatus | 3.8.1 | M |  |
| inputLatchStatus | 3.8.2 | M |  |
| inputLatchClear | 3.8.3 | M |  |
| inputLabelIndex | 3.8.4 | M |  |
| inputPresetIndex | 3.8.5 | M |  |
| inputLabelSource | 3.8.6 | M |  |
| **Extended Functions - Output** | **1205 v0108**  **3.9** | **O Group** | **Note: None of the objects under 3.9 are required.** |
| outputStatus | 3.9.1 | M |  |
| outputControl | 3.9.2 | M |  |
| outputLabelIndex | 3.9.3 | M |  |
| **Extended Functions - Zone** | **1205 v0108**  **3.10** | **O Group** | **Note: None of the objects under 3.10 are required.** |
| zoneMaximum | 3.10.1 | M |  |
| zoneTable | 3.10.2 | M |  |
| zoneIndex | 3.10.2.1 | M |  |
| zoneLabel | 3.10.2.2 | M |  |
| zonePanLeftLimit | 3.10.2.3 | M |  |
| zonePanRightLimit | 3.10.2.4 | M |  |
| zoneTiltUpLimit | 3.10.2.5 | M |  |
| zoneTiltDownLimit | 3.10.2.6 | M |  |
| zoneVideoControl | 3.10.2.7 | M |  |
| zoneCameraEquipped | 3.10.3 | M |  |
| **CCTV Configuration - Label** | **1205 v0108**  **3.11** | **O Group** | **Note: None of the objects under 3.11 are required.** |
| labelMaximum | 3.11.1 | M |  |
| labelTable | 3.11.2 | M |  |
| labelIndex | 3.11.2.1 | M |  |
| labelText | 3.11.2.2 | M |  |
| labelFontType | 3.11.2.3 | D |  |
| labelHeight | 3.11.2.4 | M |  |
| labelColor | 3.11.2.5 | M |  |
| labelStartRow | 3.11.2.6 | M |  |
| labelStartColumn | 3.11.2.7 | M |  |
| labelStatus | 3.11.2.8 | M |  |
| labelActive | 3.11.2.9 | M |  |
| labelFontNumber | 3.11.2.10 | M |  |
| labelLocationLabel | 3.11.3 | M |  |
| labelEnableTextDisplay | 3.11.4 | M |  |
| **On-Screen Menu Control** | **1205 v0108**  **3.12** | **O Group** | **Note: None of the objects under 3.12 are required.** |
| menuActivate | 3.12.1 | M |  |
| menuControl | 3.12.2 | M |  |
| **globalConfiguration** | **NTCIP 1201v0315r**  **2.2** | **M Group** |  |
| globalSetIDParameter | 2.2.1 | M |  |
| globalMaxModules | 2.2.2 | M | The device must support at least two modules. At least one must be software version information. At least one must be hardware version information. |
| globalModuleTable | 2.2.3 | M |  |
| moduleNumber | 2.2.3.1 | M |  |
| moduleDeviceNode | 2.2.3.2 | M |  |
| moduleMake | 2.2.3.3 | M |  |
| moduleModel | 2.2.3.4 | M |  |
| moduleVersion | 2.2.3.5 | M |  |
| moduleType | 2.2.3.6 | M |  |
| controllerBaseStandards | 2.2.4 | M |  |
| **globalDBManagement** | **2.3** | **O Group** | **Note: None of the objects under 2.3 are required.** |
| dbCreateTransaction | 2.3.1 | M |  |
| dbErrorType | 2.3.2 | D |  |
| dbErrorID | 2.3.3 | D |  |
| dbTransactionID | 2.3.4 | D |  |
| dbMakeID | 2.3.5 | D |  |
| dbVerifyStatus | 2.3.6 | M |  |
| dbVerifyError | 2.3.7 | M |  |
| **globalTimeManagement** | **2.4** | **O Group** | **This group is optional if the camera supports the network time protocol (NTP) or the simple network time protocol (SNTP).** |
| globalTime | 2.4.1 | M |  |
| globalDaylightSaving | 2.4.2 | M |  |
| **timeBase** | **2.4.3** | **O** | **Note: None of the objects under 2.4.3 are required.** |
| maxTimeBaseScheduleEntries | 2.4.3.1 | M |  |
| timeBaseScheduleTable | 2.4.3.2 | M |  |
| timeBaseScheduleNumber | 2.4.3.2.1 | M |  |
| timeBaseScheduleMonth | 2.4.3.2.2 | M |  |
| timeBaseScheduleDay | 2.4.3.2.3 | M |  |
| timeBaseScheduleDate | 2.4.3.2.4 | M |  |
| timeBaseScheduleDayPlan | 2.4.3.2.5 | M |  |
| ***Day Plan Parameters*** | ***2.4.4*** | ***O*** | ***Note: 2.4.4 through 2.4.4.5 are not required.*** |
| maxDayPlans | 2.4.4.1 | M |  |
| maxDayPlanEvents | 2.4.4.2 | M |  |
| timeBaseDayPlanTable | 2.4.4.3 | M |  |
| dayPlanNumber | 2.4.4.3.1 | M |  |
| dayPlanEventNumber | 2.4.4.3.2 | M |  |
| dayPlanHour | 2.4.4.3.3 | M |  |
| dayPlanMinute | 2.4.4.3.4 | M |  |
| dayPlanActionNumberOID | 2.4.4.3.5 | M |  |
| dayPlanStatus | 2.4.4.4 | M |  |
| timeBaseScheduleTableStatus | 2.4.4.5 | M |  |
| globalLocalTimeDifferential | 2.4.5 | D |  |
| controllerStandardTimeZone | 2.4.6 | M |  |
| controllerLocalTime | 2.4.7 | M |  |
| ***daylightSavingNode*** | ***2.4.8*** | ***M*** |  |
| maxDaylightSavingEntries | 2.4.8.1 | M |  |
| dstTable | 2.4.8.2 | M |  |
| dstEntryNumber | 2.4.8.2.1 | M |  |
| dstBeginMonth | 2.4.8.2.2 | M |  |
| dstBeginOccurrences | 2.4.8.2.3 | M |  |
| dstBeginDayOfWeek | 2.4.8.2.4 | M |  |
| dstBeginDayOfMonth | 2.4.8.2.5 | M |  |
| dstBeginSecondsToTransition | 2.4.8.2.6 | M |  |
| dstEndMonth | 2.4.8.2.7 | M |  |
| dstEndOccurrences | 2.4.8.2.8 | M |  |
| dstEndDayOfWeek | 2.4.8.2.9 | M |  |
| dstEndDayOfMonth | 2.4.8.2.10 | M |  |
| dstEndSecondsToTransition | 2.4.8.2.11 | M |  |
| dstSecondsToAdjust | 2.4.8.2.12 | M |  |
| **profilesPMPP** | **2.7** | **O Group** | **Note: None of the objects under 2.7 are required.** |
| maxGroupAddresses | 2.7.1 | M |  |
| hdlcGroupAddressTable | 2.7.2 | M |  |
| hdlcGroupAddressIndex | 2.7.2.1 | M |  |
| hdlcGroupAddress | 2.7.2.2 | D |  |
| hdlcGroupAddressNumber | 2.7.2.3 | M |  |
| **auxIOv2** | **2.9** | **O Group** | **Note: None of the objects under 2.9 are required.** |
| maxAuxIOv2TableNumDigitalPorts | 2.9.1 | M |  |
| maxAuxIOv2TableNumAnalogPorts | 2.9.2 | M |  |
| auxIOv2Table | 2.9.3 | M |  |
| auxIOv2PortType | 2.9.3.1 | M |  |
| auxIOv2PortNumber | 2.9.3.2 | M |  |
| auxIOv2PortDescription | 2.9.3.3 | M |  |
| auxIOv2PortResolution | 2.9.3.4 | M |  |
| auxIOv2PortValue | 2.9.3.5 | M |  |
| auxIOv2PortDirection | 2.9.3.6 | M |  |
| auxIOv2PortLastCommandedState | 2.9.3.7 | M |  |
| **globalReport** | **NTCIP 1103v0217**  **A.7.1** | **O Group** | **Note: None of the objects under A.7.1 are required.** |
| maxEventClasses | A.7.2 | M |  |
| eventClassTable | A.7.3 | M |  |
| eventClassNumber | A.7.3.1 | M |  |
| eventClassLimit | A.7.3.2 | M |  |
| eventClassClearTime | A.7.3.3 | M |  |
| eventClassDescription | A.7.3.4 | M |  |
| eventClassNumRowsInLog | A.7.3.5 | M |  |
| eventClassNumEvents | A.7.3.6 | M |  |
| maxEventLogConfigs | A.7.4 | M |  |
| eventLogConfigTable | A.7.5 | M |  |
| eventConfigID | A.7.5.1 | M |  |
| eventConfigClass | A.7.5.2 | M |  |
| eventConfigMode | A.7.5.3 | M |  |
| eventConfigCompareValue | A.7.5.4 | M |  |
| eventConfigCompareValue2 | A.7.5.5 | M |  |
| eventConfigCompareOID | A.7.5.6 | M |  |
| eventConfigLogOID | A.7.5.7 | M |  |
| eventConfigAction | A.7.5.8 | M |  |
| eventConfigStatus | A.7.5.9 | M |  |
| maxEventLogSize | A.7.6 | M |  |
| eventLogTable | A.7.7 | M |  |
| eventLogClass | A.7.7.1 | M |  |
| eventLogNumber | A.7.7.2 | M |  |
| eventLogID | A.7.7.3 | M |  |
| eventLogTime | A.7.7.4 | M |  |
| eventLogValue | A.7.7.5 | M |  |
| numEvents | A.7.8 | M |  |
| **Security** | **A.8** | **O Group** | **Note: None of the objects under A.8 are required.** |
| communityNameAdmin | A.8.1 | M |  |
| communityNamesMax | A.8.2 | M |  |
| communityNameTable | A.8.3 | M |  |
| communityNameIndex | A.8.3.1 | M |  |
| communityNameUser | A.8.3.2 | M |  |
| communityNameAccessMask | A.8.3.3 | M |  |

# ONVIF Requirements

**Table 3: Abbreviations used in this section**

|  |  |
| --- | --- |
| **Abbreviation** | **Description** |
| M | *Mandatory (Operation and command shall be implemented)* |
| O | *Optional (Operation and command may be implemented)* |
| C | *Conditional (Operation and command shall be implemented by devices if they support that functionality)* |

**Table 4: FDOT CCTV ONVIF Requirements Table**

| **Specification/Service/Category/Operation/ Command** | **Reference** | **FDOT**  **Requirement** | **Additional Notes and Requirements** |
| --- | --- | --- | --- |
| **ONVIF Core Specification** | **V2.6.1** |  |  |
| **WS-Security** | **5.12** | **M Group** |  |
| WS-UsernameToken |  | M |  |
| HTTP Digest |  | O |  |
| **WS-Discovery** | **7** | M | Also supported by commands described in 8.3.14-19 |
| ***Capabilities*** | ***8.1*** | **M Group** |  |
| GetWsdlUrl | 8.1.1 | M |  |
| ***Capability exchange*** | ***8.1.2*** | **M Group** |  |
| GetServices | 8.1.2.2 | M |  |
| GetServiceCapabilities | 8.1.2.3 | M |  |
| GetCapabilities | 8.1.2.4 | M |  |
| ***Network*** | ***8.2*** | **M Group** |  |
| GetHostname | 8.2.1 | M |  |
| SetHostname | 8.2.2 | M |  |
| SetHostnameFromDHCP | 8.2.3 | O |  |
| GetDNS | 8.2.4 | M |  |
| SetDNS | 8.2.5 | M |  |
| GetNTP | 8.2.6 | C |  |
| SetNTP | 8.2.7 | C |  |
| GetDynamicDNS | 8.2.8 | C |  |
| SetDynamicDNS | 8.2.9 | C |  |
| GetNetworkInterfaces | 8.2.10 | M |  |
| SetNetworkInterfaces | 8.2.11 | M |  |
| GetNetworkProtocols | 8.2.12 | M |  |
| SetNetworkProtocols | 8.2.13 | M |  |
| GetNetworkDefaultGateway | 8.2.14 | M |  |
| SetNetworkDefaultGateway | 8.2.15 | M |  |
| GetZeroConfiguration | 8.2.16 | C |  |
| SetZeroConfiguration | 8.2.17 | C |  |
| GetIPAddressFilter | 8.2.18 | C |  |
| SetIPAddressFilter | 8.2.19 | C |  |
| AddIPAddressFilter | 8.2.20 | C |  |
| RemoveIPAddressFilter | 8.2.21 | C |  |
| GetDot11Capabilities | 8.2.22.5 | O |  |
| GetDot11Status | 8.2.22.6 | O |  |
| ScanAvailableDot11Networks | 8.2.22.7 | O |  |
| ***System*** | ***8.3*** | **M Group** |  |
| GetDeviceInformation | 8.3.1 | M |  |
| GetSystemUris | 8.3.2 | O |  |
| GetSystemBackup | 8.3.3 | O |  |
| RestoreSystem | 8.3.4 | O |  |
| StartSystemRestore | 8.3.5 | O |  |
| GetSystemDateAndTime | 8.3.6 | M |  |
| SetSystemDateAndTime | 8.3.7 | M |  |
| SetSystemFactoryDefault | 8.3.8 | M |  |
| UpgradeSystemFirmware | 8.3.9 | O |  |
| StartFirmwareUpgrade | 8.3.10 | O |  |
| GetSystemLog | 8.3.11 | O |  |
| GetSystemSupportInformation | 8.3.12 | O |  |
| SystemReboot | 8.3.13 | M |  |
| GetScopes | 8.3.14 | M |  |
| SetScopes | 8.3.15 | M |  |
| AddScopes | 8.3.16 | M |  |
| RemoveScopes | 8.3.17 | M |  |
| GetDiscoveryMode | 8.3.18 | M |  |
| SetDiscoveryMode | 8.3.19 | M |  |
| GetRemoteDiscoveryMode | 8.3.20 | O |  |
| SetRemoteDiscoveryMode | 8.3.21 | O |  |
| GetDPAddresses | 8.3.22 | O |  |
| SetDPAddresses | 8.3.23 | O |  |
| ***Security*** | ***8.4*** | **M Group** |  |
| GetAccessPolicy | 8.4.1 | O |  |
| SetAccessPolicy | 8.4.2 | O |  |
| GetUsers | 8.4.3 | M |  |
| CreateUsers | 8.4.4 | M |  |
| DeleteUsers | 8.4.5 | M |  |
| SetUser | 8.4.6 | M |  |
| ***IEEE 802.1X configuration*** | ***8.4.7*** | **O Group** |  |
| CreateDot1XConfiguration | 8.4.7.1 | O |  |
| SetDot1XConfiguration | 8.4.7.2 | O |  |
| GetDot1XConfiguration | 8.4.7.3 | O |  |
| GetDot1XConfigurations | 8.4.7.4 | O |  |
| DeleteDot1XConfiguration | 8.4.7.5 | O |  |
| CreateCertificate | 8.4.8 | O |  |
| GetCertificates | 8.4.9 | O |  |
| GetCACertificates | 8.4.10 | O |  |
| GetCertificatesStatus | 8.4.11 | O |  |
| SetCertificatesStatus | 8.4.12 | O |  |
| GetPkcs10Request | 8.4.13 | O |  |
| GetClientCertificateMode | 8.4.14 | O |  |
| SetClientCertificateMode | 8.4.15 | O |  |
| LoadCertificates | 8.4.16 | O |  |
| LoadCertificateWithPrivateKey | 8.4.17 | O |  |
| GetCertificateInformation | 8.4.18 | O |  |
| LoadCACertificates | 8.4.19 | O |  |
| DeleteCertificates | 8.4.20 | O |  |
| GetRemoteUser | 8.4.21 | O |  |
| SetRemoteUser | 8.4.22 | O |  |
| GetEndpointReference | 8.4.23 | O |  |
| ***I/O*** | ***8.5*** | **C Group** | Kept in core specification for backward compatibility, see Device IO Service Specification for more extensive I/O interface. |
| GetRelayOutputs | 8.5.1 | C |  |
| SetRelayOutputSettings | 8.5.2 | C |  |
| SetRelayOutputState | 8.5.3 | C |  |
| ***Auxiliary operation*** | ***8.6*** | **C Group** |  |
| SendAuxiliaryCommand | 8.6 | C |  |
| ***Storage Configuration*** | ***8.7*** | **O Group** |  |
| GetStorageConfigurations | 8.7.1 | O |  |
| CreateStorageConfiguration | 8.7.2 | O |  |
| GetStorageConfiguration | 8.7.3 | O |  |
| SetStorageConfiguration | 8.7.4 | O |  |
| DeleteStorageConfiguration | 8.7.5 | O |  |
| ***Event Handling (WS-BaseNotification)*** | ***Section 9, WS-Base*** | **M Group** | Event handling based on the OASIS WS-BaseNotification specification, WS-Topics specification, operations, and commands described in ONVIF Core Specification. |
| Notify | WS-Base,  3.2 | M |  |
| Subscribe | WS-Base,  4.2 | M |  |
| CreatePullPointSubscription | 9.1.1 | M |  |
| PullMessages | 9.1.2 | M |  |
| Renew | 9.1.3 | M |  |
| Unsubsribe | 9.1.4 | M |  |
| Seek | 9.1.5 | O |  |
| MessageContentFilter | 9.5.5 | M |  |
| SetSynchronizationPoint | 9.6 | M |  |
| GetEventProperties | 9.8 | M |  |
| TopicFilter | WS-Topics | M |  |
| **ONVIF Device IO Service Specification** | **V2.6** | **C Group** |  |
| GetRelayOutputs | 5.9.1 | C |  |
| SetRelayOutputSettings | 5.9.3 | C |  |
| SetRelayOutputState | 5.9.4 | C |  |
| **ONVIF Media Service Specification** | **V2.61** |  |  |
| ***Media Profiles*** | ***5.2*** | **M Group** |  |
| CreateProfile | 5.2.1 | M |  |
| GetProfiles | 5.2.2 | M |  |
| GetProfile | 5.2.3 | M |  |
| AddVideoSourceConfiguration | 5.2.4 | M |  |
| AddVideoEncoderConfiguration | 5.2.5 | M |  |
| AddAudioSourceConfiguration | 5.2.6 | C |  |
| AddAudioEncoderConfiguration | 5.2.7 | C |  |
| AddPTZConfiguration | 5.2.8 | C |  |
| AddVideoAnalyticsConfiguration | 5.2.9 | O |  |
| AddMetadataConfiguration | 5.2.10 | M |  |
| AddAudioOutputConfiguration | 5.2.11 | O |  |
| AddAudioDecoderConfiguration | 5.2.12 | O |  |
| RemoveVideoSourceConfiguration | 5.2.13 | M |  |
| RemoveVideoEncoderConfigration | 5.2.14 | M |  |
| RemoveAudioSourceConfiguration | 5.2.15 | C |  |
| RemoveAudioEncoderConfiguration | 5.2.16 | C |  |
| RemovePTZConfiguration | 5.2.17 | C |  |
| RemoveVideoAnalyticsConfiguration | 5.2.18 | O |  |
| RemoveMetadataConfiguration | 5.2.19 | M |  |
| RemoveAudioOutputConfiguration | 5.2.20 | O |  |
| RemoveAudioDecoderConfiguration | 5.2.21 | O |  |
| DeleteProfile | 5.2.22 | M |  |
| ***Video source*** | ***5.3*** | **M Group** |  |
| GetVideoSources | 5.3.1 | M |  |
| ***Video source configuration*** | ***5.4*** | **M Group** |  |
| GetVideoSourceConfigurations | 5.4.1 | M |  |
| GetVideoSourceConfiguration | 5.4.2 | M |  |
| GetCompatibleVideoSourceConfigurations | 5.4.3 | M |  |
| GetVideoSourceConfigurationOptions | 5.4.4 | M |  |
| SetVideoSourceConfiguration | 5.4.5 | M |  |
| ***Video encoder configuration*** | ***5.5*** | **M Group** |  |
| GetVideoEncoderConfigurations | 5.5.1 | M |  |
| GetVideoEncoderConfiguration | 5.5.2 | M |  |
| GetCompatibleVideoEncoderConfigurations | 5.5.3 | M |  |
| GetVideoEncoderConfigurationOptions | 5.5.4 | M |  |
| SetVideoEncoderConfiguration | 5.5.5 | M |  |
| GetGuaranteedNumberOfVideoEncoderInstances | 5.5.6 | M |  |
| ***Audio source*** | ***5.6*** | **C Group** |  |
| GetAudioSources | 5.6.1 | C |  |
| ***Audio source configuration*** | ***5.7*** | **C Group** |  |
| GetAudioSourceConfigurations | 5.7.1 | C |  |
| GetAudioSourceConfiguraiton | 5.7.2 | C |  |
| GetCompatibleAudioSourceConfigurations | 5.7.3 | C |  |
| GetAudioSourceConfigurationOptions | 5.7.4 | C |  |
| SetAudioSourceConfiguration | 5.7.5 | C |  |
| ***Audio encoder configuration*** | ***5.8*** | **C Group** |  |
| GetAudioEncoderConfigurations | 5.8.1 | C |  |
| GetAudioEncoderConfiguration | 5.8.2 | C |  |
| GetCompatibleAudioEncoderConfigurations | 5.8.3 | C |  |
| GetAudioEncoderConfigurationOptions | 5.8.4 | C |  |
| SetAudioEncoderConfiguration | 5.8.5 | C |  |
| ***Video analytics configuration*** | ***5.9*** | **O Group** |  |
| GetVideoAnalyticsConfigurations | 5.9.1 | O |  |
| GetVideoAnalyticsConfiguration | 5.9.2 | O |  |
| GetCompatibleVideoAnalyticsConfigurations | 5.9.3 | O |  |
| SetVideoAnalyticsConfiguration | 5.9.4 | O |  |
| ***Metadata configuration*** | ***5.10*** | **M Group** |  |
| GetMetadataConfigurations | 5.10.2 | M |  |
| GetMetadataConfiguration | 5.10.3 | M |  |
| GetCompatibleMetadataConfigurations | 5.10.4 | M |  |
| GetMetadataConfigurationOptions | 5.10.5 | M |  |
| SetMetadataConfiguration | 5.10.6 | M |  |
| ***Audio outputs*** | ***5.11*** | **O Group** |  |
| GetAudioOutputs | 5.11.1 | O |  |
| ***Audio output configuration*** | ***5.12*** | **O Group** |  |
| GetAudioOutputConfigurations | 5.12.1 | O |  |
| GetAudioOutputConfiguration | 5.12.2 | O |  |
| GetCompatibleAudioOutputConfigurations | 5.12.3 | O |  |
| GetAudioOutputConfigurationOptions | 5.12.4 | O |  |
| SetAudioOutputConfiguration | 5.12.5 | O |  |
| ***Audio decoder configuration*** | ***5.13*** | **O Group** |  |
| GetAudioDecoderConfigurations | 5.13.1 | O |  |
| GetAudioDecoderConfiguration | 5.13.2 | O |  |
| GetCompatibleAudioDecoderConfigurations | 5.13.3 | O |  |
| GetAudioDecoderConfigurationOptions | 5.13.4 | O |  |
| SetAudioDecoderConfiguration | 5.13.5 | O |  |
| ***Stream URI*** | ***5.15*** | **M Group** |  |
| GetStreamUri | 5.15.1 | M |  |
| ***Snapshot*** | ***5.16*** | **O Group** |  |
| GetSnapshotUri | 5.16.1 | O |  |
| ***Multicast*** | ***5.17*** | **M Group** |  |
| StartMulticastStreaming | 5.17.1 | M |  |
| StopMulticastStreaming | 5.17.2 | M |  |
| ***Synchronization Points*** | ***5.18*** | **M Group** |  |
| SetSynchronizationPoint | 5.18.1 | M |  |
| ***Video source mode*** | ***5.19*** | **O Group** |  |
| GetVideoSourceModes | 5.19.1 | O |  |
| SetVideoSourceModes | 5.19.2 | O |  |
| ***OSD (On-Screen Display)*** | ***5.20*** | **O Group** |  |
| CreateOSD | 5.20.1 | O |  |
| DeleteOSD | 5.20.2 | O |  |
| GetOSDs | 5.20.3 | O |  |
| GetOSD | 5.20.4 | O |  |
| SetOSD | 5.20.5 | O |  |
| GetOSDOptions | 5.20.6 | O |  |
| ***Capabilities*** | ***5.21*** | **M Group** |  |
| GetServiceCapabilities | 5.21 | M |  |
| **ONVIF PTZ Service Specification** | **V2.6** |  | **All Conditional PTZ commands below must be supported by PTZ cameras** |
| ***PTZ Node*** | ***5.1*** | **C Group** |  |
| GetNodes | 5.1.1 | C |  |
| GetNode | 5.1.2 | C |  |
| ***PTZ Configuration*** | ***5.2*** | **C Group** |  |
| GetConfigurations | 5.2.1 | C |  |
| GetConfiguration | 5.2.2 | C |  |
| GetConfigurationOptions | 5.2.3 | C |  |
| SetConfiguration | 5.2.4 | C |  |
| GetCompatibleConfigurations | 5.2.5 | O |  |
| ***Move Operations*** | ***5.3*** | **C Group** |  |
| AbsoluteMove | 5.3.1 | C |  |
| RelativeMove | 5.3.2 | C |  |
| ContinuousMove | 5.3.3 | C |  |
| Stop | 5.3.4 | C |  |
| GetStatus | 5.3.5 | C | Postion, MoveStatus, and Error information are mandatory. |
| ***Preset Operations*** | ***5.4*** | **C Group** |  |
| SetPreset | 5.4.1 | C |  |
| GetPresets | 5.4.2 | C |  |
| GotoPreset | 5.4.3 | C |  |
| RemovePreset | 5.4.4 | C |  |
| ***Home Position Operations*** | ***5.5*** | **C Group** |  |
| GotoHomePosition | 5.5.1 | C |  |
| SetHomePosition | 5.5.2 | C |  |
| ***Auxiliary operations*** | ***5.6*** | **C Group** |  |
| SendAuxiliaryCommand | 5.6.1 | C |  |
| ***Preset Tour Operations*** | ***5.8*** | **O Group** |  |
| GetPresetTours | 5.8.1 | O |  |
| GetPresetTour | 5.8.2 | O |  |
| GetPresetTourOptions | 5.8.3 | O |  |
| CreatePresetTour | 5.8.4 | O |  |
| ModifyPresetTour | 5.8.5 | O |  |
| OperatePresetTour | 5.8.6 | O |  |
| RemovePresetTour | 5.8.7 | O |  |
| ***Capabilities*** | ***5.10*** |  |  |
| GetServiceCapabilities | 5.10 | O |  |
| **ONVIF Streaming Specification** | **V2.6** | **M Group** |  |
| Media Streaming using RTSP |  | M |  |
| Media Streaming using RTSP – JPEG RTP header extension |  | C |  |
| **ONVIF Imaging Service Specification** | **V2.6.1** |  |  |
| **Imaging settings** | **5.1** | **M Group** |  |
| GetImagingSettings | 5.1.1 | M |  |
| SetImagingSettings | 5.1.2 | M |  |
| GetOptions | 5.1.3 | M |  |
| Move (focus) | 5.1.4 | M | Devices with support for remote focus control must support absolute, relative, and continuous move commands. |
| GetMoveOptions (focus) | 5.1.5 | M |  |
| Stop (focus) | 5.1.6 | M |  |
| GetStatus (focus) | 5.1.7 | M |  |
| GetServiceCapabilities | 5.1.8 | O |  |

**Document History**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Supplemental Requirements for CCTV Cameras. | D. Vollmer | R. Meyer | J. Morgan | 01/15/2014 | N/A |
| 2.0 | Updated reference to v1.08, amend 1.08 | R. Meyer | J. Morgan | J. Morgan | 08/21/2014 | No |
| 3.0 | Changed document title. | A. Burleson | J. Morgan | J. Morgan | 08/29/2014 | No |
| 4.0 | Added not required notes for “Global Report” and “Security” objects. Revised document approver title. | D. Bremer  K. Moser | J. Morgan | J. Morgan | 11/04/2014 | No |
| 5.0 | Incorporated ONVIF requirements in order to have singular SR document associated with clarification of CCTV protocol requirements. | R. Meyer | J. Morgan | J. Morgan | 03/31/2016 | No |
| 6.0 | Updated Section from 682 to 996 to reflect FDOT Standard Specs. | R. Brooks | M. DeWitt | D. Vollmer | 04/14/2020 | No |