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# Classes

## FirmwareCollection

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for FirmwareCollection

Table 1: Attributes for FirmwareCollection

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| \_firmwareComponentList | FirmwareComponent  ./. | 0..\* | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: false  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | See referenced class |
| download | DownloadType  ./. | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: false  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | Currently on-going download. |

## FirmwareComponent

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: YES
* objectDeletionNotification: YES

Attributes for FirmwareComponent

Table 1: Attributes for FirmwareComponent

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| \_firmwareComponent\_Pac | FirmwareComponent\_Pac  ./. | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: true  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  PassedByReference  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | See referenced class |
| \_subordinateFirmwareComponentList | FirmwareComponent  ./. | 0..\* | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: false  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  PassedByReference  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | See referenced class |

## FirmwareComponentCapability

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for FirmwareComponentCapability

Table 1: Attributes for FirmwareComponentCapability

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| firmwareComponentName | String  Firmware component name not yet defined. | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: true  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | Name of the firmware component. |
| firmwareComponentVersion | String  Firmware component version not yet defined. | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: true  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | Version of the firmware component. |
| firmwareComponentClass | FirmwareComponentClassType  UNKNOWN | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: true  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | Class of firmware component. |
| individualActivationIsAvail | Boolean  false | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: true  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | True = Firmware component could be individually activated. False = Firmware component would be activated together with a superior component. |
| relatedKindsOfEquipmentList | String  Affected equipment types not yet defined. | 0..\* | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: false  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NA  • bitLength: NA | Kinds of equipment using this firmware component after activation. Values should be identical with entries in Equipment::ManufacturedThing::EquipmentType::modelIdentifier attribute. Might be empty, if firmwareComponentClass==PACKAGE. |

## FirmwareComponentStatus

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for FirmwareComponentStatus

Table 1: Attributes for FirmwareComponentStatus

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| firmwareComponentStatus | FirmwareComponentStatusType  NOT\_YET\_DEFINED | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: false  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: YES  • bitLength: NA | Operational status of the firmware. |
| firmwareComponentActivationDate | DateTime  2010-11-20T14:00:00+01:00 | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: false  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | Date and time of the activation of this firmware component. |
| \_isActiveOnEquipmentList | Equipment  ./. | 0..\* | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: false  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | See referenced class |

## FirmwareComponent\_Pac

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for FirmwareComponent\_Pac

Table 1: Attributes for FirmwareComponent\_Pac

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| \_firmwareComponentCapability | FirmwareComponentCapability  ./. | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: true  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | See referenced class |
| \_firmwareComponentStatus | FirmwareComponentStatus  ./. | 1 | R | OpenModelAttribute  • partOfObjectKey: 0  • isInvariant: true  • valueRange: no range constraint  • unit: no unit defined  • support: MANDATORY  OpenInterfaceModelAttribute  • AVC: NO  • bitLength: NA | See referenced class |

# Data Types

## DownloadType

Applied Stereotypes:

Attributes for DownloadType

Table 1: Attributes for DownloadType

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| filename | String  Filename not yet defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * isInvariant: false * valueRange: no range constraint * unit: no unit defined * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NO * bitLength: NA |  |
| downloadStatus | DownloadStatusType  NOT\_YET\_DEFINED | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * isInvariant: false * valueRange: no range constraint * unit: no unit defined * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NO * bitLength: NA | Status of the download, which had been initiated last. |
| downloadStatusDescription | String  Status description not yet defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * isInvariant: false * valueRange: no range constraint * unit: no unit defined * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NO * bitLength: NA | Free text field for additional information about the download status. |

# Enumeration Types

## DownloadStatusType

Status or result of the download process, which had been started last.

Contains Enumeration Literals:

* IDLE:
  + There is no download status to be represented. The device is available for starting some.
* DOWNLOAD\_IN\_PROGRESS:
  + Download process is currently in progress.
* SUCCESSFUL:
  + Download process successfully accomplished.
* INVALID\_URI:
  + Download process could not be started, because of invalid URI.
* UNABLE\_TO\_CONNECT\_TO\_SERVER:
  + Download process could not be started, because client could not reach the server.
* ALIGNMENT\_FAILURE:
  + Download process failed, because client and server could not align.
* AUTHENTICATION\_FAILED:
  + Download process could not be started, because client could not successfully authenticate at the server.
* FILE\_NOT\_FOUND:
  + Client could connect to the server, but download process could not be started, because the file could not be found.
* NO\_SPACE\_AVAILABLE:
  + Client could authenticate at the server and find the file, but download process has been aborted, because there is not sufficient storage space for the file on the client.
* TRANSFER\_MECHANISM\_NOT\_AVAILABLE:
  + Client could authenticate at the server and find the file, but download process could not be started, because transfer mechanism is not supported.
* NETWORK\_FAILURE:
  + Download process could be started, but got interrupted, because client lost connection to the server.
* SW\_UNIT\_CHECK\_FAILURE:
  + Client could connect to the server and download the file, but the file was corrupted.
* INCOMPATIBLE\_FILE:
  + Client could connect to the server and download the file, but the file cannot be used due to incompatibility with either hardware of other firmware components.
* SW\_RELEASE\_CHECK\_FAILURE:
  + Client could download the file, but the file cannot be used due to release mismatch with other firmware components.
* INTERNAL\_ERROR:
  + Download process has been terminated due to an error internal to the client.
* ABORTED:
  + Client could connect to the server and start downloading the file, but the download process was interrupted by the client.
* FAILED:
  + Download process failed due to a reason, which is not more specifically described by any other value in this enumeration.
* NOT\_YET\_DEFINED:

## FirmwareComponentClassType

Contains Enumeration Literals:

* UNKNOWN:
* OTHER:
* DRIVER:
* CONFIGURATION\_DATA:
* CONFIGURATION\_SOFTWARE:
* APPLICATION\_SOFTWARE:
* INSTRUMENTATION:
* FIRMWARE\_BIOS:
* DIAGNOSTIC\_SOFTWARE:
* OPERATING\_SYSTEM:
* MIDDLEWARE:
* FIRMWARE:
* BIOS\_CODE:
* FPGA\_CODE:
* SUPPORT\_SERVICE\_PACK:
* PACKAGE:
* RESERVE:
* DOWNSTREAM\_DEVICE:

## FirmwareComponentStatusType

Current operational status of the firmware component.

Contains Enumeration Literals:

* ACTIVE:
* STAND\_BY:
* COMMITTED:
  + Firmware component will be used after reboot.
* LIKE\_SUPERIOR\_FIRMWARE\_COMPONENT:
* NOT\_APPLICABLE:
* INCOMPLETE:
* NOT\_YET\_DEFINED: