

Appendix to DVM-Exchange v2.5

Devices version 0.5

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1 Introduction

This appendix documents the standardised devices that can be exchanged using DVM-Exchange 2.5.

For every device configuration messages and status messages can be exchanged. This appendix describes how to use the standard fields and the 'parameter' fields in these messages in DVM-Exchange 2.5.

2 History

Datum	DVM-Exchange versie	Bijlage-versie	Auteur	Opmerkingen
2013-06-21	2.5	0.1	Erwin Gribnau	Initial version
2013-07-17	2.5	0.2	Erwin Gribnau	Added details to devices
2013-07-19	2.5	0.3	Erwin Gribnau	Changed layout
2013-09-16	2.5	0.4	Erwin Gribnau	Aligned content with IDD version 2.5.3. Included Rolf Krikke's review comments
2013-10-09	2.5	0.5	Erwin Gribnau	Translated to English

2.1 Version numbering scheme

DVM-Exchange version

This version number refers to the IDD DVM-Exchange version number.

Appendix version

The version number of the appendix itself (<major>.<minor>). The <major> number will be increased when a

functional enhancement to the appendix has been made. The <minor> number will be increased for improvements in documentation.

3 Supporting devices in a system

Not all systems need to support all devices in this appendix when providing configuration and status updates. For instance, a system that controls variable message signs (DRIP in Dutch) has no knowledge about traffic lights and can therefore not provide configuration and status updates for traffic lights.

The table in this chapter can be used to indicate which devices need to be supported by a system. Note that this is for **providing** configuration and status updates. The way DVM-Exchange 2.5 is designed, every system that receives these configuration and status updates has the ability to receive all of them.

Device	Dutch term	ObjectType in XML	Additions to standard fields?	Support providing configuration and status updates?
Traffic light controller	VRI	TRAFFIC_LIGHT_CONTROLLER	Yes	<input type="radio"/>
Ramp metering controller	TDI	RAMP_METERING_CONTROLLER	Yes	<input type="radio"/>
Variable message sign	DRIP	VARIABLE_MESSAGE_SIGN	Yes	<input type="radio"/>
Parking	Parkeervoorziening	PARKING_FACILITY	Yes	<input type="radio"/>
Camera	Videocamera	VIDEO_CAMERA	No	<input type="radio"/>
Rotary panel	Rotatiepaneel of kantelwals	ROTARY_PANEL	Yes	<input type="radio"/>

4 General

Some parameters fields can be added to all types of services. These are detailed in this chapter.

4.1 DeviceConfiguration

None.

4.2 DeviceStatusUpdate

4.2.1 Parameter fields

Field	Type	Value	Usage
availabilityExplanation	StringType	Explanation for the current availabilityState ¹	Optional ²
stateSourceDescription	StringType	A description how the current deviceState was obtained ³	Optional
stateExplanation	StringType	Explanation for the current serviceState ⁴	Optional

4.2.2 Example

```
<parameter name="availabilityExplanation" xsi:type="StringType" value="..." />
<parameter name="stateSourceDescription" xsi:type="StringType" value="..." />
<parameter name="stateExplanation" xsi:type="StringType" value="..." />
```

¹ IRS_DVM.410: Elk status/toestand bericht bevat altijd een verklaring van de actuele status

² The IRS document states that every statusupdate should always contain an explanation. When using strings to transport these explanations, an empty string ("") is also a valid value. Therefore this design makes them optional. Making them required has no added value.

³ IRS_DVM.411: Elk status/toestand bericht bevat altijd een beschrijving van de wijze waarop de toestand van het object is verkregen

⁴ IRS_DVM.412: Elk status/toestand bericht bevat altijd een verklaring van de actuele toestand

5 VARIABLE_MESSAGE_SIGN and ROTARY_PANEL

5.1 DeviceConfiguration

5.1.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	VARIABLE_MESSAGE_SIGN or ROTARY_PANEL	Required

5.1.2 Parameter fields

None.

5.1.3 Example

```
<updated xsi:type="DeviceConfiguration">
  <objectRef objectId="bd1222" objectType="VARIABLE_MESSAGE_SIGN" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <locationForDisplay>
    <latitude>1</latitude>
    <longitude>1</longitude>
    <direction>180</direction>
  </locationForDisplay>
  <name>bd1222</name>
  <owner>RWSNWN</owner>
</updated>
```

5.2 DeviceStatusUpdate

5.2.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	VARIABLE_MESSAGE_SIGN or ROTARY_PANEL	Required

5.2.2 Parameter fields

Field	Type	Value	Usage
currentImage	ImageType	Current image	Optional

5.2.3 Example

```
<update xsi:type="DeviceStatusUpdate">
  <objectRef objectId="12" objectType="VARIABLE_MESSAGE_SIGN" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <availability>AVAILABLE</availability>
  <deviceState>ACTIVE</deviceState>
  <parameter name="currentImage" xsi:type="ImageType">
    <value>
      <mediaType>image/png</mediaType>
      <height>80</height>
      <width>80</width>
      <data>encoded image data</data>
    </value>
  </parameter>
</update>
```

6 TRAFFIC_LIGHT_CONTROLLER

6.1 DeviceConfiguration

6.1.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	TRAFFIC_LIGHT_CONTROLLER	Required

6.1.2 Parameter fields

Geen.

6.1.3 Example

```
<updated xsi:type="DeviceConfiguration">
  <objectRef objectId="12345" objectType="TRAFFIC_LIGHT_CONTROLLER" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <locationForDisplay>
    <latitude>1</latitude>
    <longitude>1</longitude>
    <bearing>123</bearing>
  </locationForDisplay>
  <name>naam</name>
  <owner>RWSNWN</owner>
</updated>
```

6.2 DeviceStatusUpdate

6.2.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	TRAFFIC_LIGHT_CONTROLLER	Required

6.2.2 Parameter fields

Field	Type	Value	Usage
info	StringType	Extra information about the current state of the traffic light. For example the name of the currently running program.	Optional

6.2.3 Example

```
<update xsi:type="DeviceStatusUpdate">
  <objectRef objectId="12" objectType="TRAFFIC_LIGHT_CONTROLLER" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <availability>AVAILABLE</availability>
  <deviceState>ACTIVE</deviceState>
  <parameter name="info" xsi:type="StringType" value="23" />
</update>
```

7 RAMP_METERING_CONTROLLER

7.1 DeviceConfiguration

7.1.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	RAMP_METERING_CONTROLLER	Required

7.1.2 Parameter fields

None.

7.1.3 Example

```
<updated xsi:type="DeviceConfiguration">
  <objectRef objectId="12345" objectType="RAMP_METERING_CONTROLLER" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <locationForDisplay>
    <latitude>1</latitude>
    <longitude>1</longitude>
    <bearing>123</bearing>
  </locationForDisplay>
  <name>naam</name>
  <owner>RWSNWN</owner>
</updated>
```

7.2 DeviceStatusUpdate

7.2.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	RAMP_METERING_CONTROLLER	Required
deviceState	DeviceState	ACTIVE = limiting traffic, INACTIVE = not limiting traffic	Required

7.2.2 Parameter fields

Geen.

7.2.3 Example

```
<update xsi:type="DeviceStatusUpdate">
  <objectRef objectId="12" objectType="RAMP_METERING_CONTROLLER" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <availability>UNAVAILABLE</availability>
  <deviceState>ACTIVE</deviceState>
</update>
```

8 PARKING_FACILITY

8.1 DeviceConfiguration

8.1.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	PARKING_FACILITY	Required

8.1.2 Parameter fields

Geen

8.1.3 Example

```
<updated xsi:type="DeviceConfiguration">
  <objectRef objectId="12345" objectType="PARKING_FACILITY" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <locationForDisplay>
    <latitude>1</latitude>
    <longitude>1</longitude>
    <bearing>1</bearing>
  </locationForDisplay>
  <name>Grote garage</name>
  <owner>Gemeente Dordrecht</owner>
</updated>
```

8.2 DeviceStatusUpdate

8.2.1 Standard fields

Field	Type	Value	Usage
objectType	ObjectType	PARKING_FACILITY	Required

8.2.2 Parameter fields

Field	Type	Value	Usage
parkingState	StringType	One of: "AVAILABLE", "FULL", "CLOSED"	Required
capacity	IntegerType	Capacity (>=0)	Optional
parkingSpaces	IntegerType	Available parking spaces (>=0)	Optional

8.2.3 Example

```
<update xsi:type="DeviceStatusUpdate">
  <objectRef objectId="12" objectType="PARKING" />
  <timestamp>2001-12-31T12:00:00</timestamp>
  <availability>UNAVAILABLE</availability>
  <deviceState>ACTIVE</deviceState>
  <parameter name="parkingState" xsi:type="StringType" value="AVAILABLE"/>
  <parameter name="capacity" xsi:type="IntegerType" value="600"/>
  <parameter name="parkingSpaces" xsi:type="IntegerType" value="230"/>
</update>
```