

IRS-IDD External Display Adaptation

Service

Specification of the interface of the external display adaptation service for the purpose of consuming clients

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1 Scope

1.1 Identification

This document describes the interface which publish information for external displays. The identification of this document is [EXTDISPLAYADAPT-AFN-IRS]

1.2 System overview

The external display adaptation supplies the interface for the displaying of the public information outside the vehicles. Because the AVMS/EBS does not supply the needed functionality to support the usecase of interlining, an extra adaptation is needed to support business logic for this usecase. With interlining a vehicle switches between lines on a regular basis. To correctly inform the public timing when to change the linenumber is essential. Too early means passengers on a stop from which the vehicle just left, means the public see a different linenumber leaving then the vehicle is actually running. Too late means passengers on a stop which the vehicle runs to, means the passengers don't see the correct linenumber for the arriving vehicle. To enforce the correct switch of linenumber and destination this businesslogic is located in the external display adaptation.

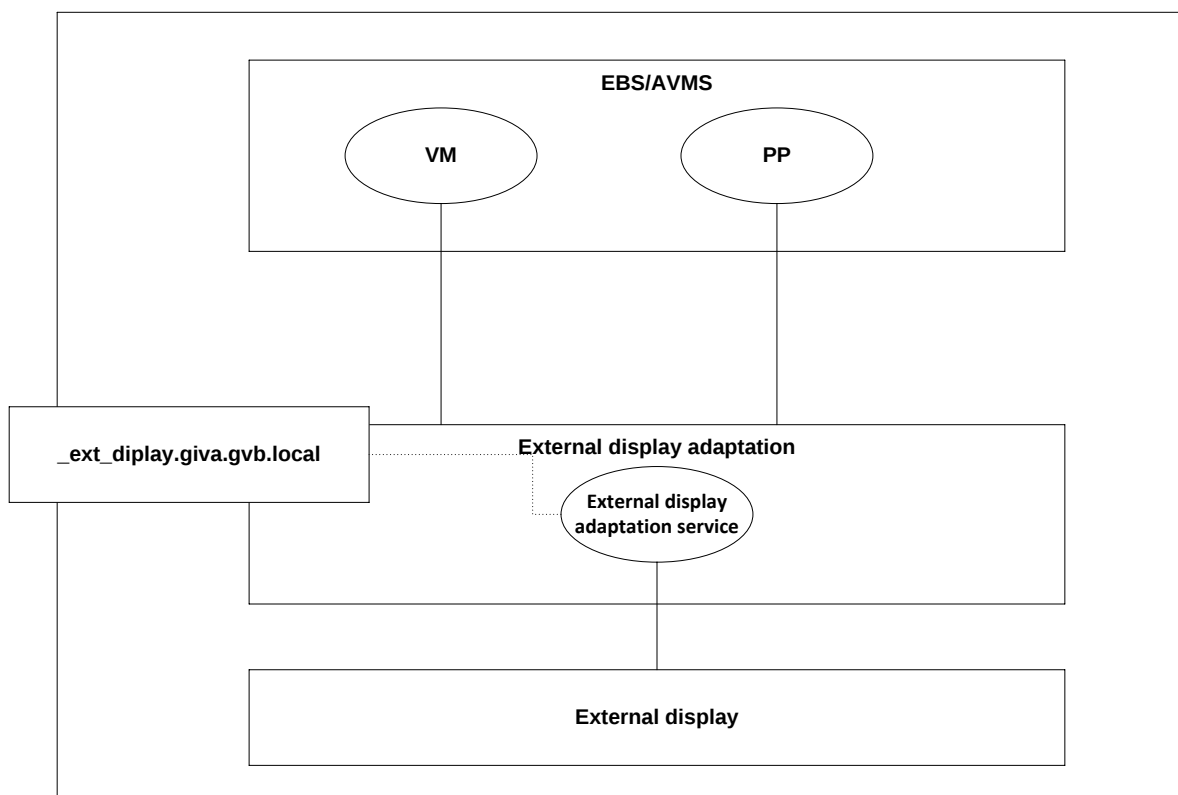


Figure 1 System context

1.3 Document overview

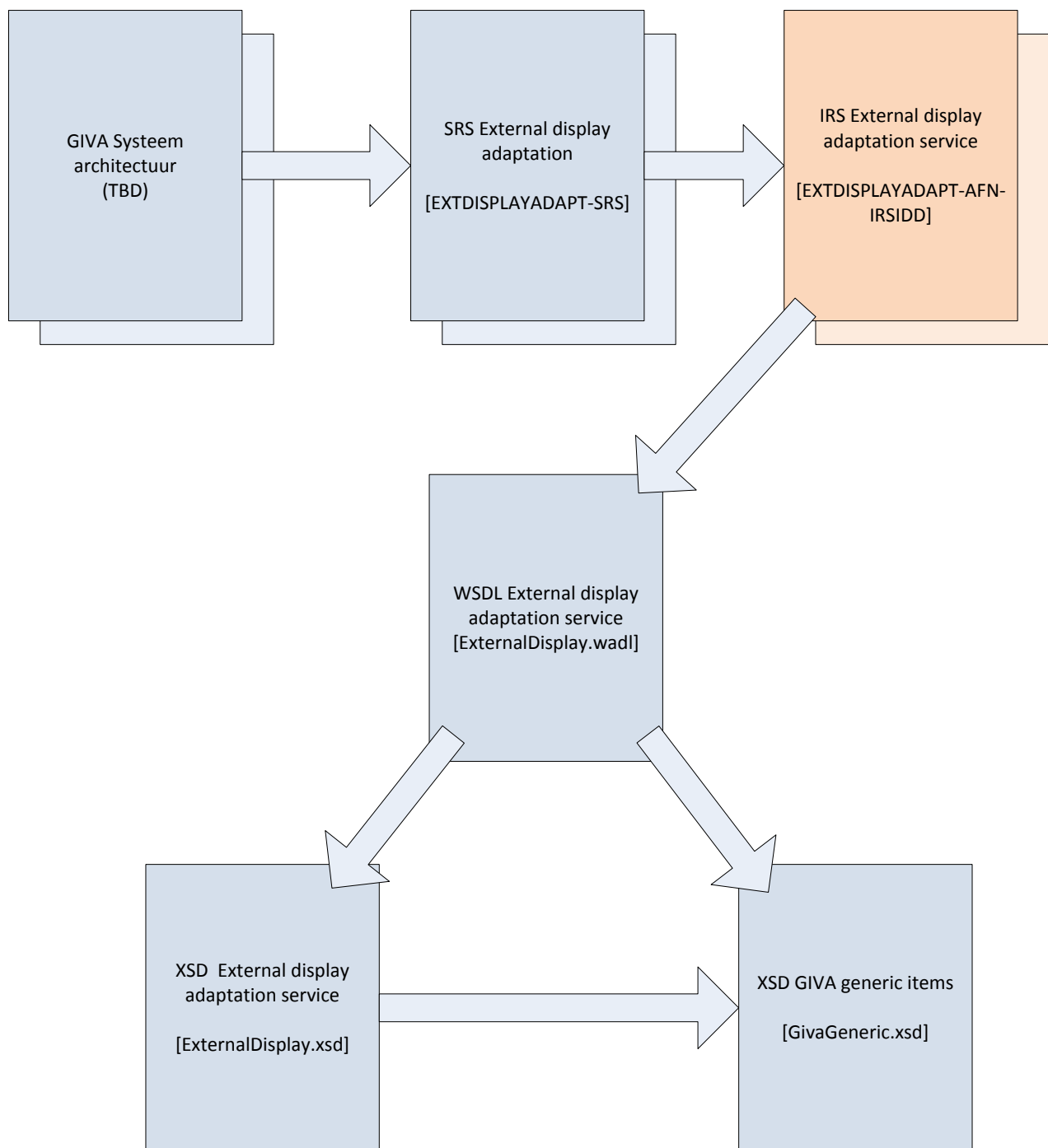


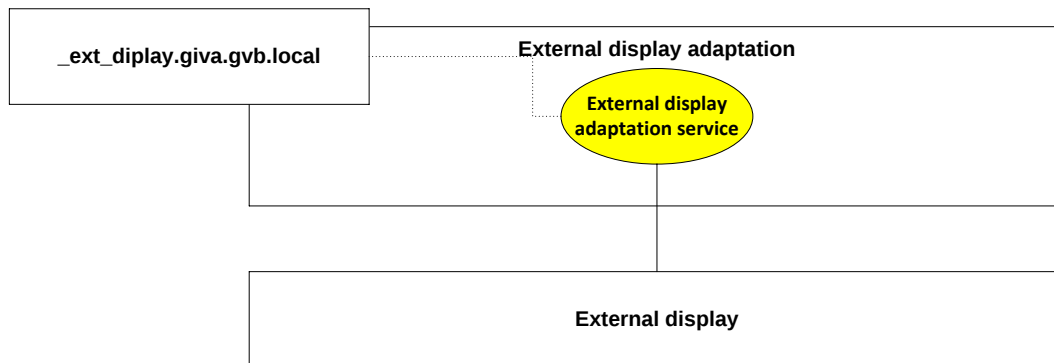
Figure 2 Document identification and overview

2 Reference documents

- [1] ExternalDisplay.wadl
- [2] ExternalDisplay.xsd
- [3] GivaGeneric.xsd

3 Requirements

3.1 Interface identification



Figuur 3 Interface identification

The External display adaptation supplies the service External display adaptation Service beschikbaar.

3.2 Requirements

This paragraph describes functional and non-functional requirements for this interface

3.2.1 Access paths

ACC.1	A consumer can request data from the interface
ACC.2	A consumer can subscribe on information change from the interface

The interface supplies a synchronous get-interface and a asynchronous publish/subscribe interface

3.2.2 Information request

SDR.1	De service delivers information within 1 seconde 95% of the time
SDR.2	A consuming client may request for data 20 times per second
SDR.3	The interface response with information known within the system

The information request is handled with a request-response mechanism

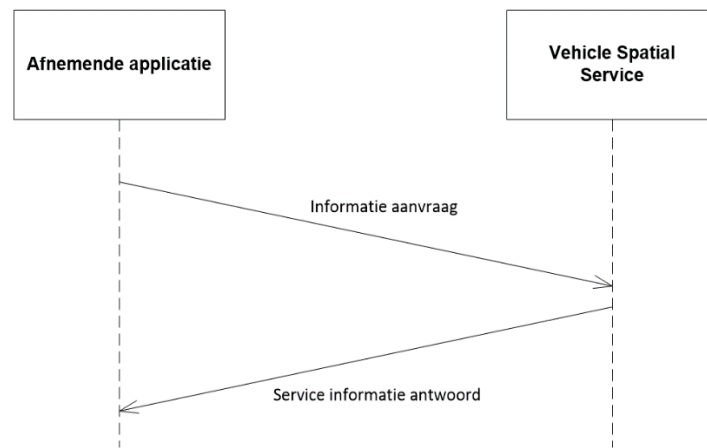


Figure 4 Synchronous information request

3.2.3 Publish/subscribe mechanism

PS.1	The EDAS (External display adaptation service) handles subscriptionsrequest with a response endpoint from consuming clients.
PS.2	The EDAS sends a synchronous subscription response when receiving a subscriptionrequest.
PS.3	The EDAS sends an information frame to the reply endpoint of a consuming client after a successful subscription response.
PS.4	The EDAS sends an updated information frame on data change to all consuming vlient endpoints.
PS.5	The EDAS ends a subscription when receiving an unsubscribe request from a consuming client.
PS.6	The EDAS response synchronously to a unsubscription request (<i>unsubscription response</i>)
PS.7	The EDAS ends a subscription of a consuming client when no data can be send to the reply endpoint of this consuming client.De VSS beëindigd een abonnement op het moment dat er geen communicatie mogelijk is met een antwoord endpoint van een geabonneerde afnemer.
PS.8	When no data change is for a period of 60-3600 seconds, a repeat message is send. Default repeat period is 600 seconds.

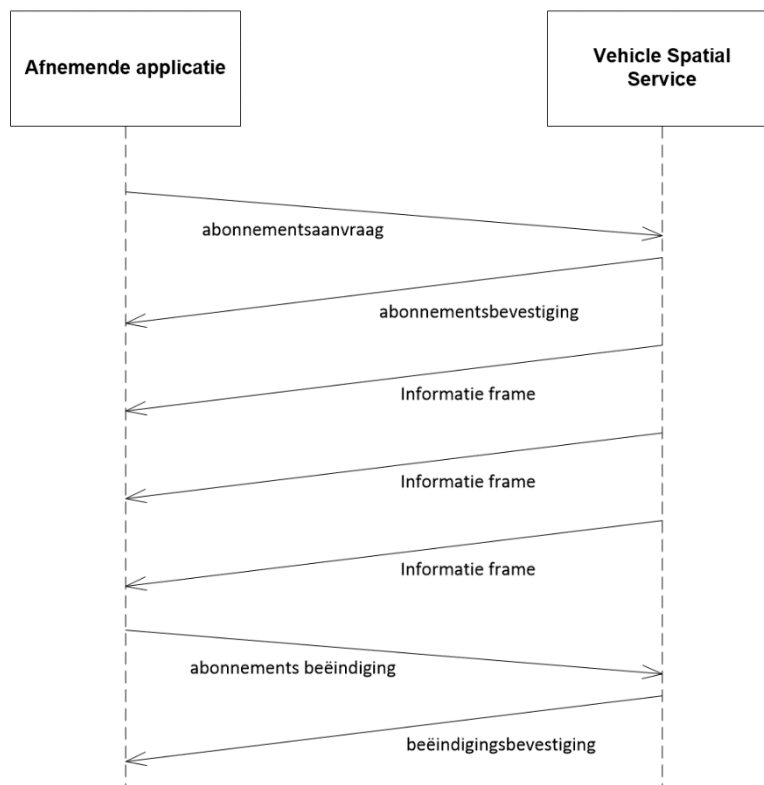


Figure 5 Publish/subscribe mechanism

4 Interface design

The External display adaptation Service is published with DNS-SD:

Service type	_http
Protocol	TCP
Port number (configurable)	9045
name	_ext_display

De service provides the following access paths as described in the servicecontract [1].

command	Request message	Response message	Description
POST	subscribe (Ref:[3])	subscription (Ref: [3])	Subscribe to service
POST	unsubscribe (Ref: [3])	subscription (Ref: [3])	Unsubscribe from service
GET	-	ExternalDisplayDelivery (Ref: [2])	Get service state data

Het ExternalDisplayDelivery message contains the following information.

<i>ExternalDisplayDelivery</i>			+Structure	Describes the aimed pattern runs (or to be run) by the vehicle.
<i>Attributen</i>	version	1:1	<i>VersionString</i>	Version indicator of the service
<i>Payload</i>	PublicLineLabel	1:1	<i>xsd:string</i>	Line identification for the public.
	DestinationText	1:1	+Structure	Destination text for the outside display
any	Extensions	0:1	any	Placeholder for user extensions.

<i>DestinationText</i>			+Structure	Destination text for the outside display
Text	OneLine	1:1	+Structure	Destination text for 1 line displays
	TextLine	1:1	<i>xsd:string</i>	Destination text
	TwoLine	1:1	+Structure	Destination text for 2 line displays
	TextLine1	1:1	<i>xsd:string</i>	First line for destination text
	TextLine2	0:1	<i>xsd:string</i>	Second line for destination text

4.1 Sample message

```
<extdisplay:ServiceDelivery xmlns:extdisplay="vehicle.gvb.local/ext_display"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="vehicle.gvb.local/ext_display ExternalDisplay.xsd">
  <extdisplay:ExternalDisplayDelivery version="String">
    <extdisplay:PublicLineLabel>N23</extdisplay:PublicLineLabel>
    <extdisplay:DestinationText>
      <extdisplay:OneLine>
        <extdisplay:TextLine>Centraal Station</extdisplay:TextLine>
      </extdisplay:OneLine>
      <extdisplay:TwoLine>
        <extdisplay:TextLine1>Centraal Station</extdisplay:TextLine1>
        <extdisplay:TextLine2>via Dam</extdisplay:TextLine2>
      </extdisplay:TwoLine>
    </extdisplay:DestinationText>
  </extdisplay:ExternalDisplayDelivery>
</extdisplay:ServiceDelivery>
```

Version control

<i>Versie</i>	<i>Datum</i>	<i>Status</i>	<i>Opmerkingen</i>
1.0	14-6-2018	Concept	Initial version