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# Overview

This service assumes the responsibility of playing video stream stored in the persistent storage as file. Video is played back on HMI or any Ford configured display in vehicle.

Video file will be decrypted to be played on HMI player.

Service will expose APIs to

* Select File
* Play, pause, resume
* Skip

# Potential Use Cases

|  |  |
| --- | --- |
| Use Case ID | Use Case Description |
| UC\_FN\_VPBS\_00001 | Enhanced Dash Camera feature will play the videos recorded on the HMI screen. |
| UC\_FN\_VPBS\_00002 | User will like to forward, reverse, jump to frame or rewind video. |
| UC\_FN\_VPBS\_00003 | User will like to play the video with metadata information. |
|  |  |

# Requirements

## Functional Requirements

### Select file

Ability to retrieve video recording(VR) files for playback.

### Filter/search file

Ability to filter/ search VR files to be viewed.

### Playback file

Ability to play VR file.

### Jump to time frame

Ability to jump and start playing from that point.

### Pause Playback

Ability to pause playing of the VR File.

### Resume Playback

Ability to resume playing of the VR File.

### Rewind Playback

Ability to rewind playing of the VR File.

### Stop Playback

Ability to stop playing of the VR File.

### Multiple consumer requests

Ability to accept multiple play request from distinct consumers.

## Non-Functional Requirements

### Response Time

Response time:

EDC:  < 2 Sec

Sentinel: TBD

### Availability

Availability:

EDC: 97%

Sentinel: TBD

### Power Moding

EDC: Regular

Sentinel: Low Power

### Bootup Time

EDC: TBD

Sentinel: TBD

### Bandwidth

1-4 mbps

### Usage concurrency

TBD

Note: VRS can handle only one request in VRS version 1.0

### Usage Volume

TBD

# Architecture/Context Diagram

## No Title

# Contracts

## Domain Common Enumerations/ Structures

### ErrorDetail

**Description:** Enum literals indicate common errors that can be returned as status in response for the request..

|  |  |
| --- | --- |
| Value | Description |
| NOT\_AUTHORIZED |  |
| COMMAND\_NOT\_RECOGNIZED |  |
| UNKNOWN\_ERROR |  |
| INVALID\_REQUEST |  |
| NOT\_SUPPORTED |  |
| STORAGE\_ERROR |  |
|  |  |
|  |  |

### RequestStatus

**Description:** Enum literals indicating execution status of the request.

|  |  |
| --- | --- |
| Value | Description |
| SUCCESS | Request execution was successful, there are no errors. |
| FAIL | Provider failed to fulfill request. Error details shall be checked to get more information about failure |
|  |  |

### RecordingStorage

**Description:** Enum literals to represent storage options.

|  |  |
| --- | --- |
| Value | Description |
| USB |  |
| MEMORY\_CARD | Future |
| ECU\_DB | Future |
|  |  |
| CLOUD |  |
|  |  |

### PlaybackStatus

**Description:** Enum literals indicating active playback status.

|  |  |
| --- | --- |
| Value | Description |
| PLAYBACK\_INPROGRESS |  |
| PAUSED |  |
| COMPLETE | Played the video till end. |
| ABORTED |  |
| FAILED |  |
|  |  |

### Direction

**Description:** Enum literals indicating direction in which the video is played.

|  |  |
| --- | --- |
| Value | Description |
| FORWARD |  |
| BACKWORD |  |

## Provided Contracts (Service to Consumer / Cloud)

VideoPlayback Service providing following contract to all its consumers.

***Request Topic : SERVICES/REQUEST/<<HOST>>/*VIDEO\_PLAYBACK**

***Response Topic: <<Consumer Provided>>***

***Data Topic: SERVICES/DATA/<<HOST>>/* VIDEO\_PLAYBACK**

### StartPlayback

***Purpose***: Video File stream will be sent to requester as stream.  
***Pre-Condition***: Video player needs to specify stream configuration it can accept for playing

|  |  |  |  |
| --- | --- | --- | --- |
| **Message Name** | **Messaging Pattern** | **Message Element Data Type** | **Message Element Name** |
| StartPlayback | Request | String | file\_url |
| Enumeration RecordingStorage | recording\_storage\_id |
| String | ip\_address |
| StartPlaybackResp | Response | Integer | session\_id |
| Enumeration REQUEST\_STATUS | req\_stat |
| Enumeration ERROR\_DETAIL | error\_detail |

### StopPlayback

***Purpose***: Stop playing video stream.

|  |  |  |  |
| --- | --- | --- | --- |
| **Message Name** | **Messaging Pattern** | **Message Element Data Type** | **Message Element Name** |
| StopPlayback | Request | Integer | session\_id |
| StopPlaybackResp | Response | Integer | session\_id |
| Enumeration REQUEST\_STATUS | req\_stat |
| Enumeration ERROR\_DETAIL | error\_detail |

### PausePlayback

***Purpose***: Pause playing video stream.

|  |  |  |  |
| --- | --- | --- | --- |
| **Message Name** | **Messaging Pattern** | **Message Element Data Type** | **Message Element Name** |
| PausePlayback | Request | Integer | session\_id |
| PausePlaybackResp | Response | Integer | session\_id |
| Enumeration REQUEST\_STATUS | req\_stat |
| Enumeration ERROR\_DETAIL | error\_detail |

### ResumePlayback

***Purpose***: Resume playing stopped video stream.

|  |  |  |  |
| --- | --- | --- | --- |
| **Message Name** | **Messaging Pattern** | **Message Element Data Type** | **Message Element Name** |
| ResumePlayback | Request | Integer | session\_id |
| ResumePlaybackResp | Response | Integer | session\_id |
| Enumeration REQUEST\_STATUS | req\_stat |
| Enumeration ERROR\_DETAIL | error\_detail |

### JumpVideoToTimeFrame

***Purpose***: Jump to frame specified by the location field in time unit.

|  |  |  |  |
| --- | --- | --- | --- |
| **Message Name** | **Messaging Pattern** | **Message Element Data Type** | **Message Element Name** |
| JumpVideoToTimeFrame | Request | Integer | session\_id |
| Integer | location\_time |
| JumpVideoToTimeFrameResp | Response | Integer | session\_id |
| Enumeration REQUEST\_STATUS | req\_stat |
| Enumeration ERROR\_DETAIL | error\_detail |

**Note**: Applied the location time from start of the stream.

### PlaybackStatus

***Purpose***: Video File stream will be sent to requester as stream.  
***Pre-Condition***: Video player needs to specify stream configuration it can accept for playing

|  |  |  |  |
| --- | --- | --- | --- |
| **Message Name** | **Messaging Pattern** | **Message Element Data Type** | **Message Element Name** |
| PlaybackStatus | Request | Integer | session\_id |
| PlaybackStatusResp | Response | Integer | session\_id |
| Enumeration PlaybackStatus | playback\_status |
|  |  | Enumeration ERROR\_DETAIL | error\_detail |

## Future Contracts

### SkipVideo

***Purpose***: Fast forward or rewind at given speed.

|  |  |  |  |
| --- | --- | --- | --- |
| **Message Name** | **Messaging Pattern** | **Message Element Data Type** | **Message Element Name** |
| SkipVideo  *Speed* Valid values {2,4,6,8,12,16,24} | Request | Integer | session\_id |
|  | Integer | speed |
| SkipVideoResp | Response | Enumeration REQUEST\_STATUS | req\_stat |
|  | Enumeration ERROR\_DETAIL | error\_detail |

# Service Behavioral Diagrams

A screenshot of a cell phone

Description automatically generated

# GPB Files (GitHub Links)

Links to GPB Files :  [VideoPlaybackService.proto](https://github.ford.com/sw-architecture/idl/blob/master/VideoPlaybackService/VideoPlaybackService)