# WiseAI Migration Guide

**SUNAPI**

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# 1. Scope

Scope of this document is to explain how client can integrate & configure app based analytics module, receive events and setup actions.

# 2. Background

With the increase in demand to support different detection rules and analytics algorithm, its becoming increasingly difficult to package different analytics module in the camera firmware and this results in frequent firmware changes and constant client (VMS/NVR) integration / changes. To overcome this drawback, going forward WiseNet Cameras will leverage the OpenPlaform and provide analytics modules as installable apps.

# 3. Introduction

Integration with the new app based cameras, involves three levels of integration,

1. **Basic:** Covers receiving app generated events and metadata in SUNAPI and ONVIF

2. **Intermediate:** Basic + Covers configuring the event source in app using OpenAPI

3. **Full:** Basic + Intermediate + Covers configuring the event actions using SUNAPI

Considering the ease of integration and configuring the app, OpenAPI based REST API is used in APP. This allows client to generate stub code for their language.

## 3.1. WiseAI

WiseAI is a new OpenSDK-based application from Hanwha Techwin that provides AI analysis and events.

# 4. Basic Integration

Ability to receive events/metadata generated by installed APP is considered as the first level of integration.

## 4.1. Prerequisites

To use the WiseAI App features, the WiseAI App must be installed and running on the device. Otherwise the events of the WiseAI app are **not displayed.** To check WiseAI App is installed and running, you can check with the command below. For more details on the OpenSDK configuration, refer to the SUNAPI opensdk document.

> **NOTE** The WiseAI app starts after a while after the camera boots up, and the app's events may not be displayed during the time the app is not started.

```
http://<Device IP>/stw-cgi/opensdk.cgi?msubmenu=apps&action=view
```

TEXT RESPONSE

```
InstalledApps=1
WiseAI.Status=Running
WiseAI.InstalledDate=Wed Dec 22 16:52:49 2021
WiseAI.Version=1.0
WiseAI.Permission=None
WiseAI.AutoStart=True
WiseAI.Priority=Low
```

JSON RESPONSE

```
{
    "InstalledApps": 1,
    "Apps": [
        {
            "AppID": "WiseAI",
            "Status": "Running",
            "InstalledDate": "Wed Dec 22 16:52:49 2021",
            "Version": "1.0",
            "Permission": [
                "None"
            ],
            "AutoStart": true,
            "Priority": "Low"
        }
    ]
}
```

# 4.2. Metadata

Metadata notification from the App is delivered through the same Metadata RTP session used in the camera. Client can receive metadata from the App as before. Additionally it follows the ONVIF metadata schema for delivering the metadata.

# 4.3. SUNAPI Events

After connecting to the camera, the client can use the cgi call below to check all events are supported by the camera, including installed Apps. In the response, event notification schema is provided either in Text or JSON format based on request.

## 4.3.1. Getting the supported events and its notification schema

```
http://<Device IP>/stw-cgi/eventstatus.cgi?msubmenu=eventstatusschema&action=view
```

```
HTTP/1.0 200 OK
Content-type: text/plain
<Body>
```

```
EventStatus.1.Name=AlarmInput
EventStatus.1.Schema.1.Name=AlarmInput.<int>
EventStatus.1.Schema.1.Value=<boolean>
EventStatus.2.Name=AlarmOutput
EventStatus.2.Schema.1.Name=AlarmOutput.<int>
EventStatus.2.Schema.1.Value=<boolean>
EventStatus.3.Name=MotionDetection
EventStatus.3.Schema.1.Name=Channel.<int>.MotionDetection
EventStatus.3.Schema.1.Value=<boolean>
EventStatus.3.Schema.2.Name=Channel.<int>.MotionDetection.RegionID.<int>
EventStatus.3.Schema.2.Value=<boolean>
EventStatus.3.Schema.3.Name=Channel.<int>.MotionDetection.RegionID.<int>.Level
EventStatus.3.Schema.3.Value=<int>
EventStatus.4.Name=Tampering
EventStatus.4.Schema.1.Name=Channel.<int>.Tampering
EventStatus.4.Schema.1.Value=<boolean>
EventStatus.5.Name=AudioDetection
EventStatus.5.Schema.1.Name=Channel.<int>.AudioDetection
EventStatus.5.Schema.1.Value=<boolean>
EventStatus.6.Name=DefocusDetection
EventStatus.6.Schema.1.Name=Channel.<int>.DefocusDetection
EventStatus.6.Schema.1.Value=<boolean>
EventStatus.7.Name=AudioAnalytics
EventStatus.7.Schema.1.Name=Channel.<int>.AudioAnalytics.Scream
EventStatus.7.Schema.1.Value=<boolean>
EventStatus.7.Schema.2.Name=Channel.<int>.AudioAnalytics.Gunshot
EventStatus.7.Schema.2.Value=<boolean>
EventStatus.7.Schema.3.Name=Channel.<int>.AudioAnalytics.Explosion
EventStatus.7.Schema.3.Value=<boolean>
EventStatus.7.Schema.4.Name=Channel.<int>.AudioAnalytics.GlassBreak
EventStatus.7.Schema.4.Value=<boolean>
EventStatus.8.Name=SystemEvent
EventStatus.8.Schema.1.Name=SystemEvent.TimeChange
EventStatus.8.Schema.1.Value=<boolean>
EventStatus.8.Schema.2.Name=SystemEvent.PowerReboot
EventStatus.8.Schema.2.Value=<boolean>
EventStatus.8.Schema.3.Name=SystemEvent.FWUpdate
EventStatus.8.Schema.3.Value=<boolean>
EventStatus.8.Schema.4.Name=SystemEvent.FactoryReset
```

```
EventStatus.8.Schema.4.Value=<boolean>
EventStatus.8.Schema.5.Name=SystemEvent.ConfigurationBackup
EventStatus.8.Schema.5.Value=<boolean>
EventStatus.8.Schema.6.Name=SystemEvent.ConfigurationRestore
EventStatus.8.Schema.6.Value=<boolean>
EventStatus.8.Schema.7.Name=SystemEvent.ConfigChange
EventStatus.8.Schema.7.Value=<boolean>
EventStatus.8.Schema.8.Name=ChangedConfigURI
EventStatus.8.Schema.8.Value=<string>
EventStatus.8.Schema.9.Name=SystemEvent.SDFormat
EventStatus.8.Schema.9.Value=<boolean>
EventStatus.8.Schema.10.Name=SystemEvent.SDFail
EventStatus.8.Schema.10.Value=<boolean>
EventStatus.8.Schema.11.Name=SystemEvent.SDFull
EventStatus.8.Schema.11.Value=<boolean>
EventStatus.8.Schema.12.Name=SystemEvent.SDInsert
EventStatus.8.Schema.12.Value=<boolean>
EventStatus.8.Schema.13.Name=SystemEvent.SDRemove
EventStatus.8.Schema.13.Value=<boolean>
EventStatus.8.Schema.14.Name=SystemEvent.NASConnect
EventStatus.8.Schema.14.Value=<boolean>
EventStatus.8.Schema.15.Name=SystemEvent.NASDisconnect
EventStatus.8.Schema.15.Value=<boolean>
EventStatus.8.Schema.16.Name=SystemEvent.NASFail
EventStatus.8.Schema.16.Value=<boolean>
EventStatus.8.Schema.17.Name=SystemEvent.NASFull
EventStatus.8.Schema.17.Value=<boolean>
EventStatus.8.Schema.18.Name=SystemEvent.NASFormat
EventStatus.8.Schema.18.Value=<boolean>
EventStatus.9.Name=OpenSDK.WiseAI.LineCrossing  ①
EventStatus.9.Schema.1.Name=Channel.<int>.OpenSDK.WiseAI.LineCrossing
EventStatus.9.Schema.1.Value=<boolean>
EventStatus.9.Schema.2.Name=Channel.<int>.OpenSDK.WiseAI.LineCrossing.<int>.VideoSourc
eToken
EventStatus.9.Schema.2.Value=<string>
EventStatus.9.Schema.3.Name=Channel.<int>.OpenSDK.WiseAI.LineCrossing.<int>.RuleName
EventStatus.9.Schema.3.Value=<string>
EventStatus.9.Schema.4.Name=Channel.<int>.OpenSDK.WiseAI.LineCrossing.<int>.State
EventStatus.9.Schema.4.Value=<boolean>
EventStatus.9.Schema.5.Name=Channel.<int>.OpenSDK.WiseAI.LineCrossing.<int>.ObjectId
EventStatus.9.Schema.5.Value=<string>
EventStatus.9.Schema.6.Name=Channel.<int>.OpenSDK.WiseAI.LineCrossing.<int>.Action
EventStatus.9.Schema.6.Value=<string>
EventStatus.10.Name=OpenSDK.WiseAI.IvaArea  ②
EventStatus.10.Schema.1.Name=Channel.<int>.OpenSDK.WiseAI.IvaArea
EventStatus.10.Schema.1.Value=<boolean>
EventStatus.10.Schema.2.Name=Channel.<int>.OpenSDK.WiseAI.IvaArea.<int>.VideoSourceTok
en
EventStatus.10.Schema.2.Value=<string>
EventStatus.10.Schema.3.Name=Channel.<int>.OpenSDK.WiseAI.IvaArea.<int>.RuleName
EventStatus.10.Schema.3.Value=<string>
```

```
EventStatus.10.Schema.4.Name=Channel.<int>.OpenSDK.WiseAI.IvaArea.<int>.State
EventStatus.10.Schema.4.Value=<boolean>
EventStatus.10.Schema.5.Name=Channel.<int>.OpenSDK.WiseAI.IvaArea.<int>.ObjectId
EventStatus.10.Schema.5.Value=<string>
EventStatus.10.Schema.6.Name=Channel.<int>.OpenSDK.WiseAI.IvaArea.<int>.Action
EventStatus.10.Schema.6.Value=<string>
EventStatus.11.Name=OpenSDK.WiseAI.ObjectDetection ③
EventStatus.11.Schema.1.Name=Channel.<int>.OpenSDK.WiseAI.ObjectDetection
EventStatus.11.Schema.1.Value=<boolean>
EventStatus.11.Schema.2.Name=Channel.<int>.OpenSDK.WiseAI.ObjectDetection.<int>.VideoS
ourceToken
EventStatus.11.Schema.2.Value=<string>
EventStatus.11.Schema.3.Name=Channel.<int>.OpenSDK.WiseAI.ObjectDetection.<int>.RuleNa
me
EventStatus.11.Schema.3.Value=<string>
EventStatus.11.Schema.4.Name=Channel.<int>.OpenSDK.WiseAI.ObjectDetection.<int>.State
EventStatus.11.Schema.4.Value=<boolean>
EventStatus.11.Schema.5.Name=Channel.<int>.OpenSDK.WiseAI.ObjectDetection.<int>.ClassT
ypes
EventStatus.11.Schema.5.Value=<string>
EventStatus.12.Name=OpenSDK.WiseAI.StoppedVehicleDetection ④
EventStatus.12.Schema.1.Name=Channel.<int>.OpenSDK.WiseAI.StoppedVehicleDetection
EventStatus.12.Schema.1.Value=<boolean>
EventStatus.12.Schema.2.Name=Channel.<int>.OpenSDK.WiseAI.StoppedVehicleDetection.<int
>.VideoSourceToken
EventStatus.12.Schema.2.Value=<string>
EventStatus.12.Schema.3.Name=Channel.<int>.OpenSDK.WiseAI.StoppedVehicleDetection.<int
>.RuleName
EventStatus.12.Schema.3.Value=<string>
EventStatus.12.Schema.4.Name=Channel.<int>.OpenSDK.WiseAI.StoppedVehicleDetection.<int
>.State
EventStatus.12.Schema.4.Value=<boolean>
EventStatus.12.Schema.5.Name=Channel.<int>.OpenSDK.WiseAI.StoppedVehicleDetection.<int
>.VehicleTypes
EventStatus.12.Schema.5.Value=<string>
EventStatus.12.Schema.6.Name=Channel.<int>.OpenSDK.WiseAI.StoppedVehicleDetection.<int
>.ObjectIDs
EventStatus.12.Schema.6.Value=<string>
EventStatus.13.Name=OpenSDK.WiseAI.TrafficJamDetection ⑤
EventStatus.13.Schema.1.Name=Channel.<int>.OpenSDK.WiseAI.TrafficJamDetection
EventStatus.13.Schema.1.Value=<boolean>
EventStatus.13.Schema.2.Name=Channel.<int>.OpenSDK.WiseAI.TrafficJamDetection.<int>.Vi
deoSourceToken
EventStatus.13.Schema.2.Value=<string>
EventStatus.13.Schema.3.Name=Channel.<int>.OpenSDK.WiseAI.TrafficJamDetection.<int>.Ru
leName
EventStatus.13.Schema.3.Value=<string>
EventStatus.13.Schema.4.Name=Channel.<int>.OpenSDK.WiseAI.TrafficJamDetection.<int>.St
ate
EventStatus.13.Schema.4.Value=<boolean>
```

① : LineCrossing Event Schema in Text Response

② : IvaArea Event Schema in Text Response

③ : ObjectDetection schema in Text Response

④ : StoppedVehicleDetection schema in Text Response

⑤ : TrafficJamDetection schema in Text Response

<span style="color:red">JSON RESPONSE</span>

```
HTTP/1.0 200 OK
Content-type: application/json
<Body>
```

```
{
    "type": "array",
    "items": [
        {
            "type": "object",
            "properties": {
                "Time": {
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "AlarmInput",
                        "AlarmOutput"
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {
                        "Channel": {
                            "type": "number"
                        },
                        "SourceID": {
                            "type": "number"
                        }
                    }
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "State": {
                            "type": "boolean"
                        }
                    }
                }
            }
        },
```

```json
        {
            "type": "object",
            "properties": {
                "Time": {
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "Tampering",
                        "AudioDetection",
                        "DefocusDetection"
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {
                        "Channel": {
                            "type": "number"
                        }
                    }
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "State": {
                            "type": "boolean"
                        }
                    }
                }
            }
        },
        {
            "type": "object",
            "properties": {
                "Time": {
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "AudioAnalytics.Scream",
                        "AudioAnalytics.Gunshot",
                        "AudioAnalytics.Explosion",
                        "AudioAnalytics.GlassBreak"
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {
                        "Channel": {
                            "type": "number"
                        }
```

```
                    }
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "State": {
                            "type": "boolean"
                        }
                    }
                }
            }
        },
        {
            "type": "object",
            "properties": {
                "Time": {
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "MotionDetection"
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {
                        "Channel": {
                            "type": "number"
                        },
                        "ROIID": {
                            "type": "number"
                        }
                    }
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "State": {
                            "type": "boolean"
                        },
                        "Level": {
                            "type": "number"
                        }
                    }
                }
            }
        },
        {
            "type": "object",
            "properties": {
                "Time": {
```

```
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "SystemEvent.TimeChange",
                        "SystemEvent.PowerReboot",
                        "SystemEvent.FWUpdate",
                        "SystemEvent.FactoryReset",
                        "SystemEvent.ConfigurationBackup",
                        "SystemEvent.ConfigurationRestore",
                        "SystemEvent.ConfigChange",
                        "SystemEvent.SDFormat",
                        "SystemEvent.SDFail",
                        "SystemEvent.SDFull",
                        "SystemEvent.SDInsert",
                        "SystemEvent.SDRemove",
                        "SystemEvent.NASConnect",
                        "SystemEvent.NASDisconnect",
                        "SystemEvent.NASFail",
                        "SystemEvent.NASFull",
                        "SystemEvent.NASFormat"
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {}
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "State": {
                            "type": "boolean"
                        }
                    }
                }
            }
        },
        {
            "type": "object",
            "properties": {
                "Time": {
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "ConfigChange"
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {
```

```
                    "Channel": {
                        "type": "number"
                    },
                    "ChangedConfigURI": {
                        "type": "string"
                    }
                }
            },
            "Data": {
                "type": "object",
                "properties": {
                    "State": {
                        "type": "boolean"
                    }
                }
            }
        }
    },
    {
        "type": "object",
        "properties": {
            "Time": {
                "type": "string"
            },
            "EventName": {
                "enum": [
                    "OpenSDK.WiseAI.LineCrossing"  ①
                ]
            },
            "Source": {
                "type": "object",
                "properties": {
                    "Channel": {
                        "type": "number"
                    },
                    "AppName": {
                        "type": "string"
                    },
                    "AppEvent": {
                        "type": "string"
                    },
                    "AppID": {
                        "type": "string"
                    },
                    "Type": {
                        "enum": [
                            "Event"
                        ]
                    },
                    "VideoSourceToken": {
                        "type": "string"
```

```json
                },
                "RuleName": {
                    "type": "string"
                }
            }
        },
        "Data": {
            "type": "object",
            "properties": {
                "State": {
                    "type": "boolean"
                },
                "ObjectId": {
                    "type": "string"
                },
                "Action": {
                    "type": "string"
                }
            }
        }
    }
},
{
    "type": "object",
    "properties": {
        "Time": {
            "type": "string"
        },
        "EventName": {
            "enum": [
                "OpenSDK.WiseAI.IvaArea" ②
            ]
        },
        "Source": {
            "type": "object",
            "properties": {
                "Channel": {
                    "type": "number"
                },
                "AppName": {
                    "type": "string"
                },
                "AppEvent": {
                    "type": "string"
                },
                "AppID": {
                    "type": "string"
                },
                "Type": {
                    "enum": [
                        "Event"
```

```
                            ]
                        },
                        "VideoSourceToken": {
                            "type": "string"
                        },
                        "RuleName": {
                            "type": "string"
                        }
                    }
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "State": {
                            "type": "boolean"
                        },
                        "ObjectId": {
                            "type": "string"
                        },
                        "Action": {
                            "type": "string"
                        }
                    }
                }
            }
        },
        {
            "type": "object",
            "properties": {
                "Time": {
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "OpenSDK.WiseAI.ObjectDetection" ③
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {
                        "Channel": {
                            "type": "number"
                        },
                        "AppName": {
                            "type": "string"
                        },
                        "AppEvent": {
                            "type": "string"
                        },
                        "AppID": {
                            "type": "string"
```

```
                },
                "Type": {
                    "enum": [
                        "Event"
                    ]
                },
                "VideoSourceToken": {
                    "type": "string"
                },
                "RuleName": {
                    "type": "string"
                }
            }
        },
        "Data": {
            "type": "object",
            "properties": {
                "State": {
                    "type": "boolean"
                },
                "ClassTypes": {
                    "type": "string"
                }
            }
        }
    }
},
{
    "type": "object",
    "properties": {
        "Time": {
            "type": "string"
        },
        "EventName": {
            "enum": [
                "OpenSDK.WiseAI.ObjectCounting"  ④
            ]
        },
        "Source": {
            "type": "object",
            "properties": {
                "Channel": {
                    "type": "number"
                },
                "AppName": {
                    "type": "string"
                },
                "AppEvent": {
                    "type": "string"
                },
                "AppID": {
```

```
                            "type": "string"
                        },
                        "Type": {
                            "enum": [
                                "Event"
                            ]
                        },
                        "VideoSourceToken": {
                            "type": "string"
                        },
                        "RuleName": {
                            "type": "string"
                        }
                    }
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "ReportType": {
                            "type": "string"
                        },
                        "ObjectType": {
                            "type": "string"
                        },
                        "Direction": {
                            "type": "string"
                        },
                        "Count": {
                            "type": "number"
                        }
                    }
                }
            }
        },
        {
            "type": "object",
            "properties": {
                "Time": {
                    "type": "string"
                },
                "EventName": {
                    "enum": [
                        "OpenSDK.WiseAI.StoppedVehicleDetection" ⑤
                    ]
                },
                "Source": {
                    "type": "object",
                    "properties": {
                        "Channel": {
                            "type": "number"
                        },
```

```json
                    "AppName": {
                        "type": "string"
                    },
                    "AppEvent": {
                        "type": "string"
                    },
                    "AppID": {
                        "type": "string"
                    },
                    "Type": {
                        "enum": [
                            "Event"
                        ]
                    },
                    "VideoSourceToken": {
                        "type": "string"
                    },
                    "RuleName": {
                        "type": "string"
                    }
                }
            },
            "Data": {
                "type": "object",
                "properties": {
                    "State": {
                        "type": "boolean"
                    },
                    "VehicleTypes": {
                        "type": "string"
                    },
                    "ObjectIDs": {
                        "type": "string"
                    }
                }
            }
        }
    },
    {
        "type": "object",
        "properties": {
            "Time": {
                "type": "string"
            },
            "EventName": {
                "enum": [
                    "OpenSDK.WiseAI.TrafficJamDetection"  ⑥
                ]
            },
            "Source": {
                "type": "object",
```

```
                    "properties": {
                        "Channel": {
                            "type": "number"
                        },
                        "AppName": {
                            "type": "string"
                        },
                        "AppEvent": {
                            "type": "string"
                        },
                        "AppID": {
                            "type": "string"
                        },
                        "Type": {
                            "enum": [
                                "Event"
                            ]
                        },
                        "VideoSourceToken": {
                            "type": "string"
                        },
                        "RuleName": {
                            "type": "string"
                        }
                    }
                },
                "Data": {
                    "type": "object",
                    "properties": {
                        "State": {
                            "type": "boolean"
                        }
                    }
                }
            }
        }
    ]
}
```

① : LineCrossing Event Schema in JSON Response

② : IvaArea Event Schema in JSON Response

③ : ObjectDetection schema in JSON Response

④ : ObjectCounting schema in JSON Response

⑤ : StoppedVehicleDetection schema in JSON Response

⑥ : TrafficJamDetection schema in JSON Response

## 4.3.2. Event Status Response

Eventstatus response format for the app generated event is shown below depending on whether

SchemaBased request is made or not. When SchemaBased eventstatus request is made, more information regarding the event can be received in addition to the basic event notification (Example like which area or line triggered the event). Therefore, It is recommended to use SchemaBased requests that can receive all information rather than normal data, which is abbreviated information. For more details on getting event status, refer to **5.1. Event Status** of the SUNAPI event document.

Table 1. TEXT RESPONSE FORMAT (NORMAL)

| Event Name | EventStatus Response |
|---|---|
| ObjectDetection | `Channel.0.OpenSDK.WiseAI.ObjectDetection=False` |
| IvaArea | `Channel.0.OpenSDK.WiseAI.IvaArea=True` |
| LineCrossing | `Channel.0.OpenSDK.WiseAI.LineCrossing=True` |
| StoppedVehicleDetection | `Channel.0.OpenSDK.WiseAI.StoppedVehicleDetection=True` |
| TrafficJamDetection | `Channel.0.OpenSDK.WiseAI.TrafficJamDetection=True` |

Table 2. JSON RESPONSE FORMAT (NORMAL)

| Event Name | EventStatus Response |
|---|---|
| ObjectDetection | <pre>{<br>    "ChannelEvent": [<br>        {<br>            "Channel": 0,<br>            "OpenSDK":{<br>                "WiseAI":{<br>                    "ObjectDetection" : true<br>                }<br>            }<br>        }<br>    ]<br>}</pre> |

| Event Name | EventStatus Response |
|---|---|
| IvaArea | ```json
{
    "ChannelEvent": [
        {
            "Channel": 0,
            "OpenSDK":{
                "WiseAI":{
                    "IvaArea" : false
                }
            }
        }
    ]
}
``` |
| LineCrossing | ```json
{
    "ChannelEvent": [
        {
            "Channel": 0,
            "OpenSDK":{
                "WiseAI":{
                    "LineCrossing" : true
                }
            }
        }
    ]
}
``` |
| StoppedVehicleDetection | ```json
{
    "ChannelEvent": [
        {
            "Channel": 0,
            "OpenSDK":{
                "WiseAI":{
                    "StoppedVehicleDetection" : false
                }
            }
        }
    ]
}
``` |

| Event Name | EventStatus Response |
|---|---|
| TrafficJamDetection | <pre>{<br>    "ChannelEvent": [<br>        {<br>            "Channel": 0,<br>            "OpenSDK":{<br>                "WiseAI":{<br>                    "TrafficJamDetection" : false<br>                }<br>            }<br>        }<br>    ]<br>}</pre> |

Table 3. TEXT RESPONSE FORMAT (SCHEMA BASED)

| Event Name | EventStatus Response |
|---|---|
| ObjectDetection | Channel.0.OpenSDK.WiseAI.ObjectDetection=True<br>Channel.0.OpenSDK.WiseAI.ObjectDetection.1.VideoSourceToken=Token1<br>Channel.0.OpenSDK.WiseAI.ObjectDetection.1.RuleName=RuleName1<br>Channel.0.OpenSDK.WiseAI.ObjectDetection.1.State=True<br>Channel.0.OpenSDK.WiseAI.ObjectDetection.1.ClassType=Person Vehicle |
| IvaArea | Channel.0.OpenSDK.WiseAI.IvaArea=True<br>Channel.0.OpenSDK.WiseAI.IvaArea.1.VideoSourceToken=VideoSourceToken-0<br>Channel.0.OpenSDK.WiseAI.IvaArea.1.RuleName=Rule1<br>Channel.0.OpenSDK.WiseAI.IvaArea.1.State=True<br>Channel.0.OpenSDK.WiseAI.IvaArea.1.ObjectId=10<br>Channel.0.OpenSDK.WiseAI.IvaArea.1.Action=Intrusion<br>Channel.0.OpenSDK.WiseAI.IvaArea.2.VideoSourceToken=VideoSourceToken-0<br>Channel.0.OpenSDK.WiseAI.IvaArea.2.RuleName=Rule2<br>Channel.0.OpenSDK.WiseAI.IvaArea.2.State=True<br>Channel.0.OpenSDK.WiseAI.IvaArea.2.ObjectId=12<br>Channel.0.OpenSDK.WiseAI.IvaArea.2.Action=Enter |

| Event Name | EventStatus Response |
|---|---|
| LineCrossing | ```
Channel.0.OpenSDK.WiseAI.LineCrossing=True
Channel.0.OpenSDK.WiseAI.LineCrossing.1.VideoSourceToken=Vi
deoSourceToken-0
Channel.0.OpenSDK.WiseAI.LineCrossing.1.RuleName=RuleName1
Channel.0.OpenSDK.WiseAI.LineCrossing.1.State=True
Channel.0.OpenSDK.WiseAI.LineCrossing.1.ObjectId=13
Channel.0.OpenSDK.WiseAI.LineCrossing.1.Action=Right
``` |
| StoppedVehicleDetection | ```
Channel.0.OpenSDK.WiseAI.StoppedVehicleDetection=True
Channel.0.OpenSDK.WiseAI.StoppedVehicleDetection.1.VideoSou
rceToken=VideoSourceToken-0
Channel.0.OpenSDK.WiseAI.StoppedVehicleDetection.1.RuleName
=rulename
Channel.0.OpenSDK.WiseAI.StoppedVehicleDetection.1.State=tr
ue
Channel.0.OpenSDK.WiseAI.StoppedVehicleDetection.1.VehicleT
ypes=Car Bus Truck Motorcycle Bicycle
Channel.0.OpenSDK.WiseAI.StoppedVehicleDetection.1.ObjectID
s=258 260 261 278 280
``` |
| TrafficJamDetection | ```
Channel.0.OpenSDK.WiseAI.TrafficJamDetection=True
Channel.0.OpenSDK.WiseAI.TrafficJamDetection.1.VideoSourceT
oken=VideoSourceToken-0
Channel.0.OpenSDK.WiseAI.TrafficJamDetection.1.RuleName=rul
ename
Channel.0.OpenSDK.WiseAI.TrafficJamDetection.1.State=True
``` |

Table 4. JSON RESPONSE FORMAT (SCHEMA BASED)

| Event Name | EventStatus Response |
|---|---|
| ObjectDetection | <pre>{
  "EventName": "OpenSDK.WiseAI.ObjectDetection",
  "Time": "2021-10-27T07:36:14.509+00:00",
  "Source": {
    "Channel": 0,
    "AppName": "WiseAI",
    "AppEvent": "ObjectDetection",
    "AppID": "WiseAI",
    "Type": "Event",
    "VideoSourceToken": "VideoSourceToken-0",
    "RuleName": "Rule1",
  },
  "Data": {
    "ClassTypes": "Person Vehicle",
    "State": true,
  }
}</pre> |
| IvaArea | <pre>{
  "EventName": "OpenSDK.WiseAI.IvaArea",
  "Time": "2021-10-27T07:36:14.509+00:00",
  "Source": {
    "Channel": 0,
    "AppName": "WiseAI",
    "AppEvent": "IvaArea",
    "AppID": "WiseAI",
    "Type": "Event",
    "VideoSourceToken": "VideoSourceToken-0",
    "RuleName": "Rule1",
  },
  "Data": {
    "State": true,
    "ObjectId": "10",
    "Action": "Enter"
  }
}</pre> |

| Event Name | EventStatus Response |
|---|---|
| LineCrossing | ```json
{
  "EventName": "OpenSDK.WiseAI.LineCrossing",
  "Time": "2021-10-27T07:36:14.509+00:00",
  "Source": {
    "Channel": 0,
    "AppName": "WiseAI",
    "AppID": "WiseAI",
    "AppEvent": "LineCrossing",
    "Type": "Event",
    "VideoSourceToken": "VideoSourceToken-0",
    "RuleName": "RuleName1",
  },
  "Data": {
    "State": true,
    "ObjectId": "11",
    "Action": "Right"
  }
}
``` |
| StoppedVehicleDetection | ```json
{
  "EventName":
"OpenSDK.WiseAI.StoppedVehicleDetection",
  "Time": "2021-10-27T07:36:14.509+00:00",
  "Source": {
    "Channel": 0,
    "AppName": "WiseAI",
    "AppID": "WiseAI",
    "AppEvent": "StoppedVehicleDetection",
    "Type": "Event",
    "VideoSourceToken": "VideoSourceToken-0",
    "RuleName": "rulename",
  },
  "Data": {
    "State": true,
    "VehicleTypes": "Car Bus Truck Motorcycle Bicycle",
    "ObjectIDs": "258 260 261 278 280"
  }
}
``` |

| Event Name | EventStatus Response |
|---|---|
| TrafficJamDetection | <pre>{<br>  "EventName": "OpenSDK.WiseAI.TrafficJamDetection",<br>  "Time": "2021-10-27T07:36:14.509+00:00",<br>  "Source": {<br>    "Channel": 0,<br>    "AppName": "WiseAI",<br>    "AppID": "WiseAI",<br>    "AppEvent": "TrafficJamDetection",<br>    "Type": "Event",<br>    "VideoSourceToken": "VideoSourceToken-0",<br>    "RuleName": "rulename",<br>  },<br>  "Data": {<br>    "State": true<br>  }<br>}</pre> |
| ObjectCounting | **NOTE** The ObjectCounting event is generated only in JSON schema format, this event occurs only when the Count value is changed. "Count" data is counted over 1 second, not cumulative value. Currently only "Punctual" ReportType is supported, but it may be extended to other ReportTypes such as "Summary" in the future.<br><br><pre>{<br>  "EventName": "OpenSDK.WiseAI.ObjectCounting",<br>  "Time": "2021-10-27T07:36:14.509+00:00",<br>  "Source": {<br>    "Channel": 0,<br>    "AppName": "WiseAI",<br>    "AppID": "WiseAI",<br>    "AppEvent": "ObjectCounting",<br>    "Type": "Event",<br>    "VideoSourceToken": "VideoSourceToken-0",<br>    "RuleName": "rulename"<br>  },<br>  "Data": {<br>    "ReportType": "Punctual",<br>    "ObjectType": "Vehicle",<br>    "Direction": "LeftToRightIn",<br>    "Count": 1<br>  }<br>}</pre> |

### 4.3.3. ONVIF

When connecting to camera through ONVIF, events supported in Apps are listed as part of ONVIF EventService **GetEventProperties** Command Response. Event topic in ONVIF is structured like below,



Table 5. Supported EventTopics and Schema

| Event | Topic | Schema |
|---|---|---|
| ObjectDetection | tns1:OpenApp/WiseAI/ObjectDetection | ```<?xml version="1.0" encoding="UTF-8"?>`<br>`<ObjectDetection wstop:topic="true" xmlns:tt="http://www.onvif.org/ver10/schema">`<br>`  <tt:MessageDescription IsProperty="true">`<br>`    <tt:Source>`<br>`      <tt:SimpleItemDescription Name="VideoSourceToken" Type="tt:ReferenceToken"/>`<br>`      <tt:SimpleItemDescription Name="RuleName" Type="xsd:string"/>`<br>`    </tt:Source>`<br>`    <tt:Data>`<br>`      <tt:SimpleItemDescription Name="ClassTypes" Type="tt:StringList"/>`<br>`      <tt:SimpleItemDescription Name="State" Type="xsd:boolean"/>`<br>`    </tt:Data>`<br>`  </tt:MessageDescription>`<br>`</ObjectDetection>``` |

| Event | Topic | Schema |
|-------|-------|--------|
| IvaArea | tns1:OpenApp/WiseAI/IvaArea | ```xml<br><?xml version="1.0" encoding="UTF-8"?><br><IvaArea wstop:topic="true"><br>  <tt:MessageDescription><br>    <tt:Source><br>      <tt:SimpleItemDescription Name="VideoSourceToken" Type="tt:ReferenceToken"/><br>      <tt:SimpleItemDescription Name="RuleName" Type="xsd:string"/><br>    </tt:Source><br>    <tt:Data><br>      <tt:SimpleItemDescription Name="State" Type="xsd:boolean"/><br>      <tt:SimpleItemDescription Name="ObjectId" Type="tt:StringList"/><br>      <tt:SimpleItemDescription Name="Action" Type="tt:StringList"/><br>    </tt:Data><br>  </tt:MessageDescription><br></IvaArea><br>``` |

| Event | Topic | Schema |
|-------|-------|--------|
| LineCrossing | tns1:OpenApp/WiseAI/LineCrossing | ```xml<br><?xml version="1.0" encoding="UTF-8"?><br>  <LineCrossing wstop:topic="true"><br>    <tt:MessageDescription><br>      <tt:Source><br>        <tt:SimpleItemDescription Name="VideoSourceToken" Type="tt:ReferenceToken"/><br>        <tt:SimpleItemDescription Name="RuleName" Type="xsd:string"/><br>      </tt:Source><br>      <tt:Data><br>        <tt:SimpleItemDescription Name="State" Type="xsd:boolean"/><br>        <tt:SimpleItemDescription Name="ObjectId" Type="tt:StringList"/><br>        <tt:SimpleItemDescription Name="Action" Type="tt:StringList"/><br>      </tt:Data><br>    </tt:MessageDescription><br>  </LineCrossing><br>``` |

| Event | Topic | Schema |
|---|---|---|
| StoppedVehicleDetection | tns1:OpenApp/WiseAI/StoppedVehicleDetection | ```<StoppedVehicleDetection wstop:topic="true">     <tt:MessageDescription>       <tt:Source>         <tt:SimpleItemDescription Name="VideoSourceToken" Type="tt:ReferenceToken"/>         <tt:SimpleItemDescription Name="RuleName" Type="xsd:string"/>       </tt:Source>       <tt:Data>         <tt:SimpleItemDescription Name="State" Type="xsd:boolean"/>         <tt:SimpleItemDescription Name="VehicleTypes" Type="tt:StringList"/>         <tt:SimpleItemDescription Name="ObjectIDs" Type="tt:StringList"/>       </tt:Data>     </tt:MessageDescription> </StoppedVehicleDetection>``` |
| TrafficJamDetection | tns1:OpenApp/WiseAI/TrafficJamDetection | ```<?xml version="1.0" encoding="UTF-8"?>   <TrafficJamDetection wstop:topic="true">     <tt:MessageDescription>       <tt:Source>         <tt:SimpleItemDescription Name="VideoSourceToken" Type="tt:ReferenceToken"/>         <tt:SimpleItemDescription Name="RuleName" Type="xsd:string"/>       </tt:Source>       <tt:Data>         <tt:SimpleItemDescription Name="State" Type="xsd:boolean"/>       </tt:Data>     </tt:MessageDescription>   </TrafficJamDetection>``` |

| Event | Topic | Schema |
|---|---|---|
| ObjectCounting | tns1:OpenApp/WiseAI/ObjectCounting | <pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt;<br>  &lt;ObjectCounting wstop:topic="true"&gt;<br>    &lt;tt:MessageDescription&gt;<br>      &lt;tt:Source&gt;<br>        &lt;tt:SimpleItemDescription Name="VideoSourceToken" Type="tt:ReferenceToken"/&gt;<br>        &lt;tt:SimpleItemDescription Name="RuleName" Type="xsd:string"/&gt;<br>      &lt;/tt:Source&gt;<br>      &lt;tt:Data&gt;<br>        &lt;tt:SimpleItemDescription Name="ReportType" Type="xsd:string"/&gt;<br>        &lt;tt:SimpleItemDescription Name="ObjectType" Type="xsd:string"/&gt;<br>        &lt;tt:SimpleItemDescription Name="Direction" Type="xsd:string"/&gt;<br>        &lt;tt:SimpleItemDescription Name="Count" Type="xsd:integer"/&gt;<br>      &lt;/tt:Data&gt;<br>    &lt;/tt:MessageDescription&gt;<br>&lt;/ObjectCounting&gt;</pre> |

# 5. Intermediate Integration

In addition to the Basic Integration, this section covers how the eventsource can be configured on the WiseAI Application.

## 5.1. OpenAPI Specification

Unlike SUNAPI, WiseAI App uses OpenAPI Specification to define the service, allowing the client to generate stub code to access the WiseAI app. Please refer to OpenAPI Documentation for basic understanding of OpenAPI and OpenAPI Tools for the opensource tools. Could also use swagger hub tools which is free for experimenting and testing SwaggerHub.

## 5.2. API Usage

For accessing the App's service, below format is followed.

{Scheme}://{Address}/{BasePath}/{APIPath}

Sample getservices api path would look like,

BasePath       API Path

http://<IPAddress>/opensdk/WiseAI/configuration/getservices

Since the capability of the App varies according the camera on which its installed. Its recommended to follow below steps for integration.

For more information on the WiseAI App and its API please refer to WiseAI API Documentation

| NOTE | Please make sure WiseAI App is in **running** state as explained in Prerequisites Section before accessing the WiseAI API. |
|------|---|

## 5.2.1. STEPS

1. Check the response of "configuration/getservices" api to see what services are supported , how many channels are supported and what methods are supported for which API.

REQUEST

```
http://<Device IP>/opensdk/WiseAI/configuration/getservices?includeDetails=true
```

RESPONSE

```
{
    "appName": "WiseAI",
    "appVersion": "1.0",
    "cgiVersion": "1.0.0",
    "language": "English",
    "manufacturer": "Hanwha Techwin",
    "serviceCapabilities": [
        {
            "channel": 0,
            "serviceDetails": [
                {
                    "baseUrl": "/opensdk/WiseAI/configuration",
                    "id": "configuration",
                    "name": "Configuration Service",
                    "urls": [
                        {
                            "methods": [
                                "get"
                            ],
                            "path": "/getservice"
```

```
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/capability"
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/objectdetection"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/objectdetection/options"
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/imagetransfer"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/imagetransfer/options"
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/ivaarea"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/ivaarea/options"
            },
            {
                "methods": [
                    "delete"
                ],
                "path": "/ivaarea/definedarea"
```

```json
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/linecrossing"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/linecrossing/options"
            },
            {
                "methods": [
                    "delete"
                ],
                "path": "/linecrossing/line"
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/analyticsexcludesettings"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/analyticsexcludesettings/options"
            },
            {
                "methods": [
                    "delete"
                ],
                "path": "/analyticsexcludesettings/excludeareas"
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/stoppedvehicledetection"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/stoppedvehicledetection/options"
```

```
                            },
                            {
                                "methods": [
                                    "delete"
                                ],
                                "path": "/stoppedvehicledetection/areas"
                            },
                            {
                                "methods": [
                                    "get",
                                    "put"
                                ],
                                "path": "/trafficjamdetection"
                            },
                            {
                                "methods": [
                                    "get"
                                ],
                                "path": "/trafficjamdetection/options"
                            },
                            {
                                "methods": [
                                    "delete"
                                ],
                                "path": "/trafficjamdetection/rules"
                            },
                            {
                                "methods": [
                                    "get",
                                    "put"
                                ],
                                "path": "/objectcounting"
                            },
                            {
                                "methods": [
                                    "get"
                                ],
                                "path": "/objectcounting/options"
                            },
                            {
                                "methods": [
                                    "delete"
                                ],
                                "path": "/objectcounting/countingrules/excludeareas"
                            },
                            {
                                "methods": [
                                    "get",
                                    "put"
                                ],
                                "path": "/objectcounting/report"
```

```
        },
        {
            "methods": [
                "get"
            ],
            "path": "/objectcounting/report/options"
        },
        {
            "methods": [
                "delete"
            ],
            "path": "/objectcounting/data"
        },
        {
            "methods": [
                "get",
                "post",
                "delete"
            ],
            "path": "/settings"
        },
        {
            "methods": [
                "get",
                "put"
            ],
            "path": "/dataserver"
        },
        {
            "methods": [
                "get"
            ],
            "path": "/dataserver/test"
        },
        {
            "methods": [
                "get",
                "put"
            ],
            "path": "/commonanalyticssettings"
        },
        {
            "methods": [
                "get"
            ],
            "path": "/commonanalyticssettings/options"
        },
        {
            "methods": [
                "get"
            ],
```

```
                    "path": "/rsa"
                }
            ]
        },
        {
            "baseUrl": "/opensdk/WiseAI/search",
            "id": "search",
            "name": "Search Service",
            "urls": [
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/capability"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/eventlog"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/systemlog"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/objectcounting"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/objectcounting/{searchToken}"
                },
                {
                    "methods": [
                        "put"
                    ],
                    "path": "/objectcounting/{searchToken}/cancel"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/objectcounting/{searchToken}/results"
                },
```

```
                                {
                                    "methods": [
                                        "get"
                                    ],
                                    "path": "/objectcounting/check"
                                }
                            ]
                        }
                    ],
                    "supportedServices": [
                        "configuration",
                        "search"
                    ]
                },
                {
                    "channel": 1,
                    "serviceDetails": [
                        {
                            "baseUrl": "/opensdk/WiseAI/configuration",
                            "id": "configuration",
                            "name": "Configuration Service",
                            "urls": [
                                {
                                    "methods": [
                                        "get"
                                    ],
                                    "path": "/getservice"
                                },
                                {
                                    "methods": [
                                        "get"
                                    ],
                                    "path": "/capability"
                                },
                                {
                                    "methods": [
                                        "get",
                                        "put"
                                    ],
                                    "path": "/objectdetection"
                                },
                                {
                                    "methods": [
                                        "get"
                                    ],
                                    "path": "/objectdetection/options"
                                },
                                {
                                    "methods": [
                                        "get",
                                        "put"
```

```
                ],
                "path": "/imagetransfer"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/imagetransfer/options"
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/ivaarea"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/ivaarea/options"
            },
            {
                "methods": [
                    "delete"
                ],
                "path": "/ivaarea/definedarea"
            },
            {
                "methods": [
                    "get",
                    "put"
                ],
                "path": "/linecrossing"
            },
            {
                "methods": [
                    "get"
                ],
                "path": "/linecrossing/options"
            },
            {
                "methods": [
                    "delete"
                ],
                "path": "/linecrossing/line"
            },
            {
                "methods": [
                    "get",
                    "put"
```

```
                    ],
                    "path": "/analyticsexcludesettings"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/analyticsexcludesettings/options"
                },
                {
                    "methods": [
                        "delete"
                    ],
                    "path": "/analyticsexcludesettings/excludeareas"
                },
                {
                    "methods": [
                        "get",
                        "post",
                        "delete"
                    ],
                    "path": "/settings"
                },
                {
                    "methods": [
                        "get",
                        "put"
                    ],
                    "path": "/commonanalyticssettings"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/commonanalyticssettings/options"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/rsa"
                }
            ]
        },
        {
            "baseUrl": "/opensdk/WiseAI/search",
            "id": "search",
            "name": "Search Service",
            "urls": [
                {
                    "methods": [
```

```
                        "get"
                    ],
                    "path": "/capability"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/eventlog"
                },
                {
                    "methods": [
                        "get"
                    ],
                    "path": "/systemlog"
                }
            ]
        }
    ],
    "supportedServices": [
        "configuration",
        "search"
    ]
    }
  ]
}
```

2. Each service supported has "capability" api to inform feature level capability for each services of channel. (Alternative to Attribute cgi in SUNAPI)

<span style="color:red">REQUEST</span>

```
http://<Device IP>/opensdk/WiseAI/configuration/capability
```

```json
{
    "capabilities": [
        {
            "channel": 0,
            "frameMetaType": "Classification",
            "imagetransfer": true,
            "imagetransferTypes": [
                "Object"
            ],
            "ivaarea": true,
            "linecrossing": true,
            "maxResolution": {
                "height": 1872,
                "width": 3328
            },
            "objectcounting": true,
            "objectcountingTypes": [
                "Vehicle"
            ],
            "objectdetection": true,
            "rotation": false,
            "stoppedvehicledetection": false,
            "trafficjamdetection": false
        },
        {
            "channel": 1,
            "frameMetaType": "Classification",
            "imagetransfer": true,
            "imagetransferTypes": [
                "Object"
            ],
            "ivaarea": true,
            "linecrossing": true,
            "maxResolution": {
                "height": 1872,
                "width": 3328
            },
            "objectcounting": false,
            "objectdetection": true,
            "rotation": false,
            "stoppedvehicledetection": false,
            "trafficjamdetection": false
        }
    ]
}
```

3. Based on above capability check, a feature can be configured. While configuring a feature the valid range or allowed values, options response can be referred. For example for configuring

"objectdetection" , "objectdetection/options" response can be referred for allowed values.

```
http://<Device IP>/opensdk/WiseAI/configuration/objectdetection/options
```

```json
{
    "objectDetectionOptions": [
        {
            "channel": 0,
            "duration": {
                "max": 5,
                "min": 0
            },
            "objectTypes": [
                "Person",
                "Face",
                "LicensePlate",
                "Vehicle.Bicycle",
                "Vehicle.Car",
                "Vehicle.Motorcycle",
                "Vehicle.Bus",
                "Vehicle.Truck"
            ]
        },
        {
            "channel": 1,
            "duration": {
                "max": 5,
                "min": 0
            },
            "objectTypes": [
                "Person",
                "Face",
                "LicensePlate",
                "Vehicle.Bicycle",
                "Vehicle.Car",
                "Vehicle.Motorcycle",
                "Vehicle.Bus",
                "Vehicle.Truck"
            ]
        }
    ]
}
```

# 6. Full Integration

In addition to the Basic Integration and Intermediate Integration, this section covers how the eventactions can be configured in camera using SUNAPI.

## 6.1. Drawback of existing eventaction setup

In SUNAPI for configuring event actions, two submenus are used depending on the number of channels (Videosources) supported, like eventrules.cgi→rules submenu when only one video source is supported and eventactions.cgi→complexaction submenu when more than one video source is supported. Another drawback of existing "complexaction" and "rules" submenu is, user cannot configure actions based on combination of events. For example, one combination action setup can be, triggering Alarmout only when Motiondetection and AlarmIn is detected.

To overcome above drawback, dynamicrules submenu is newly added in eventrules cgi.

## 6.2. DynamicEventRule in SUNAPI

### 6.2.1. Dynamic Rules

#### 6.2.1.1. Description

The **dynamicrules** submenu is used to configure rules regarding what actions to take on what channels when an event is notified.

| | |
|---|---|
| **NOTE** | Attributes to check **dynamicrules** feature support: "attributes/Eventsource/Support/DynamicRule" Attribute to check for the maximum number of rules supported: "attributes/Eventsource/Limit/MaxDynamicRule" Attribute to check for the maximum number of events supported by the rule: "attributes/Eventsource/Support/MaxDynamicRule.EventSource" Attribute to check for the maximum number of schedules supported: "attributes/Eventsource/Limit/MaxScheduleCount" |

**Access level**

| Action | Camera | NVR |
|---|---|---|
| view | Admin | User |
| add, update | Admin | User |
| remove | Admin | User |

#### 6.2.1.2. Syntax

```
http://<Device IP>/stw-cgi/eventrules.cgi?msubmenu=
dynamicrules&action=<value>[&<parameter>=<value>]
```

### 6.2.1.3. Parameters

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| view | Rule.#.RuleName | RES | <string> | Rulename used for uniquely identifying a rule. |
| | Rule.#.Duration | RES | <int> | Duration in seconds |
| | Rule.#.ScheduleName e | RES | <string> | Determines which schedule is associated with the rule. |
| | Rule.#.Enable | RES | <bool> True, False | To enable or disable rule. |
| | Rule.#.Status | RES | <enum> Unavailable, Available | Indicates the operable state of the rule. |
| | Rule.#.EventSource. #.Type | RES | <enum> MotionDetection, VideoAnalytics, Tampering, DefocusDetection, FogDetection, AudioDetection, AudioAnalytics, NetworkAlarmInput , PasswordChange, HDDStatus, FANError, PowerOnOff, Recording, AppEvent | In a single rule, there can be several eventsources configured. |
| | Rule.#.EventSource. #.AppName | RES | <string> | The name of installed app **Rule.#.EventSource.#.AppName** is valid only when **Rule.#.EventSource.#.Type** is set to **AppEvent**. CAMERA ONLY |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| | Rule.#.EventSource. #.AppEventType | RES | <string> | The event source type of installed app

**Rule.#.EventSource.#.AppEventType** is valid only when **Rule.#.EventSource.#.Type** is set to **AppEvent**.

CAMERA ONLY |
| | Rule.#.EventSource. #.RuleIndexType | RES | <enum> Any, Specific | Rule index of the event source type:

- Any – A trigger with one or more of the event's rule indices
- Specific - A specific rule index of an event as a trigger

> **Note**
> if RuleIndexType is **Specific** should specify with **Rule.#.EventSource.#.Rule Index** parameter

CAMERA ONLY |
| | Rule.#.EventSource. #.RuleIndex | RES | <int> | A rule index of an event as a trigger.

**Rule.#.EventSource.#.RuleInd ex** is valid only when **Rule.#.EventSource.#.RuleInd exType** is set to **Specific**.

CAMERA ONLY |
| | Rule.#.EventSource. #.Channel | RES | <int> | Determines from which channel Event source type needs to be handled.

CAMERA ONLY |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| | Rule.#.EventSource. #.ChannelIDList | RES | <csv> | Determines from which channels Event source type needs to be handled. NVR ONLY |
| | Rule.#.EventSource. #.DynamicEventNa me | RES | <string> | Dynamic event name received from Camera NVR ONLY |
| | Rule.#.EventSource. #.State | RES | <bool> True, Flase | State of the event source set as the trigger condition CAMERA ONLY |
| | Rule.#.EventAction.# .Type | RES | <enum> GoToPreset, AlarmOutput.#, SMTP, EventPush, EventSpot, FTP, AudioClip, Record, Handover | Any of the following event actions are possible; multiple event actions can be configured. |
| | Rule.#.EventAction.# .Channel.#.PresetNu mber | RES | <int> | Used when the event action type is GoToPreset |
| | Rule.#.EventAction.# .AlarmOutput.Mask | RES | <csv> | Used when the event action type is AlarmOutput NVR ONLY |
| | Rule.#.EventAction.# .AlarmOutput.Durati on | RES | <enum> Off, 5s, 10s, 20s, 30s, Always | Duration of alarmout |
| | Rule.#.EventAction.# .SMTP.GroupIndex | RES | <int> | Used when the event action type is SMTP Recipient group index NVR ONLY |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| | Rule.#.EventAction.# .SMTP.UserIndex | RES | <int> | Used when the event action type is SMTP<br><br>Recipient user index<br><br>NVR ONLY |
| | Rule.#.EventAction.# .SMTP.Duration | RES | <enum><br>Off, 5s, 10s, 20s, 30s, Always | Duration<br>NVR ONLY |
| | Rule.#.EventAction.# .EventSpot.Enable | RES | <bool><br>True, False | Used when the event action type is EventSpot<br><br>Enabled or Disabled<br><br>NVR ONLY |
| | Rule.#.EventAction.# .EventSpot.Duration | RES | <int> | Used when the event action type is EventSpot<br><br>Duration<br><br>NVR ONLY |
| | Rule.#.EventAction.# .EventPush.Enable | RES | <bool><br>True, False | Used when the event action type is EventPush<br><br>Enable or Disabled<br><br>NVR ONLY |
| | Rule.#.EventAction.# .AudioClipIndex | RES | <int> | Used when the event action type is AudioClip<br><br>Audio clip index<br><br>CAMERA ONLY |
| | Rule.#.EventAction.# .HandoverIndex | RES | <int> | Used when the event action type is Handover<br><br>Handover index<br><br>CAMERA ONLY |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| add/upda te | RuleName | REQ | <string> | Rulename used for uniquely identifying a rule. |
| | RuleNewName | REQ | <string> | The Rulename to change. This parameter is used for **update** action. |
| | Duration | REQ | <int> | Duration in seconds |
| | ScheduleName | REQ | <string> | Name of schedule to be associated with this rule. |
| | Enable | REQ | <bool> True, False | To enable or disable rule. |
| | Overwrite | REQ | <bool> True, False | Whether to overwrite. This parameter is used for **update** action. **Note** If Overwrite is **True**, all other parameters must be entered. |
| | EventSource.#.Type | REQ | <enum> MotionDetection, VideoAnalytics, Tampering, DefocusDetection, FogDetection, AudioDetection, AudioAnalytics, NetworkAlarmInput , PasswordChange, HDDStatus, FANError, PowerOnOff, Recording, AppEvent | For a single rule, multiple eventsources can be configured. |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| | EventSource.#.AppName | REQ | \<string> | The name of installed app<br><br>**EventSource.#.AppName** is valid only when **EventSource.#.Type** is set to **AppEvent**.<br><br>CAMERA ONLY |
| | EventSource.#.AppEventType | REQ | \<string> | The event source type of installed app<br><br>**EventSource.#.AppEventType** is valid only when **EventSource.#.Type** is set to **AppEvent**.<br><br>CAMERA ONLY |
| | EventSource.#.RuleIndexType | REQ | \<enum> Any, Specific | Rule index of the event source type:<br><br>• Any – A trigger with one or more of the event's rule indices<br><br>• Specific - A specific rule index of an event as a trigger<br><br>**Note** if RuleIndexType is **Specific** should specify with **EventSource.#.RuleIndex** parameter<br><br>CAMERA ONLY |

| Action | Parameter | Request/Response | Type/Value | Description |
|---|---|---|---|---|
| | EventSource.#.RuleIndex | REQ | <int> | A rule index of an event as a trigger. **EventSource.#.RuleIndex** is valid only when **EventSource.#.RuleIndexType** is set to **Specific**. `CAMERA ONLY` |
| | EventSource.#.Channel | REQ | <int> | Determines from which channel Event source type needs to be handled. `CAMERA ONLY` |
| | EventSource.#.ChannelIDList | REQ | <csv> | Determines from which channels Event source type needs to be handled. `NVR ONLY` |
| | EventSource.#.DynamicEventName | REQ | <string> | Dynamic event name received from Camera |
| | Rule.#.EventSource.#.State | REQ | <bool> True, Flase | Set which state of the event source to set as the trigger condition `CAMERA ONLY` |
| | EventAction.#.Type | REQ | <enum> GoToPreset, AlarmOutput.#, SMTP, EventPush, EventSpot, FTP, AudioClip, Record, Handover | Any of the following event actions are possible, multiple event actions can be configured. |
| | EventAction.#.Channel.#.PresetNumber | REQ | <int> | Used when the event action type is GoToPreset |
| | EventAction.#.AlarmOutput.Mask | REQ | <csv> | Used when the event action type is AlarmOutput `NVR ONLY` |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| | EventAction.#.Alarm Output.Duration | REQ | <enum> Off, 5s, 10s, 20s, 30s, Always | Duration of alarmout |
| | EventAction.#.SMTP. GroupIndex | REQ | <int> | Used when the event action type is SMTP<br><br>Recipient group index<br><br>NVR ONLY |
| | EventAction.#.SMTP. UserIndex | REQ | <int> | Used when the event action type is SMTP<br><br>Recipient user index<br><br>NVR ONLY |
| | EventAction.#.SMTP. Duration | REQ | <enum> Off, 5s, 10s, 20s, 30s, Always | Duration<br><br>NVR ONLY |
| | EventAction.#.Event Spot.Enable | REQ | <bool> True, False | Used when the event action type is EventSpot<br><br>Enabled or Disabled<br><br>NVR ONLY |
| | EventAction.#.Event Spot.Duration | REQ | <int> | Used when the event action type is EventSpot<br><br>Duration<br><br>NVR ONLY |
| | EventAction.#.Event Push.Enable | REQ | <bool> True, False | Used when the event action type is EventPush<br><br>Enable or Disabled<br><br>NVR ONLY |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| | EventAction.#.Audio ClipIndex | REQ | <int> | Used when the event action type is AudioClip<br><br>Audio clip index<br><br>CAMERA ONLY |
| | EventAction.#.Hand overIndex | REQ | <int> | Used when the event action type is Handover<br><br>Handover index<br><br>CAMERA ONLY |
| remove | RuleName | REQ | <string> | Rule name to be deleted |

### 6.2.1.4. Examples (for Camera)

### 6.2.1.5. Getting the current dynamic rules

> **NOTE** The camera only supports JSON responses.

REQUEST

```
http://<Device IP>/stw-cgi/eventrules.cgi?msubmenu=dynamicrules&action=view
```

JSON RESPONSE

```
HTTP/1.0 200 OK
Content-type: application/json
<Body>
```

```
{
    "Rules": [
        {
            "Rule": 0,
            "RuleName": "Test",
            "ScheduleName": "Always",
            "Duration": 5,
            "Enable": true,
            "Status": "Unavailable",
            "EventSources": [
                {
                    "EventSource": 0,
                    "Type": "MotionDetection",
                    "RuleIndexType": "Any",
```

```
                    "Channel": 1,
                    "State": true
                },
                {
                    "EventSource": 1,
                    "Type": "AppEvent",
                    "AppName": "WiseAI",
                    "AppEventType": "ObjectDetection",
                    "RuleIndexType": "Any",
                    "Channel": 0,
                    "State": true
                },
                {
                    "EventSource": 2,
                    "Type": "AppEvent",
                    "AppName": "WiseAI",
                    "AppEventType": "IvaArea",
                    "RuleIndexType": "Specific",
                    "RuleIndex": 1,
                    "Channel": 0,
                    "State": true
                }
            ],
            "EventActions": [
                {
                    "EventAction": 0,
                    "Type": "SMTP"
                }
            ]
        },
        {
            "Rule": 1,
            "RuleName": "test2",
            "ScheduleName": "Always",
            "Duration": 60,
            "Enable": true,
            "Status": "Unavailable",
            "EventSources": [
                {
                    "EventSource": 0,
                    "Type": "AlarmInput.1",
                    "RuleIndexType": "Any",
                    "Channel": 0,
                    "State": true
                },
                {
                    "EventSource": 1,
                    "Type": "TamperingDetection",
                    "RuleIndexType": "Any",
                    "Channel": 0,
                    "State": true
```

```
                },
                {
                    "EventSource": 2,
                    "Type": "DefocusDetection",
                    "RuleIndexType": "Any",
                    "Channel": 0,
                    "State": true
                }
            ],
            "EventActions": []
        }
    ]
}
```

### 6.2.1.6. Adding a dynamic rule

Adding a new dynamic rule with Rule name 'Test' and several event sources; MotionDetection, IvaArea and ObjectDetection of WiseAI app's event.

| NOTE | The camera should see a list of supported events and actions via the **dynamicrulesoptions** submenu. The camera only supports JSON responses. |

<span style="color:red">REQUEST</span>

```
http://<Device IP>/stw-
cgi/eventrules.cgi?msubmenu=dynamicrules&action=add&RuleName=Test&ScheduleName=Always&
Enable=True&Duration=5&EventSource.0.Type=MotionDetection&EventSource.0.RuleIndexType=
Specific&EventSource.0.RuleIndex=1&EventSource.0.Channel=1&EventSource.0.State=True&Ev
entSource.1.Type=AppEvent&EventSource.1.AppName=WiseAI&EventSource.1.AppEventType=IvaA
rea&EventSource.1.RuleIndexType=Any&EventSource.1.Channel=0&EventSource.1.State=False&
EventSource.2.Type=AppEvent&EventSource.2.AppName=WiseAI&EventSource.2.AppEventType=Ob
jectDetection&EventSource.2.RuleIndexType=Any&EventSource.2.Channel=0&EventSource.2.St
ate=True&EventAction.0.Type=SMTP&EventAction.1.Type=Handover&EventAction.1.HandoverInd
ex=1
```

<span style="color:red">JSON RESPONSE</span>

```
HTTP/1.0 200 OK
Content-type: application/json
<Body>
```

```
{
    "Response": "Success"
}
```

### 6.2.1.7. Updating Dynamic Rule

To update an existing event rule, you must indicate the RuleName.

> **NOTE** | The camera only supports JSON responses.

REQUEST

```
http://<Device IP>/stw-
cgi/eventrules.cgi?msubmenu=dynamicrules&action=update&RuleName=Test&RuleNewName=Test2
&Enable=True&EventAction.0.Type=FTP
```

JSON RESPONSE

```
HTTP/1.0 200 OK
Content-type: application/json
<Body>
```

```
{
    "Response": "Success"
}
```

### 6.2.1.8. Removing Dynamic Rule

To remove a rule with the **remove** action and by passing the RuleName

> **NOTE** | The camera only supports JSON responses.

REQUEST

```
http://<Device IP>/stw-
cgi/eventrules.cgi?msubmenu=dynamicrules&action=remove&RuleName=Test
```

JSON RESPONSE

```
HTTP/1.0 200 OK
Content-type: application/json
<Body>
```

```
{
    "Response": "Success"
}
```

## 6.2.2. Dynamic Rules Options

### 6.2.2.1. Description

The **dynamicrulesoptions** submenu provides a list of event sources for devices available in the dynamicrules submenu and information about their action triggers. Event sources and event actions that are not activated do not appear in the list and cannot be added to rules in dynamicrules submenu

> **NOTE** | This chapter applies to network cameras only.

**Access level**

| Action | Camera |
|--------|--------|
| view   | Admin  |

### 6.2.2.2. Syntax

```
http://<Device IP>/stw-cgi/eventrules.cgi?msubmenu=
dynamicrulesoptions&action=<value>[&<parameter>=<value>]
```

### 6.2.2.3. Parameters

| Action | Parameter | Request/ Response | Type/ Value | Description |
|--------|-----------|-------------------|-------------|-------------|
| view | Channel | REQ, RES | <csv> | Channel ID |
| | Language | REQ | <enum> | Language of the interface to the event type |
| | EventSource.#.Type | RES | <string> | Event types provided by the device |
| | EventSource.#.Type_ <Language> | RES | <string> | Interface language data for the language selected in the Language parameter<br><br>Displayed only when the **Language** parameter is specified |
| | EventSource.#.Status | RES | <enum> Inactive, Active | Indicates whether the event is currently active |
| | EventSource.#.Policy | RES | <enum> OneShot, Property | Indicates the event policy |

| Action | Parameter | Request/ Response | Type/ Value | Description |
|---|---|---|---|---|
| | EventSource.#.Actio nTypes | RES | <csv> AlarmOutput.#, SMTP, FTP, Record, HTTP, GoToPreset, AudioClip | Event action types provided by the device |
| | EventSource.#.Rule. #.Name | RES | <string> | The name of the rule in the event |
| | AppEventSource.#.A ppName | RES | <string> | The name of the app installed through the device's opensdk |
| | AppEventSource.#.T ype | RES | <string> | Event types provided by opensdk app of the device |
| | AppEventSource.#.T ype_<Language> | RES | <string> | Interface language data for the language selected in the Language parameter  Displayed only when the **Language** parameter is specified |
| | AppEventSource.#.St atus | RES | <enum> Inactive, Active | Indicates whether the event of app is currently active |
| | AppEventSource.#.P olicy | RES | <enum> OneShot, Property | Indicates the event policy of app |
| | AppEventSource.#.A ctionTypes | RES | <csv> AlarmOutput.#, SMTP, FTP, Record, HTTP, GoToPreset, AudioClip | Event types provided by the device for the event source of app |
| | AppEventSource.#.R ule.#.Name | RES | <string> | The name of the rule in the event of app |

### 6.2.2.4. Examples

### 6.2.2.5. Getting the current dynamic rules options (this submenu supports only JSON response)

```
http://<Device IP>/stw-cgi/eventrules.cgi?msubmenu=dynamicrulesoptions&action=view
```

```
HTTP/1.0 200 OK
Content-type: application/json
<Body>
```

```
{
  "DynamicRulesOptions": [
    {
      "Channel": 0,
      "EventSources": [
        {
          "Type": "AlarmInput.1",
          "Status": "Active",
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
          ]
        },
        {
          "Type": "AlarmInput.2",
          "Status": "Active",
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
          ]
        },
        {
          "Type": "AudioAnalysis",
          "Status": "Inactive",
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
```

```
        ]
      },
      {
        "Type": "AudioDetection",
        "Status": "Inactive",
        "ActionTypes": [
          "AlarmOutput.1",
          "AlarmOutput.2",
          "SMTP",
          "FTP",
          "Record",
          "Handover"
        ]
      },
      {
        "Type": "DefocusDetection",
        "Status": "Inactive",
        "ActionTypes": [
          "AlarmOutput.1",
          "AlarmOutput.2",
          "SMTP",
          "FTP",
          "Record",
          "Handover"
        ]
      },
      {
        "Type": "MotionDetection",
        "Status": "Active",
        "ActionTypes": [
          "AlarmOutput.1",
          "AlarmOutput.2",
          "SMTP",
          "FTP",
          "Record",
          "Handover"
        ]
      },
      {
        "Type": "NetworkDisconnect",
        "Status": "Active",
        "ActionTypes": [
          "AlarmOutput.1",
          "AlarmOutput.2",
          "Record"
        ]
      },
      {
        "Type": "TamperingDetection",
        "Status": "Active",
        "ActionTypes": [
```

```
              "AlarmOutput.1",
              "AlarmOutput.2",
              "SMTP",
              "FTP",
              "Record",
              "Handover"
            ]
          },
          {
            "Type": "Timer",
            "Status": "Inactive",
            "ActionTypes": [
              "AlarmOutput.1",
              "AlarmOutput.2",
              "SMTP",
              "FTP",
              "Record",
              "Handover"
            ]
          }
        ],
        "AppEventSources": [
          {
            "Type": "IvaArea",
            "Status": "Active",
            "AppName": "WiseAI",
            "Rule": [
              {
                "Rule": 1,
                "Name": "name 1"
              },
              {
                "Rule": 2,
                "Name": "name 2"
              }
            ],
            "ActionTypes": [
              "AlarmOutput.1",
              "AlarmOutput.2",
              "SMTP",
              "FTP",
              "Record",
              "Handover"
            ]
          },
          {
            "Type": "LineCrossing",
            "Status": "Active",
            "AppName": "WiseAI",
            "Rule": [
              {
```

```
              "Rule": 1,
              "Name": "name 1"
            }
          ],
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
          ]
        },
        {
          "Type": "ObjectDetection",
          "Status": "Active",
          "AppName": "WiseAI",
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
          ]
        }
      ]
    },
    {
      "Channel": 1,
      "EventSources": [
        {
          "Type": "DefocusDetection",
          "Status": "Inactive",
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
          ]
        },
        {
          "Type": "MotionDetection",
          "Status": "Active",
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
```

```
            "Record",
            "Handover"
          ]
        },
        {
          "Type": "TamperingDetection",
          "Status": "Inactive",
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
          ]
        }
      ],
      "AppEventSources": [
        {
          "Type": "IvaArea",
          "Status": "Active",
          "AppName": "WiseAI",
          "Rule": [
            {
              "Rule": 1,
              "Name": "name 1"
            }
          ],
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
            "FTP",
            "Record",
            "Handover"
          ]
        },
        {
          "Type": "LineCrossing",
          "Status": "Active",
          "AppName": "WiseAI",
          "Rule": [
            {
              "Rule": 1,
              "Name": "name 1"
            }
          ],
          "ActionTypes": [
            "AlarmOutput.1",
            "AlarmOutput.2",
            "SMTP",
```

```
                "FTP",
                "Record",
                "Handover"
            ]
        },
        {
            "Type": "ObjectDetection",
            "Status": "Inactive",
            "AppName": "WiseAI",
            "ActionTypes": [
                "AlarmOutput.1",
                "AlarmOutput.2",
                "SMTP",
                "FTP",
                "Record",
                "Handover"
            ]
        }
    ]
  }
 ]
}
```

# References

- [1] OpenAPI Documentation
- [2] OpenAPI Tools
- [3] SwaggerHub