Sender Overview

Sender application can be used to send Vehicle Situation, Intersection, and Object Registration/Discovery data to the clearinghouse/warehouse. The application receives messages such as VehSitDataMessage or IntersectionSituationData or partial messages (IntersectionRecord) from various sources and delivers them to the clearinghouse/warehouse via appropriate dialogs.

Note that since the dialogs are created by the sender, it will pick a dialogID when creating a new dialog and will overwrite the dialogID in the incoming messages with that dialogID.

Incoming BER messages can be binary, HEX string, or Base64 strings. The message can be consumed from a UDP port, pipe, file, or files in a folder. Folder monitoring is not supported in this version.

Sender uses JSON-based configuration file to describe all aspects of execution as described below.

All sections (top level members) are optional and all fields have defaults.

Configuration files fields:

source	specifies source and type for the incoming data
pipe	source is standard input as HEX or BASE64 string. Default: *false*
file	source is a file containing BER message(s)
folder	source is a list of files in a folder
path	path to a folder containing files
filter	expression to filter the files. For example, *.ber* .
port	source is a UDP port to listen on. If pipe, file, folder, or port is not provided the default is port with port value of *46750*.
type	incoming message format. Valid values: BER, HEX, BASE64. Default: *BER*
delay	sleep milliseconds before resending a record. Default: *500* (.5 second)
destination	specifies target host, port, and reply port for sending data to
host	target server name or IPv4/IPv6 address. Default: *localhost*
sendPort	target port. Default: *46751*
recvPort	reply to port for sending. Default: *46752*
fromPort	local port to send from. Default: *46753*
dialog	specifies target host, port, and reply port for trust establishment
group	GroupID to use in the dialog. Default: *0* (i.e. unspecified)
type	SemiDialogID type name of the dialog. Options include *advSitDataDep, vehSitData, intersectionSitDataDep, objReg, or objDisc* Default: *intersectionSitDataDep*
custom	dialog specific auxiliary settings
record	for *intersectionSitDataDep* dialog signals that incoming messages are individual IntersectionRecord(s) and not IntersectionSituationData. for *advSitDataDep* dialog signals that incoming messages are just the asdmDetails.advisoryMessage portion(s) of the full AdvisorySituationData message. for objReg dialog signals to build a new ObjectDiscoveryDataRequest message from scratch using provided serviceId and region ignoring messages found at source location for objDisc dialog this field is ignored Default: *false*
serviceId	for objReg and objDisc dialogs only. Valid values are (1=sdc,2=sdw,3=scms,4=other) Default: 1

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    svcProvId   for objReg only.  A 4 byte ServiceProviderID.  Object Registration
                records are uniquely identified in the database via the combination
                of serviceId and svcProvId.  You can have multiple records for a
                given serviceId given they have different svcProvId values.
                svcProvId values (1-4) are reserved for use by the Data Warehouse.
                Values above 5 are available for general use.     Default:5
    ttl         set this time in the IntersectionSituationData or
                AdvisorySituationData message. No default.
    region      set this geo region in the IntersectionSituationData,
                AdvisorySituationData, ObjectDiscoveryDataRequest, and
                ObjectRegistrationData messages. If record is true and region is not
                given, default is nw (43.0, -85.0), se (41.0, -82.0)
      nw        north-west corner
        lat     latitude
        lon     longitude
      se        south-east corner
        lat     latitude
        lon     longitude
    records     maximum records per dialog. Default: 5000
    timeout     close dialog after timeout seconds of inactivity. Default: 20000 (20
                seconds)

request         provides disposition for trust establishment and data receipt
  ignore        ignore trust establishment failure. Default: false
  attempts      maximum trust establishment retries. Default: 3
  timeout       socket receive timeout in milliseconds. Default: 3000 (3 seconds)

resend          provides disposition for resending failed dialogs
  recvPort      port number for receiving packets during resend. Default: 46754
  fromPort      local port to send from. Default: 46755
  delay         sleep milliseconds before resending a record. Default: 500 (.5 second)
  attempts      maximum dialog resend retries. Default: 3
  timeout       number of milliseconds to wait for receipt. Default: 3000 (3 seconds)

other           miscellaneous options
  timestamp     set timestamp field in a SpatRecord to current time. Default: false
  verbose       pretty print messages being encoded and decoded. Default: false
  relaxed       enable relaxed decoding and disable decoder constrains. Default: false

secure          specifies certificate list for secure 1609.2 message exchanges
  enable        if true secure message exchanges are enabled. Default: False
  psid          Provider Service Identifier as decimal number. Default: 12257 (0x2fe1)
  certs         certificate list section. Multiple certificates can be listed there
                and CA root certificate must be listed first.
    cert        individual certificate entry (the fields do not have defaults).
      name      mandatory certificate friendly name. Supported names are CA, RA, and
                Self in that order.
      path      mandatory path to the certificate file
      key       optional key that the certificate is encrypted with

Run sender via run_app.bat script. Or the command below:

java -cp "fedgov-cv-apps-1.0.0-SNAPSHOT-jar-with-dependencies.jar;."
        gov.usdot.cv.apps.sender.Sender -c isd_sender_config_base64_port.json
```

Sample configuration file:

```
{
    "source":{
        "port":46750,
        "type":"HEX",
        "delay":1000
    },
    "destination":{
        "host":"10.152.191.50",
        "sendPort":46751,
        "recvPort":46752,
        "fromPort":46753
    },
    "other":{
        "verbose": false
    },
    "dialog":{
        "type":"intersectionSitDataDep",
        "custom":{
            "record": true,
            "ttl":1,
            "serviceId":4,
            "svcProvId":5,
            "region":{
                "nw":{
                    "lat":43.1,
                    "lon":-85.1
                },
                "se":{
                    "lat":41.1,
                    "lon":-82.1
                }
            }
        }
    },
    "request":{
        "timeout":4000,
        "attempts":2,
        "ignore": false
    },
    "resend":{
        "timeout":4000,
        "attempts":3,
        "delay":200,
        "recvPort":46754
    },
    "secure":{
        "enable": true,
        "psid": 12257,
        "certs":[
            {
                "cert":{
                    "name": "CA",
                    "path":"/root/store/ca.cert"
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```
            }
        },
        {
            "cert":{
                "name": "RA",
                "path":"/root/store/ra.cert"
            }
        },
        {
            "cert":{
                "name": "Self",
                "path":"/root/store/sdw.cert",
                "key":"/root/store/sdw_key.txt"
            }
        }
    ]
    }
}
```