

# TriggerRequest V3

## Send Trigger Message

### Trigger Pair Token ID / Terminal

After a transaction with a GST and optionally after offline risk management, the STAS sends a Trigger Message to the Hub.

The Trigger Message is constructed by the STAS, using the general construct of the Trigger Message and any extra items that may be required by the service (these are specified in the service's property bag) the Trigger Message is attempting to provision.

Once a trigger message is received, the Hub then routes it to the correct service or services for further processing.

Use API Post: /V3/Trigger

With Message Body containing the following fields:

### Message Body for API Post

Field	Type	Description	M
Transaction	Transaction	Data object See: <a href="#">Transaction</a>	Y
Tokens	Array of BaseTokens	Data Object see: <a href="#">BaseToken</a>	Y
Sensor	BaseSensor	Data Object see: <a href="#">BaseSensor</a>	Y
Service	BaseService	Data Object see: <a href="#">BaseService</a>	Y
ServiceRequestData	ServiceRequestData	Data Object see: <a href="#">ServiceRequestData</a>	Y

### Data Object: Transaction

Field	Type	Description	M
Timestamp	String	Local timestamp format: yyyyMMddHHmmssfff concatenated with the time zone. Format [ +/- ]HHmm Example: 20151210191159000+0000	Y
Counter	Number	Counter of the sensor, incremented by one per transaction attempt	Y
SensorId	String	Sensor ID provided by Local EcoSpace	Y
ExternalTransactionId	String	Sensor reference number, Max Length 40 CHAR	N
ReferencedTransaction	String	Reference to a previous transaction	N
PropertyBag	Object	PropertyBag that must be included in case the decision for the current or previous transaction is Autonomous (offline verified transaction)	N

The PropertyBag shall be constructed as follows:

- 1). If the previous GST triggermessage was for an offline verified transaction, the PropertyBag shall contain the following:

*TriggerMessage::Transaction.Propertybag[1]=(Key = "PreviousAutonomousTransactionID", Value = PreviousTransactionID)*

*TriggerMessage::Transaction.Propertybag[2]=(Key = "PreviousAutonomousResult", Value = PreviousAutonomousResult)*

Where PreviousTransactionID shall be filled with the TransactionID of the previous offline verified transaction, and the PreviousAutonomousResult shall be filled with the value according to the table below.

2). If the current GST triggermessage is for an offline verified transaction, the PropertyBag shall contain the following:

*TriggerMessage::Transaction.Propertybag[3]=(Key = "CurrentAutonomousResult", Value = CurrentAutonomousResult)*

Wherein the CurrentAutonomousResult shall be filled with the value according to the table below.

3). In case both the current as well as the previous triggermessage are for offline verified transactions, the PropertyBag shall be filled with all items above.

Field	Type	Description / Value
PreviousAutonomousResult or CurrentAutonomousResult	Number	0 = ok 2 = signature verification failed 3 = blacklisted 4 = Token expired 5 = Token issuer not supported 6 = Token status denied

If present, the key and value for the item CurrentAutonomousResult shall NOT be included in the construction of the HTD.

### Data Object: BaseSensor

Field	Type	Description	M
Identifiers	Array	Data Object see: <a href="#">SensorIdentifier</a>	Y
SensorLocation	Object	Data Object see: <a href="#">Geolocation</a>	N

### Data Object: SensorIdentifier

Field	Type	Description	M
IdentifierType	String	example.: IMEI / SNR / MAC / . . Max Length: 50	Y
IdentifierValue	String	e.g. serial number, ID, Max Length 255	Y

### Data Object: BaseToken

Field	Type	Description	M
TokenType	String	Type of token. Here "GST21"	Y
TokenValue	String	Unique to abovementioned Token Type e.g. serial number, Token ID,  Max Length 255	Y
Propertybag	Object	Data Object see: <a href="#">Propertybag</a>	Y

### Data Object: Propertybag, collection of keyvaluepairs.

Field	Type	Description	M
Key	String	Name of the key e.g. TSI, TransactionReceipt, HTD	Y
Value	String	Value corresponding to the key	Y

### Data Object: BaseService

Field	Type	Description	M
ServiceId	Number	Service ID provided by Local EcoSpace	Y

### Data Object: ServiceRequestData

Field	Type	Description
RequestExternalIpAddress	String	External IP-Address of sensor device  Example IPv4: 2.2.2.2

RequestInternalIpAddress	String	Internal IP-Address of sensor device Example IPv4: 2.2.2.2
RequestSensorLocalTimestamp	String	Local timestamp format: yyyyMMddHHmmssfff concatenated with the timezone. Format [+/-]HHmm Example: 20151210191159000+0000
Amount	Number	In cents, default 0
CurrencyCode	String	ISO 4217 standard, 3 CHAR
RequestMode	Number	1 = Online 2 = StoreAndForward 4 = Offline 8 = OnlineAndCommit
PropertyBag	Object	Data Object see: <a href="#">PropertyBag</a>

### Return messagetype: ResponseMessage for RequestMode1

Field	Type	Description
Data	TransactionResponseBody	Identical structure and values to the request.
Message	String	Optional message
Success	Bool	For values see: <a href="#">Response Messages</a>

### TransactionResponseBody

Field	Type	Description
Transaction	Transaction	Identical structure and values to the request.
ResponseValue	int	
Propertybag	Object	Data Object see: <a href="#">Propertybag</a>

### Response Values

Message	ResponseValue	Description
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SUCCESS	0	TriggerRequest was successfully handled by Ecohub.
UNKNOWN SENSOR	-2	Sensor used to send triggermessage is not an active Sensor in the Ecohub.
TRANSACTIONRECEIPT CHECK FAILED	-3	Validation of TMAC of triggerrequest failed.
UNKNOWN TOKEN FOR SERVICE	-4	There is no subscription for the requested service.
UNKNOWN SERVICE	-5	Requested service is not registered
REQUESTMODE <x> NOT SUPPORTED FOR REQUESTED SERVICE	-6	The requestmode (online, offline or storeAndForward) is not supported for requested service
TOKENTYPE NOT ALLOWED FOR SERVICE	-7	Requested service does not support tokentype
TOKEN IS NOT REGISTERED	-8	Unknown token used. Tokens need to be registered at hub before they can be used.
NO SERVICE-ENDPOINT FOUND	-9	No endpoint available in cache for generic servicehandler
<General Error>	-1	Message contains the error.

This list is not exhaustive. Other negative values may be used as well and indicate that the transaction has been declined.

## Error codes

If a Sensor API call fails, the API returns an error code based on the standardized HTTP error codes

See [https://en.wikipedia.org/wiki/List\\_of\\_HTTP\\_status\\_codes](https://en.wikipedia.org/wiki/List_of_HTTP_status_codes)

### Used error codes:

Error code	Description / Example
400	Bad request – Invalid model (data send to the API does not meet minimal requirements)
400	Bad request - serviceId needs to be a positive number.
400	Bad request – invalid sensor (sensorid is unknown)
400	Bad request – no certificate available (signature is set, but certificate is not known for this sensorid)
400	Bad request – no signature available (no signature is set, but is required by sensorconfiguration)
400	Bad request – invalid signature (signature does not match the data provided)
500	Internal server error – general error.

## Propertybags Explained

Propertybags are used to introduce flexibility into the generic messaging design.

Depending on the Use Case and the Parent component E.G. Token, Service & Heartbeat response, Sensor Trigger Message response extra information can be included for the processing of a transaction that pertains to a specific implementation's idiosyncrasies.

For example:

A Token ID may employ a Token ID specific TMAC and seeds to prove card presence, these data can be included in the BaseToken property bag, for specialized authentication by a hub side bolt on module.

A Service Provider may desire more information than is typically present in a standard Trigger Message's Service specific field elements for calculation and provision of their service, these data can be included in the ServiceRequestData Propertybag.

A XAN Heartbeat response to a Sensor's heartbeat may require specific extra configuration commands related to a particular EcoSpace's terminal mgmnt needs, these data can be included in the in the Heartbeat response Propertybag.

A Sensor Trigger Message response may require a Picture or a balance be displayed, these data can be included in the Trigger message response Propertybag.

## Examples of Propertybags

### Token: BaseToken Propertybag-example

Used for additional Data related to Token e.g. TMAC, Engraved ID

### Token Propertybag for GST 1.0-example

Key	Value	Description
TSI	0000000C00001300FF01000001000010	Containing ISIN_HOST and HOST-Counter
TOKENRECEIPT	0001E876D336660E55C7	TMAC of the GST-card
GSTVERSIONNR	0100	Last 2 Bytes of AID

### TokenPropertybag for GST 2.1 example

Key	Value	Description
TSI	0A6FF20300002700000000000000000101000001000010	Containing ISIN_HOST and HOST-Counter
TOKENRECEIPT	11012CF85020CCAF5432	TMAC of the GST-card
GSTVERSIONNR	0210	Last 2 Bytes of AID
HTD	6F4AFE9BC638A766CB70CB957C0EAA58C55A8B973C11058B3A8988672D6E128C	Hash of transactionvalues

### Token Propertybag for MFA-example

Key	Value	Description
ChipId	F31EB8EA	UID of the card (outsideld)
TMV	0001E876D336660E55C7	TMAC of the MFA-card
TMC	010000	Card Transaction counter

CredentialFile		128 bytes (64 bytes data and 64 bytes ECC signature)
EncPreviousSensorId		Encrypted value of id of sensor where previous transaction took place

### Service: ServiceRequestData Propertybag-example

Contains specific data for a service. This could be really anything, depending what extra data is required for a service that is not available in the general fields of the triggermessage.

Key	Value	Description
UniqueTokenIdentification	Jf2wBETH2EstFHZBrgasjQpCPL7vLGGWwkowVQNQuZs=	Hashed value of used token

### Sensor Trigger Message response: Responsemessage Propertybag-example

The propertybag of the trigger message response contains data to be displayed or processed at the sensor. The table below contains a few examples of possible data that can be present in de trigger message response propertybag.

Key	Value	Description
Picture		Bytearray containing data of the picture linked to the token
Wallet	Ecowallet	Type of wallet that is returning a balance
Balance	2350	Balance in cents
Currency	EUR	Currency of the wallet