GridOps Management Suite 3.10

Site Note Interface

Functional Specification

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1. REFERENCES

#	Title	Description
1.	EcoStruxure GridOps Management Suite 3.10 Network Data Integration - Functional Specification	The document describes the Network Data Integration (NDI) module of EcoStruxure GridOps which represents a set of functionalities designed to facilitate the data migration as well as the sustained data integration between the most commonly encountered external data sources (e.g. GIS, EAM, CIS/CRM, MDMS) and EcoStruxure GridOps Network Model data repositories.
2.	EcoStruxure GridOps Management Suite 3.10 Enterprise Integration Platform - Functional Specification	The document represents a set of common integration principles applied to all baseline integration adapters.
3.	EcoStruxure GridOps Management Suite 3.10 Site Note Interface	EcoStruxure GridOps Management Suite 3.10 Site Note Interface zip file contains essential configuration information, as well as web service definitions complemented with message examples.

2. ASSUMPTIONS AND PREREQUISITES

The Site Notes integration is designed under the following assumptions:

- Details about architecture, error handling and auditing, security are stated in the *EcoStruxure GridOps Management Suite 3.10 Enterprise Integration Platform – Functional specification* document [2].
- Web Service for receiving updates of site notes per SDP is developed as part of SNI Adapter.
- Web Service client for gathering all new site notes added and sending them to client
- Dynamical updates of site notes from external system to EcoStruxure GridOps and incremental import of site notes information via Network Import Service mutually exclude each other. For bulk and incremental import of site notes via Network Import service please refer to document *EcoStruxure GridOps Management Suite 3.10 Network Data Integration - Functional Specification* [1].
- Every site note added from field client and CIS is stored and after replication is finished it becomes available in all zones without any additional confirmation.

3. INTRODUCTION

EcoStruxure GridOps Management Suite is a family of solutions designed to help electric utilities in the operations and management of their grid. It is offered as EcoStruxure ADMS, EcoStruxure Grid Operation, EcoStruxure DERMS or EcoStruxure Energy Transmission Operation solutions, which share the same technology platform.

NOTE: The functionality described in this document applies to the following solutions: EcoStruxure ADMS, EcoStruxure Grid Operation and EcoStruxure Energy Transmission Operation.

NOTE: Most images presented in this document are related to the EcoStruxure ADMS solution and should be used as an example. The images for other solutions may differ slightly.

Site notes represent information related to sites (customers) regarding their safety. Operators in control room and Field crews on site use this information to have better operational and situational awareness during activities related to outage restoration, network reconfiguration, etc. Information about site notes can be added in both EcoStruxure GridOps and CIS. To keep these two systems aligned site notes information should be synchronized in both ways. Supported options for CIS and EcoStruxure GridOps alignment regarding site notes are:

- Bulk and incremental import of site notes information from CIS to EcoStruxure GridOps via Network Import Service (please refer to document *EcoStruxure GridOps Management Suite 3.10 Network Data Integration - Functional Specification* [1]).
- Dynamic update of Customer database from CIS.
- Dynamic update of CIS database from EcoStruxure GridOps.

Scope of this document is dynamic synchronization of Site Notes between EcoStruxure GridOps and CIS system and vice versa. There are two different update processes:

- Site notes can be added/updated or deleted in CIS and in that case, changes should be sent to EcoStruxure GridOps in order to be aligned with CIS.
- Site notes can be added directly in EcoStruxure GridOps (from field client) and in that case changes should be sent to CIS

To support above mentioned functionalities Site Notes Integration (SNI Adapter) is developed with two web services:

- ReceiveUsagePointsSiteNotesService – web service hosted and used for receiving updated site notes information for SDP from CIS:
  - ChangedUsagePointSiteNotes operation.
- ExecuteSiteNotesService – web service hosted on client's side and used for sending new site notes information to CIS:
  - CreateSiteNotes operation.

3.1. General Architecture

It is thoroughly described in the *EcoStruxure GridOps Management Suite 3.10 Enterprise Integration Platform - Functional Specification* [2].

4. INTERFACE OVERVIEW

Information about site notes can be added in both EcoStruxure GridOps and CIS. To keep these two systems aligned site notes information should be synchronized in both ways. For this purpose, Site Notes Integration is developed within SNI Adapter. SNI Adapter exposes/implements following SOAP based Web Services/Clients with appropriate set of operations.

- **ReceiveUsagePointSiteNotesService** - used for dynamic update of Customer database from CIS:
  - ChangedUsagePointSiteNotes operation.
- **ExecuteSiteNotesService** – used for dynamic update of CIS database:
  - CreateSiteNotes operation.

Process of synchronization site notes between CIS and Customer database is depicted in Figure 4.1. More details about update process, data mappings, error handling scenarios, etc. are given in following sections.

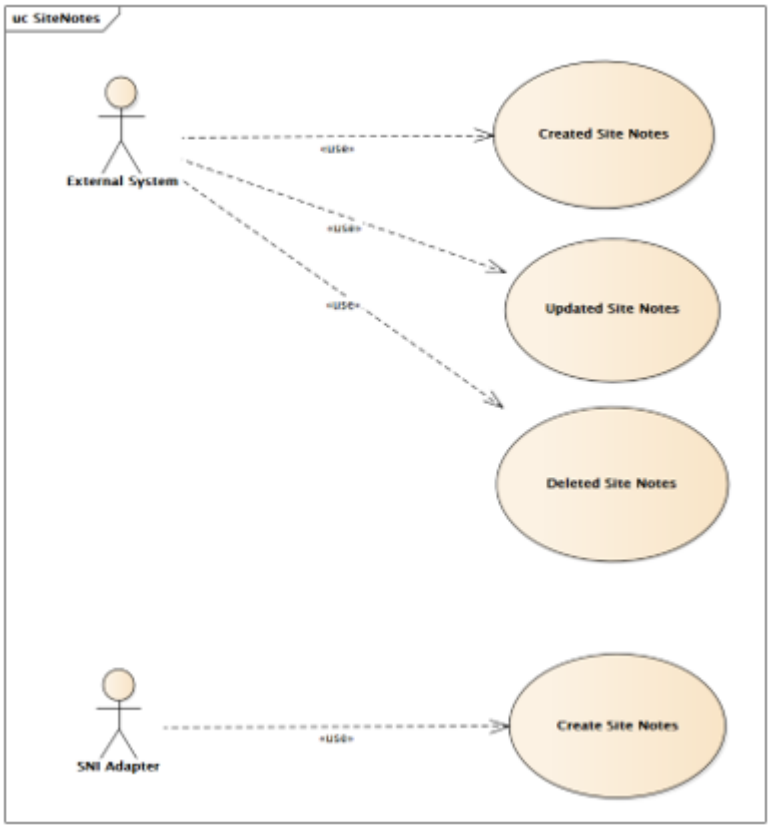

Figure 4.1 – The Site Notes Integration use case diagram

5. RECEIVEUSAGEPOINTSITENOTES SERVICE

5.1. ChangedUsagePointSiteNotes Operation

5.1.1. Overview

Primary source for site notes data is the utility's CIS system, where site notes are maintained. These site notes should be also available for users of software since they increase operational and situational awareness. Therefore, interface that propagates changes of site notes from the CIS needs to be provided.

SNI Adapter is implemented to host SOAP Web Service that receives site notes changes per SDP and updates Customer database accordingly. Message should not contain just affected site notes by change, but all site notes for affected SDPs. There is no limitation to the number of site notes that can be added for a given SDP. If Customer database contains site notes that are added but they are still not sent to CIS, these site notes are not considered during updating of Customer database since they should not be deleted. The other site notes for SDP are replaced with new ones received from CIS.
When site note is added, updated or deleted in the CIS, external system creates *ChangedUsagePointSiteNotesEvent* object and invokes *ChangedUsagePointSiteNotes* operation. SNI Adapter performs initial validation of the received data and updates Customer database residing in DMZ system. Datapump replication process automatically replicates these changes to Customer databases in STG and CORE systems.
Depending of the validation results, SNI Adapter returns appropriate *UsagePointSiteNotesResponse* or *UsagePointSiteNotesFault* with detailed explanation of occurred error. Figure 5.1 provides visual representation for the described sequence of events.

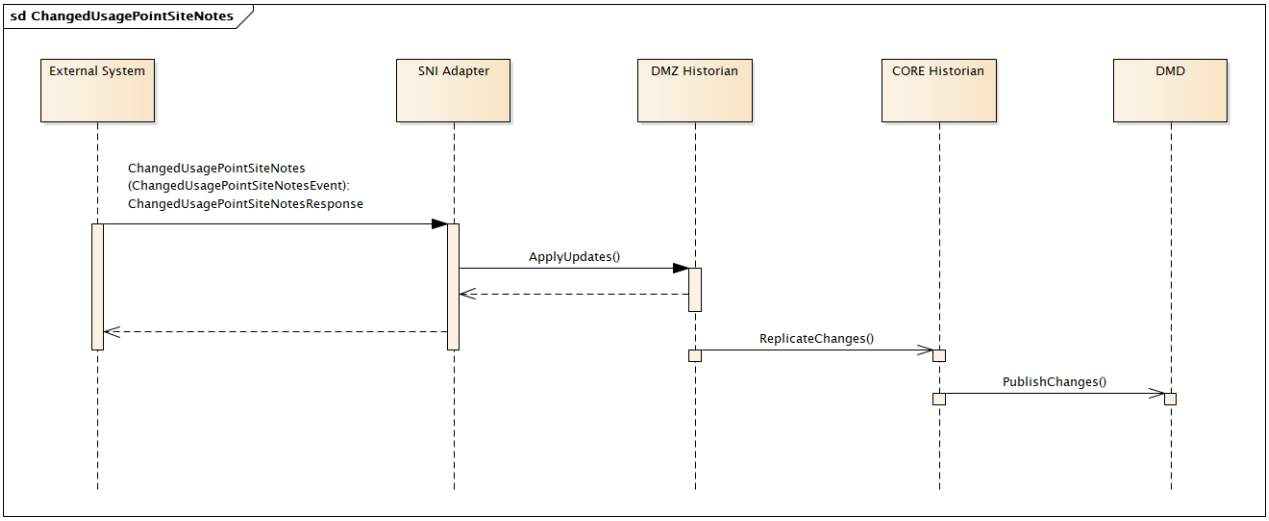

Figure 5.1 – ChangedUsagePointSiteNotes Operation Execution

5.1.2. Use Cases

The list of possible use cases and corresponding faults is given in Table 5.1.

Table 5.1 – The ChangedUsagePoints operation use cases

Use Case	Message Mapping			Action
	Property	Type	Value	
Invalid Verb	Result	String	FAILED	External system sends request message with invalid Verb. Response message is sent by SNI Adapter with FAILED result and message is discarded. Log Level: DebugLog Alarm: No Event: No Retry: No Note: Valid Verb is “changed”
	Error.code	String	2.9	
	Error.level	String	FATAL	
	Error.reason	String	InvalidVerb	
	Error.details	String	Invalid verb: {0}.	
Invalid Noun	Result	String	FAILED	External system sends request message with invalid Noun. Response message is sent by SNI Adapter with FAILED result and message is discarded. Log Level: DebugLog Alarm: No Event: No Retry: No Note: Valid Noun is “SiteNotes”
	Error.code	String	2.5	
	Error.level	String	FATAL	
	Error.reason	String	InvalidNoun	
	Error.details	String	Invalid noun: {0}.	
Mandatory Element Missing	Result	String	FAILED	External system sends request message in which some of the mandatory elements are missing. Response message is sent by SNI Adapter with FAILED result and message is discarded.
	Error.code	String	1.8	
	Error.level	String	FATAL	

Use Case	Message Mapping			Action
	Property	Type	Value	
	Error.reason	String	InvalidMessage	Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.details	String	Received message is invalid against XSD schema. Reason: {0}.	
Unable to process the request	Result	String	FAILED	External system sends request message, but for some reason message processing fails due to various internal server error. Fault response message is sent by SNI Adapter. Note: This use case covers situation when Customer database is unavailable. After receiving valid request message from external system adapter tries to update Customer database. As Customer database is unavailable after configurable number of tries, adapter returns fault message to external system, error is written to a log file and event is raised by SNI Adapter.
	Error.code	String	5.3	
	Error.level	String	FATAL	
	Error.reason	String	InternalServerError	
	Error.details	String	{0}.	
Changed UsagePoints – Missing Site Notes CustomID	Result	String	PARTIAL/FAILED	External system sends request message where Site Note CustomID is not specified for some SDP(s). Site Notes with specified customID are processed while for Site Notes without customID appropriate error is returned. Response message is sent by SNI Adapter with PARTIAL/FAILED result. Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.code	String	1.2	
	Error.level	String	FATAL	
	Error.reason	String	CustomIdMissing	
	Error.details	String	Missing Site Notes customID(s) for some entities: {1}	
Changed UsagePoints – Missing Site Notes Type	Result	String	PARTIAL/FAILED	External system sends request message where Site Note Type is not specified for some Site Notes. Valid Site Notes with specified Site Note Type are processed while for Site Notes without Site Note Type specified appropriate error is returned. Response message is sent by SNI Adapter with PARTIAL/FAILED result. Log Level: DebugLog Alarm: No Event: No
	Error.code	String	1.2	
	Error.level	String	FATAL	
	Error.reason	String	TypeMissing	
	Error.details	String	Missing Site Notes type(s) for entities: {1}	

Use Case	Message Mapping			Action
	Property	Type	Value	
				Retry: No
Changed UsagePoints – Attribute isSafe is not provided.	Result	String	PARTIAL/FAILED	External system sends request message where attribute isSafe is not specified for some Site Notes. Valid Site Notes with specified isSafe attribute are processed while for Site Notes without specified isSafe attribute appropriate error is returned. Response message is sent by SNI Adapter with PARTIAL/FAILED result. Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.code	String	1.2	
	Error.level	String	FATAL	
	Error.reason	String	IsSafeMissing	
	Error.details	String	Missing isSafe for entities: {0}	
Changed UsagePoints – Missing CreatedTime	Result	String	OK	External system sends request message where created time is not specified for some Site Notes. Response message is sent by SNI Adapter with OK result. Missing created times are defaulted to date time when message is received. Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.code	String	2.7	
	Error.level	String	WARNING	
	Error.reason	String	CreatedTimeMissing	
	Error.details	String	Missing CreatedTime for entities: {1}	
Changed UsagePoints - Invalid Site Notes Type	Result	String	PARTIAL/FAILED	External system sends request message where several Site Notes have Site Note Type that does not exist in Customer database (site notes type is defined with SiteNotes.type and SiteNotes.isSafe attributes in message). Site Notes with valid Site Note Type are processed while Site Notes with invalid Site Note Type are discarded. Response message is sent by SNI Adapter with PARTIAL/FAILED result and appropriate error details. Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.code	String	2.7	
	Error.level	String	FATAL	
	Error.reason	String	InvalidType	
	Error.details	String	Invalid site notes type(s): {0} for entities: {1}	
Changed UsagePoints -	Result	String	PARTIAL/FAILED	

Use Case	Message Mapping			Action
	Property	Type	Value	
Invalid SDP CustomID	Error.code	String	2.7	External system sends request message where several SDPs in message have invalid customID. For valid customIDs SDP all Site Notes are processed, while for invalid ones appropriate error is returned. Response message is sent by SNI Adapter with PARTIAL/FAILED result. Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.level	String	FATAL	
	Error.reason	String	InvalidCustomID	
	Error.details	String	Invalid SDP CustomID(s): {0}	
Changed UsagePoints - Duplicated SDP CustomID in message	Result	String	PARTIAL/FAILED	External system sends request message where several SDPs in message have duplicated customID. For valid customIDs SDP all Site Notes are processed, while for duplicated appropriate error is returned. Response message is sent by SNI Adapter with PARTIAL/FAILED result. Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.code	String	2.7	
	Error.level	String	FATAL	
	Error.reason	String	DuplicatedCustomID	
	Error.details	String	Duplicated SDP CustomID(s): {0}	
Changed UsagePoints - Duplicated Site Notes CustomID in message	Result	String	PARTIAL/FAILED	External system sends request message where several Site Notes CustomIDs in message are duplicated. All valid Site Notes are processed, while for duplicated Site Notes appropriate error is returned. Response message is sent by SNI Adapter with PARTIAL/FAILED result. Log Level: DebugLog Alarm: No Event: No Retry: No
	Error.code	String	2.7	
	Error.level	String	FATAL	
	Error.reason	String	DuplicatedCustomID	
	Error.details	String	Duplicated Site Notes CustomID(s): {0}	
Changed UsagePoints - Site Notes Successfully Created	Result	String	OK	External system sends request message where all site notes are valid. Response message is sent by SNI Adapter with OK result. All site notes are successfully imported into Customer database.
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	

Use Case	Message Mapping			Action
	Property	Type	Value	
	Error.details	String	N/A	

6. EXECUTESITENOTES SERVICE

6.1. CreateSiteNotes Operation

6.1.1. Overview

Site notes can be added directly in software (from Field Client or WEB CC application). These site notes are added to Customer database in DMZ system. Datapump replication is configured in that way to replicate all changes to Customer databases in Staging and Core systems.

To keep CIS aligned with newest site notes information, added site notes must be added to CIS database as well. Therefore, interface from EcoStruxure GridOps to CIS needs to be provided.

This interface is implemented using SOAP Web Service technology. New site notes are sent to this web service which is responsible for updating of CIS database with new site notes information.

Client for above mentioned web service is implemented as part of the Site Notes Integration residing in DMZ system. Periodically, SNI adapter checks (e.g. every five minutes) if there are new site notes that are not sent to CIS. If there are new site notes, the SNI adapter creates *CreateSiteNotesEvent* object and forwards it to *ExecuteSiteNotesService* hosted on external system side.

Web Service on external system side validates received data and if everything is valid updates the CIS database. Depending on the validation process and if update process of the CIS is successful or not appropriate *SiteNotesResponse* or *SiteNotesFault* is returned. If site notes for some reason are not sent to external system, they will be considered in next periodic attempt.

Figure 6.1 provides visual representation for the described sequence of events for mentioned operation.

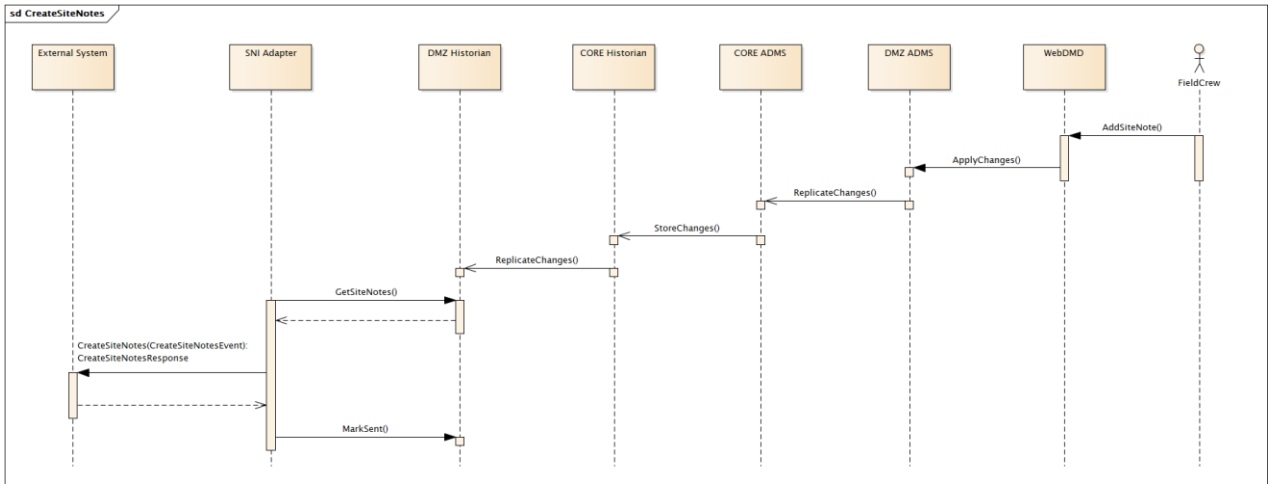

Figure 6.1 – The CreateSiteNotes operation execution

6.1.2. Use Cases

The list of possible use cases and corresponding faults is given in Table 6.1.

Table 6.1 – The CreateSiteNotes operation use cases

Use Case	Message Mapping			Action
	Property	Type	Value	
Create SiteNotes - Site Notes are Successfully sent to external system	Result	String	OK	SNI adapter successfully sends created site notes to external system.
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	
Create SiteNotes - External system is unavailable	Result	String	FAILED	SNI adapter tries to send created site notes to external system that is unavailable. After configurable number of tries, appropriate error is written to a log file and event with proper description is raised by SNI adapter. Log Level: DebugLog Alarm: No Event: Yes Retry: Yes
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	
Create SiteNotes - Fault message is returned by external system	Result	String	FAILED	SNI adapter sends created site notes to external system. After receiving Fault message from external system, appropriate error is written to a log file. Log Level: DebugLog Alarm: No Event: Yes Retry: No
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	
Create SiteNotes - Failed response message is returned by external system	Result	String	FAILED	SNI adapter sends created site notes to external system. After receiving Failed message from external system, appropriate error is written to a log file. Log Level: DebugLog
	Error.code	String	N/A	
	Error.level	String	N/A	

Use Case	Message Mapping			Action
	Property	Type	Value	
	Error.reason	String	N/A	Alarm: No Event: No Retry: No
	Error.details	String	N/A	
Create SiteNotes - Customer database is unavailable	Result	String	FAILED	After is triggered SNI adapter tries to reach Customer database and collect site notes for sending to external system. As Customer database is unavailable after configurable number of tries, appropriate error is written to a log file and event with proper description is raised by SNI adapter. Log Level: DebugLog Alarm: No Event: Yes Retry: Yes
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	

7. MESSAGES

7.1. Common

7.1.1. Header

The header section is defined according to the IEC 61968-100 standard. Currently, there are two required fields that must be populated:

- ***Verb*** – to identify a specific action to be taken. There is an enumerated set of valid verbs, where commonly used values include “get”, “create”, “change”, “cancel”, “close”, “execute” and “reply”. Within the event notification messages “past tense” verbs are used, which can include “created”, “changed”, “canceled”, “closed” and “executed”.
- ***Noun*** – to identify the subject of the action and/or the type of the payload, such as SiteNotes, etc.

Field that can be optionally supplied include the following:

- Revision – to indicate the revision of the message definition. By default, this should be “1”.
- ReplayDetection – this is a complex element with a timestamp and a nonce used to guard against replay attacks. The timestamp is generated by the source system to indicate when the message was created. The nonce is a sequence number or randomly generated string (e.g. UUID) that would not be repeated by the source system for at least a day. This serves to improve encryption.
- ***Context*** – a string that can be used to identify the context of the message. This can help provide an application level guard against incorrect message consumption in configurations where there may be multiple system environments running over the same messaging infrastructure. Some example values are PRODUCTION, TESTING, STUDY and TRAINING.
- Timestamp – an ISO 8601 compliant string that identifies the time the message was sent. This is analogous to the JMSTimestamp provided by JMS. Either Zulu (‘Z’) time or time with a time zone offset may be used.
- Source – identifying the source of the message, which should be the name of the system or organization.
- AsyncReplyFlag – the Boolean data type (“true” or “false” values) that indicates whether a reply message will be sent asynchronously. By default, replies are assumed to be sent synchronously.
- ReplyAddress – the address to which replies should be sent. This is typically used for asynchronous replies. This should take the form of a URL, topic name or queue name. This is analogous to the JMSReplyTo field provided by JMS. This is ignored when using unidirectional integration patterns (e.g., AckRequired=false). If the reply address is a topic, the topic name should be prefixed by “topic”. If the reply address is a queue, the queue name should be prefixed by “queue”. If the reply address is a web service, the reply address should be a URL beginning with “http://” or “https:/”.
- AckRequired – the Boolean data type (“true” or “false” values) that indicates whether an acknowledgement is required. If false, this would indicate that a unidirectional integration pattern is being used for communicating transactional messages.
- User – a complex structure that identifies the user and associated organization. Should be supplied as it may be required for some interfaces, depending upon underlying implementations. This allows the UsersID string and optional the Organization string as sub-elements.

- MessageID – a string that uniquely identifies a message. Use of the UUID or sequence number is recommended. This is analogous to the JMSMessageID provided by JMS. A process should not issue two messages using the same MessageID value.
- CorrelationID – this is used to “link” messages together. This can be supplied on a request, so that the client can correlate a corresponding reply message. The server will place the incoming CorrelationID value as the CorrelationID on the outgoing reply. If not supplied on the request, the CorrelationID of the reply should be set to the value of the MessageID that was used on the request, if present. This is analogous to the use of the JMSCorrelationID provided by JMS. Given that the CorrelationID is used to ‘link’ messages together, it may be reused on more than one message. Use of a UUID or sequence number is recommended.
- Comment – any descriptive text, but shall never be used for any processing logic.
- Property – a complex type that allows the custom name/value pairs to be conveyed. The source and targets would need to agree upon usage. These are analogous to a Property as defined by JMS.
- Any – it can be used for custom extensions.

Figure 7.1 shows the graphical representation of the header field.

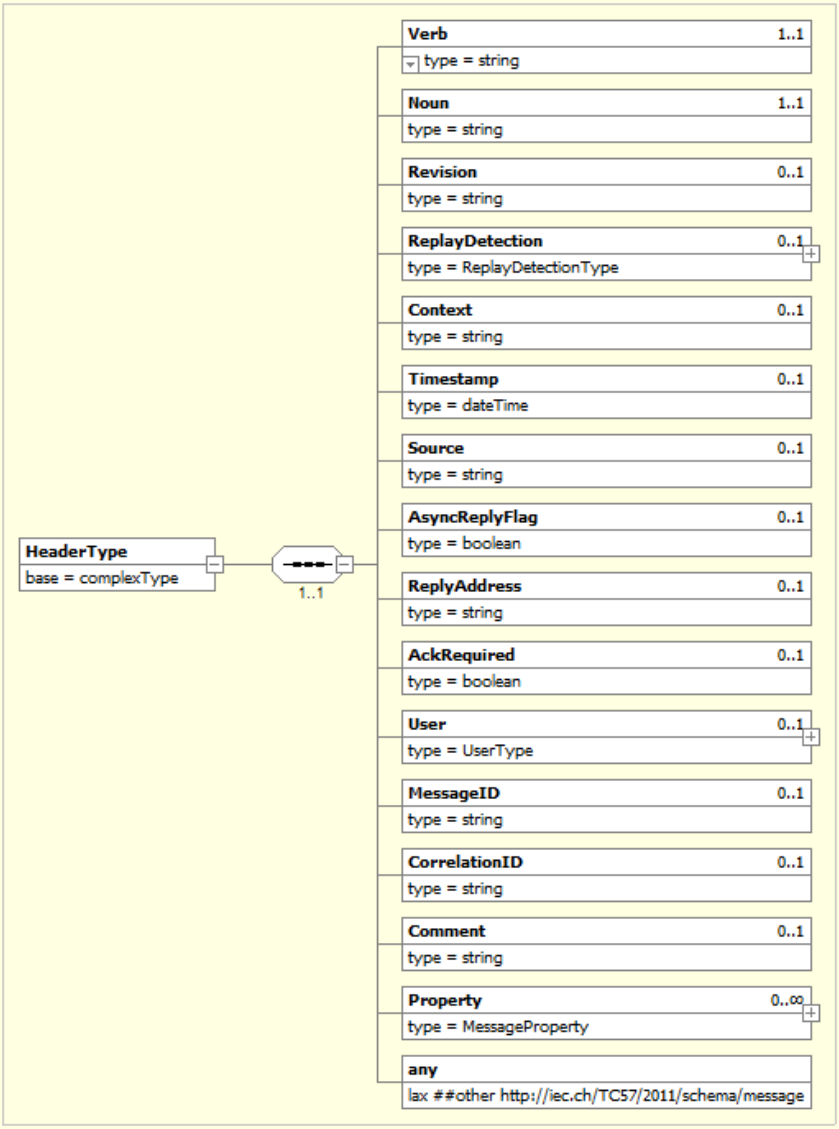

Figure 7.1 – The header field

7.1.2. Reply and Fault

The Reply.result value is an enumeration and would be populated in the following manner:

- "OK" – if there are no errors and all results have been returned. There is no requirement that a Reply.Error element be present.
- "PARTIAL" – if only a partial set of results has been returned, with or without errors. Existence of errors is indicated with one or more Reply.Error.code elements.
- “FAILED" – if no result can be returned due to one or more errors, indicated with one or more Reply.Error elements, each with a mandatory application level ‘code’.

If the result type is “PARTIAL” or “FAILED”, the **Error** field will be populated with the appropriate error description. The contents the **Reply** and **Error** fields are presented in Figure 7.2.

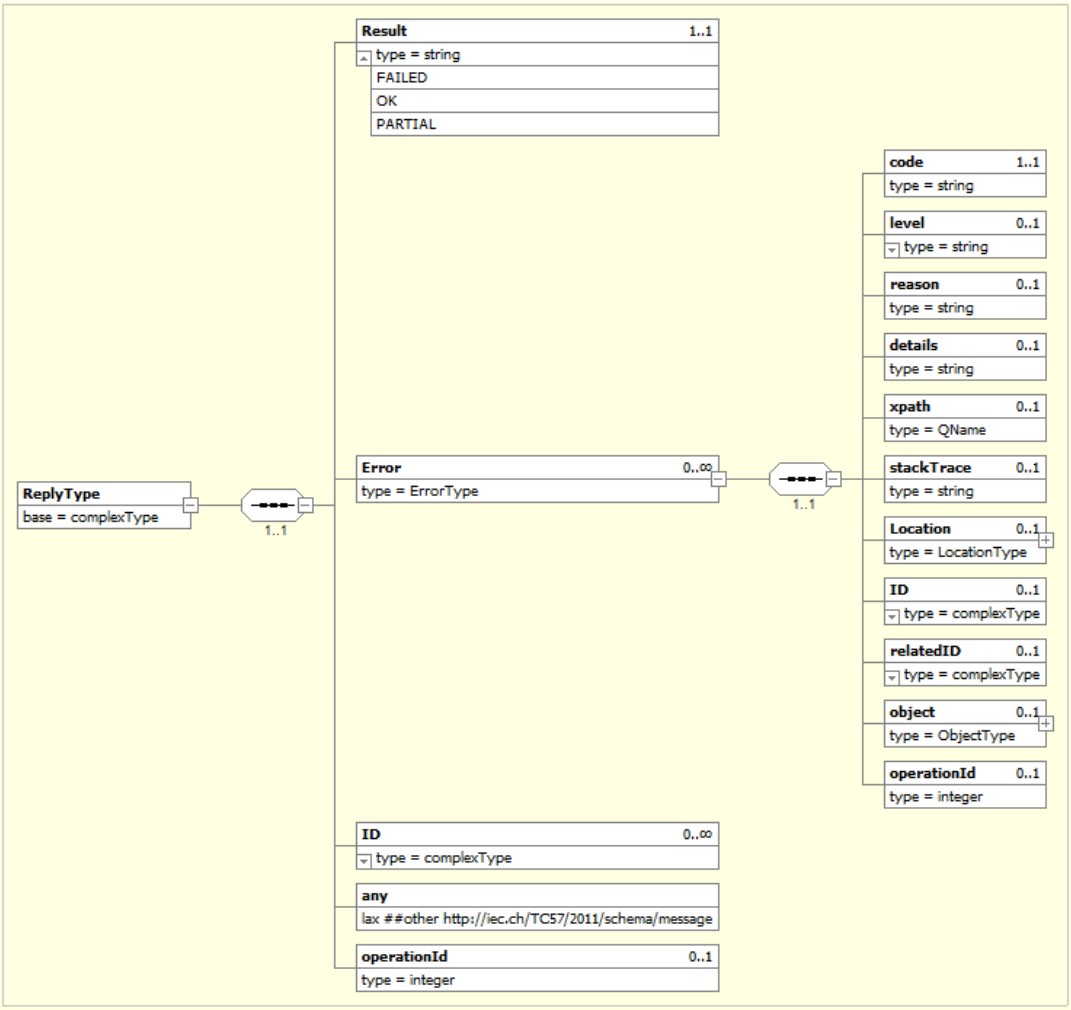

*Figure 7.2 – The **Reply** and **Error** field contents*

7.2. CreateSiteNotes Operation Messages

The operation definition:

SiteNotesResponse CreateSiteNotes(CreatedSiteNotesEvent)

7.2.1. Request

The *CreateSiteNotes* Event message is defined according to the IEC 61968-100 and contains the following two sections:

- Header
- Payload

CreateSiteNotes event message is defined in SiteNotesMessage.xsd

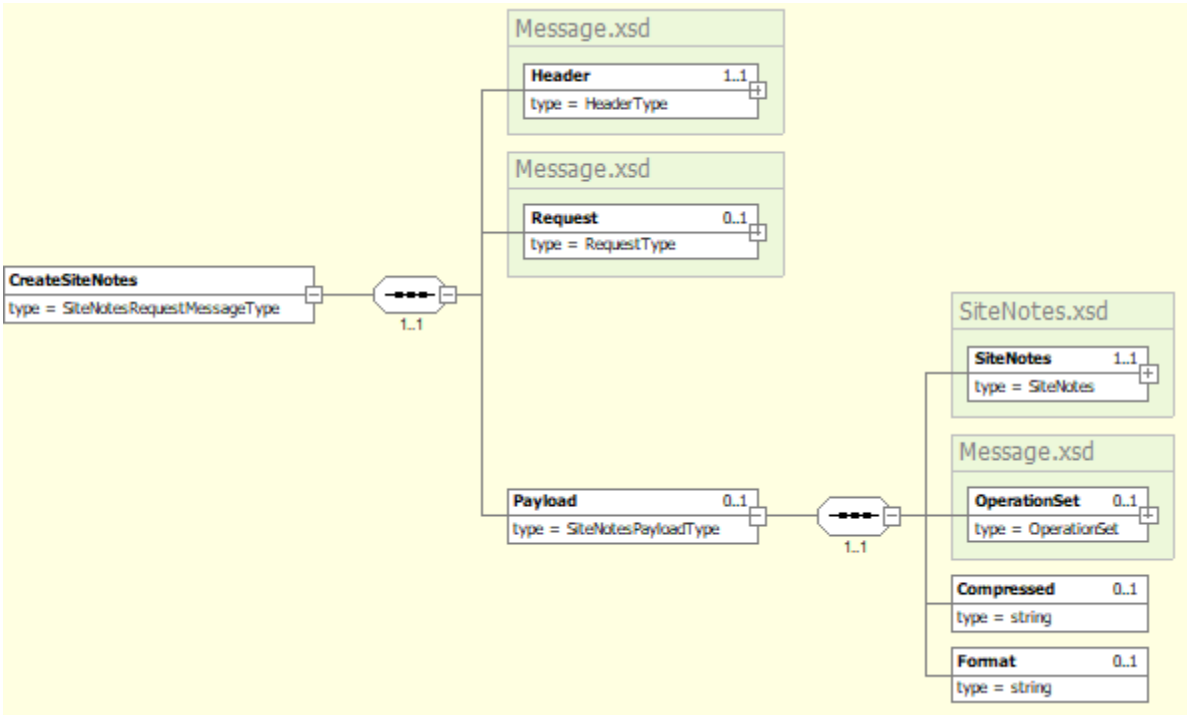

Figure 7.3 – SiteNotesMessage.xsd

The Payload section carries the CIM defined profile (SiteNotes.xsd) for sending of one or several site notes created. SiteNotes.xsd is given below.

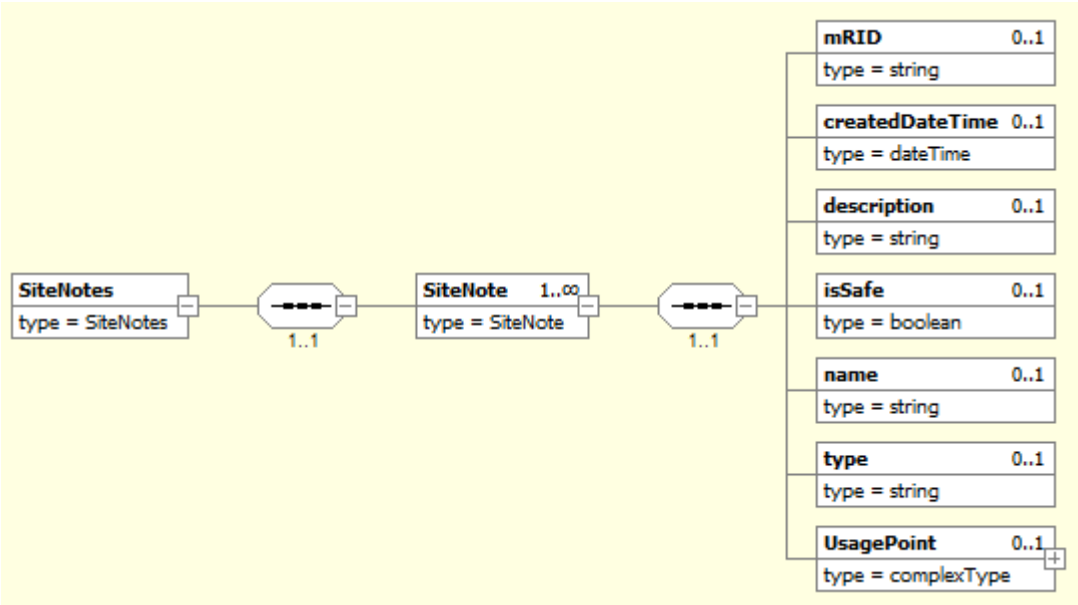

Figure 7.4 – SiteNotes.xsd

Mapping between the SiteNotes.xsd and the appropriate entities in the model for CreateSiteNotes operation is given in Table 7.1.

7.2.2. Response

After site notes are sent to external system, the response is returned in form of the *SiteNotesResponse* message. The content is given in Table 7.2.

7.2.3. Fault

The *SiteNotesFault* message is depicted in Figure 7.5.

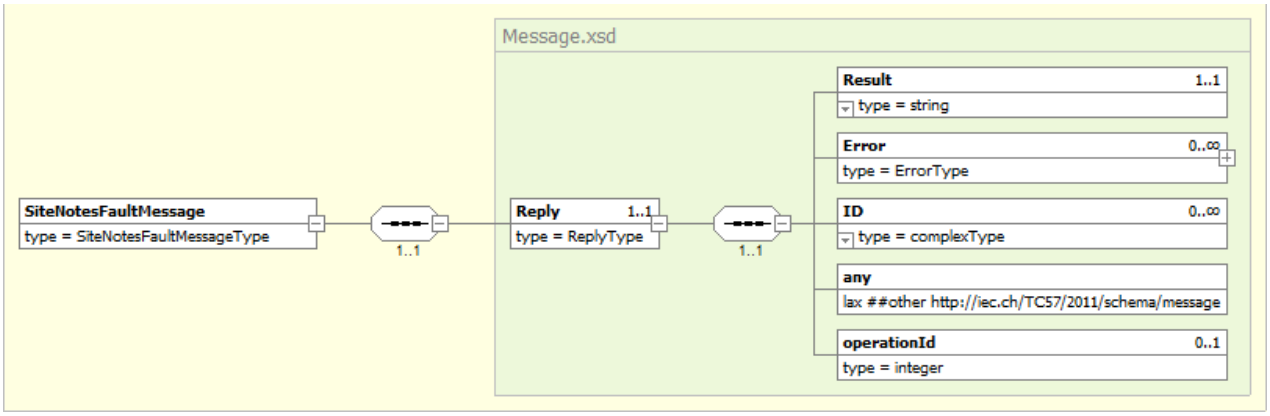

Figure 7.5 – The SiteNotesFault message

Table 7.1 - The CreatedSiteNotesEvent message → the model mapping

CreateSiteNotes message			Description	Model		
Section	**Property**	**Type**		**Property**	**Type**	**Model Code**
Header	**Verb**	String	Identifier for a specific action to be taken. For this message, Verb is **create.**	Populated by SNI Adapter	N/A	N/A
Header	**Noun**	String	Identifier for the subject of the action and/or the type of the payload. For this message, Noun is **SiteNotes**.	Populated by SNI Adapter	N/A	N/A
Header	Revision	String	Revision of CIM standard used. Default value is 2.0.	Populated by SNI Adapter	N/A	N/A
Header	**TImestamp**	DateTime	Timestamp when message was produced. Example: 2015-12-31T12:34:56+02:00	Populated by SNI Adapter	N/A	N/A
Header	Source	String	Source system or application that sends the message. For this message, Source can be: EcoStruxure GridOps.	Populated by SNI Adapter	N/A	N/A
Header	**MessageID**	String	Unique message ID to be used for tracking messages.	Populated by SNI Adapter	N/A	N/A
Header	CorrelationID	String	Same as message ID.	Populated by SNI Adapter	N/A	N/A
Payload	SiteNotesID	String	Site Note unique identifier	SiteNotes ID	String	CUSTOM_ID
Payload	UsagePoint.mRID	String	Custom ID of the SDP site note is related to.	SDP CustomID	String	SDP_CUSTOMID
Payload	SiteNotes.createdTime	DateTime	Time when site note is added.	CreatedTime	DateTime	CREATED_TIME
Payload	SiteNotes.description	String	Description of site note.	Description	String	DESCRIPTION
Payload	SiteNotes.type	String	Type of site note	Type	String	NAME
Payload	SiteNotes.isSafe	Boolean	Site notes safety	IsSafe	Boolean	IS_SAFE

Table 7.2 - SiteNotesResponse message

SiteNotesResponse message			Description	Model		
Section	Property	Type		Property	Type	Model Code
Header	**Verb**	String	Identifier for a specific action to be taken. For this message, Verb is **reply**.	Populated by external system	N/A	N/A
Header	**Noun**	String	Identifier for the subject of the action and/or the type of the payload. For this message, Noun is **SiteNotes.**	Populated by external system	N/A	N/A
Header	Revision	String	Revision of CIM standard used. Default value is 2.0.	Populated by external system	N/A	N/A
Header	**Timestamp**	DateTime	Timestamp when message was produced. Example: 2015-12-31T12:34:56+02:00	Populated by external system	N/A	N/A
Header	Source	String	Source system or application that sends the message. For this message, Source is CIS.	Populated by external system	N/A	N/A
Header	**MessageID**	String	Unique message ID to be used for tracking messages.	Populated by external system	N/A	N/A
Header	**CorrelationID**	String	Same as correlation ID from request message.	Populated by external system	N/A	N/A
Reply	**Result**	String	Returned as part of synchronous response. Valid values are: OK, PARTIAL or FAILED.	Populated by external system	N/A	N/A

7.3. ChangedUsagePointSiteNotes Operation Messages

The operation definition:

UsagePointSiteNotesResponse

ChangedUsagePointSiteNotes *(ChangedUsagePointSiteNotesEvent)*

7.3.1. Request

The *ChangedUsagePointSiteNotes* event message is defined according to the IEC 61968-100 and contains the following two sections:

- Header
- Payload

ChangedUsagePointSiteNotes event message element is defined in UsagePointSiteNotesMessage.xsd.

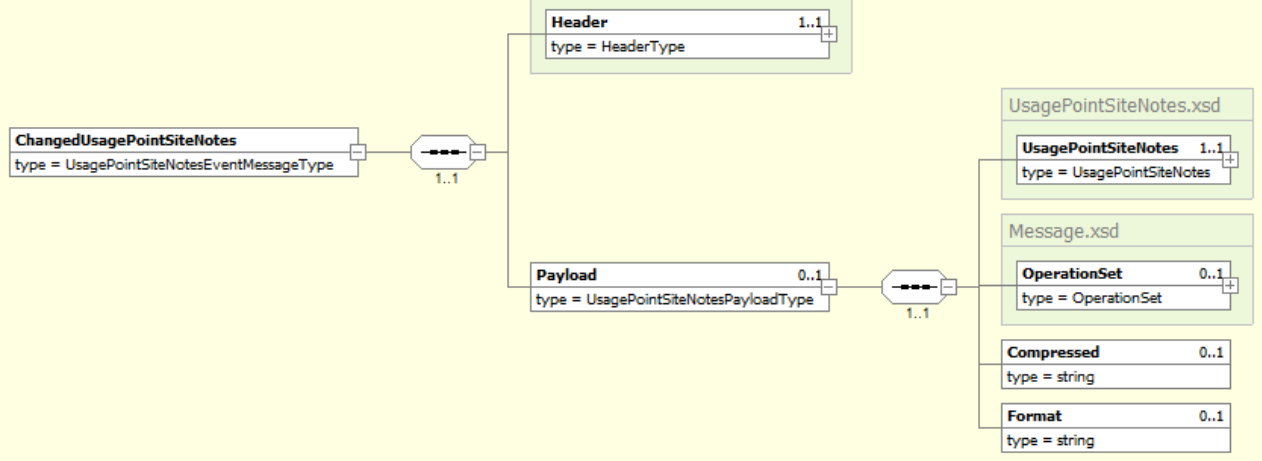

Figure 7.6 – UsagePointSiteNotesMessage.xsd

The Payload section carries the CIM defined profile (UsagePointSiteNotes.xsd) for create of one or several Site Notes.

UsagePointSiteNotes.xsd is given below.

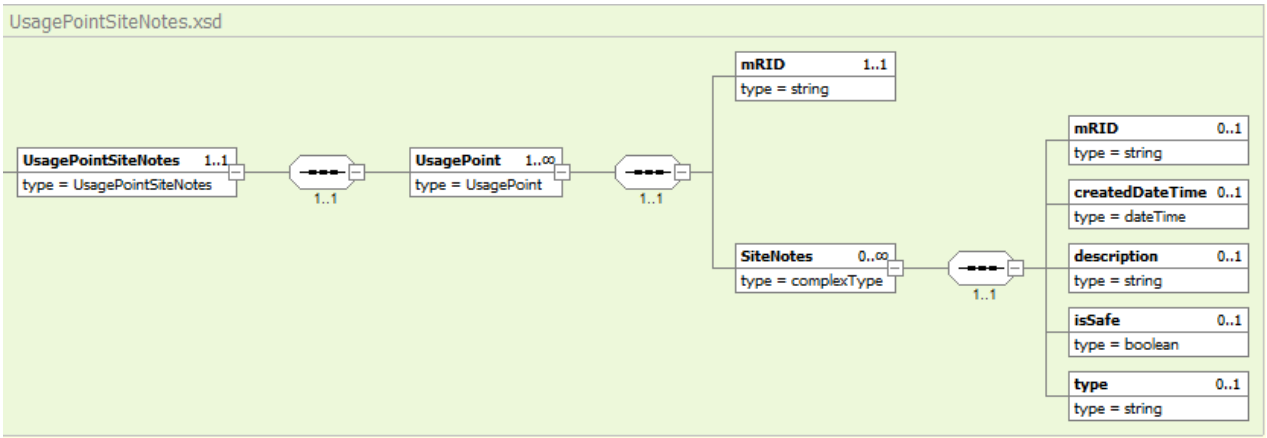

Figure 7.7 – UsagePointSiteNotes.xsd

Mapping between the UsagePointSiteNotes.xsd and the appropriate entities in the SN model for ChangedUsagePointSiteNotes operation is given Table 7.3.

7.3.2. Response

After site notes are created, the response is returned in form of the *UsagePointSiteNotesResponse* message. The unique identifier of the created site note is returned within the response message. The content is given in Table 7.4.

7.3.3. Fault

The *UsagePointSiteNotesFault* message is depicted in Figure 7.8.

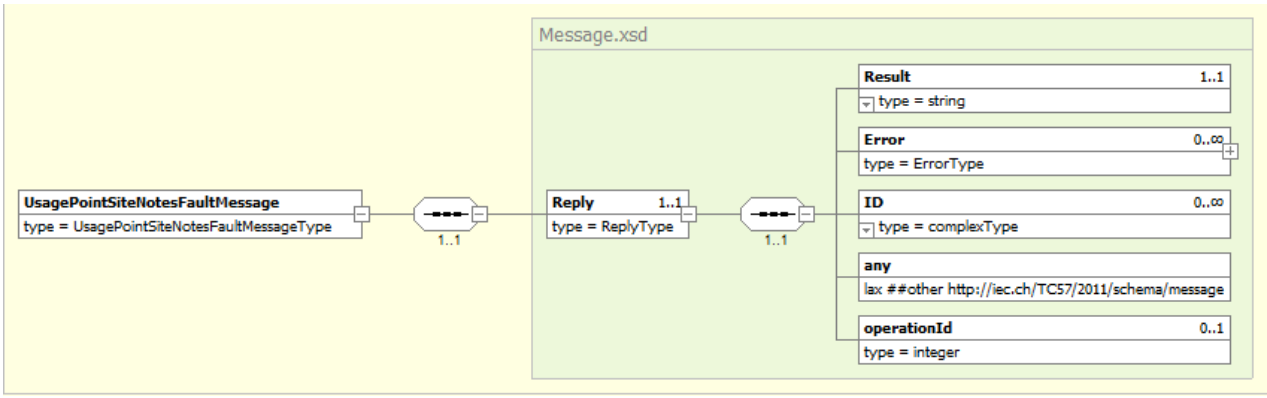

Figure 7.8 – The UsagePointSiteNotesFault message

Table 7.3 – The ChangedUsagePointSiteNotes message → the model mapping

ChangedUsagePointSiteNotes message			Description	Model		
Section	**Property**	**Type**		**Property**	**Type**	**Model Code**
Header	**Verb**	String	Identifier for a specific action to be taken. For this message, Verb is **changed**	Populated by SNI Adapter	N/A	N/A
Header	**Noun**	String	Identifier for the subject of the action and/or the type of the payload. For this message, Noun is **SiteNotes**.	Populated by SNI Adapter	N/A	N/A
Header	Revision	String	Revision of CIM standard used. Default value is 2.0.	Populated by SNI Adapter	N/A	N/A
Header	**TImestamp**	DateTime	Timestamp when message was produced. Example: 2015-12-31T12:34:56+02:00	Populated by SNI Adapter	N/A	N/A
Header	Source	String	Source system or application that sends the message. For this message, Source can be: CIS	Populated by SNI Adapter	N/A	N/A
Header	**MessageID**	String	Unique message ID to be used for tracking messages.	Populated by SNI Adapter	N/A	N/A
Header	CorrelationID	String	Same as message ID.	Populated by SNI Adapter	N/A	N/A
Payload	SiteNotesID	String	Site Note unique identifier	SiteNotes ID	String	CUSTOM_ID
Payload	UsagePoint.mRID	String	Custom ID of the SDP site note is related to.	SDP CustomID	String	SDP_CUSTOMID
Payload	SiteNotes.createdTime	DateTime	Time when site note is added to EcoStruxure GridOps.	CreatedTime	DateTime	CREATED_TIME
Payload	SiteNotes.description	String	Description of site note.	Description	String	DESCRIPTION
Payload	SiteNotes.type	String	Type of site note	Type	String	NAME
Payload	SiteNotes.isSafe	Boolean	Site notes safety	IsSafe	Boolean	IS_SAFE

Table 7.4 – UsagePointSiteNotesResponse message

UsagePointSiteNotesResponse message			Description	Model		
Section	Property	Type		Property	Type	Model Code
Header	**Verb**	String	Identifier for a specific action to be taken. For this message, Verb is **reply**.	Populated by SNI Adapter	N/A	N/A
Header	**Noun**	String	Identifier for the subject of the action and/or the type of the payload. For this message, Noun is **SiteNotes.**	Populated by SNI Adapter	N/A	N/A
Header	Revision	String	Revision of CIM standard used. Default value is 2.0.	Populated by SNI Adapter	N/A	N/A
Header	**Timestamp**	DateTime	Timestamp when message was produced. Example: 2015-12-31T12:34:56+02:00	Populated by SNI Adapter	N/A	N/A
Header	Source	String	Source system or application that sends the message. For this message, Source is CIS.	Populated by SNI Adapter	N/A	N/A
Header	**MessageID**	String	Unique message ID to be used for tracking messages.	Populated by SNI Adapter	N/A	N/A
Header	**CorrelationID**	String	Same as correlation ID from request message.	Populated by SNI Adapter	N/A	N/A
Reply	**Result**	String	Returned as part of synchronous response. Valid values are: OK, PARTIAL or FAILED.	Populated by SNI Adapter	N/A	N/A
Payload	UsagePoint.mRID	String	Custom ID of the SDP site note is related to.	SDP CustomID	String	SDP_CUSTOMID

8. DEPLOYMENT SPECIFICATION

It is thoroughly described in the *EcoStruxure GridOps Management Suite 3.10 Enterprise Integration Platform - Functional Specification* [2].

The deployment specification is provided in the following table:

Table 8.1 – The deployment specification

Deployment Specification	
Application	SniAdapter
Critical process	No
OASyS service	OASyS DNA DMS_INTEGRATION Service
Servers	pdmz-int-1, pdmz-int-2, bdmz-int-1, bdmz-int-2
Zone	pdmz, bdmz
Installation Type	Product
Installation add-on name	Integration Adapters

9. INTERFACE CONFIGURATION

SNI adapter provides certain amount of configurability so that smaller adjustments in the functionality can be easily applied to the system, without interface down time. Such feature is provided through dedicated configuration files of the SNI adapter.

Initially, following configuration files are used the adapter:

Table 9.1 – The configuration files specification

Name of the config file	Configuration File Description
AdapterSni	Registry configuration file
SniAdapter_ChangedUsagePointSiteNotes_ErrorConfiguration	Error configuration file
AdapterSni_WebServiceConfiguration	Web service configuration file

For more details about adapters configuration files refer to the *EcoStruxure GridOps Management Suite 3.10 Enterprise Integration Platform - Functional Specification* [2].

Detailed content of above-mentioned configuration files is provided within the *Configuration* folder in the *EcoStruxure GridOps Management Suite 3.10 Site Note Interface.zip* file [3].

10. APPENDIX

10.1. WSDL

The WSDL file, XSD schemas and sample messages defined according to the IEC 61968-100 for all SN web services are provided within the *Web Service Definitions* folder in the *EcoStruxure GridOps Management Suite 3.10 Site Note Interface.zip* file [3].

10.2. Message Examples

Message examples for several use cases are provided within the *Message Examples* folder in the *EcoStruxure GridOps Management Suite 3.10 Site Note Interface.zip* file [3].

11. RELEASE NOTES

The following new features related to Product SNI Interfaces were introduced in the software, starting from version 3.8 SP1.

12. DEFINITIONS AND ABBREVIATIONS

Definition/Abbreviation	Description
CIM	Common Information Model
CIS	Customer Information Service
DataPump	Replication service which replicates Customer data between historical servers in different security zones (PROD, STG and DMZ).
DMD	Dynamic Mimic Diagram
DMZ	Demilitarized Zone
ADMS	Advanced Distribution Management System
ESB	Enterprise Service Bus
HTTP	Hypertext Transfer Protocol
mRID	Unique identifier
SDP	Service Delivery Point (Usage Point)
SN	Site Notes
SOAP	Simple Object Access Protocol
WS	Web Service
XML	Extensible Markup Language
XSD	XML Schema Definition