GridOps Management Suite 3.10

ODIN Interface

Functional Specification

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1. REFERENCES

#	Title	Description
1.	EcoStruxure GridOps Management Suite 3.10 ODIN Interface	EcoStruxure GridOps Management Suite 3.10 ODIN Interface zip file contains essential configuration information.

2. 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.

ODIN Interface is developed as a part of the EcoStruxure GridOps Enterprise Integration Platform. It shares the common architecture principles as the rest of platform interfaces. ODIN Interface is implemented through ODIN adapter component. This component is hosted in the Access Services (DMZ) system as a standalone windows process controlled by DMS_Integration OaSyS service component.

Purpose of this interface is to integrate EcoStruxure GridOps with ODIN. The Outage Data Initiative Nationwide (ODIN) is a network of leading electric service providers who are committed to providing comprehensive interoperable power outage data that enables utilities and others to exchange data freely with designated stakeholders at all levels — helping restoration, reliability, risk mitigation, emergency response, and more.

3. OVERVIEW

ODIN adapter implements following service operations:

- *GetAuthenticationToken* – used for obtaining access token from ODIN which allows users to verify.
- *SendOutageData* – used for sending predefined set of incident related data to ODIN.

The following chapters provide more details regarding these interfaces (web service clients) and appropriate web service operations, data mappings, error handling, scenarios etc.

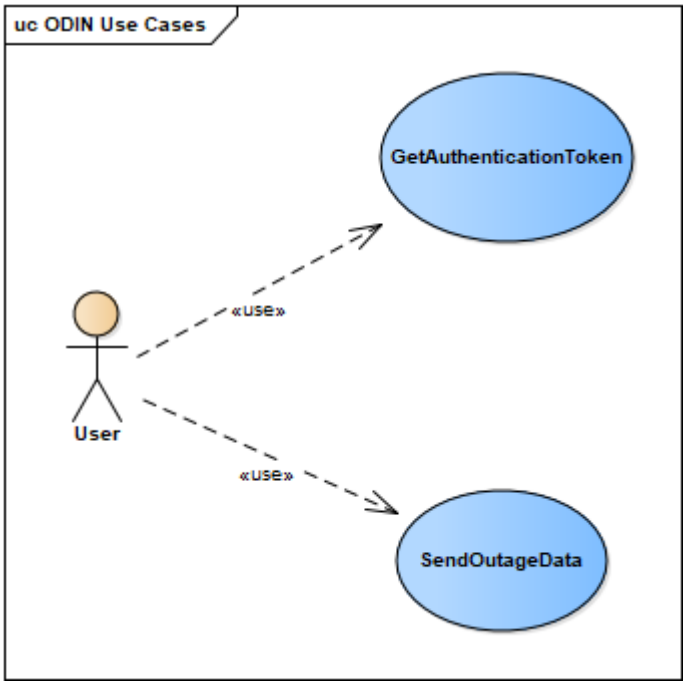

Figure 3.1 – ODIN Use Cases

4. FUNCTIONALITY

The functionality of ODIN Adapter can be split into two chapters based on the operation functionality. ODIN Adapter is triggered on configurable period of time and firstly obtains the access token for communication with *GetAuthenticationToken* operation. Upon obtaining the token ODIN Adapter pulls outage data of interest from EcoStruxure GridOps and sends data to ODIN with *SendOutageData* operation.

4.1. GetAuthenticationToken

4.1.1. Overview

Operation encapsulates a functionality of obtaining access token from ODIN. An operation is designed to obtain access token using basic authorization with the username/password that is previously created. During the life of the token, user can communicate with ODIN. Figure 4.1 represents the sequence of events occurring during the process of obtaining access token.

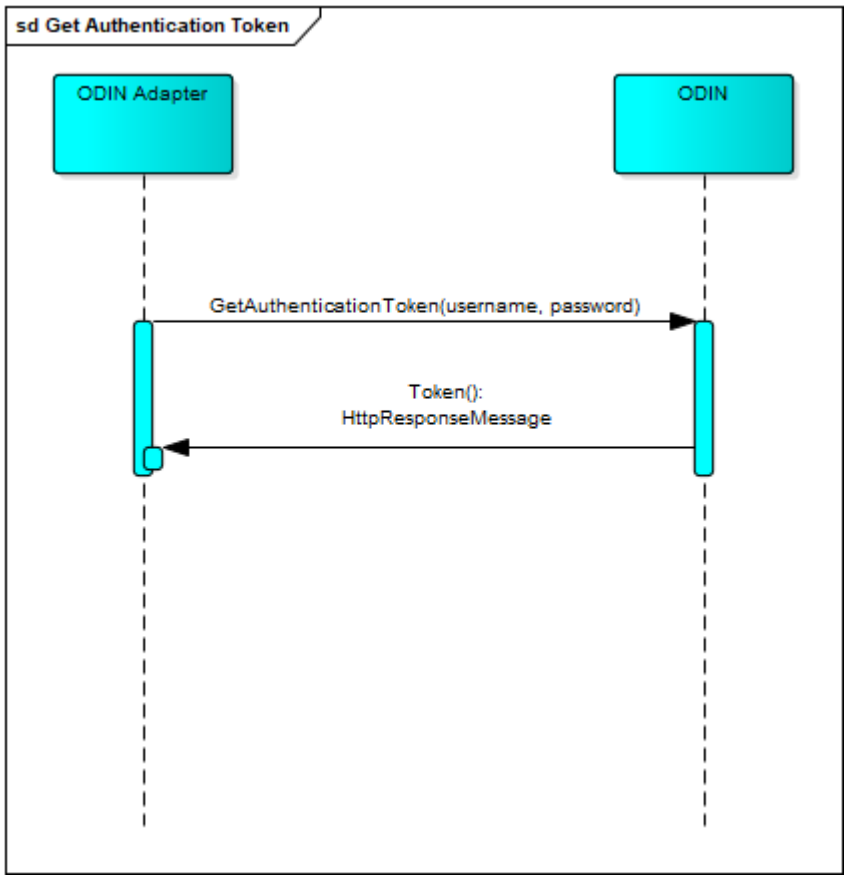

Figure 4.1 – Get Authentication Token sequence diagram

4.1.2. Use Cases

The list of possible use cases and corresponding faults is given in Table 4.1.

Table 4.1 – The GetAuthenicationToken operation use cases

Use Case	Message Mapping			Action
	Property	Type	Value	
Access token successfully obtained	Result	String	OK	Access token successfully obtained.
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	
GetAuthenticationToken failed	Result	String	FAILED	ODIN Adapter attempts to obtain access token from ODIN with predefined configuration parameters and fails due to unavailability of the server, or misconfiguration. Error is written to a log file.
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	

4.2. SendOutageData

Operation encapsulates a functionality of sending outage data of interest from ODIN Adapter to ODIN. ODIN Adapter pulls and sends outage data for all active incidents, which is represented in Figure 4.2. Outage data of interest that is sent over ODIN Adapter is described in Table 5.1.

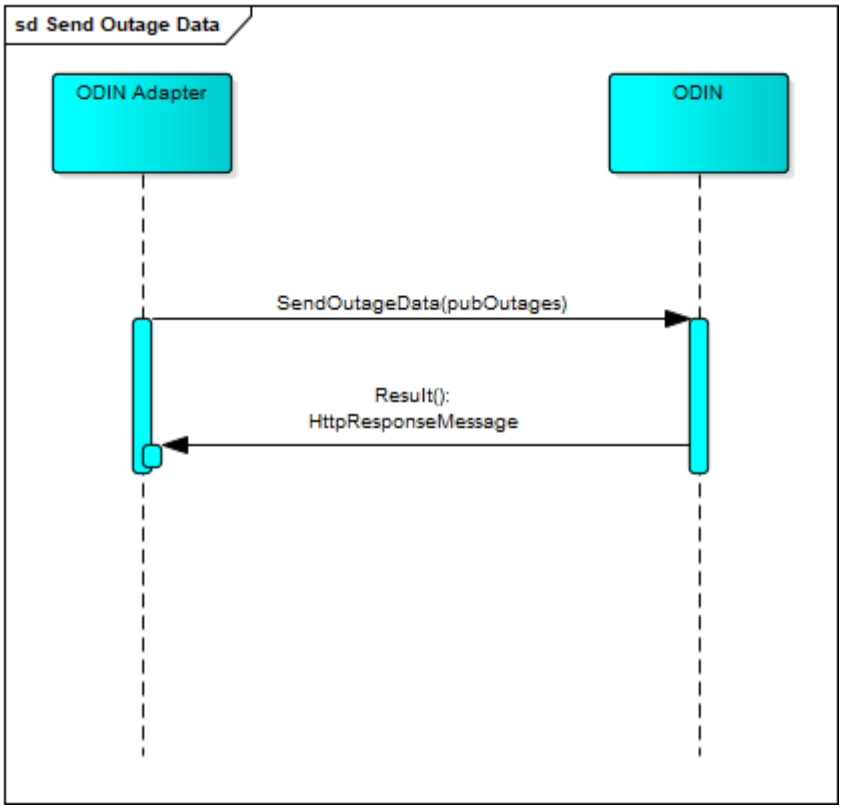

Figure 4.2 – Send Outage Data sequence diagram

4.2.1. Use Cases

The list of possible use cases and corresponding faults is given in Table 4.2.

Table 4.2 – The SendOutageData operation use cases

Use Case	Message Mapping			Action
	Property	Type	Value	
Outage data successfully sent	Result	String	OK	Outage data successfully sent.
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	
Send Outage data failed	Result	String	FAILED	ODIN Adapter attempts to send outage data to ODIN with predefined configuration parameters and fails due to unavailability of the server, or misconfiguration. Error is written to a log file.
	Error.code	String	N/A	
	Error.level	String	N/A	
	Error.reason	String	N/A	
	Error.details	String	N/A	

5. MESSAGES

SendOutageData operation request message is given in Table 5.1.

Table 5.1 – The SendOutageData message

Request Message		Description	Model Code
Element (Attribute)	Type		
mRID	string	Outage identifier	OMS_IMSOBJ_UID
CommunityDescriptor	string	US FIPS County Code	
Cause	enum	Cause of the outage	OMS_PROBLEM_TYPE
StatusKind	string	Status of the crew assigned to outage	OMS_INCIDENT_CREW_ASSIGNMENT_ASSIGN_STATUS_NAME
ETR	DateTime	Estimated time of restoration	OMS_INCIDENT_ESTIMAED_END_TIME
ETRSource	string	Source that provided the ETR	OMS_INCIDENT_ETR_HISTORY
ReportedStartTime	DateTime	Start time of the outage	OMS_INCIDENT_ACTUAL_START_TIME
MetersAffected	int	Number of affected customers for the outage	OMS_INCIDENT_NUM_CUSTOMERS
UtilityId	string	Id of the utility using the ODIN Adapter	
UnilityName	string	Name of the utility using the ODIN Adapter	

6. INTERFACE CONFIGURATION

ODIN 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 ODIN adapter. Initially, following configuration files are used the adapter:

- Registry configuration file – contains essential data needed for the adapter initialization and startup. Can be overridden with project specific data,
- Web service configuration file – contains data for configuration of exposed endpoints (web services and web service clients) within the adapter. Can be overridden with project specific data.

Detailed content of above-mentioned configuration files is provided within the *Configuration* folder in the *EcoStruxure GridOps Management Suite 3.10 ODIN Interface.zip* file [1].

7. DEFINITIONS AND ABBREVIATIONS

Definition/Abbreviation	Description
ADMS	Advanced Distribution Management System
DMZ	Demilitarized Zone
ODIN	Outage Data Initiative Nationwide