

C R O W

CONTROL ROOM OPERATIONS WINDOW

Web Services Interface Reference



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1. Introduction

1.1 What's In This Document

This document provides a detailed technical specification for the CROW Web Services Interface. It contains the following sections—

- **Web Services Interface Specification** documents the Web Services Application Program Interface.

2. Web Services Interface Specification

2.1 Introduction

The CROW Application Program Interface (API) is implemented as a Simple Object Access Protocol (SOAP) web service. In order to connect to the web service, you will need the URL for the Web Service and the CrowApiDisco.ashx (discovery) file. Your system administrator can provide these URLs for you. Use this CrowApiDisco.ashx URL instead of individual WSDL urls as Types are shared between services and this should allow the sharing of these Types. Always bind the ServiceReference to the CrowApiDisco.ashx file.

The following API specification documents the services available.

Section 2.3 – Types documents the complex type specifications utilized in the API services.

Section 2.4 – Methods documents the SOAP method specifications.

2.2 Date/Time Values

Users may only pass dates and times in the following format: yyyy/MM/dd HH:mm[:ss], using the 24 hour clock.

The CROW API uses "1900/01/01 00:00:00" as the "null" date value.

The CROW system stores all dates in Coordinated Universal Time (UTC). In the Web Services API, all non-null date values are passed/returned in the time zone specified in the user options for the user ID specified in the service calls. If the user ID has CROW Web login permissions, you can verify the time zone by logging into the CROW Web and selecting the **Options** tab. Otherwise, the CROW Administrator will provide you with the time zone used by the user ID.

Alternatively, the CROW Administrator has the option to set the CROW application setting named "Settings.API ISO 8601 Date Format" to true to ensure that the API will export dates in ISO 8601 format including timezone info.

2.3 Types

Attachment		
Type Name:	Attachment	
Description:	An Attachment is an object that holds information about an attachment in the CROW system .	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
title	String	The name given to the attachment.
attachmentId	Integer	The database assigned ID of the attachment.
fileName	String	The filename of the attached file.
addedBy	Person	The user that added the attachment.
addedWhen	String	A string representation of the date that the attachment was added on.

AttachmentData		
Type Name:	AttachmentData	
Description:	An AttachmentData object holds a byte array that contains the file.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
Data	Byte array (base 64 binary)	This is a byte array that contains the attachment file in binary form.
Filename	String	The name used to reference the file.
ErrorCodes	Array of ErrorCode objects	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

Authentication		
Type Name:	Authentication	
Description:	An Authentication object holds authentication information about the user performing the API call.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
EmailAddress	String	The email address of the user calling the API.
Password	String	The users API access password.

BusinessUnit		
Type Name:	BusinessUnit	
Description:	A BusinessUnit is a Company, Line of Business, Area, Subarea, District, Control Center, or Operations Console or Desk.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
typeName	String(255)	Identifies the subclass of BusinessUnit.
name	String(255)	The full business unit name.
abbreviation	String(15)	The business unit abbreviation.
businessUnitID	String(50)	The business unit ID number.
properties	Array of InstanceProperty	Contains an array of properties associated with the object.
relationships	Array of Relationship	Contains an array of relationships for this object. These are the relationships in which the object exists as the "child" node, and does not include relationships in which the object exists as the parent node.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

ChangeRequestApprovedEvent		
Type Name:	ChangeRequestApprovedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the status of a change request becomes “Approved”	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
changeReqNumber	Integer	The change request number.
comments	String	A concatenated list of the schedulers’ comments at the time of approval.

ChangeRequestCancelledEvent	
Type Name:	ChangeRequestCancelledEvent

Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when a change request is cancelled.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
changeReqNumber	Integer	The change request number.

ChangeRequestDeletedEvent		
Type Name:	ChangeRequestDeletedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when a change request is deleted.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
changeReqNumber	Integer	The change request number.

ChangeRequestDeniedEvent		
Type Name:	ChangeRequestDeniedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the status of a change request becomes “Denied”	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
changeReqNumber	Integer	The change request number.
comments	String	A concatenated list of the schedulers’ comments at the time of when the change request is denied.

ChangeRequestRevisedEvent		
Type Name:	ChangeRequestRevisedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when one of the following elements of a change request is revised: Requested Equipment (Circuit/Equipment/Description/Portion Out)	

	• Outage Start Time • Outage Complete Time • A change in the daily outages This event is only created if the outage request had been submitted before.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
changeReqNumber	Integer	The change request number.

ChangeRequestSubmittedEvent		
Type Name:	ChangeRequestSubmittedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when a change request is submitted.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
changeReqNumber	Integer	The change request number.

ClearanceTag		
Type Name:	ClearanceTag	
Description:	A ClearanceTag is used to authorize and schedule work on equipment in the field. A requested outage (OutageSchedule) contains a collection of requested ClearanceTags.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
requester	Person	The person requesting the clearance tag.
clearanceTagType	String(255)	The clearance tag type. Valid values are: • Assurance of No Reclose • Caution Tag • Guarantee of Isolation • Guarantee of No Reclose • Live Line Permit • Test & Work • Workplace Protection
clearanceTagTypeAbbrev	String(15)	The clearance type abbreviation. Valid values are: • LLP • GNR • T&W • CL • Caution

		- GOI - ANRP - WPP
continuousDaily	String(25)	Specifies whether the clearance tag is continuous or daily. Valid values are: - Continuous - Daily
workDescription	String(1024)	This is a free-form description of the work to be performed or the reason for the tag.

CodeDescription		
Type Name:	CodeDescription	
Description:	An object to hold a code ID and a description/name of a code.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
code	String	The ID for the code.
description	String	The name or description of the code.

Constraint		
Type Name:	Constraint	
Description:	An object to hold requested equipment constraint data such as the type of constraint, a value and a unit.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
typeld	Integer	The ID for the type of constraint. This is required.
type	String	The name of the constraint type.
abbreviation	String	The abbreviation, if available, of the constraint type.
value	String	The amount value, if any, for the constraint.
Unit	String	The unit associated with the value of the constraint (eg MW).

DataEvent	
Type Name:	DataEvent

Description:	This type contains the data elements for each row returned by the data event query executed by calling the Service.DataEventQuery_ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
eventDateTime	String	The date and time when the data event occurred.
eventCreatedBy	String(255)	The name of the person who created the data event.
dataEventType	String(100)	Name of this data event type that is returned. This could be any number of specific data event types, e.g. "SystemEventCreatedEvent" or "OutageRequestApprovedEvent".
dataEventID	Integer	The data event ID that uniquely identifies this data event in the CROW database.

DataEventQuery		
Type Name:	DataEventQuery	
Description:	The DataEventQuery type contains the query parameters used to execute a query on the Data Event data. This object is passed to the Service.DataEventQuery_ExecuteQuery method, and provides the query parameters used by this method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
includeAcknowledged	Boolean	To include data event that have already been acknowledged, set this value to true.
startDate	String	The lower boundary of the query date range. Use the null date to indicate no lower boundary.
endDate	String	The upper boundary of the query date range. Use the null date to indicate no upper boundary.
remoteSystemName	String(50)	This specifies the name of the remote system associated with the OutageSchedule. To include all remote system name values, use an empty string.
portionOutTypes	String(255)	This specifies a concatenated list of portion out types for the equipment associated with the Outage Schedule or System Event. To include all portion out types, use an empty string.

DataEventQueryResult		
Type Name:	DataEventQueryResult	
Description:	The DataEventQueryResult object returns the results of the Service.DataEventQueryResult_ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
rowsReturned	Long	The number of rows returned by the query.
dataEvents	Array of DataEvent	An array of the query results.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

EquipmentGroup		
Type Name:	EquipmentGroup	
Description:	The EquipmentGroup represents a pre-defined group of PowerSystemResource objects.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
name	string	The name of the equipment group.
equipment	Array of PowerSystemResource	The list of equipment in the group, which is bound by user's privileges.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

EquipmentGroupQueryResult		
Type Name:	EquipmentGroupQueryResult	
Description:	The EquipmentGroupQueryResult contains the list of EquipmentGroup objects returned in response to a Service.EquipmentGroup_ExecuteQuery method call.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
rowsReturned	Integer	The number of returned EquipmentGroup objects
returnedEquipmentGroups	Array of EquipmentGroup	The list of EquipmentGroup objects that are accessible by the user.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object.

		The absence of any negative error codes indicates the method call has succeeded.
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EquipmentQuery		
Type Name:	EquipmentQuery	
Description:	The EquipmentQuery type contains the query parameters used to execute a query on the Power System Equipment data. This object is passed to the QueryService.EquipmentQuery or the Service.EquipmentQuery_ExecuteQuery method, and provides the query parameters used by this method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
station	Substation	If this is not null, include transmission and distribution circuits that terminate at the input station and station equipment located at the input station.
equipmentName	String(255)	Use this value to perform a "contains" match on the PowerSystemEquipment name based on user's "Asset Naming" preference.
typeNameNames	Array of String(2048)	This is a concatenated list of names of included classes. Each class is separated by a comma – e.g. "Bus, Breaker".
includeDeleted	Boolean	To included deleted PowerSystemEquipment (i.e. equipment where the status is "Deleted", "Removed" or "Retired") in the query results, set this value to True.
RelationshipType	String	The Relationship on which to compare the business units
BusinessUnits	Array of String	The labels of the business units to match.
OutOfServiceDateMin	String	String representation of the lower boundary of the out of service date range. Use the null date to indicate no lower boundary.
OutOfServiceDateMax	String	String representation of the upper boundary of the out of service date range. Use the null date to indicate no upper boundary.
InServiceDateMin	String	String representation of the lower boundary of the in service date range. Use the null date to indicate no lower boundary.

InServiceDateMax	String	String representation of the upper boundary of the in service date range . Use the null date to indicate no upper boundary.
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EquipmentQueryResult		
Type Name:	EquipmentQueryResult	
Description:	The EquipmentQueryResult object returns the results of the QueryService.EquipmentQuery or the Service.EquipmentQueryResult_ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
rowsReturned	Long	The number of rows returned by the query.
returnedEquipment	Array of ReturnedEquipment	An array of the query results.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

ErrorCode		
Type Name:	ErrorCode	
Description:	This type contains error codes returned by method calls.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
errorCode	Integer	The error code ID. A code ID of 0 means it has no error or it is an informational message. The action requested has succeeded. A code ID that is a positive integer indicates that it is an informational message. The action requested has succeeded. A code ID that is a negative integer indicates that it is an error message. The action requested has failed.
errorDescription	String	A text description of the error code.

innerErrors	Array of ErrorCode objects	This is an array of any errors that may have occurred within the scope of the code that was running when the parent error occurred.
keys	An array of ErrorInfoKey objects	This is an array of ErrorInfoKey objects. The ErrorInfoKey can hold a KeyType that identifies the data item that the error is related to. The ErrorInfoKey will also hold a Key string representing the error identifier.

ErrorInfoKey		
Type Name:	ErrorInfoKey	
Description:	This type contains information about the error being displayed.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
keyType	ErrorInfoKeyType	This holds the type of data used to identify the object that the error is on.
key	String	A text description of the error info.

EventQuery		
Type Name:	EventQuery	
Description:	The EventQuery type contains the query parameters used to execute a query on the Event data. This object is passed to the Service.EventQuery_ExecuteQuery method, and provides the query parameters used by this method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
startDate	String	String representation of the lower boundary of the query date range. Use the null date to indicate no lower boundary.
endDate	String	String representation of the upper boundary of the query date range. Use the null date to indicate no upper boundary.
inclTransCircuits	Boolean	If True, include events on transmission circuits.
inclStnEquipment	Boolean	If True, include events on station equipment excluding generating units.

inclProtection	Boolean	If True, include events on protection systems and remedial action schemes.
inclDistribCircuits	Boolean	If True, include events on distribution circuits.
inclGenUnits	Boolean	If True, include events on generating units.
inclTelecomEquip	Boolean	If True, include events on telecom equipment.
inclCommsPaths	Boolean	If True, include events on communications path equipment.
inclOther	Boolean	If True, include events on all elements other than transmission circuits, station equipment, etc. This includes events logged on substations and business units.
station	Substation	If not null, include only events on the input substation, or on equipment located at the substation or on circuits that terminate at the substation.
equipment	PowerSystemEquipment	If not null, include only events on the input equipment.
lowerEquipLevel	Int	The lower boundary of the equipment level query range. Use 0 to indicate no lower boundary.
upperEquipLevel	Int	The upper boundary of the equipment level query range. Use 0 to indicate no upper boundary.
confirmationRequired	Boolean	If True, include only events where confirmation is required.
followupRequired	Boolean	If True, include only events where follow-up is required. This may include events where follow-up was requested, and the follow-up is complete.
outstandFUpRequired	Boolean	If True, include only events where outstanding follow-up is required (i.e. follow-up is requested but not completed).
urgentFUpRequired	Boolean	If True, include only events where urgent follow-up is requested. This may include events where urgent follow-up was requested and the follow-up is complete.
fUpConfRequired	Boolean	If True, include only events where follow-up confirmation is required. i.e. follow-up is completed but not confirmed.

fUpModifiedPastWeek	Boolean	If True, include only events where follow-up has been modified in the past week.
followupAssignedTo	Person	If not null, include only events where follow-up has been assigned to the input person.
enteredModifiedConfirmedBy	Person	If not null, include only events that have been entered, modified, or confirmed by the input person.
descriptionContains	String	Query all free-form text fields in the event model using a "contains" match on the input string.
eventTypes	Array of Integer	An array of event types IDs. If the input value is not null, the query includes only events where the event type ID is in the input set. If the input value is null, the query includes all event types.
controlCenterDesks	Array of BusinessUnit	If not null, include only events on stations/equipment operated by one or more of the input control centers/desks.
lastUpdateStart	String	String representation of the lower boundary of the last update query date range. Use the null date to indicate no lower boundary.
lastUpdateEnd	String	String representation of the upper boundary of the last update query date range. Use the null date to indicate no upper boundary.
feederStatus	String	Include only events with the specified feeder status. Use an empty string to ignore this parameter.

EventQueryResult		
Type Name:	EventQueryResult	
Description:	The EventQueryResult object returns the results of the Service.EventQuery_ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
rowsReturned	Long	The number of rows returned by the query.
returnedEvents	Array of ReturnedEvent	An array of the query results.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object.

		The absence of any negative error codes indicates the method call has succeeded.
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ExecuteQueryRequest		
Type Name:	ExecuteQueryRequest	
Description:	The ExecuteQueryRequest type contains the name of a pre-configured query to call as well as the input query parameters used to execute the query. This object is passed to the QueryService.ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
name	String	The name of the pre-configured query to run (e.g. "MyUniqueOutageDataQuery")
inputParameters	XML	This XML is input to provide query parameters. The input XML is verified against a pre-configured XSD.

ExecuteQueryResult		
Type Name:	ExecuteQueryResult	
Description:	The ExecuteQueryResult object returns the results of the call to a pre-configured query via the InformationModel.ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
result	XML	This is the resulting data set in an XML format designed for the pre-configured query.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the method call for the object.

Flag		
Type Name:	Flag	
Description:	The Flag data type is used to describe name/value pairs	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
name	String	The name of the flag.

value	String	A string representation of the value of the flag. This field may the following data types: • String • Integer • Float • Date (Formatted as outlined in section 2.2 of this document). • Boolean value (True/False)
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FlagOutage		
Type Name:	FlagOutage	
Description:	The FlagOutage data object is used to hold the data for a particular outage request revision being transferred.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
outageNumber	String	The outage request id number of the outage being transferred.
revisionNumber	Integer	The revision number of the outage being transferred.
outageStatusID	Integer	An integer representing the status of the outage being transferred
marketAssetEquipNumber	String	The equipment number of the market asset that is referenced by the outage being transferred.
marketAssetName	String	The 1-line designation name of the market asset that is referenced by the outage being transferred.
portionOutType	Integer	The constraint/commitment type ID.
marketType	MarketType enum	Indicates the market type of outage being transferred.
forReliabilityAreas	Array of ReliabilityArea	This is an array of Reliability Area objects associated with the outage being transferred.
requestingTO	BusinessUnit	The TO associated with the outage being transferred.
plannedStart	String	A string representation of the Planned Start date and time of the outage being transferred.

actualStart	String	A string representation of the Actual Start date and time of the outage being transferred.
plannedEnd	String	A string representation of the Planned End date and time of the outage being transferred.
actualEnd	String	A string representation of the Actual End date and time of the outage being transferred.
status	FlagTransferStatus	The flag transfer status of the outage being transferred.
statusDate	String	A string representation of the date and time the flag transfer status was set for the outage being transferred.

FlagTransfer		
Type Name:	FlagTransfer	
Description:	The FlagTransfer data object is used to hold the data for a particular transfer of data for a given market day and flag type.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
marketDay	String	A string representation of the market date of the flag transfer.
marketFlagType	MarketType enum	Indicator of the flag type of the flag transfer.
transferID	Integer	A unique ID identifying the flag transfer.
outageRowCount	Integer	The number of outages that are included in the flag transfer.
outageProfiles	Array of FlagOutage	This is the collection of outage request records that are included in the flag transfer.
status	FlagDisplayStatus enum	This holds the current status of the flag transfer.
statusDate	String	A string representation of the date the flag transfer status was set.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

GenerationProfile		
Type Name:	GenerationProfile	
Description:	This data element contains the data associated with an outage profile when executed through the OutageGenerationProfileQuery_ExecuteQuery method. This data element contains data from the OutageSchedule (Outage Request) associated with the Outage Profile, as well as data from the Outage Profile.	
Type Elements:		
Element Name	Element Type	Description
outageNumber	String(15)	A unique formatted string identifying the outage.
revisionNumber	Integer	The outage request revision number. This field refers to the outage request that is associated with the outage profile.
outageProfileNumber	String(50)	This is the unique hashed number of the outage period.
profileActualStart	String	String representation of the date/time of the actual start date of the outage profile.
profileActualComplete	String	String representation of the date/time of the actual complete date of the outage profile.
outageScheduledStart	String	String representation of the date/time of the Planned Start date of the outage request.
outageScheduledComplete	String	String representation of the date/time of the Planned End date of the outage request.
outageActualStart	String	String representation of the date/time of the first Actual Start date of the outage request.
outageActualComplete	String	String representation of the date/time of the last Actual Start date of the outage request.
outageOOS	Boolean	Indicator of whether the equipment is all OOS or not. If all equipment is OOS then this will be True; otherwise it will be False.
outageLastUpdated	String	String representation of the date/time of the last modified date of the outage request.
requestedEquipment	GenerationRequeste dEquipment	The generation requested equipment for the returned outage request profile. Whether or not this data is returned depends on the query input value for hideRequestedEquipment.
outagePriority	NamedItem	An object holding the outage priority ID, outage priority name, and outage priority abbreviation.
outageStatus	NamedItem	An object holding the outage status ID and the outage status name.

outageCause	CodeDescription	An object holding the outage request cause code and outage request cause description.
outageSubcause	CodeDescription	An object holding the outage request subcause code and outage request subcause description.
outageCreationDate	String	String representation of the date/time of the creation date of the outage request.
outagePriorityDate	String	String representation of the date/time of the priority date of the outage request.
outageApprovalDate	String	String representation of the date/time of the latest approval date of the outage request.
outageScc	Double	The SCC value used for the outage request.
outageEconomicMax	Double	The Economic Max value of the outage request. This could be null if it is not applicable.
outageTotalReduction	Double	The total reduction amount of the outage request. This could be null if it is not applicable.
outageFcmExemptMWs	Boolean	An indicator of FCM Exempt MW on the outage request.
outageForcedRescheduling	Boolean	An indicator of the outage request forced rescheduling value. This could be null.
blackStartCapable	Boolean	An indicator of the outage request black start capable value. This could be null.
outagePostponable	Boolean	An indicator of the outage request postponable value. This could be null.
outageMarketType	String	A string indicating the market type, if applicable, of the outage request – DA or RT.
Visibility	OutageVisibility	An enum representing the visibility value of Public or Private for the outage request.
marketAsset	PowerSystemResource	An object holding the data for the market asset that is referenced by the outage request.
requestingTO	BusinessUnit	An object holding the information for the requesting TO of the outage request.
forReliabilityRegion	Array of ReliabilityArea	A collection of one or more Reliability Areas associated with the outage request.
periodStatus	NamedItem	An object holding the period status ID information for the outage period.
periodScheduledStart	String	String representation of the date/time of the Planned Start date of the outage period.
periodScheduledComplete	String	String representation of the date/time of the Planned End date of the outage period.
periodLastUpdated	String	String representation of the date/time of the last updated date of the outage period.
isCurrentProfile	Boolean	An indicator of whether or not the returned profile is a current profile or not.

GenerationProfileQueryResult		
Type Name:	GenerationProfileQueryResult	
Description:	The GenerationProfileQueryResult object contains the outage profiles returned upon execution of the QueryService.GenerationOutageProfileQuery method of the OutageGenerationProfileQuery_ExecuteQuery method. One GenerationProfile object is returned for each profile that meets the search criteria.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
rowsReturned	Integer	The number of rows returned by the query.
returnedProfiles	Array of GenerationProfile	An array of the query results for the generation outage profile query.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. • If the error code for the first element in the array is 0, the method call succeeded. • If the error messages array contains only error codes with a positive integer value, the query executed successfully, but informational or warning messages were returned. • If any error codes with a negative integer value exist in the array, the query failed.

GenerationRequestedEquipment		
Type Name:	GenerationRequestedEquipment	
Description:	An object to hold equipment and constraint data for a requested equipment item from a generation outage request. It will contain a PowerSystemResource object along with a Constraint object to hold constraint data.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
systemElement	PowerSystemResource	An object containing the requested equipment data.
constraint	Constraint	An object containing the constraint information for this item of requested equipment.

GISEquipment		
Type Name:	GISEquipment	
Description:	This type contains the data elements required to describe a device when performing a GIS import into the CROW.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
circuitID	String(50)	This identifies the distribution circuit for the facility being updated. (Format: 2551 SMW)
deviceName	String(50)	Specifies the type of device being imported. Valid values are: • O/H Switch • U/G Switch • Recloser • Cutout • Vacuum Interrupter • Station Breaker
deviceType	String(50)	If the device name is "O/H Switch" this specifies the type of overhead switch. Valid values are: • Feeder Disconnect • Gang Operated Load Break • Gang Operated Non-Load Break • Inline Disconnect • Motor Operated Disconnect
deviceID	String(20)	The device number.
normalPosition	String(1)	Indicates the normal position of this device. Valid values are: • C (Normally closed) • O (Normally open)
deviceLoad	Integer	The sum of the kVA loading of all transformers downstream of the device expressed as a percentage of the total feeder loading.
customers	Integer	The number of customers downstream from the device.
lastUpdatedDate	String	String representation of the date on which this device was last updated.

GISImportRequest	
Type Name:	GISImportRequest
Description:	The GISImportRequest type contains the parameters used to import GIS data into CROW. This object is passed to the Service.GISImportRequest_DoImport method.
Type Elements:	

<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
gisEquipment	Array of GISEquipment	An array of the devices imported.

GISImportResponse		
Type Name:	GISImportResponse	
Description:	The GISImportResponse object returns the results of the Service.GISImportRequest_DoImport method.	
Subclass Of / Include All Elements From:	QueryResult	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded. The absence of any negative error codes indicates the method call has succeeded.
rowsReturned	Integer	The number of rows returned in response to the method call.

InitiatedTransfers		
Type Name:	InitiatedTransfers	
Description:	The InitiatedTransfers object is used to return the results of the call to the ISONEFlagging.GetInitiatedTransfers method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.
flagTransfers	Array of FlagTransfer	This holds the data being bridged for the transfer call in an array of FlagTransfer objects. Each FlagTransfer object holds the collection of outages being returned for a particular market day and flag type.

InputParameters		
Type Name:	InputParameters	
Description:	The InputParameters object holds a variety of input parameter data, and can be used for various method calls. Only the input parameters required for the particular method call need be set. Depending on the method call different elements will be populated.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
controlCentreAbbrev	String	String indicated the abbreviation of a control center.
additionalControlCentreAbbrev	Array of String	Array of strings indicating control center abbreviations.
conditionalApproval	Boolean	True/False value indicating the conditional approval setting.
schedulersComments	String	String indicating the schedulers comments data.
actualStart	String	A string representation of the date/time of the actual start of an outage.
actualComplete	String	A string representation of the date/time of the actual completion of an outage.
returnType	OutageReqReturnType	An enumeration indicating one of the following: EntireOutageReq, CurrentDaily, SelectedEvents, PermitsOnly, OutagePeriods, None
periods	Array of OutagePeriod objects.	This array holds any number of OutagePeriod objects.
reasonCode	String	Reason code for an outage status change.
reasonSubCode	String	Reason subcode for an outage status change.
reason	String	Text description of the reason for an outage status change.

InstanceProperty	
Type Name:	InstanceProperty
Description:	The InstanceProperty object is a wrapper object to retrieve and update resource properties in the CROW metadata model.
Type Elements:	

<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
propertyName	String	The full InstanceProperty name. (CROW Name). This is used as a key to identify a property within a class.
propertyType	String	The property type. This is a read-only field.
quantity	String	The quantity specifies the value being measured if propertyType is Decimal or Integer. Otherwise, the quantity does not represent a specific measurement and the generic quantity "value" is used. This is a read-only field.
units	String	This is the measurement units for the property depending on the quantity field value. This is a read only field.
value	String	The property value. This is entered as a string, but the same field would be used for integers, dates, etc. The application will validate the field and an error message will be returned if an invalid value was entered.

IsolatingPoint		
Type Name:	IsolatingPoint	
Description:	The outage request contains a collection of isolating points, which identify the switches (circuit breakers and/or disconnects) that will be used to isolate the equipment during the outage. The IsolatingPoint type identifies the device, and the device state during the outage.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
switch	PowerSystemEquipment	This identifies the isolating device.
outageState	String(25)	This is the device state during the outage (open or closed).

LinkedOutageRequest		
Type Name:	LinkedOutageRequest	
Description:	The outage request contains a collection of linked outages to identify related outages. The LinkedOutageRequest type identifies the outage number of an outage that is related (linked) to an outage request.	
Type Attributes:		
<u>Attribute Name</u>	<u>Attribute Type</u>	<u>Description</u>
scheduleId	IDREF	This is the outage request id of the linked OutageSchedule.
Type Elements:		

<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
outageNumber	String	This is the outageNumber of the linked OutageSchedule.

NamedItem		
Type Name:	NamedItem	
Description:	An object to hold an ID, a name, and abbreviation of some item (eg a status or priority item).	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
id	Integer	The ID for the item. This is required.
name	String	The name of the item.
abbreviation	String	An abbreviation, if used, for the item.

NotificationRequest		
Type Name:	NotificationRequest	
Description:	A Notification Request explicitly identifies a user who will be notified if the outage is approved/denied, or who will be notified of switching requirements for the outage.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
notificationType	String(50)	This identifies the type of notification requested.
notifyWho	Person	This identifies the person who will be notified. Use this value if the notificationType is not Operations.
notifyControlCenter	BusinessUnit	This identifies the control center that will be notified. Use this value is the notificationType is "Operations".
acknowledgedWhen	String	The date/time the recipient of the notification acknowledged the notification.
comments	String(1024)	Comments entered by the recipient of the notification.
isFreeForm	Boolean	True/False indicator of whether the data for the person and contact information is freeform data or actual CROW object data.

OutageApproval		
Type Name:	OutageApproval	
Description:	The outage contains a collection of required approvals. The OutageApproval logs the approval/denial.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
controlCenter	BusinessUnit	Identifies the control center for which approval is required.
approvalStatus	String(25)	Indicates the status of the approval.
conditionalApproval	Boolean	If the approval is conditional, this value is True. Otherwise, this value is False. This value applies only if the approvalStatus indicates an approval.
approvedDeniedWhen	String	The string representation of the date/time the approval was approved or denied. If the approvalStatus is "Pending", this value is the null date.
approvedDeniedBy	Person	This is the person who approved or denied the approval.
schedulerComments	String	The scheduler's free-form text comments.
approvalType	String	The string representation of the approval type

OutagePeriod		
Type Name:	OutagePeriod	
Description:	If the outage is non-continuous, you can identify each outage as a separate element. You will typically do this if one or more of the outages requires different start or end times or permits.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
switchingStart	String	The string representation of the date/time of the requested outage period start. This must be a valid date/time value >= the switchingStart value for the OutageSchedule and <= the restorationComplete value for the OutageSchedule.
permitStart	String	The string representation of the date/time of the requested permit start. This is optional. To indicate a null value, use the null date. Otherwise, this must be a valid

		date/time value >= the switchingStart value and <= the restorationComplete value.
permitComplete	String	The string representation of the date/time of the requested permit return. This is optional. To indicate a null value, use the null date. Otherwise, this must be a valid date/time value >= the permitStart value and <= the restorationComplete value.
restorationComplete	String	The string representation of the date/time of the requested outage period completion. This must be a valid date/time value > the switchingStart value and <= the restorationComplete value for the OutageSchedule.
periodStatusID	Short / int16	Status of the period as number. This is a read only field.
periodStatus	String(25)	Status of the period as number.
statusUpdateWhen	String	The date/time the Outage Period status was last updated.
statusUpdateBy	Person	The person who last updated the Outage Period status.
cancellationRequest	Boolean	If this value is True, this indicates that cancellation of the outage period has been requested. This value applies only for Cancellation Requests.
overrun	String	Indicates if this period has been marked as overrun. Possible values are • "Y": overrun • "N": not overrun
clearanceTags	Array of ClearanceTag	This contains a list of clearance tags for the outage period. These are the clearance tags identified in the OutageSchedule that are requested for the outage period.
requestedEquipment	Array of RequestedEquipment	This is an array of RequestedEquipment objects. Only the equipment selected for this Outage Period are returned. Each RequestedEquipment object identifies a PowerSystemResource and the type of constraint in effect during the outage period.
ReasonCode	String	Reason code for an outage status change.
ReasonSubCode	String	Reason subcode for an outage status change.
Reason	String	Text description of the reason for an outage status change.

OutagePeriodReturnedEvent		
Type Name:	OutagePeriodReturnedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when an outage period is returned.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
periodNumber	Integer	The ID for this outage period. This number corresponds with the outage periods in the Daily Outages list. If there are no periods in this list, 0 is returned.
plannedStartTime	String	The planned start date and time for this outage period. For a continuous or non-continuous outage this value is the switchingStart value for the outage request. Otherwise it is the switchingStart value for the daily outage.
plannedEndTime	String	The planned end date and time for this outage period. For a continuous or non-continuous outage this value is the restorationComplete value for the outage request. Otherwise it is the restorationComplete value for the daily outage.
actualEndTime	String	The “inWhen” date and time for the event corresponding with this outage period.

OutagePeriodUnreturnedEvent		
Type Name:	OutagePeriodUnreturnedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the status for an outage period is changed from “Completed” to “Implemented”	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
periodNumber	Integer	The ID for this outage period.

OutageProfileQuery		
Type Name:	OutageProfileQuery	
Description:	The outage profile query data type allows the user to specify the filter parameters used when querying for Outage Profiles	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
plannedStartRangeStart	String	The date/time of the lower boundary of the outage profile planned start date/time filter. If the null date is supplied, this filter is ignored.
plannedStartRangeEnd	String	The date/time of the upper boundary of the outage profile planned start date/time filter. If the null date is supplied, this filter is ignored.
plannedCompleteRangeStart	String	The date/time of the lower boundary of the outage profile planned complete date/time filter. If the null date is supplied, this filter is ignored.
plannedCompleteRangeEnd	String	The date/time of the upper boundary of the outage profile planned complete date/time filter. If the null date is supplied, this filter is ignored.
actualStartRangeStart	String	The date/time of the lower boundary of the outage profile actual start date/time filter. If the null date is supplied, this filter is ignored.
actualStartRangeEnd	String	The date/time of the upper boundary of the outage profile actual start date/time filter. If the null date is supplied, this filter is ignored.
actualCompleteRangeStart	String	The date/time of the lower boundary of the outage profile actual complete date/time filter. If the null date is supplied, this filter is ignored.
actualCompleteRangeEnd	String	The date/time of the upper boundary of the outage profile actual complete date/time filter. If the null date is supplied, this filter is ignored.
lastUpdatedRangeStart	String	The date/time of the lower boundary of the outage request last updated date/time filter. If the null date is supplied, this filter is ignored.
approvalDateRangeStart	String	The date/time of the lower boundary of the date the outage request was last approved. If the null date is supplied, this filter is ignored. The approved date range is used along with and in addition to the planned/actual date range filters.
approvalDateRangeEnd	String	The date/time of the upper boundary of the date the outage request was last approved. If the null date is supplied, this filter is ignored. The approved date range is used along with and in addition to the planned/actual date range filters.
lastUpdatedRangeEnd	String	The date/time of the upper boundary of the outage request last updated date/time filter. If the null date is supplied, this filter is ignored.

includeOverrunProfiles	String	Specify 'Yes' to include only overrun profiles, 'No' to only include profile that are not overrun and 'N/A' to ignore this filter.
equipmentTypeConcat	String	A concatenated list of EPRI names of the equipment types to be included: • A blank string means that all equipment types will be included. • A single equipment class name means that only equipment of that class will be included, for example 'Unit'. • A comma separated concatenated list of equipment class names means that only equipment of the specified class names will be included, for example 'Unit, Transformer, Line'.
profileStatusConcat	String	A concatenated list of the profile statuses to be included: • A blank string means that all profiles will be included. • A single status name or a status id means that only profiles with that status will be included, for example 'Submitted'. • A comma separated concatenated list of status names or status ids means that only profiles of the specified statuses will be included, for example 'Submitted, Approved'. The input list has to consist of either status names or status ids, but not a mix of both.
marketSensitiveConcat	String	A concatenated list of outage request market sensitive value to include. • A blank string means that this filter is ignored. • A single market sensitive value means that only outage requests with that market sensitive value will be included, for example 'Yes'. • A comma separated concatenated list of market sensitive values means that only outage requests with those market sensitive values will be included, for example 'Yes, N/A'. Valid values are Yes, No and N/A.
outageCategory	String	The category of the outage request associated with the outage profile. Valid values are: • Transmission – include only transmission outage requests. • Generation – include only generation outage requests.

outagePriorityConcat	String	A concatenated list of the priorities of the outage requests associated with the outage priorities to be included: • A blank string means that this filter will be ignored. • A single priority name or a priority id means that profiles associated with outage requests with the specified priority will be included, for example 'Long Term'. • A comma separated concatenated list of priority names or priority ids means profiles associated with outage requests with the specified priorities will be included, for example 'Long Term, Short Term'. The input list has to consist of either priority names or priority ids, but not a mix of both.
constraintConcat	String	A concatenated list of constraint/commitment abbreviations of the profiles to be included: • A blank string means that this filter will be ignored. • A single constraint/commitment abbreviation means that profiles with the specified constraint/commitment will be included, for example 'OOS'. • A comma separated concatenated list of constraint/commitment abbreviations means profiles with the specified constraints/commitments will be included, for example 'OOS, Derating'.
includeDeletedProfiles	Boolean	Indicates whether or not to include the deleted profiles in the returned result set.
includedRemoteSystemNames	String	A concatenated list of remote system names of the profiles to be included: • A blank string means that this filter will be ignored. • A single remote system name means that profiles with the specified name will be included. • A comma separated concatenated list of names means profiles with the specified names will be included,
excludedRemoteSystemNames	String	A concatenated list of remote system names of the profiles to be included: • A blank string means that this filter will be ignored. • A single remote system name means that profiles with the specified name will be excluded.

		A comma separated concatenated list of names means profiles with the specified names will be exclude,
maintainedByConcat	String	A concatenated list of business units that maintain equipment of the profiles to be included: - A blank string means that this filter will be ignored. - A single business unit label means that profiles with the specified unit as their equipment maintainer will be included. - A comma separated concatenated list of business unit label means profiles with the specified units as their equipment maintainer will be included.
hideRequestedEquipment	Boolean	Indicator of whether or not to return the requested equipment data with the results of the outage profile query.

OutageProfileQueryResult		
Type Name:	OutageProfileQueryResult	
Description:	This data type contains the outage profiles returned upon execution of the QueryService.OutageProfileQuery method or the OutageProfileQuery_ExecuteQuery method. One ReturnedProfile object is returned for each profile that meets the search criteria.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
rowsReturned	Long	The number of rows returned by the query.
returnedProfiles	Array of ReturnedProfile	An array of the query results.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. • If the error code for the first element in the array is 0, the method call succeeded. • If the error messages array contains only error codes with a positive integer value, the query executed successfully, but informational or warning messages were returned. • If any error codes with a negative integer value exist in the array, the query failed.

OutageRequestActivatedEvent		
Type Name:	OutageRequestActivatedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request is implemented for the first time and for each subsequent outage period.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
periodNumber	Integer	The ID for this outage period. This number corresponds with the outage periods in the Daily Outages list. If there are no periods in this list, 0 is returned.
plannedStartTime	String	The planned start date and time for this outage period. For a continuous or non-continuous outage this value is the switchingStart value for the outage request. Otherwise it is the switchingStart value for the daily outage.
plannedEndTime	String	The planned end date and time for this outage period. For a continuous or non-continuous outage this value is the restorationComplete value for the outage request. Otherwise it is the restorationComplete value for the daily outage.
actualStartTime	String	The “outWhen” date and time for the event corresponding with this outage period.

OutageRequestApprovedEvent		
Type Name:	OutageRequestApprovedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the status of the outage request becomes “Approved”.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
comments	String	A concatenated list of the schedulers’ comments at the time of approval.

OutageRequestCancelledEvent		
Type Name:	OutageRequestCancelledEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request is cancelled.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

OutageRequestCompletedEvent		
Type Name:	OutageRequestCompletedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request is completed.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
completedTime	String	The actual completion time for the outage request.

OutageRequestConfirmedEvent		
Type Name:	OutageRequestConfirmedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the status of the outage request becomes “Confirmed”.	
Type Elements:		
Element Name	Element Type	Description

OutageRequestDeniedEvent		
Type Name:	OutageRequestDeniedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request is denied.	
Type Elements:		
Element Name	Element Type	Description

comments	String	A concatenated list of the schedulers' comments at the time when the outage request is denied.
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OutageRequestQuery		
Type Name:	OutageRequestQuery	
Description:	The OutageRequestQuery type contains the query parameters used to execute a query on the OutageSchedule data. This object is passed to the QueryService.OutageRequestQuery method, and provides the query parameters used by this method.	
Type Elements:		
Element Name	Element Type	Description
startDate	String	The string representation of the lower boundary of the query date range. Use the null date to indicate no lower boundary.
endDate	String	The string representation of the upper boundary of the query date range. Use the null date to indicate no upper boundary.
listingForClass	String(255)	Identifies the class for which you're including instances listed in the listingForConcat value. Valid values are: - ControlCenter - Sector - Substation - PowerSystemEquipment
listingForConcat	String(4096)	This is concatenated list of identifiers for instances belonging to the class identified in listingForClass based on user's "Asset Naming" preference. For control centers, and substations, use the instance's abbreviation. For sector or power system equipment, use the instance's label (e.g. '5L45', 'GMS G1'). Separate items in this list using commas. E.g. "HPN T1, HPN T2, 2L49, 2L51". Space after the comma is optional.
statusConcat	String(1024)	This is concatenated list of outage status values. Separate items in this list using commas.
equipmentTypeConcat	String	A concatenated list of EPRI names of the equipment types to be included: A blank string means that all equipment types will be included.

		A single equipment class name means that only equipment of that class will be included, for example 'Unit'. A comma separated concatenated list of equipment class names means that only equipment of the specified class names will be included, for example 'Unit, Transformer, Line'.
constraintTypeConcat	String	A concatenated list of the outage request constraints to be filtered. Use a blank string to ignore this filter.
requestedBy	Person	If this is not null, return only outages where the primary requester is the person identified by this element.
lastUpdateStart	String	String representation of the lower boundary of the last update query date range. Use the null date to indicate no lower boundary.
lastUpdateEnd	String	String representation of the upper boundary of the last update query date range. Use the null date to indicate no upper boundary.
remoteSystemName	String	This is the name of the remote system associated with the OutageSchedule.
remoteSystemOutageNumber	String	If the OutageSchedule is associated with another system, this is the outage number used to reference the outage in the other system.
sortBy	String(255)	Identifies the outage data column used to sort the results. Valid values are (this is not case-sensitive): OUT_WHEN ORIG_CC EVENT_ON_LABEL REVISION_DATE SWITCHING_START RESTORATION_COMPLETE REC_CREATE_DATE REC_MOD_DATE REMOTE_SYSTEM_OUTAGE_NUMBER REMOTE_SYSTEM_NAME SERVER_ID OUTAGE_REQ_ID REQUESTED_EQUIPMENT_STR EXTERNAL_NAME_REQUESTED_EQUIPMENT_STR ASSET_LONG_NAME_REQUESTED_EQUIPMENT_STR OPERATED_BY_CC REQUEST_TYPE_ID PERMIT_START PERMIT_COMPLETE OUTAGE_STATUS_ID CC_DESK_STR DURATION LAST_STATUS_CHANGE_WHEN LOCKED_WHEN REQ_LOCKED_WHEN DURATION_UNITS RECURRENCE REQUESTED_RANGE_TYPE LASTMODIFIED

		OUTAGENUMBER REMOTESYSTEMNAME REMOTESYSTEMOUTAGENUMBER OUTAGEEQUIPMENT OUTAGE_EQUIPMENT OPERATEDBYCONTROLCENTERS SWITCHINGSTART PERMITSTART PERMITCOMPLETE RESTORATIONCOMPLETE REQUESTTYPEID OUTAGESTATUS OUTAGESTATUSID DURATIONUNITS REQUESTEDRANGETYPE CONTINUOUSDAILY LOCKEDWHEN RECCREATEDATE RECMODDATE LASTSTATUSCHANGEWHEN REQUESTEDBY LASTSTATUSCHANGEBY
sortOrder	String(255)	Identifies the sort order. Valid values are (this is not case-sensitive): • ASC • DESC
outageCategory	String	Identifies the type of outage request. Usually either Generation or Transmission, but may be other values depending upon configuration.

OutageRequestQueryResult		
Type Name:	OutageRequestQueryResult	
Description:	The OutageRequestQueryResult object returns the results of the Service.OutageRequestQuery_ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
rowsReturned	Long	The number of rows returned by the query.
returnedOutages	Array of ReturnedOutage	An array of the query results.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

OutageRequestRecalledEvent	
Type Name:	OutageRequestRecalledEvent
Subclass Of / Include All Elements From:	OutageScheduleDataEvent

Description:	A data event that is created when the outage request is recalled.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

OutageRequestReinstatedEvent		
Type Name:	OutageRequestReinstatedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when an outage request is reinstated after having been cancelled.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

OutageRequestRevisedEvent		
Type Name:	OutageRequestRevisedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when one of the following elements of an outage request is revised: - Requested Equipment (Circuit/Equipment/Description/Portion Out) - Outage Start Time - Outage Complete Time - A change in the daily outages This event is only created if the outage request had been submitted before.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
revisionNumber	Integer	The CROW revision number of this outage request.
requestedEquipment	Array of RequestedEquipment	This is an array of all RequestedEquipment objects of the Outage Request. Each RequestedEquipment object identifies a PowerSystemResource and the type of constraint in effect during the outage.
plannedStartTime	String	The outage request planned start time.
plannedEndTime	String	The outage request planned end time.
outagePeriods	Array of OutagePeriod	This is an array of the outage periods associated with this outage request.

OutageRequestSubmittedEvent		
Type Name:	OutageRequestSubmittedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request is submitted.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

OutageRequestUnactivatedEvent		
Type Name:	OutageRequestUnactivatedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request's implementation is cleared.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
periodNumber	Integer	The ID for this outage period.

OutageRequestUncompletedEvent		
Type Name:	OutageRequestUncompletedEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request's completed time is reset.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

OutageRequestUnrecalledEvent		
Type Name:	OutageRequestUnrecalledEvent	
Subclass Of / Include All Elements From:	OutageScheduleDataEvent	
Description:	A data event that is created when the outage request's status is changed from "Recalled" to another value.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

OutageSchedule		
Type Name:	OutageSchedule	
Description:	The period of time that a piece of equipment is out of service, for example, for maintenance or testing; including the equipment's MW rating while under maintenance.	
Type Attributes:		
<u>Attribute Name</u>	<u>Attribute Type</u>	<u>Description</u>
id	ID	An optional unique arbitrary formatted string identifying the outage. Utilized for bulk actions on new outage schedules in order to transactionally establish links. This ID is matched to the LinkedOutageRequest scheduleId attribute IDREF.
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
outageNumber	String(15)	A unique formatted string identifying the outage.
revisionNumber	Integer	The outage request revision number.
requestTypeID	Integer	This is an enumeration identifying the Outage Request Type. Valid values are: 0 Planned Outage Request 1 Forced Outage Request This field is read-only.
changeReqNumber	Integer	The change request number. If this object is a change request, this value is >= 1. Otherwise this value is 0.
changeReqTypeID	Integer	This is an enumeration identifying the change request type. Valid values are: 0 Change Request 1 Cancellation Request
reasonForChange	String(32000)	If this object is a change request, this value contains a text description of the reason for the change. Otherwise this value contains a blank string.
remoteSystemName	String(50)	This is the name of the remote system associated with the OutageSchedule.
remoteSystemOutageNumber	String(15)	If the OutageSchedule is associated with another system, this is the outage number used to reference the outage in the other system.

primaryRequester	Person	This is the person who originally created the outage request.
implementOneAtATime	Boolean	If the outage request references more than one system element, and the system elements are to be switched out one at a time, this value is True. Otherwise it is False.
reasonPriority	String(32000)	A free-form description of the outage.
reqRangeType	String(25)	Identifies whether the outage is requested for an exact date range, or if it is requested for a period within a date window. Valid values are: Exactly
studies	Array of OutageStudy	This is an array of studies done for this outage request.
switchingStart	String	The string representation of the date/time of the requested outage start. This must be a valid date/time value > '1970/01/01' and < '2050/01/01'.
permitStart	String	The string representation of the date/time of the requested permit start. This is optional. To indicate a null value, use the null date. Otherwise, this must be a valid date/time value >= the switchingStart value and <= the restorationComplete value. This is an optional field.
permitComplete	String	The string representation of the date/time of the requested permit return. This is optional. To indicate a null value, use the null date. Otherwise, this must be a valid date/time value >= the permitStart value and <= the restorationComplete value. This is an optional field.
restorationComplete	String	The string representation of the date/time of the requested outage completion. This must be a valid date/time value > the switchingStart value and < '2050/01/01'.
actualStart	String	String representation of the actual start of the outage.
actualComplete	String	String representation of the actual completion of the outage.
duration	Double	The requested outage duration in the units identified in the durationUnits value. If the reqRangeType value is "Exactly", this value must match the

		duration calculated from the requested dates/times. If the reqRangeType value is "Window", this value must be <= the duration calculated from the requested dates/times. This is a read only field.
durationUnits	String(25)	The units used to measure the requested duration. Valid values are: • minutes • hours • days This is a read only field.
continuousDaily	String(50)	Specifies whether the outage is continuous or daily.
recallTime	Double	The time in the units identified in recallTimeUnits required to recall the outage.
recallTimeUnits	String(25)	The units used to measure the recall time.
recallCost	Double	The cost in Dollars to recall the outage. Use a value of -1 to indicate n/a.
cancellationTime	Double	The time in the units identified in cancellationTimeUnits required to cancel the outage.
cancellationTimeUnits	String(25)	The units used to measure the cancellation time. Valid values are: • minutes • hours • days
cancellationCost	Double	The cost in Dollars to cancel the outage. Use a value of -1 to indicate n/a.
outageStatusID	Integer	The ID representing the outage schedule status. Read-only
outageStatus	String(25)	The name of the outage schedule status. Read-only
statusUpdateWhen	String	The string representation of the date/time the outage status was last updated.
statusUpdateBy	Person	The person who last updated the outage status.
isolatingPointsFree	String(32000)	Free-form text identifying isolating points that can't be identified as discrete system elements.
outagePriority	Integer	This is an enumeration identifying the outage priority.
priorityDate	String	The string representation of when the outage priority was set.

requestLockedBy	Person	The details of the user that has locked the outage schedule from edits.
requestLockedWhen	String	The string representation of the date/time the submitted outage request was locked.
createdBy	Person	The person who first created the outage record.
recCreateDate	String	The string representation of the date/time the record was created.
modifiedBy	Person	The person who last modified the outage record.
recModDate	String	The string representation of the date/time the outage was last updated.
requestedEquipment	Array of RequestedEquipment	This is an array of all RequestedEquipment objects of the Outage Schedule. Each RequestedEquipment object identifies a PowerSystemResource and the type of constraint in effect during the outage. In this context, actualStart and actualComplete fields of the returned equipment are null.
requestedEquipmentStr	String	Concatenated list of equipment names based on user's "Asset Naming" preference. This is a read only field.
isolatingPoints	Array of IsolatingPoint	This is an array of IsolatingPoint objects. Each IsolatingPoint object identifies the isolating device and the device state (open or closed) during the outage.
clearanceTags	Array of ClearanceTag	This is an array of ClearanceTags (i.e. permits) requested for the outage.
outagePeriods	Array of OutagePeriod	This is an array of the outage periods associated with this outage request.
approvals	Array of OutageApproval	This is an array of required approvals for this outage request.
implementedOutages	Array of SystemEvent	This is a list of logged outages associated with this outage request. The actual outage start and completion times are logged in the SystemEvent.
changeRequests	Array of OutageSchedule	This is an array of change requests associated with this outage request. Each change request is an outage object. However, change requests do not have change requests or implemented outages.

notifications	Array of NotificationRequest	This is an array of notification requests (e.g. switching and approval notifications) associated with the outage request.
marketSensitive	Integer	0 – No 1 – Yes 2 – Not Set This field is read only.
alternateDates	String	Free form text description of alternate outage dates
useAlternateDates	Boolean	Flag indicating whether or not the alternateDates field value is being used for the outage request.
causeCode	String(3)	This is the abbreviated cause code.
causeDescription	String(50)	The full text description for the cause code.
subCauseCode	String(3)	This is the abbreviated sub cause code. This applies only for outages where the cause code has subcauses identified.
subCauseDescription	String(50)	The full text description for the sub-cause code.
woNumber	String(25)	The work order number
gridRate	Integer	
outageCategory	String	None, Transmission, or Generation. Read-only.
lastReviewedBy	Person	The person who last reviewed the outage request.
lastReviewedWhen	String	String representation of the date/time when this outage request was last reviewed. It is blank if the user is not allowed to view this field.
lastGenReviewedBy	Person	The person who last reviewed the outage request.
lastGenReviewedWhen	String	String representation of the date/time when this outage requests generation units on the ISO Short Term Study tab was last reviewed.
intraAreaLine	Boolean	Returns true if indicating intra area line outage. This is a read only field.
interAreaLine	Boolean	Returns true if indicating inter area line outage This is a read only field.
liveLineJob	Boolean	Returns true if one of the constraints identified is a live line job. This is a read only field.

mte	Boolean	True if the outage request references a Major Transmission Element. This is a read only field.
mteOverride	Boolean	Indicates whether the mte field is overridden. This is a read only field.
economic	Boolean	Returns true if indicating economic outage. This is a read only field.
riskAssessmentField	String	Free form text description of the risk assessment entered by field staff
riskAssessmentSCC	String	Free form text description of the risk assessment entered by SCC staff
contingencyPlan	String	Free form text description of the contingency plan.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.
summerScc	Double	This represents the Summer SCC value of the market asset that is on the outage request.
winterScc	Double	This represents the Winter SCC value of the market asset that is on the outage request.
physicalReduction	Double	This is a calculated value indicated the physical MW reduction on the market asset during the outage.
economicMax	Double	This is a calculated value indicating the physical MW output of the market asset during the outage.
fcmExempt	Integer	This True or False flag indicates whether or not this outage is FCM Exempt.
postponable	Boolean	This True or False flag indicates to the control room that this outage can be postponed due to power system conditions.
isoComments	String	This contains comments made on the outage by the ISO.
forcedRescheduling	Boolean	This True or False flag indicates if the ISO has requested the Generation User to move the dates of their outage.
blackStartCapable	Boolean	This True or False flag indicates if the Market Asset, that is part of the black start program will continue to be black start capable during the outage.

requestTo	BusinessUnit	This BusinessUnit represent the transmission owner that has requested the commitment of the generator.
visibility	OutageVisibility	The OutageVisibility object is an enum setting of Public or Private.
marketAsset	PowerSystemResource	This is a PowerSystemResource object representing the market asset being used on a Generation Outage Request.
forReliabilityAreas	ArrayOfReliabilityArea	This is an array of ReliabilityArea objects for which the outage request is needed. Depending on the configuration of the application there may only be one ReliabilityArea allowed or there may be more than one.
marketTypeCode	String	This is an indicator of the market type used for some outage schedules. Possible values are 'DA' or 'RT'
linkedOutageRequests	Array of LinkedOutageRequest	This holds an array of outage requests that are linked to the outage schedule. If this is not provided when updating an outage request, then it is assumed there is no update to the existing list. If it is provided it is assumed that the entire list of linked outage requests is provided.
attachments	ArrayOfAttachment	This holds the collection of attached files for the outage schedule.
hasConflict	Boolean	Indicates whether this outage request is in conflict with another outage request. Read-only.
code1	String	Optional code value. If supplied, this value must be a valid code for a given configuration.
code2	String	Optional code value. If supplied, this value must be a valid code for a given configuration.
code3	String	Optional code value. If supplied, this value must be a valid code for a given configuration.
code1Note	String(255)	A descriptive note, usually associated with code1
Code2Note	String(255)	A descriptive note, usually associated with code2
flags	Array of Flag	Holds the collection of Flag objects associated with this outage schedule.

predecessor	String	The outage ID number of the related predecessor outage.
successor	String	The outage ID number of the related successor outage.
predecessorType	String	Type of predecessor association. One of the following: • Run Within • Finish-Start
successorType	String	Type of successor association. One of the following: • Run Within • Finish-Start

OutageScheduleDataEvent		
Type Name:	OutageScheduleDataEvent	
Subclass Of / Include All Elements From:	DataEvent	
Description:	A data event created due to an outage schedule action.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
outageNumber	String(15)	A unique formatted string identifying the outage.
remoteSystemName	String	This is the name of the remote system associated with the OutageSchedule.
remoteSystemOutageNumber	String	If the OutageSchedule is associated with another system, this is the outage number used to reference the outage in the other system.

OutageScheduleGroup		
Type Name:	OutageScheduleGroup	
Description:	The OutageScheduleGroup type contains a top level errors collection and an array of outage schedules	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

outageSchedules	Array of OutageSchedules	The return list of outage schedules. This item may not be returned if errors occurred.
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OutageStudy		
Type Name:	OutageStudy	
Description:	The OutageStudy object contains the details of a study of an outage schedule. Typically an outage schedule contains multiple instances of OutageStudy object, each of which is one of the study types as explained in studyTypeID field. Some fields are ignored or re-purposed for certain studies.	
Type Elements:		
Element Name	Element Type	Description
studyTypeID	Integer	The type identifier of the study used to differentiate between various studies of an outage schedule.
stabilityStudy	Boolean	Whether or not Stability Study is done for Short Term and Long Term ISO studies as well as LCC study,
voltageStudy	Boolean	Whether or not Voltage Study is done for Short Term and Long Term ISO studies as well as LCC study,
EMSILCStudy	Boolean	Whether or not EMS ILC Study is done for Short Term and Long Term ISO studies as well as LCC study,
powerFlowApproval	Boolean	Whether or not Power Flow Approval is given.
studyContingencyAnalysis	Boolean	Whether or not Study Contingency Analysis Approval is given.
judgment	Boolean	Whether or not the person conducting the study has rendered an approval/denial decision based on their Judgment as opposed to the results of a complex study or based on the ability to allow the outage to occur dependent upon Real Time conditions (a preceding element that needs to return to service prior to the outage to occur, generation dispatch, system load levels, weather conditions).

loadLevelChecked	Boolean	Identifies whether a load level is entered or not.
loadLevel	Integer	Load level in MW.
reduction	Integer	Reduction amount value.
congestionCostChecked	Boolean	Identifies whether a congestion cost is entered or not.
congestionCost	Double	This is the estimated congestion cost for the Outage Request (\$). This appears only in the Long Term ISO and Short Term ISO studies.
repositionCostChecked	Boolean	Identifies whether a reposition cost is entered or not.
repositionCost	Double	This is a value that the TO/LCC provide for Short Term and Long Term ISO studies as well as LCC study,
otherServicesChecked	Boolean	Whether or not there are other services that affect this outage.
otherServices	String(32000)	Explanation about other services that affect this outage.
generationPatternChecked	Boolean	Whether or not there is a generation pattern information.
generationPattern	String(32000)	Explanation about generation pattern.
actionRequiredChecked	Boolean	Whether or not an action is required before the outage.
actionRequired	String(32000)	Explanation about action required before the outage.
interfaceLimitationChecked	Boolean	Whether or not there is an interface limitation.
interfaceLimitation	String(32000)	Explanation about interface limitation.
generationLimitationChecked	Boolean	Whether or not there is a generation limitation.
generationLimitation	String(32000)	Explanation about generation limitation.
generationMustRunChecked	Boolean	Whether or not generation must run during the outage.
generationMustRun	String(32000)	Explanation about generation running requirements.
reasonForMustRun	String(50)	Possible reasons for “generation must run”.
studySummary	String(32000)	ISO and LCC’s study notes.
createdBy	Person	The person, who created the study
createdWhen	String	Date of the study
completed	Boolean	Indicates whether the study has been completed. Changing completed to true sets completedBy to the requesting web service

		user and completedWhen to the current date and time.
completedBy	Person	The person, who completed the study. This is a read-only field.
completedWhen	String	Date of study completion. This field is blank if the study is not completed yet. This is a read-only field.
contingencies	Array of OutageStudyContingency	The list of contingencies entered for a study
operableCapabilityReview	String	This contains the ISO entered comments from the ISO Generation Study of a generation outage.
demandResponseActivationReview	String	This contains the ISO entered comments from the ISO Generation Study of a generation outage.
blackStartReview	String	This contains the ISO entered comments from the ISO Generation Study or the LCC entered comments from the LCC Generation Study of a generation outage.
reliabilityReview	String	This contains the ISO entered comments from the ISO Generation Study or the LCC entered comments from the LCC Generation Study of a generation outage.
technicalStudyCompleted	Boolean	Indicates whether the Technical Study has been completed.
technicalStudyCompletedBy	Person	The person, who completed the Technical study. This is a read-only field.
technicalStudyCompletedWhen	String	A string representation of the date of Technical Study completion. This field is blank if the study is not completed yet. This is a read-only field.
generationUnitsConcat	String	A comma delimited list of generation units that are impacted by the transmission outage. These units are listed under the Generation Limitation section of the ISO Short Term Study.
generationMustRunUnitsConcat	String	A comma delimited list of generation units that are impacted by the transmission outage. These units are listed under the Generation Must Run section of the ISO Short Term Study.
reviewCompleted	Boolean	Indicates whether a review of the Study has been completed.
reviewCompletedBy	Person	The person who completed the review of the study

reviewCompletedWhen	String	A string representation of the date of review of the Study. This field is blank if the study is not completed yet
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OutageStudyContingency		
Type Name:	OutageStudyContingency	
Description:	Contingency information entered for an outage study. Each outage study may contain multiple contingencies. Some fields are ignored for certain studies.	
Type Elements:		
Element Name	Element Type	Description
contingencyNumber	Integer	The number would start at 1 and automatically increment each time a new contingency is added. The user can manually re-order the contingencies by changing this value.
contingencyElement	String(255)	The name of the contingency unit.
distributionFactor	Integer	Distribution factor as percentage.
limitingElementType	String(50)	Limiting element type is one of the following values. • Generator • Transmission Element • None
limitingElement	String(255)	The element exceeding its operating limits and therefore the reason for mitigating actions.
normalMVA	Integer	Normal operating rating.
LTEMVA	Integer	Long Term Emergency rating.
STEMVA	Integer	Short Term Emergency rating.
unitAdjustmentFactor	String(32000)	Contains information about Unit Adjustment Factor/Unit Sensitivity for Short Term and Long Term ISO Studies. For LCC Study, this field is used for Line Outage Assumptions.
generationPattern	String(32000)	Information about Generation Pattern.
lineOutagePattern	String(32000)	Information about Line Outage Pattern
otherPostContingent	String(32000)	Information about Other Post Contingent Actions

Person	
Type Name:	Person
Description:	An outage requester, coordinator, approver, permit requester, or other user of the system or person referenced in the system.
Type Elements:	

<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
firstName	String(50)	The person's first name.
lastName	String(50)	The person's last name.
middleName	String(50)	The person's middle name or middle initials.
initials	String(5)	The person's first, middle, and last initials concatenated. E.g. for John A. Smith, this would be "JAS".
employeeID	String(11)	The person's employee ID. This value must be unique.
employer	BusinessUnit	The business unit that employs the person.
emailAddress	String(90)	The person's email address.
approveForCC	Array of String	An array of the control center abbreviations for which the person can approve outage requests. This is a read-only field – the user cannot use this to update permissions.
properties	Array of InstanceProperty	Contains an array of properties associated with the object.
roles	Array of Role	Contains an array of roles. To specify the role, populate the name field of the object with the role name.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

PowerSystemEquipment		
Type Name:	PowerSystemEquipment	
Description:	PowerSystemEquipment is an individual element of the electric system. PowerSystemEquipment includes transmission circuits, station equipment, line switches, generators, and distribution feeders.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
typeName	String(255)	EPRI name of the subclass of PowerSystemEquipment.
name	String(255)	The equipment's CROW name excluding the station designation. E.g. for "HPN T1", this is "T1".

label	String(255)	The equipment's complete CROW designation – e.g. "HPN T1".
assetLongName	String	The name the Market Participant might refer to the equipment as.
externalName	String	The name by which the asset is referred to by external parties.
equipmentNumber	String	Equipment number of the PowerSystemEquipment.
voltageClass	Double	The equipment voltage class.
equipmentLevel	Integer	The equipment level (aka Facility Class).
substation	Substation	The substation with which the equipment is associated. If the equipment is a line switch or transmission circuit, this is null.
terminatingStations	Array of Substation	If the equipment is a transmission circuit, this contains a collection of substations at which the circuit terminates.
ownedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness) representing the entities that own the equipment.
operatedBy	Array of BusinessUnit	A collection of business units (ControlCenter, Desk) representing the entities that operate the equipment.
maintainedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness, Area, Subarea, District) representing the entities that maintain the equipment.
properties	Array of InstanceProperty	Contains an array of properties associated with the object.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

PowerSystemResource		
Type Name:	PowerSystemResource	
Description:	PowerSystemResource is an asset or grouping of assets on the electric system. PowerSystemResource includes substations, reservoirs, business units, transmission circuits, station equipment, line switches, generators, distribution feeders and equipment groups. Use the PowerSystemResource type to identify the systemElement in the RequestedEquipment type. Otherwise use the more specific BusinessUnit, Substation, Reservoir, or PowerSystemEquipment classes.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

typeName	String(255)	The EPRI name of the power system resource's type.
name	String(255)	The equipment's CROW name excluding the station designation. E.g. for "HPN T1", this is "T1".
childRelationships	Array of Relationship	Array of child relationships associated with this instance.
abbreviation	String(15)	The Power System Resource abbreviation.
label	String(255)	The complete Power System Resource designation.
externalName	String(255)	The name by which the asset is referred to by external parties.
assetLongName	String(255)	The name the Market Participant would refer to the equipment as.
voltageClass	Single	The equipment voltage class.
equipmentLevel	Integer	The equipment level (aka Facility Class).
substation	Substation	The substation with which the equipment is associated. If the equipment is a line switch or transmission circuit, this is null.
terminatingStations	Array of Substation	If the equipment is a transmission circuit, this contains a collection of substations at which the circuit terminates.
ownedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness) representing the entities that own the equipment.
operatedBy	Array of BusinessUnit	A collection of business units (ControlCenter, Desk) representing the entities that operate the equipment.
maintainedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness, Area, Subarea, District) representing the entities that maintain the equipment.
relationships	Array of RelationshipType	A collection of objects that are related in some way to the PowerSystemResource.
properties	Array of InstanceProperty	Contains an array of properties associated with the object.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

RelationshipType	
Type Name:	RelationshipType
Description:	This object is used to describe all the relationships for a given relationship name.

Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
name	String	The Relationship name.
relationships	Array of Relationship	The array of relationships of the given relationship name.

Relationship		
Type Name:	Relationship	
Description:	The relationship object is used to describe the relationship between objects in the CROW hierarchy.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
name	String	The Relationship name. E.g. "Equipment Operated". This is a read-only field.
parentObject	Resource	The Resource (instance) that describes the parent object. If this object has not been specified, it should be assumed that the object with which this relationship is associated, is the parent object.
childObject	Resource	The Resource (instance) that describes the child object. If this object has not been specified, it should be assumed that the object with which this relationship is associated, is the child object.
modifier	Short	Optional integer number further describing the nature of the relationship.

ReliabilityArea		
Type Name:	ReliabilityArea	
Description:	The ReliabilityArea object is used to hold information about a reliability area and its parent settlement reliability area.	
Subclass Of / Include All Elements From:	BusinessUnit	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
reliabilityAreaID	String	The ID of the reliability area.
settlementReliabilityAreaID	String	The ID of the parent settlement reliability area.

settlementReliabilityAreaAbbreviation	String	The abbreviation of the parent settlement reliability area.
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RequestedEquipment		
Type Name:	RequestedEquipment	
Description:	The outage request contains a collection of equipment on which constraints will be placed during the outage. The RequestedEquipment type identifies the system element or a group of elements on which the constraint will be placed, and the type of constraint to be placed on it.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
systemElement	PowerSystemResource	This identifies the system element on which the constraint will be placed.
description	String(255)	This is an additional free-form description of the system element on which the constraint will be placed. This allows you to identify system elements not specifically included in the electric system equipment inventory. For example, distribution vaults, compressor systems, etc.
portionOutType	Integer	This is an enumeration identifying the type of constraint to be placed on the system element.
percentOut	Integer	If the portionOutType is one that requires a percentage value then this value identifies the portion of the element out of service as a percentage.
deratedToAmt	Double	If the portionOutType is one that requires a derate value, this value identifies the derating amount.
deratedToUnits	String(9)	If the portionOutType is one that requires a derate value, this value identifies the derating units.
operatingRestriction	String(80)	If required, this is a free-form description of the operating restriction.
outFrom1	String(50)	If required by the portionOutType rules, this value identifies one of four points bounding the partial outage. Valid values are: - the abbreviation of any terminating station for the transmission circuit, "STN" indicating the station breaker for a distribution circuit outage,

		• "EOT" indicating end of tap for a distribution circuit outage, • any switch number associated with the transmission or distribution circuit, or • a free-form description of the isolating point.
outFrom2	String(50)	If required by the portionOutType rules, this value identifies one of four points bounding the partial outage. Valid values are: • the abbreviation of any terminating station for the transmission circuit, • "STN" indicating the station breaker for a distribution circuit outage, • "EOT" indicating end of tap for a distribution circuit outage, • any switch number associated with the transmission or distribution circuit, or • a free-form description of the isolating point.
outFrom3	String(50)	If required by the portionOutType rules, this value identifies one of four points bounding the partial outage. Valid values are: • the abbreviation of any terminating station for the transmission circuit, • "STN" indicating the station breaker for a distribution circuit outage, • "EOT" indicating end of tap for a distribution circuit outage, • any switch number associated with the transmission or distribution circuit, or • a free-form description of the isolating point.
outFrom4	String(50)	If required by the portionOutType rules, this value identifies one of four points bounding the partial outage. Valid values are: • the abbreviation of any terminating station for the transmission circuit, • "STN" indicating the station breaker for a distribution circuit outage, • "EOT" indicating end of tap for a distribution circuit outage,

		- any switch number associated with the transmission or distribution circuit, or - a free-form description of the isolating point.
actualStart	String	The string representation of the date/time of the outage profile start (If this object is used in the context of an outage profile).
actualComplete	String	The string representation of the date/time of the outage profile complete (If this object is used in the context of an outage profile).
mte	Boolean	True if the requested equipment references a Major Transmission Element
mge	Boolean	True if the requested equipment references a Major Generation Element
normalOpen	String	If the system element is a switch, this is the normal open state of that switch. Valid values are as follows. “Open” “Closed” “N/A” This is a read only field.
outageState	String	If the system element is a breaker, this is the state of that breaker during an outage. Valid values are as follows. “Open” “Closed” “N/A” For write operations, input value of this field is ignored if the element is not a breaker. This field is empty and ignored with no warnings for equipment in outage profiles.
hasConflict	Boolean	Indicates whether this outage profile is in conflict with another outage profile. Read-only. Applicable only when this is used for outage profile data.
flag	Integer	XFR To MKT 0 = Not Set 1 = Yes 2 = No

Reservoir		
Type Name:	Reservoir	
Description:	This object is the wrapper for the resource class used to publish reservoir objects in the CROW hierarchy.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
typeName	String(255)	Identifies the subclass of Resource
name	String(255)	The full resource name.
abbreviation	String(15)	The resource abbreviation.
ownedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness) representing the entities that own the equipment.
operatedBy	Array of BusinessUnit	A collection of business units (ControlCenter, Desk) representing the entities that operate the equipment.
maintainedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness, Area, Subarea, District) representing the entities that maintain the equipment.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

Resource		
Type Name:	Resource	
Description:	This object is the wrapper for the resource class in the CROW hierarchy. All objects are descendents of Resource.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
typeName	String(255)	Identifies the subclass of Resource.
name	String(255)	The full resource name.
abbreviation	String(15)	The resource abbreviation.
properties	Array of InstanceProperty	Contains an array of properties associated with the object.
relationships	Array of Relationship	Contains an array of relationships for this object. These are the relationships in which the object exists as the "child" node, and does not include relationships in which the object exists as the parent node.

errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.
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ResourceQueryRequest		
Type Name:	ResourceQueryRequest	
Description:	The ResourceQueryRequest type contains the query parameters used to execute a query on Resource object data. This object is passed to the InformationModel.QueryResource method, and provides the query parameters used by this method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
columns	Array of String	This specifies the names of the resource properties or the parent relationships to return as data columns from the query. NOTE: Any invalid characters in the property names or relationship names will be altered in the returned XML element. Space characters will be replaced with a _x0020_ string. Colon characters are replaced with _003A_.
filters	Array of Filter	This specifies the collection of Filters to apply when running the query. The filters are received in the order they appear in the array and are used to build the WHERE clause for the query. Filters nested within filters are built in as nested clauses or groups combined using the logicalOperator value.
typeNames	Array of String	This specifies the class types to consider when running the query.

ResourceQueryResult		
Type Name:	ResourceQueryResult	
Description:	The ResourceQueryResult object returns the results of the InformationModel.QueryResource method.	
Type Elements:		
Element Name	Element Type	Description

results	XML	XML serialization of the resulting data set from the resource query. NOTE: Any invalid characters in the property names or relationship names will be altered in the returned XML element. Space characters will be replaced with a _x0020_ string. Colon characters are replaced with _003A_.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the method call for the object. The absence of any negative error codes indicates the method call has succeeded.

RestorationStage		
Type Name:	RestorationStage	
Description:	This type contains information about the return stages of an outage if the outage is returned in stages.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
restorationStageDateTime	String	The string representation of the date when the stage was returned.
restorationStageDuration	Double	The duration of the stage in seconds. This is the difference between stage date/time and outage start or previous stage date/time.
customersAffected	Integer	The number of customers affected (i.e. customers restored; this is a negative value if additional customers switched out)

ReturnedEquipment		
Type Name:	ReturnedEquipment	
Description:	This type contains the data elements for each row returned by the event query executed by calling the QueryService.EquipmentQuery method. If further details of an equipment item is needed InformationModel.ValidateResource method should be called.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
instanceID	Long	The integer instance ID.
label	String(255)	The PowerSystemEquipment label. E.g. "5L45", "HPN T3".

assetLongName	String	The name the Market Participant could refer to the equipment as.
externalName	String	The name by which the asset is referred to by external parties.
className	String(255)	The class name. E.g. "Breaker", "Bus", "Line".
equipLevel	Integer	The equipment level (aka Facility Class).
ownerName1	String(255)	This is the name of the first BusinessUnit that owns the PowerSystemEquipment.
ownerName2	String(255)	This is the name of the second BusinessUnit that owns the PowerSystemEquipment.
ownerName3	String(255)	This is the name of the third BusinessUnit that owns the PowerSystemEquipment.
operatorName1	String(255)	This is the name of the first BusinessUnit that operates the PowerSystemEquipment.
operatorName2	String(255)	This is the name of the second BusinessUnit that operates the PowerSystemEquipment.
operatorName3	String(255)	This is the name of the third BusinessUnit that operates the PowerSystemEquipment.
operatorName4	String(255)	This is the name of the fourth BusinessUnit that operates the PowerSystemEquipment.
maintainerName1	String(255)	This is the name of the first BusinessUnit that maintains the PowerSystemEquipment.
maintainerName2	String(255)	This is the name of the second BusinessUnit that maintains the PowerSystemEquipment.
maintainerName3	String(255)	This is the name of the third BusinessUnit that maintains the PowerSystemEquipment.

ReturnedEvent		
Type Name:	ReturnedEvent	
Description:	This type contains the data elements for each row returned by the event query executed by calling the Service.EventQuery_ExecuteQuery method.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
eventNumber	String(15)	A unique formatted string identifying the event.

parentEventNumber	String(15)	A unique formatted string identifying the parent event of this event.
controlCenterAbbrev	String(15)	The abbreviation for the originating control center.
isConfirmed	Boolean	If the event is confirmed, this is True.
eventType	String(50)	The event type name.
operatedBy	String(255)	A concatenated list of control center abbreviations and desk labels for the control centers and desks that operate the system element.
kickouts	Integer	Number of kickouts associated with the event.
successAutoreclose	Boolean	If all breakers reclosed successfully, this is True.
outWhen	String	The date/time of the event start.
inWhen	String	The date/time of the event completion.
estInWhen	String	The date/time the event is estimated to complete.
duration	String	The event duration formatted as a string. E.g. "4 hours, 15 minutes", "still out"
retInStages	Boolean	If the circuit was returned in stages, this is True.
portionOut	String	The portion out, derating, operation restriction, etc. formatted and concatenated as appropriate.
cause	String	The concatenated cause code, description, and known/unknown/suspected values.
followUp	String	A string description of the follow-up requested, assigned, to, and status.
comments	String	The comments for the event.
faultLocation	String	A concatenated string containing the fault location values.
recCreateDate	String	The date/time the event record was created.
recModDate	String	The date/time the event record was last updated.
enteredBy	String(255)	The name of the person that entered the event
updatedBy	String(255)	The name of the last person that modified the event.
resource	PowerSystemResource	An instance of PowerSystemResource that

		represents the instance for which the event was created.
description	String(255)	Provides an additional free-form text description of the system element for which the event is logged.

ReturnedOutage		
Type Name:	ReturnedOutage	
Description:	This type contains the data elements for each row returned by the planned outage query executed by calling the Service.OutageRequestQuery_ExecuteQuery method. If further details of an outage is needed, OutageSchedule_LoadItem method should be called.	
Type Elements:		
Element Name	Element Type	Description
outageNumber	String(15)	A unique formatted string identifying the outage.
revisionNumber	String(15)	This is the current revision number.
remoteSystemName	String	This is the name of the remote system associated with the OutageSchedule.
remoteSystemOutageNumber	String	If the OutageSchedule is associated with another system, this is the outage number used to reference the outage in the other system.
outageEquipment	String(2048)	This is a concatenated list of the system elements on which constraints are placed during the outage. System element names are based on user's "Asset Naming" preference.
operatedByControlCenters	String(2048)	A concatenation of the control center abbreviations for the control centers that operate the system elements of which constraints are placed during the outage. E.g. "LMC, SCC".
requestTypeID	Integer	This is an enumeration identifying the Outage Request Type.
outageStatusID	Integer	The database assigned ID for the outage status.
outageStatus	String(25)	The name of the outage status.
switchingStart	String	The requested switching start date/time.
permitStart	String	The requested permit start date/time.
permitComplete	String	The requested permit complete date/time.

restorationComplete	String	The requested restoration completion date/time.
requestedRangeType	String(25)	"Window" or "Exactly".
duration	String	The requested duration.
durationUnits	String(25)	The requested duration units – i.e. "days" or "hours".
continuousDaily	String(50)	The recurrence of the outage periods e.g. "Continuous", "Return Evenings", "Return Weekends", "Return Evenings & Weekends".
requestedBy	String(255)	The name of the person who initially requested the outage.
reasonPriority	String(4096)	The outage reason/priority text.
lastStatusChangeWhen	String	The date when the outage request status was last updated.
lastStatusChangeBy	String	The name of the person who last changed the outage request status.
lockedWhen	String	The string representation of the date/time the submitted outage request was locked.
recCreateDate	String	The date/time the outage record was created.
recModDate	String	The date/time the outage record was last modified.

ReturnedProfile		
Type Name:	ReturnedProfile	
Description:	This data element contains the data associated with an outage profile when executed through the OutageProfileQuery_ExecuteQuery method, which returns enabled profiles only.. This data element contains data from the OutageSchedule (Outage Request) associated with the Outage Profile, as well as data from the Outage Profile.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
outageNumber	String(15)	A unique formatted string identifying the outage.
revisionNumber	Integer	The outage request revision number. This field refers to the outage request that is associated with the outage profile.
outageProfileNumber	String(50)	This is the CROW number of the outage period.
remoteSystemName	String(50)	This is the name of the remote system associated with the OutageSchedule.

		This field refers to the outage request that is associated with the outage profile.
remoteSystemOutageNumber	String(15)	If the OutageSchedule is associated with another system, this is the outage number used to reference the outage in the other system. This field refers to the outage request that is associated with the outage profile.
outageIndicators	Array of Flag	This is an array of name/value pairs associated with the <i>outage request</i> that contains this outage profile.
outageCategory	String	Transmission or Generation
requestedEquipment	PowerSystemResource	The following data elements of the PowerSystemResource data type will be populated: • typeName • label (This is the Internal Label) • externalName • assetLongName • abbreviation (where it exists) • 1-Line Designation • Asset Owners (The label and abbreviation fields only for each business unit object will be populated) • Asset Operators (The label and abbreviation fields only for each business unit object will be populated) • Asset Maintainers (The label and abbreviation fields only for each business unit object will be populated) • Station Abbreviation • voltageClass. • substation – this object will be populated for station equipment. Only the station name and station abbreviation will be populated. • terminatingStations – these objects will be populated for transmission lines. Only the station name and station abbreviation will be populated. • properties ○ EMS Key ○ State

constraintType	String	The abbreviation of the constraint/commitment type of the requested equipment.
constraintValue	String	The string value of the constraint value. This may be blank, free form text or a numeric value.
constraintUnit	String	If constraint value is numeric, this may be the unit of the value.
outageState	String	If the requested equipment is a circuit breaker, then this will be Open or Closed. For other classes this will be blank.
overrun	Boolean	Whether the profile is overrun.
marketType	String	Valid values are RT and DA.
lastUpdated	String	String representation of the date/time of the latest update to the outage request.
scheduledStart	String	String representation of the date/time of the scheduled profile start.
scheduledComplete	String	String representation of the date/time of the scheduled profile complete.
actualStart	String	String representation of the date/time of the actual start date of the outage period.
actualComplete	String	String representation of the date/time of the actual complete date of the outage period.
StatusID	Integer	The status ID of the outage period.
isCurrentProfile	Boolean	Indicates whether or not the profile is current or deleted.
hasConflict	Boolean	Indicates whether this outage profile is in conflict with another outage profile. Read-only.

Role		
Type Name:	Role	
Description:	A role associates a collection of people (including group ID's – e.g. "BHQ Electricians") with a particular function for a business unit.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
typeName	String(255)	Identifies the subclass of Role
name	String(255)	The role name. E.g. "Outage Approver".
abbreviation	String(15)	The role abbreviation.
roleForBusinessUnit	BusinessUnit	The business unit with which the role is associated. E.g. " Outage Approver "

		might be associated with a Control Center which operates equipment.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

Substation		
Type Name:	Substation	
Description:	A collection of equipment through which electric energy in bulk is passed for the purposes of switching or modifying its characteristics. The typeName attribute is used to optionally classify the type of Substation.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
typeName	String(255)	Identifies the subclass of Substation. Generally this is “Station”
name	String(255)	The full substation name.
abbreviation	String(15)	The station abbreviation.
ownedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness, PowerUtility) representing the entities that own the substation.
operatedBy	Array of BusinessUnit	A collection of business units (ControlCenter, Desk) representing the entities that operate the substation.
maintainedBy	Array of BusinessUnit	A collection of business units (Company, LineOfBusiness, PowerUtility) representing the entities that maintain the substation.
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

SystemEvent		
Type Name:	SystemEvent	
Description:	A logged event on the electric system. SystemEvents include forced outages and implementation of planned outages, alarms, deratings, operating restrictions, unusual conditions, etc.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
eventNumber	String(15)	A unique formatted string identifying the event.

parentEventNumber	String(15)	A unique formatted string identifying the parent event. If this event does not have a parent event, an empty string is returned.
remoteSystemName	String	The remote system name of the the event.
remoteSysteNumber	String	The remote system number of the the event.
typeName	String(255)	The event type name.
powerSystemResource	PowerSystemResource	Identifies the system element for which the event is logged.
description	String(255)	Provides an additional free-form text description of the system element for which the event is logged.
controlCenterDesk	BusinessUnit	The control center or desk for which the event is logged.
kickouts	Integer	The number of times the system element kicked out. (This is not the sum of all breaker kickouts for the event).
portionOutType	Integer	This is an enumeration identifying the type of constraint logged on the system element.
percentOut	Integer	If the portionOutType is 1 (Percentage Out), this value identifies the portion of the element out of service as a percentage. This applies only to distribution circuit outages.
deratedToAmt	Long	If the portionOutType requires it, this value identifies the derating amount. This is valid for all system element types except for distribution circuits.
deratedToUnits	String(9)	If the portionOutType requires it, this value identifies the derating units.
operatingRestriction	String(80)	If the portionOutType is Operating Restriction, this is a free-form description of the operating restriction. If the portionOutType is Reliability Must Run, this is a free-form description of the RMR.
outFrom1	String(50)	If the portionOutType requires it, this value identifies one of four points bounding the partial outage. Valid values are: • the abbreviation of any terminating station for the transmission circuit, • "STN" indicating the station breaker for a distribution circuit outage, • "EOT" indicating end of tap for a distribution circuit outage,

		• any switch number associated with the transmission or distribution circuit, or • a free-form description of the isolating point.
outFrom2	String(50)	If the portionOutType requires it, this value identifies one of four points bounding the partial outage. Valid values are: • the abbreviation of any terminating station for the transmission circuit, • "STN" indicating the station breaker for a distribution circuit outage, • "EOT" indicating end of tap for a distribution circuit outage, • any switch number associated with the transmission or distribution circuit, or • a free-form description of the isolating point.
outFrom3	String(50)	If the portionOutType requires it, this value identifies one of four points bounding the partial outage. Valid values are: • the abbreviation of any terminating station for the transmission circuit, • "STN" indicating the station breaker for a distribution circuit outage, • "EOT" indicating end of tap for a distribution circuit outage, • any switch number associated with the transmission or distribution circuit, or • a free-form description of the isolating point.
outFrom4	String(50)	If the portionOutType requires it, this value identifies one of four points bounding the partial outage. Valid values are: • the abbreviation of any terminating station for the transmission circuit, • "STN" indicating the station breaker for a distribution circuit outage, • "EOT" indicating end of tap for a distribution circuit outage, • any switch number associated with the transmission or distribution circuit, or • a free-form description of the isolating point.
loadLostMW	Long	The MW load lost associated with the event. If the event is a parent outage, this is the BCH domestic load lost. If the

		event is a TVC outage, this is the TVC load lost.
genLostMW	Long	The MW generation lost associated with the event. If the event is a parent outage, this is the BCH generation lost. If the event is an IPP outage, this is the IPP load lost.
customersAffected	Long	If the event is a parent outage, this is the sum of the customers affected for the related feeder outages. If the event is a feeder outage, this is the number of customers affected by the outage.
customerHoursOut	Double	This is the total customer hours lost during the outage.
outWhen	String	The string representation of the event start date/time.
outWhenMilliseconds	Integer	The milliseconds component of the event start date/time.
inWhen	String	The string representation of the event completion date/time.
inWhenMilliseconds	Integer	The milliseconds component of the event completion date/time.
estimatedInWhen	String	The string representation of the estimated completion date for the event.
causeCode	String(3)	This is the cause code entered by the control center. This applies only for outages, deratings, and operating restrictions.
causeDescription	String(50)	The full text description for the cause code.
subCauseCode	String(3)	This is the sub_cause_code entered by the control center. This applies only for outages where the cause code has subcauses identified.
subCauseDescription	String(50)	The full text description for the sub-cause code.
knownUnknownSuspected	String(1)	This indicates whether the cause/subcause are known, unknown, or suspected. Values are "K", "U", or "S".
originatingControlCenter	BusinessUnit	Identifies the control center which originally logged the event.
sourceOutageTypeCode	String(3)	The source outage type code for the outage. This is based on the equipment class for the parent event. If this is a parent event, an empty string is returned. Valid values are: SU Source Outage ST Transmission SO SI IPP

		SD Diesel SG Generation
sourceOutageTypeDescription	String(50)	The description for the source outage code. Refer to sourceOutageTypeCode for valid values.
enteredBy	Person	Identifies the person who created the event record.
recCreateDate	String	The string representation of the date/time the event record was created.
modifiedBy	Person	Identifies the person who last updated the event record.
recModDate	String	The string representation of the date/time the event record was last updated.
relatedEvents	Array of SystemEvent	This is a collection of events that occurred either as a result of this event or as a result of the same precipitating event (e.g. common mode outages).
outageSchedules	Array of OutageSchedule	This is a collection of Outage Requests with which this event is associated.
restorationStages	Array of RestorationStage	This is a collection of restoration stages for this event, if this event was returned in stages.
comments	String	The comments for the event.
double1	Double(Nullable)	
double2	Double(Nullable)	
double3	Double(Nullable)	
double4	Double(Nullable)	
double5	Double(Nullable)	
double6	Double(Nullable)	
double7	Double(Nullable)	
double8	Double(Nullable)	
int1	Integer(Nullable)	
int2	Integer(Nullable)	
int3	Integer(Nullable)	
reportedTo	Person	
crewMember	Person	
crewPerson	Person	
isMeasured	Boolean	
additionalReport	String	
informationSourceId	Integer(Nullable)	
errorCodes	Array of ErrorCode	Contains an array of error codes returned by the SOAP method call for the object. The absence of any negative error codes indicates the method call has succeeded.

SystemEventCreatedEvent		
Type Name:	SystemEventCreatedEvent	
Subclass Of / Include All Elements From:	SystemEventDataEvent	
Description:	A data event created when a system event was created.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

SystemEventDataEvent		
Type Name:	SystemEventDataEvent	
Subclass Of / Include All Elements From:	DataEvent	
Description:	A data event created due to a system event action.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
eventNumber	String(15)	A unique formatted string identifying the event.
eventType	String(255)	The event type name. Valid values are: Alarm Daily Load Derating EMS/SCADA EMSS Power Request Forced Outage Frequency Disturbance Highlight Comment Insertion LLP/ANR Loop Flow Control Outage Miscellaneous Condition New Equipment Energized Operating Restriction Outage Request Planned Outage Protection/Telecontrol Reliability Must Run Unusual Condition Voltage Regulation Outage Weather Condition
controlCentreAbbrev	String(15)	The abbreviation for the originating control center.
powerSystemResource	PowerSystemResource	An instance of PowerSystemResource that represents the instance for which the event was created.

outWhen	String	The date/time of the event start.
inWhen	String	The date/time of the event completion.
estInWhen	String	The date/time the event is estimated to complete.
comments	String	The comments for the event.
portionOut	String	The portion out, derating, operation restriction, etc. formatted and concatenated as appropriate.
cause	String	The concatenated cause code, description, and known/unknown/suspected values.
enteredBy	String(255)	The name of the person that entered the event
recCreateDate	String	The date/time the event record was created.
modifiedBy	String(255)	The name of the last person that modified the event.
recModDate	String	The date/time the event record was last updated.
initiator	String	The Initiator field can have one of two possible values. These are: • BCH • BCTC The rules to determine which of these values will be returned are the following: • If the event is a parent event (with or without related events) on equipment where one of the operators is PSO, return "BCH" for the parent event. • If the event is a related event and the parent event is on equipment where one of the operators is PSO, return "BCH" for the related event. • In all other cases return "BCTC"

SystemEventDeletedEvent		
Type Name:	SystemEventDeletedEvent	
Subclass Of / Include All Elements From:	SystemEventDataEvent	
Description:	A data event created when a system event was deleted.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

SystemEventReturnedEvent		
Type Name:	SystemEventReturnedEvent	
Subclass Of / Include All Elements From:	SystemEventDataEvent	
Description:	A data event created when the “inWhen” date for the system event is changed from the null date to a value other than the null date.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

SystemEventRevisedEvent		
Type Name:	SystemEventRevisedEvent	
Subclass Of / Include All Elements From:	SystemEventDataEvent	
Description:	A data event created when one of the fields represented in the SystemEventDataEvent type is updated.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>

UpdateResource		
Type Name:	UpdateResource	
Description:	The UpdateResource object is used for updating Resource objects. It contains a Resource object which is used to identify the object in CROW to be updated. It also contains a Resource object to specify what the updates are.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
updateResource	Resource	A resource object containing new values for attributes which you wish to update in the database. The property values and/or relationship associations specified in the updateResource object will be used to overwrite the existing values. Any properties and/or relationships that are not specified will not be touched. Any that are specified will be updated with the accompanying values provided (or cleared out if no accompanying value is provided).

validateResource	Resource	A resource object containing attributes which will be used to identify the correct resource instance in the database. The property values and/or relationship associations specified in the updateResource object will be used to find the specific instance in the database.
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2.4 Enumerations

ErrorInfoKeyType	
Enumeration Name:	ErrorInfoKeyType
Description:	The ErrorInfoKeyType object is an enumeration used to indicate which type of data is used to identify the source or location of an error. This can also be used to identify outage requests that are in conflict with an outage request.
<u>Named Constants</u>	<u>Description</u>
OutageRequest	Indicates that the outage request is used to identify the source or location of the error or a conflicting outage request.

InstanceId	Indicates that the instance ID is used to identify the source or location of the error.
InstanceLabel	Indicates that the instance label is used to identify the source or location of the error.
InstanceName	Indicates that the instance name is used to identify the source or location of the error.
InstanceAbbreviation	Indicates that the instance abbreviation is used to identify the source or location of the error.
InstanceExternalName	Indicates that the instance external name is used to identify the source or location of the error.
InstanceLongName	Indicates that the instance long name is used to identify the source or location of the error.
EquipmentNumber	Indicates that the equipment number is used to identify the source or location of the error.
BusinessUnitId	Indicates that the business unit ID is used to identify the source or location of the error.
FlagTransferId	Indicates that the flag transfer ID is used to identify the source or location of the error.
RelationshipName	Indicates that the name of the relationship is used to identify the source or location of the error.
Name	Indicates that the instance name is used to identify the source or location of the error.
Abbreviation	Indicates that the instance abbreviation is used to identify the source or location of the error.
Event	Indicates that the event reference number is used to identify the source or location of the error.

Filter		
Type Name:	Filter	
Description:	The Filter data object is used to specify property filters when querying Resource objects. It is used to provide information with which to build a resource query's WHERE clause.	
Type Elements:		
<u>Element Name</u>	<u>Element Type</u>	<u>Description</u>
filters	Array of Filter	This specifies a collection of child Filters nested within this filter.
logicalOperator	LogicalOperator	This is used to specify the <i>And</i> or <i>Or</i> operator to be used on this filter.
column	String	This specifies the name of the property or the parent relationship to apply the filter against in the WHERE clause. If a parent relationship name is specified here then an “instanceOperand” value must be specified

comparisonOperator	Operator	This is used to specify the operator to be used against the value of the property or parent relationship that is specified in the “column” input.
operand	String	This specifies the value to compare with the property that is noted in the “column” input.
instanceOperand	Resource	This specifies the resource object to compare with the parent relationship that is specified in the “column” input.

FlagDisplayStatus	
Enumeration Name:	FlagDisplayStatus
Description:	The FlagDisplayStatus object is an enumeration used to indicate the transfer status of a market day/flag type.
<u>Named Constants</u>	<u>Description</u>
Initiated	Indicates that the transfer for the market day/flag type has been set for pickup by the calling service.
InProgress	Indicates that the transfer for the market day/flag type has been picked up by the calling service and is being processed downstream.
Success	Indicates that the transfer for the market day/flag type has been successful downstream.
Failed	Indicates that the transfer for the market day/flag type has failed downstream.
NotSet	Indicates a null value for the flag type.

FlagTransferStatus	
Enumeration Name:	FlagTransferStatus
Description:	The FlagTransferStatus object is an enumeration used to indicate the transfer status of an outage request.
<u>Named Constants</u>	<u>Description</u>
Ready	Indicates that the outage request data has been set for pickup by the calling service.

InProgress	Indicates that the outage request data has been picked up by the calling service and is being processed downstream.
Success	Indicates that the outage request data transfer has been successful downstream.
Failed	Indicates that the outage request data transfer has failed downstream.
NotSet	Indicates a null value for the flag type.

LogicalOperator	
Enumeration Name:	LogicalOperator
Description:	The LogicalOperator object is an enumeration used to indicate AND and OR operators
<u>Named Constants</u>	<u>Description</u>
And	Indicates the <i>And</i> operator.
Or	Indicates the <i>Or</i> operator.

MarketType	
Enumeration Name:	MarketType
Description:	The MarketType object is an enumeration used to indicate a flag type as being Day Ahead (DA) or Real Time (RT).
<u>Named Constants</u>	<u>Description</u>
DA	Indicates the flag type is Day Ahead.
RT	Indicates the flag type is Real Time.
NotSet	Indicates a null value for the flag type.

Operator	
Enumeration Name:	Operator
Description:	The Operator object is an enumeration used to indicate a variety of equivalency and matching operators used in the querying process.
<u>Named Constants</u>	<u>Description</u>

GreaterThan	Indicates the <i>GreaterThan</i> operator. This is used with these property types as follows: - Integer – mathematical “>” - Decimal – mathematical “>” - DateTime – chronological “>”
GreaterThanOrEquals	Indicates the <i>GreaterThanOrEquals</i> operator. This is used with these property types as follows: - Integer – mathematical “>= - Decimal – mathematical “>= - DateTime – chronological “>=
LessThan	Indicates the <i>LessThan</i> operator. This is used with these property types as follows: - Integer – mathematical “<” - Decimal – mathematical “<” - DateTime – chronological “<”
LessThanOrEquals	Indicates the <i>LessThanOrEquals</i> operator. This is used with these property types as follows: - Integer – mathematical “<= - Decimal – mathematical “<= - DateTime – chronological “<=
Equals	Indicates the <i>Equals</i> operator. This is used with these property types as follows: - Integer – mathematical “=” - Decimal – mathematical “=” - DateTime – chronological “=” - Text – “IS - File – “IS - Boolean – “IS - Instance – label “IS
BeginsWith	Indicates the <i>BeginsWith</i> operator. This is used with these property types as follows: - Text – “BEGINS WITH - File – filename “BEGINS WITH
EndsWith	Indicates the <i>EndsWith</i> operator. This is used with these property types as follows: Text – “ENDS WITH

	File – filename “ENDS WITH”
Contains	Indicates the <i>Contains</i> operator. This is used with these property types as follows: - Text – “CONTAINS” - File – filename “CONTAINS”

OutageActionType	
Enumeration Name:	OutageActionType
Description:	The OutageActionType object is an enumeration used to specify the type of action to take on an outage request.
<u>Named Constants</u>	<u>Description</u>

SaveProposed	Indicates the action is to move the outage into a Proposed state
SubmitRequest	Indicates the action is to move the outage into a Submitted state.
WithdrawRequest	Indicates the action is to move the outage into a Withdrawn state.
NegotiateRequest	Indicates the action is to move the outage into a Negotiate state.
StudyRequest	Indicates the action is to move the outage into a Study state.
ApproveRequest	Indicates the action is to move the outage into a Approved state.
ConfirmRequest	Indicates the action is to move the outage into a Confirmed or Final Approved state.
DenyRequest	Indicates the action is to move the outage into a Denied state.
CancelRequest	Indicates the action is to cancel the outage request.
ImplementRequest	Indicates the action is to move the outage into a Implemented state.
CompleteRequest	Indicates the action is to move the outage or the current Implemented outage period into a Completed state.
RecallOutage	Recall an Implemented outage.
RevokeRequest	Indicates the action is to move the outage into a Revoked state.
Save	Indicates the action is to save changes for the outage request.

OutageReqReturnType	
Enumeration Name:	OutageReqReturnType
Description:	The OutageReqReturnType object is an enumeration used to indicate which part of an outage request to return.
<u>Named Constants</u>	<u>Description</u>
EntireOutageReq	Indicates the entire outage request is to be returned.

CurrentDaily	Indicates the current daily period of the outage request is to be returned.
SelectedEvents	Indicates that an associated event should be returned.
PermitsOnly	Indicates that only permits associated with the outage request should be returned.
OutagePeriods	Indicates that all of the selected outage periods of the outage request are to be returned.
None	Indicates that no return type has been selected.

OutageVisibility	
Enumeration Name:	OutageVisibility
Description:	The OutageVisibility object is an enumeration used to flag an outage request as being either public or private.
<u>Named Constants</u>	<u>Description</u>
Public	Indicates the outage request is public.
Private	Indicates the outage request is private.

PredecessorType	
Enumeration Name:	PredecessorType
Description:	The PredecessorType object is an enumeration used to indicate a type of predecessor or successor linkage between outage requests.
<u>Named Constants</u>	<u>Description</u>
FinishStart	Indicates the predecessor outage must finish before the successor can begin.
RunWithin	Indicates the predecessor outage must start before the successor can begin and the successor must finish before the predecessor can finish. I.E the successor outage must start and complete within the start and end time range of the predecessor.
None	No type is set.

2.5 Methods

2.5.1 Service Methods.

Service.BusinessUnit_Update		
Method Name:	Service. BusinessUnit_Update	
Description:	This method inserts or updates the business unit specified as input parameter. It will: • Attempt to identify the business unit based on the input parameters. • If found, it will update the business unit, if not it will add it. • It will update all specified properties. The application <i>will not</i> delete properties that are not found in the properties array. • If the input relationships array is not empty, it will remove all the existing relationships of the relationship name(s) that have been specified in the input array. It will then proceed to add all the relationships that have been specified in the input array. This method is available only to API users that have been identified as CROW database administrators.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theBusinessUnit	BusinessUnit	The input BusinessUnit object contains the elements required to uniquely identify the business unit.
Service. BusinessUnit_UpdateResponse		
Returns: BusinessUnit		
This method returns the BusinessUnit object that was updated. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.BusinessUnit_Validate	
Method Name:	Service. BusinessUnit_Validate
Description:	This method returns the complete BusinessUnit object which matches the input partial BusinessUnit object. You can pass a BusinessUnit object with values assigned to the name or abbreviation elements, and this method will return the object with values assigned to all elements. You can also populate the class element to more specifically identify the object. i.e. if

two or more business units exist with the same name and/or abbreviation, you will need to identify the class to uniquely identify the correct business unit. You can also populate properties that uniquely identify an object. This method is available only to API users that have been identified as CROW database administrators..		
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theBusinessUnit	BusinessUnit	The input BusinessUnit object contains the elements required to uniquely identify the business unit.
Service. BusinessUnit_ValidateResponse		
Returns: BusinessUnit This method returns the validated BusinessUnit object. It will populate the default list of properties (using the properties array) for the business unit and set their values where they exist. It will load the parent relationships into the relationships array. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.DataEventAcknowledgement_AcknowledgeDataEvent		
Method Name:	Service.DataEventAcknowledgement_AcknowledgeDataEvent	
Description:	This method marks data events as “Acknowledged” to exclude them from subsequent data event query results.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
dataEventID	Integer	The data event ID of the record that is being acknowledged.
Service.DataEventAcknowledgement_AcknowledgeDataEventResponse		
Returns: Integer		

Service. DataEventAcknowledgement_UnacknowledgeDataEvent	
Method Name:	Service. DataEventAcknowledgement_UnacknowledgeDataEvent
Description:	This method marks data events as “Unacknowledged” to exclude them from subsequent data event query results.
Input Parameters:	

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
dataEventID	Integer	The data event ID of the record that is being acknowledged.
Service. DataEventAcknowledgement_UnacknowledgeDataEvent		
Returns: Integer		

Service.DataEventQuery_ExecuteQuery		
Method Name:	Service.DataEventQuery_ExecuteQuery	
Description:	This method executes the data event query using the parameters in the input DataEventQuery object, and returns the query results.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theDataEventQuery	DataEventQuery	The input dataEventQuery object contains the query parameters.
Service.DataEventQuery_ExecuteQueryResponse		
Returns: DataEventQueryResult		

Service.EquipmentGroup_ExecuteQuery		
Method Name:	Service.EquipmentGroup_ExecuteQuery	
Description:	This method executes the equipment group query and returns the query results that begin with the input name. The response contains only the equipment groups the user has access to.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
name	String	This input field is used to perform a “begins with” search among the equipment groups. If it is left blank, it will bring all groups.
Service.EquipmentGroupQuery_ExecuteQuery Response		

Returns: EquipmentGroupQueryResult

Service.EquipmentQuery_ExecuteQuery

Method Name:	Service.EquipmentQuery_ExecuteQuery
Description:	This method executes the equipment query using the parameters in the input EquipmentQuery object, and returns the query results. If further details of an equipment is needed PowerSystemEquipment_Validate method should be called.

Input Parameters:

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theEquipmentQuery	EquipmentQuery	The input EquipmentQuery object contains the query parameters.

Service.EquipmentQuery_ExecuteQueryResponse

Returns: EquipmentQueryResult

Service.GISImportRequest_DoImport

Method Name:	Service.GISImportRequest_DoImport
Description:	This method performs an insert of the specified GIS devices into CROW and returns the response.

Input Parameters:

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theGISImportRequest	GISImportRequest	The input GISImportRequest object contains GIS records to be imported.

Service.GISImportRequest_DoImportResponse

Returns: GISImportResponse

Service.SystemEvent_LoadItem

Method Name:	Service.SystemEvent_LoadItem
Description:	This method returns the SystemEvent object which matches the input parameters.

Input Parameters:

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
username	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
eventNumber	String(15)	A unique formatted string identifying the event.
Service.SystemEvent_LoadItemResponse		
Returns: SystemEvent		

Service.SystemEvent_UpdateEstRetDateTimeComments		
Method Name:	Service.SystemEvent_UpdateEstRetDateTimeComments	
Description:	This method allows the user to update the estimated return date/time and comments for a system event. This method is only available to specific users.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
username	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
eventNumber	String(15)	A unique formatted string identifying the event.
estRetDateTime	String	The estimated return data/time for this event.
comments	String	Comments for this event.
Service.SystemEvent_UpdateEstRetDateTimeCommentsResponse		
Returns: SystemEvent		

Service. SystemEvent_UpdateItem		
Method Name:	Service. SystemEvent_UpdateItem	
Description:	This method allows the user to update the system event.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
username	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
systemEvent	SystemEvent	The event being updated
Service.SystemEvent SystemEvent_UpdateItem Response		
Returns: SystemEvent		

Service.EventQuery_ExecuteQuery		
Method Name:	Service.EventQuery_ExecuteQuery	
Description:	This method executes the event query using the parameters in the input EventQuery object, and returns the query results.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
username	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theEventQuery	EventQuery	The input EventQuery object contains the query parameters.
Service.EventQuery_EventQueryResponse		
Returns: EventQueryResult		

Service.OutageGenerationProfileQuery_ExecuteQuery		
Method Name:	Service.OutageGenerationProfileQuery_ExecuteQuery	
Description:	This method executes the generation outage profile query using the parameters in the input OutageProfileQuery object, and returns the query results. - Any user with CROW API login permission may execute this query. - Users with limited business unit permissions will only see profiles for which they have business unit permissions.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageProfileQuery	OutageProfileQuery	The input OutageProfileQuery object contains the query parameters.
Service.OutageProfileQuery_ExecuteQueryResponse		
Returns: GenerationProfileQueryResult		

Service.OutageSchedule_AddCancellationRequest	
Method Name:	Service.OutageSchedule_AddCancellationRequest

Description:	This method creates a new unsubmitted Cancellation Request for the input OutageSchedule object, and returns the OutageSchedule object with the new Cancellation Request in the changeRequests collection.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
username	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	The number of the outage request for which a cancellation request is being added.
Service.OutageSchedule_AddCancellationRequestResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		
If no error occurred, the new Cancellation Request is returned in the OutageSchedule object's changeRequests collection. The new Cancellation Request is the Change Request with the largest changeReqNumber in the changeRequests collection.		

Service.OutageSchedule_AddChangeRequest		
Method Name:	Service.OutageSchedule_AddChangeRequest	
Description:	This method creates a new unsubmitted Change Request for the input OutageSchedule object, and returns the OutageSchedule object with the new Change Request in the changeRequests collection.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	The number of the outage request for which a change request is being added.
Service.OutageSchedule_AddChangeRequestResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		
If no error occurred, the new Change Request is returned in the OutageSchedule object's changeRequests collection. The new Change Request is the Change Request with the largest changeReqNumber in the changeRequests collection.		

Service.OutageSchedule_AddChangeRequestType		
Method Name:	Service.OutageSchedule_AddChangeRequestType	
Description:	This method performs the same function as Service.OutageSchedule_AddChangeRequest, but the user may specify the type of change request that is being added.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	The number of the outage request for which a change request is being added.
changeRequestType	Integer	The type of change request that is being added: • Change Request = 0 • Schedule Change Request = 3 • Schedule Change Request = 4
Service.OutageSchedule_AddChangeRequestTypeResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		
If no error occurred, the new Change Request is returned in the OutageSchedule object's changeRequests collection. The new Change Request is the Change Request with the largest changeReqNumber in the changeRequests collection.		

Service.OutageSchedule_ApproveRequest		
Method Name:	Service.OutageSchedule_ApproveRequest	
Description:	This method posts the input OutageSchedule object to the CROW database and posts the input approvals.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theApprover	Person	The person who approved the request.
controlCenterAbbrev	String(15)	The abbreviation of the control center for which you're submitting approval.
conditionalApproval	Boolean	Use True if this is a conditional approval.
schedulersComments	String	The scheduler's free-form comments.

additionalControlCenterAbbrev	String	This is a concatenated list of abbreviations for additional control centers for which you're approving the outage.
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Service.OutageSchedule_ApproveRequestResponse

Returns: OutageSchedule

This method returns the approved OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

Service.OutageSchedule_ApproveRequestNumber

Method Name:	Service.OutageSchedule_ApproveRequestNumber
Description:	This method posts the input OutageSchedule number to the CROW database and posts the input approvals.

Input Parameters:

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	The outage request number to use in identifying the outage request to approve.
changeReqNumber	Integer	The number of the change request to approve (if provided).
theApprover	Person	The person who approved the request.
controlCenterAbbrev	String(15)	The abbreviation of the control center for which you're submitting approval.
conditionalApproval	Boolean	Use True if this is a conditional approval.
schedulersComments	String	The scheduler's free-form comments.
additionalControlCenterAbbrev	String	This is a concatenated list of abbreviations for additional control centers for which you're approving the outage.

Service.OutageSchedule_ApproveRequestNumberResponse

Returns: OutageSchedule

This method returns the approved OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

Service. OutageSchedule_CancelRequest

Method Name:	Service.OutageSchedule_CancelRequest
Description:	This method, bound by Business Unit permissions, posts the input OutageSchedule object to the CROW database and sets the status to "Cancelled".

Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theCanceller	Person	The person who cancels the request.
cancelEntire	boolean	Indicator of whether to cancel the entire outage request or only certain outage periods.
cancelOutagePeriods	OutagePeriod	The outage periods being cancelled.
reasonForCancellation	String	The input reason for the cancellation.
Service.OutageSchedule_CancelRequestResponse		
Returns: OutageSchedule This method returns the cancelled OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service. OutageSchedule_CancelRequestNumber		
Method Name:	Service. OutageSchedule_CancelRequestNumber	
Description:	This method, bound by Business Unit permissions, posts the input outage request number, finds the matching outage request in the CROW and sets the status to "Cancelled".	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	The input outage request number indicating the outage request to cancel.
theCanceller	Person	The person who cancels the request.
cancelEntire	boolean	Indicator of whether to cancel the entire outage request or only certain outage periods.
cancelOutagePeriods	OutagePeriod	The outage periods being cancelled.
reasonForCancellation	String	The input reason for the cancellation.
Service.OutageSchedule_CancelRequestNumberResponse		

Returns: OutageSchedule

This method returns the cancelled OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

Service.OutageSchedule_ConfirmRequest		
Method Name:	Service.OutageSchedule_ConfirmRequest	
Description:	This method, bound by Business Unit permissions, posts the input OutageSchedule object to the CROW database and sets the status to "Confirmed".	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theSubmitter	Person	The person who confirms the request.
Service.OutageSchedule_ConfirmRequestResponse		
Returns: OutageSchedule		
This method returns the confirmed OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_Deleteltem		
Method Name:	Service.OutageSchedule_Deleteltem	
Description:	This method method, bound by Business Unit permissions, deletes the input OutageSchedule object. Note that the OutageSchedule is not physically deleted; it is "flagged" for deletion, and may be physically deleted by a system administrator.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String(15)	Complete this value to query using the CROW outage number.

changeReqNumber	Integer	Optional. Use 0 to delete the outage request. Use a value > 0 to delete a change request.
Service.OutageSchedule_DeleteltemResponse		
Returns: OutageSchedule This method returns the deleted OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_DenyRequest		
Method Name:	Service.OutageSchedule_DenyRequest	
Description:	This method posts the input OutageSchedule object to the CROW database and posts the input denials.	
Input Parameters:		
Parameter Name	Parameter Type	Description
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theApprover	Person	The person who denied the request
controlCenterAbbrev	String(15)	The abbreviation of the control center for which you're submitting denial.
schedulersComments	String	The scheduler's free-form comments.
Service.OutageSchedule_DenyRequestResponse		
Returns: OutageSchedule		
This method returns the denied OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service. OutageSchedule_Initialize		
Method Name:	Service. OutageSchedule_Initialize	
Description:	This method returns an OutageSchedule object populated with default values. If the user wants to create a new outage request, it is advisable to call this method in order to get an OutageSchedule object with certain default values populated, and then to make changes to this object before returning it as a parameter.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
username	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.

userPassword	String(50)	The CROW password for the user performing the query.
Service.OutageSchedule_InitializeResponse		
Returns: OutageSchedule This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes.		

Service.OutageSchedule_LoadItem		
Method Name:	Service.OutageSchedule_LoadItem	
Description:	This method returns the OutageSchedule object which matches the input parameters. You must complete either the outageNumber parameter or the originName and originOutageNumber parameters. The revisionNumber and changeReqNumber parameters are optional.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String(15)	Complete this value to query using the CROW outage number.
revisionNumber	Integer	Optional. Use 0 to return the current version. Use a value > 0 to return a specific revision.
changeReqNumber	Integer	Optional. Use 0 to return the outage request. Use a value > 0 to return a change request.
Service.OutageSchedule_LoadItemResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_LoadItemRemoteID		
Method Name:	Service.OutageSchedule_LoadItemRemoteID	
Description:	This method returns the OutageSchedule object which matches the input remote system data parameters.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>

userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String(15)	The remote systems outage number to be used to query CROW for the outage.
remoteSystemName	String(50)	The name of the remote system to be used in conjunction with the remote system outage number to query CROW for the outage.
Service.OutageSchedule_LoadItemRemoteIDResponse		
Returns: OutageSchedule This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_MoveToStatus		
Method Name:	Service.OutageSchedule_MoveToStatus	
Description:	This method allows users to perform simple state transition actions generically. The following state transitions are currently supported: • Active • Inactive • Approved • Study • Withdrawn • Proposed	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
outageStatusID	Integer	The outage status ID to which the outage request is being moved.
thePerson	Person	The person who performed the action. If this person is the same as the logged in user, pass null.
Service. OutageSchedule_MoveToStatusResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_MoveToStatusByID		
Method Name:	Service.OutageSchedule_MoveToStatusByID	
Description:	This method allows users to perform bulk simple state transition actions generically by passing an array of outage IDs.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	Array of String	An array of the outage schedule IDs to be moved to the designated status.
outageStatusID	Integer	The outage status ID to which the outage request is being moved.
thePerson	Person	The person who performed the action. If this person is the same as the logged in user, pass null.
Service. OutageSchedule_MoveToStatusByIDResponse		
Returns: Array of ErrorCode		

Service.OutageSchedule_MoveToStatusNumber		
Method Name:	Service.OutageSchedule_MoveToStatusNumber	
Description:	This method allows users to perform a simple state transition action generically by passing an outage number, change request number and IDs.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	Complete this value to query using the CROW outage number.
changeReqNumber	Integer	Change request number of the change request being moved to a new status.
outageStatusID	Integer	The outage status ID to which the outage request is being moved.
thePerson	Person	The person who performed the action. If this person is the same as the logged in user, pass null.

Service. OutageSchedule_MoveToStatusNumberResponse
Returns: OutageSchedule This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

Service. OutageSchedule_ImplementRequest		
Method Name:	Service. OutageSchedule_ImplementRequest	
Description:	This method allows users to move an outage request to the implemented state.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
thePerson	Person	The person who performed the action. If this person is the same as the logged in user, pass null.
actualStart	String	String representation of the actual time that the outage request started.
Service. OutageSchedule_ImplementRequestResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service. OutageSchedule_ImplementRequestNumber		
Method Name:	Service. OutageSchedule_ImplementRequestNumber	
Description:	This method allows users to move an outage request to the implemented state. If the user does not have permission to update the outage request content, but may move the outage request to the implemented state, this method should be used.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.

userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	The number of the outage request to be implemented.
thePerson	Person	The person who performed the action. If this person is the same as the logged in user, pass null.
actualStart	String	String representation of the actual time that the outage request started.
Service. OutageSchedule_ ImplementRequestNumberResponse		
Returns: OutageSchedule This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service. OutageSchedule_CompleteRequest		
Method Name:	Service. OutageSchedule_CompleteRequest	
Description:	This method allows users to move an outage request to the Completed state.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
thePerson	Person	The person who performed the action. If this person is the same as the logged in user, pass null.
actualComplete	String	String representation of the actual time that the outage request completed.
returnType	Integer	Pass 0 to return the entire outage request. Pass 1 to only return the current outage period.
Service. OutageSchedule_CompleteRequestResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service. OutageSchedule_ CompleteRequestNumber	
Method Name:	Service. OutageSchedule_ CompleteRequestNumber

Description:	This method allows users to move an outage request to the Completed state. If the user does not have permission to update the outage request content, but may move the outage request to the Completed state, this method should be used.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
outageNumber	String	The number of the outage request to be Completed.
thePerson	Person	The person who performed the action. If this person is the same as the logged in user, pass null.
actualComplete	String	String representation of the actual time that the outage request completed.
returnType	Integer	Pass 0 to return the entire outage request. Pass 1 to only return the current outage period.
Service. OutageSchedule_ CompleteRequestNumberResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_SaveChanges		
Method Name:	Service.OutageSchedule_SaveChanges	
Description:	This method posts changes to the input OutageSchedule object to the CROW database.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
Service.OutageSchedule_SaveChangesResponse		
Returns: OutageSchedule		
This method returns the saved OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_SaveStudy		
Method Name:	Service.OutageSchedule_SaveStudy	
Description:	This method posts changes to the input OutageStudy object to the CROW database.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the action.
userPassword	String(50)	The CROW password for the user performing the action.
outageNumber	String(15)	Complete this value to query using the CROW outage number.
theOutageStudy	OutageStudy	The input OutageStudy object.
theSubmitter	Person	The person who updates the study
Service.OutageSchedule_SaveStudyResponse		
Returns: OutageSchedule		
This method returns the entire OutageSchedule object that was updated with the study. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_SaveProposal		
Method Name:	Service.OutageSchedule_SaveProposal	
Description:	This method posts the input OutageSchedule object to the CROW database and saves it as an outage request with the status explained in A.3.5.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theSubmitter	Person	The person who saves the proposal
Service.OutageSchedule_SaveProposalResponse		
Returns: OutageSchedule		
This method returns the saved OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded..		

Service.OutageSchedule_SubmitRequest	
Method Name:	Service.OutageSchedule_SubmitRequest

Description:	This method posts the input OutageSchedule object to the CROW database and submits it.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theSubmitter	Person	The person who submits the outage request.
Service.OutageSchedule_SubmitRequestResponse		
Returns: OutageSchedule		
This method returns the saved OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_UnConfirmRequest		
Method Name:	Service.OutageSchedule_UnConfirmRequest	
Description:	This method, bound by Business Unit permissions, posts the input OutageSchedule object to the CROW database and changes the status from "Confirmed" to "Approved".	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theSubmitter	Person	The person who un-confirms the request.
Service.OutageSchedule_UnConfirmRequestResponse		
Returns: OutageSchedule		
This method returns the unconfirmed OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageSchedule_WithdrawRequest		
Method Name:	Service.OutageSchedule_WithdrawRequest	
Description:	This message allows users to withdraw an outage request.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>

userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageSchedule	OutageSchedule	The input OutageSchedule object.
theWithdrawer	Person	The person who withdraws the request.
reasonForWithdrawal	String	The user can specify the reason why the outage request is being withdrawn.
Service.OutageSchedule_WithdrawRequestResponse		
Returns: OutageSchedule This message returns the withdrawn OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.Person_Update		
Method Name:	Service.Person_Update	
Description:	This method inserts or updates the person object specified as input parameter. It will: • Attempt to identify the person record based on the input parameters. • If found, it will update the person record, if not it will add it. • It will update all specified properties. The application <i>will not</i> delete properties that are not found in the properties array. • It will update the person's roles based on the following: ○ If this array is empty, the roles will not be updated. ○ If the array is not empty, the person's roles will be updated by deleting all roles and adding the ones represented in the array. ○ To remove a person from all roles, populate the roles array with one role object with a blank string in the name field (and no other fields populated). This method is available only to API users that have been identified as CROW database administrators.	
Input Parameters:		
Parameter Name	Parameter Type	Description
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.

thePerson	Person	The input Person object contains the elements required to uniquely identify the business unit.
Service. Person_UpdateResponse		
Returns: Person This method returns the Person object that was updated. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.Person_Validate		
Method Name:	Service.Person_Validate	
Description:	This method returns the complete Person object which matches the input parameters. The firstName, lastName, employeeID, and employer parameters are all optional, but you must complete at least one of them. This method is available only to API users that have been identified as CROW database administrators.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
thePerson	Person	The input person object contains values required to validate the person – firstName and lastName, employeeID, or emailAddress.
Service.Person_ValidateResponse		
Returns: Person		
This method returns the validated Person object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.OutageProfileQuery_ExecuteQuery	
Method Name:	Service.OutageProfileQuery_ExecuteQuery
Description:	This method executes the outage profile query using the parameters in the input OutageProfileQuery object, and returns the query results. • The current revision of the outage profile is returned. • The profiles associated with change requests are not returned. • Any user with CROW API login permission may execute this query.

	• Users with limited business unit permissions will only see profiles for which they have business unit permissions. • Only enabled profiles will be retrieved.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageProfileQuery	OutageProfileQuery	The input OutageProfileQuery object contains the query parameters.
Service.OutageProfileQuery_ExecuteQueryResponse		
Returns: OutageProfileQueryResult		

Service.OutageRequestQuery_ExecuteQuery		
Method Name:	Service.OutageRequestQuery_ExecuteQuery	
Description:	This method executes the planned outage query using the parameters in the input OutageRequestQuery object, and returns the first 250 of the query results as ReturnedOutage objects. If further details of an outage is needed, OutageSchedule_LoadItem method should be called.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theOutageRequestQuery	OutageRequestQuery	The input OutageRequestQuery object contains the query parameters.
Service.OutageRequestQuery_ExecuteQueryResponse		
Returns: OutageRequestQueryResult		

Service.PowerSystemEquipment_Update	
Method Name:	Service. PowerSystemEquipment_Update
Description:	This method inserts or updates the power system equipment item specified as input parameter. The application will: - Attempt to identify the item based on the input parameters. - If found, it will update the item, if not it will add it. - It will update all specified properties. The application <i>will not</i> delete properties that are not found in the properties array.

If the input relationships arrays (owner/operator/ maintainer) are not empty, it will remove all the existing relationships for which business units have been specified in the input array. It will then proceed to add all the relationships that have been specified in the input array. This method is available only to API users that have been identified as CROW database administrators or where business rules allow for the editing of certain equipment classes.		
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
thePowerSystemEquipment	PowerSystemEquipment	The input PowerSystemEquipment object contains the elements required to uniquely identify the item.
Service. PowerSystemEquipment_UpdateResponse		
Returns: PowerSystemEquipment This method returns the PowerSystemEquipment object that was updated. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.PowerSystemEquipment_BulkUpdate		
Method Name:	Service. PowerSystemEquipment_BulkUpdate	
Description:	This method inserts or updates the power system equipment items specified in the input array of PowerSystemEquipment. The application will: • Attempt to identify the item based on the input parameters. • If found, it will update the item. • It will update all specified properties. The application <i>will not</i> delete properties that are not found in the properties array. This method is available only to API users that have been identified as CROW database administrators.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
thePowerSystemEquipments	Array of PowerSystemEquipment	The input PowerSystemEquipments array contains the PowerSystemEquipment objects to update.

Service. PowerSystemEquipment_BulkUpdateResponse

Returns: ErrorCode array.

An array of ErrorCode objects is returned to identify any problems with the update of a particular PowerSystemEquipment. The ErrorCode array will contain error/success codes for each of the items in the bulk update separately. The entire array of ErrorCode should be checked for errors because some updates may pass without error while others may have encountered an error.

Service.PowerSystemEquipment_Validate

Method Name: Service.PowerSystemEquipment_Validate

Description: This method, bound by Business Unit permissions, returns the complete PowerSystemEquipment object which matches the input parameters.

Input Parameters:

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
thePowerSystemEquipment	PowerSystemEquipment	The input powerSystemEquip object must have the label value set.

Service.PowerSystemEquipment_ValidateResponse

Returns: PowerSystemEquipment

This method returns the validated PowerSystemEquipment object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

Service.PowerSystemEquipment_Rename

Method Name: Service.PowerSystemEquipment_Rename

Description: This method renames an power system equipment in a given naming convention.

The application will:

- Attempt to identify the item based on the oldName.
- If found, it will update rename the equipment.
- If multiple equipment is found matching the oldName and naming convention, the equipment is not updated and a error is returned.

This method is available only to API users that have permissions to update found equipment using the given naming convention.

Input Parameters:

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
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userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
namingConvention	String	This is naming conventions of the name being changed some examples are "External Name" and "Asset Long Name"
oldName	String	The old name of the equipment this must be a unique name in the given naming convention.
newName	String	The new name which to rename equipment to.
Service. PowerSystemEquipment_RenameResponse		
Returns: Array of ErrorCodes The absence of any negative error codes indicates the method call has succeeded.		

Service.PowerSystemResource_Validate		
Method Name:	Service.PowerSystemResource_Validate	
Description:	This method, bound by Business Unit permissions, returns the PowerSystemResource object which matches the input parameters.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
thePowerSystemResource	PowerSystemResource	The input powerSystemResource object must have the label value set.
Service.PowerSystemResource_ValidateResponse		
Returns: PowerSystemResource		
This method returns the validated PowerSystemResource object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service. RdmsExtractQuery_ExecuteQuery	
Method Name:	Service. RdmsExtractQuery_ExecuteQuery
Description:	Used for the query of RDMS event related information.
Input Parameters:	

<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
fromDateTime	String	String representation of the date used to filter for events beginning on or after this date.
toDateTime	String	String representation of the date used to filter for events beginning prior to this date.
lastUpdatedDateTime	String	String representation of the date used to filter for events created or modified on or after this date.
Service. RdmsExtractQuery_ExecuteQueryResponse		
Returns: RdmsExtractResult The results of the query are returned in the RdmsExtractResult object.		

Service. Reservoir_Validate		
Method Name:	Service. Reservoir_Validate	
Description:	This method returns the complete Reservoir object which matches the input partial Reservoir object.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theReservoir	Reservoir	The input Reservoir object contains the elements required to uniquely identify the reservoir.
Service. Reservoir_ValidateResponse		
Returns: Reservoir		
This returns the validated Reservoir object.		

Service.Resource_Deleteltem	
Method Name:	Service. Resource_Deleteltem

Description:	This method will attempt to uniquely identify the specified item in the database. This can be any object in the database – a business unit, person, power system equipment etc. If uniquely identified, it will delete the specified item from the database. An option is provided to mark the item deleted, rather than outright deleting the item. This method is available only to API users that have been identified as CROW database administrators or where business rules allow for the deletion of certain equipment classes.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theResource	Resource	The resource object uniquely identifies the object to be deleted.
markDeleted	Boolean	If this value is true, then equipment items will only be marked as deleted in the database. If this value is false, the application will outright delete items from the database where they are not required for referential integrity. Note that this can also be accomplished by setting the object State value to "Deleted" or "Retired".
Service. Resource_DeleteItemResponse		
Returns: Array of ErrorCode This method returns an array of error codes. The absence of any negative error codes indicates the method call has succeeded.		

Service.Substation_Update	
Method Name:	Service. Substation_Update
Description:	This method inserts or updates the substation object specified as input parameter. It will: • Attempt to identify the substation record based on the input parameters. • If found, it will update the substation record, if not it will add it. • It will update all specified properties. The application <i>will not</i> delete properties that are not found in the properties array.

This method is available only to API users that have been identified as CROW database administrators.		
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theSubstation	Substation	The input Substation object contains the elements required to uniquely identify the substation – e.g. the station abbreviation, station name, station owner.
Service. Substation_UpdateResponse		
Returns: Substation This method returns the Substation object that was updated. Check the errorCodes array in the returned object for error codes The absence of any negative error codes indicates the method call has succeeded.		

Service.Substation_Validate		
Method Name:	Service.Substation_Validate	
Description:	This method, bound by Business Unit permissions, returns the complete Substation object which matches the input partial Substation object. You can pass a Substation object with values assigned to the name or abbreviation elements, and this method will return the object with values assigned to all elements. You can also assign values to the ownedBy or operatedBy elements to distinguish between substations with the same name or abbreviation that are owned or operated by different entities.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
theSubstation	Substation	The input Substation object contains the elements required to uniquely identify the substation – e.g. the station abbreviation, station name, station owner.

Service.Substation_ValidateResponse
Returns: Substation This method returns the validated Substation object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

Service. SystemEvent_LoadItemSimple		
Method Name:	Service. SystemEvent_LoadItemSimple	
Description:	This method, bound by Business Unit permissions, returns the complete SystemEvent object which matches the input eventNumber.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
userName	String(90)	The CROW user ID (i.e. the user's email address) for the user performing the query.
userPassword	String(50)	The CROW password for the user performing the query.
eventNumber	String	The event number of the SystemEvent to load.
Service. SystemEvent_LoadItemSimpleResponse		
Returns: SystemEvent		
This method returns the SystemEvent object identified by the input eventNumber. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

2.5.2 OutageScheduling Methods.

OutageScheduling.AddAttachment		
Method Name:	OutageScheduling.AddAttachment	
Description:	Adds a file attachment to an outage schedule. The inputs must specify an outage request number, a filename, a brief description and the attachment file represented as a byte array.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to add the attachment to.
fileName	String(255)	The name of the file to add as an attachment if no data is provided in the byte array input parameter.
description	String(255)	A brief, descriptive title of the file being attached.
data	Byte array	The data of the attachment file should be provided to this method as a byte array.

OutageScheduling.AddAttachmentResponse
Returns: OutageSchedule This method returns the OutageSchedule object that had the attachment added to it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

OutageScheduling.AddOperatingPlanAttachment		
Method Name:	OutageScheduling.AddAttachment	
Description:	Adds a file attachment to an outage schedule. The inputs must specify an outage request number, a filename, a brief description and the attachment file represented as a byte array.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to add the attachment to.
planType	Integer	An integer value indicating the type of plan.
Resource	PowerSystemResource	An instance of PowerSystemResource that represents the instance for which the operating plan was created.
fileName	String(255)	The name of the file to add as an attachment if no data is provided in the byte array input parameter.
description	String(255)	A brief, descriptive title of the file being attached.
data	Byte array	The data of the attachment file should be provided to this method as a byte array.
OutageScheduling. AddAttachmentResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object that had the attachment added to it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.BulkPerformAction	
Method Name:	OutageScheduling.BulkPerformAction
Description:	This method allows the user to perform a specified action on a set of input OutageSchedule . The method is transactional in that the

	action must succeed on all requests specified or no changes will be committed.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageSchedules	Array of OutageSchedule	The set of OutageSchedules to take the specified input action on.
thePerson	Person	The person initiating the action.
actionType	String	The type of action to take on the OutageSchedule object indicated by the input outageNumber.
inputParameters	InputParameters	An InputParameters object populated with the required inputs to use in performing the action specified by the actionType string input value. Note that InputParameters periods are not supported in bulk actions.
OutageScheduling. BulkPerformActionResponse		
Returns: OutageScheduleGroup		
This method returns the OutageScheduleGroup object that was indicated by the input information to have an action taken on it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.BulkPerformActionByNumber		
Method Name:	OutageScheduling.BulkPerformActionByNumber	
Description:	This method allows the user to perform a specified action on a set of OutageSchedule objects identified by an array outage numbers. The method is transactional in that the action must succeed on all requests specified or no changes will be committed.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumbers	Array String	The set of outage request numbers identifying the OutageSchedule to take the specified input action on.
thePerson	Person	The person initiating the action.
actionType	String	The type of action to take on the OutageSchedule object indicated by the input outageNumber.
inputParameters	InputParameters	An InputParameters object populated with the required inputs to use in performing the action specified by the actionType string input value. Note that InputParameters periods are not supported in bulk actions.

OutageScheduling.BulkPerformActionByNumberResponse
Returns: OutageScheduleGroup This method returns the OutageScheduleGroup object that was indicated by the input information to have an action taken on it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

OutageScheduling.CheckConflicts		
Method Name:	OutageScheduling.CheckConflicts	
Description:	This method takes an input outageNumber and returns a collection of ErrorCode objects each holding the details of the conflicts found against the outage request indicated by the input outageNumber.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to check for conflicts.
OutageScheduling.CheckConflictsResponse		
Returns: Array of ErrorCode		
It will return a single ErrorCode with a code 0 if there are no conflicts.		
It will return 607 code with the details if there are conflicts.		

OutageScheduling.DeleteItem		
Method Name:	OutageScheduling.DeleteItem	
Description:	This method, bound by Business Unit permissions, deletes the input OutageSchedule object.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to load.
changeReqNumber	Integer	The change request number to identify the change request to load.
OutageScheduling.DeleteItemResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object that was indicated by the input information to be flagged for deletion. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.DeleteAttachment		
Method Name:	OutageScheduling.GetAttachment	
Description:	Retrieves a file attachment from an outage schedule using the input outageNumber, fileName, and dateAdded as filters to match the attachment on.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to delete the attachment from.
attachmentFileId	Integer	The Id of the attachment file to delete
OutageScheduling.DeleteAttachmentResponse		
Returns: Array of ErrorCode		
It will return a single ErrorCode with a code 0 if there are no problems.		

OutageScheduling.GetAttachment		
Method Name:	OutageScheduling.GetAttachment	
Description:	Retrieves a file attachment from an outage schedule using the input outageNumber, fileName, and dateAdded as filters to match the attachment on.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to retrieve the attachment from.
fileName	String(255)	The name of the file to retrieve from the outage schedule.
dateAdded	String	String representation of the date the attachment was added to .
OutageScheduling.GetAttachmentResponse		
Returns: AttachmentData		
This method returns the AttachmentData object that contains the file data. Check the ErrorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.GetAttachmentById		
Method Name:	OutageScheduling.GetAttachmentById	
Description:	Retrieves a file attachment from an outage schedule using the input attachmentFileId as a filter to match the attachment on.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>

outageNumber	String	The outage request number of the outage schedule to get the attachment from.
attachmentFileId	Integer	The Id of the attachment file to go and get.
OutageScheduling.GetAttachmentByIdResponse		
Returns: AttachmentData This method returns the AttachmentData object that contains the file data. Check the ErrorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.InitializeRequest	
Method Name:	OutageScheduling.InitializeRequest
Description:	This method returns an OutageSchedule object populated with default values. If the user wants to create a new outage request, it is advisable to call this method in order to get an OutageSchedule object with certain default values populated, and then to make changes to this object before returning it as a parameter.
Input Parameters: None required.	
InitializeRequestResponse	
Returns: OutageSchedule This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.	

OutageScheduling.LoadItem		
Method Name:	OutageScheduling.LoadItem	
Description:	This method returns the OutageSchedule object which matches the input parameters. The revisionNumber and changeReqNumber parameters are optional.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to load.
revisionNumber	Integer	The revision number to use in retrieving the outage schedule data.
changeReqNumber	Integer	The change request number to identify the change request to load.

OutageScheduling.LoadItemResponse	
Returns: OutageSchedule	
This method returns the OutageSchedule object that was indicated by the input information. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.	

OutageScheduling.LoadItemRemoteID		
Method Name:	OutageScheduling.LoadItemRemoteID	
Description:	This method returns the OutageSchedule object which matches the input remote system data parameters.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The remote systems outage number to be used to query CROW for the outage.
remoteSystemName	String	The name of the remote system to be used in conjunction with the remote system outage number to query CROW for the outage.
OutageScheduling.LoadItemRemoteIDResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object that was indicated by the input information. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.MoveToStatusByID		
Method Name:	OutageScheduling.MoveToStatusByID	
Description:	This method allows users to perform bulk simple state transition actions generically by passing an array of outage IDs.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	Array of String	An array of the outage schedule IDs to be moved to the designated status.
outageStatusID	Integer	The outage status ID to which the outage request is being moved.
thePerson	Person	The person who performed the action.
OutageScheduling.MoveToStatusByIDResponse		
Returns: Array of ErrorCode		
The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.MoveToStatusByIDWithParameters		
Method Name:	OutageScheduling.MoveToStatusByID	
Description:	This method allows users to perform bulk simple state transition actions generically by passing an array of outage IDs. InputParameters may be included in this call.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	Array of String	An array of the outage schedule IDs to be moved to the designated status.
outageStatusID	Integer	The outage status ID to which the outage request is being moved.
thePerson	Person	The person who performed the action.
inputParameters	InputParameters	An InputParameters object populated with the required inputs to use in performing the status move to the status indicated in the outageStatusID input.
OutageScheduling.MoveToStatusByIDResponse		
Returns: Array of ErrorCode		
The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.PerformAction		
Method Name:	OutageScheduling.PerformAction	
Description:	This method allows the user to perform a specified action on an input OutageSchedule object.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
theOutageSchedule	OutageSchedule	The OutageSchedule to take the specified input action on.
thePerson	Person	The person initiating the action.
actionType	String	The type of action to take on the input OutageSchedule object.
inputParameters	InputParameters	An InputParameters object populated with the required inputs to use in performing the action specified by the actionType string input value.

OutageScheduling.PerformActionResponse
Returns: OutageSchedule This method returns the OutageSchedule object that was indicated by the input information to have an action taken on it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.

OutageScheduling.PerformActionByNumber		
Method Name:	OutageScheduling.PerformActionByNumber	
Description:	This method allows the user to perform a specified action on an OutageSchedule object identified by an outage number.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number identifying the OutageSchedule to take the specified input action on.
thePerson	Person	The person initiating the action.
actionType	String	The type of action to take on the OutageSchedule object indicated by the input outageNumber.
inputParameters	InputParameters	An InputParameters object populated with the required inputs to use in performing the action specified by the actionType string input value.
OutageScheduling.PerformActionByNumberResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object that was indicated by the input information to have an action taken on it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.RecursiveLoadItem		
Method Name:	OutageScheduling.RecursiveLoadItem	
Description:	This method returns the OutageScheduleGroup object which contains the outage identified by the outageNumber plus any OutageSchedules that are linked to this schedule or a linked schedule. The revisionNumber and changeReqNumber parameters are optional.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to load.

revisionNumber	Integer	The revision number to use in retrieving the outage schedule data. Pass 0 to get the latest revision.
changeReqNumber	Integer	The change request number to identify the change request to load.
OutageScheduling.RecursiveLoadItemResponse		
Returns: OutageScheduleGroup This method returns the OutageScheduleGroup object that was indicated by the input information to have an action taken on it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling. RecursiveLoadItemRemoteID		
Method Name:	OutageScheduling.LoadItemRemoteID	
Description:	This method returns the OutageScheduleGroup object which matches the input remote system data parameters plus any OutageSchedules that are linked to this schedule or a linked schedule.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The remote systems outage number to be used to query CROW for the outage.
remoteSystemName	String	The name of the remote system to be used in conjunction with the remote system outage number to query CROW for the outage.
OutageScheduling. RecursiveLoadItemRemoteIDResponse		
Returns: OutageScheduleGroup		
This method returns the OutageScheduleGroup object that was indicated by the input information to have an action taken on it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.SaveStudy		
Method Name:	OutageScheduling.SaveStudy	
Description:	This method posts changes to the input OutageStudy object to the CROW database.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number of the outage schedule to save the study for.

theOutageStudy	OutageStudy	The outage study to save to the outage schedule identified by the input outageNumber.
theSubmitter	Person	The person that is submitting the study to the outage schedule.
OutageScheduling.SaveStudyResponse		
Returns: OutageSchedule This method returns the OutageSchedule object that had the study saved to it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.UpdateLinkedOutageRequests		
Method Name:	OutageScheduling.UpdateLinkedOutageRequests	
Description:	This method allows the user to add or remove outages to the list of LinkedOutageRequest on a particular outage.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
outageNumber	String	The outage request number indicating the OutageSchedule that holds the list of LinkedOutageRequest to add to or remove from.
outageNumbersToAdd	Array of LinkedOutageRequest	The collection of LinkedOutageRequest to add to the outage.
outageNumbersToRemove	Array of LinkedOutageRequest	The collection of LinkedOutageRequest to remove from the outage.
OutageScheduling.UpdateLinkedOutageRequestsResponse		
Returns: Array of ErrorCode		
The absence of any negative error codes indicates the method call has succeeded.		

OutageScheduling.PerformNamedAction		
Method Name:	OutageScheduling.PerformNamedAction	
Description:	This method allows the user to perform a specified action on an input OutageSchedule object.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
theOutageSchedule	OutageSchedule	The OutageSchedule to take the specified input action on.
thePerson	Person	The person initiating the action.
actionName	String	The type of action to take on the input OutageSchedule object.
inputParameters	InputParameters	An InputParameters object populated with the required inputs to use in performing the

		action specified by the actionName input string.
OutageScheduling.PerformNamedActionResponse		
Returns: OutageSchedule		
This method returns the OutageSchedule object that was indicated by the input information to have an action taken on it. Check the errorCodes array in the returned object for error codes. The absence of any negative error codes indicates the method call has succeeded.		

2.5.3 QueryService Methods

QueryService.EquipmentQuery		
Method Name:	QueryService.EquipmentQuery	
Description:	This method executes the equipment query using the parameters in the input EquipmentQuery object, and returns the query results. If further detail of an equipment item is needed InformationModel.ValidateResource method should be called.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
theEquipmentQuery	EquipmentQuery	The input EquipmentQuery object contains the query parameters.
QueryService.EquipmentQueryResponse		
Returns: EquipmentQueryResult		

QueryService.ExecuteQuery		
Method Name:	QueryService.ExecuteQuery	
Description:	This method executes any pre-configured query available to the user. Specify the name of the pre-configured query and provide the parameters for the query in the input ExecuteQueryRequest object and this method will return the query results in XML format.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
theExecuteQueryRequest	ExecuteQueryRequest	The input ExecuteQueryRequest object contains the name of the query to run and XML to describe the input parameters to use on the query.

QueryService.ExecuteQueryResponse
Returns: ExecuteQueryResult The ExecuteQueryResult object will contain an XML-structured result set which will hold the particular query's response. The ExecuteQueryResult object will also contain an array of ErrorCode named errorCodes. The absence of any negative error codes indicates the method call has succeeded.

QueryService.GenerationOutageProfileQuery		
Method Name:	QueryService.GenerationOutageProfileQuery	
Description:	This method executes the generation outage profile query using the parameters in the input OutageProfileQuery object, and returns the query results. - Any user with CROW API login permission may execute this query. - Users with limited business unit permissions will only see profiles for which they have business unit permissions.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
theOutageProfileQuery	OutageProfileQuery	The input OutageProfileQuery object contains the query parameters.
QueryService.GenerationOutageProfileQueryResponse		
Returns: GenerationProfileQueryResult		

QueryService.OutageProfileQuery		
Method Name:	QueryService.OutageProfileQuery	
Description:	This method executes the outage profile query using the parameters in the input OutageProfileQuery object, and returns the query results. • The current revision of the outage profile is returned. • The profiles associated with change requests are not returned. • Any user with CROW API login permission may execute this query. • Users with limited business unit permissions will only see profiles for which they have business unit permissions. • Only enabled profiles will be retrieved.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
theOutageProfileQuery	OutageProfileQuery	The input OutageProfileQuery object contains the query parameters.

QueryService.OutageProfileQueryResponse
Returns: OutageProfileQueryResult

QueryService.OutageRequestQuery		
Method Name:	QueryService.OutageRequestQuery	
Description:	This method executes the planned outage query using the parameters in the input OutageRequestQuery object, and returns the first 250 of the query results as ReturnedOutage objects. If further detail of an outage is needed, the OutageSchedule_LoadItem method should be called.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
theOutageRequestQuery	OutageRequestQuery	The input OutageRequestQuery object contains the query parameters.
QueryService.OutageRequestQueryResponse		
Returns: OutageRequestQueryResult		

2.5.4 InformationModel Methods

InformationModel.AddUpdateAttachment		
Method Name:	InformationModel.AddUpdateAttachment	
Description:	Adds a file as a File type property value of a resource object. The inputs must specify the resource, the name of the property to update, and the attachment file represented as a byte array.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
resource	Resource	The Resource object to add the attachment to.
propertyName	string	The name of the property on the resource object that holds the attachment data.
attachment	AttachmentData	An AttachmentData object of the attachment file should be provided to this method including in it a Filename and the file Data as a byte array.

InformationModel.AddUpdateAttachmentResponse
Returns: AttachmentData This method returns the AttachmentData object that contains the filename and file data. Check the ErrorCodes array in the returned object for any error codes. The absence of any negative error codes indicates the method call has succeeded.

InformationModel.BulkUpdateResource		
Method Name:	InformationModel.BulkUpdateResource	
Description:	Uses the input array of UpdateResource objects to identify and update the specified property values and/or relationship associations for each resource object. Each input resource is validated for user permissions and then updated with the newly provided property values and/or relationships. Properties and/or relationship associations that are not specified in the input resource objects are not updated.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
resources	Array of UpdateResource	The array of UpdateResource objects to be identified and updated.
InformationModel.BulkUpdateResourceResponse		
Returns: Array of ErrorCode		
Check the each of the returned ErrorCode in the array for keys to identify the resource that has the error and the errorCode. The absence of any negative error codes indicates the method call has succeeded.		

InformationModel.DeleteResource		
Method Name:	InformationModel.DeleteResource	
Description:	This method either removes the input resource object entirely from the database or it flags the input resource as being deleted depending on the value input for the markDeleted parameter.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
resource	Resource	The resource object to be deleted or marked as deleted. The “typeName” (class

		of the resource) and property values specified in the input object will be used to identify the resource in the database.
markDeleted	boolean	If the value is true then the resource will be flagged as deleted. If the value is false then an attempt will be made to delete the resource entirely from the database, but failing that it will be flagged as deleted and a warning message may be returned in the array of ErrorCode depending on the specific configuration.
InformationModel.DeleteResourceResponse		
Returns: Array of ErrorCode The absence of any negative error codes indicates the method call has succeeded.		

InformationModel.GetAttachmentData		
Method Name:	InformationModel.GetAttachmentData	
Description:	Retrieves the file data for a File type property that is associated with a resource. The return object is AttachmentData.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
resource	Resource	The Resource object the attachment is associated with. The resource must exist and the user must have permission to access it.
propertyName	string	The name of the property on the resource object which holds the attachment data. The specified property must exist and it must be a File type property.
InformationModel.GetAttachmentDataResponse		
Returns: AttachmentData		
This method returns the AttachmentData object that contains the filename and file data. Check the ErrorCodes array in the returned object for any error codes The absence of any negative error codes indicates the method call has succeeded.		

InformationModel.QueryResources		
Method Name:	InformationModel.QueryResources	
Description:	This method performs a query on instances in the database based on parameters specified in the input ResourceQueryRequest object. This can be used to query any Resource in the CROW.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
request	ResourceQueryRequest	This input object contains all of the information required to direct the creation and running of the query.
InformationModel.QueryResourcesResponse		
Returns: ResourceQueryResult		

InformationModel.UpdateResource		
Method Name:	InformationModel.UpdateResource	
Description:	Uses the input UpdateResource object to update the specified property values and/or relationship associations. The input resource is validated for user permissions and then updated with the newly provided property values and/or relationships. Properties and/or relationship associations that are not specified in the input resource object are not updated. The updated version of the resource is returned.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
resource	UpdateResource	The UpdateResource object includes a resource object having values used to identify the object to be updated. As well it includes the resource object containing the updated values.
InformationModel.UpdateResourceResponse		
Returns: Resource		
This method returns the updated Resource object. Check the errorCodes array in the returned object for any error codes. The absence of any negative error codes indicates the method call has succeeded.		

InformationModel.ValidateResource		
Method Name:	InformationModel.ValidateResource	
Description:	Validates the existence of the input resource by way of the specified class of the resource (in the typeName property) and/or the specified property values provided in the input resource object.	
Input Parameters:		
<u>Parameter Name</u>	<u>Parameter Type</u>	<u>Description</u>
resource	Resource	The resource object to be validated. The “typeName” (class of the resource) and property values specified in the input object will be used to identify the resource in the validation process.
InformationModel.ValidateResourceResponse		
Returns: Resource		
This method returns the Resource object. Check the errorCodes array in the returned object for any error codes. The absence of any negative error codes indicates the method call has succeeded.		

2.6 Warning and Error Return Codes

The errorCodes object in the CROW API returns error codes generated by the method calls. Following is a complete listing of error codes.

Error Code	Description
608	The following linked outage request(s) exist:
607	The following conflict(s) exist for this outage request:
606	<0> is in the past. (where <0> is replaced with a date name - eg. Planned Start)
605	Multiple attachments found. Using latest.
604	Could not link outage request. The outage request does not exist or you do not have access to this outage request.
603	Each of the associated Units must share the same State property as the Market Asset. The State for the Unit does not match that of the Market Asset.
602	A Generation affected item specifies an invalid constraint affected ID.
610	There are no Units associated with this Market Asset
400	Field Ignored
300	The query returned more than the limit.
204	Outage period(s) were supplied for a continuous outage request. The application will automatically generate the outage period(s) for continuous outage requests.
203	Base class is person, and has created or modified data in the database or is otherwise referenced in the database.
202	There is less than 90 days between the Priority Time and the Planned Start Date

201	A study you are trying to save is ignored.
200	Invalid outage request status(es) supplied.
-1	Unspecified Error
-101	Login Failed
-101	You must select at least one Event to return.
-102	You cannot exclude Event from the Outage Request completion/recall because this event is not associated with any other Planned Outage Request that is currently in progress.
-103	The station name is blank.
-104	The station abbreviation is blank.
-105	You can't add this instance class to this location.
-106	The instance name is blank.
-107	Missing ""Owned By"". You must select at least one owner for this circuit/equipment.
-108	Missing ""Operated By"". You must select at least one operator for this circuit/equipment.
-109	The event 'Start Date' you have entered is in the future.
-110	This device is missing a device number.
-111	The event 'End Date' you have entered is in the future.
-112	The event 'End Time' you have entered is in the future.
-113	The event 'end' date or time is before the event 'start' date or time.
-114	The 'Estimated Return' date or time that you have entered is before the event 'start' date or time.
-115	You haven't selected a circuit/equipment item, station, or business unit for this event.
-116	You do not have the required privileges to create events for the circuit/equipment/station that this event references.
-117	The Protection Zone Coding is missing the Zone Cause, Fault Type, or Protection Operation Code.
-118	You must enter a Space Weather Message Code, K-index and Expected End Date for this Geomagnetic Disturbance.
-119	Another outage/derating exists on the same circuit/equipment for overlapping dates/times.
-202	Error checking reclosing/tagging.
-203	One or more of the input control centers does not exist in the required approvals collection.
-204	No Reclosing/Tagging has been specified.
-206	The 'First Upstream Switch' has not been selected.
-301	There is no 'Circuit Requested'/'Equipment Requested'/'Device' entered.
-302	There is no 'Outage Start'/'Outage Complete'/'Permit'/'Operated'/'Reported' date entered.
-303	The 'Start' date is after the 'Complete' date.
-304	There is no 'Outage Duration' entered.
-305	'Outage Duration' must be 'Exactly' or 'Window'.
-306	There is no 'Continuous/Daily' option entered.
-307	There are no 'Approvals' entered.
-308	The 'Permit Start' and 'Permit Complete' date range is incomplete.
-309	The 'Permit Start' date is after the 'Permit Complete'/'Carry Forward' date.
-310	The 'Permit Start' date is before the 'Outage Start' date.
-311	The 'Permit Complete' date is after the 'Outage Complete' date.
-312	The 'Daily Outages' list has outage periods where there are no 'Switching Start' or 'Restoration Complete' dates entered.
-313	The 'Daily Outages' list has outage periods where there the 'Switching Start' date is after the 'Restoration Complete' date.

-314	The 'Daily Outages' list has outage periods where the 'Switching Start' date is before the request's 'Outage Start' date.
-315	The 'Daily Outages' list has outage periods where the 'Restoration Complete' date is after the request's 'Outage Complete' date.
-316	The 'Daily Outages' list has outage periods where the 'Permit Start' and 'Permit Complete' date range is incomplete.
-317	The 'Daily Outages' list has outage periods where there the 'Permit Start' date is after the 'Permit Complete' date.
-318	The 'Daily Outages' list has outage periods where the 'Permit Start' date is before the request's 'Permit Start' date.
-319	The 'Daily Outages' list has outage periods where the 'Permit Complete' date is after the request's 'Permit Complete' date.
-320	The 'Daily Outages' list has outage periods where the 'Permit Start' date is before the request's 'Outage Start' date.
-321	The 'Daily Outages' list has outage periods where the 'Permit Complete' date is after the request's 'Outage Complete' date.
-322	The 'Notifications' list has notification requests where there is no 'Notification Type' selected.
-323	The 'Notifications' list has notification requests where there is no person/group entered to notify.
-324	The 'Notifications' list has notification requests where there is no control center selected to notify.
-325	The 'Approvals' list has required approvals where there is no control center selected.
-326	There is no 'Primary Requester' entered.
-327	There is no 'Reason/Priority'/'Location' entered.
-328	The 'Equipment Requested' contains string values that exceed the maximum length.
-329	The 'Requested Permits' contains string values that exceed the maximum length.
-330	The Notifications list has string values that exceed the maximum length.
-331	The 'Post to NWPP COS' option is checked but there is no NWPPCOS Significant Equipment entered in the 'Requested Equipment' list.
-332	At least one 'Equipment Requested' item that identifies a constraint other than 'RMR' has to be selected.
-333	There was no change made to the outage request. Please update one of the fields (other than 'Reason For Change', 'Additional Isolating Points' and 'Reason/Priority') before submitting the change request.
-334	One or more Requested Permits is missing the 'Permit Holder'
-335	You cannot submit this type of Permit Request more than N days in advance.
-336	You cannot carry forward a Permit Request more than N days at a time.
-337	You cannot carry forward a Permit Request more than N days in total from the approval date.
-338	Insufficient Safety Authorization
-339	The tag type for one or more devices does not match the permit type.
-340	You must select a 'Carry Forward' value for this Permit Request.
-341	You cannot Cancel this Permit Request because it has one or more Issued Tags.
-342	One or more System Elements appears more than once in the 'Requested Equipment' list.
-343	The Change/Cancellation Request cannot be submitted because the Outage Request Status is currently Cancelled/Denied/Completed/Recalled
-344	The Path Impacts both specify the same flow direction.
-345	Two directional Path Impacts are specified and at least one of the directional Path Impacts identifies the flow direction as 'both'.
-346	The outage request may not contain a combination of Telecom Network Equipment and other equipment types in the 'Equipment Requested' list.

-347	There is no 'Reason for Cancellation' entered.
-348	The 'Outage Start' and 'Outage Complete' dates/times must match for a Permanent Load Transfer request.
-349	Permit cannot be issued before the outage start.
-350	Permit is still issued, and the outage has been returned.
-351	Permit is completed after the outage has been returned or while the outage is still in progress.
-401	This is not the current revision.
-402	The outage request data has been modified but not saved.
-403	There is a change/cancellation request pending/proposed/submitted.
-408	The event cannot be deleted because it has been approved.
-409	The event cannot be deleted because it has follow-up required.
-410	The value for the Voltage Class property is required.
-411	The station owner business unit was not found in the equipments collection of ""Owned By"" relationships.
-412	The station operator business unit was not found in the equipments collection of ""Operated By"" relationships.
-413	Line equipment requires that at least two stations are specified.
-414	Station equipment cannot have "Station Equipment" as an equipment type.
-415	Short Term Outage Requests starting within fewer than 5 days of the priority date must have Constraints Types of "Do Not Reclose" or "Communication".
-501	Invalid outage cause or sub-cause code
-502	Invalid state transition
-503	GIS Import Failed. The import job is already running.
-504	The Business Unit was not found.
-505	The Person was not found.
-506	The Equipment Group was not found.
-508	You don't have the required privileges to view this Outage Request
-511	The Substation was not found
-512	You do not have privileges to view this event.
-514	The Reservoir was not found
-515	The Power System Equipment was not found
-516	The Role was not found
-517	Duplicate abbreviation found
-518	Object already exists in same relationship with same parent
-519	Remove would mean that the equipment would not have an "owned by", "operated by", or "maintained by" relationship.
-520	There are instances that use this relationship; it can't be deleted
-521	Another relationship with the same EPRI name exists
-522	The property cannot be added because the property doesn't exist
-523	Instances of this class or its subclasses exist
-524	There are other instances in child relationships with this instance
-525	The input organization was not found
-526	User not authorized to approve events for the control center that created one or more related events
-527	The input instance was not found
-528	State property can't be set -- instance can't be undeleted because its parent object(s) are currently deleted.
-529	Invalid relationship id.
-530	The same business unit appears twice in the "Owned By" relationship.
-531	You cannot exclude the event from the Outage Request because the Event is not associated with any other Planned Outage Request that is currently in progress.
-532	Another person exists with the same email address.

-533	The Property was not found.
-534	Parent outage request record not found.
-535	Invalid "plannedStartRangeStart" value.
-536	Invalid "plannedStartRangeEnd" value.
-537	Invalid "plannedCompleteRangeStart" value.
-538	Invalid "plannedCompleteRangeEnd" value.
-539	Invalid "actualStartRangeStart" value.
-540	Invalid "actualStartRangeEnd" value.
-541	Invalid "actualCompleteRangeStart" value.
-542	Invalid "actualCompleteRangeEnd" value.
-543	Invalid "lastUpdatedRangeStart" value.
-544	Invalid "lastUpdatedRangeEnd" value.
-545	Invalid "includeOverrunProfiles" value.
-546	Invalid "equipmentTypeConcat" value.
-547	Invalid "profileStatusConcat" value.
-548	Invalid "marketSensitiveConcat" value.
-549	Invalid "outageCategory" value.
-550	Invalid "outagePriorityConcat" value.
-551	Invalid "constraintConcat" value.
-552	Outage Profile database query failed.
-553	General Error: Authentication.GetINIFileValue
-554	Unable to find a value for the SQLServer address in the CROW.ini.
-555	Unable to validate user.
-556	Unable to find CN for user.
-557	The specified user object is not valid or the Security Group is missing.
-558	Problem determining user's security group membership.
-559	Problem executing Directory Services Search.
-560	Unable to establish account state.
-561	Error binding SID to Directory Entry.
-562	One of the Stations has been incorrectly specified
-563	You do not have permission to add a Change Request
-564	Invalid PortionOutType specified.
-565	You do not have permission to add the equipment to the outage request.
-566	A cause code is required.
-567	Another instance exists with the same name.
-568	A Sub-Cause code is required.
-569	The user does not have sufficient privileges to update events.
-570	Invalid outage study type.
-571	You cannot have multiple instances of the same outage study type.
-572	Invalid reason for generation must run.
-573	Outage study at this state cannot be updated.
-574	You do not have write access to this outage study.
-575	You cannot remove Transmission Equipment from an Outage Profile.
-576	A reason is required for Generation Must Run.
-577	The Economic flag cannot be changed.
-578	You do not have permission to run the Outage Profile Query.
-579	Opportunity Outage Requests cannot be scheduled to last more than 72 hours.
-580	The switchingStart property needs to have a valid date.
-581	The restorationComplete property needs to have a valid date.
-582	Invalid contingency limiting element type.
-583	There are no 'Outage Periods' entered.
-584	Invalid 'outageState' value for circuit breakers, can only be 'Open' or 'Close'.

-585	The Constraint Type of an Outage Profile must be the same as the Requested Equipment.
-586	Equipment in Outage Periods must exist in the Outage Request's Requested Equipment list
-587	The requested equipment cannot belong to a request of the given category.
-588	Invalid value given for webservice object property.
-589	The user does not have sufficient privileges to update the instance.
-593	The outage request planned start date is too far in the future.
-594	The outage request planned end date is too far in the future.
-595	The outage request planned start date is before the equipment in service date.
-596	The outage request planned end date is after the equipment retirement date.
-597	The outage request has overlapping outage periods.
-598	The Predecessor references the current outage request.
-599	The Predecessor does not exist.
-600	The Predecessor is already linked to another outage request.
-601	User credentials could not be mapped to a CROW user.
-603	The reposition cost on the study must be positive.
-604	The Control Area field is not set for a Generation Affected item.
-605	The Station field is not set for a Generation Affected item.
-606	The Reason field is not set for a Generation Affected item.
-607	The T-Note must be completed before approving an outage request.
-608	The Operating Guide must be completed before approving an outage request.
-609	The user does not have privileges over the selected station
-610	A period exists that does not contain any profiles.
-611	Another person record exists with the same employee ID.
-612	The person record wasn't found. It may have been deleted by another user.
-613	You can't add a person to this location
-614	Error updating the Label property
-615	State property can't be set to "Deleted", "Removed", or "Retired"
-616	The property can't be updated because it has been updated by another user or process since it was read.
-617	Invalid instance ID.
-618	The person's last name is blank.
-619	The person's first name is blank.
-620	No employer is selected for the person.
-621	The confirmation password does not match the password.
-622	The user's password is not valid.
-623	The user's email address is blank.
-624	Each safety authorization must have "Authorization For", "Authorization Level" and "Authorizing Manager" values.
-625	An error occurred while clearing existing roles.
-626	An error occurred while updating a role.
-627	An error occurred while clearing existing user permissions.
-628	An error occurred while updating user permissions.
-629	An error occurred while clearing existing asset permissions.
-630	An error occurred while updating asset permissions.
-631	An error occurred while clearing existing event type permissions.
-632	An error occurred while updating event type permissions.
-633	There is no 'Reason for Denial' entered.
-634	The outage complete time you have entered is in the future. The outage request cannot be completed.
-635	You have not selected any outage periods to cancel.

-636	The user does not have permission to created the outage request type
-637	The outage request category must be Transmission or Generation
-638	The equipment can not belong of the outage request category type
-639	The category of the request cannot be changed.
-640	The Market Asset must be "Owned By" a Lead Participant.
-641	The "Operated By" relationships do not match those of the associated Station.
-642	The "Owned By" Lead Participant relationship of the associated Unit does not match that of the Market Asset.
-643	The Station for an associated Unit is not the same as the Station associated with the parent Market Asset.
-644	The "Operated By" asset relationships of the associated Unit do not match those of the Market Asset.
-645	The "Reliability Area" asset relationships of the Market Asset do not match that of the associated Unit.
-646	The Reliability Area is not valid because there are no Units associated with this Market Asset.
-647	The Reliability Area must be set to "N/A" because there are no Units associated with this Market Asset.
-648	Invalid relationship supplied.
-649	A Generation affected item specifies an invalid constraint affected ID.
-650	The value for the Equipment Number property is required.
-651	The value for the Market Long Name property is required.
-652	The value for the Asset Long Name property is required.
-653	The value for the External Name property is required.
-654	The value for the "Seasonal Claimed Capability - Summer" property is required.
-655	The value for the "Seasonal Claimed Capability - Winter" property is required to be 0 or greater.
-656	The value for the Fuel Type property is required.
-657	The value for the In-Service Date property is required.
-658	The value for the Equipment Number property of the associated Unit must match that of the Market Asset.
-659	The value for the "Seasonal Claimed Capability Winter" property of the associated Unit must match that of the Market Asset.
-660	The value for the "Seasonal Claimed Capability Summer" property of the associated Unit must match that of the Market Asset.
-661	The value for the "State" property of the associated Unit must match that of the Market Asset.
-662	The value for the "Voltage Class" property of the associated Unit must match that of the Market Asset.
-663	You cannot upload files with the file type <i><file type extension></i> .
-664	The file size exceeds the maximum file size.
-665	Index out of bounds
-666	Equipment for which an outage has been implemented cannot be removed.
-667	Error updating linked outage request.
-668	Could not link outage request. Permission Denied
-669	Could not link outage request. Outage Request must be active.
-670	Error setting field. Permission Denied.
-671	Could not find a matching attachment.
-673	You may not view attachments.
-674	You may not modify attachments.
-674	The data parameter can not be null.
-674	The fileName parameter can not be null or empty.
-675	You may not have a <i><Planned Start/Planned End></i> in the past.

-676	Outage Request range cannot cross <summer/winter> boundary.
-677	Associated Units may not be added or removed while there are active Generation Outage Requests referencing this Market Asset. The following active Generation outage requests must be brought to an end state: <List of outage request IDs>
-678	The Market Asset cannot be retired/deleted while it is referenced by an active Generation Outage Request. The following are the Generation outage requests that reference this Market Asset: <List of outage request IDs>
-679	The Market Asset cannot be retired/deleted while there are active Units associated with it.
-680	A Unit having "WORLD" as its Owner cannot have an Equipment Number.
-681	A Unit having a Lead Participant as its Owner must have an Equipment Number.
-682	A Unit may only have a single Owned By relationship.
-683	A Unit must have an Owned By relationship with a Lead Participant or with the "WORLD" business unit.
-684	The user is not valid for the assigned role; the selected role only applies on ISONE users.
-685	The Unit cannot be retired/deleted while it is referenced by an active Generation Outage Request. The following are the Generation outage requests that reference this Unit: <concatenated list of outage request IDs>
-686	Cannot retire the selected Lead Participant because it contains active elements
-687	The SCC value to update is different for the Market Asset and Associated Unit on a 1 to 1 relationship
-688	One of the Associated units contains the Black Start property which is not allowed
-689	An outage period has an invalid reason code.
-690	An outage period has a reason code of other, but no reason comments.
-691	Error updating PowerSystemEquipment
-692	Error setting property <property>. Property does not exist.
-693	The length of the reposition cost is incorrect
-694	Cannot update status. Transfer is not In Progress.
-695	Invalid transfer status id.
-696	Invalid market type id.
-697	Outage Requests exist that have no status set.
-698	Outage Request <or> is not completed or cancelled and must be in order to proceed.
-699	You cannot set outage request start date to a different day
-700	All MW amounts are required.
-701	All MW amounts must be null.
-702	All MW amounts must be to either be null or have values.
-703	The constraint type must be the same for all equipment.
-704	The MW value cannot be 0.
-705	You may not change the market asset.
-706	The outage priority can not be changed for generation requests.
-707	"Black Start Capable" must be specified for this request.
-708	The MW must be the same for the daily profiles as the outage equipment.
-709	"Postponable" must be specified for this request.
-710	Start and End times must be within the same calendar day for Generation Requests with a priority of <Priority value>
-711	Start and End times must be within the same calendar day for Generation Requests with a priority of 2nd Contingency.
-712	Outage request must be completed within the same data as it was implemented.
-713	Actual start may only be changed via the flagging module for this outage request.
-714	Actual complete may only be changed via the flagging module for this outage request.
-715	The market type can only be DA or RT.
-716	"For reliability areas" must be specified for this request.

-717	Only one "For reliability area" is allowed.
-718	"Request To" must be specified for this request.
-719	You may not submit generation requests because it is too late.
-720	You cannot submit this request through the Web Services API, because the start time is outside of the allowed time window for the given priority and facility class.
-721	Invalid code provided.
-722	Another business unit exists with the same name. The business unit name was not updated.
-723	You may not add a change request/cancellation request to a change request/cancellation request
-724	Cannot create Generation Outage Request. No units were supplied.
-725	Cannot create Generation Outage Request. Units do not belong to a market asset.
-726	You have selected units that are associated with more than one Market Asset and the Generation Outage Request cannot be created automatically from this location.
-727	You do not have required privileges to create an Outage Request with the associated market asset.
-728	You cannot submit an outage request that conflicts with another outage request.
-729	clsOutageStudy.AddMarketAsset must specify either ConstraintType.TransmissionConstrainedDown or ConstraintType.TransmissionConstrainedUp for limitation.
-730	You can only add units to a short term study.
-731	You can only add units to a transmission requests short term study.
-732	clsOutageStudy.RemoveGenerationUnits must specify either ConstraintType.TransmissionConstrainedDown or ConstraintType.TransmissionConstrainedUp for limitation.
-733	A data field other than Reason/Priority or Additional Isolating Points has to be updated, otherwise the Outage Request will revert back to the Cancelled or Denied state when it is closed.
-734	Cannot save an outage request that has a status of NotSet
-735	You cannot approve a cancelation request if the outage request has an implemented period. Please Complete or Recall the period before approving the cancellation request.
-736	updating generation outage request (<outage request reference ID>)
-737	assigning unit (<Unit label>) to market asset:
-738	updating unit (<Unit label>):
-739	Unable to add new station: Either the Name or the Abbreviation is blank
-743	Unknown file format specified: unable to continue import.
-744	No valid filename was passed.
-745	The submitted user must have the same employer as the login user.
-746	Input outage period not found.
-747	Missing systemElement for input RequestedEquipment object
-748	<Input value> is not valid value for <property name>
-749	Market Asset Required
-750	You may not remove equipment <equipment label>.
-751	Cannot add equipment <equipment label> that is not part of the market asset <Market Asset label>
-752	You do not have permission to update the outage request.
-759	Another equipment record exists with the same equipment number.
-760	A Lead Participant can only be affiliated with ISO New England.
-761	The selected outage priority does not match the available options.
-762	No outage priority has been selected.
-764	The market asset is in the Retired state.
-765	One or more requested equipment items is in the Retired state.

-769	You cannot link an outage request to itself.
-771	You do not have the necessary approval privileges to add <label>.
-772	Missing Required Parameter: marketDay
-773	Missing Required Parameter: marketFlagType
-774	Error setting webservises property
-775	Save Failed. ExportOverride. Persist requires a valid reference to its associated ExportData.
-776	Save Failed. ExportDataResult.Persist requires a valid reference to its associated ExportData
-777	DataManager.PersistExportOverride requires a valid connection string.
-778	DataManager.PersistExportOverride requires a non-null populated ExportOverride Object.
-779	DataManager.PersistExportOverride was unable to open a connection to the specified data source.
-780	IDataManager.PersistExportData requires a non-null, populated ExportData object.
-781	IDataManager.PersistExportResult requires a non-null, populated ExportResult object.
-782	IRemoteInterfaceRule.ToString: Unable to create XML representation of RemoteInterfaceRule.
-783	IDataManager.PersistExportData: The following error occurred while attempting to save the data:
-784	RemoteInterfaceDefinition.LoadExportData: No valid DataManger object has been specified.
-785	RemoteInterfaceDefinition.LoadExportData: No exportable data was found for this interface.
-786	RemoteInterfaceDefinition.LoadExportData: No valid State Transition Map was found for this remote interface.
-787	RemoteInterfaceDefinition.LoadExportData: No State Transitions could be mapped for this data.
-788	RemoteInterfaceDefinition.LoadExportData:
-789	ExportData.MapToOutageSchedule:
-790	RemoteAPIExport.DoAPIAction: The converted OutageSchedule object is not populated.
-791	RemoteAPIExport.DoAPIAction: Failed due to:
-792	RemoteAPIBase.MapToOutageSchedule: No Requested Equipment was mapped for this Outage Request.
-793	RemoteAPIBase.MapToOutageSchedule: No Isolating Points were successfully mapped for this Outage Request.
-794	RemoteAPIBase.ProcessExportData: State Transition has previously been exported - exiting.
-795	RemoteAPI.ProcessExportData: The supplied IExportableData object is not correctly populated.
-796	RemoteAPIBase.ProcessExportData: Failed due to:
-797	RemoteAPIBase.MapToOutageSchedule: Unable to Initialize Export Data on the Remote System.
-798	Alert NPCC cannot be set to True for a Market Asset
-799	RemoteAPIBase.MapToOutageSchedule: Unable to Initialize Export Data on the Remote System; the following error message(s) apply:
-800	RemoteAPIBase.MapToOutageSchedule: The Remote Systems Outage Status is different from the last reported export status of this loaded data.
-801	RemoteAPIBase.MapToOutageSchedule: RemoteAPIBase.MapToOutageSchedule: Unable to initialize a new Outage Schedule on the Remote System; the following error message(s) apply:
-802	RemoteInterfaceDefinition.Poll: No Exportable Data was found.

-803	You cannot submit a change/cancellation request on a derate outage request.
-804	The outage request is not in an end state and all of its periods will be in end-states.
-805	A non-ISO user may no change the type of an outage request from derate to another type.
-806	You may not update outage periods in an end state.
-807	You may not update the start time for an implemented period.
-808	RemoteInterfaceDefinition.Load: Unable to load and populate the RemoteInterfaceDefinition object.
-809	RemoteInterfaceDefinition.GetStateTransitionByMap: Failed due to:
-810	RemoteInterfaceDefinition.LoadExportData: Unable to generate default ExportResult for specified ExportData.
-811	SharedLib.ExportEquipmentList: No Remote Equipment Data was found in the list. Unable to generate export file.
-812	SharedLib.ExportEquipmentList: Unable to determine the appropriate export format from the selected file name.
-813	SharedLib.ExportEquipmentListXML: Unspecified error: {0}: Export Failed.
-814	SharedLib.ExportEquipmentListXML: Unable to generate the xml representation of {0}; export failed.
-815	SharedLib.ExportEquipmentListsCSV: Unspecified error: {0}: Export Failed.
-816	SharedLib.ExportEquipmentListsCSV: No Equipment Data was found to export.
-817	SharedLib.ExportEquipmentListsCSV: No valid file name and path was supplied. Export Failed.
-818	Connection.GetInterfaceStatus: Unable to load the Connection: the specified Connections Status value is not correct: please select an appropriate value from the list.
-819	RemoteAPI.Ping: There was an issue validating the server connection: attempted to validate the supplied user.
-820	RemoteAPI.Ping: There was an issue validating the server connection: {0}.
-821	The derate to value for a (previously) implemented outage request may not be changed.
-822	A Permit Type must be speicified prior to updating.
-823	You may not carry the permit request forward beyond the planned end.
-824	The length of '<input value>' given for <property name> is greater than <maximum property length>
-825	All requested equipment items require that an Equipment Request Type be set.
-826	The actual start date may not be in the future.
-827	Another organization with the same name exists.
-828	Recall Time is required and has not been specified.
-829	Outage Priority is required and has not been specified.
-830	All Derated To profiles are required to have a value.
-831	Compliance Export was not found.
-832	Compliance Export was modified since it was last loaded.
-833	Resource list cannot contain duplicate resources.
-834	An abstract class cannot be saved.
-835	Invalid event/log entry type.
-836	All profiles must refer to equipment in the requested equipment list.
-837	Error occurred during attempted update.
-839	The equipment's external name is blank.
-840	The actual start date must be within {0} minutes of the next unimplemented period.
-841	The actual start date must be within {0} minutes of the next unimplemented period.
-842	Cannot view all selected classes. Permission Denied.
-843	Error accessing api method. Permission Denied.
-847	You must provide a reason for the cancellation when the selected code is 'Other'.

-848	All available "XFR to MKT" values on Requested Equipment must be either ticked or unticked. The not set value (indicated by the filled in square) is not valid when moving into the Study status.
-849	A "Purpose Description" is required and has not been specified.
-850	"Equipment Description" is required and has not been specified.
-851	Constraint amount must be positive and at or below its maximum rating.
-852	A <study index>.reviewCompletedWhen date is required if the study indicates the reviewCompleted is true.
-853	A <study index>.reviewCompletedBy Person is required if the study indicates the reviewCompleted is true.
-854	ExecuteQuery cannot find Query with name {}
-855	Safety Trending Information Not Filled Out.
-856	remoteSystemNumber is only applicable at the profile level.
-857	You are not permitted to remove an outage period's profile.
-858	The permit has overlapping permit periods.
-859	Cannot export a Permit Period that has been issued, returned or completed.
-860	Another instance has a duplicate property value.
-861	The Period specified must correspond to the current implemented period.
-862	Return Type of Outage Periods specified, but no Outage Periods supplied.
-863	This station cannot be marked deleted because it contains station equipment that has not been marked deleted.
-864	You are not permitted to add the outage period starting at "{0}"
-865	You are not permitted to remove the outage period starting at "{0}"
-866	Generation Outage Requests may not be entered more than "{0}" days in advance.
-867	Duplicate label found
-868	The outage request may not be saved in its current status because a significant change was made.