SPP CROW API
User’s Guide
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About This Document
This document describes the SPP CROW API web methods used to retrieve and submit data to the CROW system. The information in this document provides high level instructions to Submit, Change, Cancel, Implement, and Complete an outage. Query requests are also covered. For additional information about required fields and additional detail about available web methods, please refer to the SPP CROW Data Exchange Guide and SPP CROW Reference Guide. SPP Outage Coordination Methodology is available on www.spp.org>Market and Operations>Outage Coordination.

Scope and Prerequisite Knowledge
This document is intended to be used by SPP Members and participating vendors as an aid in developing interfaces to access the SPP CROW API (Outage Management System) data packages.

Users of this Guide should be familiar with SOAP, Extensible Markup Language (XML), Web Services and HTTP/HTTPS protocols.

Change Summary

<table>
<thead>
<tr>
<th>Rev</th>
<th>Author</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>L. Poteet</td>
<td>09/21/12</td>
<td>Initial draft</td>
</tr>
</tbody>
</table>
Web Method Details

Submit an Outage that is Not a “Forced” Outage

The GetInitialize web method is used first, this method returns an OutageSchedule object populated with default values. 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.

The Response: This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes.

If additional information is needed about the equipment the GetPowerSystemResource web method is used. This method, bound by Business Unit permissions, returns the PowerSystemResource object which matches the input parameters.

The Response: Returns: PowerSystemResource
This method returns the validated PowerSystemResource object. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the “Validate” method failed.

PostSubmitRequest is used to submit the outage; using XML from the GetInitialize response and updating the required and optional fields, if needed, in the Outage Schedule object. Refer to the Data Exchange Guide and SPP CROW API Reference Guide for all Required Fields and Data that is needed in order to submit successfully.

The Response: Returns: OutageSchedule
This method returns the saved OutageSchedule object. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostSubmitRequest" method failed.

If successful, an Outage Request Number is assigned

Submit a “Forced” Outage

A Forced Outage is Equipment that is out of service at the time of the request. A Forced Outage status when submitted is always implemented. In this case you will need to use the PostImplementRequest web method. This method allows users to move an outage request to the implemented state.

It is important to note that this method is used to submit FORCED Outages only.
The Response: Returns: OutageSchedule
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostImplementRequest" method failed.

If successful, an outage number is assigned to the request.

Query for Outage Data
There are two web methods used to query data. The GetOutageProfileQuery and the GetLoadItem web method. The GetOutageProfileQuery 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 are retrieved.

The Response: Returns: OutageProfileQueryResult
Returns outage profile information for outages

The GetLoadItem provides specific detail by outage number. This method returns the OutageSchedule object which matches the input parameters.

The revisionNumber and changeReqNumber parameters are optional.

The Response: 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. If the errorCode for the first element in the array is not 0, the "GetLoadItem" method failed.

Submit a Change Request for a Submitted Outage
To submit a change request multiple web methods are used. The first web method used is The PostAddChangeRequest. 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. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostAddChangeRequest" method failed.

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.**

Using the XML from the new Change Request that has the largest changeReqNumber in the changeRequests collection, submit the XML in a PostSubmitRequest with the changeRequest information used between <theOutageSchedule/></theOutageSchedule>.
Response: This method returns the saved OutageSchedule object. Check the errorCode array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostSubmitRequest" method failed.

If successful, an Outage Request Number is assigned

*Only one change request can be submitted at any given time. If additional changes are needed to the change request they can be made using the PostSaveChanges web method. Once the Change Request is Approved additional change requests can be made using the process listed above.

Submit a Change Request for an Approved Outage
To submit a change request multiple web methods are used. The first web method used is The PostAddChangeRequest. 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. This method returns the OutageSchedule object. Check the errorCode array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostAddChangeRequest" method failed.

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.

Using the XML from the new Change Request that has the largest changeReqNumber in the changeRequests collection, submit this in a PostSubmitRequest with the changeRequest information used between <theOutageSchedule></theOutageSchedule>.

Response: This method returns the saved OutageSchedule object. Check the errorCode array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostSubmitRequest" method failed.

If successful, an Outage Request Number is assigned

*Only one change request can be submitted at any given time. If additional changes are needed to the change request they can be made using the PostSaveChanges web method. Once the Change Request is Approved additional change requests can be made using the process listed above.

Submit a Change Request on an Implemented Outage
To Submit a change request multiple web methods are used. The first web method used is The PostAddChangeRequest. 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. This method returns the OutageSchedule object. Check the errorCode array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostAddChangeRequest" method failed.

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.

Using the XML from the new Change Request that has the largest changeReqNumber in the changeRequests collection, submit this in a PostSubmitRequest with the changeRequest information used between <theOutageSchedule></theOutageSchedule>. 
Response: This method returns the saved OutageSchedule object. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostSubmitRequest" method failed.

If successful, an Outage Request Number is assigned

*Only one change request can be submitted at any given time. If additional changes are needed to the change request they can be made using the PostSaveChanges web method. Once the Change Request is Approved additional change requests can be made using the process listed above.

**Only a few fields can be changed on an outage that is in Implemented Status, the fields are Planned End Date, Outage Cause, and Reason Priority.

Cancel a Submitted or Approved Outage

When an outage needs to be cancelled, the PostSubmitCancellationRequest web method is used. This web method works like a change request. Upon submission of a cancellation request, SPP reviews the request and determines whether or not the request is approved or denied. If the request is approved the status of the outage is updated to cancelled. If the request is denied, the change request status is updated to denied, but the overall status of the outage remains in its current state.

To submit a Cancellation Request use the PostAddCancellationRequest web method, 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.

Response: Returns: OutageSchedule
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "AddCancellationRequest" method failed.

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.

This request is then submitted via the Post Submit Request Web Method with a valid code in the <reasonForChange>

Submit Cancellation Request via the PostSubmitRequest Web Method. Once the change request with the largest changeReqNumber is identified, use the XML that is between <OutageSchedule> </OutageSchedule> , starting with <outageNumber> to <approvals>. <approvals> is not needed to submit the cancellation request. A Cancellation Code is required for the cancellation request <reasonForChange>WEA</reasonForChange> code. The following is a list of valid cancellation codes.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT</td>
<td>OT</td>
</tr>
<tr>
<td>WEA</td>
<td>Weather</td>
</tr>
<tr>
<td>CRW</td>
<td>Crew Availability</td>
</tr>
<tr>
<td>SUP</td>
<td>Supplies/Parts are not available</td>
</tr>
<tr>
<td>REL</td>
<td>Transmission System Reliability Risk</td>
</tr>
<tr>
<td>CON</td>
<td>Work Priority Conflict due to unforeseen events</td>
</tr>
<tr>
<td>ADM</td>
<td>System Administrator Need (Database/Model Maintenance)</td>
</tr>
<tr>
<td>LOC</td>
<td>Local Load Risk</td>
</tr>
</tbody>
</table>
Response: Returns: OutageSchedule
This method returns the saved OutageSchedule object. Check the errorCodes array in the returned object for error codes. If theerrorCode for the first element in the array is not 0, the "PostSubmitRequest" method failed. If successful a change request is added to the outage. SPP reviews the cancellation request, and either approves or denies the request.

Implement a Submitted or Approved Outage

The PostImplementRequestNumber web method is used to implement an outage that is in Submitted or Approved status. Outages can be implemented while in approved status as long as they are not a Major Transmission Element. Major Transmission Element are identified by the following tag <mte>true</mte>.

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.
This method should be used for all outages that are not Forced

Response: Returns: OutageSchedule
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostImplementRequestNumber " method failed. If successful, the outage status is updated to Implemented.

Complete an Implemented Outage

The PostCompleteRequestNumber web method is used to complete an outage. 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.

Response: Returns: OutageSchedule
This method returns the OutageSchedule object. Check the errorCodes array in the returned object for error codes. If the errorCode for the first element in the array is not 0, the "PostCompleteRequestNumber" method failed. If successful, the outage status is updated to completed.