Web Service Users,

This document contains a collection of PJM suggested do's and don’ts for use with eLRS Web Services. These tips are intended to assist you with using and maintaining your web service application or process and to help avoid some of the more common eLRS web service use issues.

Retrieving Data from Web Services

There are two approaches to consider when using web services to retrieve data. In simple terms data collection can be defined as either "coarse" or "fine". I'll define each of these and present a use case for both.

Coarse - Coarse pertains to pulling all of the data required for processing all necessary workflow in a single step.

Fine - Fine refers to pulling just enough data to complete a single step; e.g. retrieve detail for a single event.

In general it is more efficient to pull all of the data you will need to complete your processing in a single call. This is the "coarse" approach. It may take longer for the initial pull, but is less "chatty" and will result in fewer calls and better performance on the server.

Making individual or "fine" calls for data retrieval will return to you just enough information to take the next step. This approach will typically result in multiple calls to the web server and less efficiency for the application.

There are times when fine grain calls are desirable. If you are populating a drop down list of Event IDs on your application, your best approach may be to pull just the list of IDs and then refresh that list at some interval.

Registering Users for Additional Interests

If you haven't already created interest(s) for your users, please open the company detail information view under Tool->Orgs and User Management, System or Other Users. Set User Interest to something other than "None" for each user.
When polling for PJM events, create a separate account for the polling agent. User accounts are subject to login failures and password resets creating opportunity for communication failures.

You’re Browser

When interfacing with the eLRS web application, remember to use Internet Explorer. Using IE version 9 or higher will provide the best experience possible.

Acknowledging Events

When submitting web service requests to acknowledge events, include all event ID’s in a single web service request. Don’t request them one at a time.

a. For example DO this in your request:

```xml
<Event>
  <id>384416</id>
  <summaryInfo>
    <ackAmount>1200</ackAmount>
  </summaryInfo>
</Event>
<Event>
  <id>384417</id>
  <summaryInfo>
    <ackAmount>1000</ackAmount>
  </summaryInfo>
</Event>
<Event>
  <id>384418</id>
  <summaryInfo>
    <ackAmount>900</ackAmount>
  </summaryInfo>
</Event>
```

b. DO NOT do this:

```xml
<Event>
  <id>384416</id>
  <summaryInfo>
    <ackAmount>1200</ackAmount>
  </summaryInfo>
</Event>
<Event>
  <id>384417</id>
  <summaryInfo>
    <ackAmount>1000</ackAmount>
  </summaryInfo>
</Event>
<Event>
  <id>384418</id>
  <summaryInfo>
    <ackAmount>900</ackAmount>
  </summaryInfo>
</Event>
```

When submitting the web service request to acknowledge your events, include a numeric value for “ackAmount” A zero is a valid entry.

For example `<summaryInfo><ackAmount>0</ackAmount></summaryInfo>`

a. Omitting this will result in an error

When receiving your response to unacknowledged events, don’t send another request until the entire response has been received

a. A complete example for requesting and acknowledging events is available in the eLRS Web Services Guide found here: [http://www.pjm.com/~/media/etools/elrs/elrs-web-services-guide-sandbox.ashx](http://www.pjm.com/~/media/etools/elrs/elrs-web-services-guide-sandbox.ashx)
Date Formats

A number of the eLRS web services allow a range of dates to be used for retrieving request results. If you are seeing a lot of calls returned with a 4005 error (no data found) where a date or range of dates are used, try changing the format of the date to this. When pulling data by date or other limiting factors, the principle of fine vs. coarse applies here. If you're not getting the results you expect, broaden your search and then begin to narrow the focus once you begin seeing results.

\(<p:\texttt{StartTime}>2014-06-30T09:03:00.000-04:00<p:\texttt{EndTime}>2014-07-05T09:03:00.000-04:00</p:\texttt{EndTime}>\)

Response Errors

One of the more common response errors seen with Web Services is the 4001 or fatal response. This message is often related to login user validation errors. The response will looks similar to..

\(<p><b>message</b> <u>100 - System Error occurred</u></p><p><b>description</b> <u>This request requires HTTP authentication (100 - System Error occurred)</u></p>..

This typically means the user or password you are using to query the web service does not match that which is registered with PJM. A good way to test this is to login to the eLRS application using the problem user id/password. If it doesn't pass validation on the website, it won't work with web services. Have your CAM admin either unlock your account or reset the password completely and try again.

"Do" - When using Web Services create an account for which the intended purpose is to drive the web services engine or software and perform the non-interactive work on the unattended computer.

"Do Not" use this account interactively (except for testing) through the UI within the web browser.

Login Validation

It is a good idea to verify web service accounts on a regular basis. By simply logging into the eLRS web application with the related credentials, you can verify that the user id and the password are still valid. We suggest adding a task or reminder to your favorite office tool to verify services accounts every 60 days.

Below are a few guidelines for completing validation of web services.

1. Checking the user id/password used by the polling agent or web services
   a. A good way to do this is to log into the eLRS system with that user id/password and ensure the account is not locked and the password has not been changed.
   b. Do this from the computer where the agent is running to ensure it has not lost internet access. If you can login to eLRS from that computer, so can the agent.
2. If you have connections to both our production and training systems, please complete the above for both.
Error Checking the Polling Agent

Web service polling agent logs should be reviewed regularly for errors. This is task which when completed on a scheduled basis will enable early detection of errors or problems and allow the end user to correct before they impede production.

1. If you are using the PJM provided polling agent, the logs are found in the executing directory of the agent under the ..\logs directory.
2. The logs will contain lots of information. You’ll want to scan for items that contain the word “error” or “warn”. Error indicates a severe problem that should be dealt with directly (unless previously corrected).
3. All logs have a timestamp. Be aware of the correlation of the times to other events in the computer’s environment. Relationships to problems are often drawn from events surrounding patches, reboots or other interruptions to service.
4. If you come across a message which is unclear, please contact PJM and attach the offending log file for review.

Our do’s and don'ts list will continue to grow as we expand to offer tips on subjects we receive questions about most frequently.

If you have a particular "gotcha" you've experienced in your environment, we'd like to hear about it. Thanks for taking the time to review our suggestions.

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