z/OS V2.5 IBM Education Assistant

Solution Name: Jobs API Enhancement

Solution Element(s): z/OSMF jobs REST interface

Agenda

- Trademarks

- Objectives

- Overview

- Usage & Invocation

- Interactions & Dependencies

- Upgrade & Coexistence Considerations

- Installation & Configuration

- Summary

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Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.
- Additional Trademarks:
  - None.

Objectives

- Explain the purpose of working on z/OS jobs REST interface

Overview

- ## Who (Audience)
  - z/OS jobs REST interface users

- ## What (Solution)
  - z/OS jobs REST interface support new functions to make user more flexible and convenient to use.

- ## Wow (Benefit / Value, Need Addressed)
  - As a Jobs API user, I can specify proper codepage when invoking z/OS REST Jobs services so that the special characters are well handled.
  - As a Jobs API user, I can access z/OS jobs resources across multiple-sysplex from a single z/OSMF server.
  - As a Jobs API user, I can know where the job runs and the job execution time.
  - As a Jobs API user, I can only retrieve the part of the spool file that they are interested.
  - As a Jobs API user, I can get the currently active jobs

Usage & Invocation – Customized file encoding

- "Submit a job" API
  - ➢ A new custom header "X-IBM-Intrdr-File-Encoding" is added. It specifies the EBCDIC code page used as the target encoding written to the internal reader.
    - X-IBM-Intrdr-File-Encoding
      This optional header specifies that the EBCDIC code page is to be used for encoding the data that is written to the internal reader. If not specified, the default is IBM-1047. This header is ignored when optional header X-IBM-Intrdr-Mode is set to RECORD or BINARY.

- "Retrieve the contents of a job spool file" API
  - ➢ When mode=text, the following query parameter can be used to further qualify the request. The parameter is ignored if mode is set to record or binary.
    - fileEncoding=code-page
      Specifies an alternative code page (EBCDIC) for the spool file on z/OS; the encoded text is converted to the client's request encoding. If not specified, the default code page is IBM-1047.

Usage & Invocation – Remote system support

- Add a new header "X-IBM-Target-System " for all the REST services to support remote function. With this header, we support to submit a job and obtain job related information in remote sysplex where z/OSMF is up and running.
  - X-IBM-Target-System = <string>
    This header indicates the target system for this request, where the target system name   (nick name) is defined in the local system Systems table. The target host must support single-sign-on using an LTPA token. If target system is the local system, this header is ignored and has no effect.

Usage & Invocation – Getting job execution data

- "Obtain the status of a job" and "List the jobs for an owner, prefix, or job ID" API
  - A new parameter "exec-data" is added. This optional parameter specifies whether execution data about the job (if available) is returned. This parameter is a string value and is case-insensitive. Valid values are : Y (or y) or N (or n). By default, execution data for up to 100 jobs is returned. If specified, this value overrides the max-jobs value, which defaults to 1000. If you set max-jobs to less than 100, the max-jobs value is used. Otherwise, the default of 100 is used.
  - The following execution data is returned for each job:
    - exec-system
      System name of the z/OS system on which the job ran (up to 8 characters)
    - exec-member
      Member name of the z/OS system on which the job ran (up to 8 characters)
    - exec-submitted
      Time when the job was submitted to run (the input end time)
    - exec-started
      Time when job execution started
    - exec-ended
      Time when job execution ended.
  - Timestamps are presented in the usual JSON UTC format: "yyyy-mm-ddThh:mm:ss.mmmZ"

Usage & Invocation – Getting job execution data

- Example
  - ➢ Example request

```
GET /zosmf/restjobs/jobs/BLSJPRMI/STC00052?exec-data=Y HTTP/1.1
Host: zosmf1.yourco.com
```

  - ➢ Example response

```
HTTP/1.1 200 OK
Date: Sat, 03 Nov 2018 09:06:28 +0000GMT
Content-Type: application/json
Connection: close

{
  "jobid":"STC00052",
  "jobname":"BLSJPRMI",
  "subsystem":"JES2",
  "owner":"IBMUSER",
  "status":"OUTPUT",
  "type":"STC",
  "class":"STC",
  "retcode":"CC 0000",
  "url":"https:\/\/host:port\/zosmf\/restjobs\/jobs\/S0000052SY1.....CE35BDE8.......%3A",
  "files-url":"https:\/\/host:port\/zosmf\/restjobs\/jobs\/S0000052SY1.....CE35BDE8.......%3A\/files",
  "job-correlator":"S0000052SY1.....CE35BDE8.......:",
  "phase":20,
  "phase-name":"Job is on the hard copy queue",
  "exec-system":"SY1",
  "exec-member":"SY1",
  "exec-submitted":"2018-11-03T09:05:15.000Z",
  "exec-started":"2018-11-03T09:05:18.010Z",
  "exec-ended":"2018-11-03T09:05:25.332Z"
}
```

Usage & Invocation – Searching spool file

- "Retrieve the contents of a job spool file" API
  - ➤ When mode=text, the following query parameters can be used to further qualify the request. These parameters are ignored if mode is set to record or binary.
    - search
    - research
    - insensitive
    - maxreturnsize
  - ➤ These query parameters are described as follows.
    - search=<string>
      The spool file is searched for the first record that contains the string, without respect to case (by default). Optionally, insensitive=false can be specified for case-sensitive matching. By default, up to 100 matching records are returned. To specify a different limit, include the maxreturnsize query parameter with your search.

      This parameter cannot be used with the research parameter.

Usage & Invocation – Searching spool file

- search=<string>
  The spool file is searched for the first record that contains the string, without respect to case (by default). Optionally, insensitive=false can be specified for case-sensitive matching. By default, up to 100 matching records are returned. To specify a different limit, include the maxreturnsize query parameter with your search.

  This parameter cannot be used with the research parameter.

- research=<regular-expression>
  The spool file is searched for the first record that matches the given extended regular expression. For example, research=A|B finds A or B. By default, the search is case-insensitive. To search for case- sensitive matches, specify the research parameter with the query parameter insensitive=false.

  By default, up to 100 matching records are returned. To specify a different limit, include the maxreturnsize query parameter with your search.

  This parameter cannot be used with the search parameter.

Usage & Invocation – Searching spool file

- insensitive=true|false
  When 'true', searches (search and research) are case-insensitive. For case-sensitive searches, specify 'false'. The default is 'true'.
- maxreturnsize=<integer>
  This parameter is used with the search and research parameters to specify the maximum number of records to return. If not specified, the default is 100, meaning that up to 100 matching records can be returned by default.

➢ For the search and research queries, records are returned starting with the first matching record.
➢ The X-IBM-Record-Range request header can be used to specify the range of records to be searched, but it does not restrict the number of records returned (see maxreturnsize).
➢ If no X-IBM-Record-Range request header is present, the search begins with the first record. In all cases, an X-IBM-Record-Range=p,q response header is returned, where p is the first matching record and q is the number of records returned.
➢ If no matching records are found, the response header X-IBM-Record-Range=0,0 is returned.

Usage & Invocation – Getting active jobs

- "List the jobs for an owner, prefix, or job ID" API
    - ➢ An optional parameter is added to limit the returned data to only jobs that are currently active.
    - ➢ The following valued are valid:
        - • status=ACTIVE or status=active
    - ➢ If you omit this parameter, the response will include data for both active and inactive jobs.
      If you set this parameter to an incorrect value, the parameter is ignored and the default is used.

Interactions & Dependencies

- Software Dependencies
  - Depends on APAR PH22303

- Hardware Dependencies
  - None.

- Exploiters
  - Interested customers

Upgrade & Coexistence Considerations

- To exploit this solution, all systems in the Sysplex must be at the new z/OS level:
  - No.

- List any toleration/coexistence APARs/PTFs.
  - None.

- List anything that doesn't work the same anymore.
  - None.

Installation & Configuration

- None.

Summary

- The following z/OS V2R5 z/OS jobs REST interface has been explained:
  - Jobs API support new functions

Appendix

- Book updates
  - z/OSMF Programming Guide