Modernize Your Data Sources: An IBM zPCR Story

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IBM Worldwide Systems Center

Agenda

- Review of z/OS Data Gatherer REST Services
- The zPCR Use Case
- Flow from z/OS Data Gatherer to zPCR
- Conclusions & Review

After this session, I will…

Understand how z/OS Data Gatherer REST Services could be used to modernize my IBM Z capacity sizing with IBM zPCR.

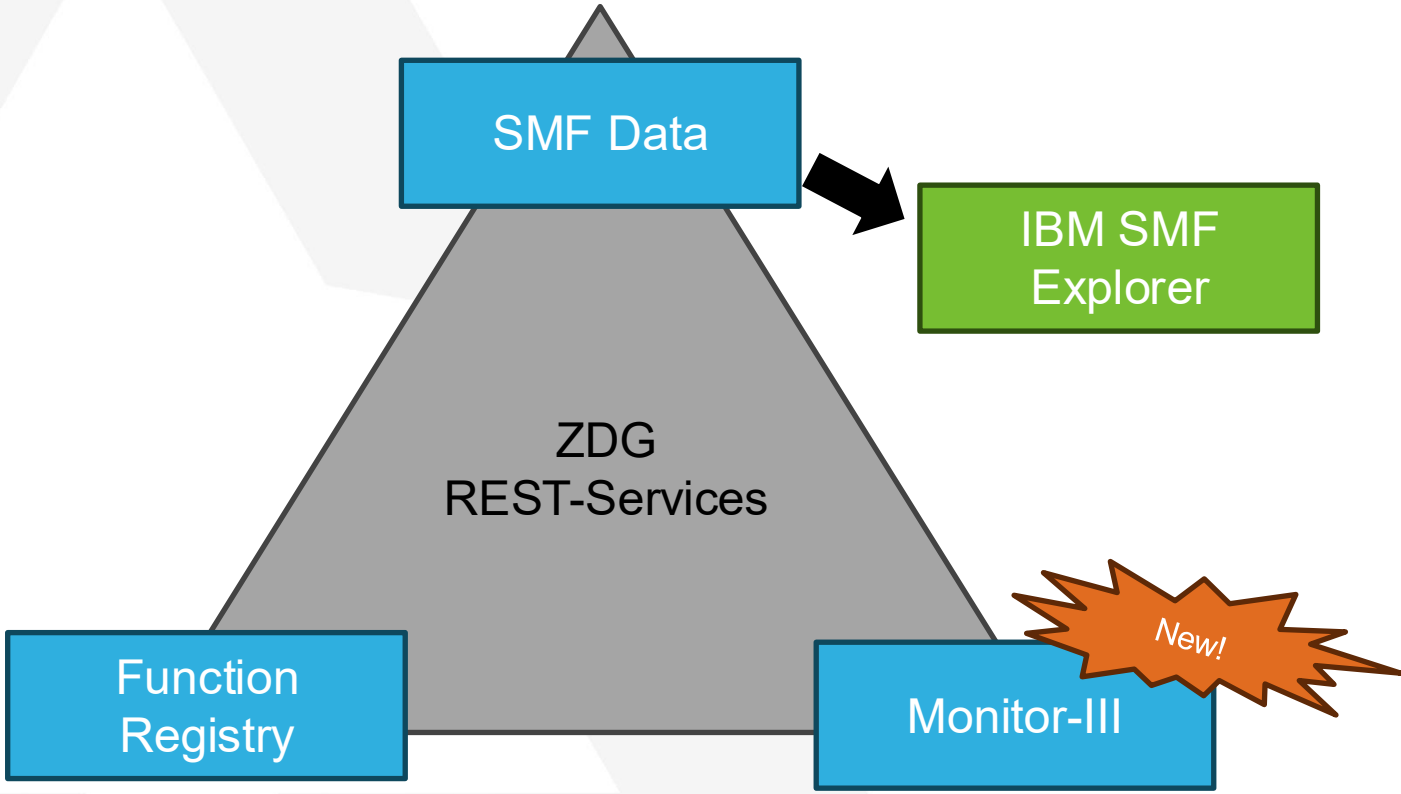
After this session, I will…

Understand how z/OS Data Gatherer REST Services **could** be used to modernize my IBM Z capacity sizing with IBM zPCR.

z/OS DATA GATHERER REST SERVICES

z/OS Data Gatherer REST Services

- SMF REST Services
  - Types 7x, 99.x, 113, 30
  - Backend to IBM SMF Explorer
- IBM Function Registry
  - Registered Functions on the Host
- Monitor-III REST Services
  - Short-term reporting data
- Latest Update OA68419



z/OS Data Gatherer REST Services

- SMF REST Services
  - Types 7x, 99.x, 113, 30
  - Backend to IBM SMF Explorer
- IBM Function Registry
  - Registered Functions on the Host
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A word about SMF Explorer

```
import smfexplorer
from smfexplorer.fields import SMF99S2
from smfexplorer import ASC, DESC

import plotly.express as px
```

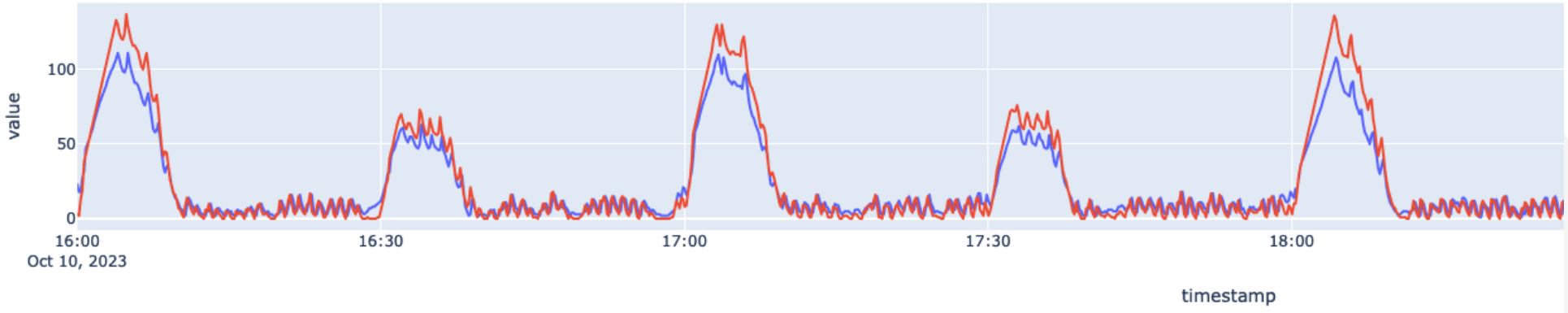
```
ctx = smfexplorer.new_context('RMF.TEST.SMF992.AIDATA.SHARE')
```

```
fields = [SMF99S2.timestamp, SMF99S2.srv_class_name,\
          SMF99S2.ai_prediction, SMF99S2.qdata_server_active]
data = ctx.request(fields).where(SMF99S2.srv_class_name =='AIBATCH1')\
        .sort(DESC(SMF99S2.timestamp)).run()
```

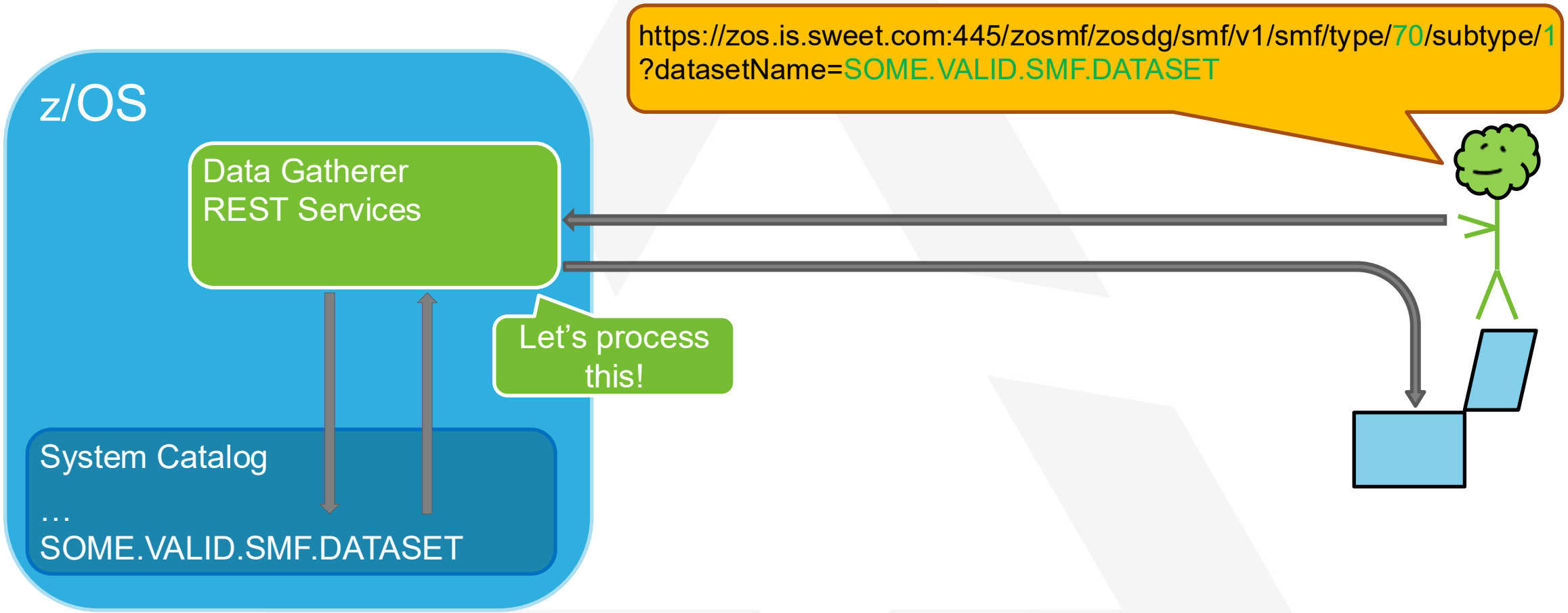
Try it out yourself for free with IBM Z Trial !

	timestamp	srv_class_name	ai_prediction	qdata_server_active
0	2023-10-10 19:47:35.770	AIBATCH1	5	0
1	2023-10-10 19:47:25.760	AIBATCH1	8	2
2	2023-10-10 19:47:15.750	AIBATCH1	12	4
3	2023-10-10 19:47:05.750	AIBATCH1	14	10
4	2023-10-10 19:46:55.750	AIBATCH1	12	15

```
px.line(data, x='timestamp',
                y=['ai_prediction', 'qdata_server_active'])
```



Simplified request flow



One way

```
001 Record Number 2: SMF Record Type 70(1) - RMF CPU Activity
002 ========================================================
003
004 -> SMF record header
005 ====================
006
007    SMF record length      : 32396
008    SMF segment descriptor : '0000'X
009    SMF system indicator   : '11011111'B
010    SMF record type        : 70
011    SMF record time        : 03:59:31
012    SMF record date        : 22.054
013    SMF system id          :
014    SMF subsystem id       : RMF
015    SMF record subtype     : 1
016
017 -> RMF header extension
018 ========================
019
020    Number of triplets     : 9
021
022    Section  1 offset      : '00000064'X
023    Section  1 length      : '009C'X
024    Section  1 number      : 1
025
026    Section  2 offset      : '00000100'X
027    Section  2 length      : '0158'X
```

```
00058 -> RMF Product Section (1)
00059 ===========================
00060
00061    #1:    +0000:  797FD9D4 C6404040 40400034 431F0122  *'"RMF       C    *
00062           +0010:  054F1500 003F0000 00000384 00001001  * |          d     *
00063           +0020:  40404040 0001000F E9E5F0F2 F0F5F0F0  *         ZV020500*
00064           +0030:  03770C8E DB1B6F20 7CC00000 00000D69  * Ï l! ? @{      Z*
00065           +0040:  3A400000 00000068 00340001 03840000  *        Y      d  *
00066           +0050:  DB1B6F20 7CC00000 E2E8E2C4 D7D3C5E7  *! ? @{            *
00067           +0060:  E2E8E2C6 40404040 00020001 00000010  *SYSF              *
00068           +0070:  00040009 00000000 00010001 00010001  *                  *
00069           +0080:  00050001 00010001 003C0001 01D90001  *               R  *
00070           +0090:  00060001 00000000 00060001           *                  *
00071
00072 -> CPU Control Section (1)
00073 ===========================
00074
00075    #1:    +0000:  39060069 18990000 F7F5F940 40404040  *   Z r  759       *
00076           +0010:  40404040 40404040 00B00000 000001C6  *          0      F*
```

One way

```
001 Record Number 2: SMF Record Type 70(1) - RMF CPU Activity
002 ========================================================
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007    SMF record length      : 32396
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027    Section  2 length      : '0158'X
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00062           +0010:  054F1500 003F0000 00000384 00001001  * |          d     *
00063           +0020:  40404040 0001000F E9E5F0F2 F0F5F0F0  *         ZV020500*
00064           +0030:  03770C8E DB1B6F20 7CC00000 00000D69  * Ï l! ? @{      Z*
00065           +0040:  3A400000 00000068 00340001 03840000  *       Y      d  *
00066           +0050:  DB1B6F20 7CC00000 E2E8E2C4 D7D3C5E7  *! ? @{           *
00067           +0060:  E2E8E2C6 40404040 00020001 00000010  *SYSF             *
00068           +0070:  00040009 00000000 00010001 00010001  *                 *
00069           +0080:  00050001 00010001 003C0001 01D90001  *               R  *
00070           +0090:  00060001 00000000 00060001           *                  *
00071
00072 -> CPU Control Section (1)
00073 ===========================
00074
00075    #1:    +0000:  39060069 18990000 F7F5F940 40404040  *   Z r  759       *
00076           +0010:  40404040 40404040 00B00000 000001C6  *          0      F*
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00063           +0020:  40404040 0001000F E9E5F0F2 F0F5F0F0  *         ZV020500*
00064           +0030:  03770C8E DB1B6F20 7CC00000 00000D69  * Ï |! ? @{      Z*
00065           +0040:  3A400000 00000068 00340001 03840000  *       Y      d   *
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00067           +0060:  E2E8E2C6 40404040 00020001 00000010  *SYSF              *
00068           +0070:  00040009 00000000 00010001 00010001  *                  *
00069           +0080:  00050001 00010001 003C0001 01D90001  *               R  *
00070           +0090:  00060001 00000000 00060001           *                  *
00071
00072 -> CPU Control Section (1)
00073 ===========================
00074
00075    #1:    +0000:  39060069 18990000 F7F5F940 40404040  *   Z r  759       *
00076           +0010:  40404040 40404040 00B00000 000001C6  *          0      F*
```
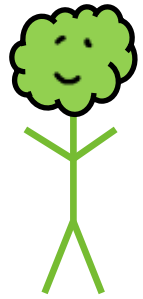
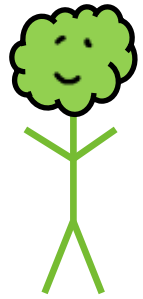

Another way!


```
▶ 0:                                {…}
▶ 1:                                {…}
▼ 2:
    SMF70LEN:                       1520
    SMF70SEG:                       0
    SMF70FLG:                       "11011110"
    SMF70RRF:                       true
    SMF70SUT:                       true
    SMF70V4:                        true
    SMF70ESA:                       true
    SMF70VXA:                       true
    SMF70OS:                        true
    SMF70BFY:                       false
    SMF70RTY:                       70
    SMF70TME:                       "14:59:00.01"
    SMF70DTE:                       "2017-06-21"
    SMF70SID:
    SMF70SSI:                       "RMF "
    SMF70STY:                       1
    SMF70TRN:                       9
    SMF70PRS:                       100
    SMF70PRL:                       104
    SMF70PRN:                       1
    SMF70CCS:                       204
    SMF70CCL:                       344
    SMF70CCN:                       1
    SMF70CPS:                       548
    SMF70CPL:                       92
    SMF70CPN:                       2
    SMF70ASS:                       732
    SMF70ASL:                       788
    SMF70ASN:                       1
    SMF70BCS:                       1520
    SMF70BCL:                       84
    SMF70BCN:                       0
    SMF70BVS:                       1520
    SMF70TNS:                       0
    SMF70TNL:                       0
    SMF70TNN:                       0
  ▶ smf70Subtype1ProductSection:    {…}
  ▶ smf70Subtype1AsidArea:          {…}
  ▼ smf70Subtype1CpuControl:
      SMF70MOD:                     "2964"
      SMF70VER:                     255
      SMF70BNP:                     0
      SMF70INB:                     "00000000"
      SMF70DIF:                     false
      SMF70NPC:                     false
      SMF70TSC:                     false
      SMF70PHY:                     false
      SMF70DGE:                     false
      SMF70VMG:                     false
      SMF70STF:                     "10011000"
      SMF70STS:                     true
      SMF70ADC:                     false
      SMF70WUC:                     false
      SMF70RCU:                     true
      SMF70HWV:                     true
      SMF70PTC:                     false
      SMF70PLC:                     false
      SMF70GAV:                     false
      SMF70GTS:                     0
      SMF70MDL:                     "757             "
      SMF70DSA:                     12
      SMF70IFA:                     0
      SMF70CPA:                     506
      SMF70WLA:                     1024
      SMF70LAC:                     2
      SMF70HWM:                     "N63             "
      SMF70SUP:                     0
      SMF70GJT:                     "02:00:00"
      SMF70POM:                     "02  "
```

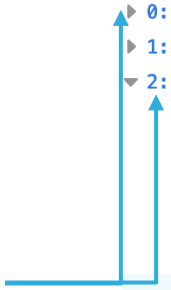
Result: JSON


```
▶ 0:                                {…}
▶ 1:                                {…}
▼ 2:
    SMF70LEN:                       1520
    SMF70SEG:                       0
    SMF70FLG:                       "11011110"
    SMF70RRF:                       true
    SMF70SUT:                       true
    SMF70V4:                        true
    SMF70ESA:                       true
    SMF70VXA:                       true
    SMF70OS:                        true
    SMF70BFY:                       false
    SMF70RTY:                       70
    SMF70TME:                       "14:59:00.01"
    SMF70DTE:                       "2017-06-21"
    SMF70SID:
    SMF70SSI:                       "RMF "
    SMF70STY:                       1
    SMF70TRN:                       9
    SMF70PRS:                       100
    SMF70PRL:                       104
    SMF70PRN:                       1
    SMF70CCS:                       204
    SMF70CCL:                       344
    SMF70CCN:                       1
    SMF70CPS:                       548
    SMF70CPL:                       92
    SMF70CPN:                       2
    SMF70ASS:                       732
    SMF70ASL:                       788
    SMF70ASN:                       1
    SMF70BCS:                       1520
    SMF70BCL:                       84
    SMF70BCN:                       0
    SMF70BVS:                       1520
    SMF70TNS:                       0
    SMF70TNL:                       0
    SMF70TNN:                       0
  ▶ smf70Subtype1ProductSection:    {…}
  ▶ smf70Subtype1AsidArea:          {…}
  ▼ smf70Subtype1CpuControl:
      SMF70MOD:                     "2964"
      SMF70VER:                     255
      SMF70BNP:                     0
      SMF70INB:                     "00000000"
      SMF70DIF:                     false
      SMF70NPC:                     false
      SMF70TSC:                     false
      SMF70PHY:                     false
      SMF70DGE:                     false
      SMF70VMG:                     false
      SMF70STF:                     "10011000"
      SMF70STS:                     true
      SMF70ADC:                     false
      SMF70WUC:                     false
      SMF70RCU:                     true
      SMF70HWV:                     true
      SMF70PTC:                     false
      SMF70PLC:                     false
      SMF70GAV:                     false
      SMF70GTS:                     0
      SMF70MDL:                     "757             "
      SMF70DSA:                     12
      SMF70IFA:                     0
      SMF70CPA:                     506
      SMF70WLA:                     1024
      SMF70LAC:                     2
      SMF70HWM:                     "N63             "
      SMF70SUP:                     0
      SMF70GJT:                     "02:00:00"
      SMF70POM:                     "02  "
```

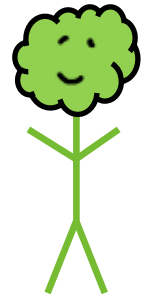


Result: JSON

Indexing



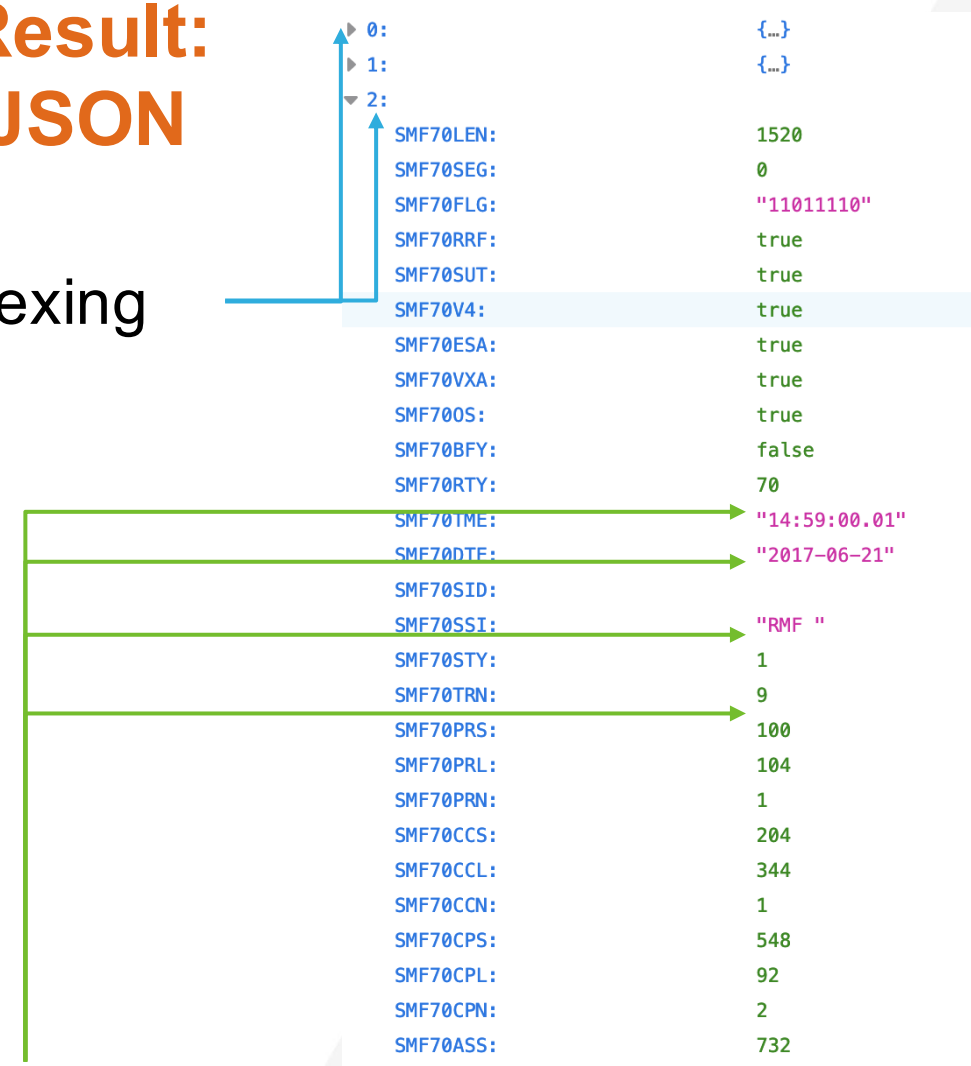

```
0:                                  {…}
1:                                  {…}
2:
  SMF70LEN:                         1520
  SMF70SEG:                         0
  SMF70FLG:                         "11011110"
  SMF70RRF:                         true
  SMF70SUT:                         true
  SMF70V4:                          true
  SMF70ESA:                         true
  SMF70VXA:                         true
  SMF70OS:                          true
  SMF70BFY:                         false
  SMF70RTY:                         70
  SMF70TME:                         "14:59:00.01"
  SMF70DTE:                         "2017-06-21"
  SMF70SID:
  SMF70SSI:                         "RMF "
  SMF70STY:                         1
  SMF70TRN:                         9
  SMF70PRS:                         100
  SMF70PRL:                         104
  SMF70PRN:                         1
  SMF70CCS:                         204
  SMF70CCL:                         344
  SMF70CCN:                         1
  SMF70CPS:                         548
  SMF70CPL:                         92
  SMF70CPN:                         2
  SMF70ASS:                         732
  SMF70ASL:                         788
  SMF70ASN:                         1
  SMF70BCS:                         1520
  SMF70BCL:                         84
  SMF70BCN:                         0
  SMF70BVS:                         1520
  SMF70TNS:                         0
  SMF70TNL:                         0
  SMF70TNN:                         0
  smf70Subtype1ProductSection:      {…}
  smf70Subtype1AsidArea:            {…}
  smf70Subtype1CpuControl:
    SMF70MOD:                       "2964"
    SMF70VER:                       255
    SMF70BNP:                       0
    SMF70INB:                       "00000000"
    SMF70DIF:                       false
    SMF70NPC:                       false
    SMF70TSC:                       false
    SMF70PHY:                       false
    SMF70DGE:                       false
    SMF70VMG:                       false
    SMF70STF:                       "10011000"
    SMF70STS:                       true
    SMF70ADC:                       false
    SMF70WUC:                       false
    SMF70RCU:                       true
    SMF70HWV:                       true
    SMF70PTC:                       false
    SMF70PLC:                       false
    SMF70GAV:                       false
    SMF70GTS:                       0
    SMF70MDL:                       "757             "
    SMF70DSA:                       12
    SMF70IFA:                       0
    SMF70CPA:                       506
    SMF70WLA:                       1024
    SMF70LAC:                       2
    SMF70HWM:                       "N63             "
    SMF70SUP:                       0
    SMF70GJT:                       "02:00:00"
    SMF70POM:                       "02  "
```

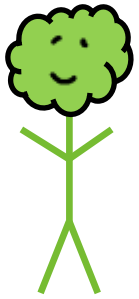



Result: JSON

Indexing

Formatting



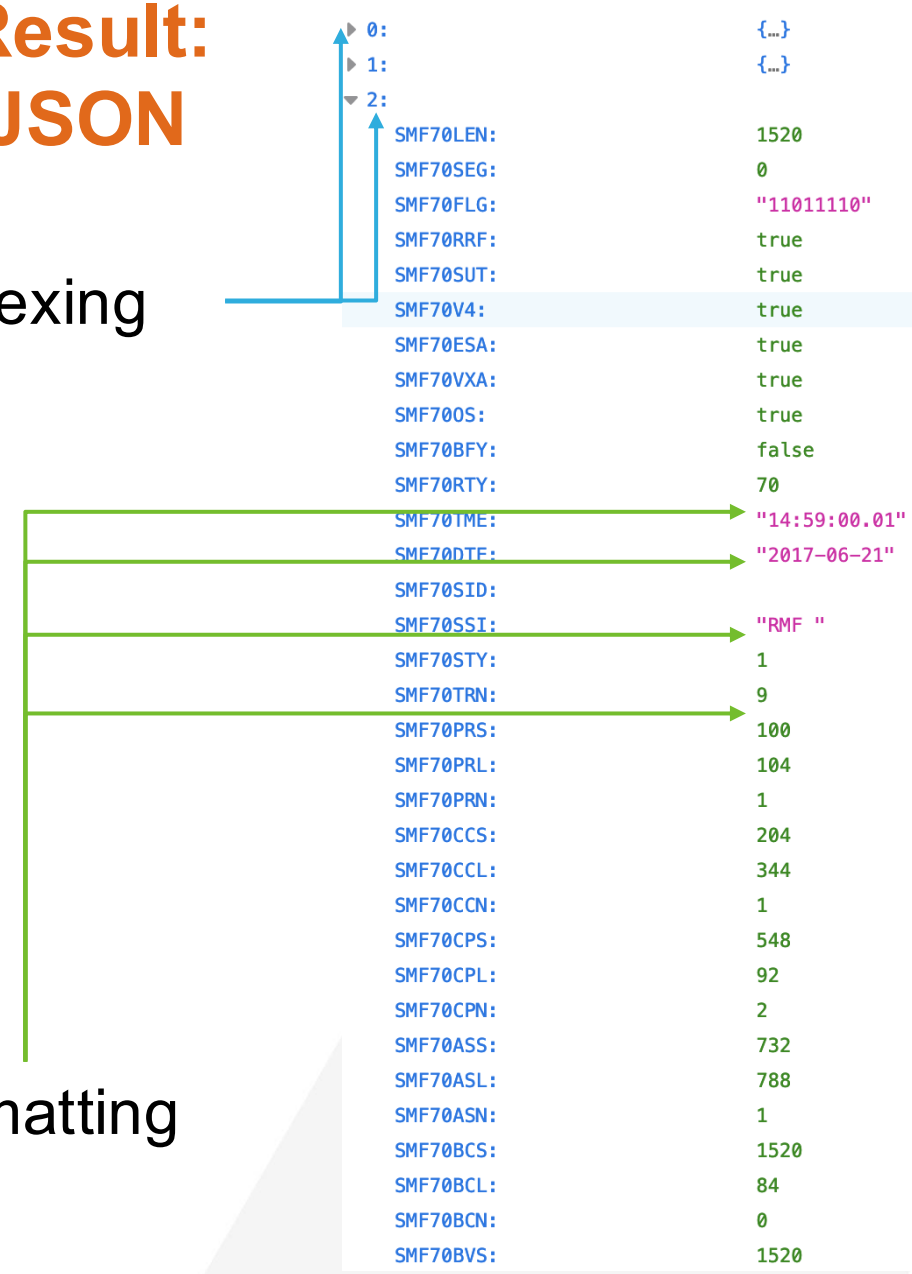


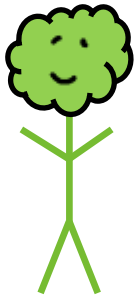
Result: JSON

Indexing

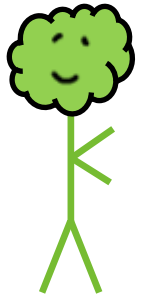
Formatting

Hierarchy and 1-to-1 relationships





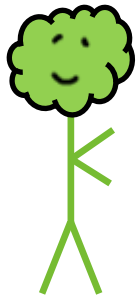
Result: JSON




```
SMF70COS:                    1520
SMF70COL:                    16
SMF70CON:                    0
SMF70TNS:                    0
SMF70TNL:                    0
SMF70TNN:                    0
▶ smf70Subtype1ProductSection:   {…}
▶ smf70Subtype1AsidArea:         {…}
▶ smf70Subtype1CpuControl:       {…}
▼ smf70Subtype1CpuData:
  ▼ 0:
      SMF70WAT:              "00:00:57.093"
      SMF70CID:              0
      SMF70CNF:              "00000001"
      SMF70MTI:              false
      SMF70DCI:              false
      SMF70PAR:              false
      SMF70VAC:              false
      SMF70STA:              true
      SMF70SER:              "0A5327"
      SMF70TYP:              0
      SMF70SLH:              3506
      SMF70TPI:              0
      SMF70VFS:              0
      SMF70V:                "00000000"
      SMF70VON:              false
      SMF70PAT:              "00:00:00"
      SMF70TCB:              9608
      SMF70SRB:              9937
      SMF70NIO:              3554
      SMF70SIG:              2111
      SMF70WTD:              14629
      SMF70WTS:              0
      SMF70WTU:              0
      SMF70WTI:              0
  ▶ 1:                       {…}
```

```
R782EMR:                     1584291840
▼ smf78Subtype2R782sqau:
    VSDBMIN:                 258048
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 258048
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                1548288
    VSDAMIN:                 20787200
    VSDANTME:                "2017-06-21T14:59:09.734"
    VSDAMAX:                 20795392
    VSDAXTME:                "2017-06-21T14:58:59.249"
    VSDATOTL:                124731392
▼ smf78Subtype2R782csau:
    VSDBMIN:                 274432
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 274432
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                1646592
    VSDAMIN:                 28516352
    VSDANTME:                "2017-06-21T14:59:09.734"
    VSDAMAX:                 28622848
    VSDAXTME:                "2017-06-21T14:58:59.249"
    VSDATOTL:                171204608
▶ smf78Subtype2R782csaf:     {…}
▼ smf78Subtype2R782cslf:
    VSDBMIN:                 3473408
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 3473408
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                20840448
    VSDAMIN:                 286642176
    VSDANTME:                "2017-06-21T14:58:59.249"
    VSDAMAX:                 286715904
    VSDAXTME:                "2017-06-21T14:59:09.734"
    VSDATOTL:                1720221696
▶ smf78Subtype2R782csal:     {…}
```

Result: JSON

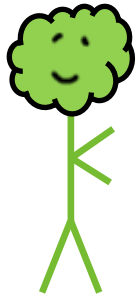


1-to-many relationships

```
SMF70COS:                    1520
SMF70COL:                    16
SMF70CON:                    0
SMF70TNS:                    0
SMF70TNL:                    0
SMF70TNN:                    0
▶ smf70Subtype1ProductSection:   {…}
▶ smf70Subtype1AsidArea:         {…}
▶ smf70Subtype1CpuControl:       {…}
▼ smf70Subtype1CpuData:
  ▼ 0:
      SMF70WAT:              "00:00:57.093"
      SMF70CID:              0
      SMF70CNF:              "00000001"
      SMF70MTI:              false
      SMF70DCI:              false
      SMF70PAR:              false
      SMF70VAC:              false
      SMF70STA:              true
      SMF70SER:              "0A5327"
      SMF70TYP:              0
      SMF70SLH:              3506
      SMF70TPI:              0
      SMF70VFS:              0
      SMF70V:                "00000000"
      SMF70VON:              false
      SMF70PAT:              "00:00:00"
      SMF70TCB:              9608
      SMF70SRB:              9937
      SMF70NIO:              3554
      SMF70SIG:              2111
      SMF70WTD:              14629
      SMF70WTS:              0
      SMF70WTU:              0
      SMF70WTI:              0
  ▶ 1:                       {…}
```

```
R782EMR:                     1584291840
▼ smf78Subtype2R782sqau:
    VSDBMIN:                 258048
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 258048
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                1548288
    VSDAMIN:                 20787200
    VSDANTME:                "2017-06-21T14:59:09.734"
    VSDAMAX:                 20795392
    VSDAXTME:                "2017-06-21T14:58:59.249"
    VSDATOTL:                124731392
▼ smf78Subtype2R782csau:
    VSDBMIN:                 274432
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 274432
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                1646592
    VSDAMIN:                 28516352
    VSDANTME:                "2017-06-21T14:59:09.734"
    VSDAMAX:                 28622848
    VSDAXTME:                "2017-06-21T14:58:59.249"
    VSDATOTL:                171204608
▶ smf78Subtype2R782csaf:     {…}
▼ smf78Subtype2R782cslf:
    VSDBMIN:                 3473408
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 3473408
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                20840448
    VSDAMIN:                 286642176
    VSDANTME:                "2017-06-21T14:58:59.249"
    VSDAMAX:                 286715904
    VSDAXTME:                "2017-06-21T14:59:09.734"
    VSDATOTL:                1720221696
▶ smf78Subtype2R782csal:     {…}
```

Result: JSON



1-to-many relationships

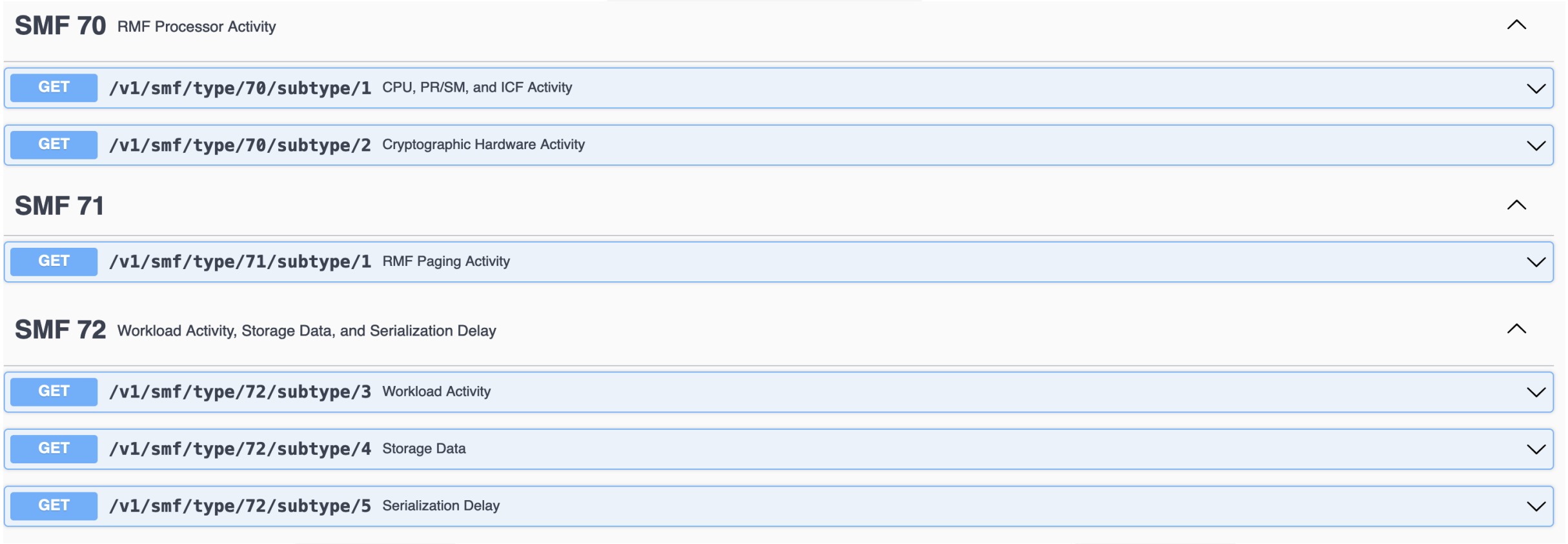
```
SMF70COS:                    1520
SMF70COL:                    16
SMF70CON:                    0
SMF70TNS:                    0
SMF70TNL:                    0
SMF70TNN:                    0
▶ smf70Subtype1ProductSection:   {…}
▶ smf70Subtype1AsidArea:         {…}
▶ smf70Subtype1CpuControl:       {…}
▼ smf70Subtype1CpuData:
  ▼ 0:
      SMF70WAT:              "00:00:57.093"
      SMF70CID:              0
      SMF70CNF:              "00000001"
      SMF70MTI:              false
      SMF70DCI:              false
      SMF70PAR:              false
      SMF70VAC:              false
      SMF70STA:              true
      SMF70SER:              "0A5327"
      SMF70TYP:              0
      SMF70SLH:              3506
      SMF70TPI:              0
      SMF70VFS:              0
      SMF70V:                "00000000"
      SMF70VON:              false
      SMF70PAT:              "00:00:00"
      SMF70TCB:              9608
      SMF70SRB:              9937
      SMF70NIO:              3554
      SMF70SIG:              2111
      SMF70WTD:              14629
      SMF70WTS:              0
      SMF70WTU:              0
      SMF70WTI:              0
  ▶ 1:                       {…}
```

```
R782EMR:                     1584291840
▼ smf78Subtype2R782sqau:
    VSDBMIN:                 258048
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 258048
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                1548288
    VSDAMIN:                 20787200
    VSDANTME:                "2017-06-21T14:59:09.734"
    VSDAMAX:                 20795392
    VSDAXTME:                "2017-06-21T14:58:59.249"
    VSDATOTL:                124731392
▼ smf78Subtype2R782csau:
    VSDBMIN:                 274432
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 274432
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                1646592
    VSDAMIN:                 28516352
    VSDANTME:                "2017-06-21T14:59:09.734"
    VSDAMAX:                 28622848
    VSDAXTME:                "2017-06-21T14:58:59.249"
    VSDATOTL:                171204608
▶ smf78Subtype2R782csaf:     {…}
▼ smf78Subtype2R782cslf:
    VSDBMIN:                 3473408
    VSDBNTME:                "2017-06-21T14:58:59.249"
    VSDBMAX:                 3473408
    VSDBXTME:                "2017-06-21T14:58:59.249"
    VSDBTOTL:                20840448
    VSDAMIN:                 286642176
    VSDANTME:                "2017-06-21T14:58:59.249"
    VSDAMAX:                 286715904
    VSDAXTME:                "2017-06-21T14:59:09.734"
    VSDATOTL:                1720221696
▶ smf78Subtype2R782csal:     {…}
```

78-2 implicit structures

SHARE
EDUCATE • NETWORK • INFLUENCE

Specific endpoint per (sub-)type

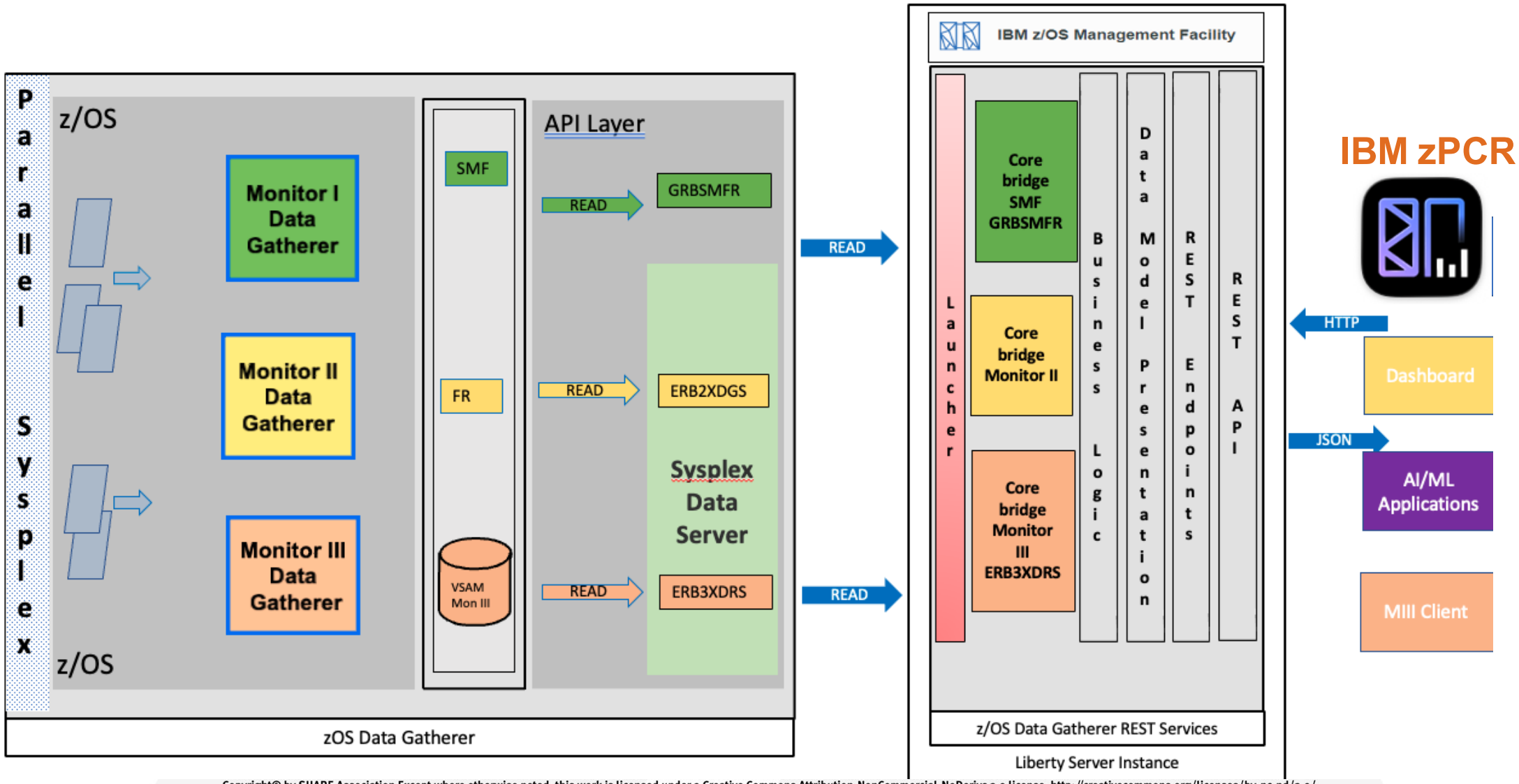


… up to SMF 79 plus SMF 30

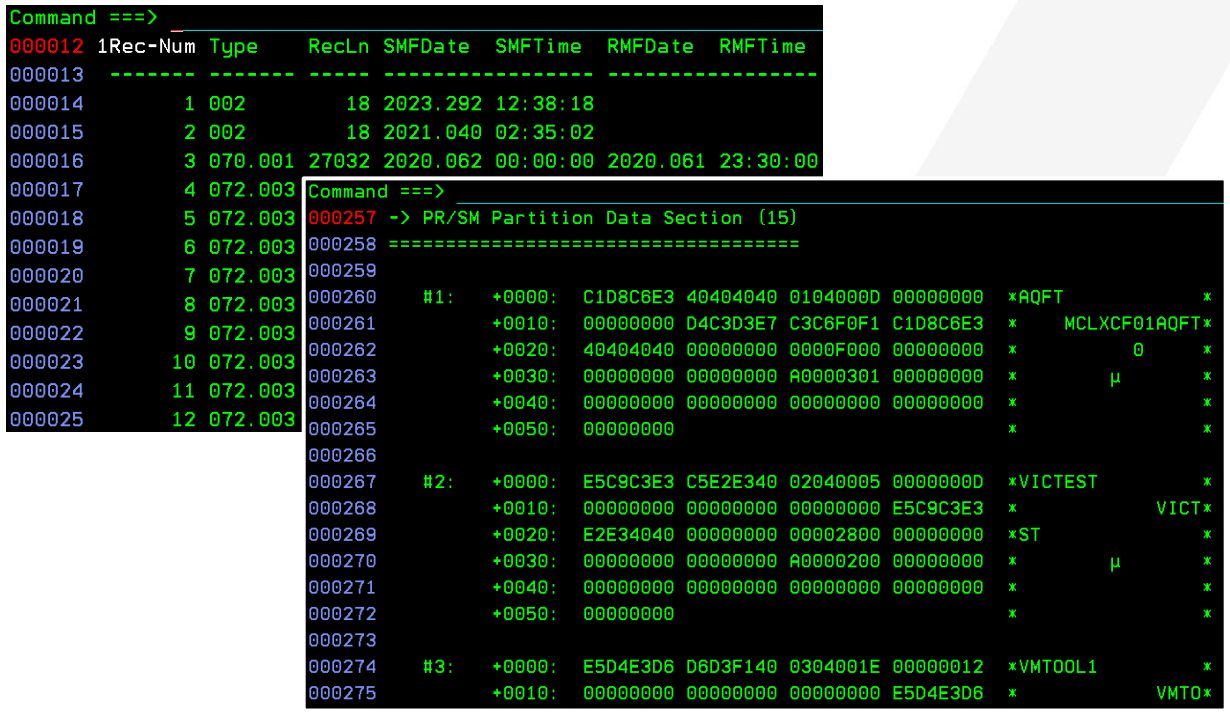
SMF 99 subtypes 1, 2, 6, 12 and 14

SMF 113 subtypes 1 and 2

REST Services deployment



Data Flow



```
Command ===>
000012 1Rec-Num Type    RecLn SMFDate  SMFTime  RMFDate  RMFTime
000013  ------- ------- ----- ---------------- ----------------
000014        1 002        18 2023.292 12:38:18
000015        2 002        18 2021.040 02:35:02
000016        3 070.001 27032 2020.062 00:00:00 2020.061 23:30:00
000017        4 072.003
000018        5 072.003
000019        6 072.003
000020        7 072.003
000021        8 072.003
000022        9 072.003
000023       10 072.003
000024       11 072.003
000025       12 072.003
```

```
Command ===>
000257 -> PR/SM Partition Data Section (15)
000258 ==================================
000259
000260    #1:    +0000:  C1D8C6E3 40404040 0104000D 00000000  *AQFT            *
000261           +0010:  00000000 D4C3D3E7 C3C6F0F1 C1D8C6E3  *    MCLXCF01AQFT*
000262           +0020:  40404040 00000000 0000F000 00000000  *          0     *
000263           +0030:  00000000 00000000 A0000301 00000000  *        µ       *
000264           +0040:  00000000 00000000 00000000 00000000  *                *
000265           +0050:  00000000                             *                *
000266
000267    #2:    +0000:  E5C9C3E3 C5E2E340 02040005 0000000D  *VICTEST         *
000268           +0010:  00000000 00000000 00000000 E5C9C3E3  *            VICT*
000269           +0020:  E2E34040 00000000 00002800 00000000  *ST              *
000270           +0030:  00000000 00000000 A0000200 00000000  *        µ       *
000271           +0040:  00000000 00000000 00000000 00000000  *                *
000272           +0050:  00000000                             *                *
000273
000274    #3:    +0000:  E5D4E3D6 D6D3F140 0304001E 00000012  *VMTOOL1         *
000275           +0010:  00000000 00000000 00000000 E5D4E3D6  *            VMTO*
```

Data Flow

```
Command ===>
000012 1Rec-Num Type     RecLn SMFDate  SMFTime  RMFDate  RMFTime
000013  ------- ------- ----- ---------------- ----------------
000014        1 002         18 2023.292 12:38:18
000015        2 002         18 2021.040 02:35:02
000016        3 070.001 27032 2020.062 00:00:00 2020.061 23:30:00
000017        4 072.003
000018        5 072.003
000019        6 072.003
000020        7 072.003
000021        8 072.003
000022        9 072.003
000023       10 072.003
000024       11 072.003
000025       12 072.003
```

```
Command ===>
000257 -> PR/SM Partition Data Section (15)
000258 ==================================
000259
000260    #1:    +0000:  C1D8C6E3 40404040 0104000D 00000000  *AQFT            *
000261           +0010:  00000000 D4C3D3E7 C3C6F0F1 C1D8C6E3  *    MCLXCF01AQFT*
000262           +0020:  40404040 00000000 0000F000 00000000  *          0     *
000263           +0030:  00000000 00000000 A0000301 00000000  *        µ       *
000264           +0040:  00000000 00000000 00000000 00000000  *                *
000265           +0050:  00000000                             *                *
000266
000267    #2:    +0000:  E5C9C3E3 C5E2E340 02040005 0000000D  *VICTEST          *
000268           +0010:  00000000 00000000 00000000 E5C9C3E3  *            VICT*
000269           +0020:  E2E34040 00000000 00002800 00000000  *ST              *
000270           +0030:  00000000 00000000 A0000200 00000000  *        µ       *
000271           +0040:  00000000 00000000 00000000 00000000  *                *
000272           +0050:  00000000                             *                *
000273
000274    #3:    +0000:  E5D4E3D6 D6D3F140 0304001E 00000012  *VMTOOL1          *
000275           +0010:  00000000 00000000 00000000 E5D4E3D6  *            VMTO*
```

Data Gatherer REST Services

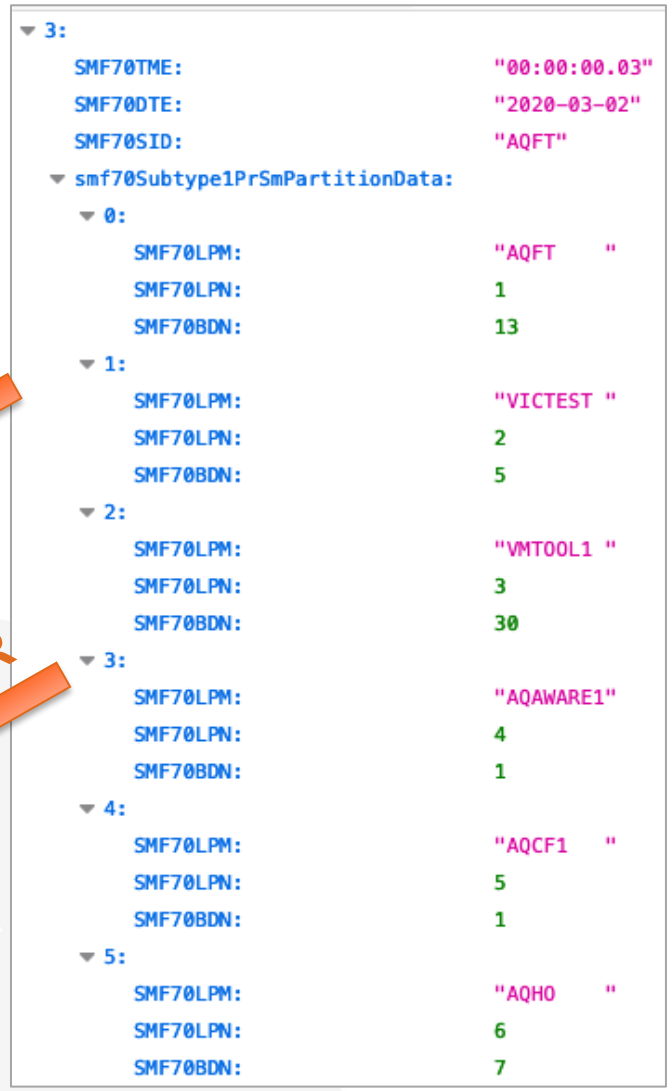

```
3:
    SMF70TME:                    "00:00:00.03"
    SMF70DTE:                    "2020-03-02"
    SMF70SID:                    "AQFT"
  smf70Subtype1PrSmPartitionData:
    0:
      SMF70LPM:                  "AQFT    "
      SMF70LPN:                  1
      SMF70BDN:                  13
    1:
      SMF70LPM:                  "VICTEST "
      SMF70LPN:                  2
      SMF70BDN:                  5
    2:
      SMF70LPM:                  "VMTOOL1 "
      SMF70LPN:                  3
      SMF70BDN:                  30
    3:
      SMF70LPM:                  "AQAWARE1"
      SMF70LPN:                  4
      SMF70BDN:                  1
    4:
      SMF70LPM:                  "AQCF1   "
      SMF70LPN:                  5
      SMF70BDN:                  1
    5:
      SMF70LPM:                  "AQHO    "
      SMF70LPN:                  6
      SMF70BDN:                  7
```

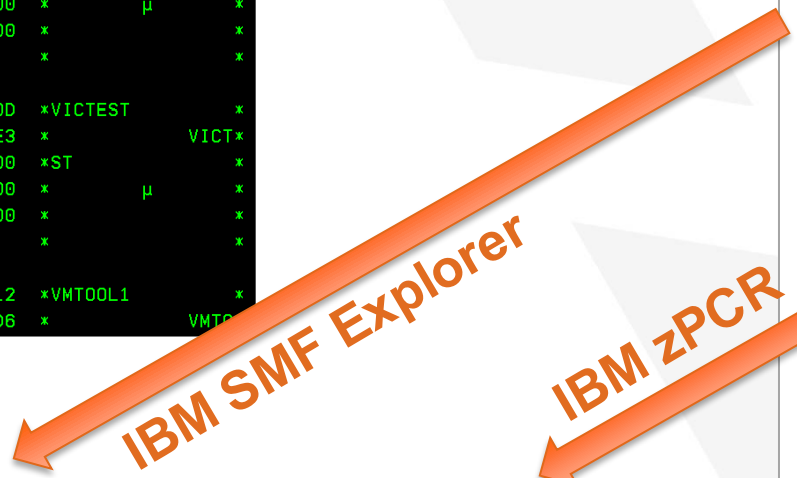
Data Flow

```
Command ===>
000012 1Rec-Num Type     RecLn SMFDate  SMFTime  RMFDate  RMFTime
000013  ------- ------- ----- ---------------- ----------------
000014        1 002         18 2023.292 12:38:18
000015        2 002         18 2021.040 02:35:02
000016        3 070.001 27032 2020.062 00:00:00 2020.061 23:30:00
000017        4 072.003
000018        5 072.003
000019        6 072.003
000020        7 072.003
000021        8 072.003
000022        9 072.003
000023       10 072.003
000024       11 072.003
000025       12 072.003
```

```
Command ===>
000257 -> PR/SM Partition Data Section (15)
000258 ==================================
000259
000260    #1:    +0000:  C1D8C6E3 40404040 0104000D 00000000  *AQFT            *
000261           +0010:  00000000 D4C3D3E7 C3C6F0F1 C1D8C6E3  *    MCLXCF01AQFT*
000262           +0020:  40404040 00000000 0000F000 00000000  *          0     *
000263           +0030:  00000000 00000000 A0000301 00000000  *        µ       *
000264           +0040:  00000000 00000000 00000000 00000000  *                *
000265           +0050:  00000000                             *                *
000266
000267    #2:    +0000:  E5C9C3E3 C5E2E340 02040005 0000000D  *VICTEST          *
000268           +0010:  00000000 00000000 00000000 E5C9C3E3  *            VICT*
000269           +0020:  E2E34040 00000000 00002800 00000000  *ST              *
000270           +0030:  00000000 00000000 A0000200 00000000  *        µ       *
000271           +0040:  00000000 00000000 00000000 00000000  *                *
000272           +0050:  00000000                             *                *
000273
000274    #3:    +0000:  E5D4E3D6 D6D3F140 0304001E 00000012  *VMTOOL1          *
000275           +0010:  00000000 00000000 00000000 E5D4E3D6  *            VMTO
```

Data Gatherer REST Services





	timestamp	sid	lpar_name	system_name	sysplex_name	lpar_system_name	lpar_number	lpar_cpu_count
0	2020-03-02 00:00:00.030	AQFT	AQFT	AQFT	MCLXCF01	AQFT-AQFT	1	13
1	2020-03-02 00:00:00.030	AQFT	VICTEST	VICTST	<NA>	VICTEST-VICTST	2	5
2	2020-03-02 00:00:00.030	AQFT	VMTOOL1	VMTOOL1	<NA>	VMTOOL1-VMTOOL1	3	30
3	2020-03-02 00:00:00.030	AQFT	AQAWARE1	ZAWARE	<NA>	AQAWARE1-ZAWARE	4	1
4	2020-03-02 00:00:00.030	AQFT	AQCF1		<NA>	AQCF1-	5	1
5	2020-03-02 00:00:00.030	AQFT	AQHO	AQHO	HOXCF01	AQHO-AQHO	6	7

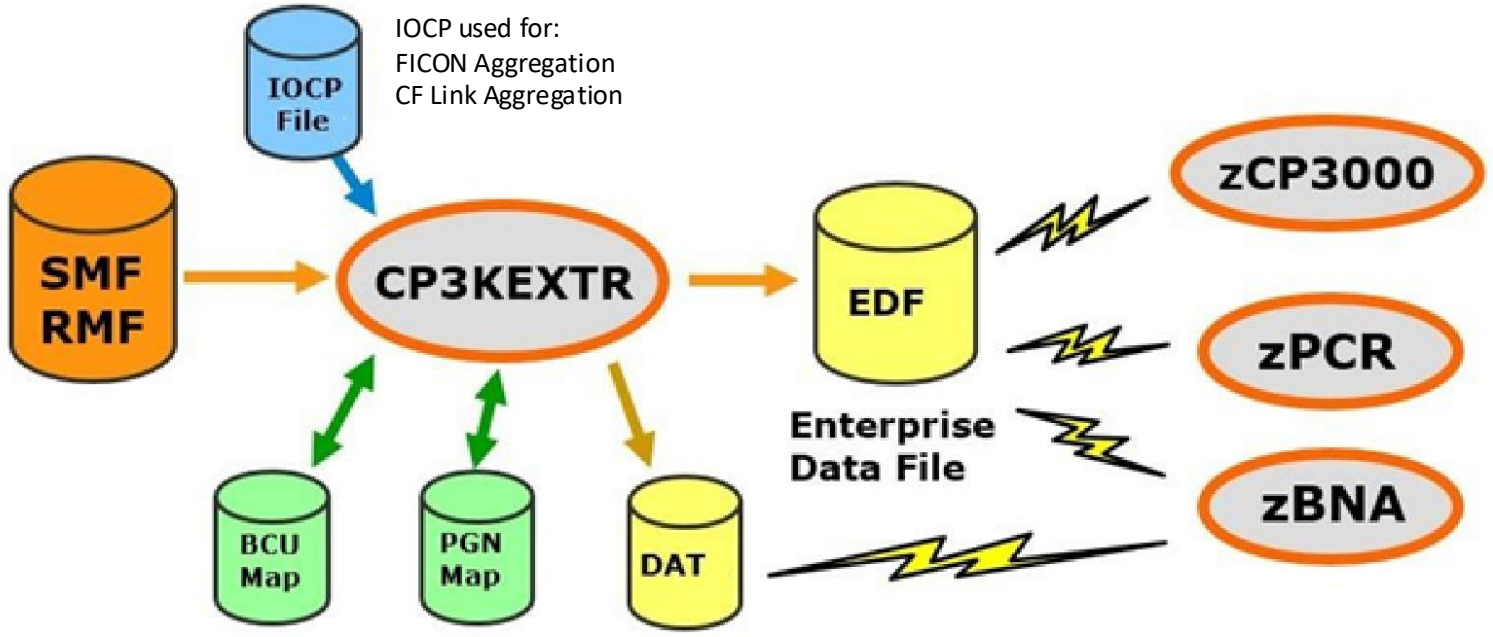
THE zPCR USE CASE

EDF File Creation for IBM zPCR

[CP3KEXTR](https://www.ibm.com/support/pages/node/6354221) Tool download website:

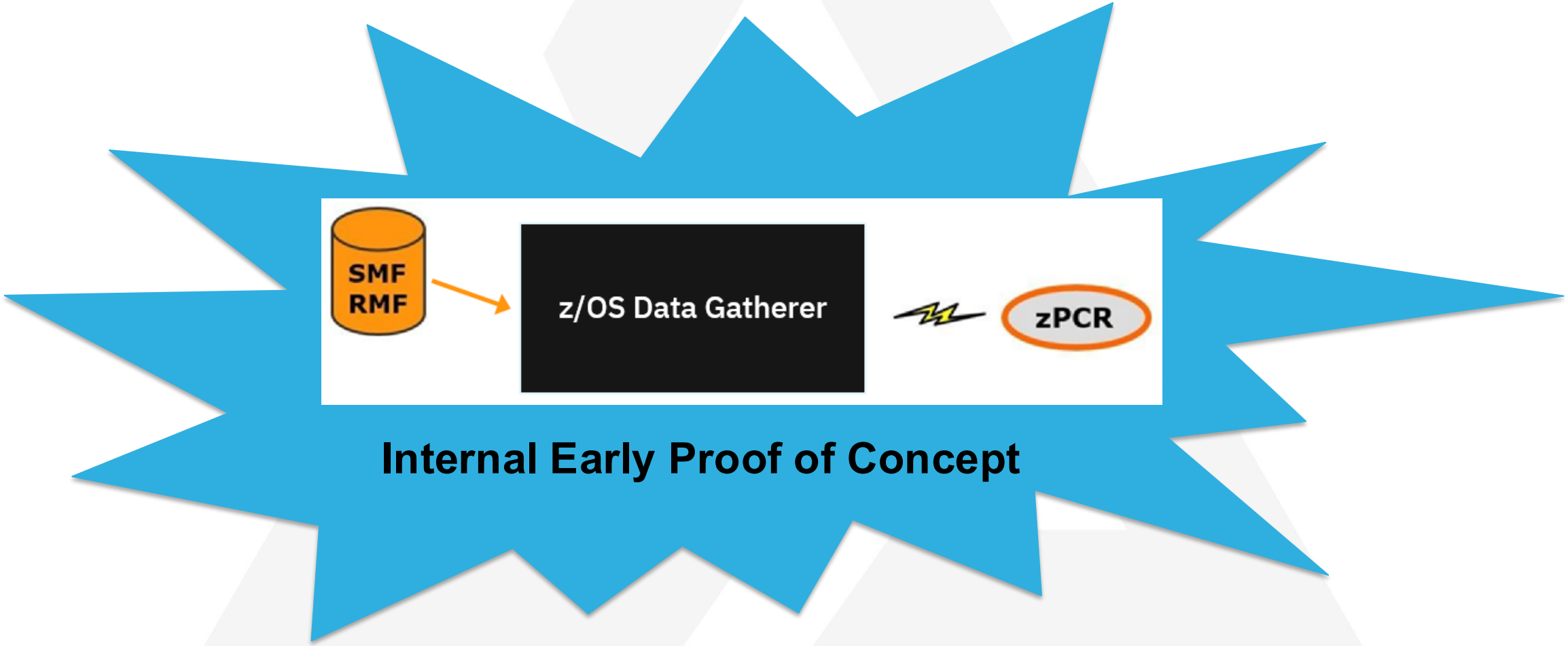
https://www.ibm.com/support/pages/node/6354221

CP3KEXTR Quick Start Guide (Available on CP3KEXTR website)

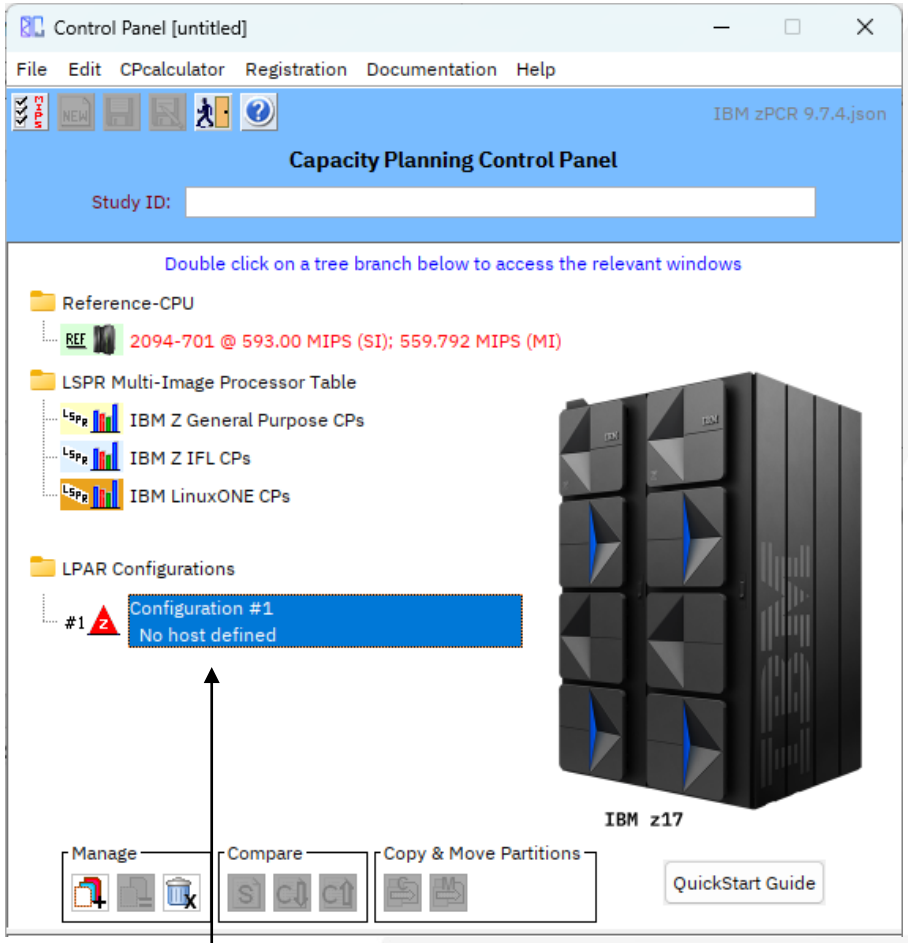


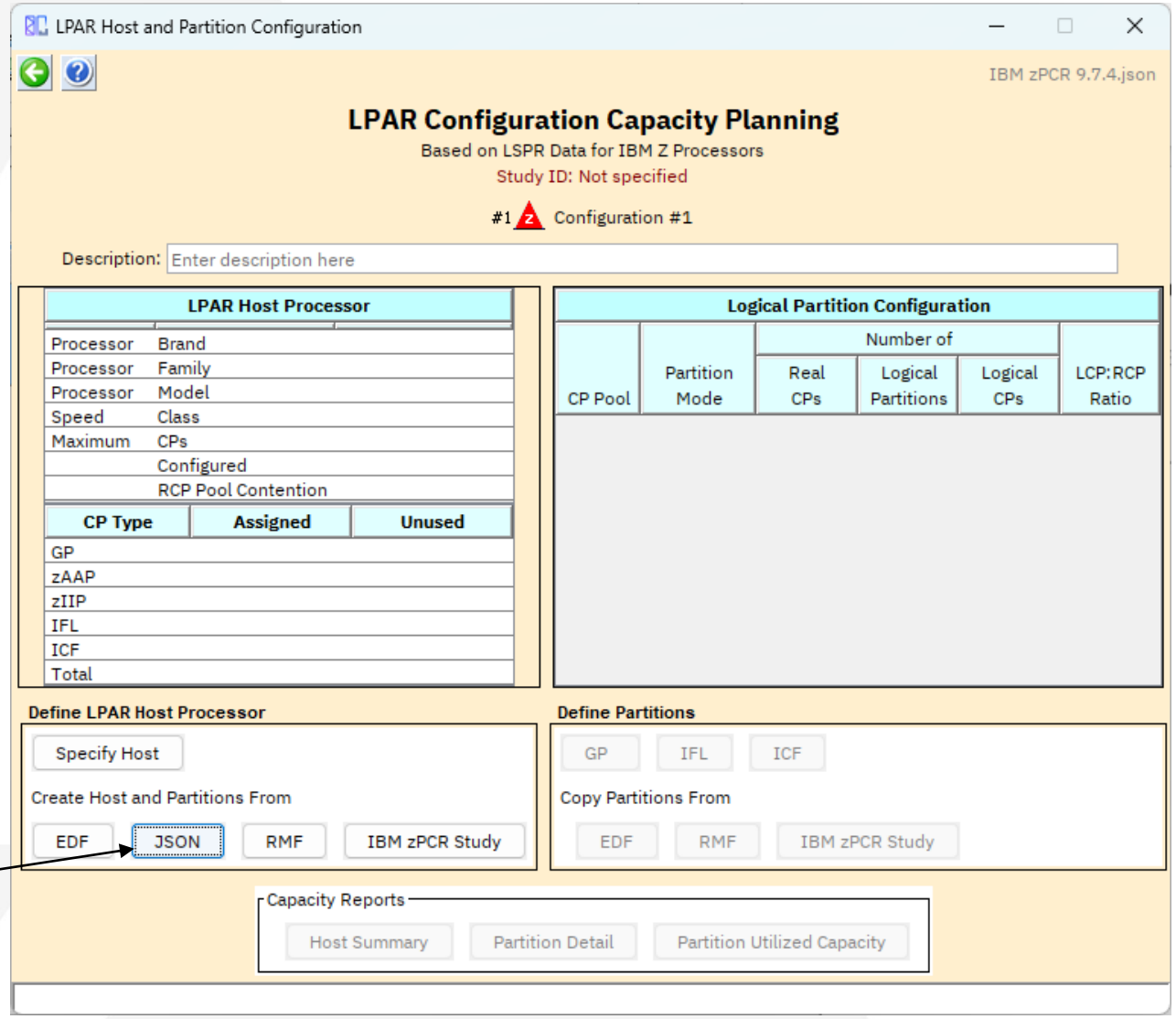
*** EDF (Enterprise Data File) are created using CP3KEXTR for z/OS and CP3KVMXT for z/VM**

IBM z/OS Data Gatherer for IBM zPCR PoC



Mechanics



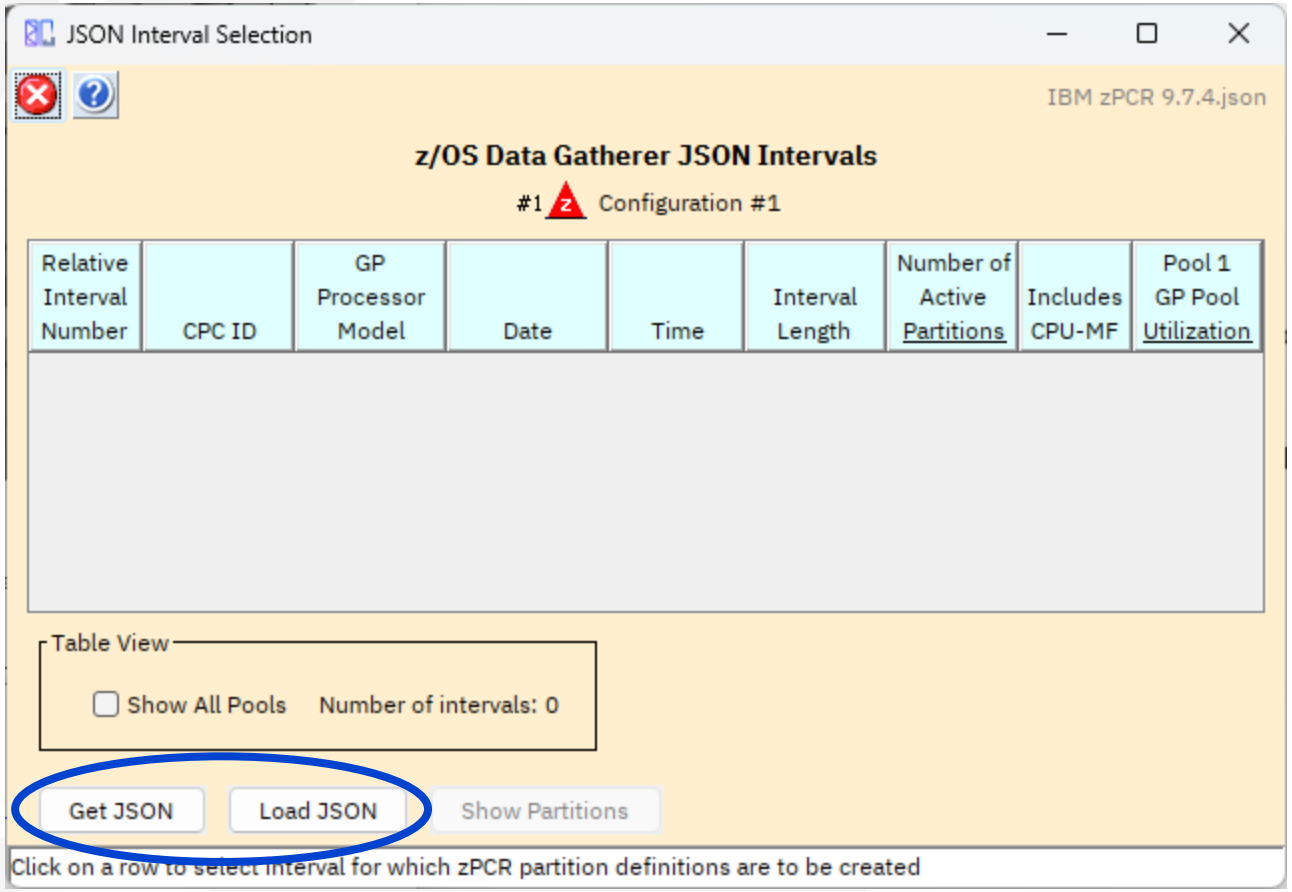


Double click

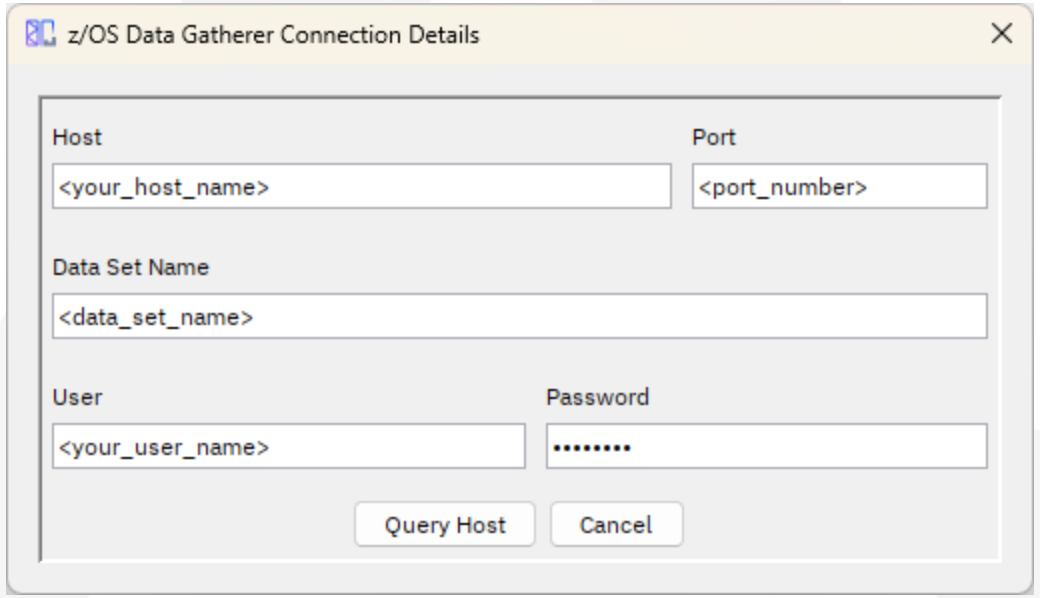
New JSON button

JSON Interval Selection Window

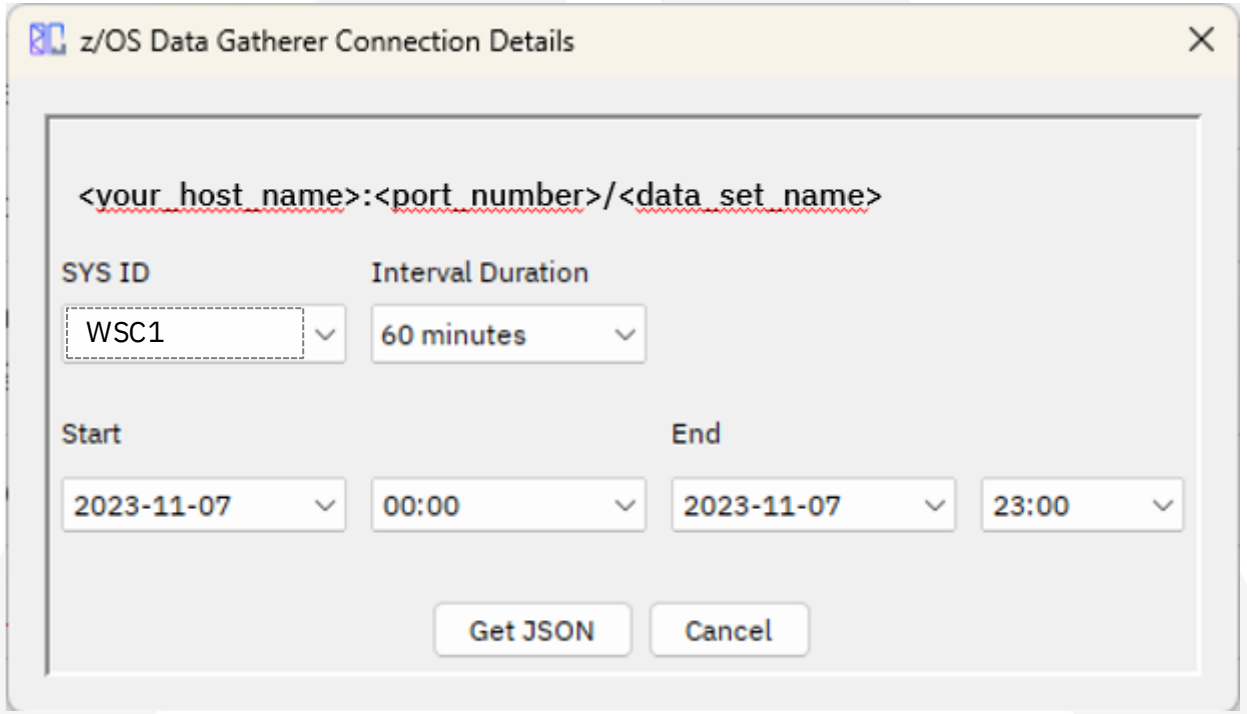
- Mirrors existing EDF Interval Selection Window
- Use the “Get JSON” button to initiate a fetch data request from z/OS Data Gatherer
  - Creates a zip file
  - Fetch once, reuse many
- Use the “Load JSON” button to load from a previously created zip file



Setup Connection Details

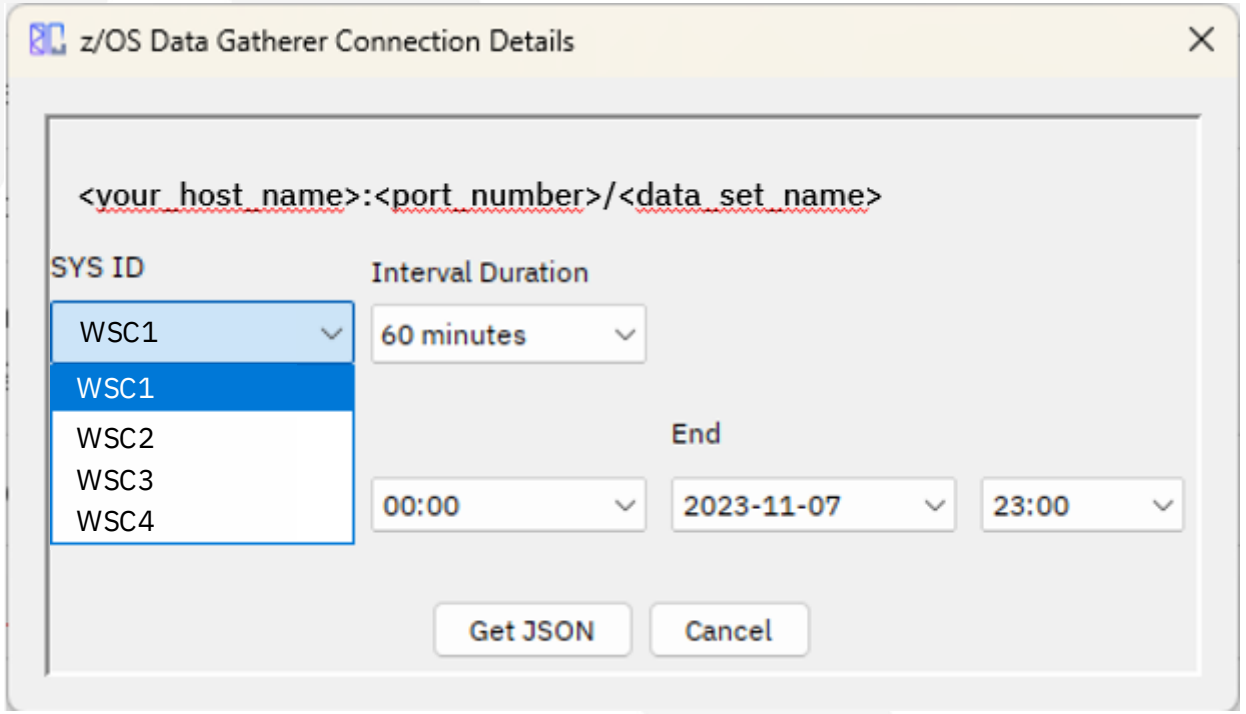


Dataset Found
Providing More Parameters



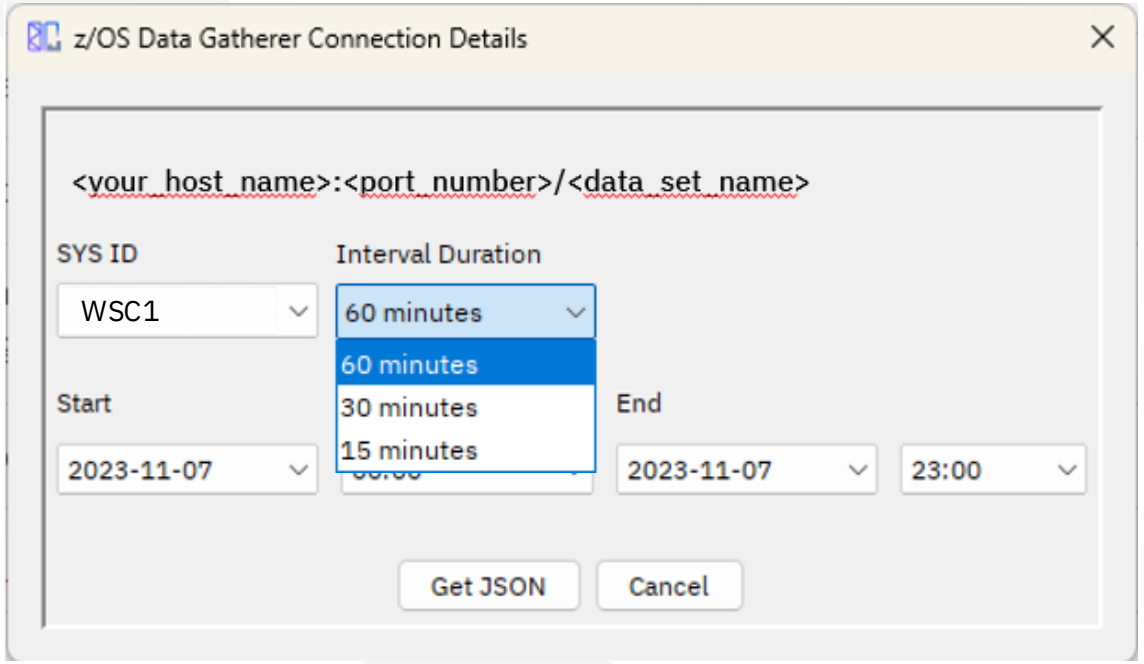
Providing More Parameters SYSID

- Click the drop-down for SYS ID
- All available SYS IDs in the SMF are presented
- Select the one for which you'd like data



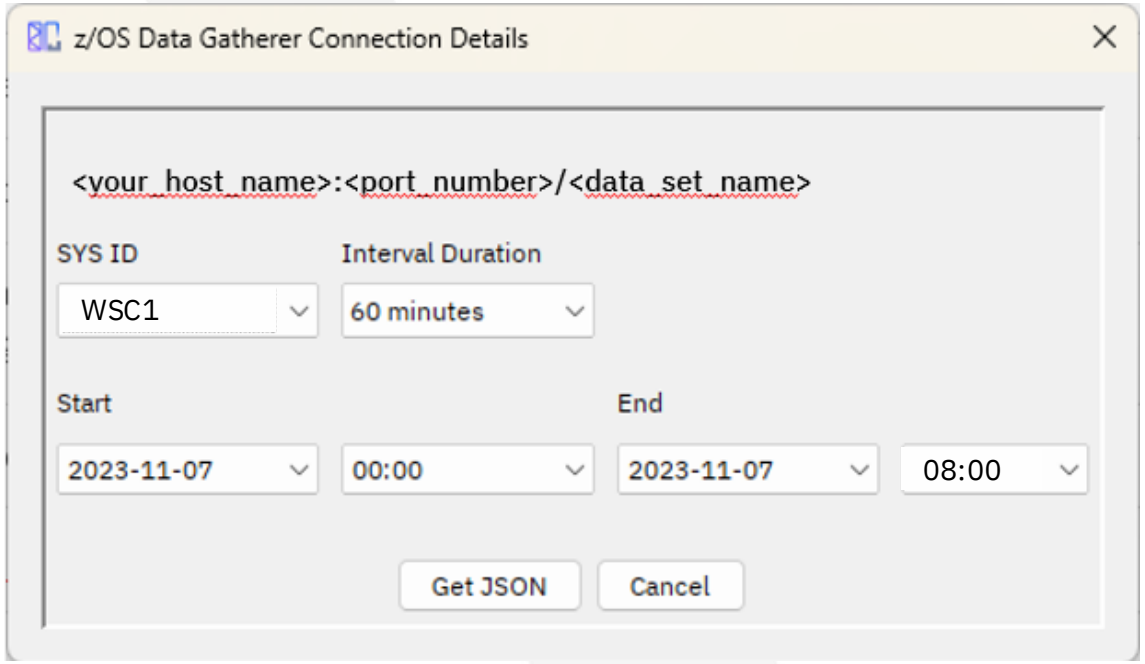
Providing More Parameters
Interval Duration

- Click the drop-down for Interval Duration
- All available durations in the SMF are presented
  - Current valid options are 60, 30, 15, and 5
  - If the RMF interval is set to something greater than one of the options, it won't be shown (as seen here, 5 is not visible)
- Select the one for which you'd like the data aggregated



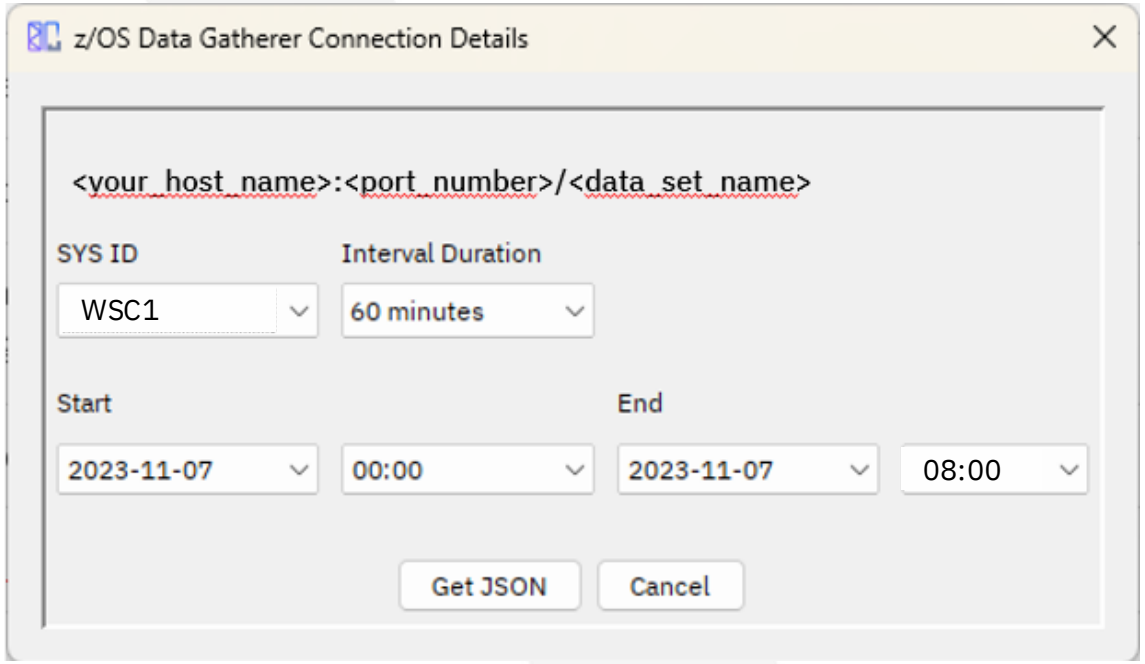
Providing More Parameters
Time Span

- All available dates and times in the SMF are presented
- Limit the data span using the Date and Time selectors

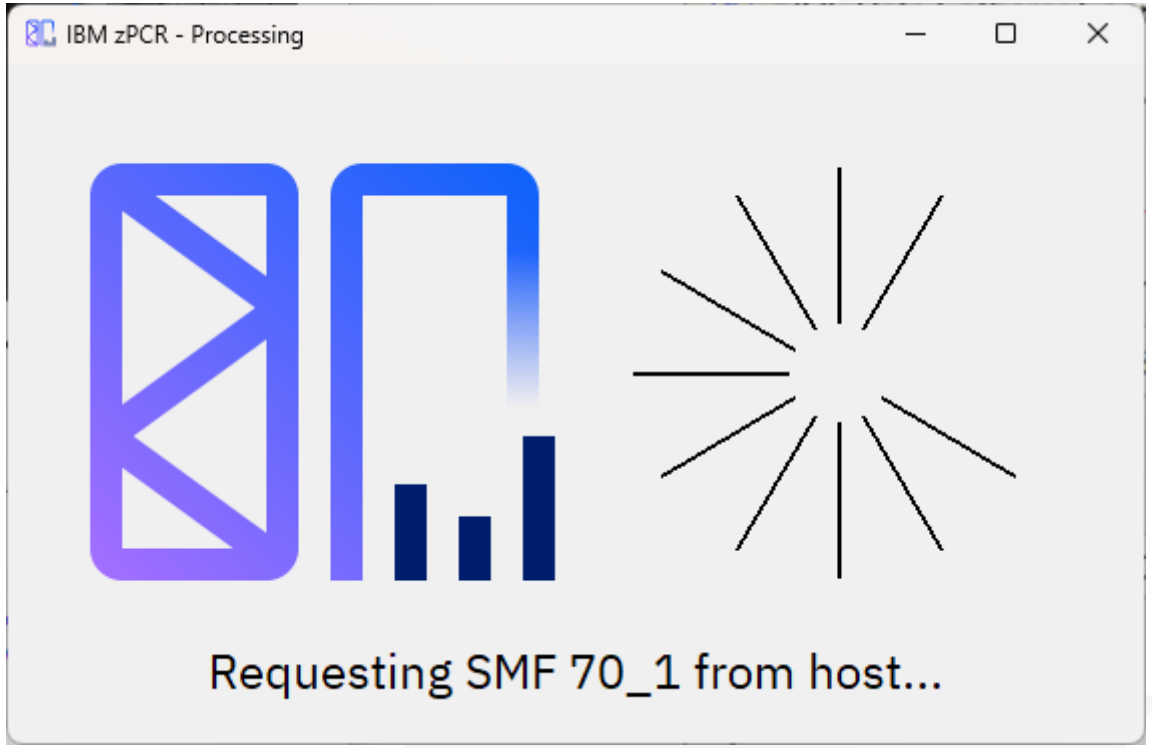


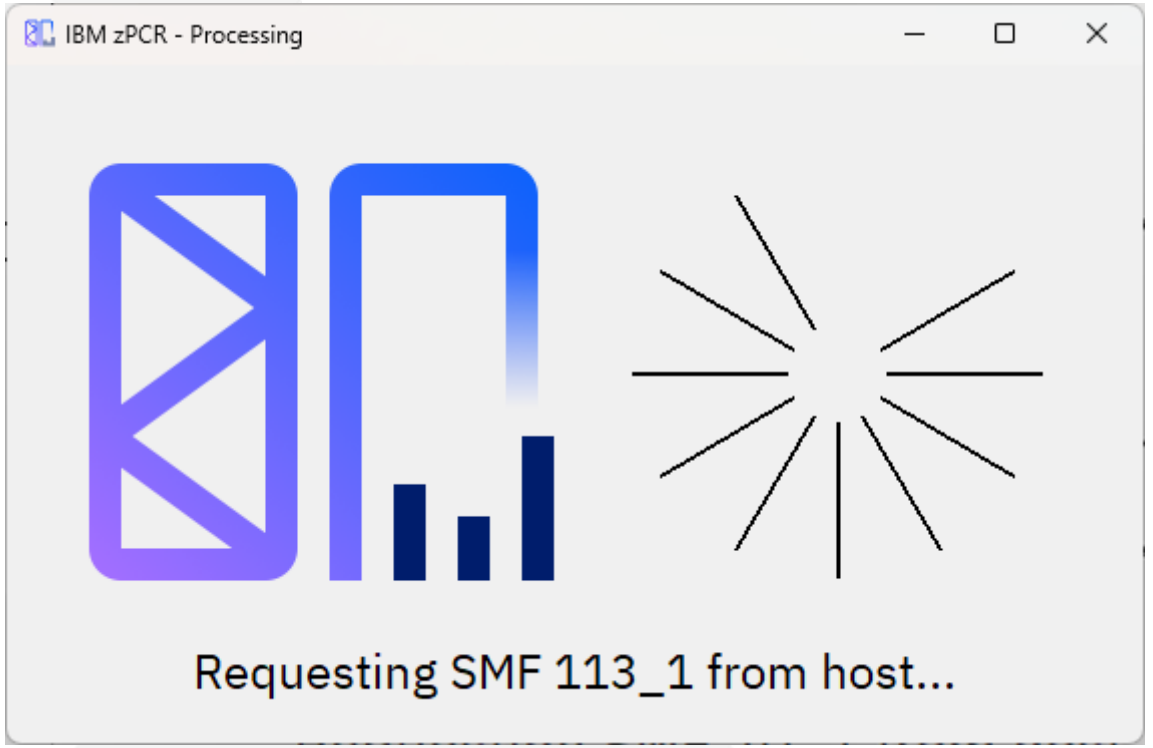
Select zip file name and destination

- Click “Get JSON”
- Name the zip file to be saved and select its destination

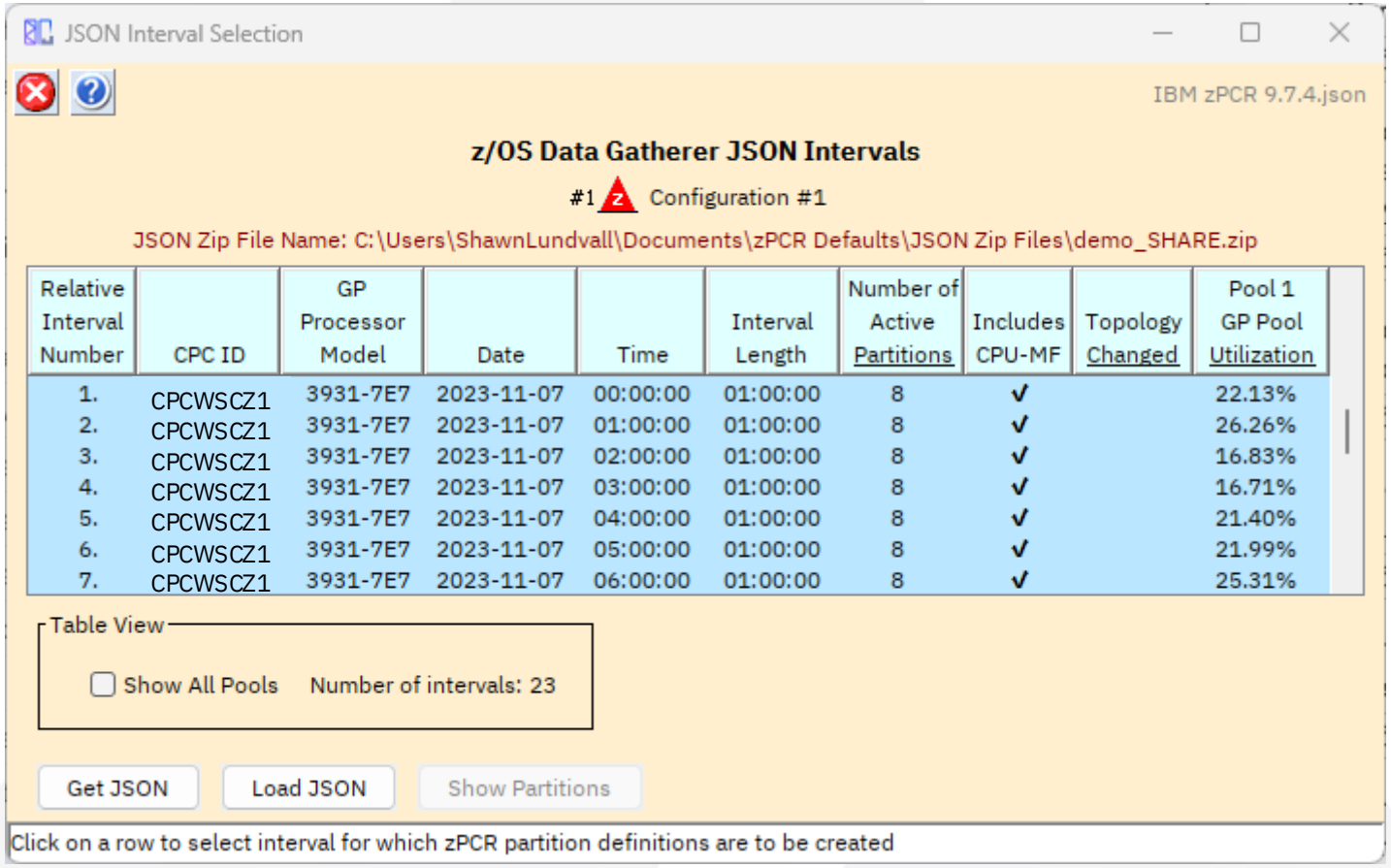


Wait for data



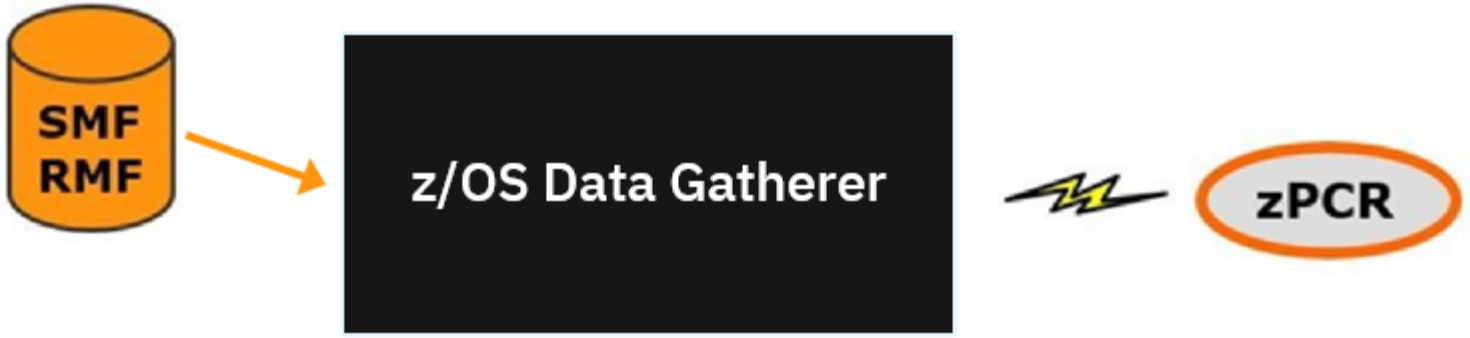


Interval Selection Window



Using z/OS Data Gatherer REST Services to provide SMF & RMF data to IBM zPCR modernizes your workflow.

- z/OS Data Gatherer REST Services make data on the host available via REST calls and present it in JSON
- IBM zPCR loads JSON data directly



- Pros: Simpler, no host interaction required
- Cons: Longer runtime for data extraction

Feedback? Email zpcr@us.ibm.com

IBM Z Trial for z/OS Data Gatherer and SMF Explorer:
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Cracking the Code to z17 Capacity Sizing – BYOD Lab
Tuesday, 8am, STE Lab

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