Quick and Easy - Accessing z/OS PDSEs and Sequential Data Sets Simply and Easily Using ‘MVSDS’, an IBM-supplied Component of z/OS Web

Browser
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Purpose of This Presentation

• It's been my experience that many z/OS users are still not aware of how easily z/OS PDSE's and flat files can be viewed via the z/OS web browser.

• This paper will cover the basics of how easily this is done and some of the uses that can be made of this facility.
Introduction

- z/OS PDSE's and flat files can be viewed via the z/OS web browser
- IBM distributes a GWAPI program called 'MVSDS' that makes this possible
- z/OS default ‘out of the box’ installations comes with this facility installed.
- You just need your z/OS system DNS name and possibly appropriate port number in order to view your z/OS text files via your company intranet
- Easier than accessing HFS files since no web browser directives etc. needed
Typical URL

- https://yourdnsname/MVSDS/‘yourflatorpdsedsname’
- **Example:**
  https://lpar01.bankofamerica.com:8283/MVSDS/’USERI D1.SHR.SAS’
- DNS name must be for a system that has an instance of the HTTP server started task running on it with ‘MVSDS’ installed.
- **Default** installation of IBM HTTP Server includes ‘MVSDS’
- **z/OS Systems are BY DEFAULT large web servers, with all of their text data sets accessible via browsers dependent only on RACF security constraints.**
Directory Listing of 'USERID1.SHR.SAS':

- $JOBAVG
- $JOBCFI
- $JOBHIST
- $PGMAVG
- $SHIFT
- ABENDS
- ABSMIPS
- ABSMIPST
- ACCUMCIA
- ACCUMCIIB
- ACCUMCIT
- ACCUMCIZ
- ACCUMDMY
- ACCUMDM2
- ACTINITS
- ACTLGR01
- ACTLGR02
- ACTLINES
- ALLOAS40
- ALLOCOPY
- ALLOEXCP
Typical URL - continued

Click on a member and you get:

• Can print via file/print etc.
Security – Two Ways to Set up:

• **Option #1** – do **NOT** use Web Server Directive “UserID %%CLIENT%%”:
  - Set up to use security settings of z/OS HTTP Server started task. If server started task has ‘READ’ access, then you can browse data set.
  - In practice this usually allows access only to data sets with a default RACF access of ‘READ’.
  - Very good for report access, since users **DO NOT NEED** ID defined to access z/OS reports via web.
  - Anyone, even managers without mainframe ids, can access reports.
Security – Two Ways to Set up:

• **Option #2 – Do Use Web Server Directive “UserID %%CLIENT%%”:**
  - Causes browser user to be prompted for their RACF userid/password
  - Security then allowed or denied by RACF according to user’s security settings.
  - Drawback is that everyone needs an id defined on z/OS system in order to access reports
Security – RACF HTTP Server Userid/Password Prompt:
Security – RACF HTTP Server userid/password prompt:

• If don’t have RACF READ or if URL misspelled, get same message –
  - (IMW0254E) Error 404 on browser

• Know it’s security if get in SYSLOG:

  ICH408I USER(WEBSRV ) GROUP(IMWEB ) NAME(WEBSRV VALIDATOR ) 022
  SYS1.PARMLIB CL(DATASET ) VOL(1SXFR1)
  INSUFFICIENT ACCESS AUTHORITY
  FROM SYS1.PARMLIB.** (G)
  ACCESS INTENT(READ ) ACCESS ALLOWED(NONE
Making z/OS links:

• Watch out for email etc. bug
• Some email and other Windows products will truncate the ending “ )’ “ of your URL
• Can’t tell by looking at the link
• Get the same Error 404 message
• Surrounding your URL with double quotes when making link will prevent this from happening
• Link looks the same as link made without double quotes, but works – nothing chopped off when click on it
Making z/OS links:

• HTML, PDF, GIF data sets etc. should have ‘HTML’, ‘PDF’, 'GIF' etc. as a complete qualifier in data set name.
• Otherwise text - great way to print PDS members if have RACF read to them!
• If don’t put member, get directory list displayed in browser and can select desired member
• PDSE’s and flat files good
• GDG’s also supported – but if want to use gdg# it must be a flat file unless type out the "GxxxVnn'
Advantages of Using MVSDS

• Don't have to move your data to other platforms to do z/OS reporting
• Can use extensive z/OS automation tools available
• Report data set management etc. available via DF/HSM etc.
• Code in common, centrally managed and supported repositories
Examples for Using MVSDS

- Text reports
- Links via emails
- HTML menus into text reports
- Simple spreadsheets
- Downloading from mainframe
- Single member HTML report or flat file HTML reports (Base SAS)
- HTML multiple PDSE member reports (Base SAS)
- More complicated spreadsheets (Base SAS)
- Graphical reports (SAS Graph)
Examples – Text Reports

• Just use SDSF ‘XDC’ command to write JES output to data set
• Or write report directly to data set
• Just point URL to it
Examples – Links via email etc.

• Then you can send link to report in an email
• Remember to put double quotes around link as you make it!
Examples – Text Reports:

• You can also just write to fixed PDSE gdg and then point url to directory of member reports:

```
Directory Listing of 'CPEP.CAPACITY.REPORTS.VIRGINIA(0)':

  (DAILYCIC)  (DAILYIMS)  (DAILYOVR)  (DAILYREG)  (EXCPCICS)  (EXCPIMS)  (HOURCICS)  (HOURIMS)  (PCD80BAP)  (PCD80BAT)  (PCD80CIC)  (PCD80DEV)  (PCD80IMS)  (PCD80OUT)
```
Examples – HTML Menus into Text Reports:

• Static HTML Menu Created via Windows product and uploaded to mainframe pointing to text gdgs:
Examples – Simple Spreadsheets

- You can make text report into a quick and easy spread using Select All/Copy; paste into spread and then ‘Text to Columns’ under ‘Data’ Excel tab – No more CSV’s!

![Spreadsheet Image](image.png)
Examples – Downloading from z/OS

• Sometimes a file is too large to copy/paste into a spreadsheet – then you need to download

• HTTP Server directive:
  ```bash
  AddType .DOWNLOAD text/download ebcdic 1.0 # MVSDS
  ```

• Whenever a URL is selected that ends in ‘.DOWNLOAD’, the Windows downloading dialog window will pop up.
Examples – Downloading from z/OS

<table>
<thead>
<tr>
<th>Prime Shift Report:</th>
<th>Non-Prime Shift Report*:</th>
<th>Prime Shift CSV Download (All LOBs One Month):</th>
<th>Non-Prime Shift CSV Download (All LOBs One Month)*:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-03</td>
<td>2013-03</td>
<td>2013-03</td>
<td>2013-03</td>
</tr>
<tr>
<td>2013-02</td>
<td>2013-02</td>
<td>2013-02</td>
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<tr>
<td>2013-01</td>
<td>2013-01</td>
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<td>2013-01</td>
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<tr>
<td>2012-12</td>
<td>2012-12</td>
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<td>2012-05</td>
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</tbody>
</table>

Please Select link for Report Desired
*Non-Prime MIPS reductions are only being credited for the 1D, 3K, 3W, 1C, and 3C

Capacity & Performance Management

Do you want to open or save "CFWP_APPLMIPS.CSV.ALLYM201304.DOWNLOAD_FROMMEM" from prod1s01.bankofamerica.com?
Examples – HTML reports

• Base SAS easily creates HTML reports
• Base SAS using ODS HTML or ODS tagsets.mvshtml creates HTML documents.
• SAS ‘PROC REPORT’ extremely useful – can assign URLs as cell attributes etc.
Examples – HTML reports

• Won't go into SAS coding techniques here – this has been covered in previous papers – this is overview of what you CAN do – not HOW to do it.

• Please see Section ‘Downloads’ of Barry Merrill’s web site:  http://www.mxg.com/downloads/ , Pat Wingfields's z/OS SAS ODS & Graph Paper

• Also presented at CMG 2009 – 'No More Downloading' paper

• Presented at NESUG/SESUG several times

• Many papers/presentations available on SAS
Examples – HTML reports

Our Report Index – SAS PROC REPORT used to assign links to cells:

1. CPU Daily by CEC (Includes zIIP/IFL)
2. CPU Trending by CEC (Includes zIIP/IFL)
3. CPU Daily by Node/Lpar (Includes zIIP/IFL)
4. CPU Trending by Node/Lpar (Includes zIIP/IFL)
5. OOCOD (Capacity On Demand)
6. SMF 113 Reports - RNI/CPI/L1MP etc.
7. IBM i Reporting
8. z/VMM z/LNX Reporting
9. CICS

Mainframe Capacity Planning and Performance

Reports Created and Residing on z/OS Systems and Accessed Using z/OS Web Capabilities

CPU Daily by CEC (Includes zIIP/IFL)

- DAILY: CPU UTILIZATION > 85% ALONG WITH SYSSID ACTIVITY
- DAILY: KANSAS CITY DEVELOPMENT CEC 15 MINUTE UTILIZATION
- DAILY: SELECTED VIRGINIA CECs ONE MINUTE MIPS USE
- DAILY: WORKLOAD MIPS USED DRILL DOWN BY CEC (ALSO ZIIP)
- DAILY: CPU UTILIZATION BY HOUR FOR CEC/LPAR (ALSO ZIIP/IFL)

Mainframe Capacity Planning & Performance Global Sharepoint
Examples – HTML reports

Network Exception Reporting System – each link is to a report showing an exception threshold exceeded:
Examples – HTML reports

Updated Version of MQ Operational Reports Shown Earlier:

<table>
<thead>
<tr>
<th>Channel Activity Statistics</th>
<th>Queue Latency Statistics</th>
<th>Queue to Application</th>
<th>Application to Queue</th>
<th>Buffer Manager Statistics</th>
<th>Connection Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>by Date</td>
<td>by Hour</td>
<td>by Date</td>
<td>by Hour</td>
<td>by Base Queue Name</td>
<td>by Object Queue Name</td>
</tr>
<tr>
<td>05/02/13</td>
<td>05/02/13</td>
<td>05/02/13</td>
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<td>05/20/13</td>
<td>05/20/13</td>
</tr>
</tbody>
</table>
Examples – HTML

SAS Proc Report:

- Eye tracking shading etc.
- PREV/NEXT/Home/Menu buttons for report navigation
- Notice Data Center Links at upper left – can navigate to cloned reports residing on different z/OS Sysplexes
- All hangs together like one physical report
Examples - HTML

SAS Proc Report – freeze headers, highlight exception cells etc.
Examples – Creating spreadsheet from HTML:

• Select All/Copy/Paste to Empty Spread
• Gives you a nice formatted spreadsheet – need to be careful of any subtotal lines however
Examples – Creating PDF/RTF formats

• SAS ODS PDF (Adobe Acrobat)
• SAS ODS RTF (Microsoft Word)
• Once again, available with Base SAS
Examples – SAS ODS PDF

- Creates flat file – all one document
- Better for printing etc. than HTML
Examples – SAS ODS tagsets.excelxp

• Text based Excel files
• SAS ODS tagsets.excelxp
• Create z/OS excel file – multiple tabs, summaries etc.
• Gets around some formatting issues when that can be found when copying/pasting from HTML
• Once again, available with Base SAS
Examples – SAS ODS tagsets.excelxp

• Batch job sends out automated email from z/os system:

NEW MAINFRAME CONFIGURATION REPORT AVAILABLE.

PCPW@varchvp02vipa-1s07.bankofamerica.com on behalf of CAPACITY.REPORTING@BANKOFAMERICA.COM

Sent: Wed 6/26/2013 7:42 AM
To: 9.02.02.PCPW@BofA

Job CPW1DHAR1 has created new daily configuration reports

Please see the following URL for recent changes:

"HTTP://PROD1585.BANKOFAMERICA.COM/MVSDS/CPWP.UPGRADES.DAILY.REPORTS.HTML(LINKS)"

The following URL for a new configuration report:

"HTTP://PROD1585.BANKOFAMERICA.COM/MVSDS/CPWP.CONFIG.REPORTS.HTML(LINKS)"

The following URL for a new CEC configuration XML file:

"HTTP://PROD1585.BANKOFAMERICA.COM/MVSDS/CPWP.CONFIG.XML(CEC)"

The following URL for a new SVSID configuration XML file:

"HTTP://PROD1585.BANKOFAMERICA.COM/MVSDS/CPWP.CONFIG.XML(SYSID)"

THANK YOU,
CAPACITY DATA MANAGEMENT AND ANALYTICS

IMPORTANT: THIS IS AN AUTOMATED MESSAGE, DO NOT REPLY TO THIS EMAIL
PLEASE SEND RESPONSES TO PATRICIA WINGFIELD
MAIL TO  PAT.WINGFIELD@BANKOFAMERICA.COM
Examples – SAS ODS tagsets.excelxp – to make XML into spread:

• Click on XML link:

```xml
<?xml version="1.0"?>
<?mso-application progid="Excel.Sheet"?>
  <DocumentProperties xmlns="urn:schemas-microsoft-com:office">
    <Author>PCPW</Author>
    <LastAuthor>PCPW</LastAuthor>
    <Created>2013-06-26T07:42:09</Created>
    <LastSaved>2013-06-26T07:42:09</LastSaved>
    <Version>9.02.03M3P04132010</Version>
  </DocumentProperties>
  <Styles>
    <Style ss:ID="_body">
      <Interior ss:Pattern="Solid" />
      <Protection ss:Protected="1" />
    </Style>
    <Style ss:ID="_contents">
      <Interior ss:Pattern="Solid" />
      <Protection ss:Protected="1" />
    </Style>
    <Style ss:ID="_pages">
      <Interior ss:Pattern="Solid" />
      <Protection ss:Protected="1" />
    </Style>
  </Styles>
</Workbook>
```
Examples – SAS ODS tagsets.excelxp – to make XML into spread:

Method 1:
• Open an empty spread – click file/open
• Copy and paste the entire desired '.XML' link below into the 'File Name' box and click on 'Open'.
• You may be prompted for your id/password and after a few seconds, the spreadsheet will be populated.
Examples – SAS ODS tagsets.excelxp – to make XML into spread:

Spreadsheet opens;
• titles centered
• separate tabs for each ‘by’ variable etc.

<table>
<thead>
<tr>
<th>General Purpose Engines</th>
<th>Specialty Engines</th>
<th>MIPS Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Reserves</td>
<td>Activated Reserves</td>
<td>Un-Activated Reserves</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Examples – SAS ODS tagsets.excelxp – to make XML into spread:

Method 2:
• Click on link
• XML text data set displayed (as in previous slide)
• Save as ‘.XML’ file in desired location
• When click on saved file, opens as a spreadsheet.
Examples – Graphical Reports

• Both static and dynamic graphs available If have SAS licensed on mainframe,
• Or can use Windows etc. based product and upload to mainframe
• If fortunate enough to have SAS/Graph on mainframe, can easily do automated extensive graphical reporting
Examples – Graphical Reports – SAS java graph
Examples – Graphical Reports – SAS PROC REG Relative Nest Intensity vs CPI analysis graph

The REG Procedure

Bank of America – Mainframe Capacity Planning and Performance – Job Cl

Regression Plots 'Model CPI = RNI' for 06/02/13

CEC = CEC4A

Physical Processor Type = CP System Identifier = 3K01
DATE = 01JUN2013

MODEL1
Plots

CPI = 5.4125 + 0.8133 RNI

L95M/L95M are 95% Confidence Intervals mean estimates. L95/L95 are 95% Confidence Intervals for point estimate predictions.
This information is Confidential and intended for Bank of America Internal Use Only.
Examples – Graphical Reports – SAS Gplot Rolling Four Hour Average
Examples – Graphical Reports – SAS PROC Gchart CEC OOCOD Usage

BANK OF AMERICA – Mainframe Capacity Planning and Performance
CPU UTILIZATION – Daily CPU Utilization VA – JOB CPWDUTIL
Average MIPS Used Over Hour OOCOD Report
ID = RV6 CPC Permanent Model Capacity Identifier = 711 FOR DAY OF = 31MAY2013

MIPS Available

MIPS Used

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

HOUR

TYPE
Permanent
Reserves_Act
Reserves_Unact
OOCOD

PLOT
AVG_MIPS_USED

Reporting is for CBG Activations as well as OOCOD
Slight differences in MIPS from WMS values are due to intervals not being aligned exactly to hour

Bank of America
Examples – Graphical Reports – SAS PROC Gchart Greplay tiled RNI/L1MP Reports

Bank of America – Mainframe Capacity Planning and Performance – Job CPWDRNH1 Bank of America – Mainframe Capacity Planning and Performance – Job CPWDRNH1

05/31/13 Prime Shift CP Engine L1MP by RNI for RV7
DATE=05/31/13 Prime SHIFT CP Engine L1MP by RNI for RV7

AVG HIGH

LOW

Bank of America – Mainframe Capacity Planning and Performance – Job CPWDRNH1 Bank of America – Mainframe Capacity Planning and Performance – Job CPWDRNH1

06/01/13 Non-Prime Shift CP Engine L1MP by RNI for RV7
DATE=06/01/13 Non-Prime Shift CP Engine L1MP by RNI for RV7

AVG HIGH

LOW
Apache Web Server

• z/OS Web Server changing to 'Apache' web server
• ‘MVSDS’ still supplied
• I have not been able to test, as we don’t have ‘Apache’
References

• Vincent DelGobbo and Cynthia L. Zender from SAS Institute have done very helpful papers on SAS tagsets.excelxp

• Also from SAS: http://support.sas.com/rnd/base/ods/templateFAQ/MVSODS3.pdf

• Also on www.MXG.com under ‘Downloads’ section ‘No More Downloading’ paper by Patricia.
Questions?