# IBM Developer for z Systems – for ISPF Developers

## **Module 7** – MVS Subprojects - Organizing PDS Members

DevOps

***Jon Sayles:*** *jsayles@us.ibm.com*

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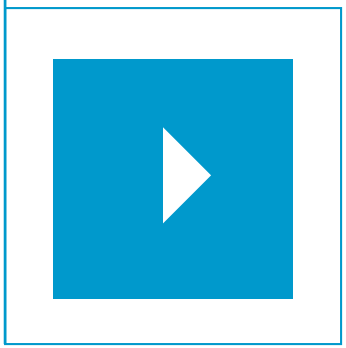
UNIT

# The RDz Workbench



Topics:

- **MVS Subprojects**
- Offline Subprojects
- MVS Subproject use with CARMA for Endevor/Changeman

# Types of Projects

- RDz allows you to organize your files in multiple types of useful, based on your application technical and organizational requirements
  - Remote Systems Explorer (**RSE**) – using MVS Filters
    - For one-off or trivial (short-term) – or "quick fix" tasks that only require you to work on a few programs or JCL files within a single RDz session
    - Use RSE to: Analyze/edit/compile
  - z/OS Projects with **MVS Subprojects**
    - For project tasks that will persist over multiple RDz development sessions
    - Or tasks that may need any number and also different types of source files
    - Notes on MVS Subprojects:
      - All resources ultimately wired back to their mainframe origins
        - **Your SCM (source code management)** system
        - **PDS or sequential files**
  - Workstation (local) z/OS Projects
    - All source lives locally, within your workspace

For detailed information on RDz project organization see this Help topic:

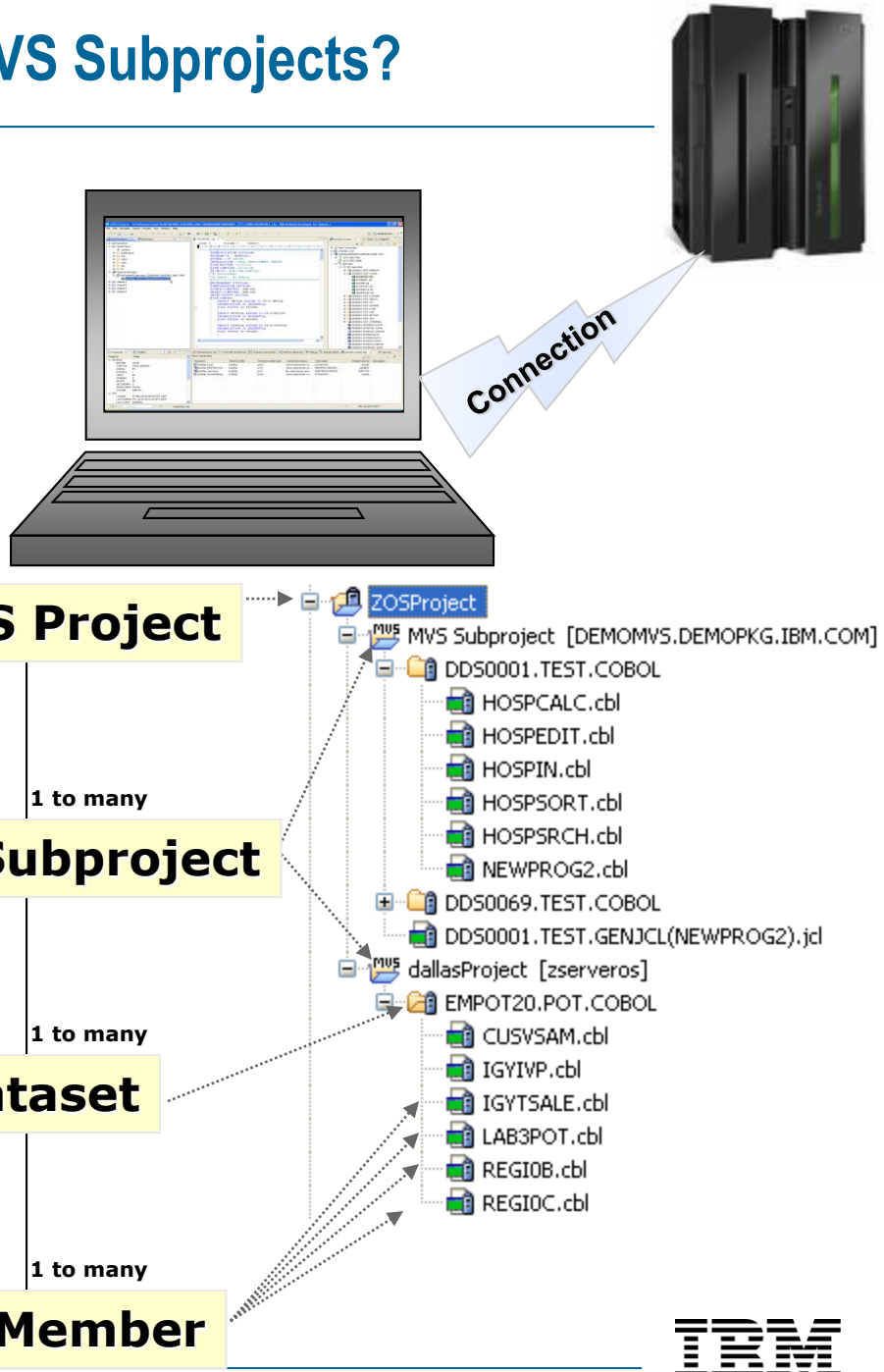
http://pic.dhe.ibm.com/infocenter/ratdevz/v8r5/index.jsp?topic=%2Fcom.ibm.etools.zide.cmn.doc%2Ftopics%2Fczdcmn026.html

# What are z/OS Projects and what are MVS Subprojects?

- **z/OS Projects:**
  - RDz file organization constructs consisting of separate MVS Subprojects shown as

*Basically a **"tree control"** that allows you to Push/Pull file DSNs under category folders – in order to simplify your work, by organizing needed files in one place*

- **MVS Subprojects are:**
  - Groupings of pointers to resources (DSNs)
  - Populated by dragging and dropping files from a mainframe RSE connections
  - Kept in-sync – with mainframe host resources, when online
  - (or can be) compiled and linked into a single load module
  - Used with RDz's interface to CA-Endevor and Serena Changeman



# Why use MVS Subprojects?

- **Productivity:**
  - Organization – Provide “High-level of abstraction” – isolated views of your files:
    - **Effective way of accessing frequently used datasets and/or PDS members**
    - Provide hierarchical folders, to manage small number of files
  - Speed:**
    - MVS Subprojects running Offline (see below) provide for extremely fast file access/update response-time

**** Offline SubProjects were deprecated as of RDz v9.5 / IDz v14.0**

  - Data Access and SCM-Integration:
    - MVS Subprojects are the RDz/IDz components utilized by IBM and 3rd Party Vendors, as receptacles for advanced functionality:
      - Check-out – of SCM tooling
      - Data Access (see Module 9)

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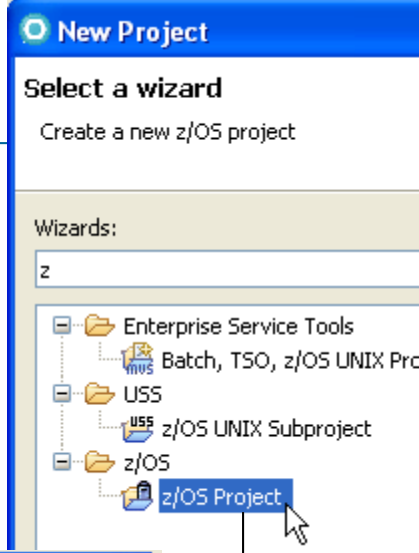
- **Property Group Management:**
  - MVS Subprojects allow you to assign specific Property Groups (with different SYSLIB or other configuration) to disparate COBOL / PL1 programs – organized within High-Level of abstraction elements:
    - IMS, CICS, DB2, Batch ... etc,
- **Development MIPS Reduction:**
  - Local syntax check …vs… running mainframe compiles
  - Can develop in Online/Offline mode – for reduced TSO/ISPF session costs – See notes for a deeper explanation of this.

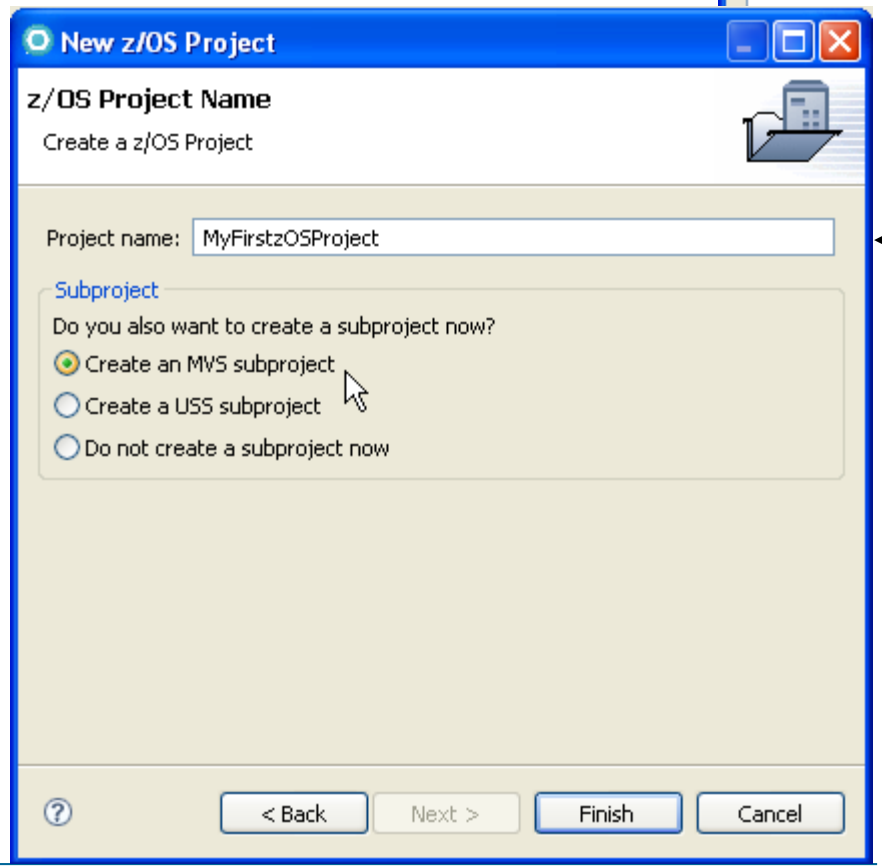
# How do I Define a z/OS Project and MVS Subprojects?

1. Connect to your z/OS LPAR
2. From z/OS Projects, create a new project of type **z/OS**, and of sub-type: **MVS Subproject**
3. From Remote Systems Explorer (**RSE**):
   - From My Datasets or any MVS File Filter, Drag & Drop – or select copy & paste all of the host resources (file **names**) you would like to make part of your MVS Subproject
     - Programs, Copybooks, Other files: Load libraries, JCL, etc.
     - Any file types **except for**: VSAM and GDGs
4. Access files from your MVS Subproject:
   - Analyze your requirements and program source
   - Edit the COBOL source
   - Compile – Locally or Remote – through JCL or using the RDz tooling
   - Find program dependencies
   - Work offline
   - Test (debug or run with JCL) – if batch

# Creating an MVS Subproject (1 of 2)

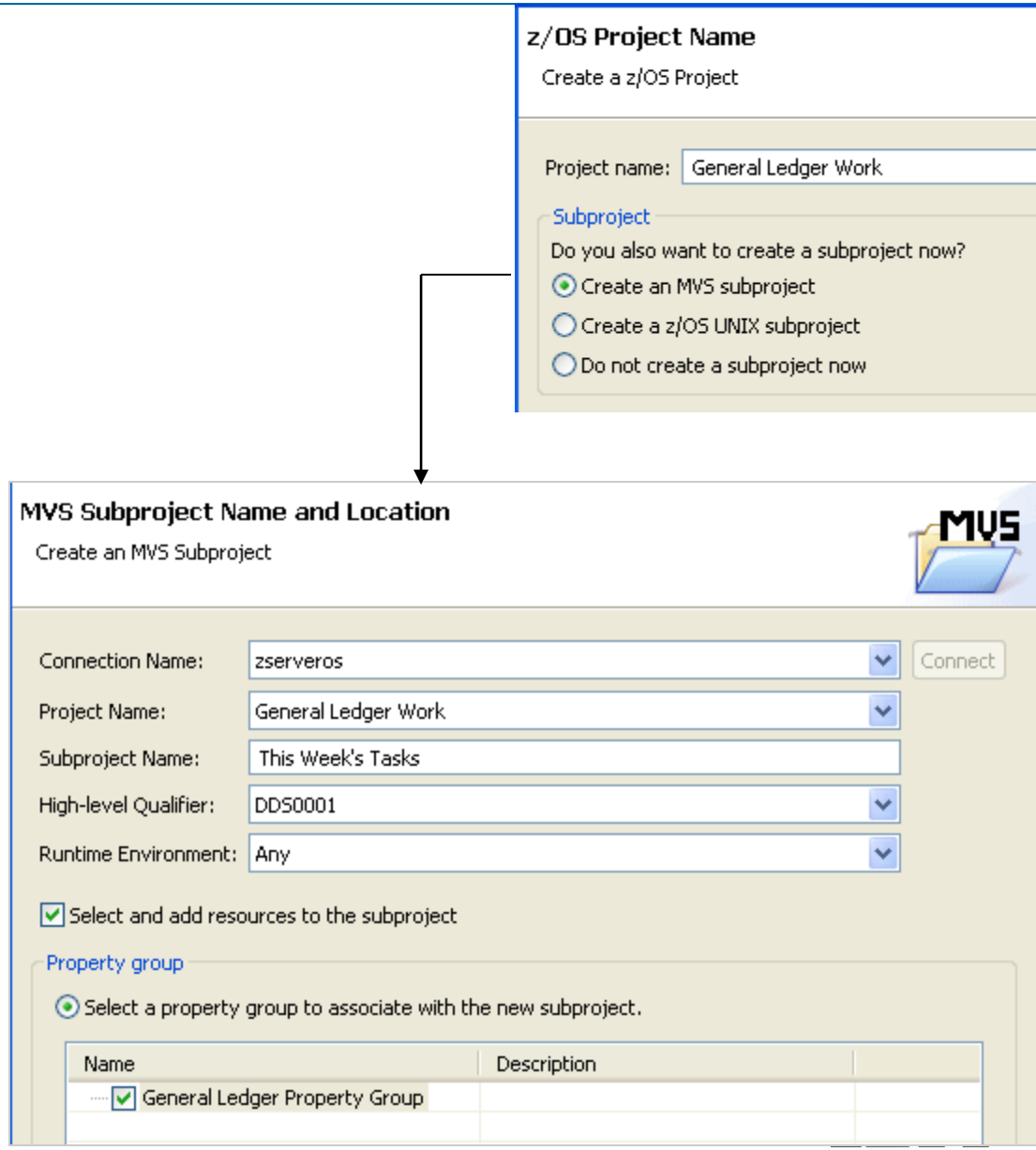
- Using RSE:
  - Connect and login to your LPAR
- From z/OS Project Explorer:
  - Select File > New > Project
  - Type a z under Wizards
  - Select z/OS Project
  - Click Next
- From New z/OS Project:
  - Name the project
  - Make sure:
    ⊙ **Create an MVS Subproject**
    *is* checked
  - Click Finish



# Creating an MVS Subproject (2 of 2)

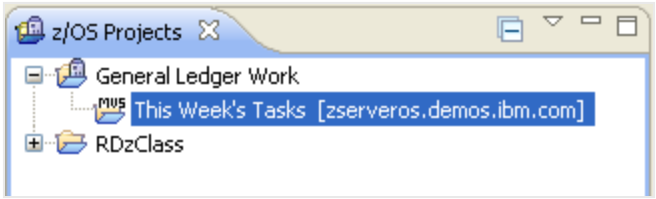
- Type the Subproject Name
- If you have more than one connection open, you can select the **High-Level Qualifier** – which becomes the Host Short Name
- If there is a property group associated with your connection you can:
  - Select it (as shown) by checking
    - This is what you should do 99.99% of the time – you should use the same Property Group settings for your Subproject as you've defined for your resources in RSE
  - Edit it – by clicking:
- You could also:
  - Create a new property group
  - Import a property group
- Click **Finish**



# MVS Subproject in the z/OS Projects view

- You should now see your Subproject in the z/OS Projects view

- Note that your Subproject name will likely be different, as it reflects the connection name to your LPAR




## What's next?

- Populating your Subproject
  - Copying content from the mainframe to your workstation
- Program development work:
  - Checking dependencies and working with copybooks
  - Edit/Local Syntax Check
  - Remote compile
- Working Offline
  - Synchronizing source code changes with the mainframe

# Add z/OS resources to the MVS Subproject (1 of 3)

- There are several ways you can add to an MVS Subproject from z/OS:

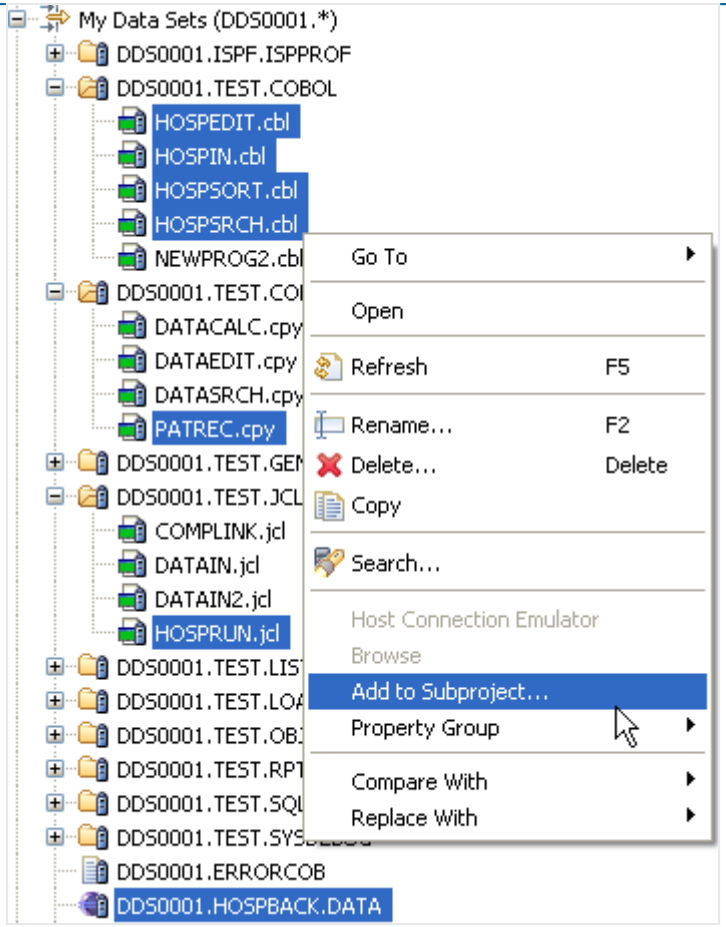
  Using RSE:

  1. Select an entire PDS …or…
  2. Select a sequential data set (QSAM file) …or…
  3. Select specific PDS source file members …or…
     Select a combination of:
     - Individual sequential files …and…
     - Individual PDS members

## After you have selected the resources you wish to add:

– Right-click and select:

**Add to Subproject…**

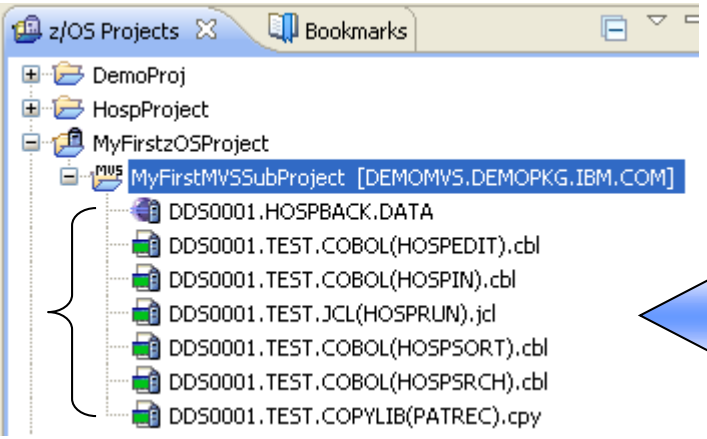



**Adding explicitly-selected files to an MVS Subproject**

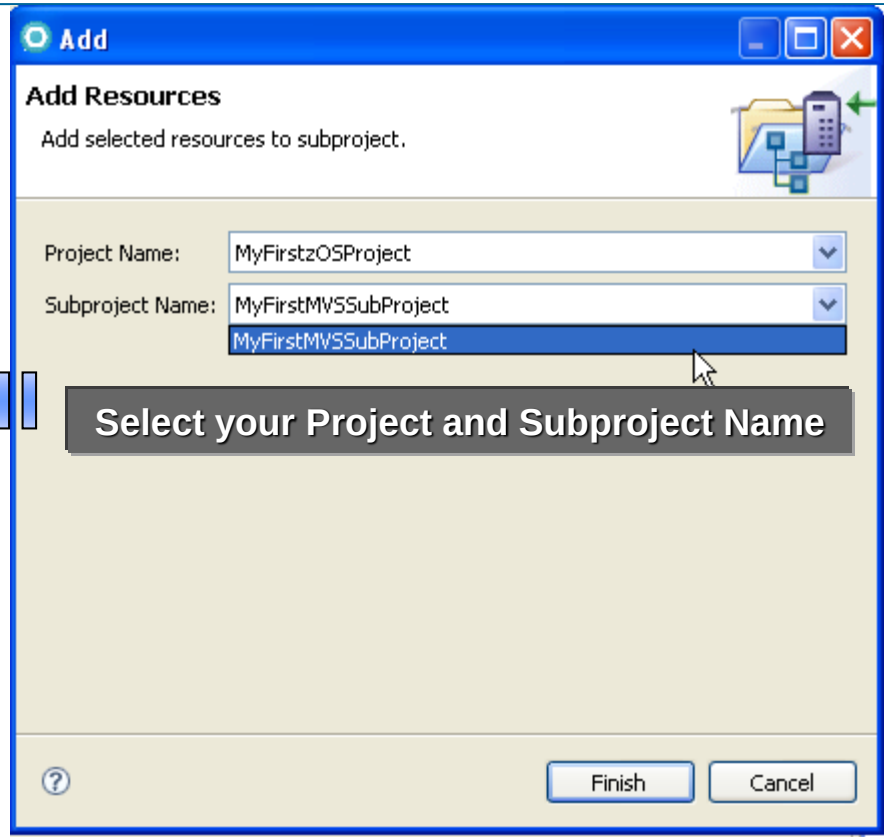
You can also add resources from RSE by simply:

– Holding down the Ctrl key
  – Selecting specific files
  – Dragging & Dropping your selected files from RSE to the Subproject

# Add z/OS resources to the MVS Subproject (2 of 3)




***Resource names added to an MVS Subproject***




**Note:** **When you add resources to a Subproject the (physical) files themselves are not copied from z/OS.**

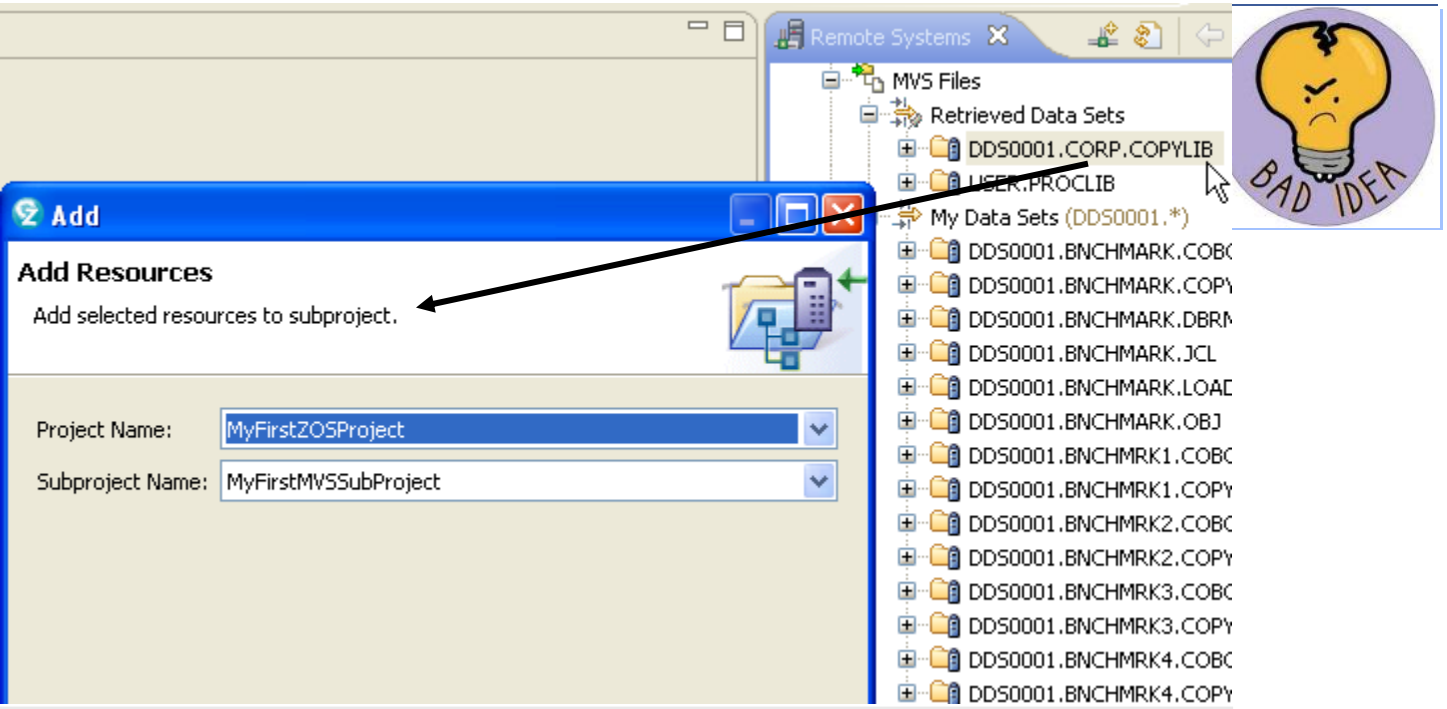
**Links – or *named pointers* are added to the Subproject.**

**This means that if you delete a file from your MVS Subproject it is physically deleted on your host system.**

# Add z/OS resources to the MVS Subproject (3 of 3)

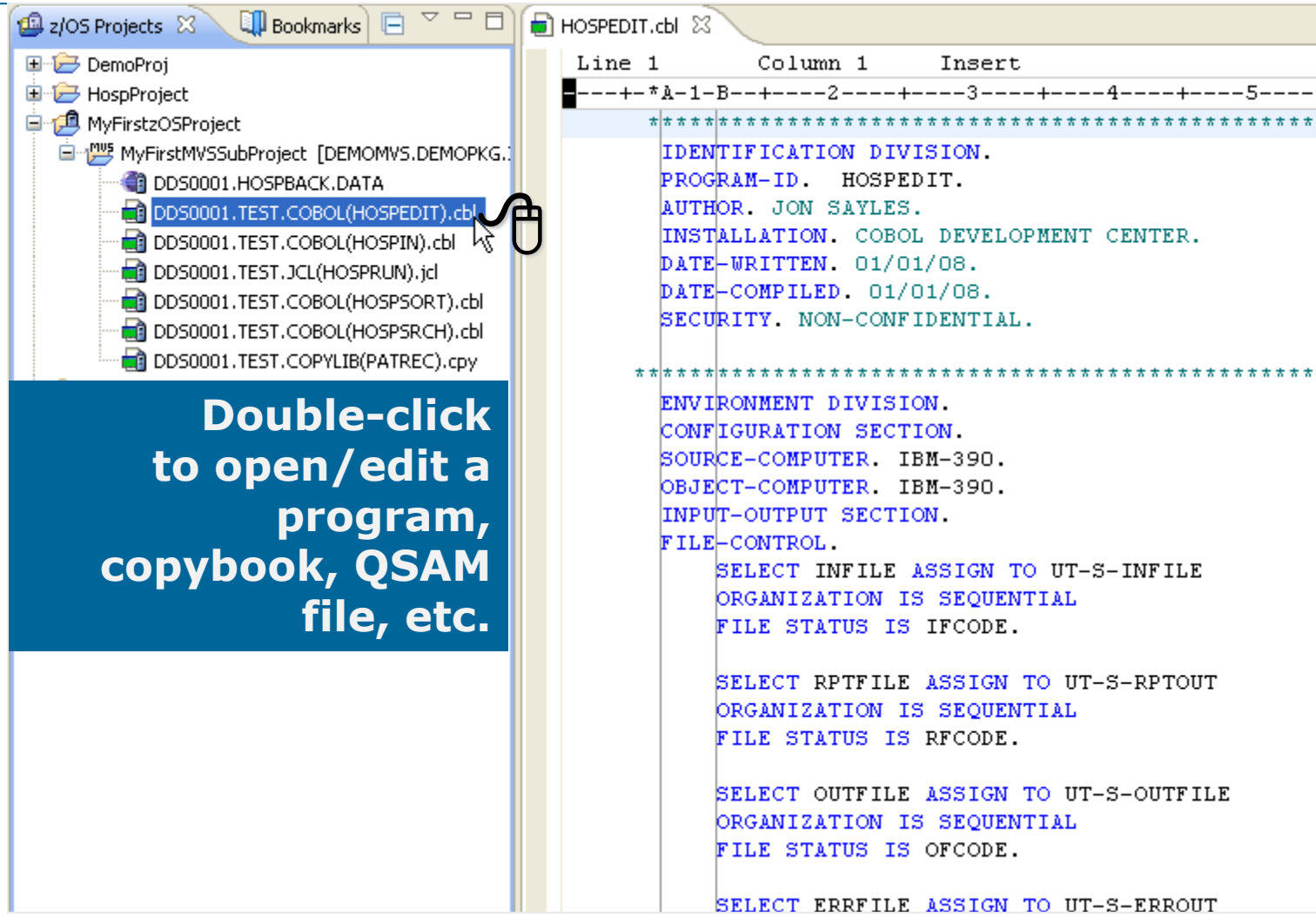
**Important Note : MVS Subprojects should be used to organize a small number – less than 50➔60 total files and each PDS member counts as one file (not the library DSN – each PDS member).**

**Do <u>not</u> add references to large libraries or add ➔ 60 files to your MVS Subprojects. Your RDz launch time will slow appreciably.**



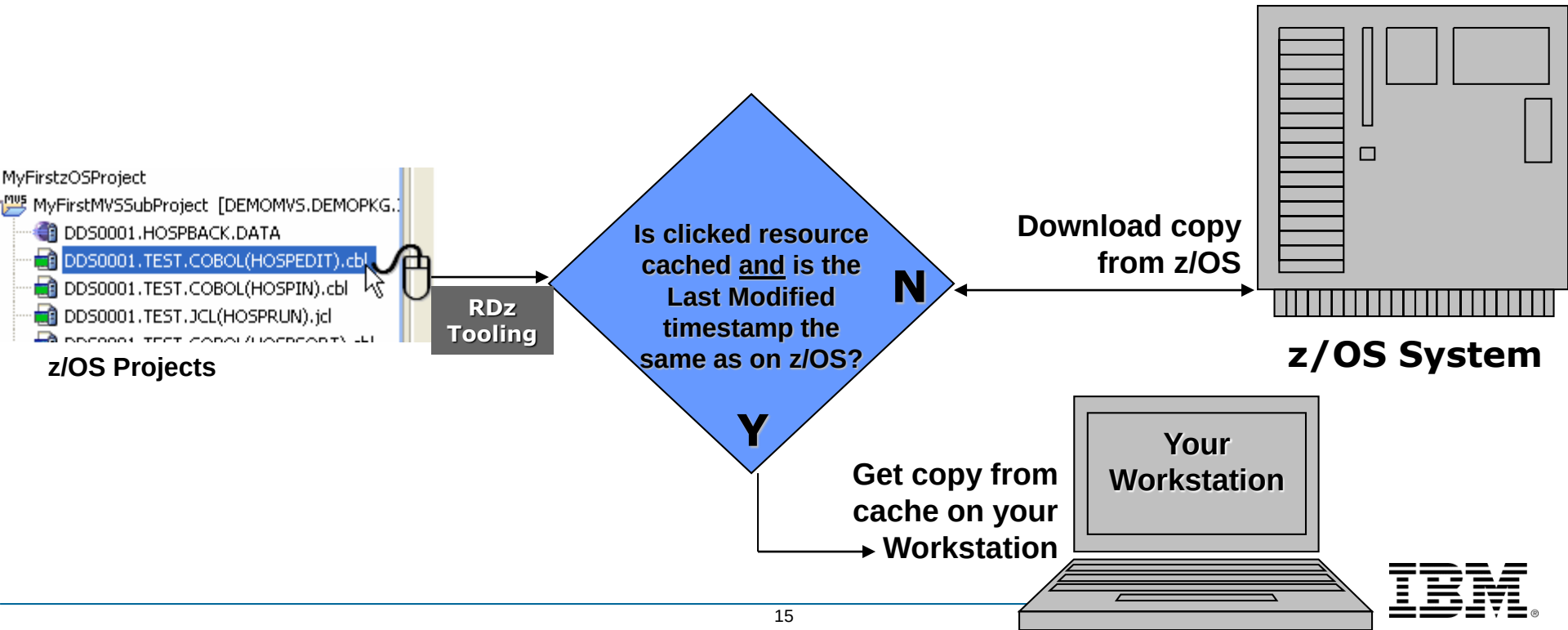

**Don't drag & drop large libraries or a large number of individual files to your MVS Subproject**

# Open a Resource from an MVS SubProject



# What Happens Upon "File Open"?

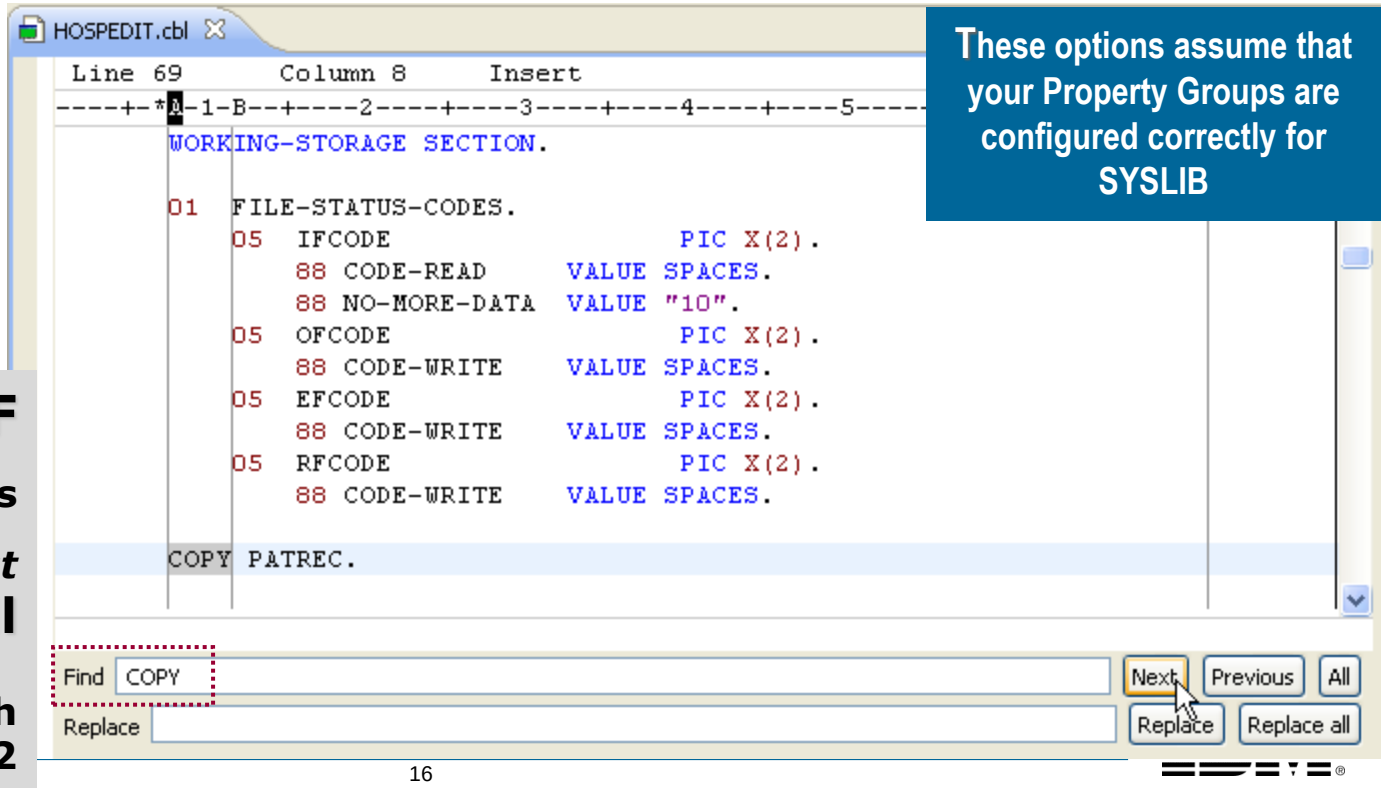
- Just like with RSE, the first time you open a file in an MVS Subproject or from RSE:
  - The remote file is downloaded (copied) from z/OS to your PC – through the pointer to the file
  - The source lines (records) are translated from EBCDIC to ASCII
  - A copy of the file is ***cached*** on your PC, and subsequent editing reuses the cached file copy (assuming no changes are made to the dataset contents on the host). This:
    - **Eliminates redundant (unnecessary) z/OS file downloads and saves MIPS**
    - **Improves editing performance of opened/copied file**
    - **Persists across close/re-open of RDz**
  - Whether or not to use cached-copy is based on files *"Last Modified"* timestamp
    - **Not available for a sequential data set, or a member with no time stamp (i.e. STATS OFF)**



# Working with Copybooks and Include Files

- Many options, for doing work with copybooks:
  - Find COPY/INCLUDE statements inside your program source
  - Browse (open) copybook in the Content Area
  - Open Declaration (of a field that's defined inside a copybook)
  - The z/OS Projects Context Menu: Show Dependencies…
    - Brings copybooks into the MVS Subproject, caches them, and makes them available for:
      - Local Syntax Check (which saves TSO cycles)
      - All other RDz work

Recall how to isolate copy/include references in your programs:




These options assume that your Property Groups are configured correctly for SYSLIB

**Ctrl/F**

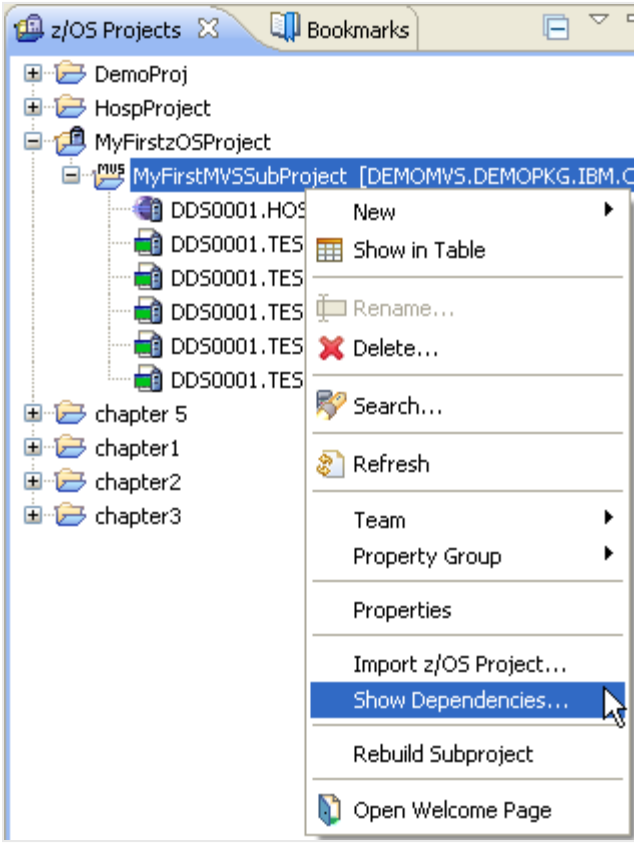
**Find copybooks**

***For compressed list click* All**

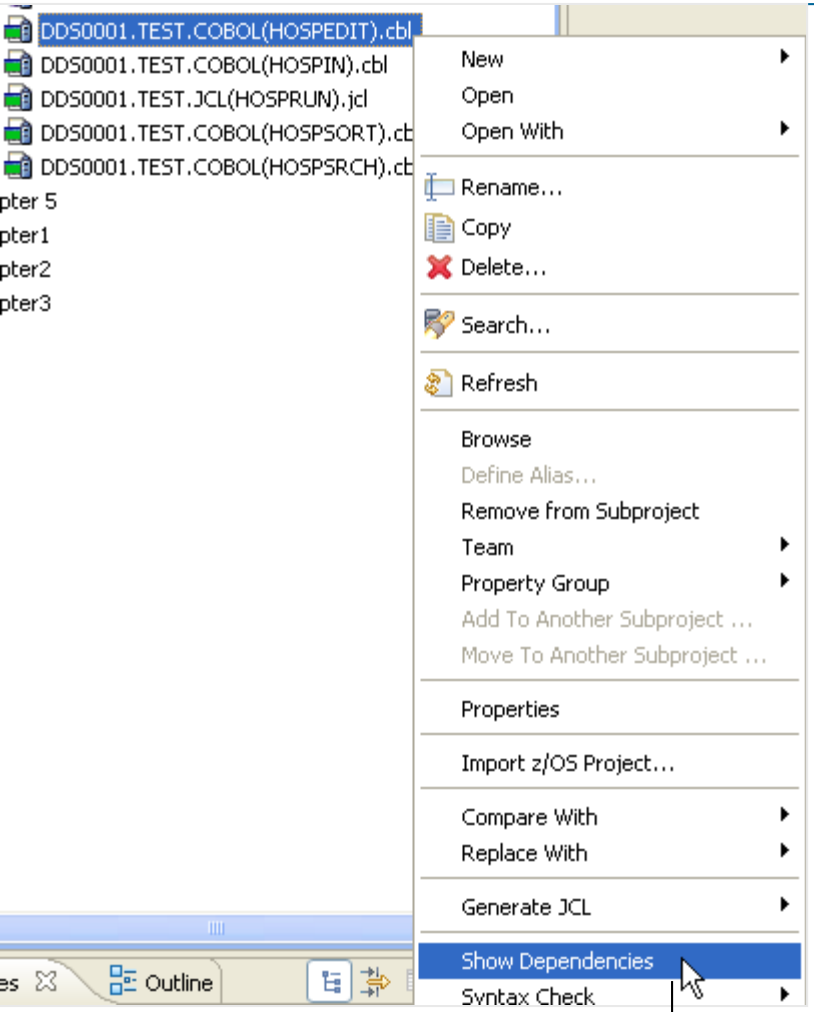
**Can also restrict search to columns: 8 → 12**

# MVS Subproject Show Dependencies…

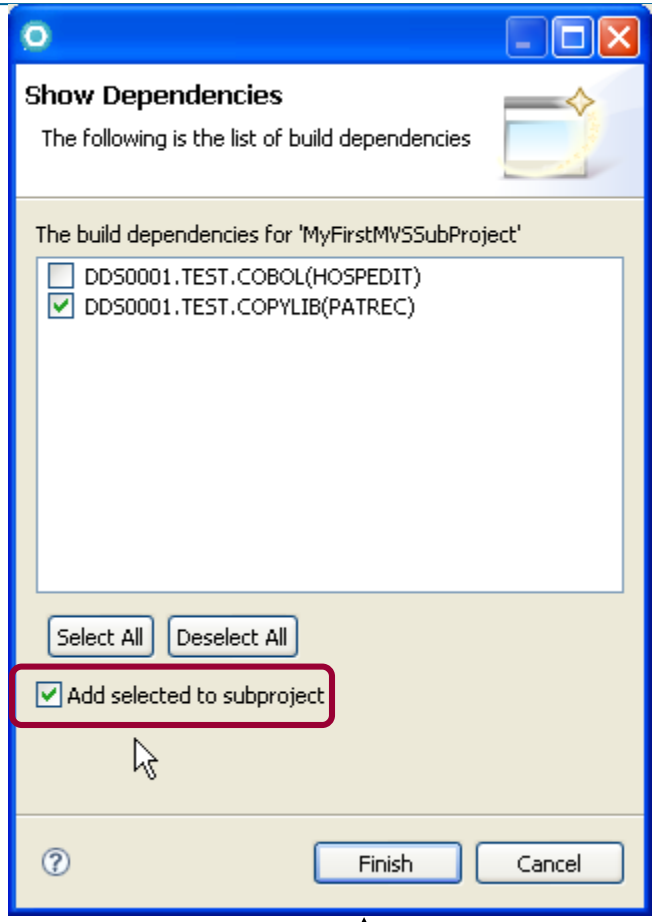
- Displays the Copy members or Include files required to do a local syntax check or a project build a COBOL or PL/I program.
- Show dependencies can be used to bring all the build dependencies into a project.
- Action is valid from:
  - Remote Systems view
  - z/OS Projects view
  - A file or the entire project
- A remote syntax check is performed on the resource.
  - For a project, a syntax check for each COBOL or PL/I file
- The compiler tells you which copy or include files were used for the compile.

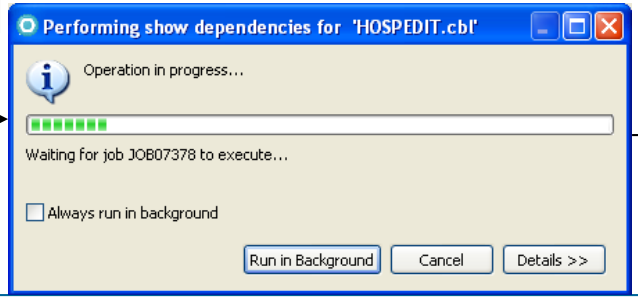


# Show Dependencies – Process



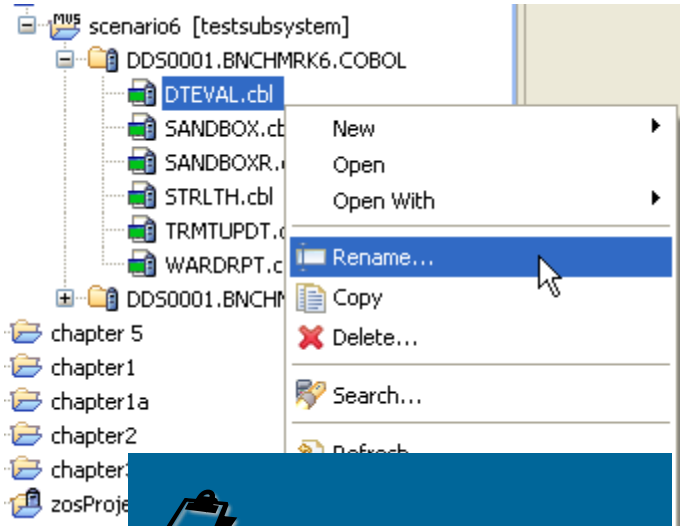

**Show dependencies returns a list of build dependencies.**



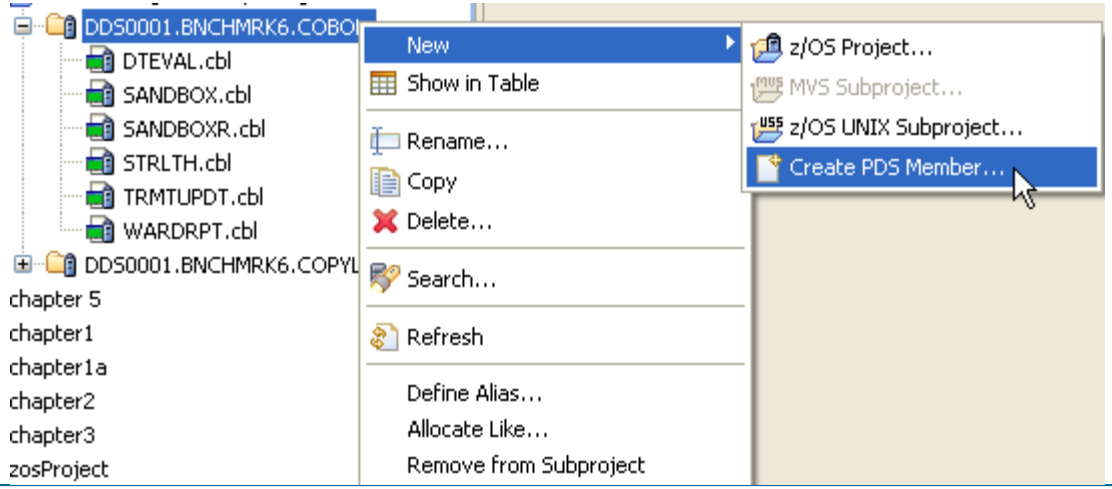



# Dataset Management for a PDS Member – Accessed via an MVS Subproject

- Recall that MVS Subprojects are simply pointers back to your datasets on z/OS. So what ISPF 3.x functions are available through Subprojects?
  - PDS and PDS member dataset management:
    - Rename – Renames the file on the host
    - Delete – Deletes the host dataset or member (!!)
    - Search
    - Browse
    - Open




  - PDS-level dataset management"

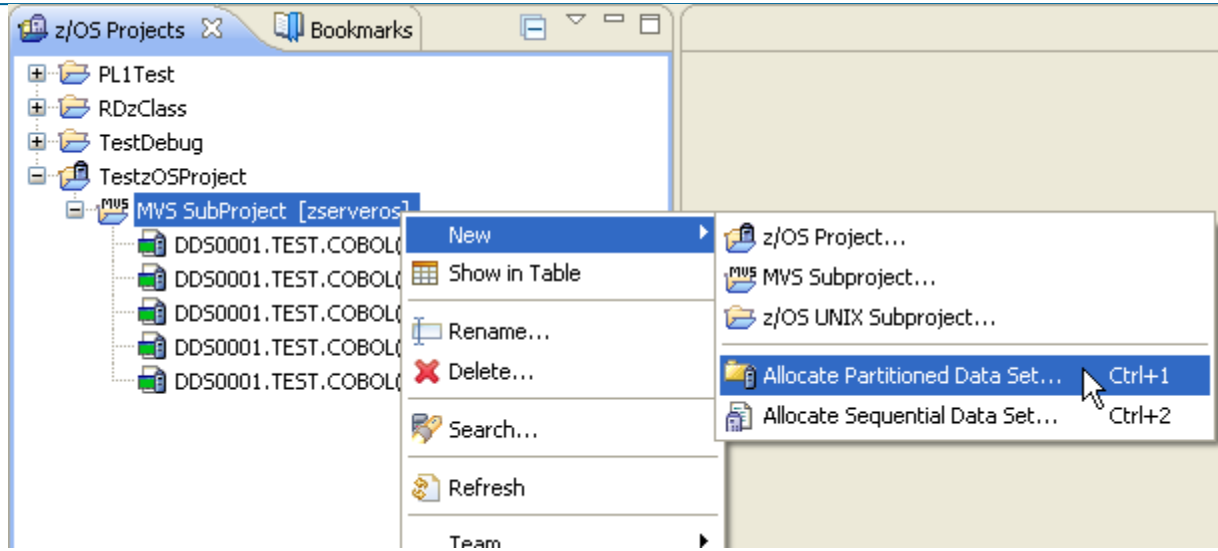



To reiterate – the file list within an MVS Subproject is a list of pointers to z/OS datasets and library members

Operations against those files (such as rename or delete) happen on z/OS.

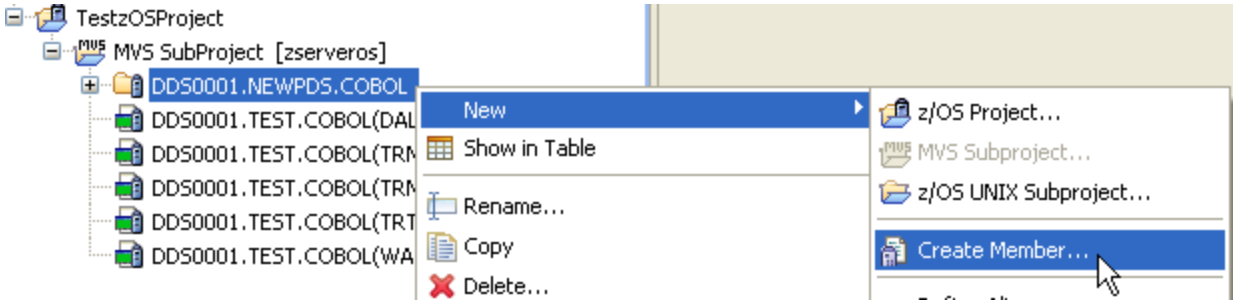
# Create New PDS and New PDS Members (From an MVS Subproject)

- You can Allocate new Partitioned and Sequential Data Sets from an MVS Subproject
- Steps:
  - Select the MVS Subproject (as shown here) ➔
  - Right-click and select:
    - New
    - Allocate Partitioned Data Set…
  - Respond to the new PDS panel and prompts (as described in the course module titled: RDz Workbench – Using Remote Systems Explorer)




From your new PDS you can:

- Right-click and select:
  - New >
  - Create Member…




- Your PDS and any new members will populate the RSE View as soon as they are successfully created