Managing Application Backup and Recovery without using ABARS

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Agenda

- Application Attributes
- Critical Dataset Determination
- Backup Job Tracking
- Application Backup Validation
- Recovery Options
- Critical Dataset Determination Scenario
- Backup Job Tracking Scenario
- Application Backup Validation Scenario
- Recovery Scenarios
- Summary

Application Attributes

- Application Production Jobs
  - Submitted by application scheduler product
  - Adhoc or periodic
    - On demand
    - Weekly, monthly, quarterly, etc.
  - Multiple cycles
    - Daily, weekly, monthly, etc.
  - Maintained by development and scheduling staffs
    - Jobs added/deleted/modified based on application requirements

Application Attributes

- Application Backup Jobs or Steps
  - Submitted by application scheduler product
    - At specific processing points in application cycle
    - At application cycle end point
  - Adhoc or periodic
    - On demand
    - Weekly, monthly, quarterly, etc.
  - Maintained by development and scheduling staffs
    - Jobs/steps added/deleted/modified based on application requirements
  - Various backup utilities used
    - DFSMSdss, FDR, IDCAMS, IEBCOPY, IEBGENER, SORT, etc.
  - Multiple copies often created
    - Local, off site, stacked tape, duplexed, etc.

Critical Dataset Determination

- Datasets Required for Application Execution
  - Rerun last cycle or run next cycle
  - Referenced by application jobs
    - Regular application execution cycle
    - Adhoc
    - Periodic
  - Not always referenced by application jobs
    - Tools
- Automation and Filtering
  - Automatically discover datasets used by application jobs
  - Discard/add specific datasets
  - Create critical dataset list

Backup Job Tracking

- Application Dataset Backups
  - Steps within scheduled application processing jobs
  - Jobs within scheduled application processing
  - Application post-cycle end backup jobs
  - Other general backups
- Tracking Automation
  - Monitor backup jobs and steps
  - Record backup information in inventory
  - Backup inventory reporting

Application Backup Validation

- Verify Application Critical Datasets Have Backups
  - Ensure recoverability
  - Prove compliance
  - Support audits
- Compare Critical Dataset List to Backup Inventory
  - Cycle end critical dataset list
  - Tracked backups
  - Identify datasets without backups
  - Identify specific cycle end point backups for recovery

Recovery Options

- Selective Dataset Restore
  - Choose most appropriate backup from inventory
  - Automatically generate restore jobs
  - Local or remote site
- Complete Application Restore
  - Choose most appropriate cycle point
    - Current, -1, etc.
  - Automatically generate restore jobs
  - Local or remote site

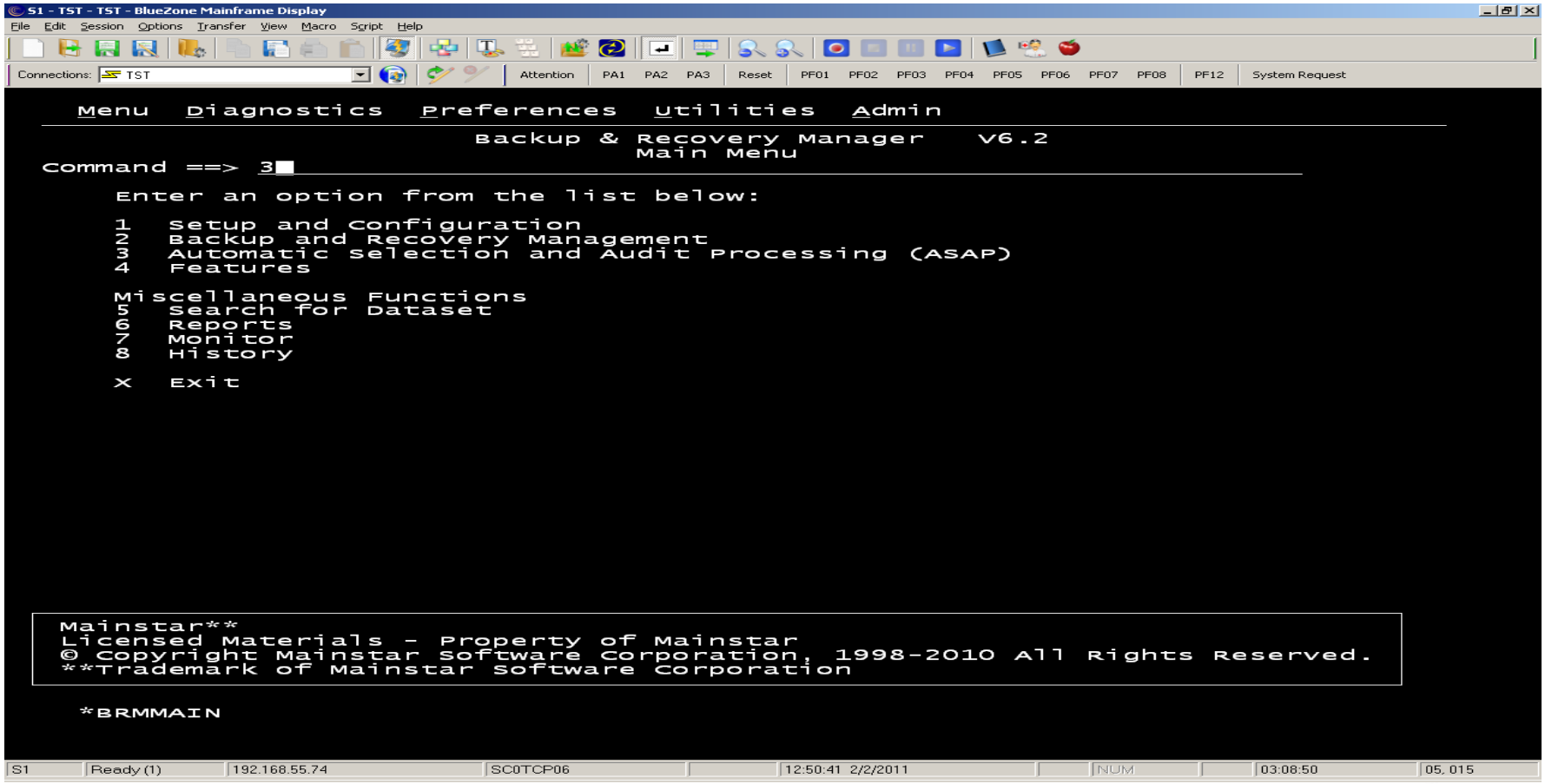
Critical Dataset Determination Scenario

- Define Application
  - Application name
  - Number of cycle point backups to retain
  - Support for application rerun cycle or run next cycle
  - Critical dataset list name and format
    - DFDSS, FDR, ABARS, CA-Disk, etc.
  - Application job names
    - List and/or masks
    - Extract from scheduler product database
  - Dataset name filters
    - Include and/or exclude
      - *Based on SYSID, DSN, VOL, JOB OR UNIT*

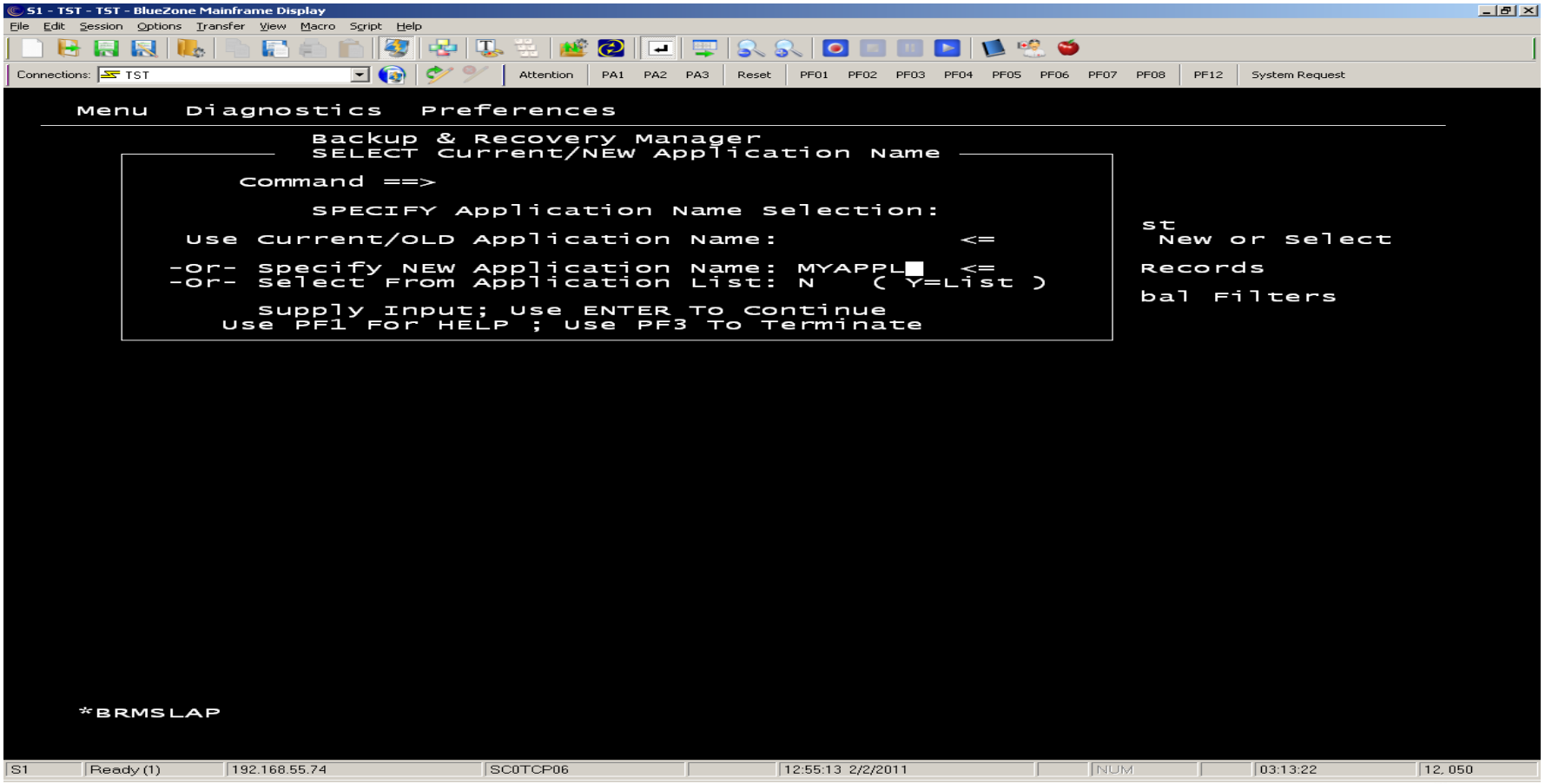
Backup and Recovery Manager (BRM)

- Automated Selection and Audit Process (ASAP) Function
  - Application registration
  - Application job tracking
  - Application critical dataset name discovery
  - Critical dataset backup control card creation

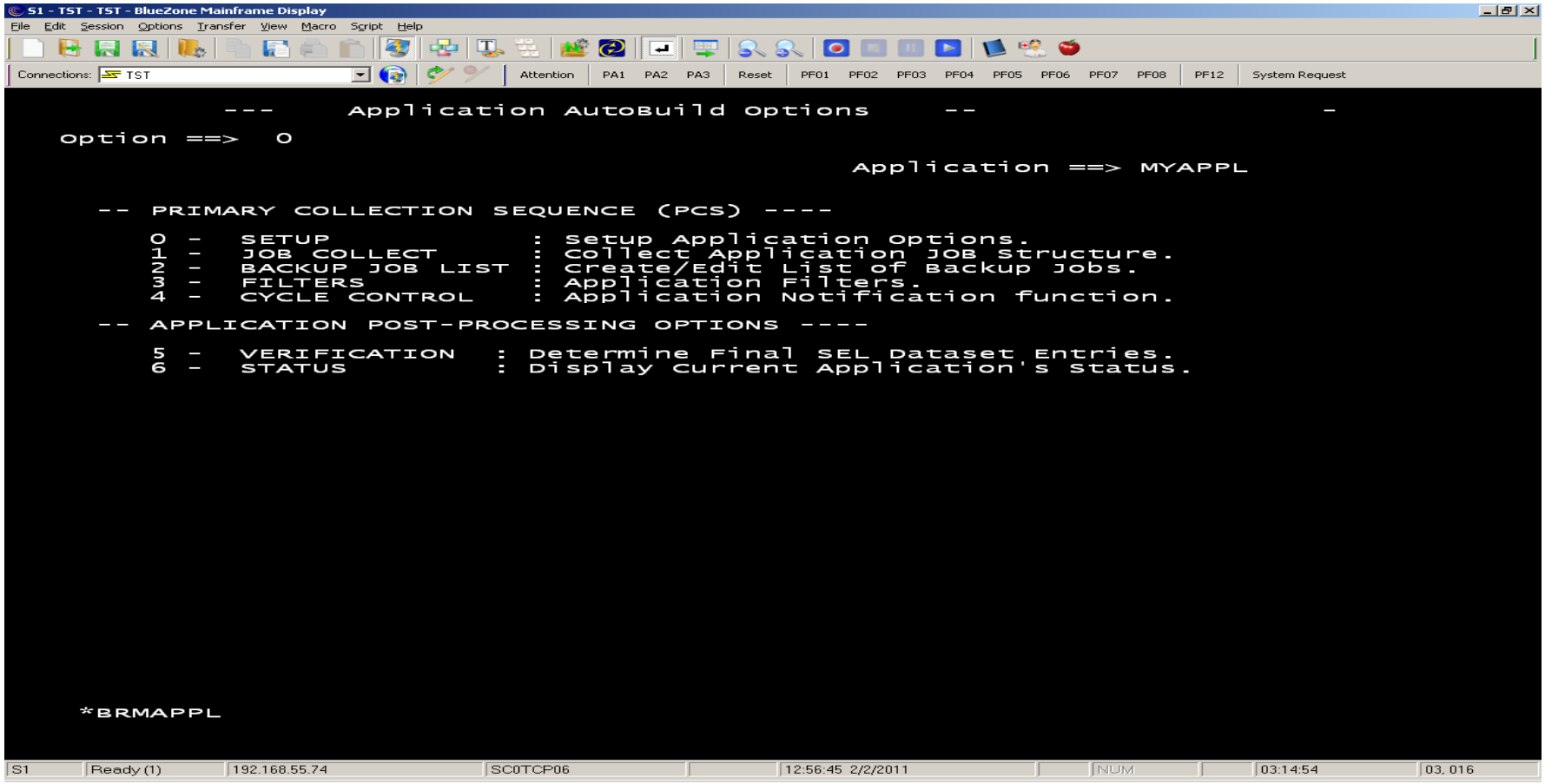
Use ASAP to Define Application MYAPPL



Define Application MYAPPL



Define MYAPPL Attributes



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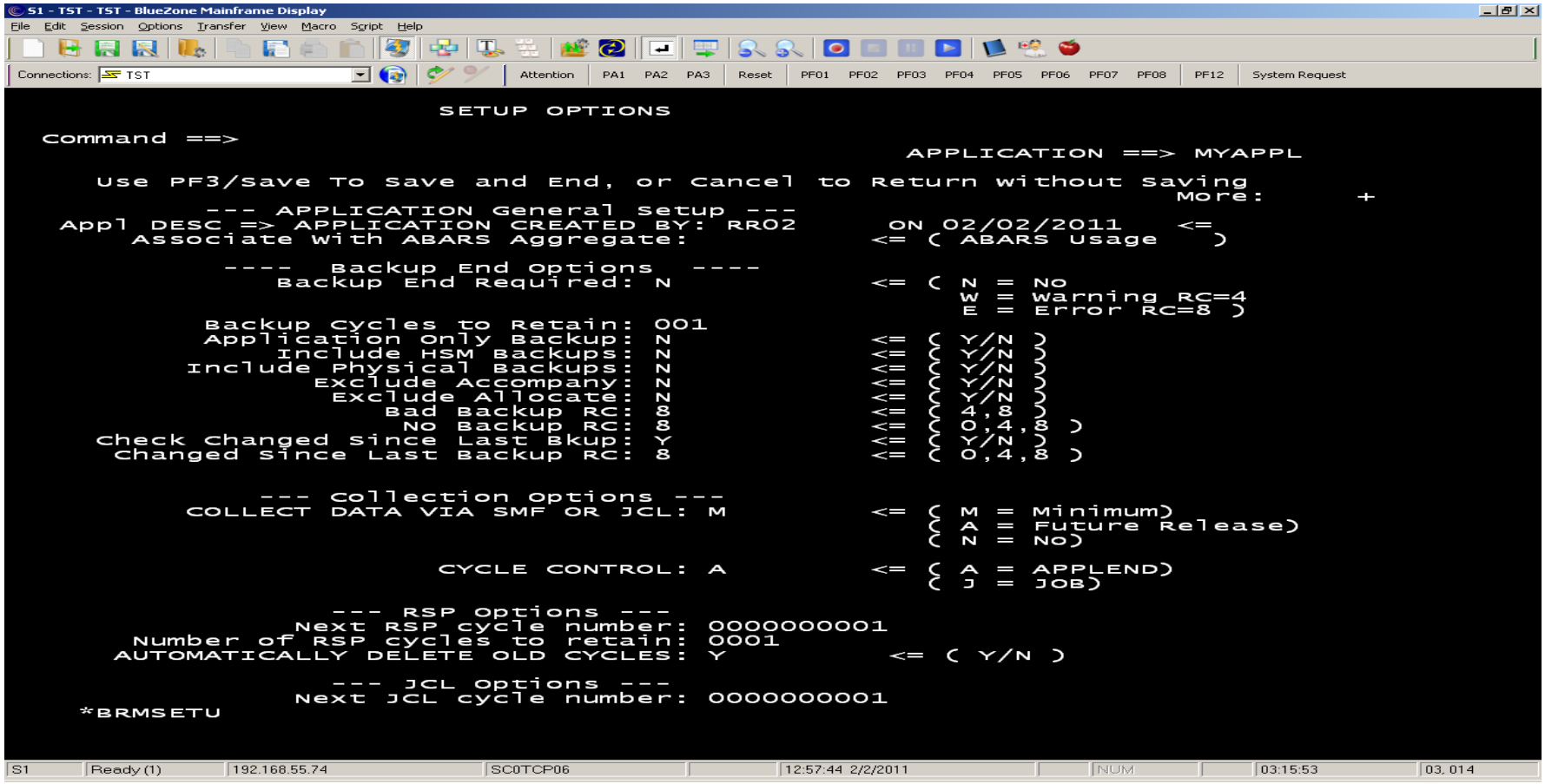
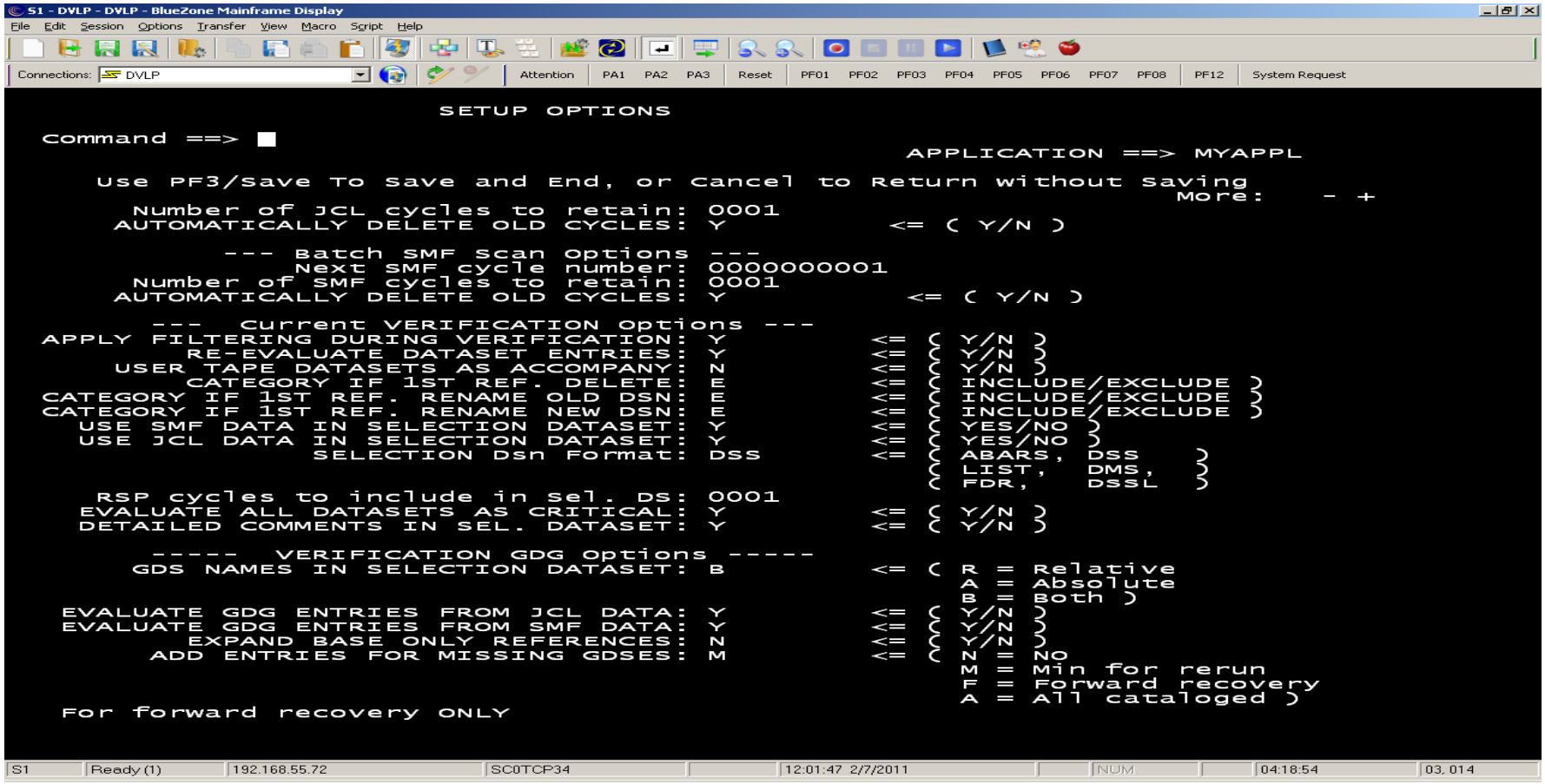
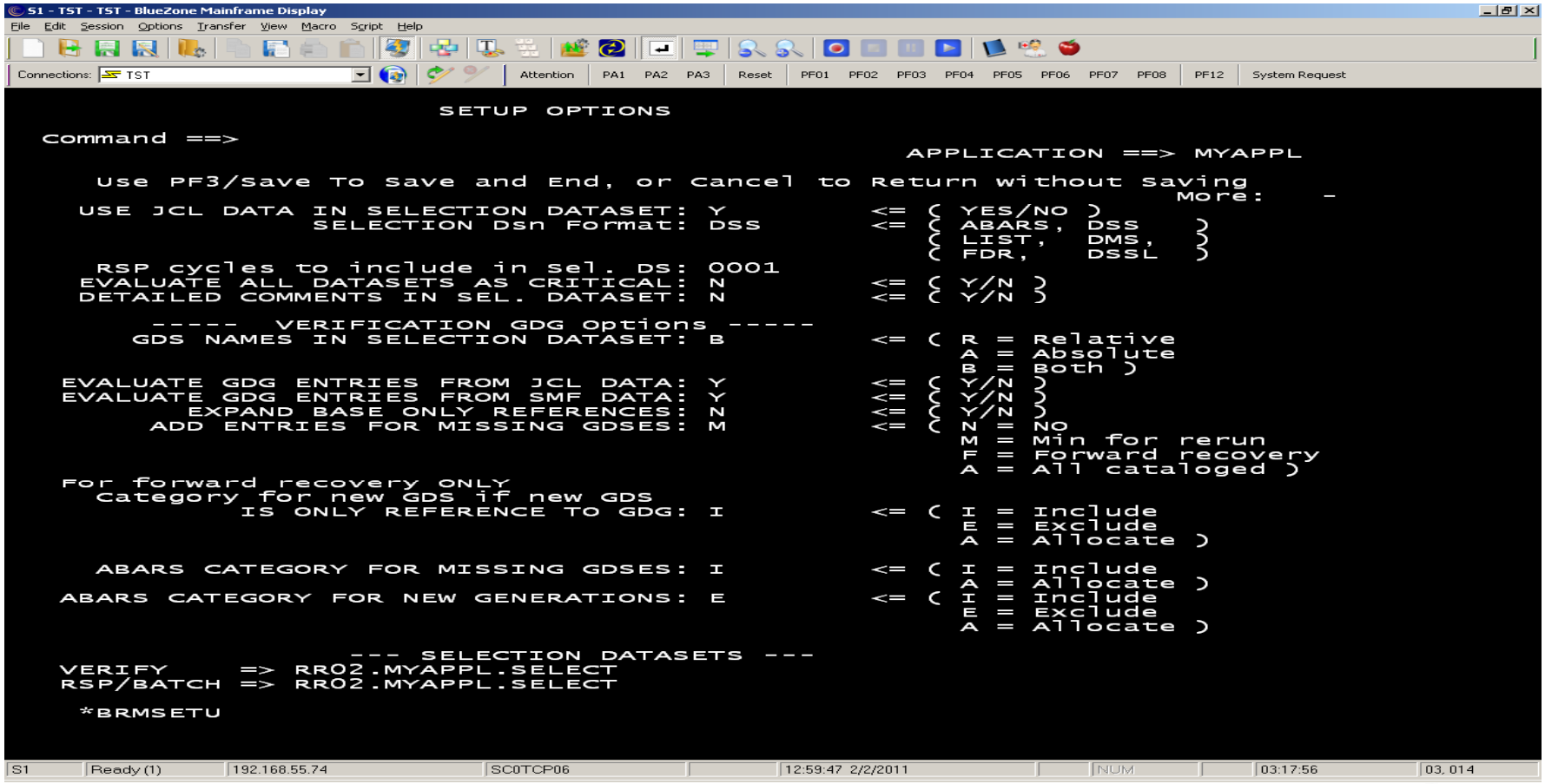


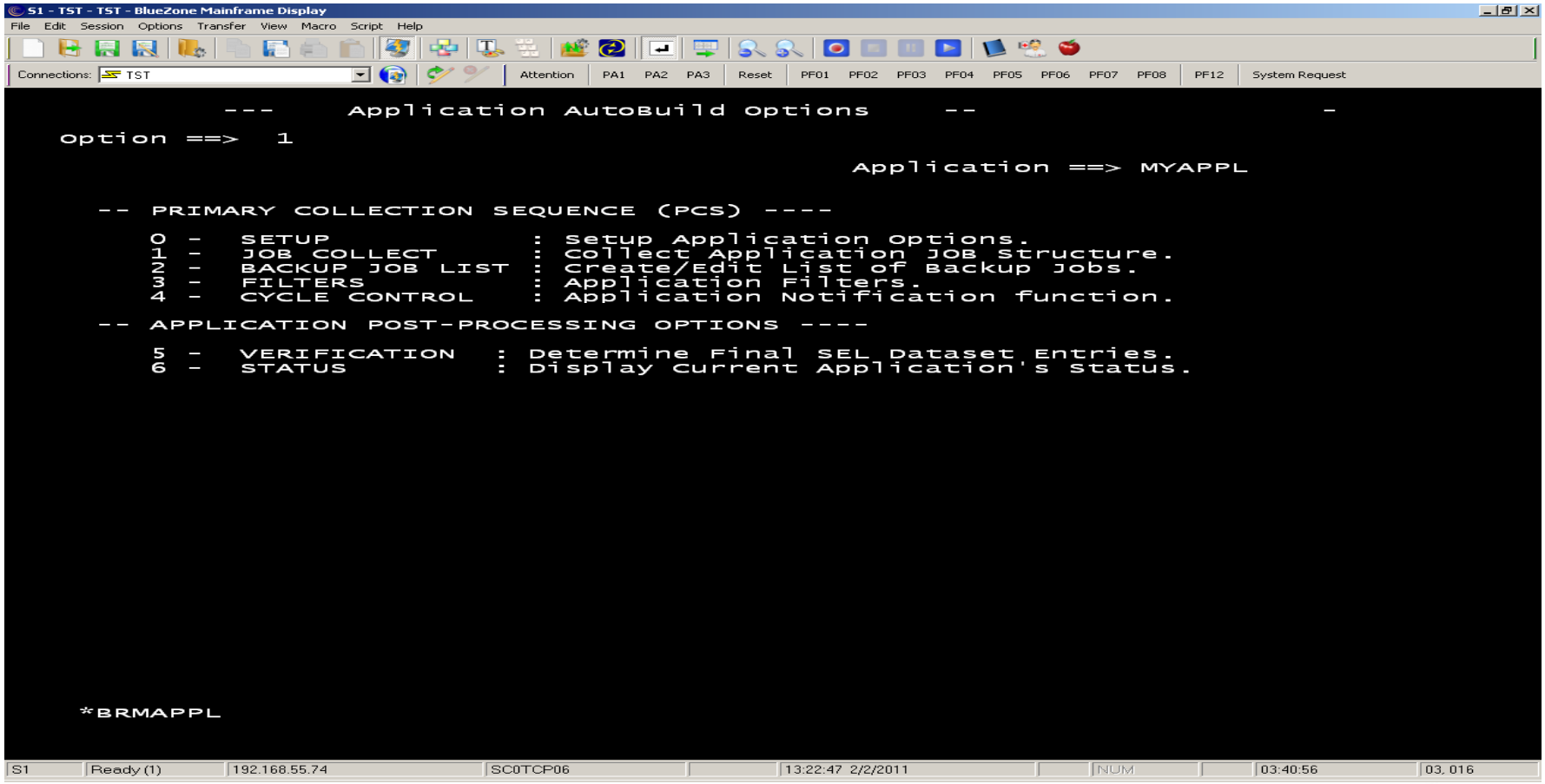
Define MYAPPL Attributes



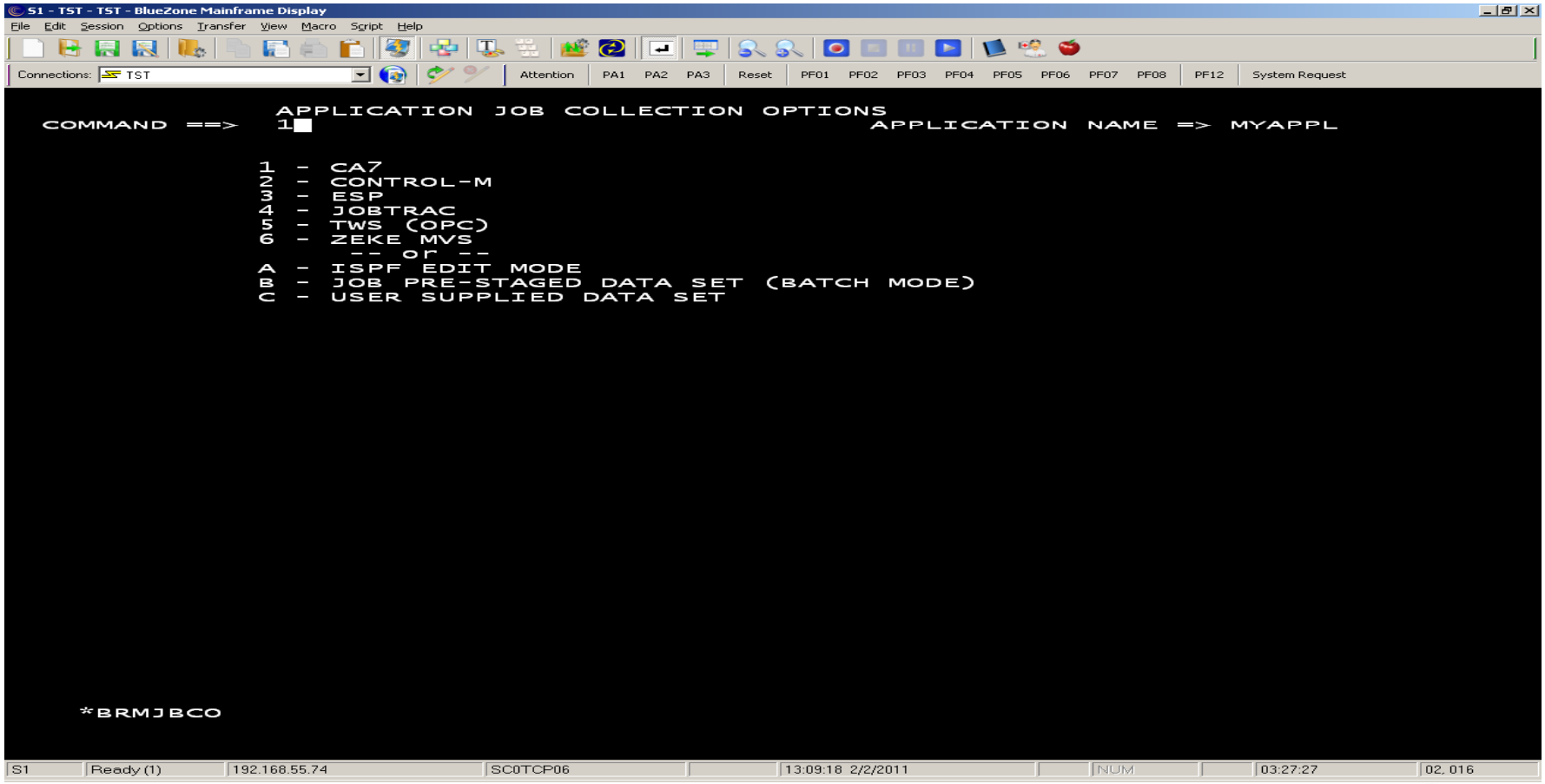
Define MYAPPL Attributes



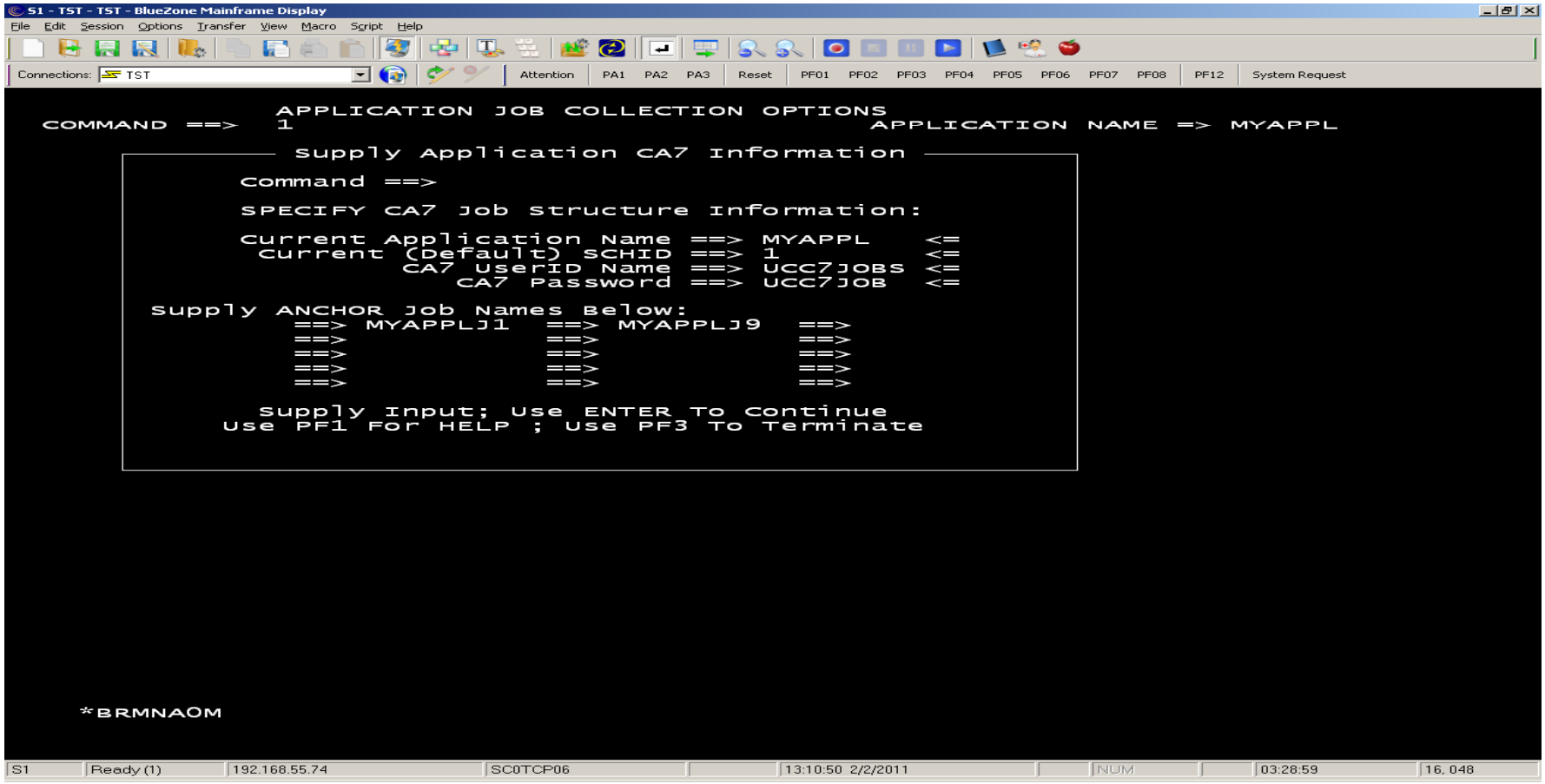
Define MYAPPL Application Job Names



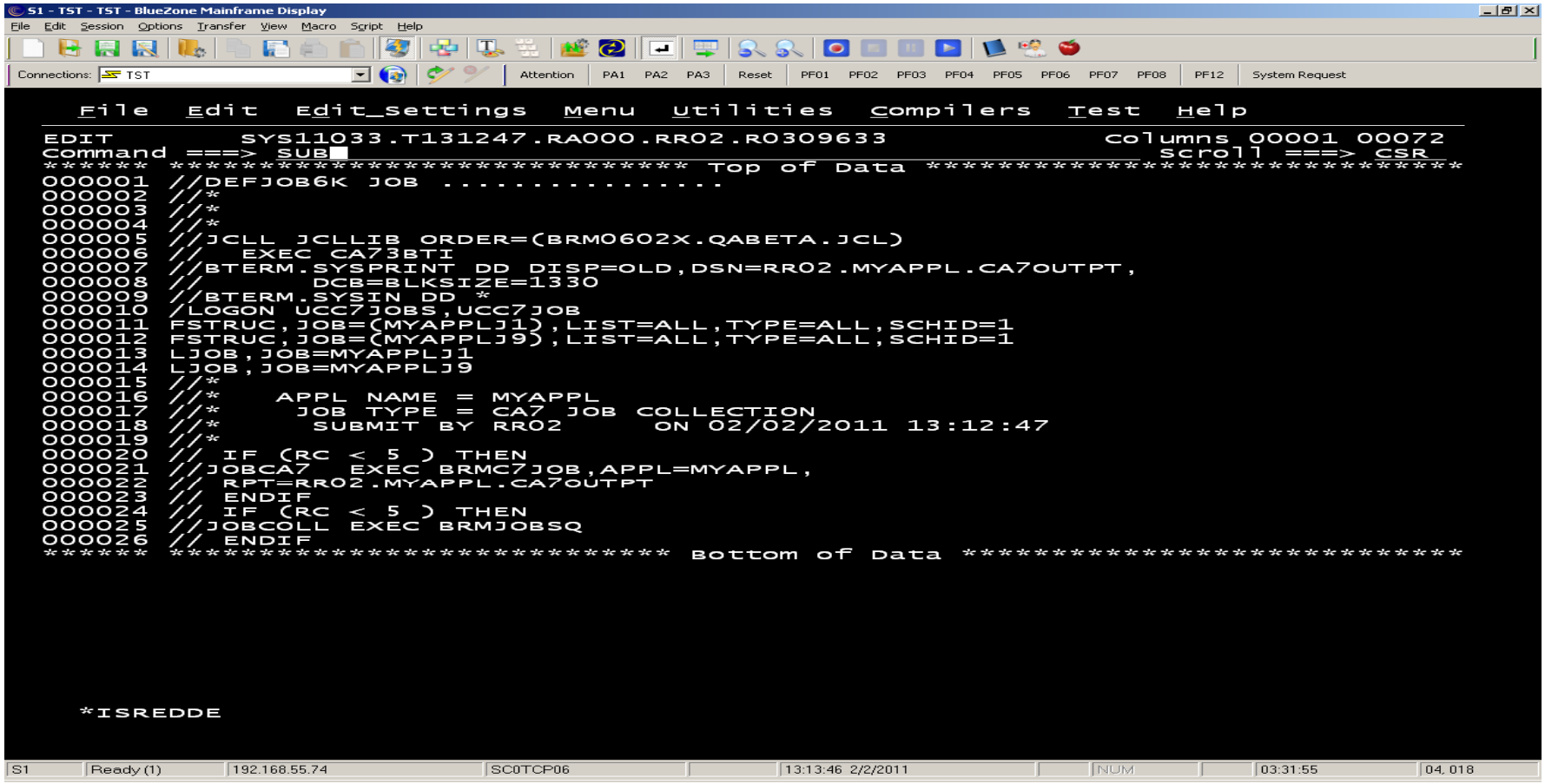
Obtain MYAPPL Job Names from CA7



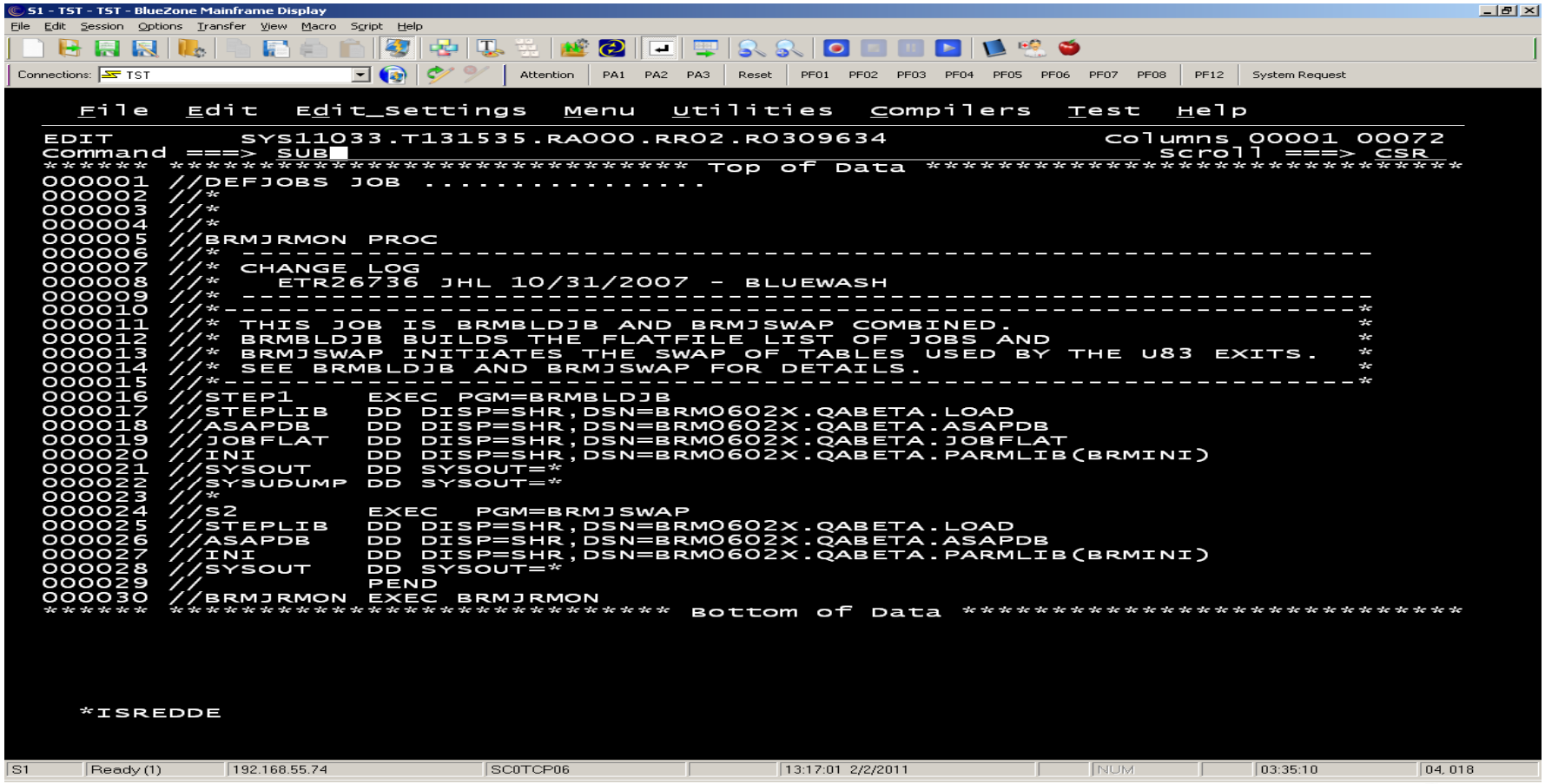
Define MYAPPL CA7 Anchor Job Names



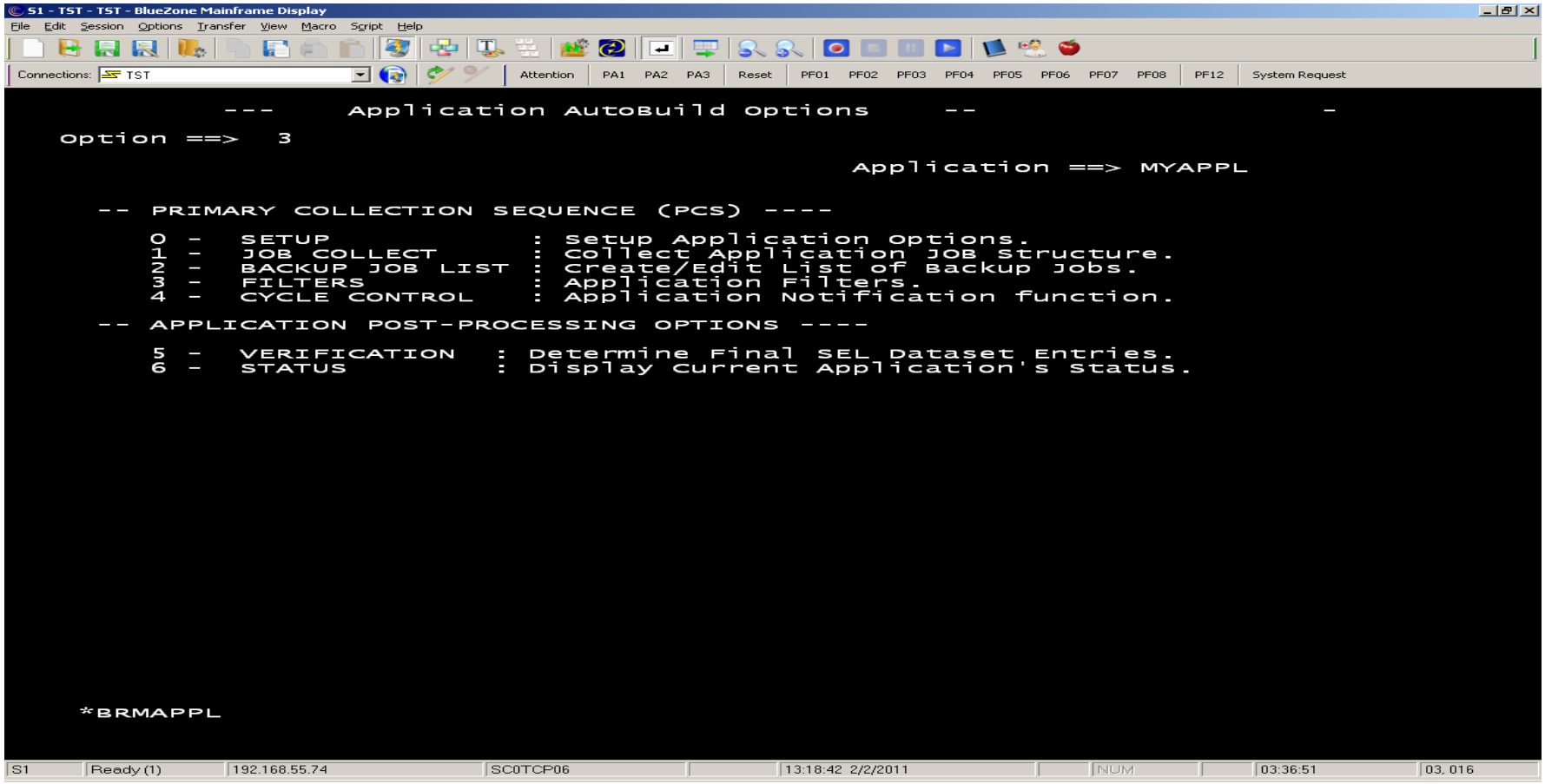
Scan CA7 DB to Obtain Job Names



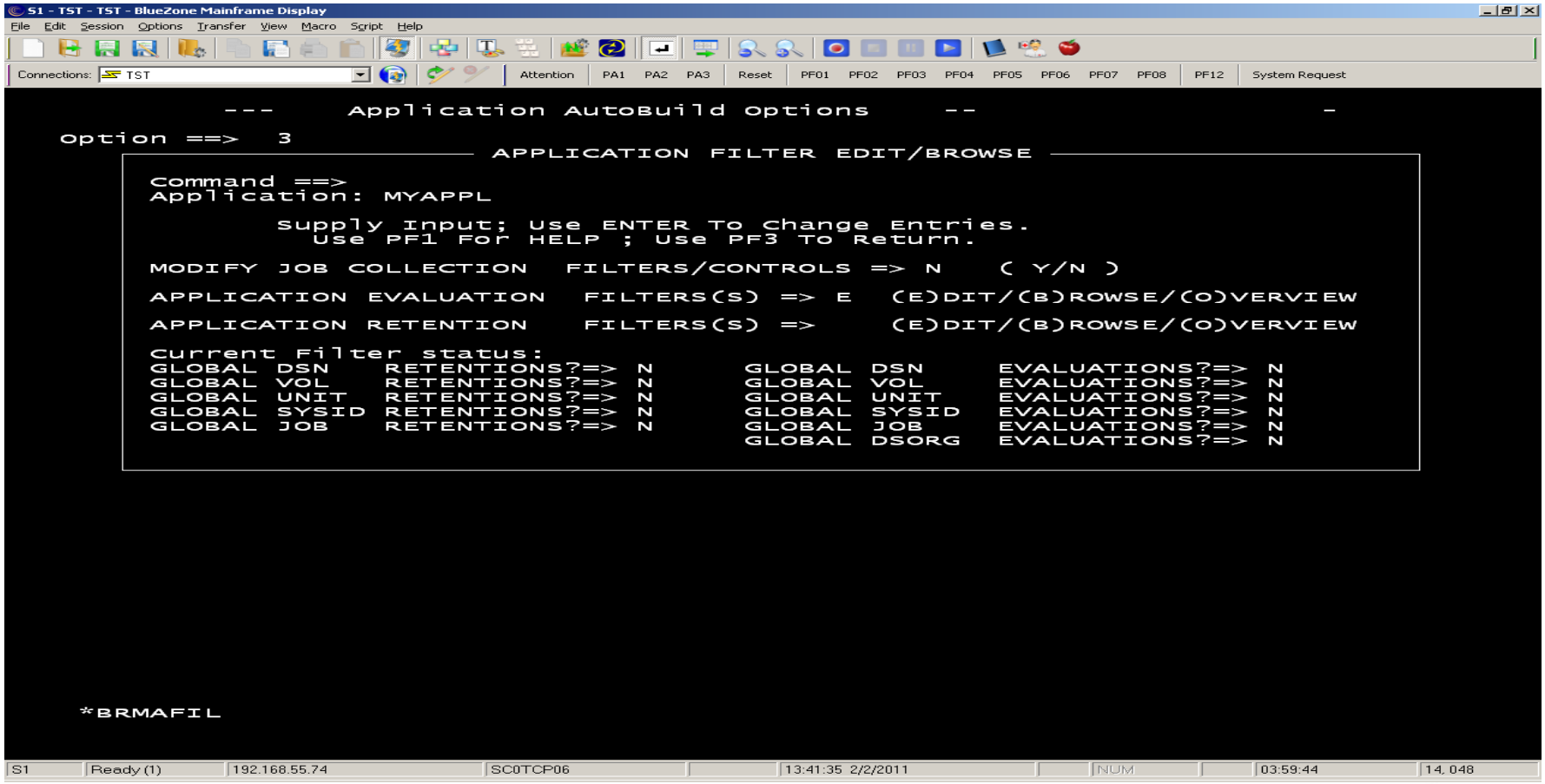
Update RSP Job Name Table



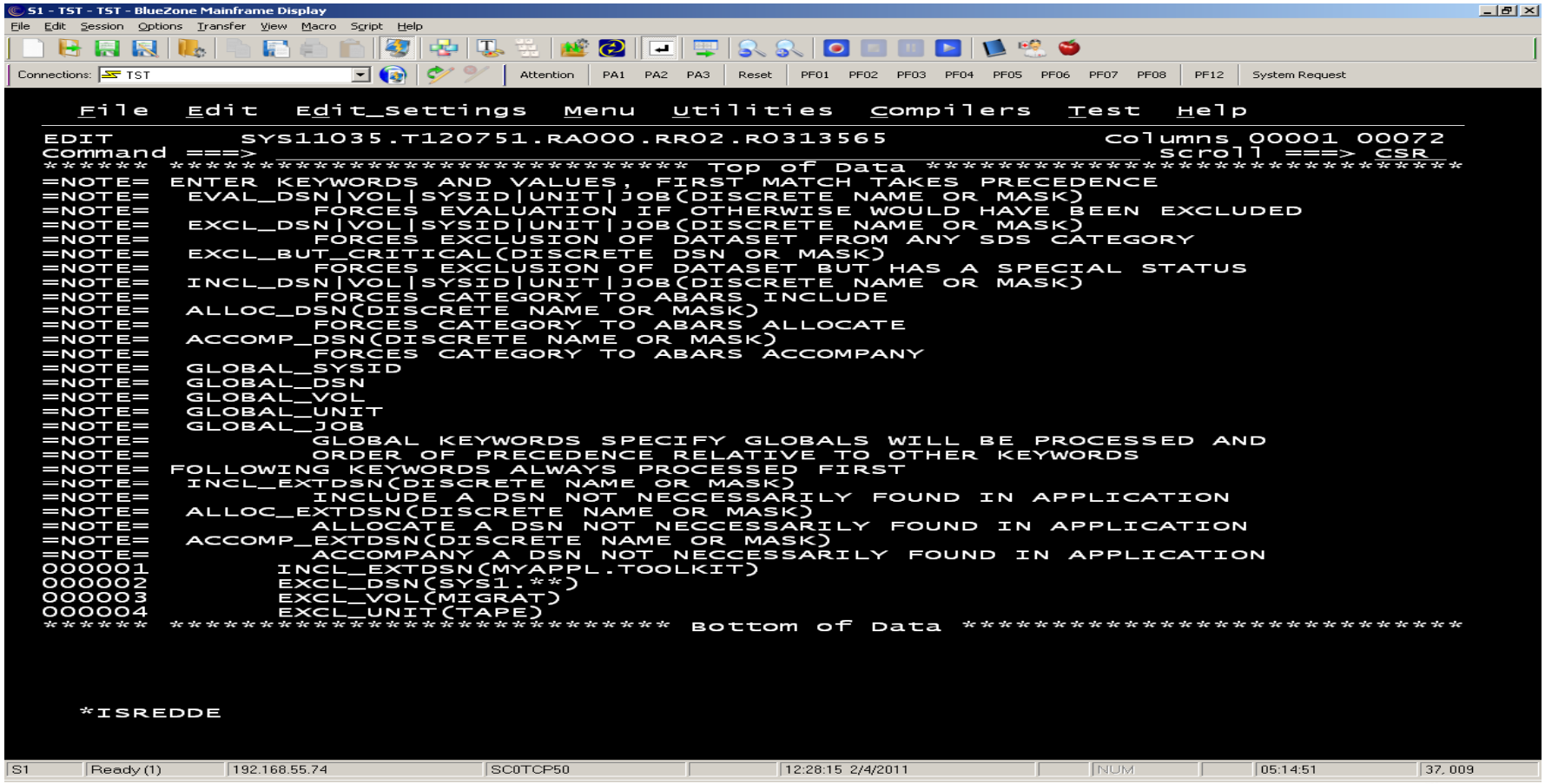
Define Application Filters for MYAPPL



Define Filters for MYAPPL



INCLUDE/EXCLUDE Filters for MYAPPL



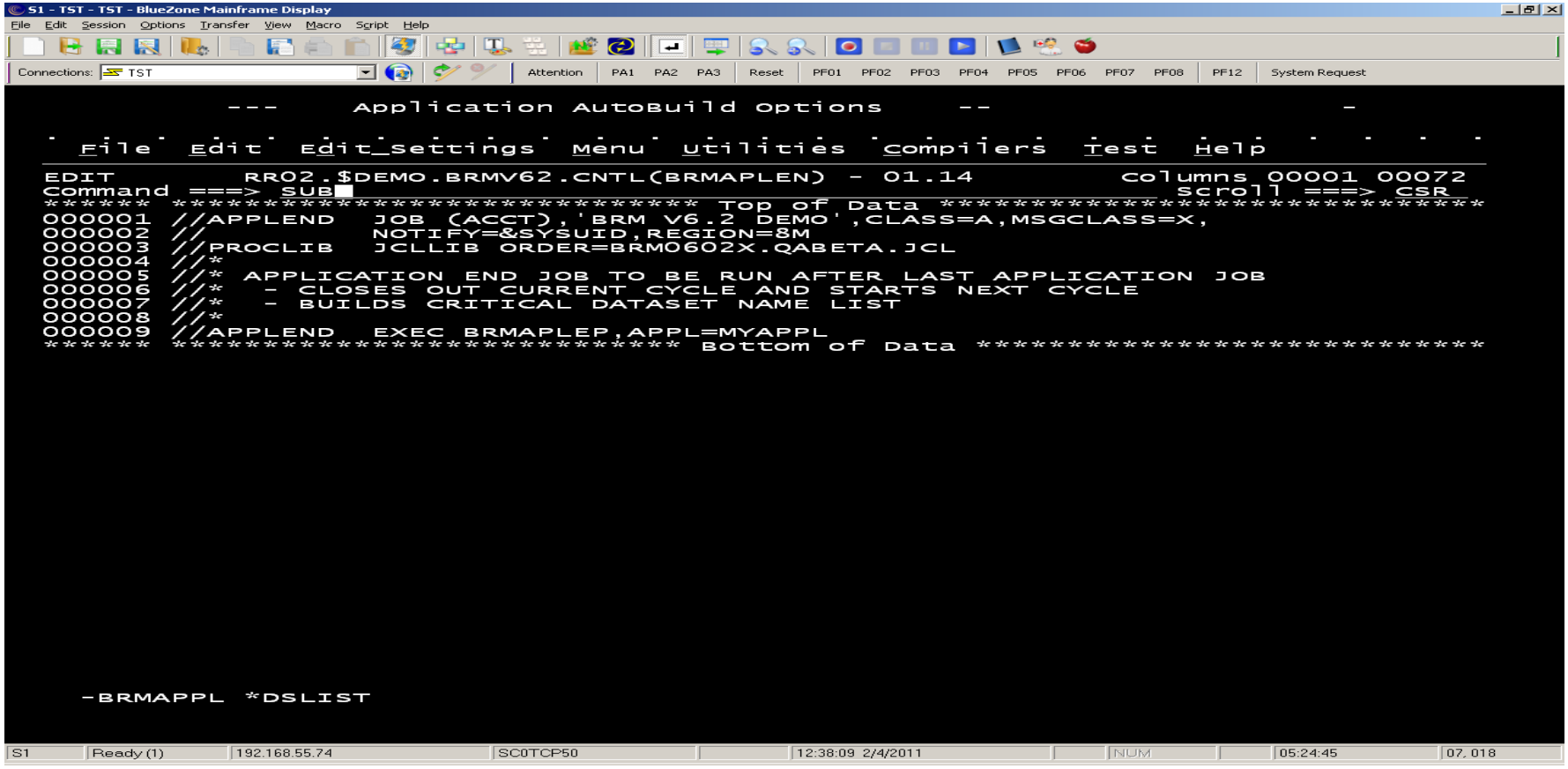
Critical Dataset Determination Scenario

- Monitor Application Jobs
  - Real-time as application jobs execute throughout cycle
  - Started task inspects JCL when jobs initiated
  - Started task inspects SMF OPEN records as they occur
  - Referenced dataset information written to database
    - As application jobs execute throughout cycle
  - Critical dataset list created at application end point
    - End of current cycle and start of next cycle
    - Batch job added to application schedule
    - List can be passed to a data mover utility to perform backup

Backup and Recovery Manager (BRM)

- Automated Selection and Audit Process (ASAP) Function
  - Application registration
  - Application job tracking
  - Application critical dataset name discovery
  - Critical dataset backup control card creation

Application End Job for MYAPPL



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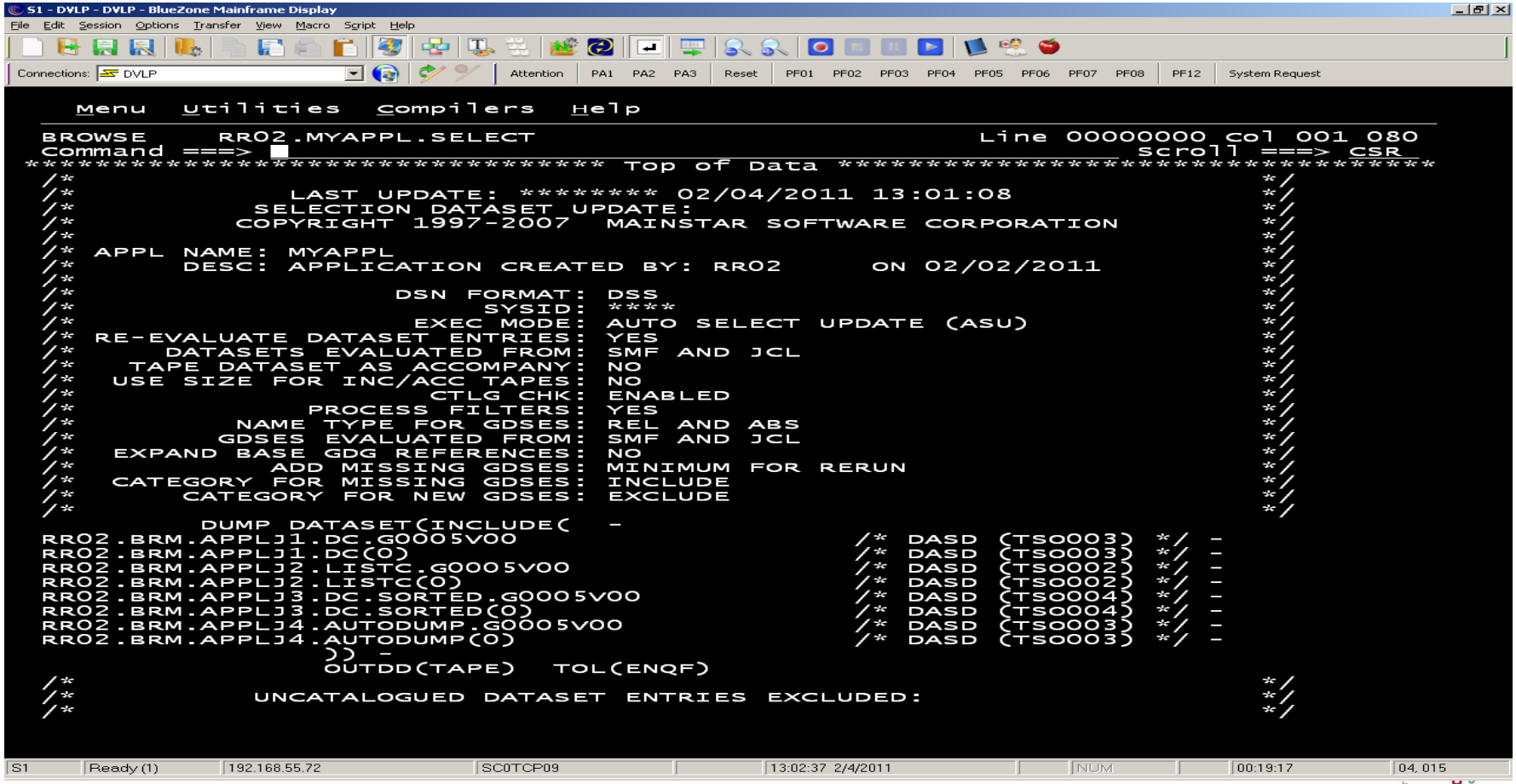
Critical Dataset List for MYAPPL



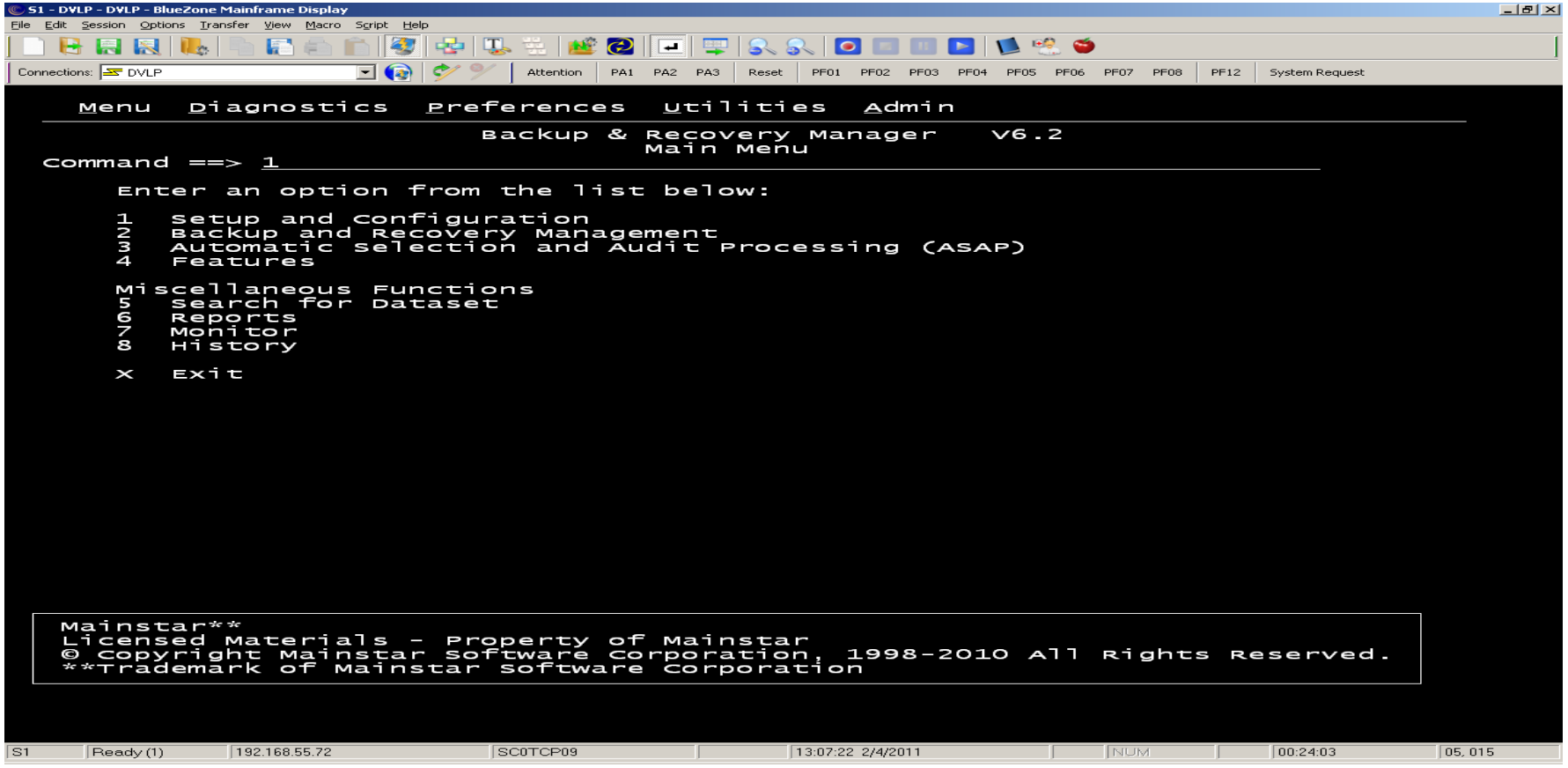
Backup Job Tracking Scenario

- Register Backup Jobs
  - Specific job names and/or masks
  - Specific JCL step names and/or masks
  - Specific utility program names
    - ADRDSSU, CAT00010, FDR, ICETOOL, IDCAMS, etc.
- Monitor Backup Jobs
  - Real-time as jobs execute
  - Started task inspects JCL when backup step completes
  - Started task inspects results when backup step completes
  - Dataset backup information written to inventory

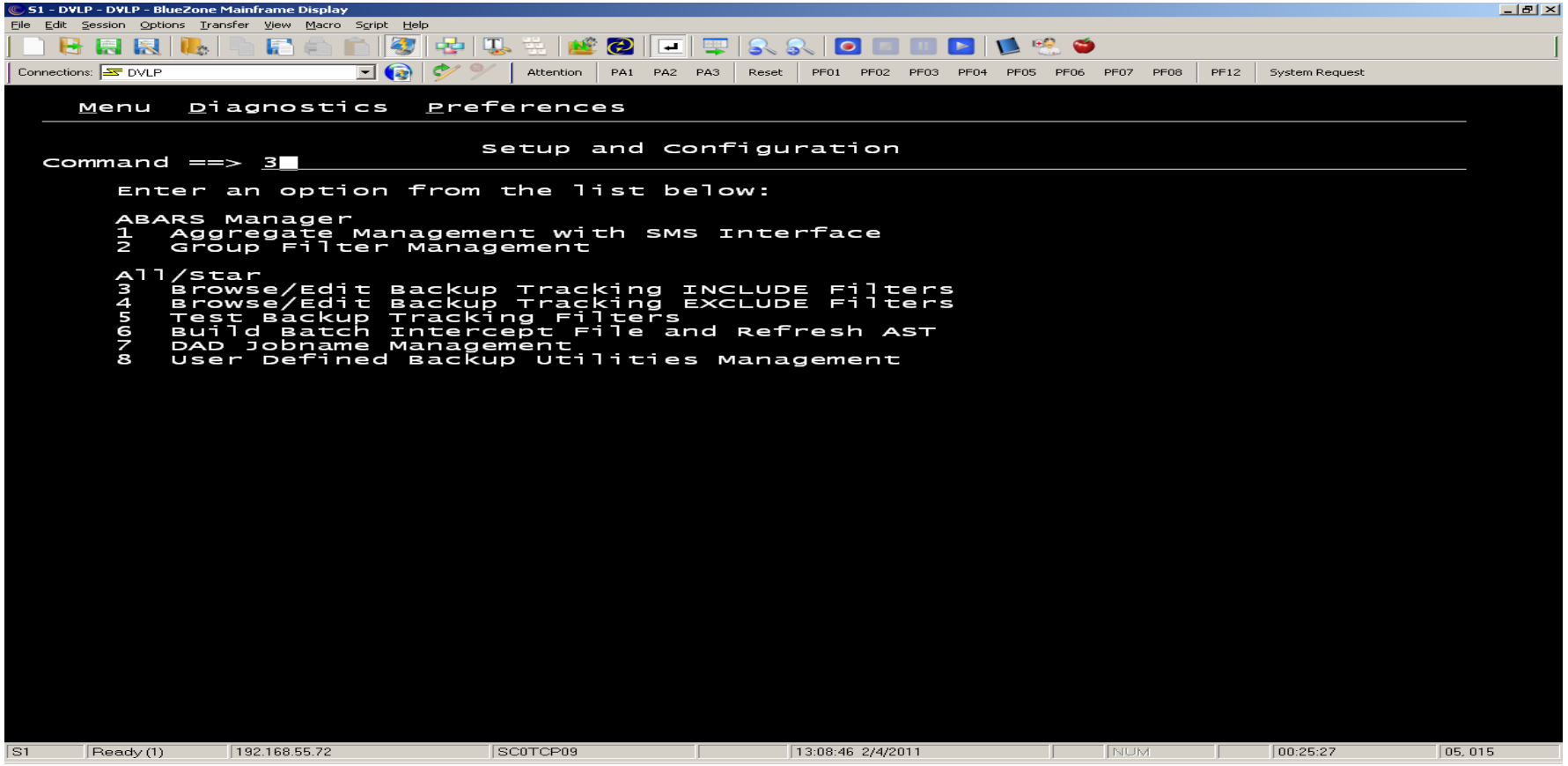
Backup and Recovery Manager (BRM)

- All/Star Functions
  - Backup job tracking
  - Dataset backup inventory management and reporting
  - Critical dataset backup validation
  - Automated selective dataset restore
  - Automated application cycle point restore

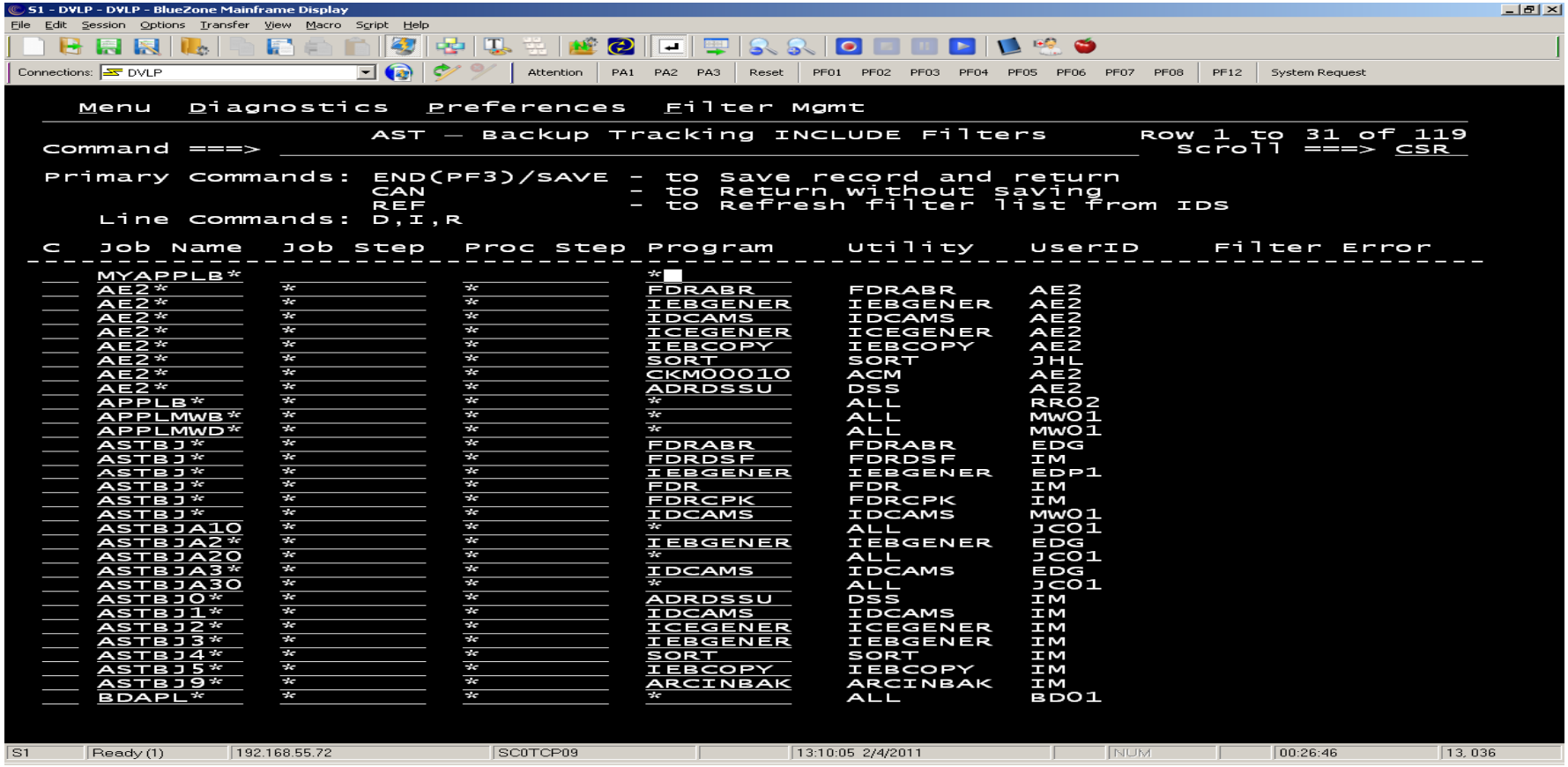
Register Backup Jobs



Register Backup Jobs to be Tracked



Specify Backup Job Attributes



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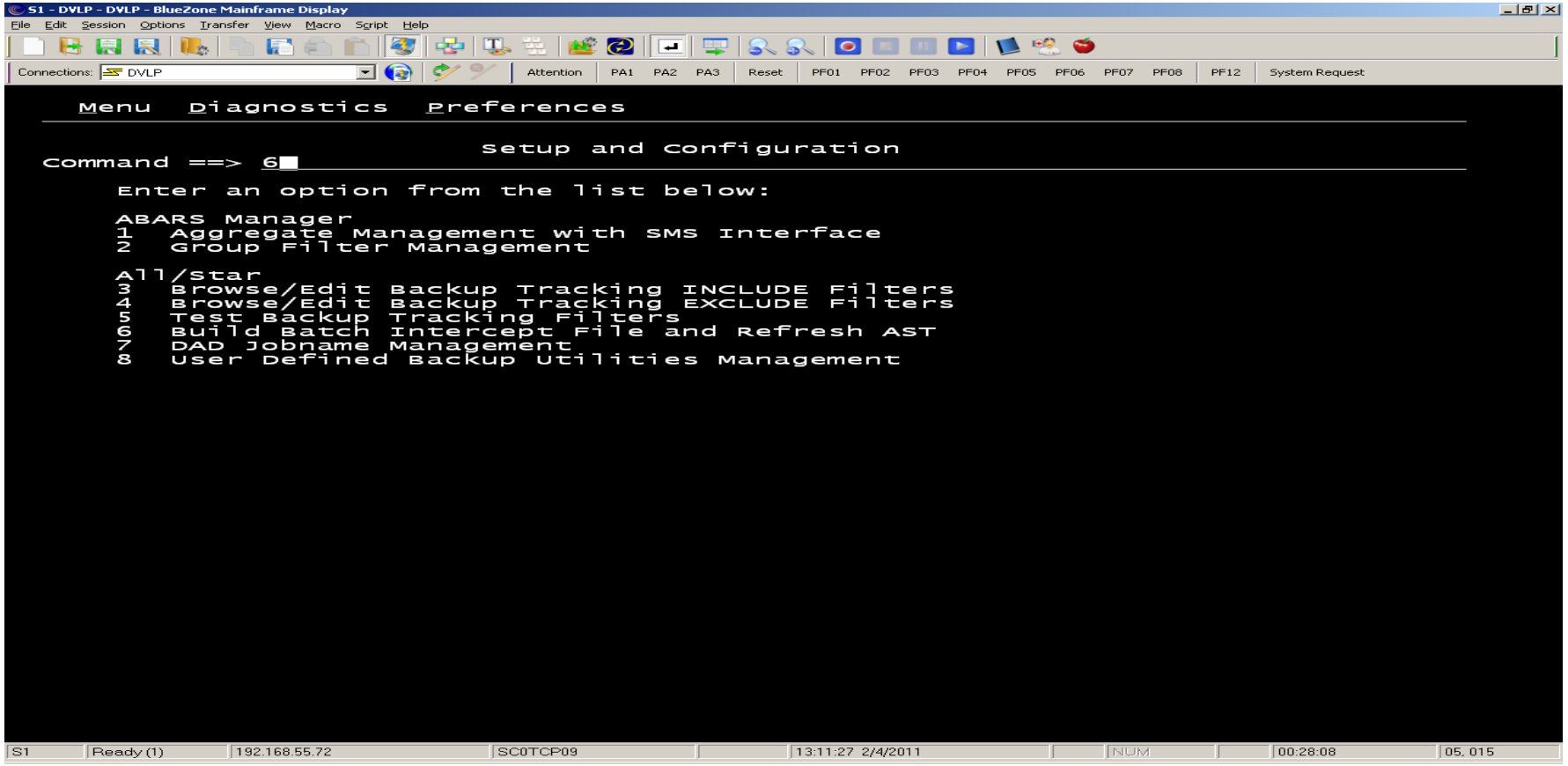
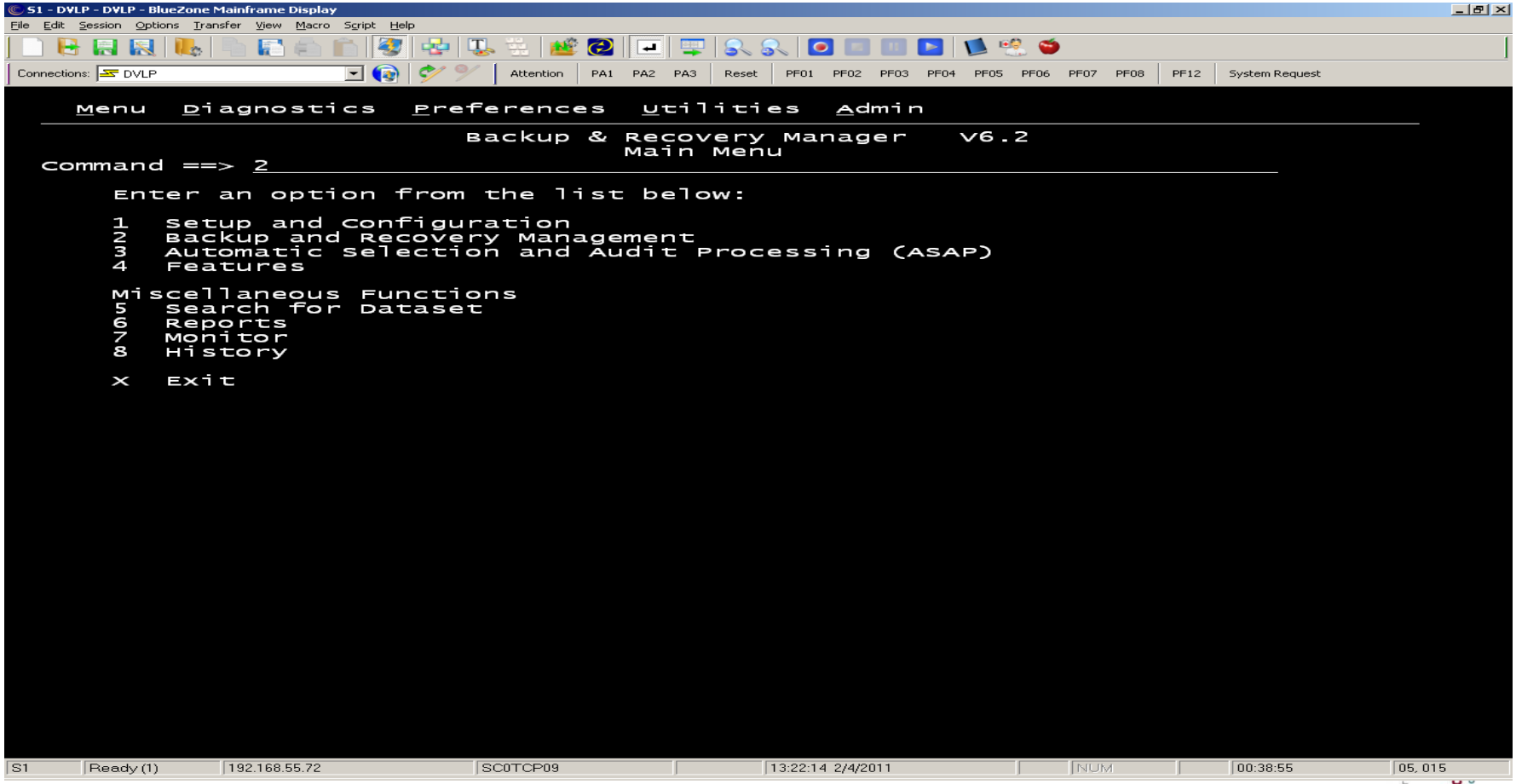
Update All/Star Job Name Table



View Backup Job Results



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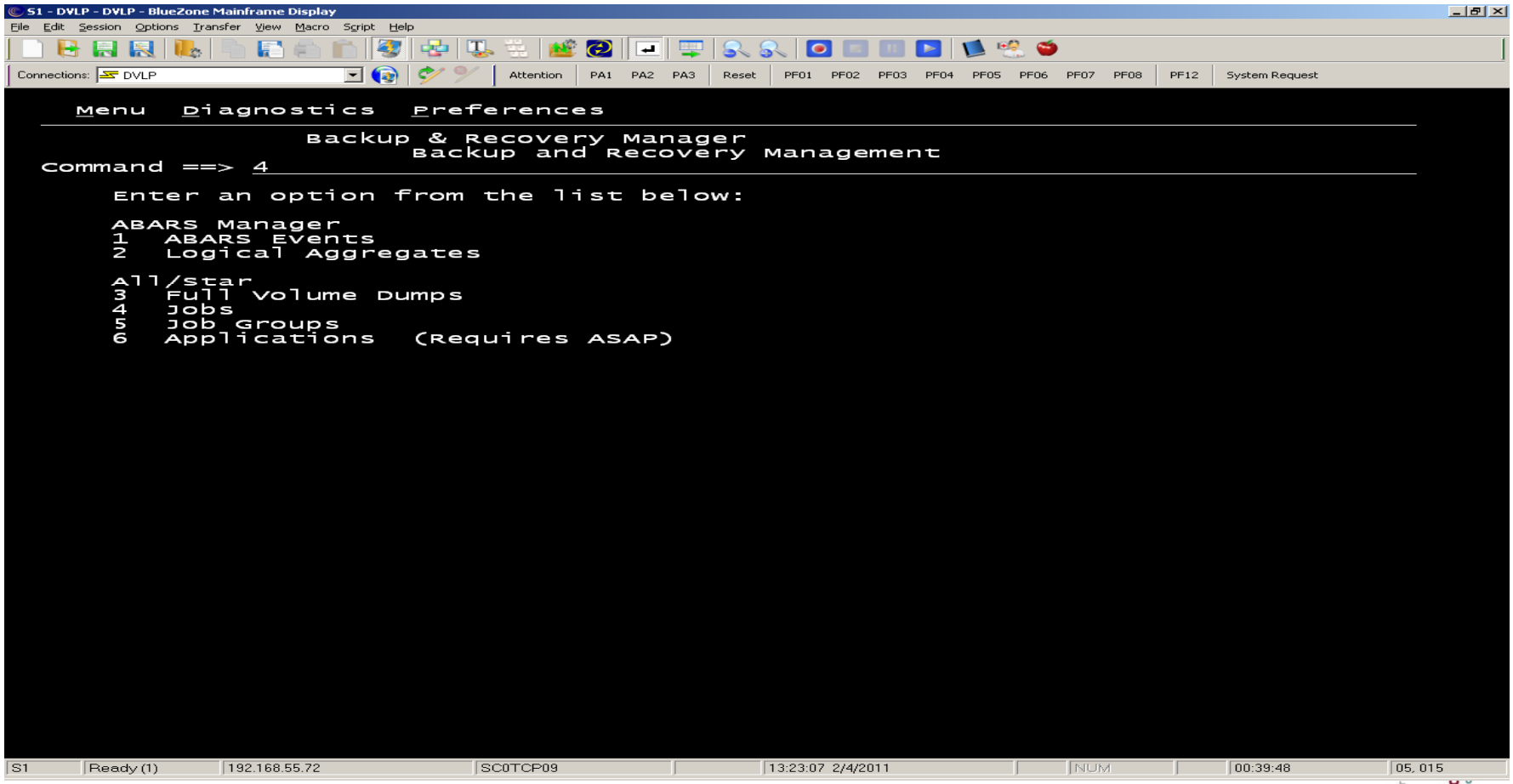
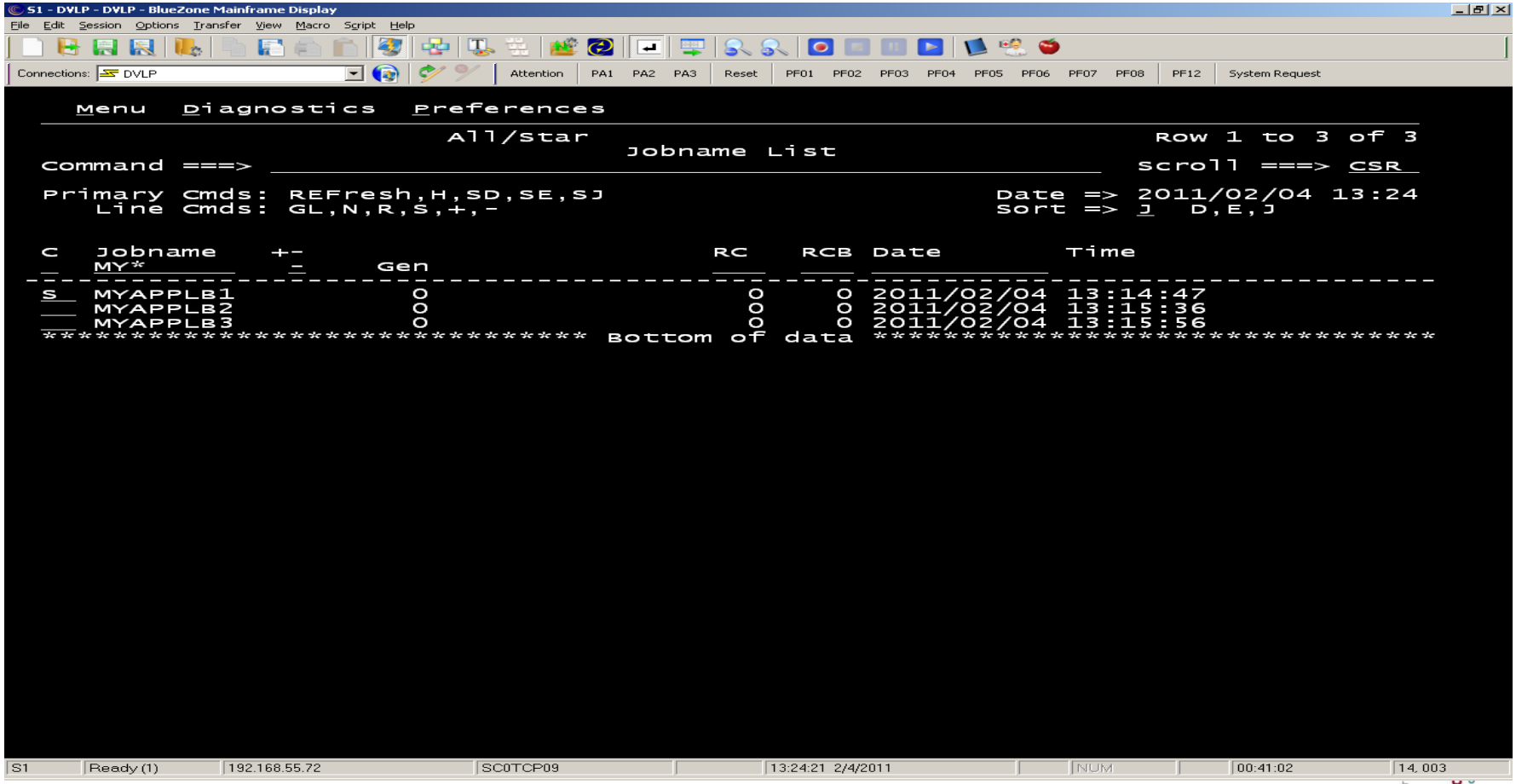
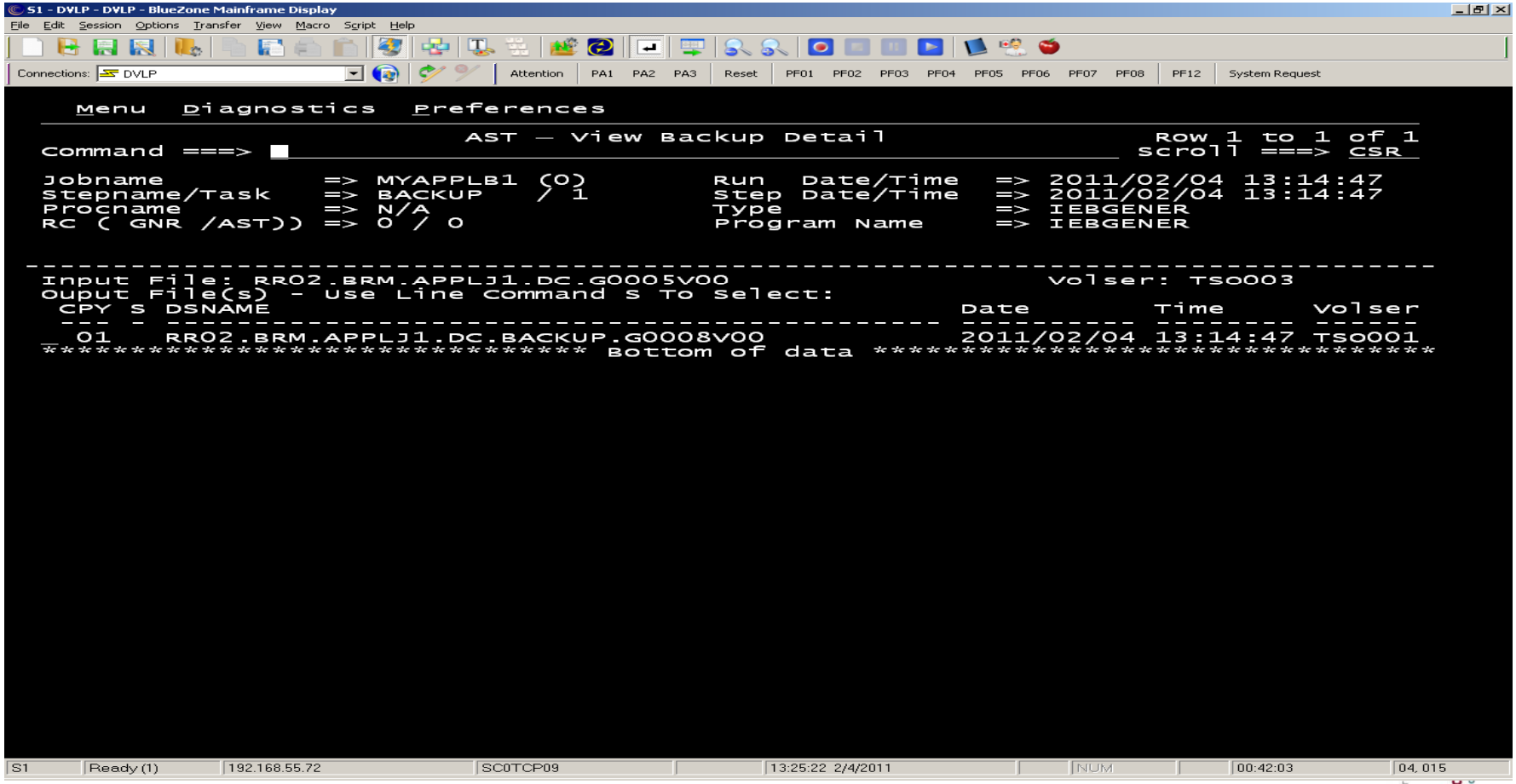


View Specific Backup Job Results



Backup Job Summary Information



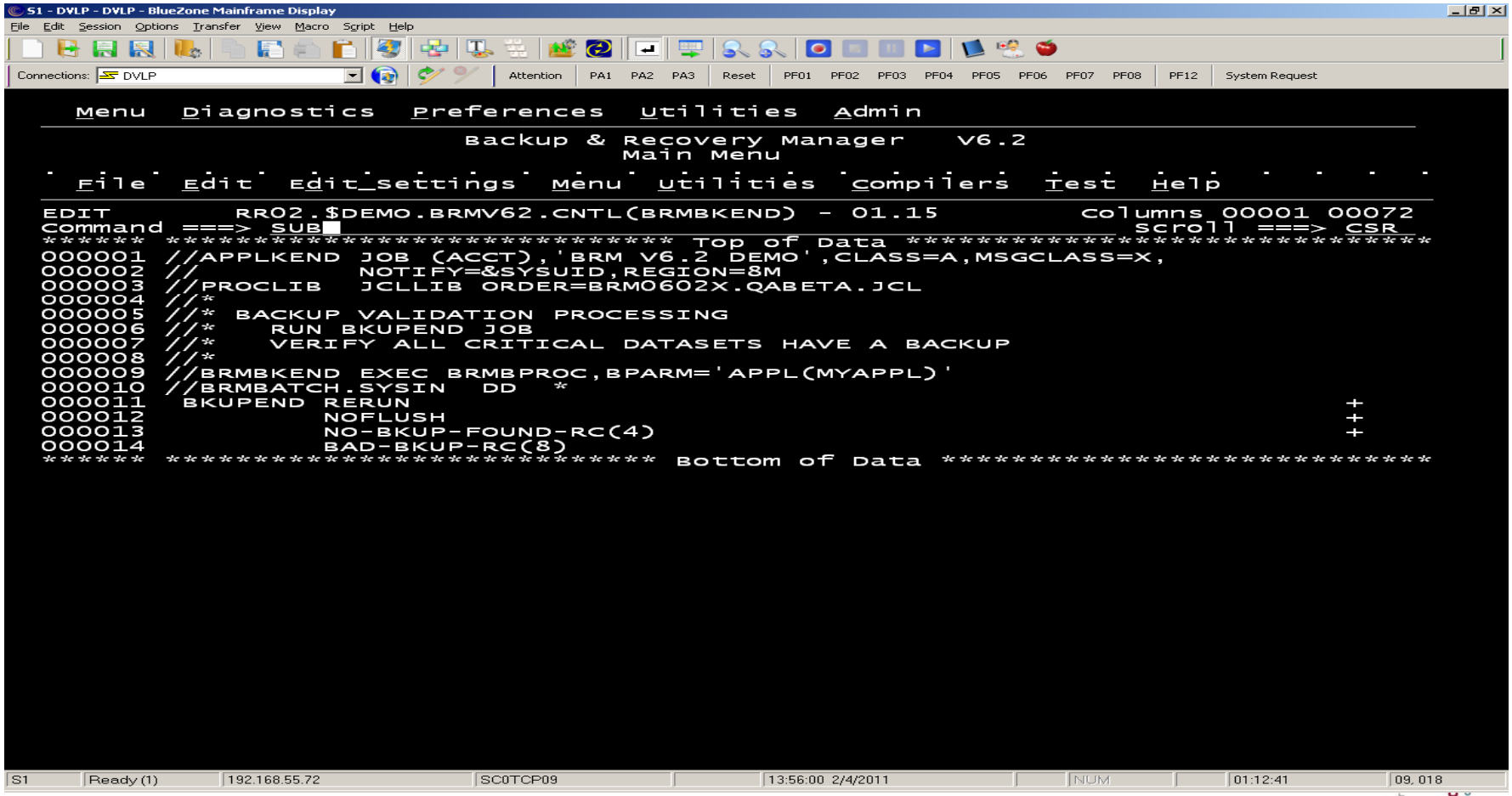
Application Backup Validation Scenario

- Performed After Application End and Backups Complete
  - Application End job creates cycle point critical dataset list
  - Backup job tracking inventories tracked backup results
  - Backup End process compares dataset list to backup results
    - Identifies critical datasets without backups
    - Identifies current backups for critical datasets
    - Records cycle point backups for critical datasets
      - *Used for automated application cycle point recovery*

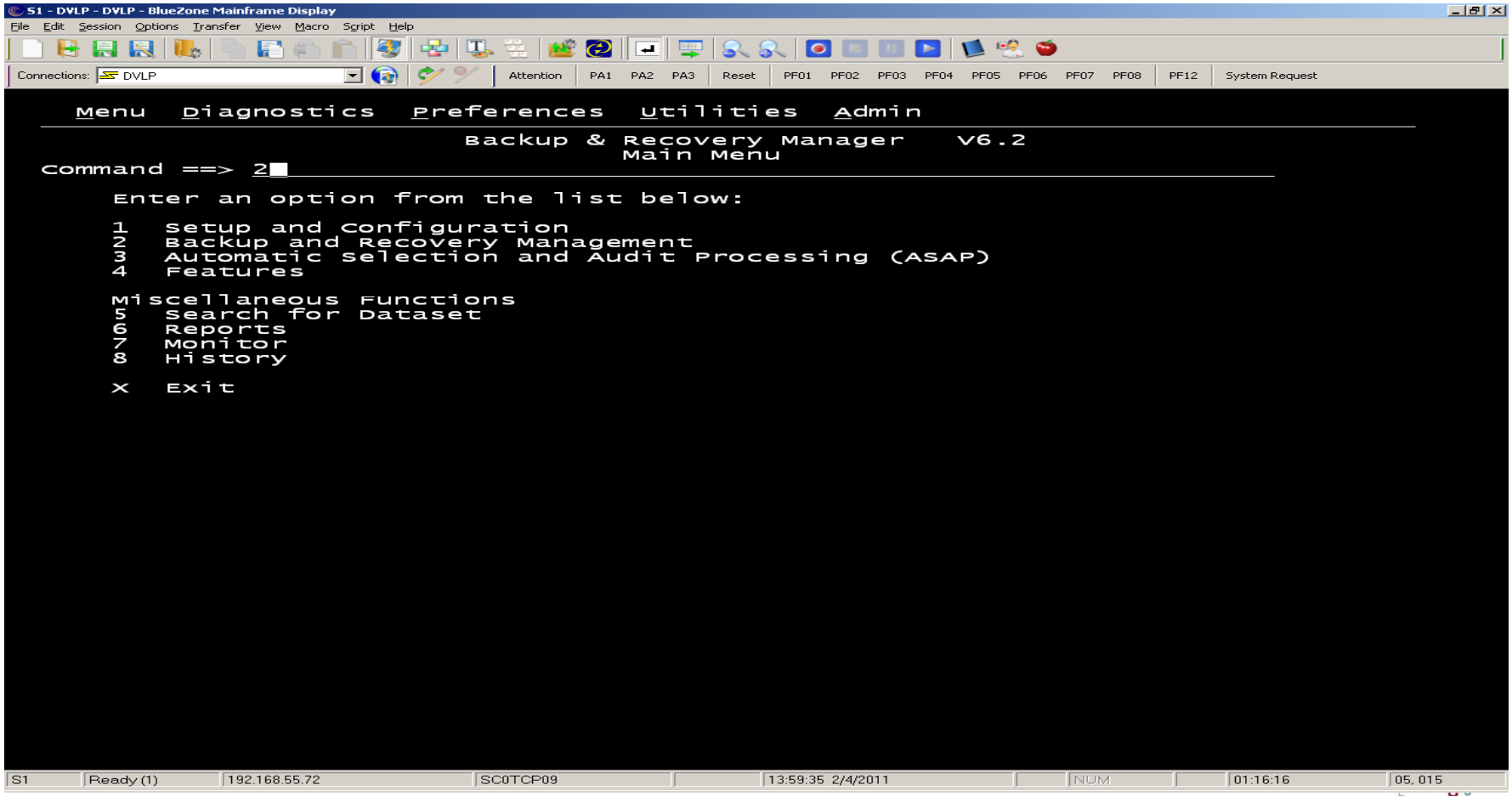
Backup and Recovery Manager (BRM)

- All/Star Functions
  - Backup job tracking
  - Dataset backup inventory management and reporting
  - Critical dataset backup validation
  - Automated selective dataset restore
  - Automated application cycle point restore

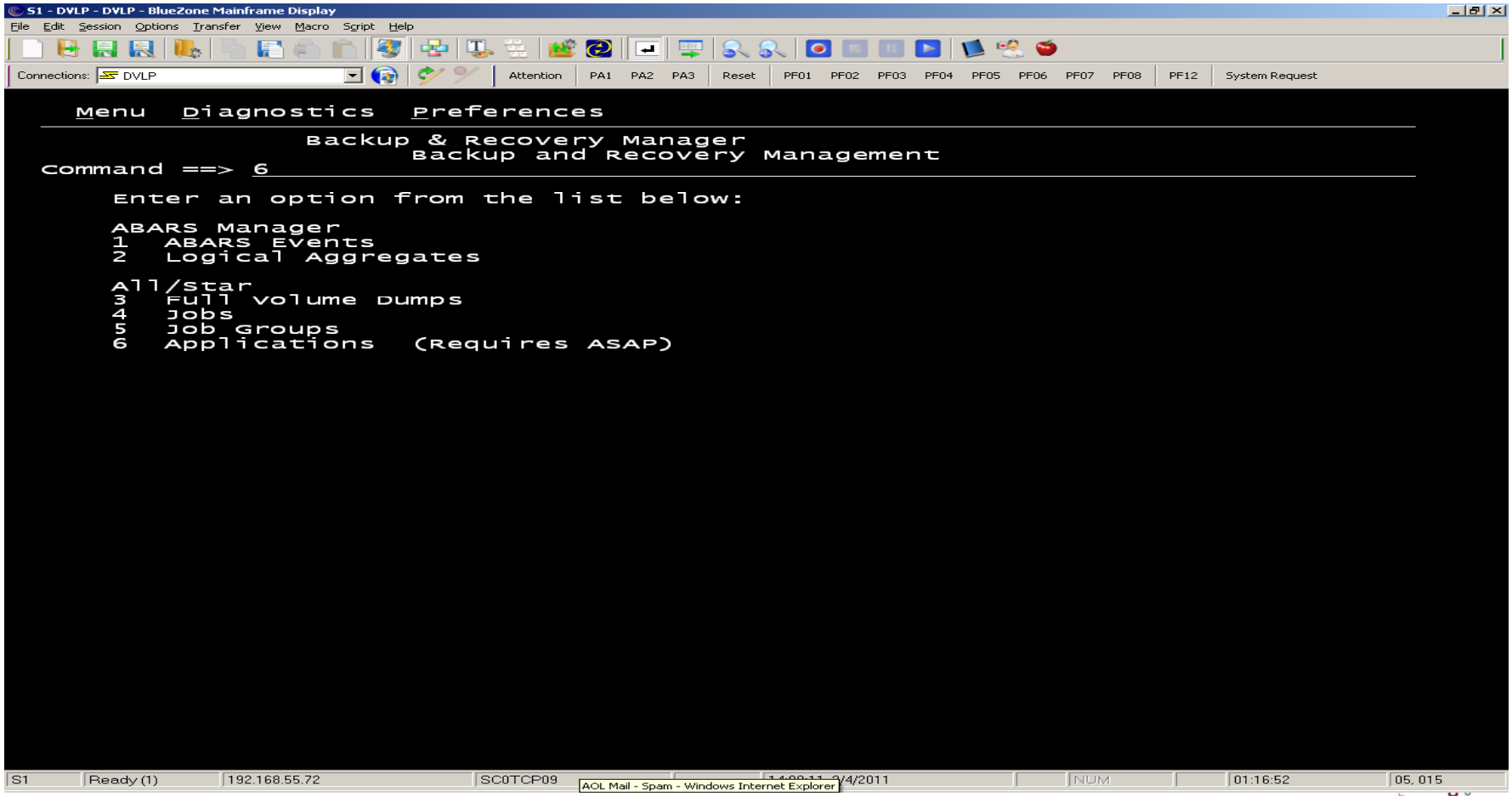
Backup Validation Job for MYAPPL



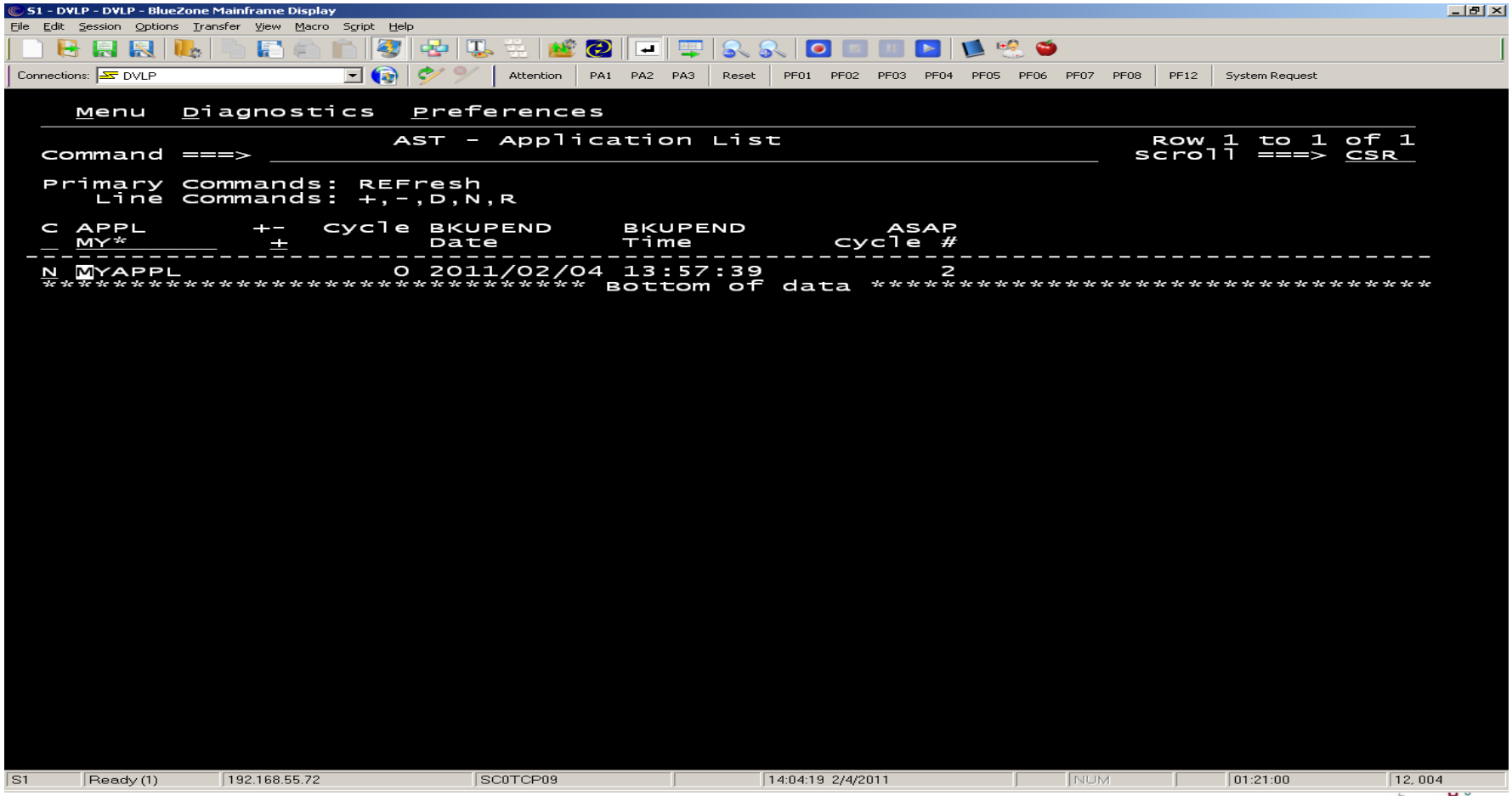
Backup Validation Job Results



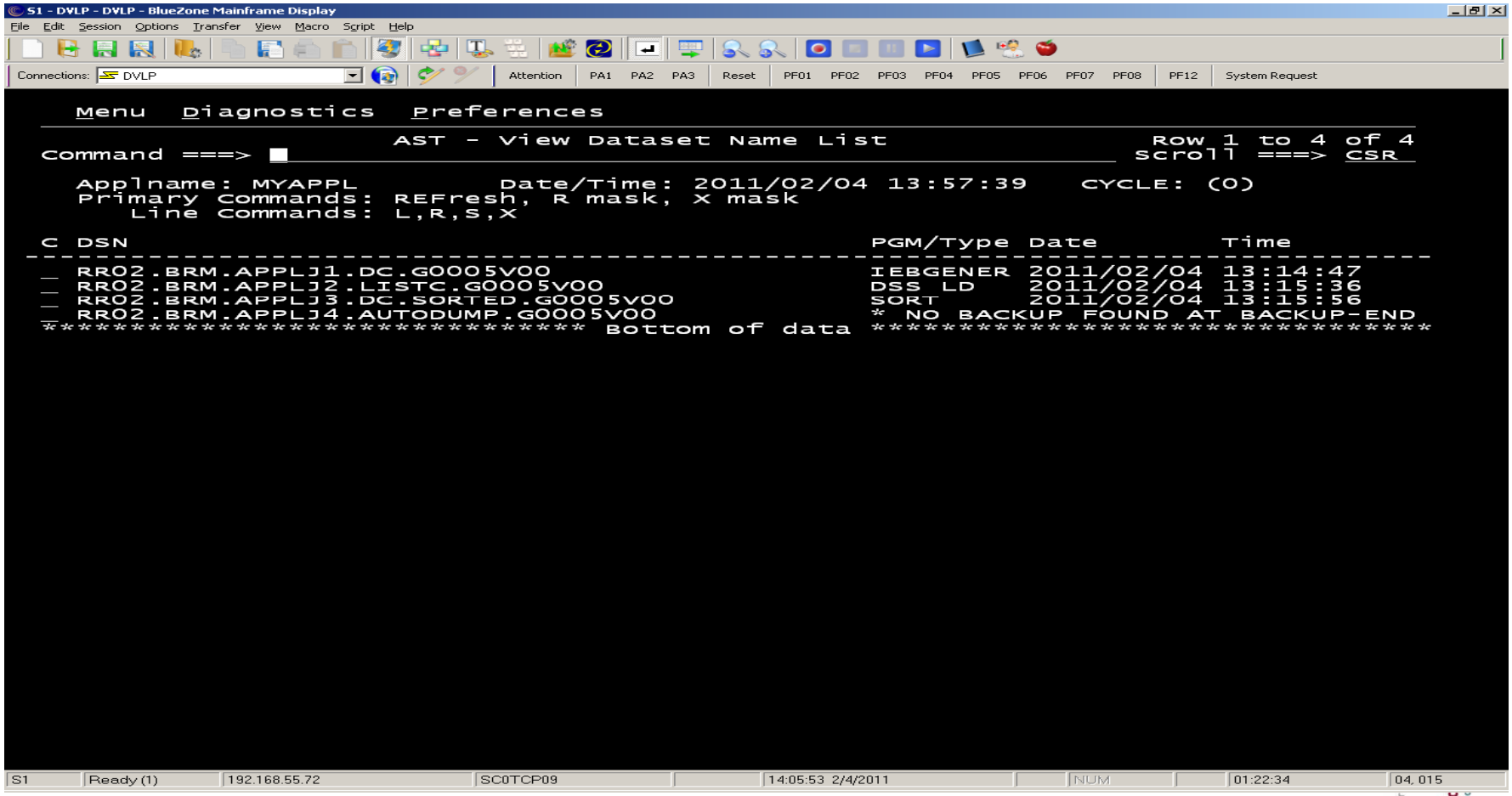
Backup Validation Job Results



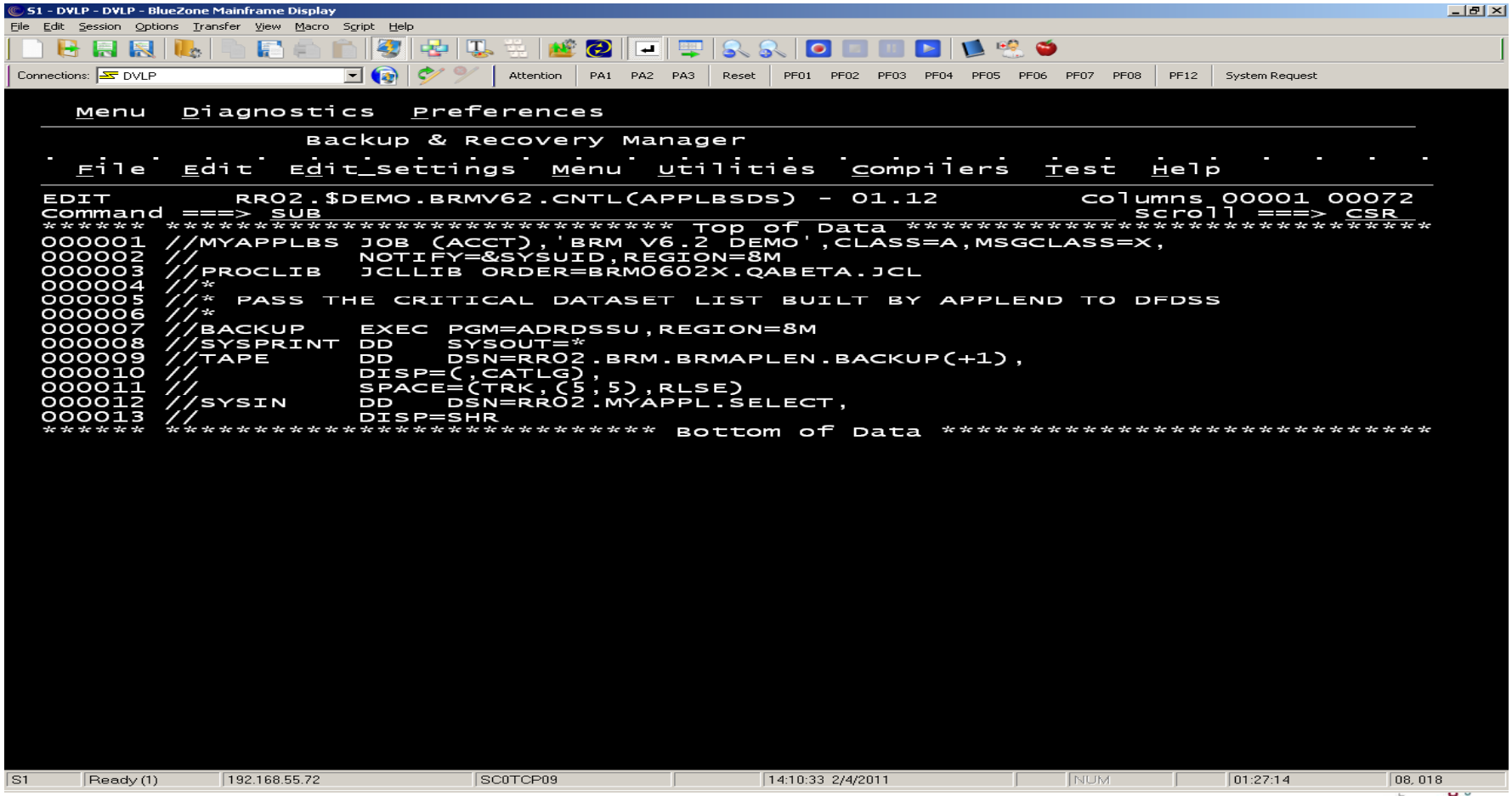
Backup Validation Status for MYAPPL



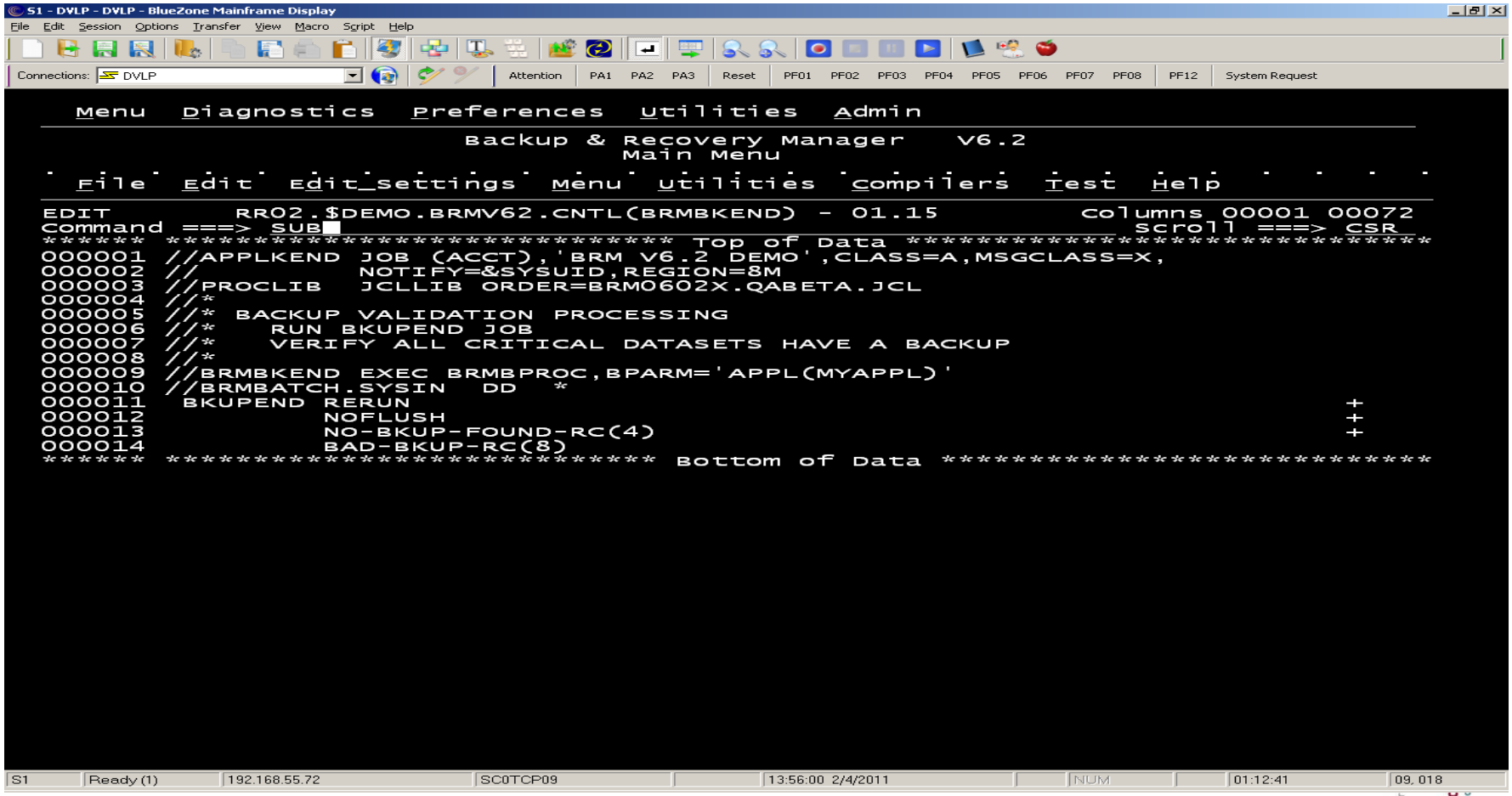
Backup Status for Critical Datasets



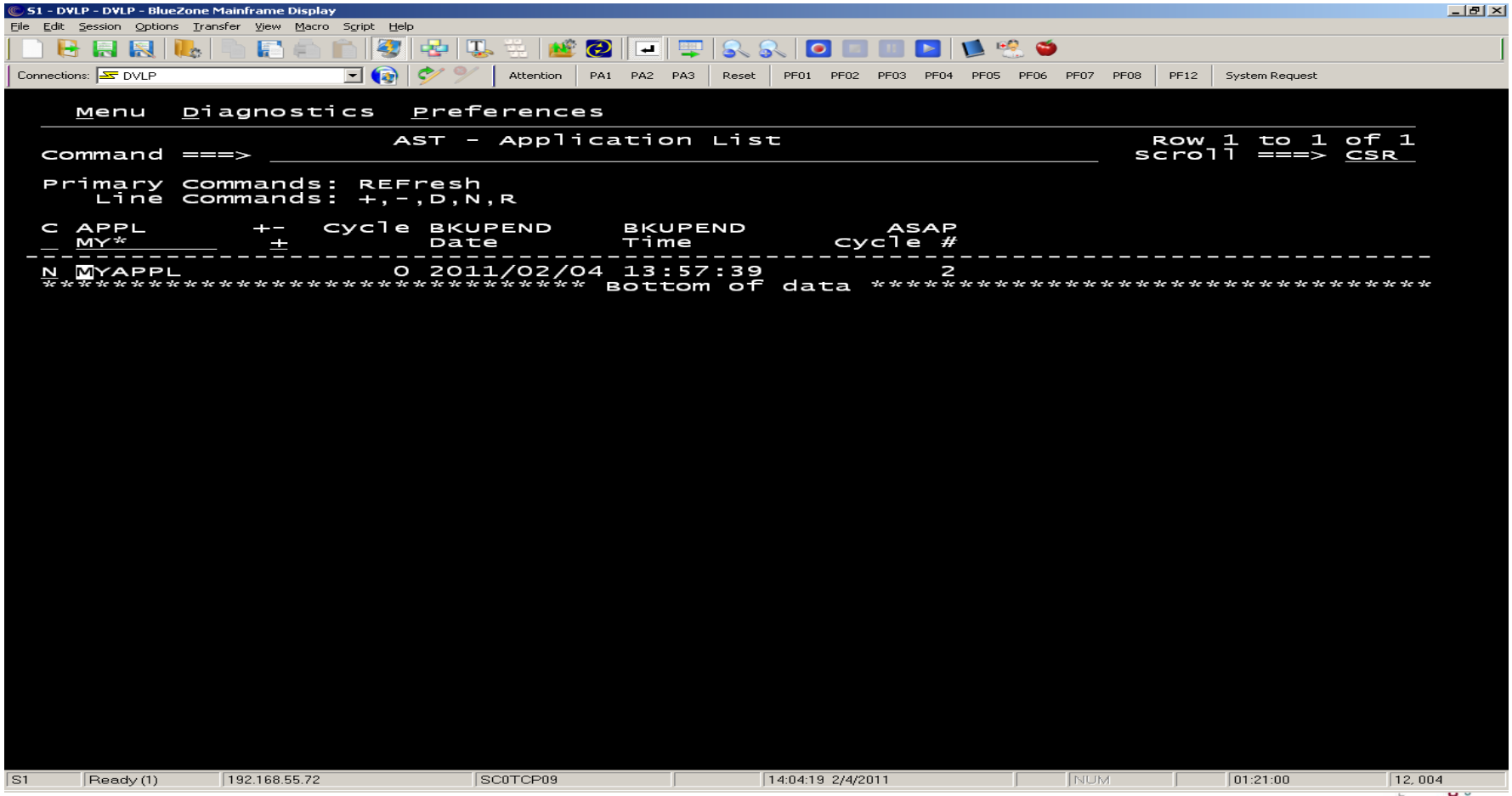
Backup Job Using Critical Dataset List



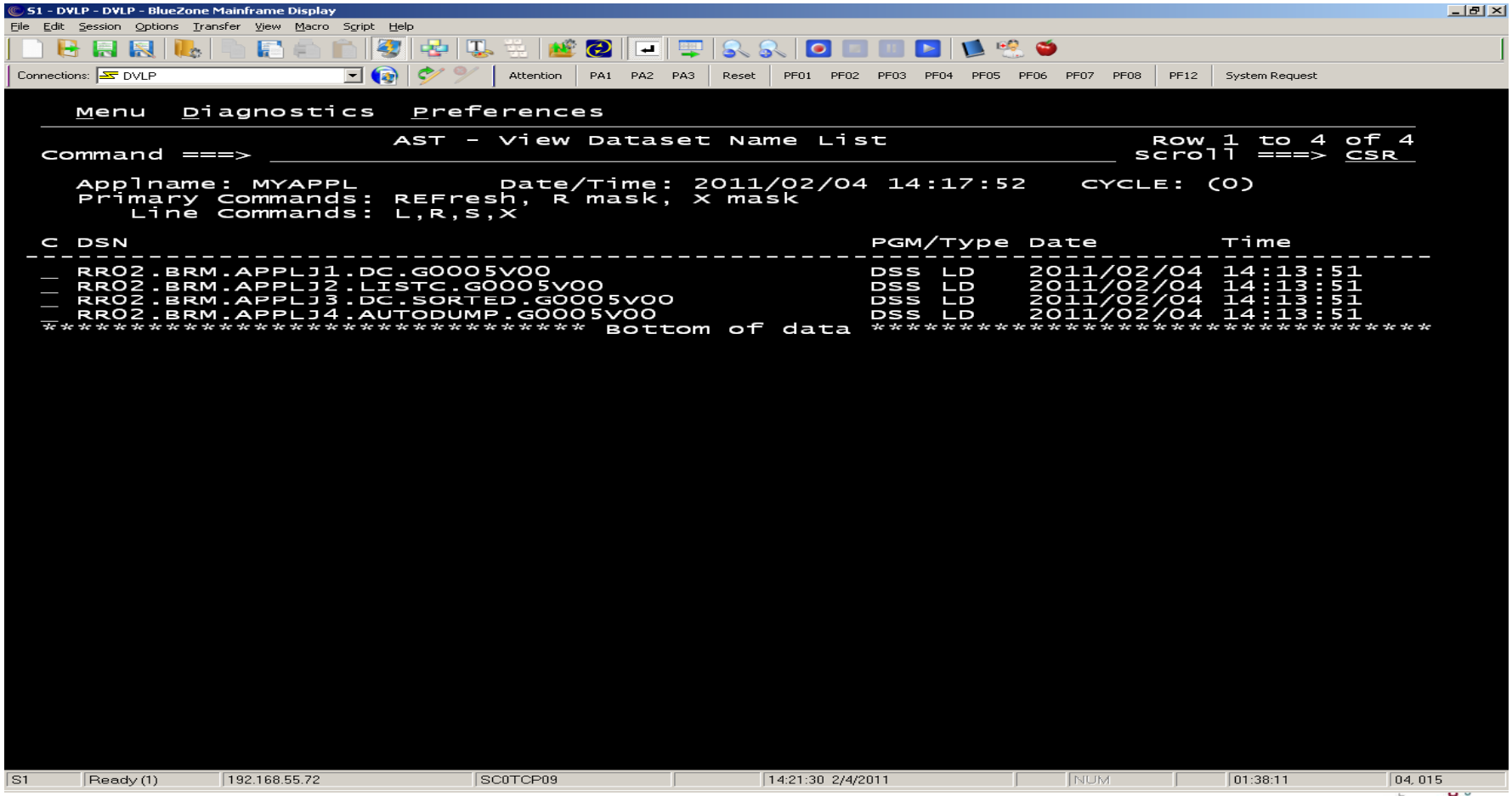
Rerun Backup Validation Job



Backup Validation Job Results



Backup Status for Critical Datasets



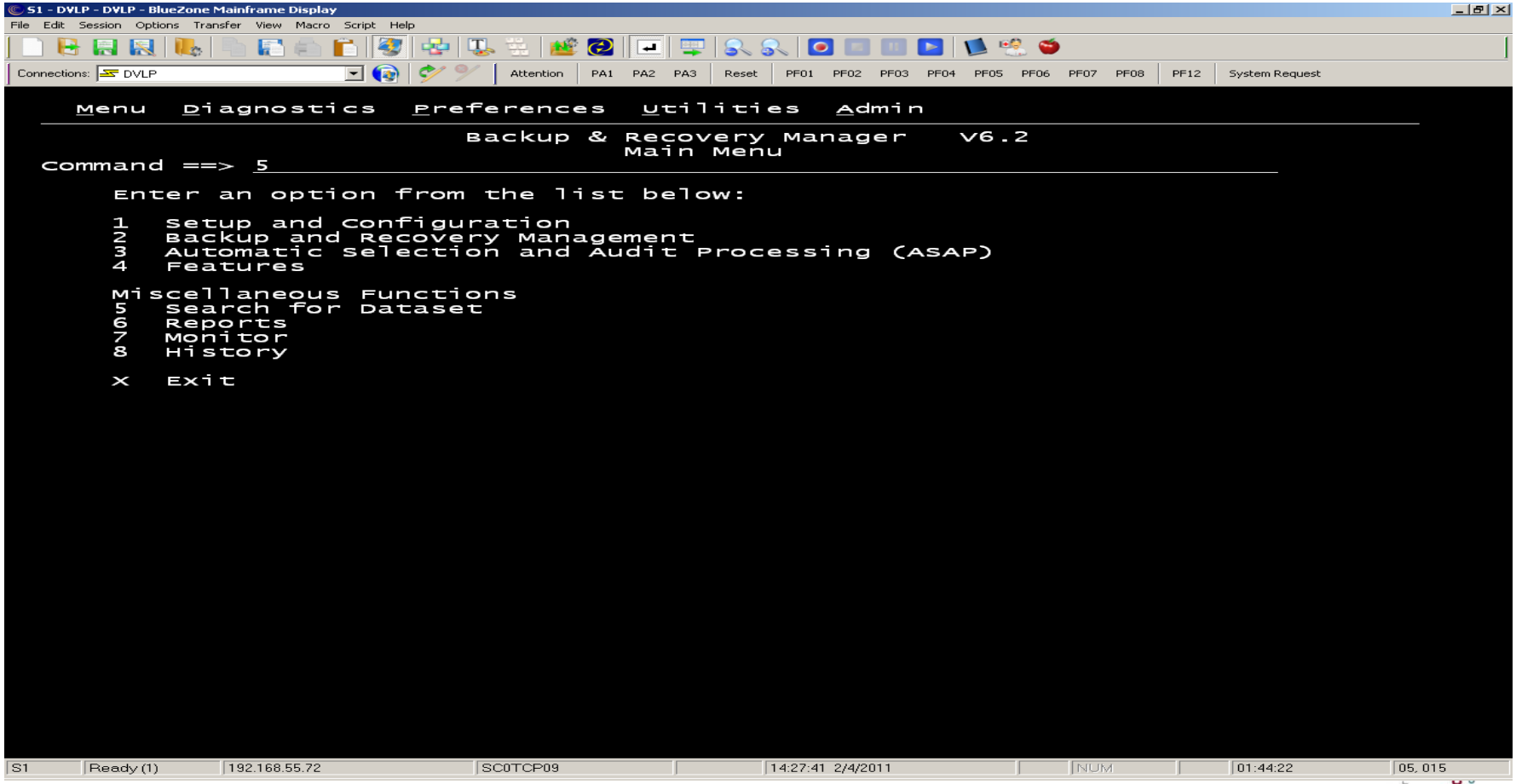
Recovery Scenarios

- Selective Dataset Recovery
  - Search for all backups for a specific name or mask
    - Tracked utility backups
    - Tracked Full Volume Dumps
    - DFSMShsm Incremental Backups and AUTODUMPs
    - DFSMShsm ABARS backups
  - Select appropriate backups
  - Generate restore job JCL
- Complete Application Recovery
  - Search for cycle point backups
    - Recorded by Backup End process
  - Select appropriate cycle point backup
  - Generate restore job JCL

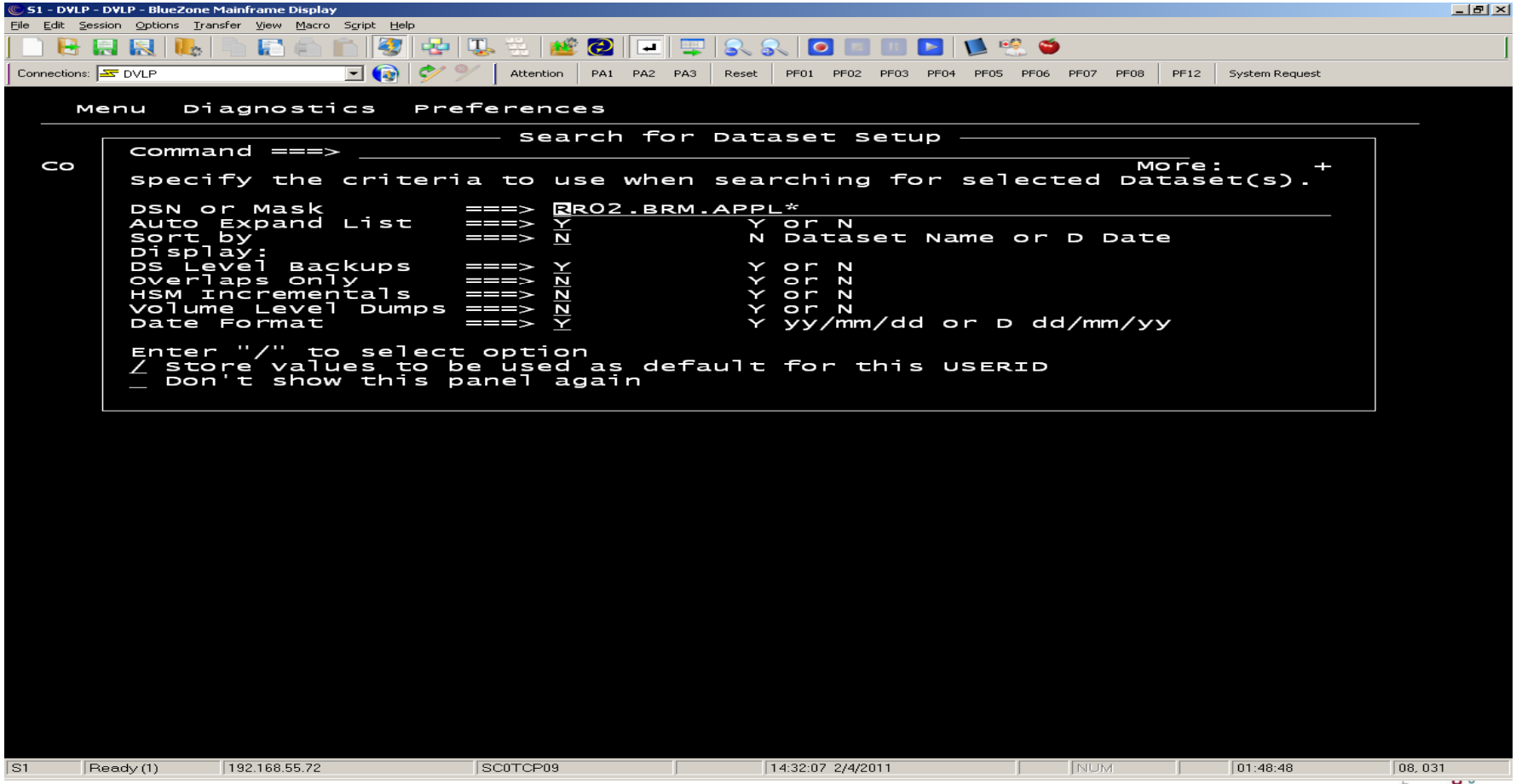
Backup and Recovery Manager (BRM)

- All/Star Functions
  - Backup job tracking
  - Dataset backup inventory management and reporting
  - Critical dataset backup validation
  - Automated selective dataset restore
  - Automated application cycle point restore

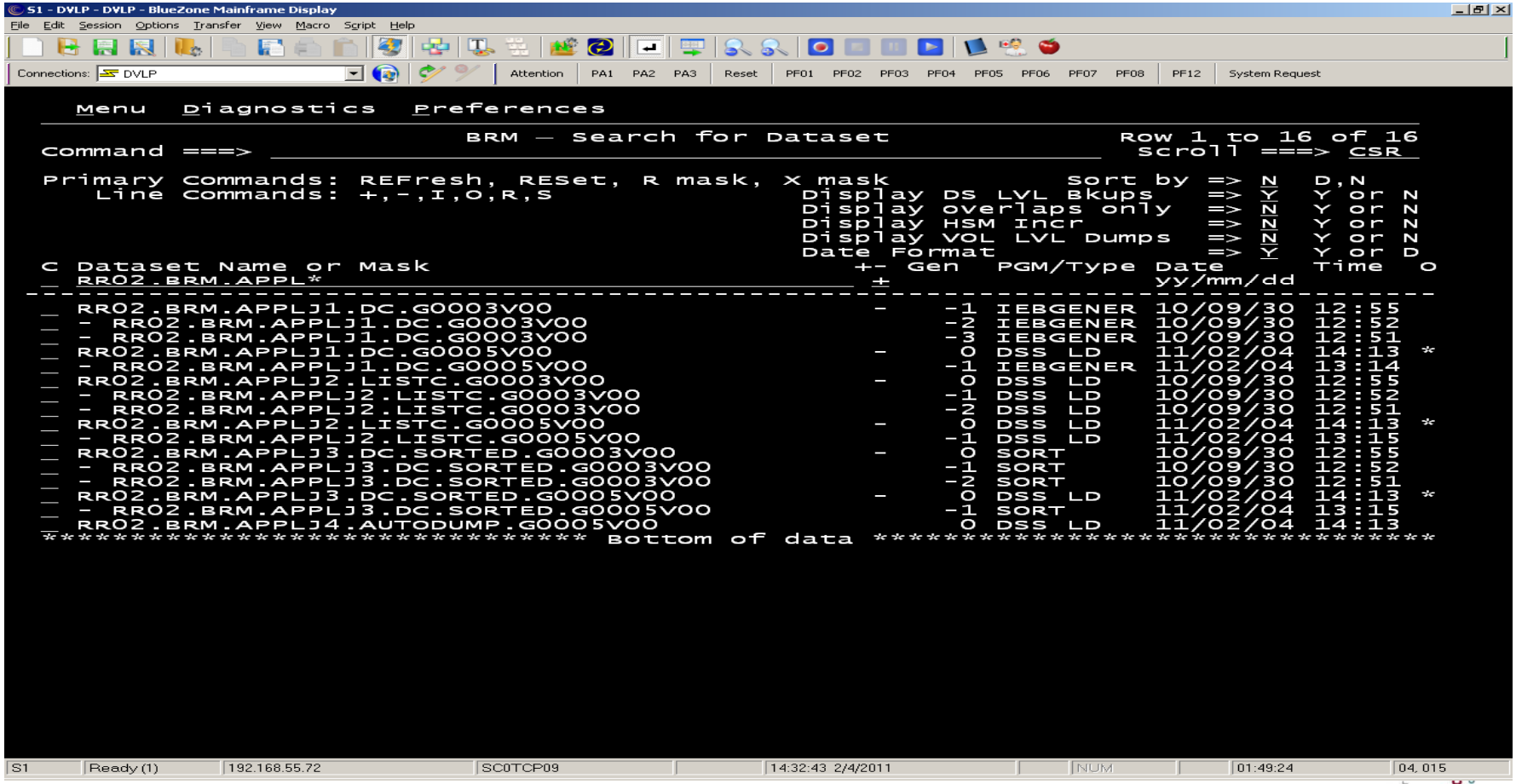
Selective Dataset Restore



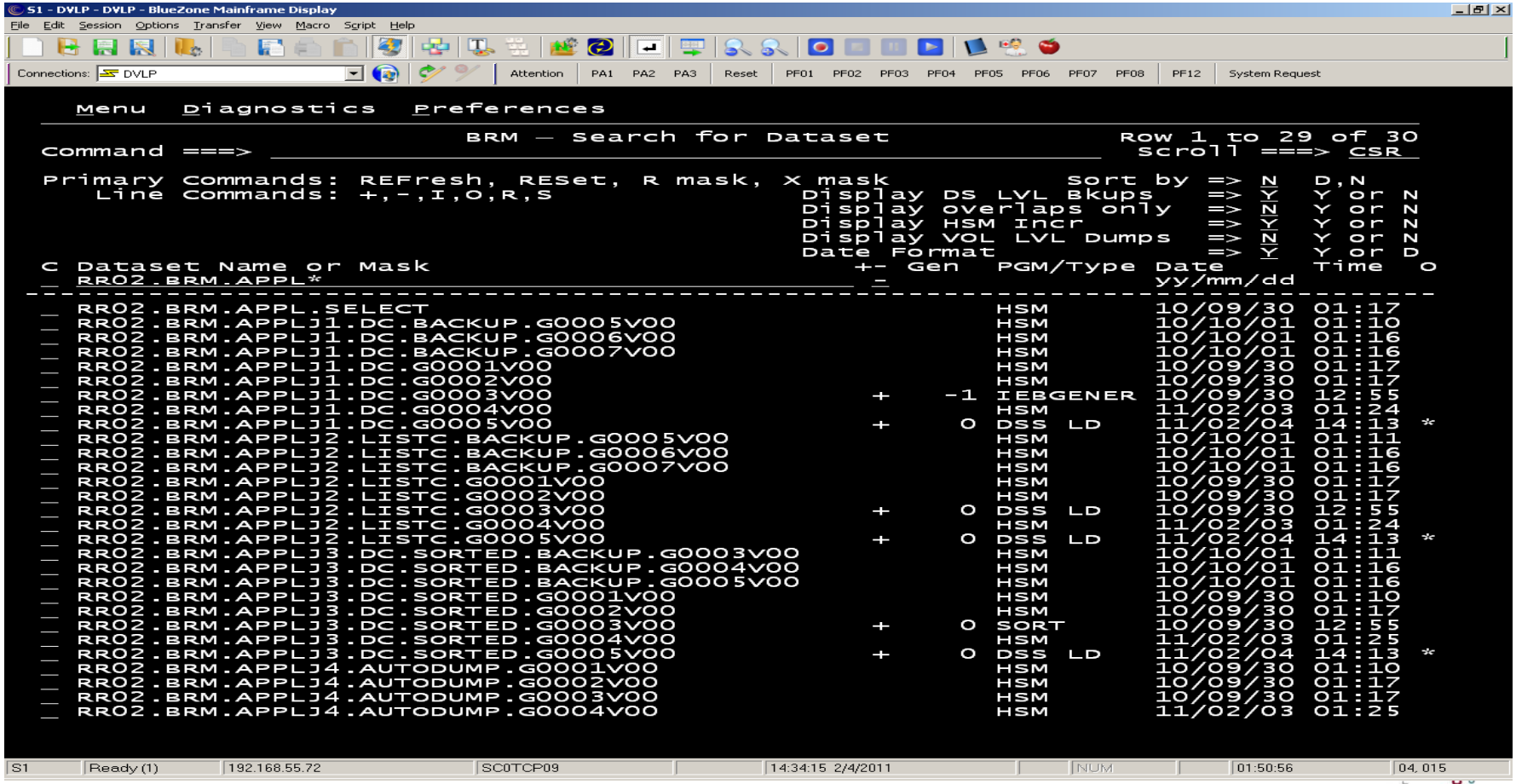
Search for Dataset Backups



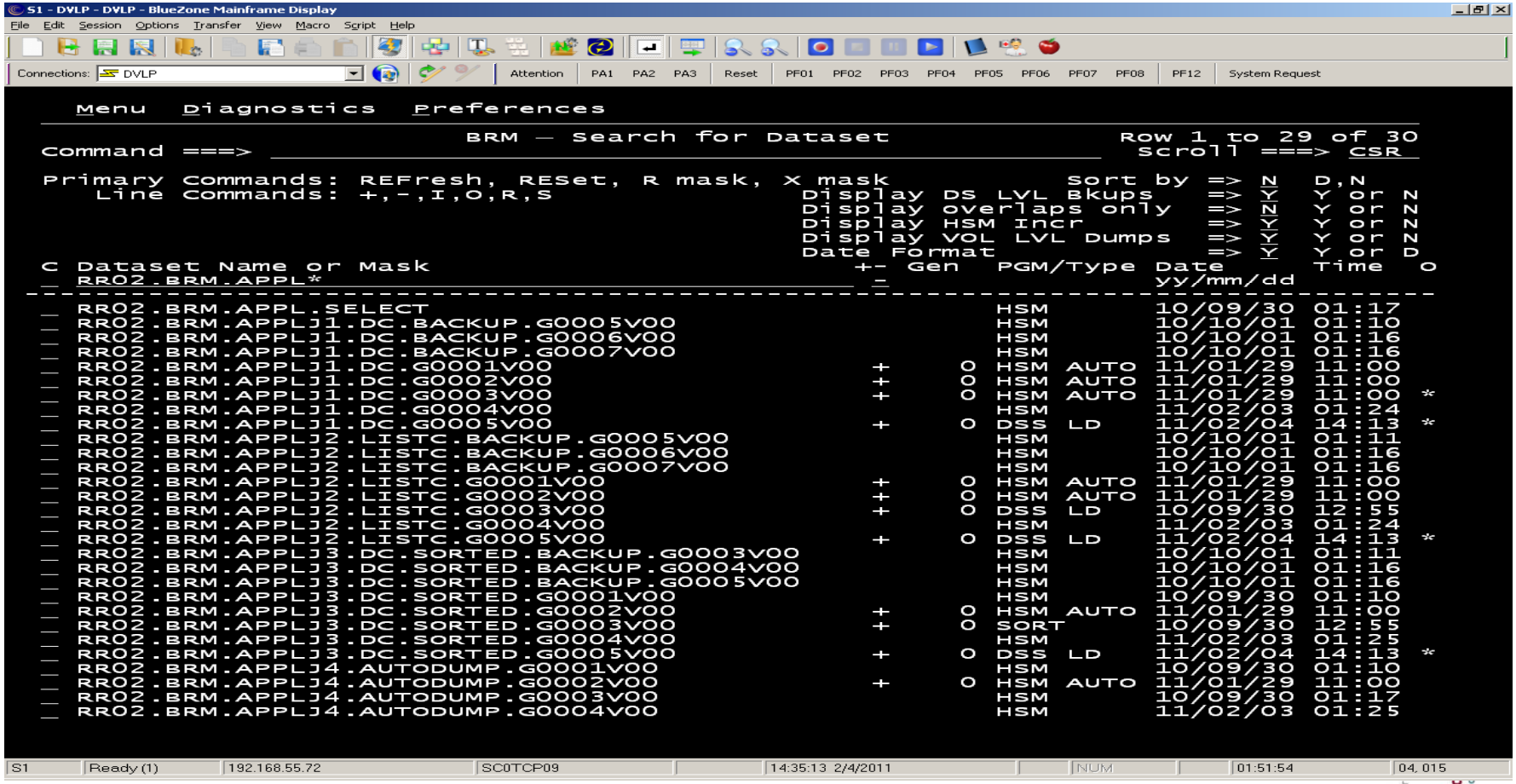
View Dataset Backup Inventory



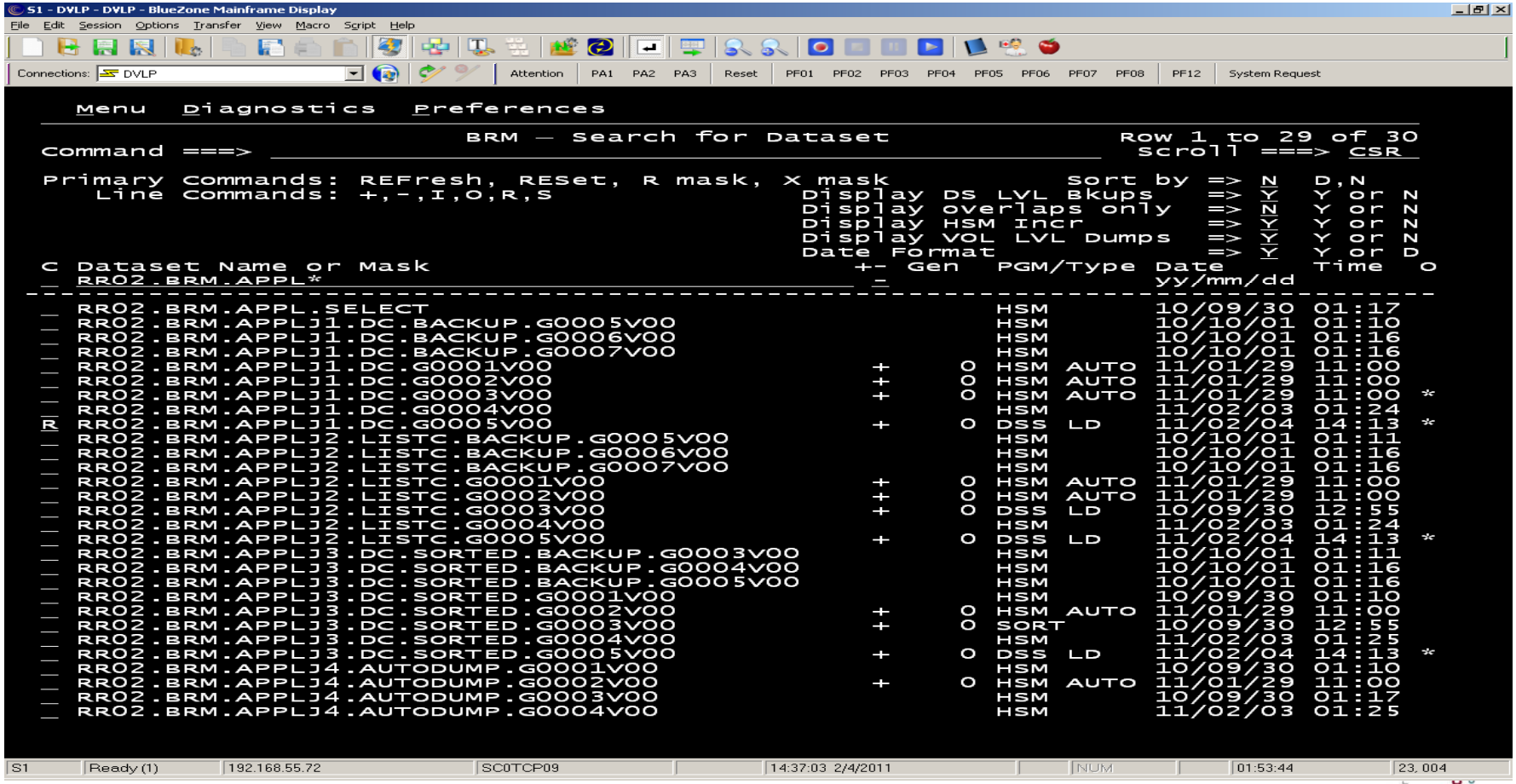
Add DFSMShsm Backup Inventory



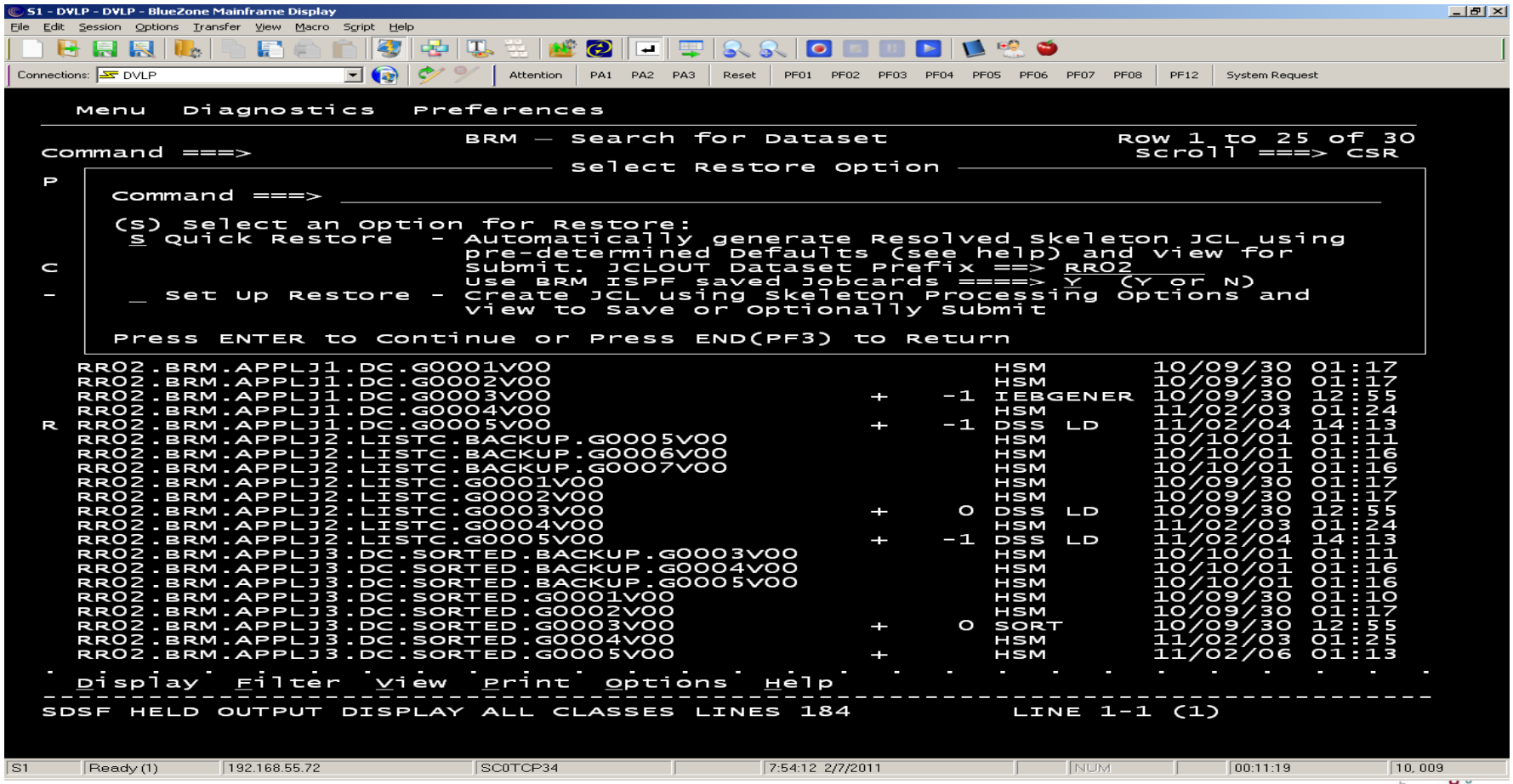
Add Full Volume Dump Inventory



Restore Selected Dataset(s)



Build Dataset Restore Job



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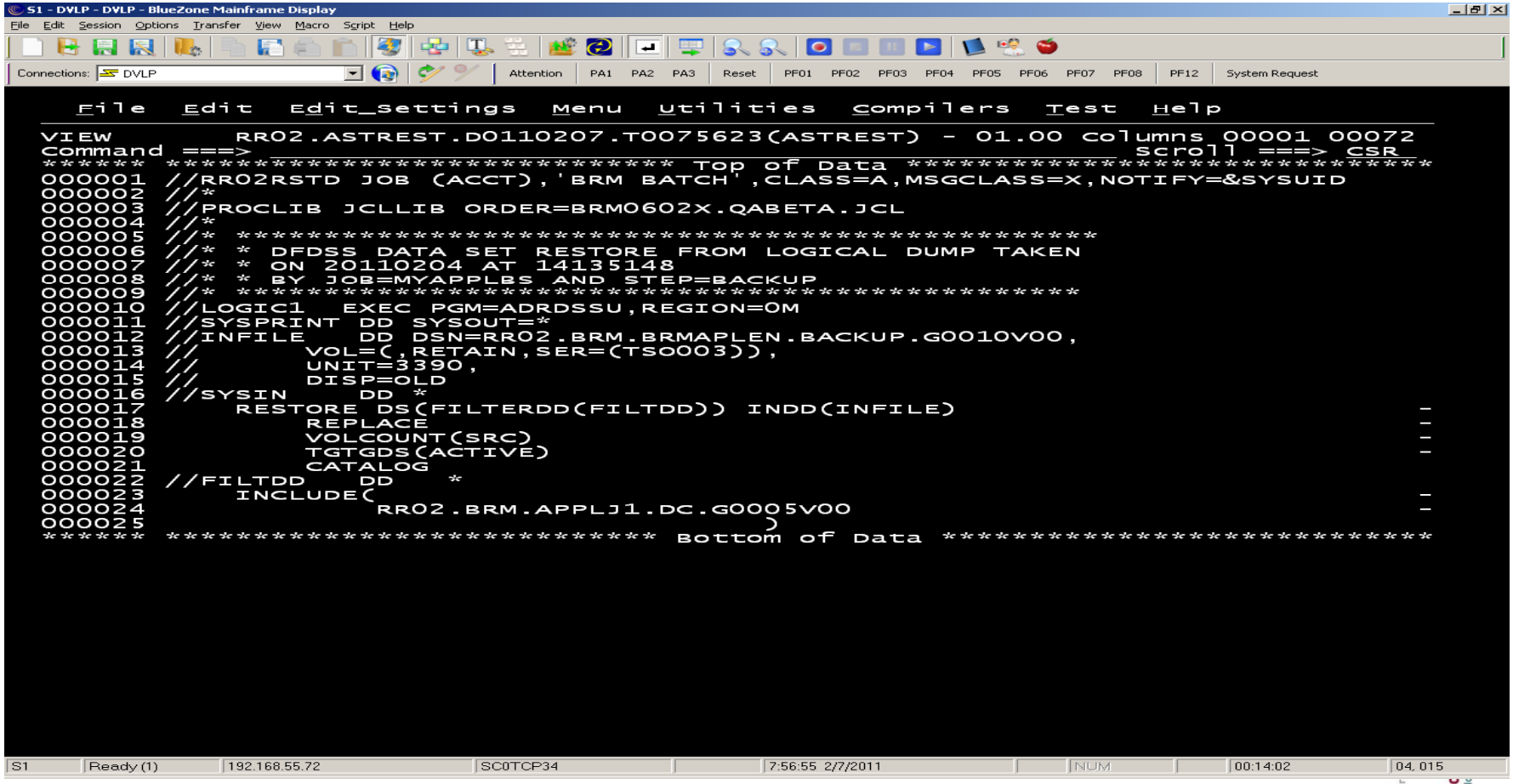
Dataset Restore Job



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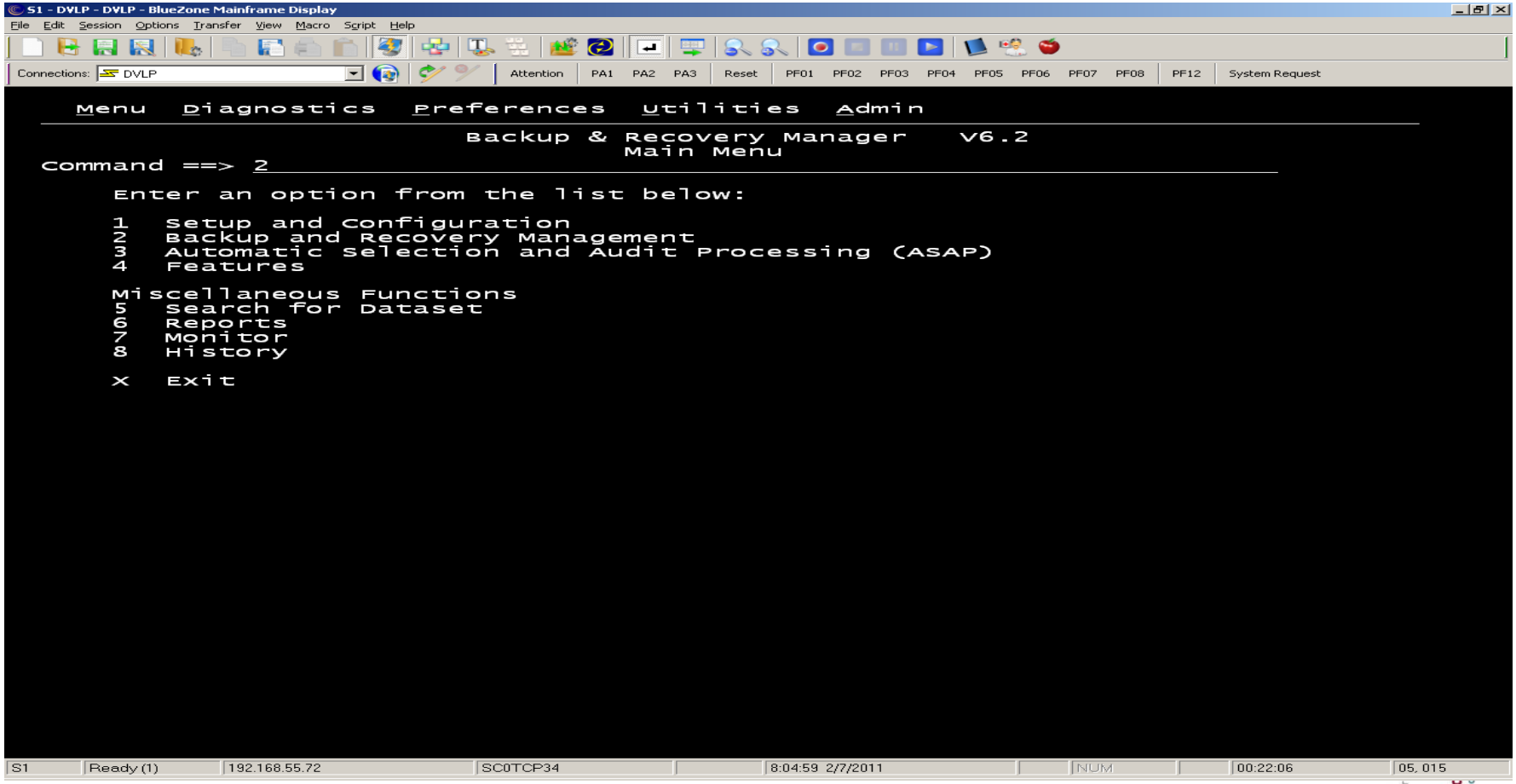
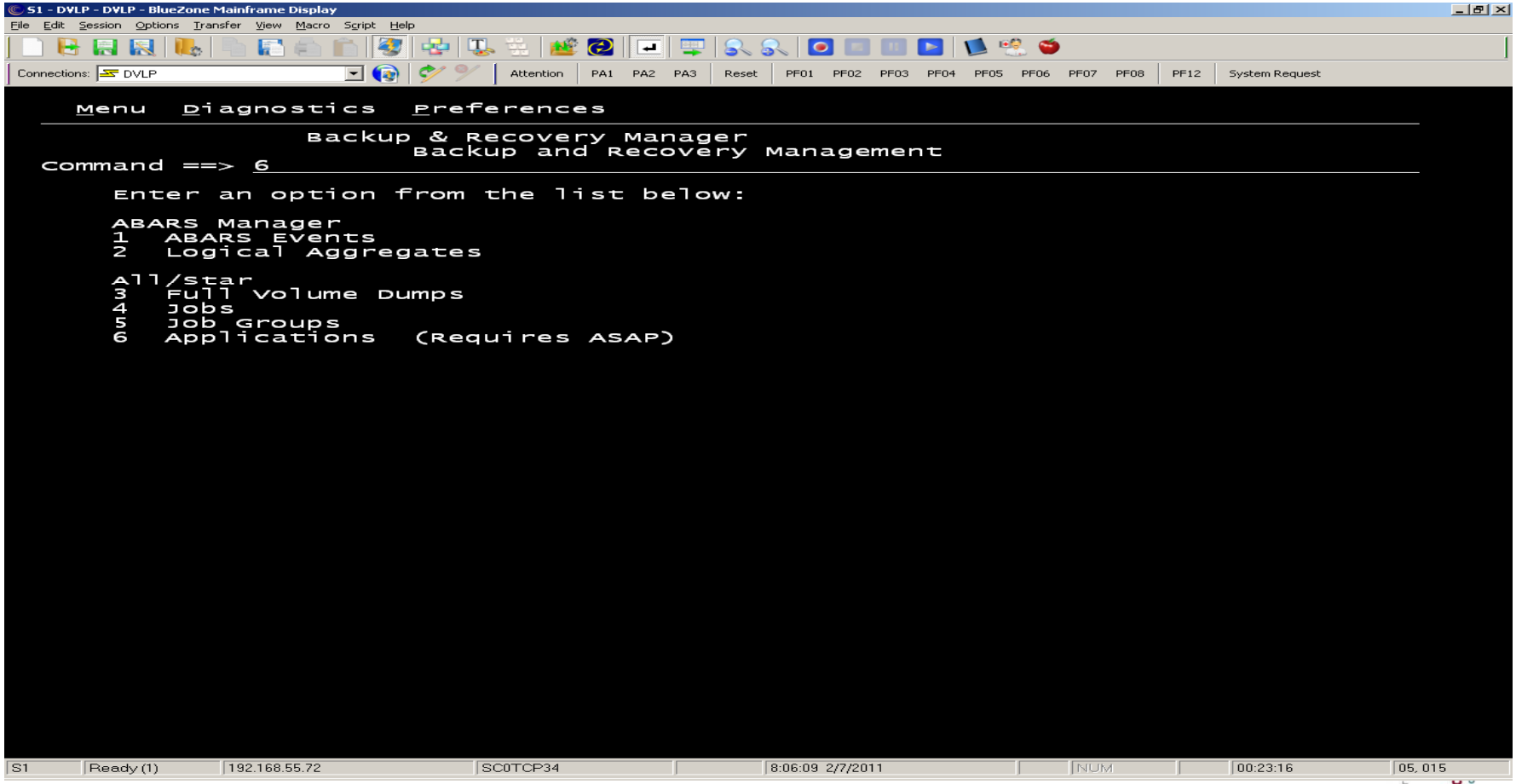
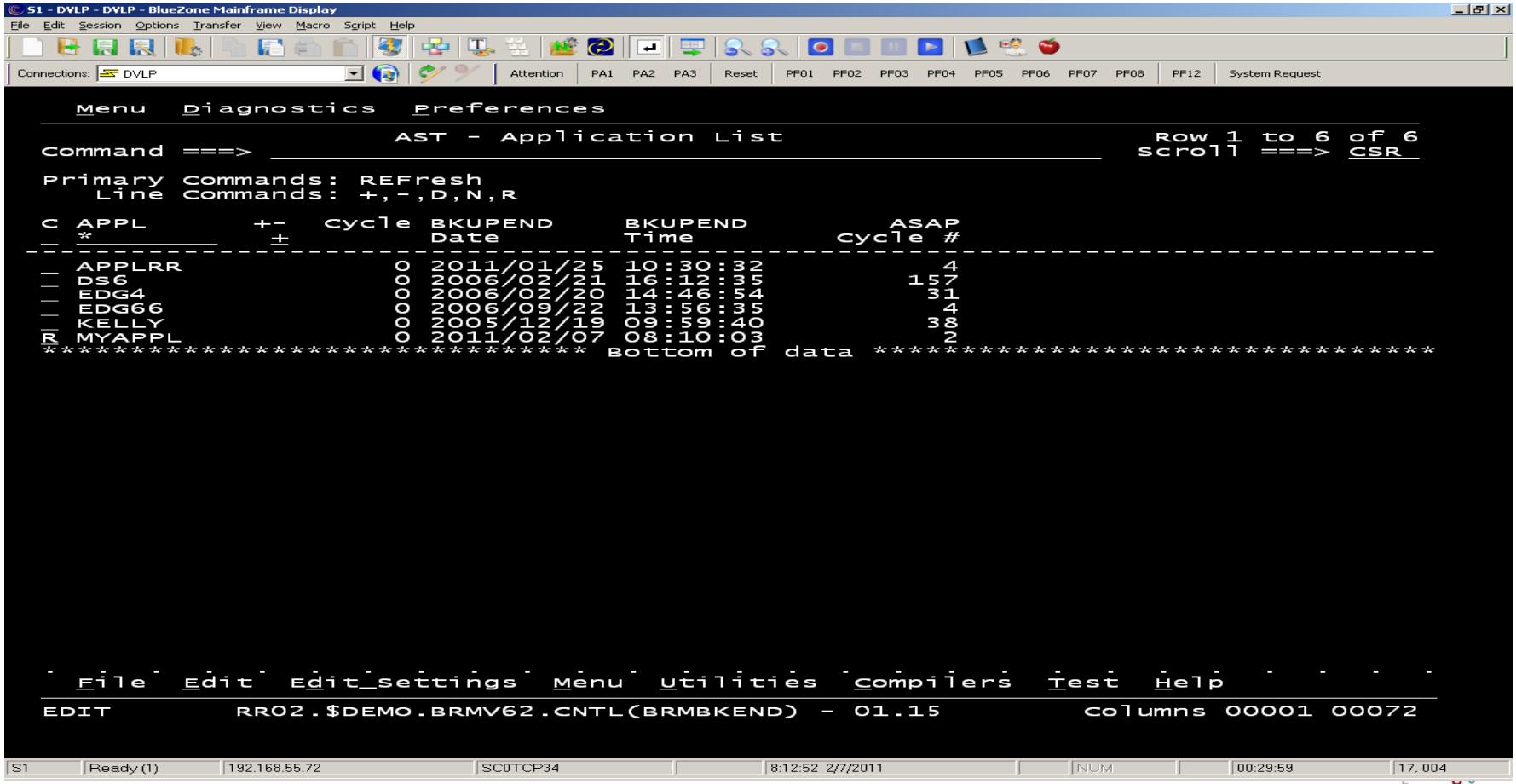
Application Cycle Point Recovery



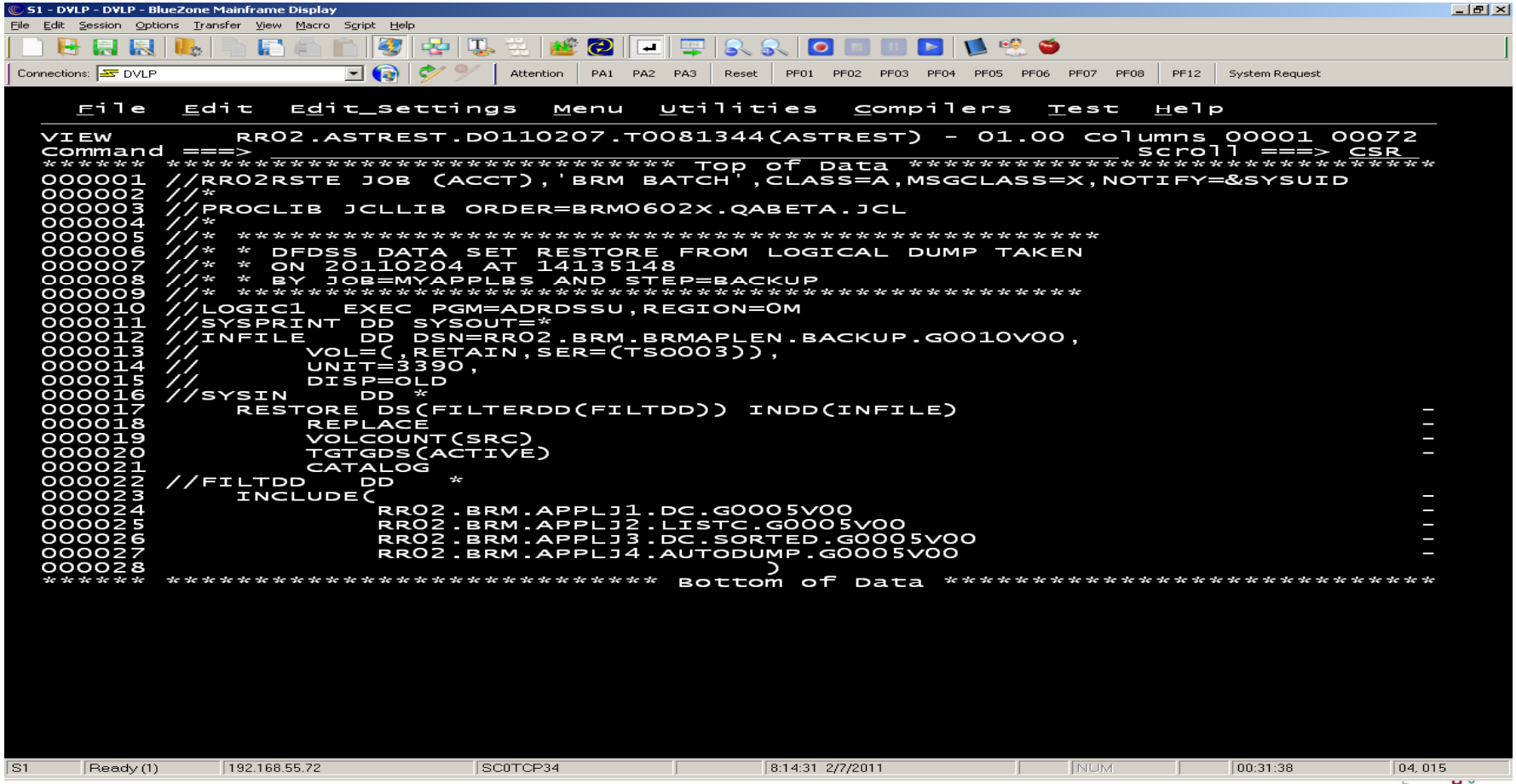
View Cycle Point Recovery Inventory



Recover Application at Cycle Point



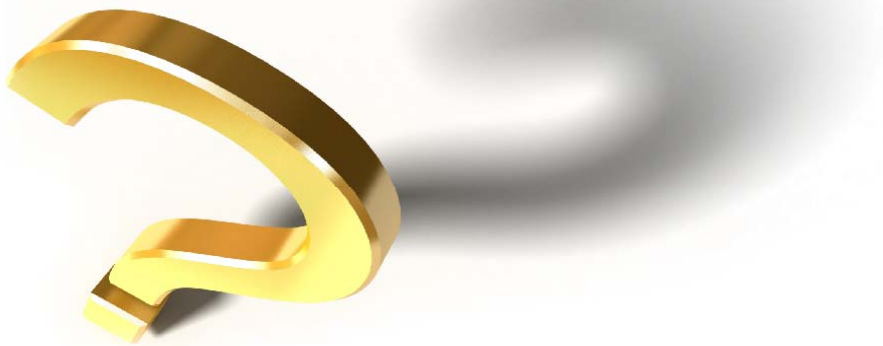
Application Cycle Point Recovery Job



Summary

- Backup and Recovery Manager (BRM) Functions
  - Automated Selection and Audit Process (ASAP)
    - Application registration
    - Application job tracking
    - Application critical dataset name discovery
    - Critical dataset list and backup control card creation
  - All/Star
    - Backup job tracking
    - Dataset backup inventory management and reporting
    - Critical dataset backup validation
    - Automated selective dataset restore
    - Automated application cycle point restore

Questions?



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