Websphere Enterprise Application Development

October 12, 2005 Teleclinic

zSeries Application Testing

Technical overview on solutions and typical testing scenarios for zSeries Application Developers

IBM Americas

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Speakers

- **Pamela (PJ) Baron, Business Unit Executive / pbaron@us.ibm.com**
- **Dan Brown, Certified AD Tools Sales Enablement Americas**
- **Tim Magee, AD Tools Technical Sales Specialist**
- **Others Joining for Q&A:** Michael Connor / Dennis Schulz / Cornell Keene

Agenda

- **Product Introduction and Highlights**
- **Testing Scenarios**
- **Polling Questions**
- **Open Q & A Session**

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Tool Agenda:

File Manager for z/OS

- Data management tool supporting key file structures like VSAM, DB2, and IMS

File Export for z/OS

- Export and import related sets of DB2, IMS, VSAM and sequential data

Debug Tool Utilities & Advanced Functions for z/OS

- Source code debugging and testing to improve development productivity

Workload Simulator for z/OS

- Regression and Load testing of interactive z/OS applications

Application Performance Analyzer

- An application program performance measurement tool for use on IBM z/OS systems, measures and reports on how system resources are used.

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Tool Agenda (cont):

CICS Performance Analyzer

- A reporting tool that provides information on the performance of your CICS systems and applications.

CICS Interdependency Analyzer for z/OS

- A productivity tool which automates discovery of resource interdependencies within CICS applications.

CICS VSAM Copy

- A tool for creating consistent copies of VSAM files, with no impact to online processing.

Rational Performance Tester

- Stress and Load testing of a web-based applications

Rational Functional Tester Extension

- Workstation-based regression testing of interactive z/OS applications

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Tool Agenda (cont):

Websphere Developer for zSeries (WDz)

- Help make traditional mainframe development, Web development, and integrated mixed workload faster and more efficient.

Websphere Studio Asset Analyzer

- A tool that allows you to extend and transform your existing applications through rapid application understanding.

Websphere Application Monitor

- Manage heterogeneous environments consisting of both mainframe and distributed systems.

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IBM File Manager for z/OS

Use it to:

- Work with data in files, DB2 tables, and IMS databases
- Browse and edit data directly
- Easily copy, reformat, create test data, and compare data

Key Features:

- Advanced data Edit and Browse
  - Uses familiar ISPF edit commands
  - Powerful data formatting and selection capabilities
- A robust set of utilities to generate test data, copy, find, compare, and modify data
- Work with data in friendly formats
  - Use a copybook or user-defined “template” to format records

No limit to file size!

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IBM File Export for z/OS

Use it to:

- Import and Export related sets of DB2, IMS, VSAM, and sequential data.
- Generate test data on demand
- Supports Interactive System Productivity Facility (ISPF) and offline (batch) interfaces

- **Key Features**:
  - Copies all data in a related set of objects or a slice of data across a related sets of objects
  - Provides for one-to-one data creation, one-to-many, and many-to-one data creation
  - Provides support for parent-child relationships defined using IBM File Export
  - Includes highly flexible data selection and reformatting rules
  - Gives the user the option to protect sensitive data on a field-by-field basis
  - Supports altering data content while copying, including the ability to age date-related data

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IBM Debug Tool and Advanced Functions for z/OS

Use it to:

- Interactively debug an application program while it runs
  - Step through source statements, set “breakpoints” and run, monitor and change program variables
- Modernize COBOL programs written for older compilers

Key Features:

- Debug COBOL, PLI, C, C++, and Assembler programs
- Support for batch, CICS, IMS, DB2, and DB2 stored procedure programs
- Set simple or conditional breakpoints; or run a script at a breakpoint
- Gives you the ability to trap and repair abends
- Intuitive GUI interface when used with products such as WDz
- COBOL Conversion Utility

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IBM Workload Simulator for z/OS

Use it to:

- Automatically simulate online user(s) on the system
- Perform regression testing of online applications
- Perform Load and Performance testing

Key Features:

- Automatically capture test scripts from a live session
- Powerful scripting language
- Easy-to-use ISPF interface
- Organizes your testing scripts, projects, and results

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IBM Application Performance Analyzer for z/OS

Use it to:

- Optimize the performance of your existing application resources
- Improve the response time of your online transactions and batch turnaround times
- Isolate performance problems in applications
- Provide maximum flexibility with support for CICS, Assembler, COBOL, PL/I, DB2® , IMS, and WebSphere® MQ
- Test the effect of increased workloads on your systems

Key Features:

- **Online analysis:** Shows displays of the overall system activity. You can check job execution online and select which active job to monitor.
- **Monitoring:** Automatically starts to monitor a job′s performance when that job or program becomes active for as many times as you specify.
- **Performance analysis:** Provides you with CPU usage by procedure, referred attribution, wait time by task, category, and module.
- **Source language support:** Offers support for Assembler,COBOL, and PL/I language applications.

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IBM Rational Performance Tester

Use it to:

- Provide performance test creation
- Validate the scalability and reliability of web-based applications
- Perform load and performance testing

Key Features:

- Multi-user performance testing for Web-based applications
- Visual editor delivering both high-level and detailed test views
- Flexible modeling and emulation of diverse user populations
- Low memory and processor footprint, enabling large multi-user tests with limited hardware resources
- Real-time reporting to enable immediate recognition of performance problems
- Dynamic variation of user load during the test

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IBM Rational Function Tester Extension for z/OS

Use it to:

- Automatically simulate online user(s) on the system
- Drive simulations from a workstation
- Perform regression testing of online applications

Key Features:

- An extension to Rational Functional Tester
- Automatically capture test scripts from a live session
- Powerful scripting language
- GUI interface
- Organizes your testing scripts and results

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IBM CICS Performance Analyzer

Use it to:

- Improve CICS system resource usage
- Evaluate the effects of CICS system tuning efforts
- Improve transaction response times
- Analyze CICS application performance
- Enable faster resolution of online problems
- Provide ongoing system management and measurement reports

Key Features:

- Detailed performance bottleneck analysis
- Trend Analysis for capacity planning
- Identification of usage trends leading to reduced CICS performance or even outages.
- Complements the enterprise-wide historical performance capabilities of IBM Tivoli ® Decision Support for z/OS

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IBM CICS Interdependency Analyzer

Use it to:

- Determine which programs have **potential affinities** due to the CICS API commands within them.
- Determine which **resources** (Programs, Files, TSQs TDQs etc) are required by a transaction.
- Which **resources are no longer used.**
- Which transactions have **affinities to particular CICS regions**.

Key Features:

- A Collector that gathers information on resource interdependencies and affinities.
- Resource Relationship database that contains accumulated data about all applications and the resources that are used.
- A Query Interface that provides comprehensive set of SQL queries that allows you to use the collected data to gain a detailed level of understanding of end-to-end resource relationships
- A Scanner to analyze the members in the Application LoadLib (both, affinities and interdependencies) to produce summary and detailed reports.

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IBM CICS VSAM Copy

Use it to:

- Create consistent copies of VSAM files, concurrent with online processing activity.
- Rapidly copy one or more VSAM files, with data consistency.
- Create copies of VSAM files online or offline

Key Features:

- Online mode copy request
- Offline mode copy request
- Dynamic mode copy request
- Copy requests for multiple dataset
- Partial dataset copy request

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IBM Websphere Developer for zSeries (WDz)

Use it to:

- Graphical development environment on a workstation which provides debugging while program executes on mainframe (CICS, IMS Batch, DB2 Stored procedures, etc.).
- Leverage enterprise lifecycle support integrating discovery (WSAA) and debugging (Debug Tool) with common interfaces
- Extend mainframe or JAVA expertise across the IT organization

Key Features:

- Provides Smart editing
- Full syntax checker
- Graphical navigation
- Full control of remote complies
- Live host connectivity (TSO commands, Job queue mngmt., etc.)

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IBM Websphere Studio Asset Analyzer

Use it to:

- Interpret program and system source code and control tables
- Increase developer and analyst productivity by automating the discovery phase of a development cycle
- Automate application functional documentation for Sarbanes-Oxley
- Minimize risk in application maintenance by enabling a more thorough analysis of proposed changes
- Find existing application assets which are, or could be, components to be reused in Web or Web-services applications

Key Features:

- A wizard-driven interface that you can use to create impact analyses
- The ability to indicate the scope of analysis, such as analysis only within programs or across program boundaries, by specifying a level for analysis.
- Tabbed output on the impact-analysis details page, enabling you to move quickly among summary, detailed and graphical views of the results of an impact analysis.

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IBM Websphere Application Monitor

Use it to:

- Provides composite application monitoring so you can view correlated traces of complex applications that span J2EE boundaries to CICS and IMS to pinpoint hotspots in application code.
- Give application independence to gain method-level application visibility without modification or knowledge of the application
- Provide comprehensive J2EE diagnostics and problem determination to detect, analyze and resolve application problems before they impact business users

Key Features:

- J2EE-to-CICS monitoring with composite transaction monitoring between J2EE and CICS over WebSphere MQ and IBM WebSphere CICS Transaction Gateway
- MQ monitoring, a new enabling technology that supports the ability to track composite transactions that cross J2EE to legacy systems (such as CICS and IMS) using WebSphere MQ as the data transport

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IBM Testing Tools Scenario

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Static Source Code Analysis:

Websphere Asset Analyzer

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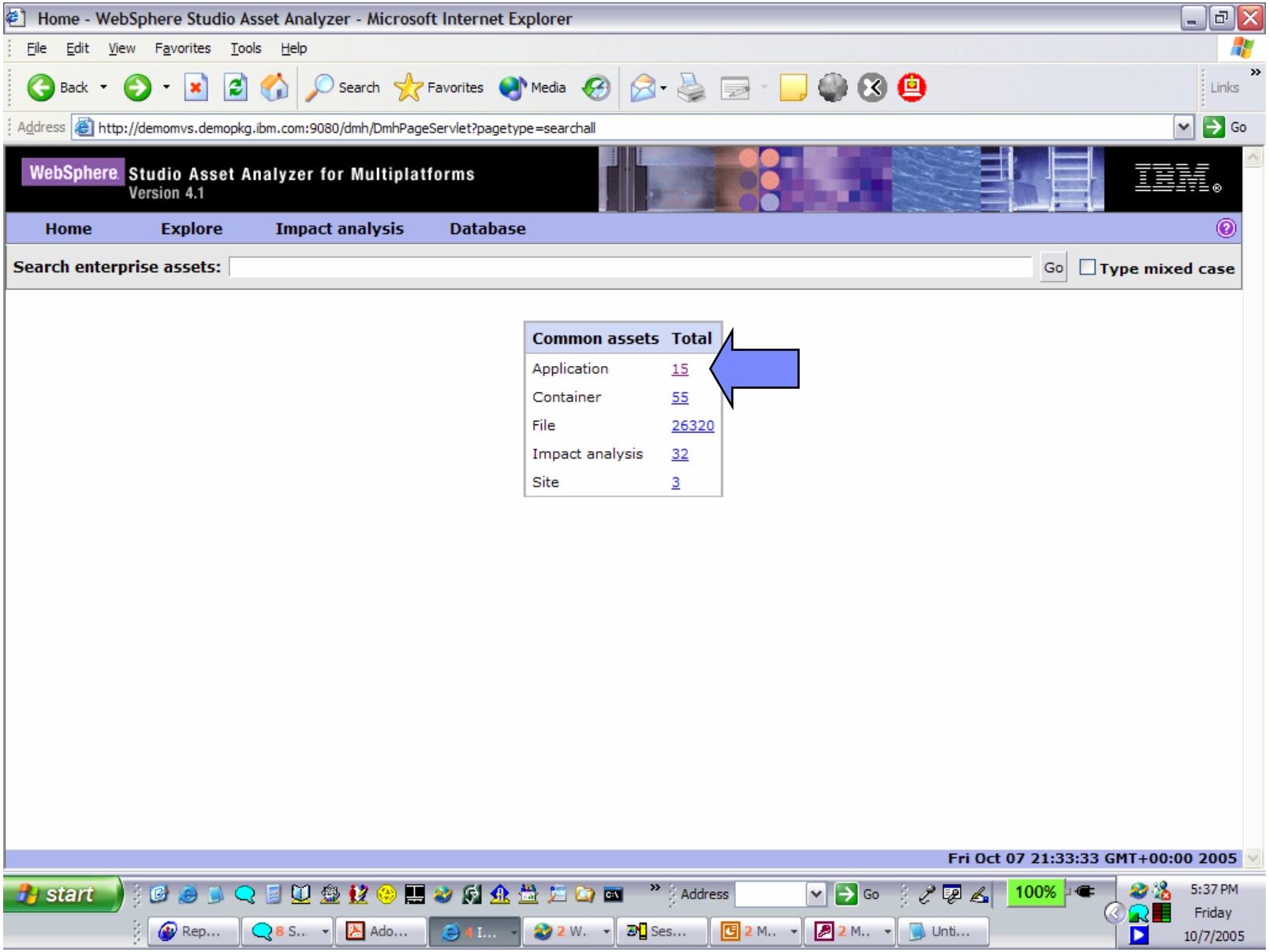

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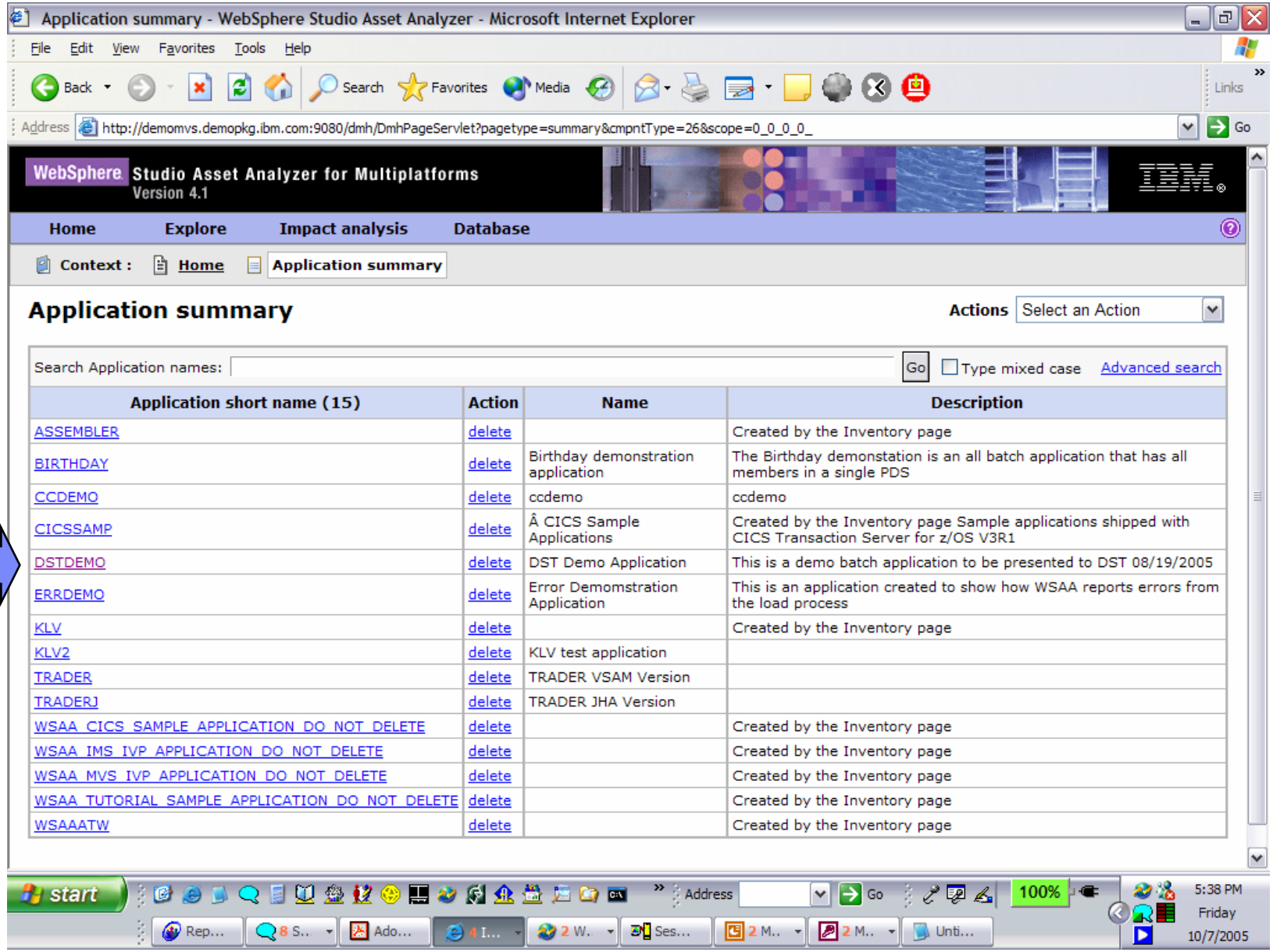

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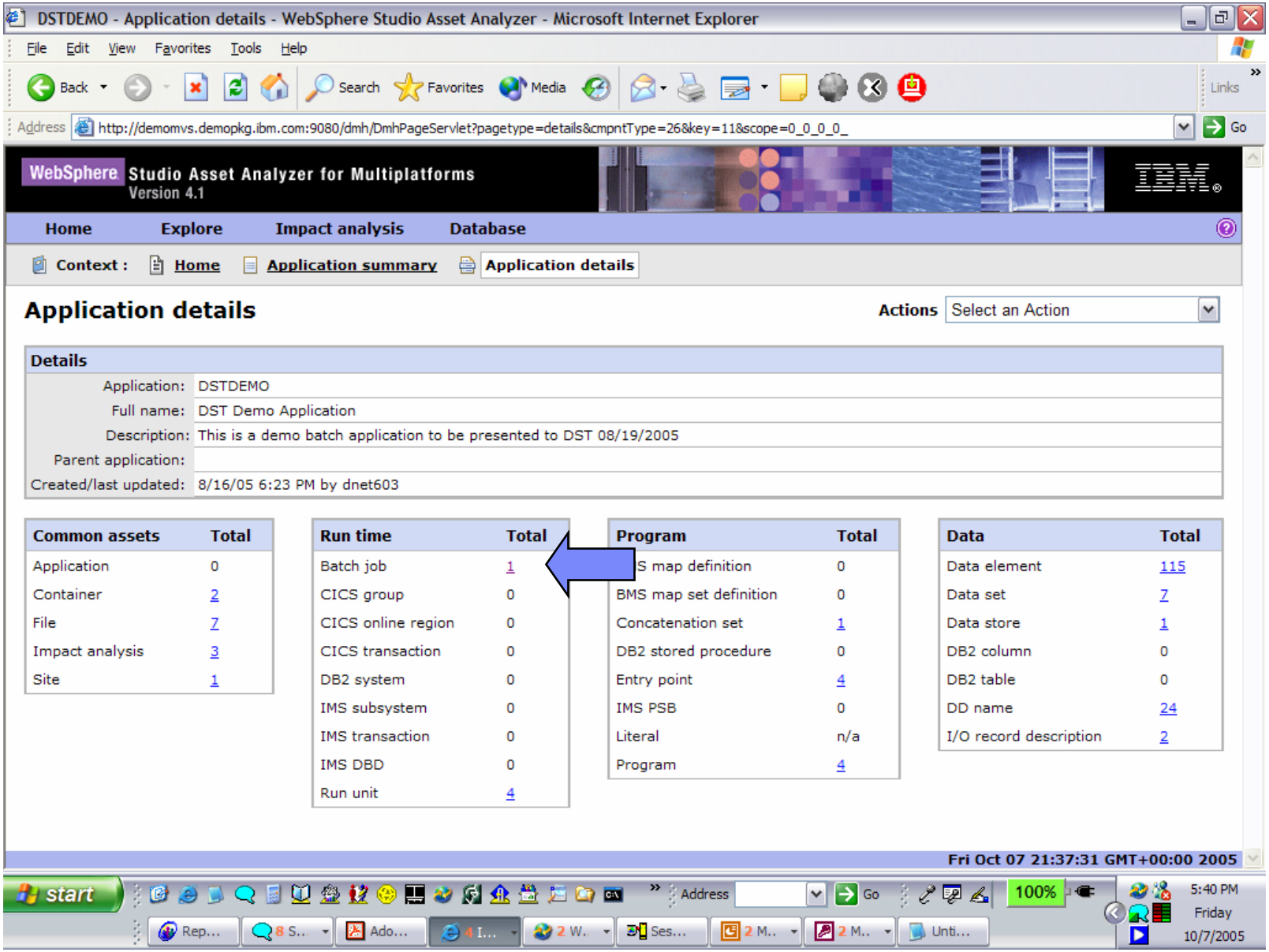

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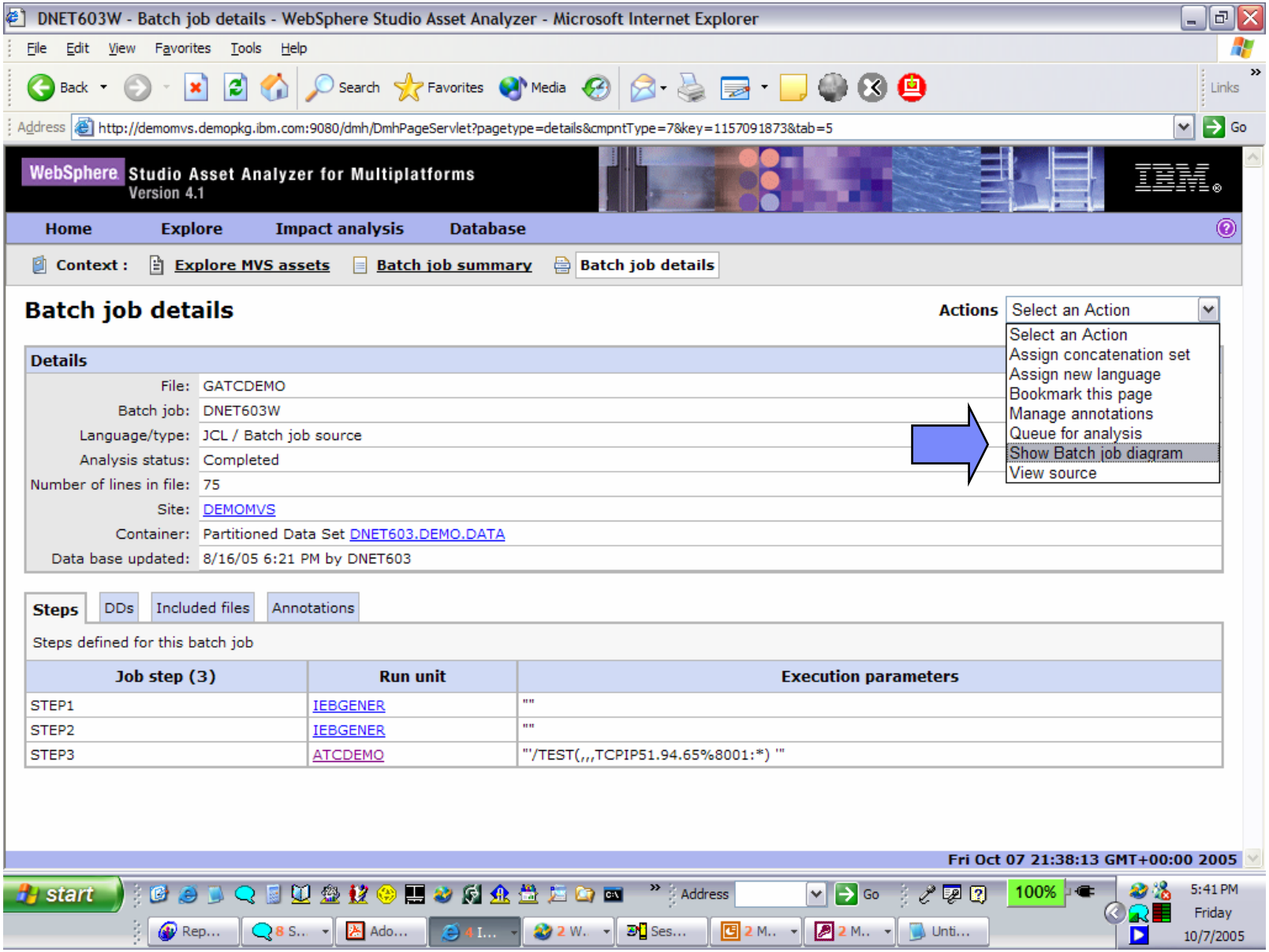

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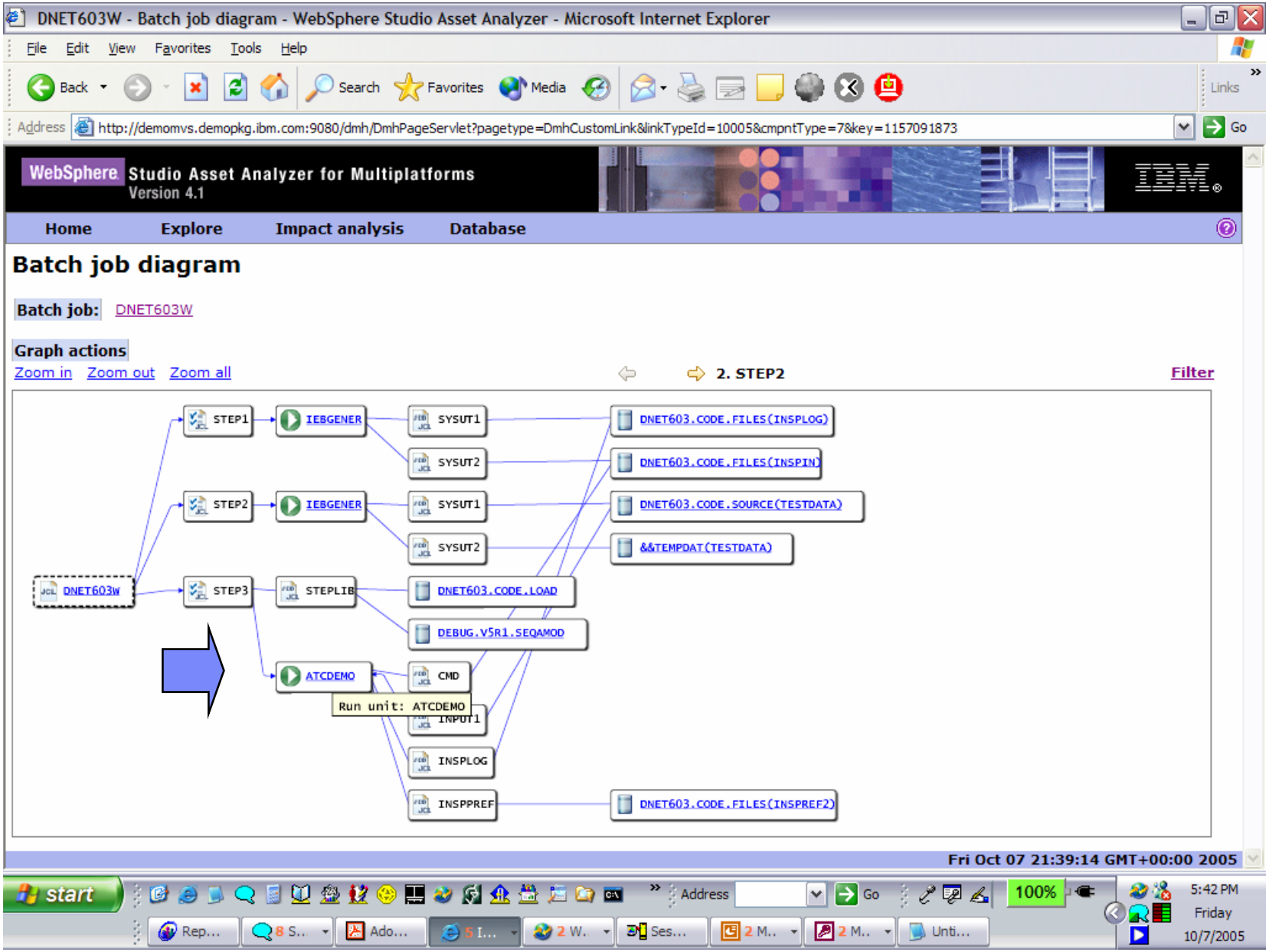

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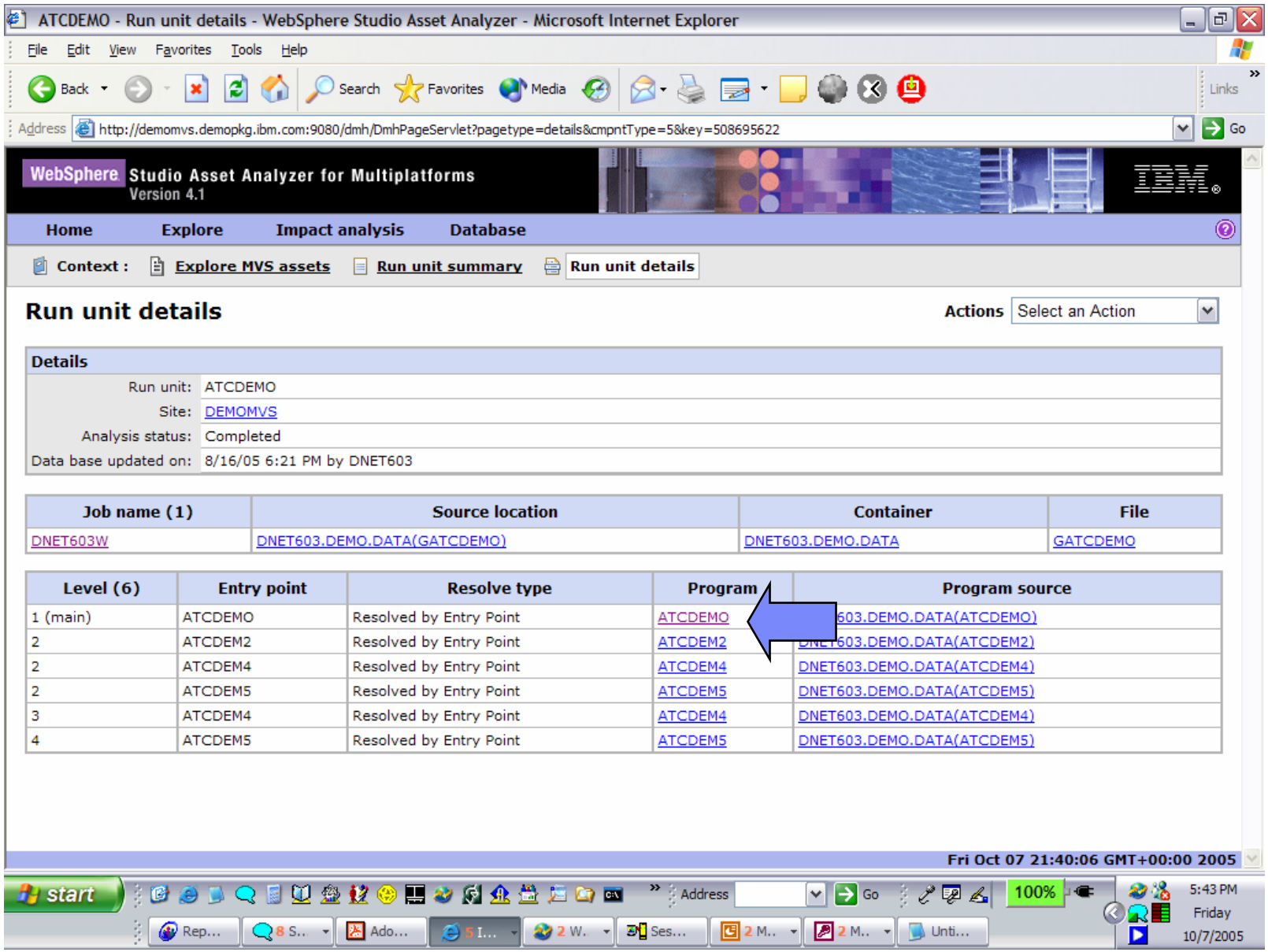

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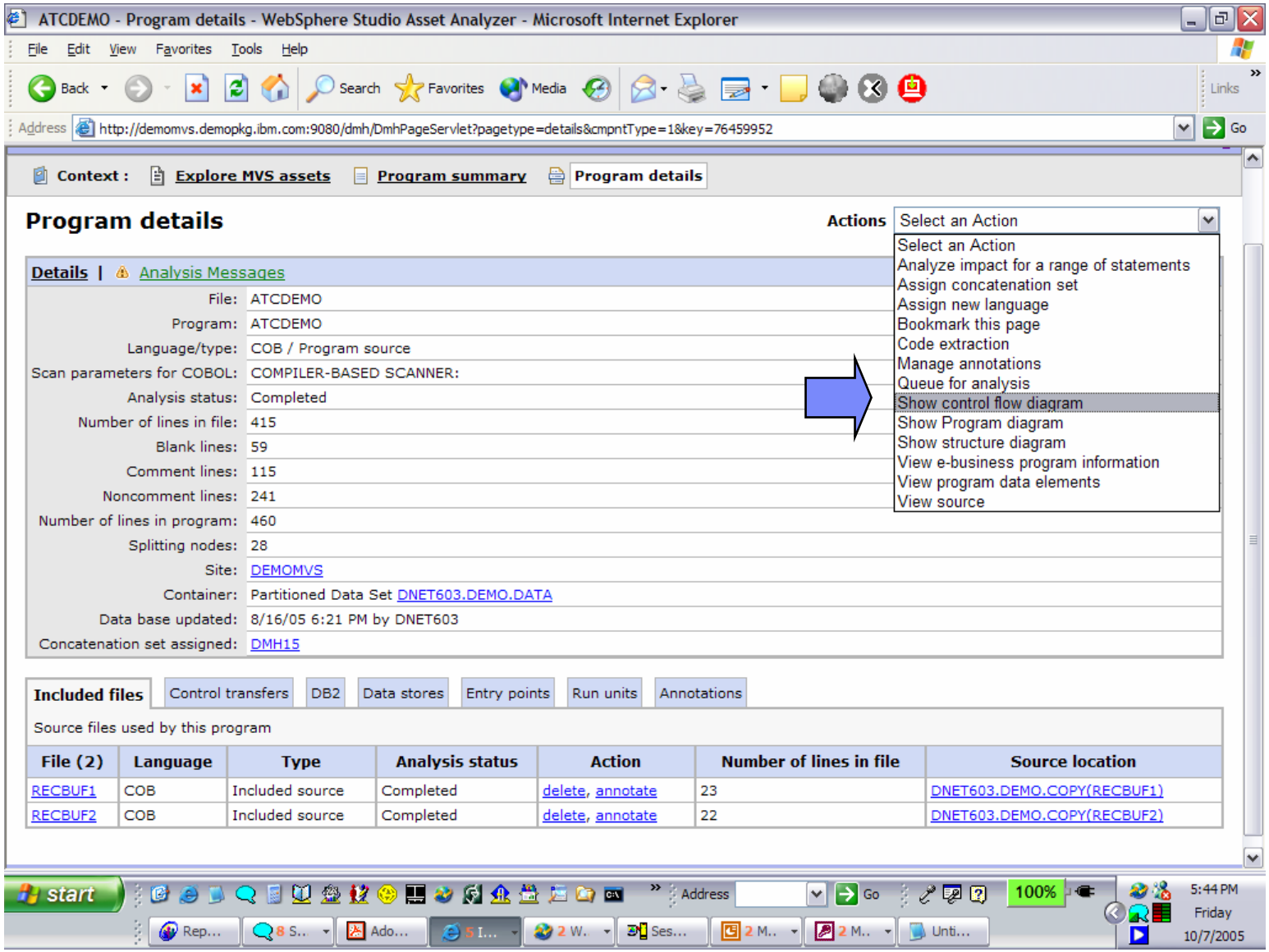

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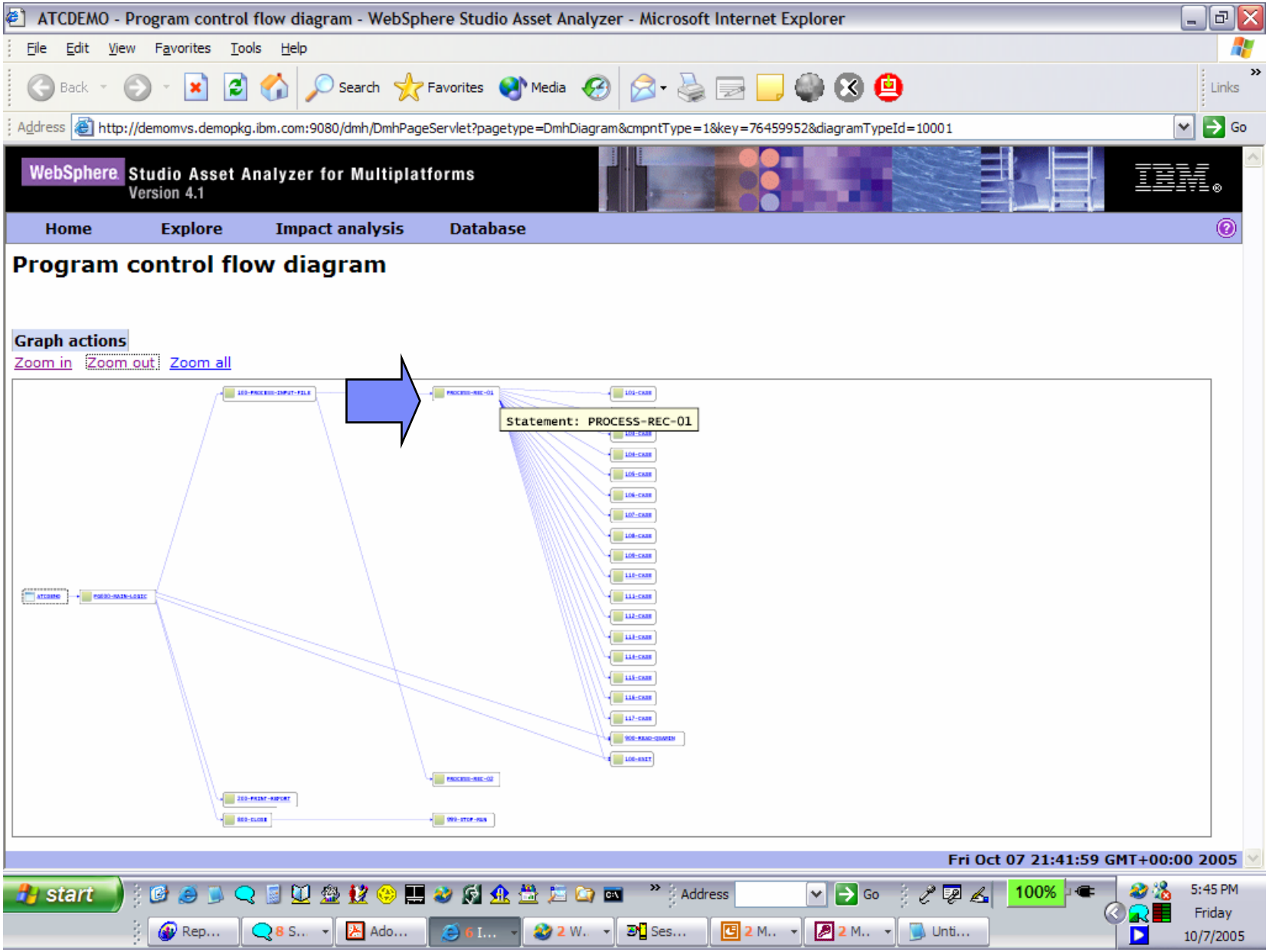

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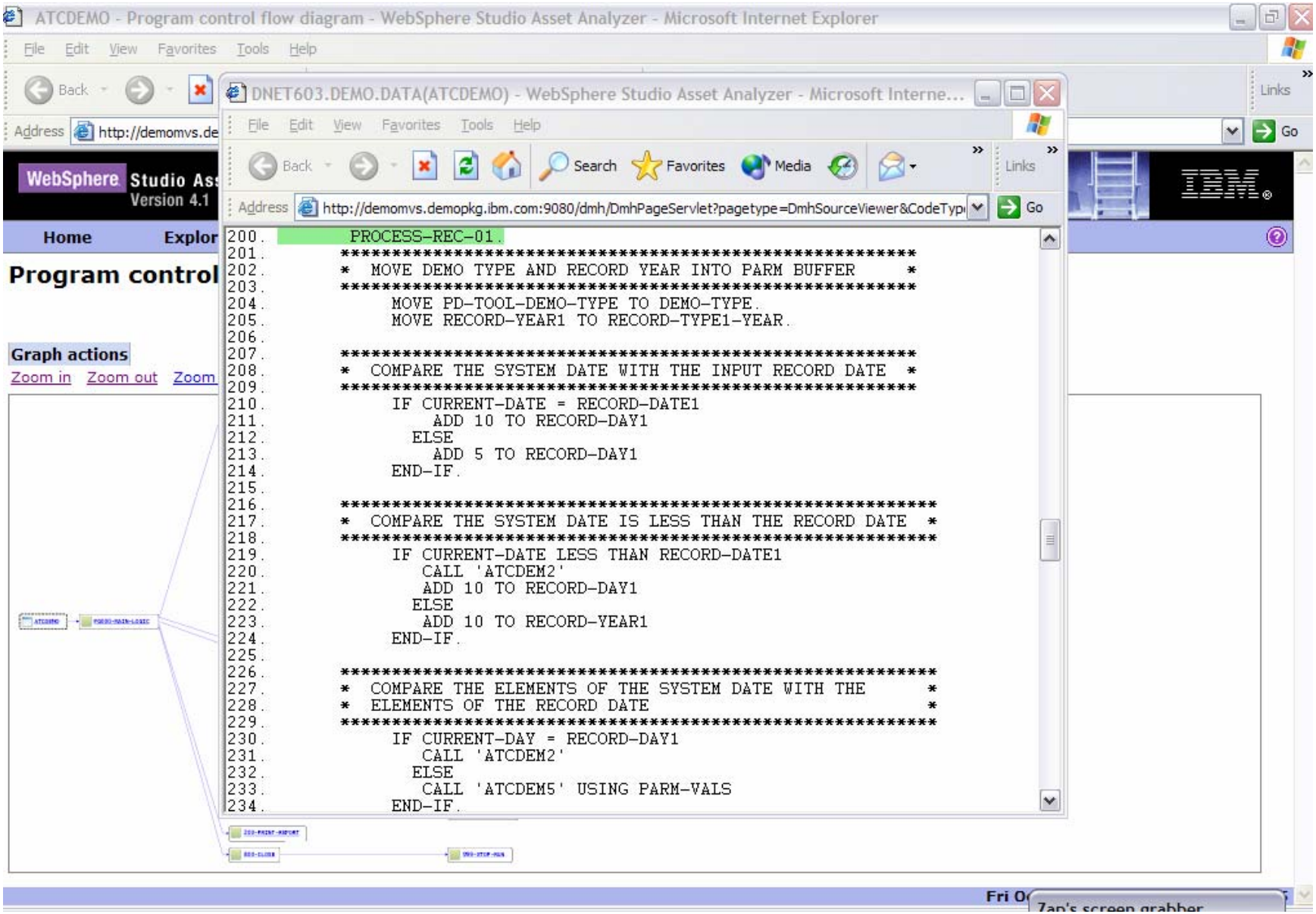

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Interactive Debugging:

IBM Debug Tool Utilities and Advanced Functions

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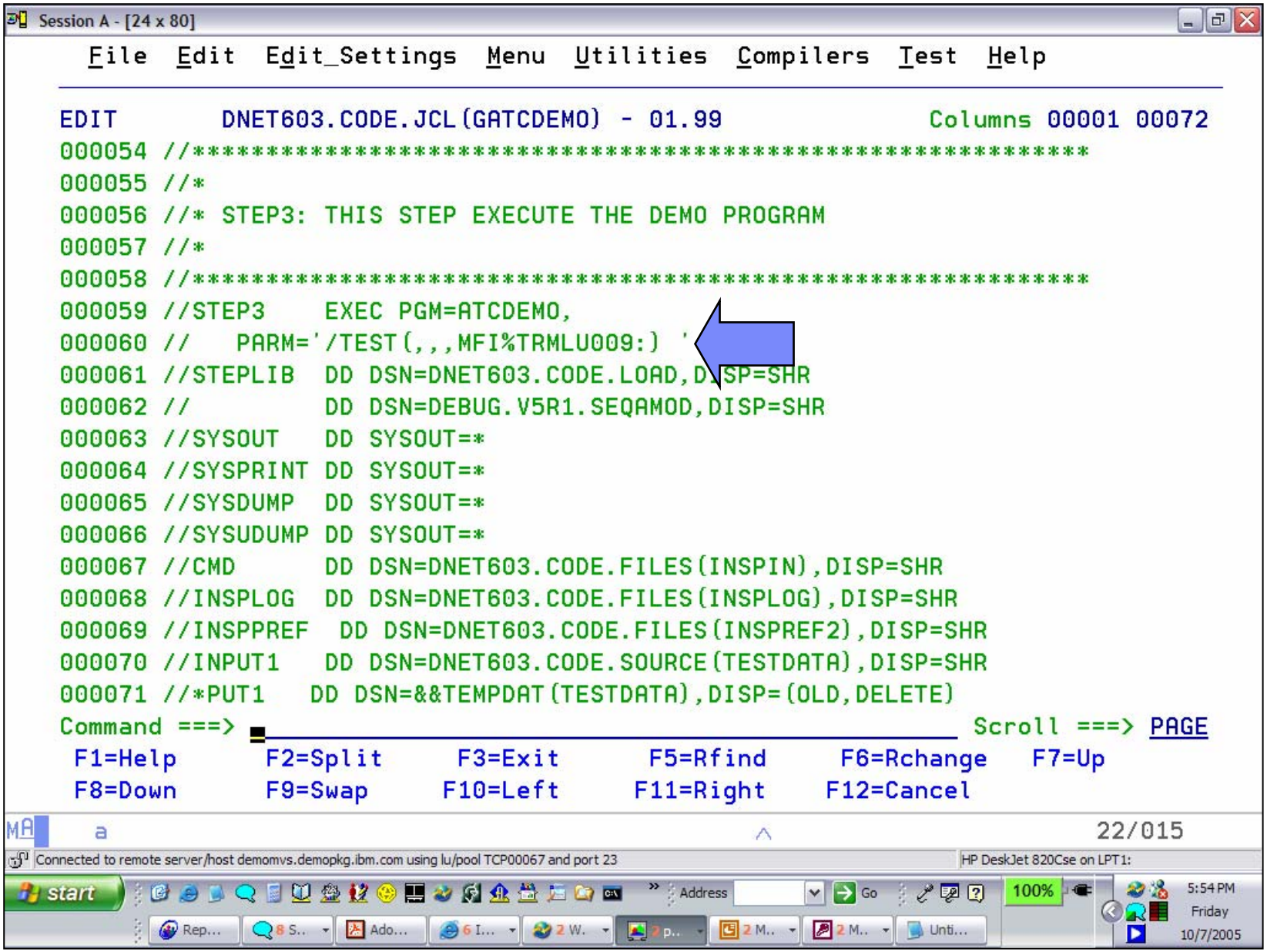

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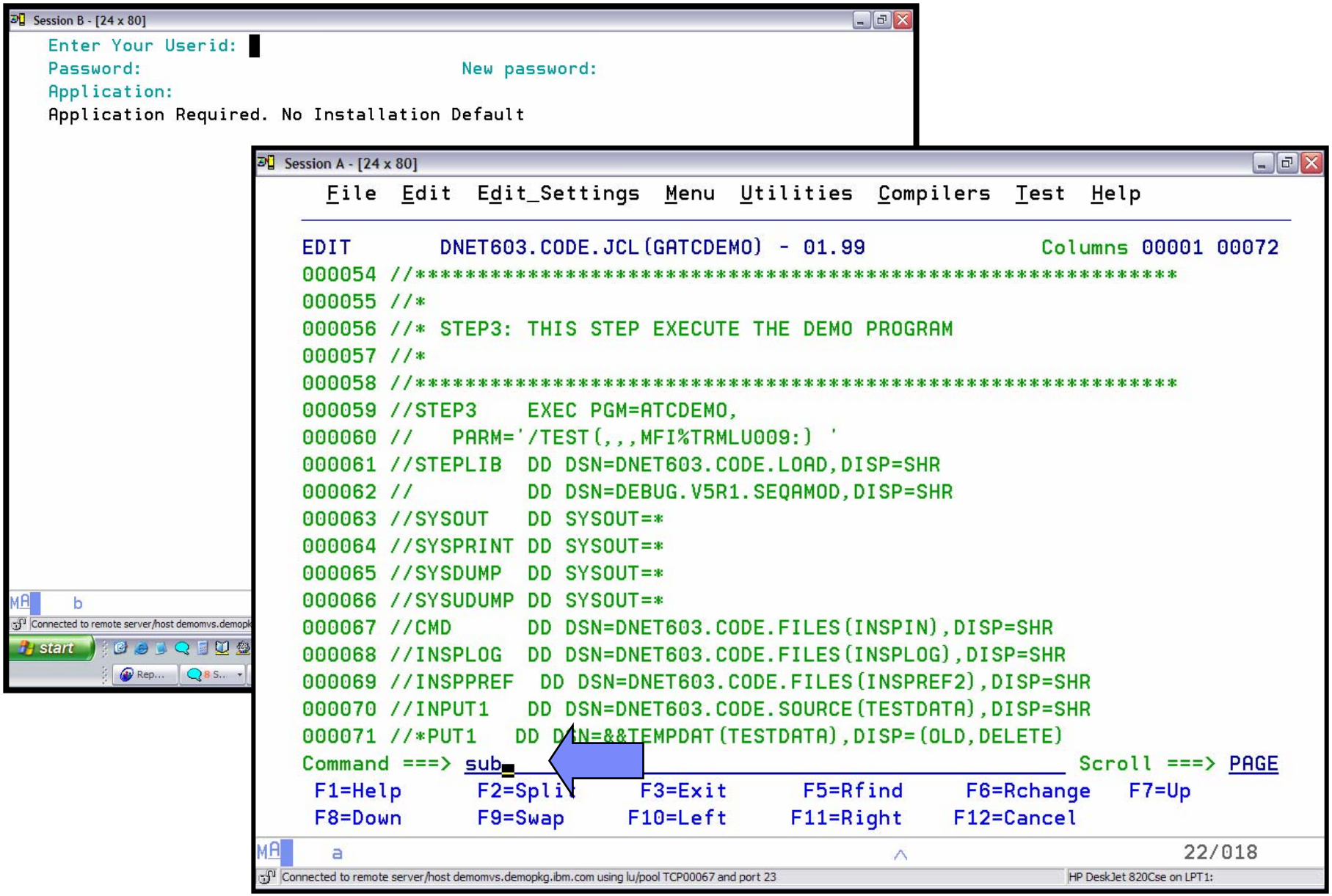

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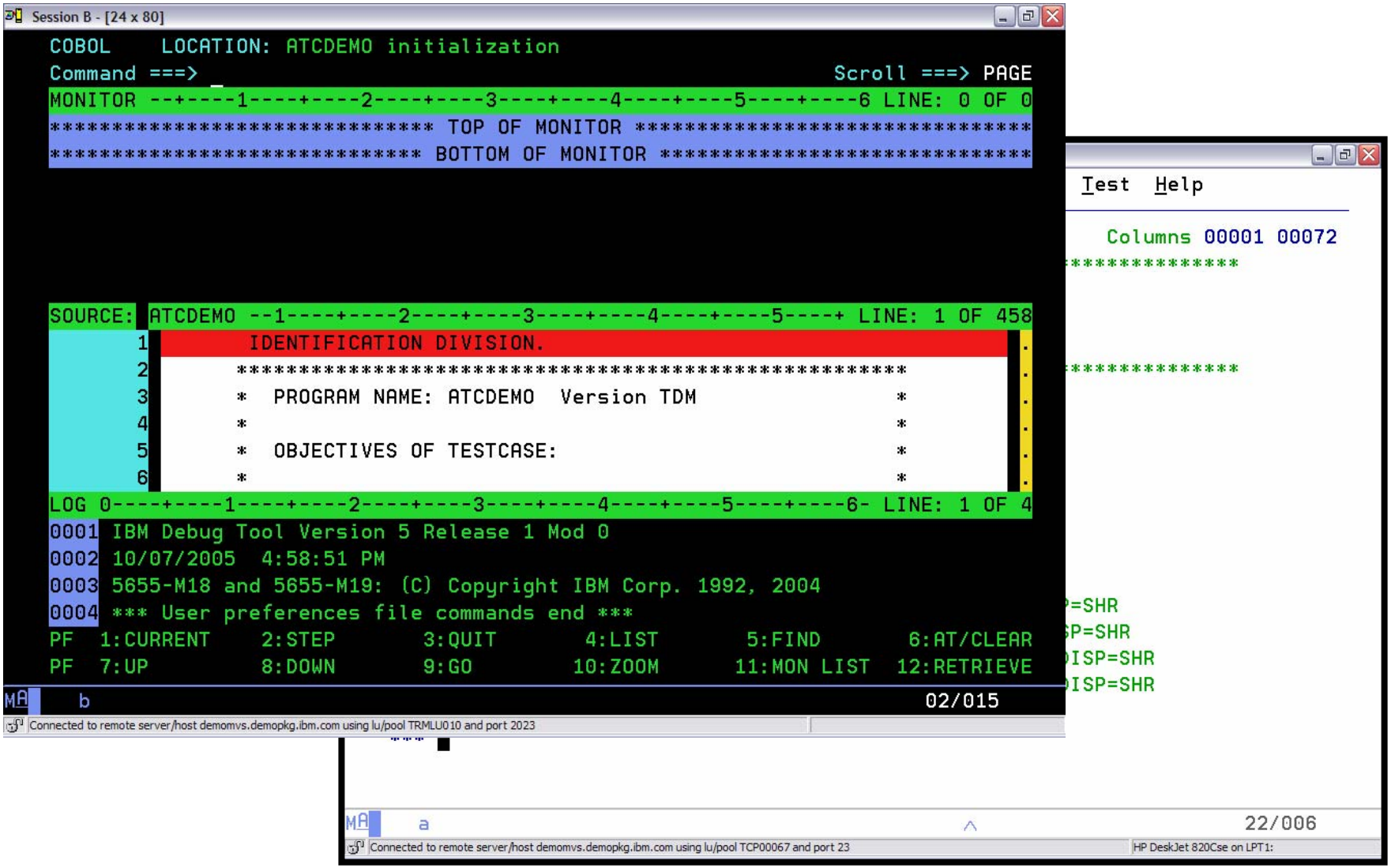

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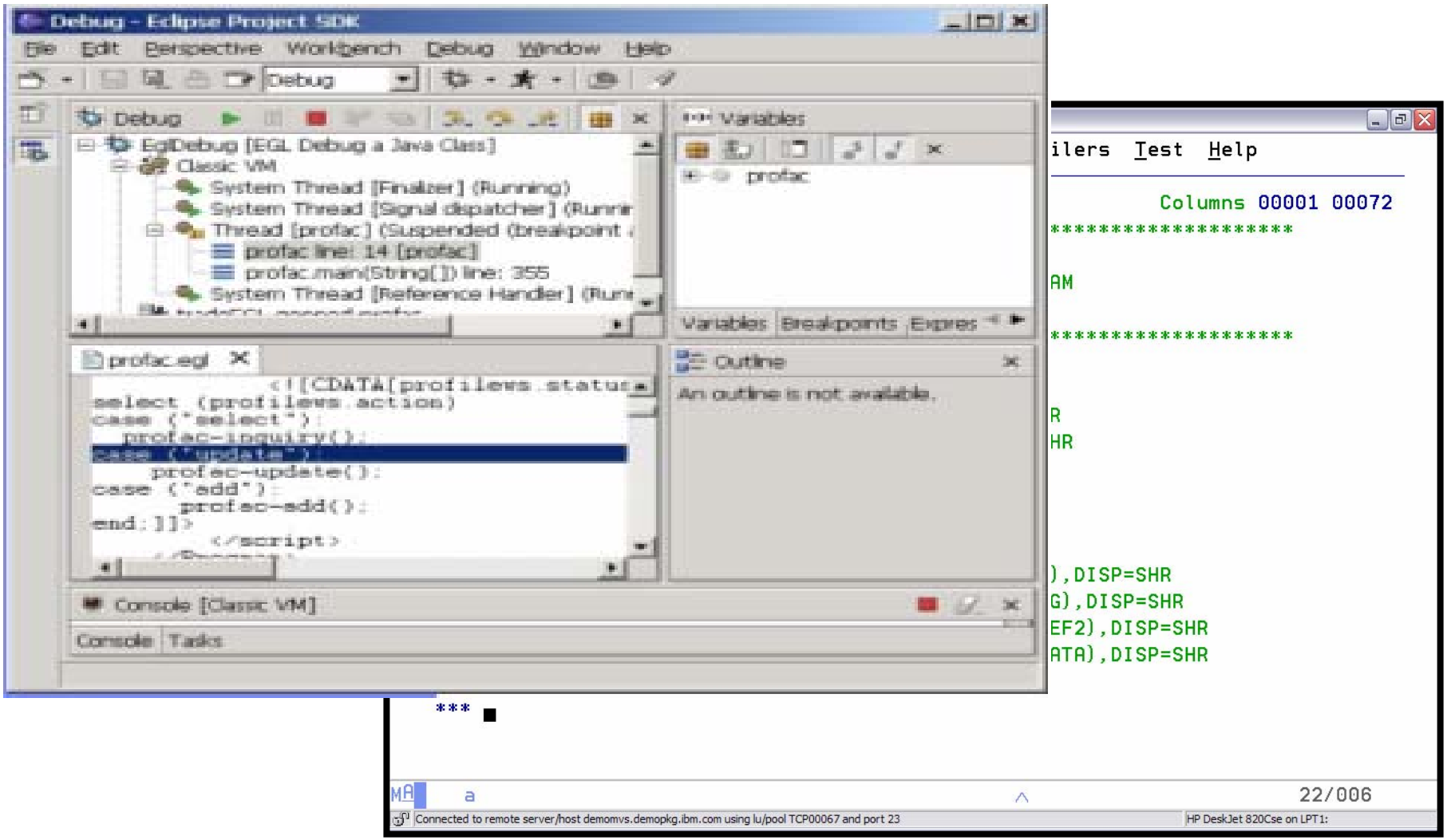
WDz Remote GUI Debugger Interface:



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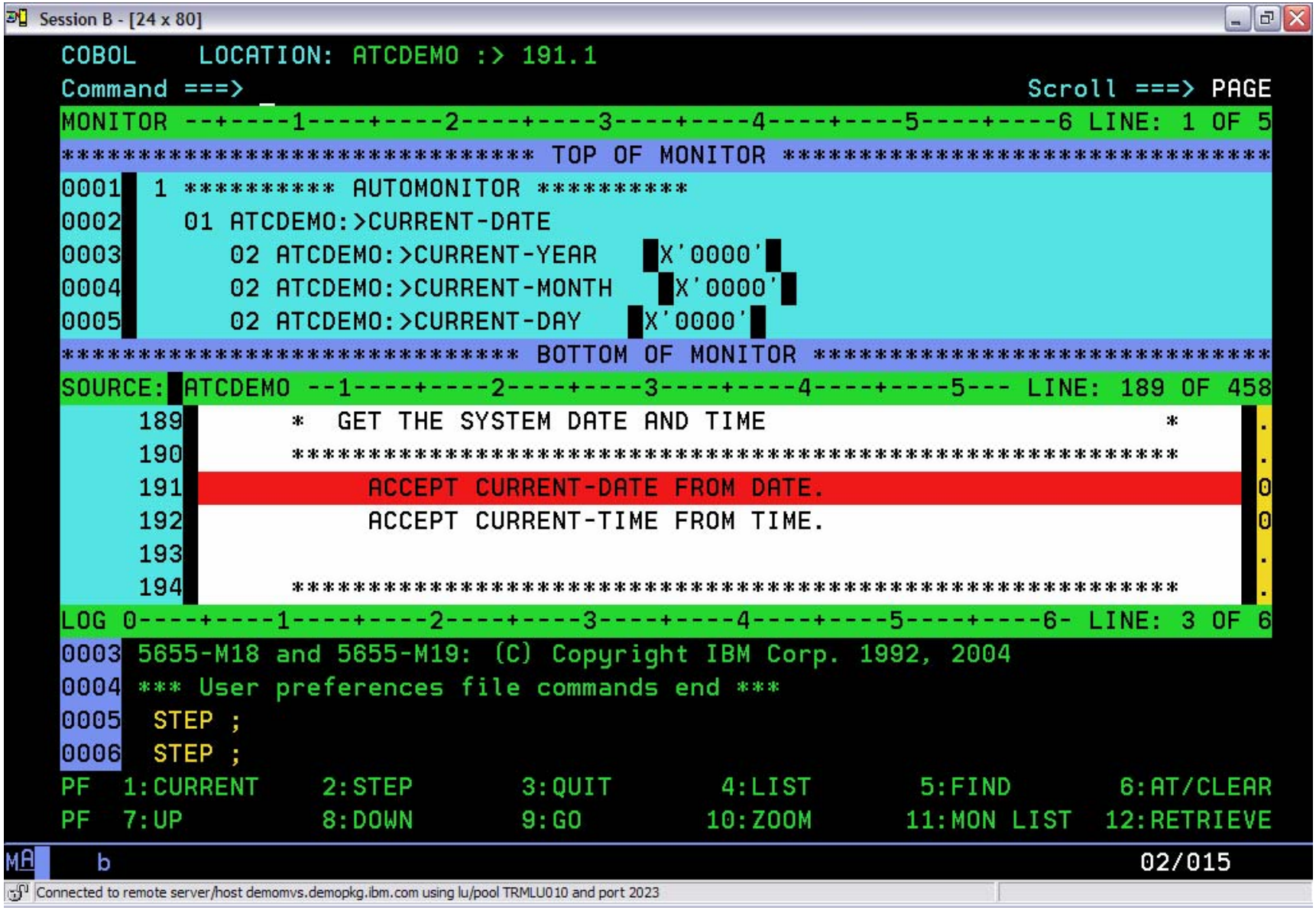

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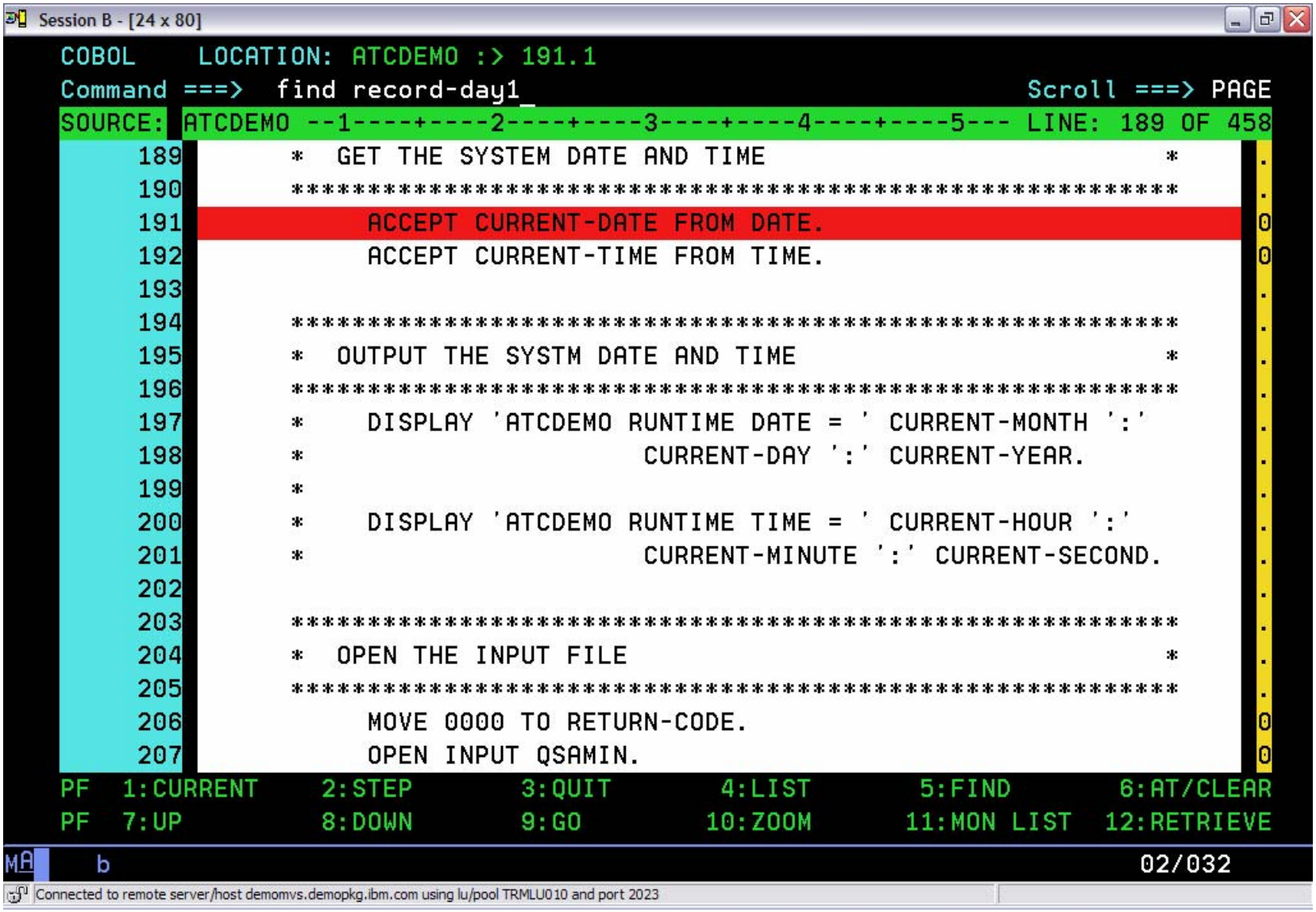

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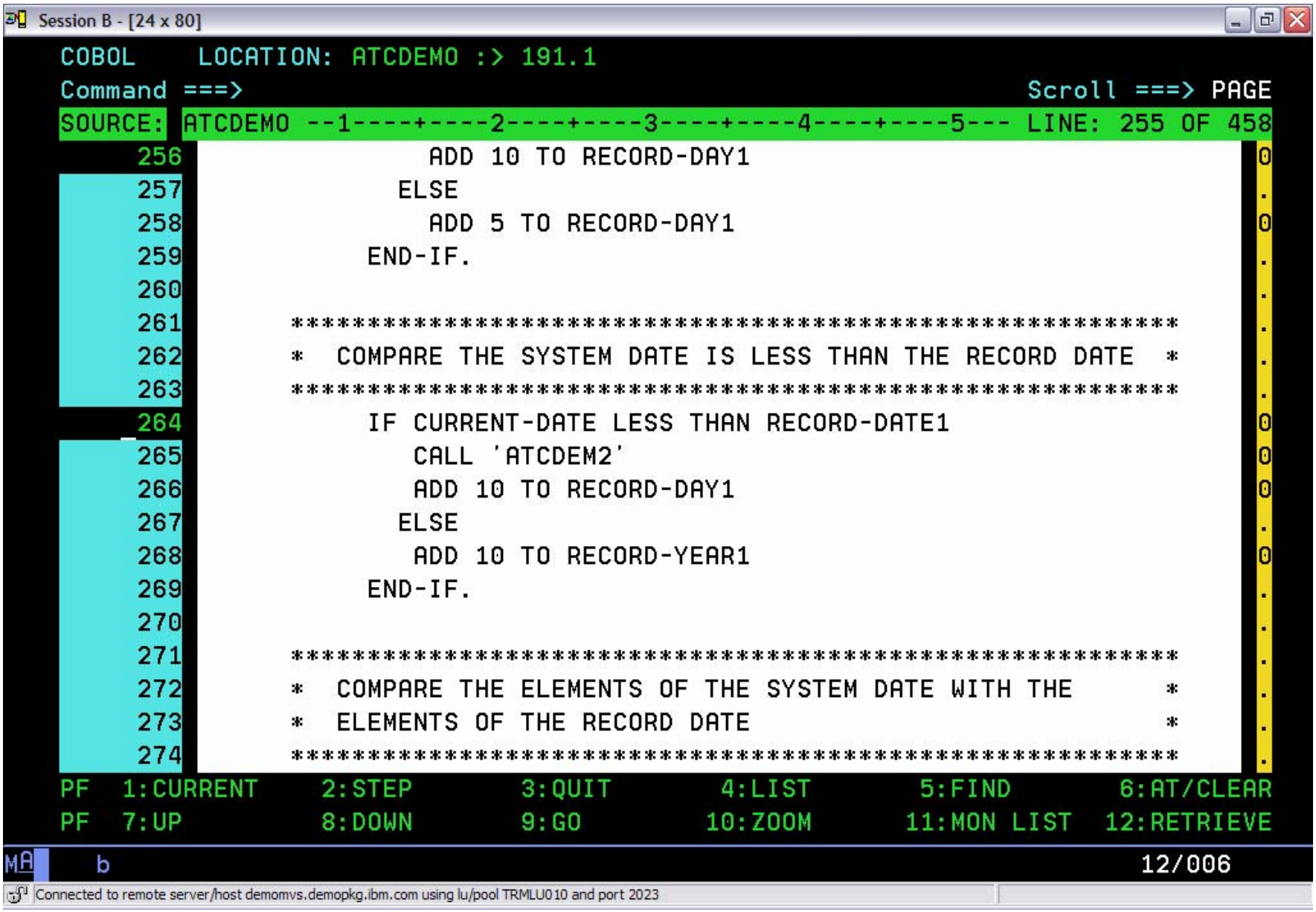

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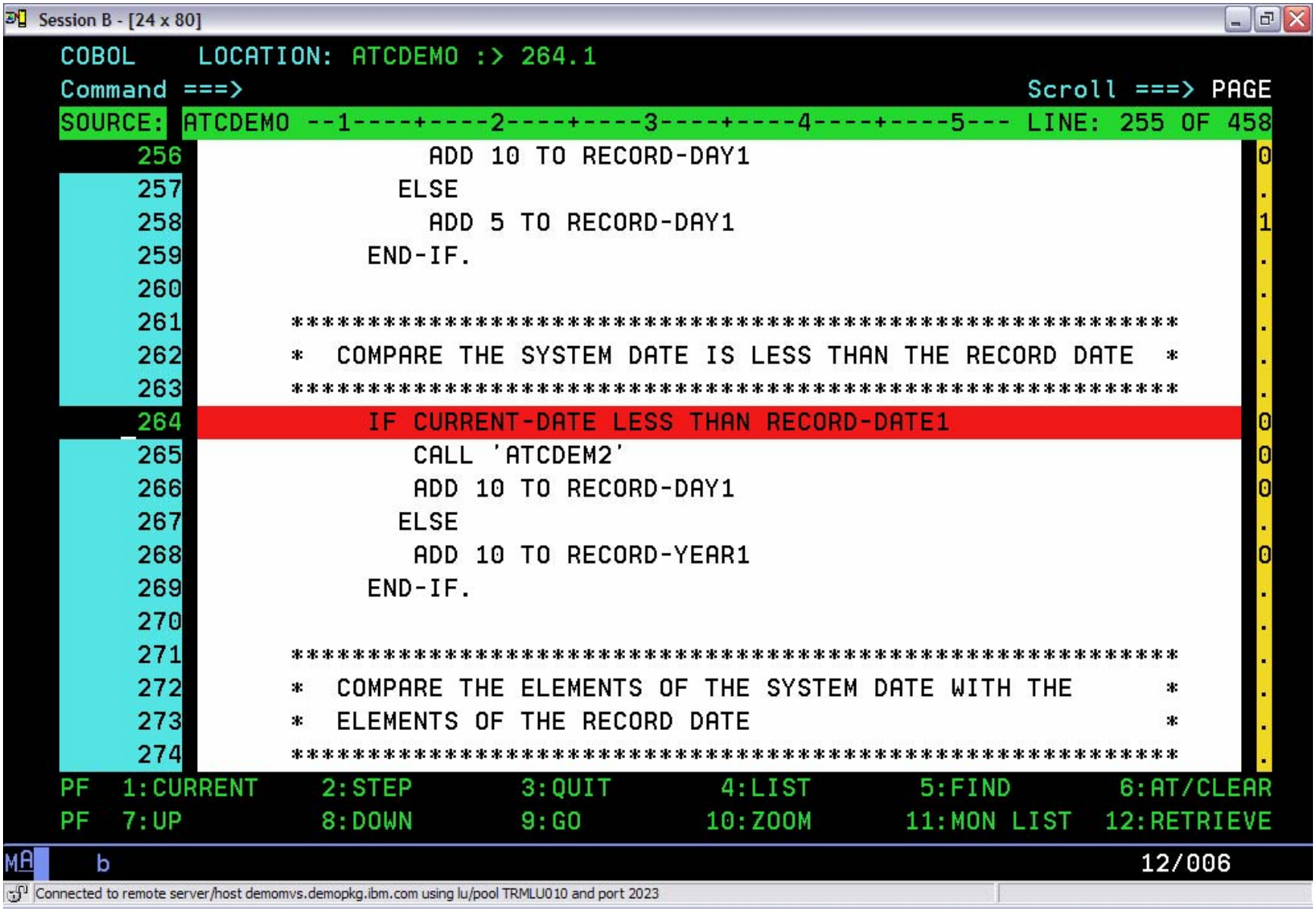

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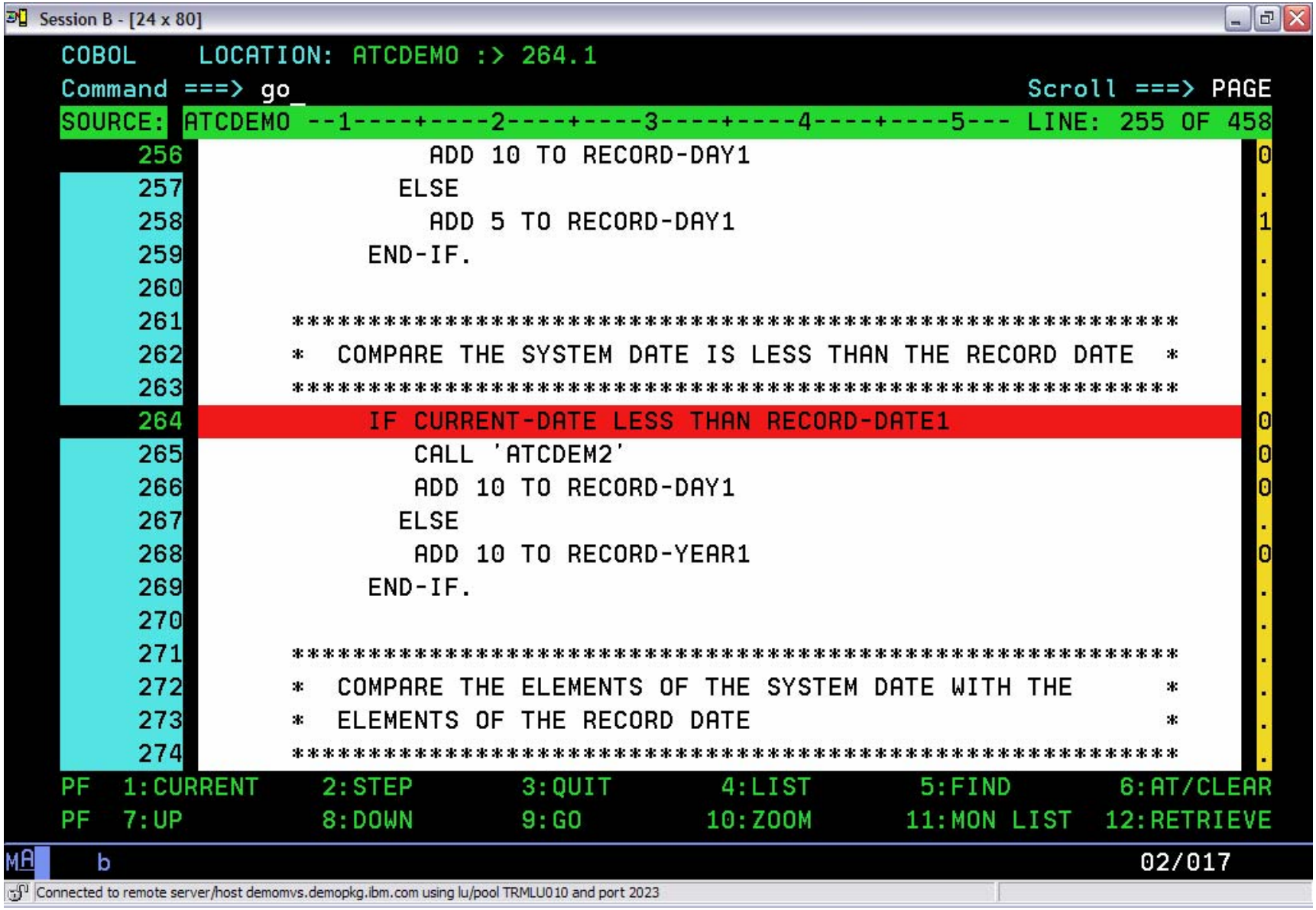

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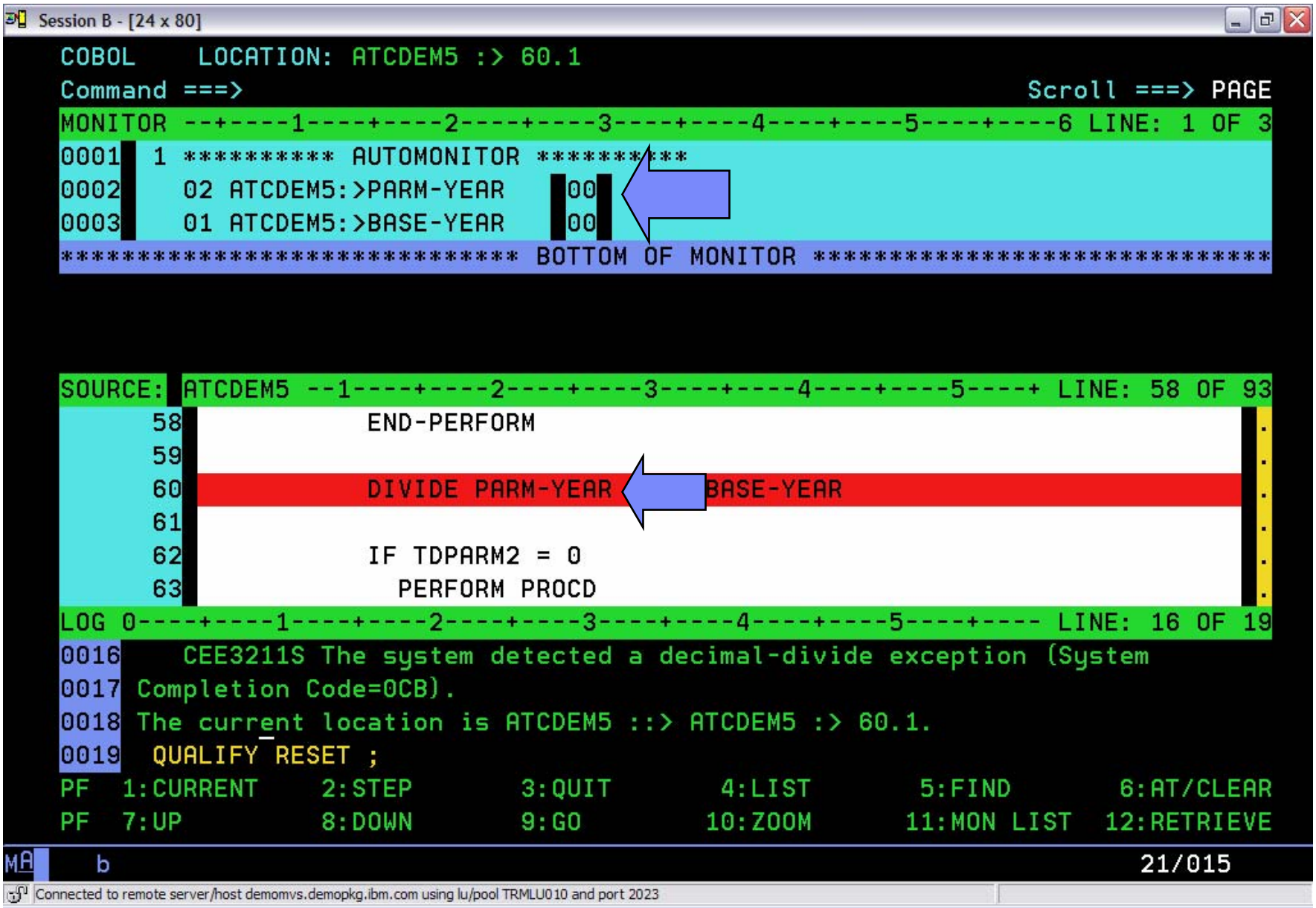

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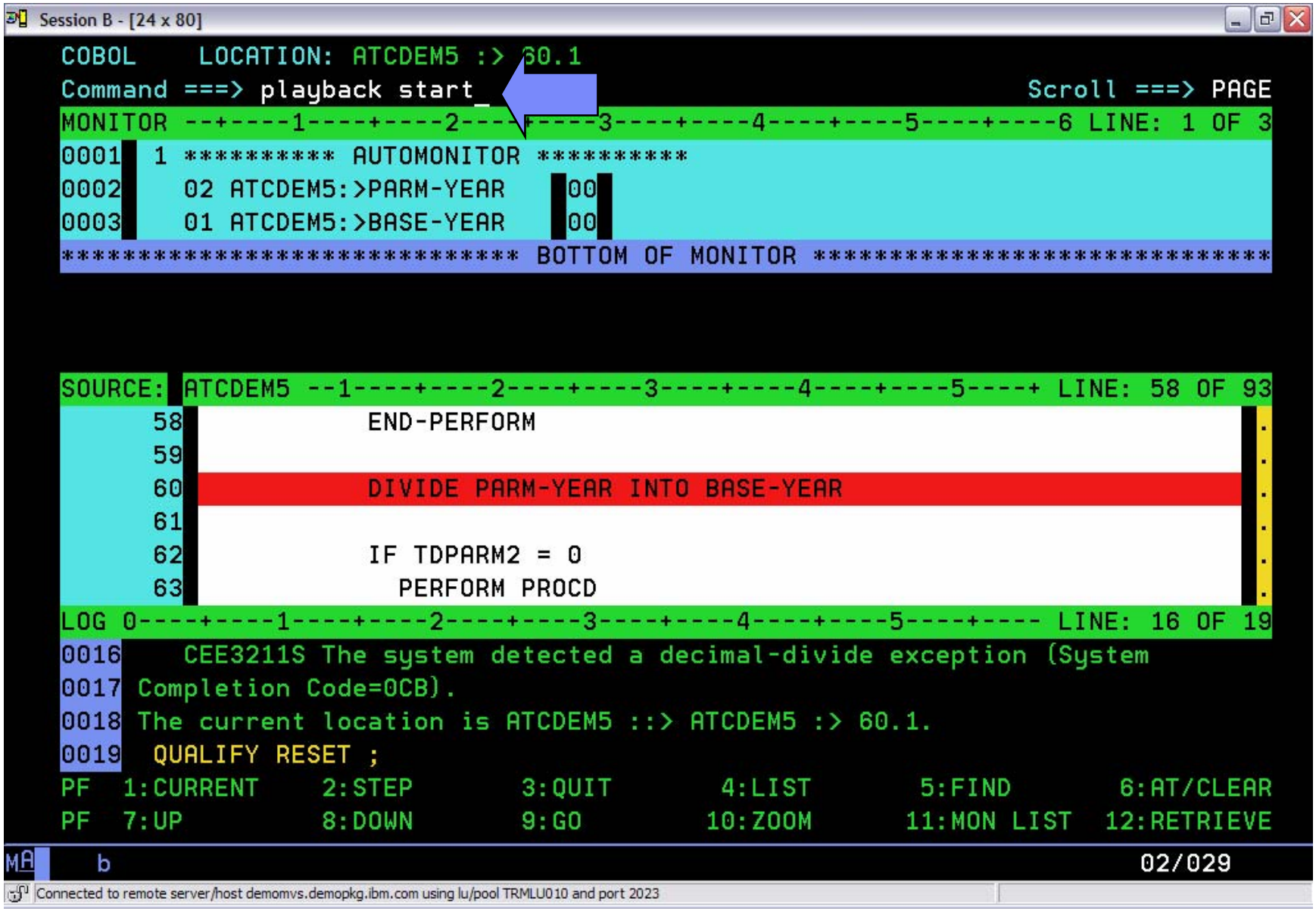

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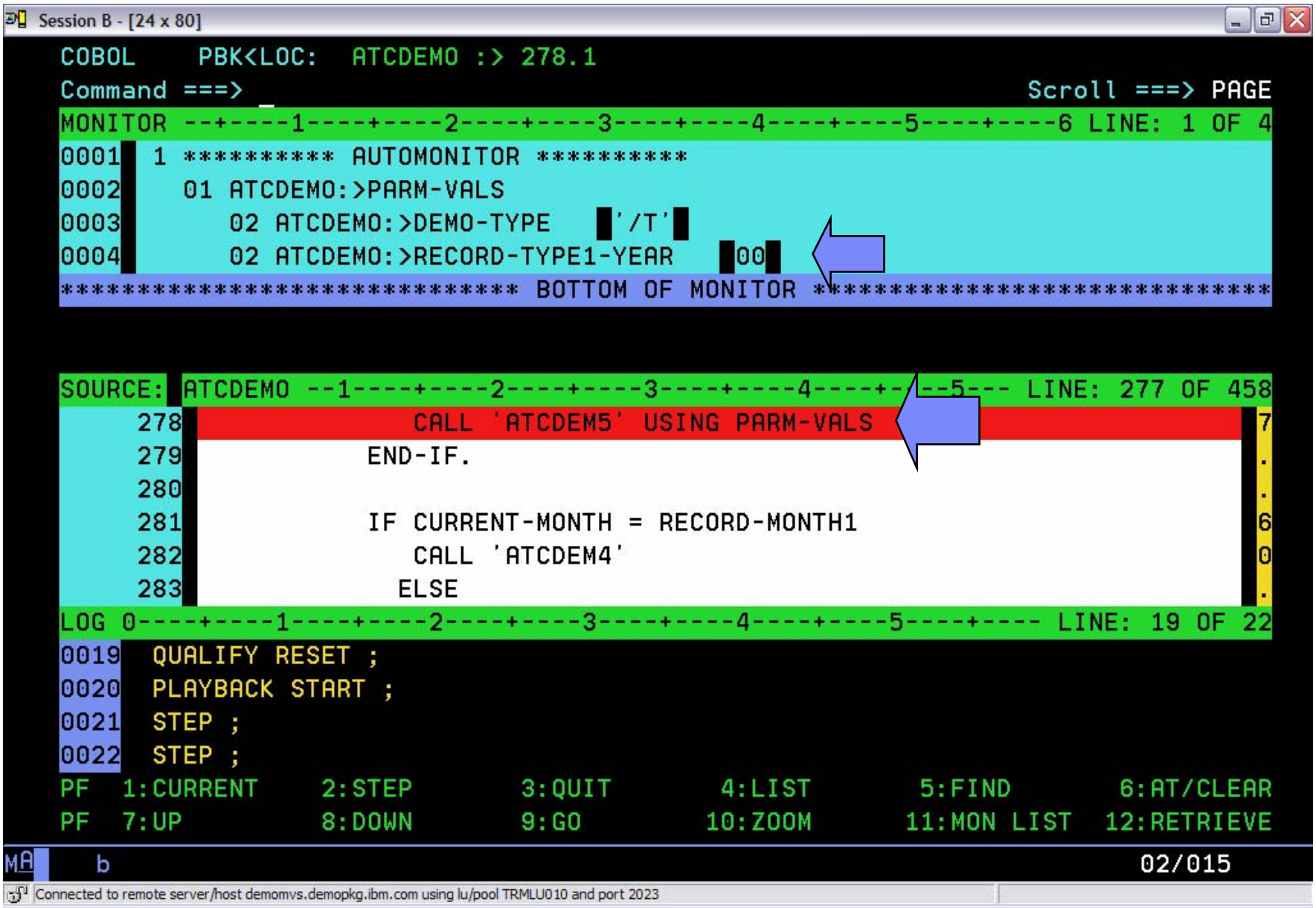

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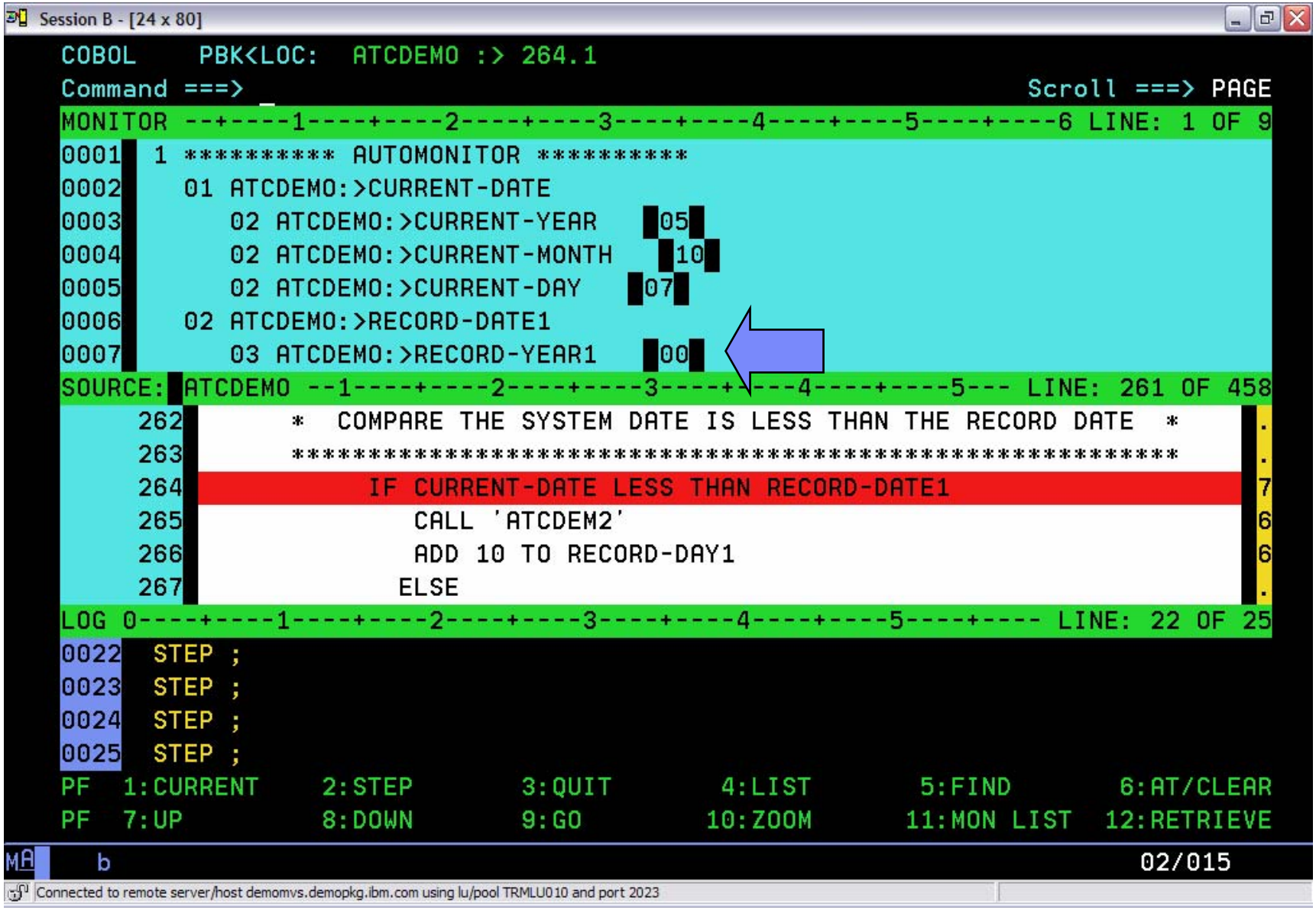

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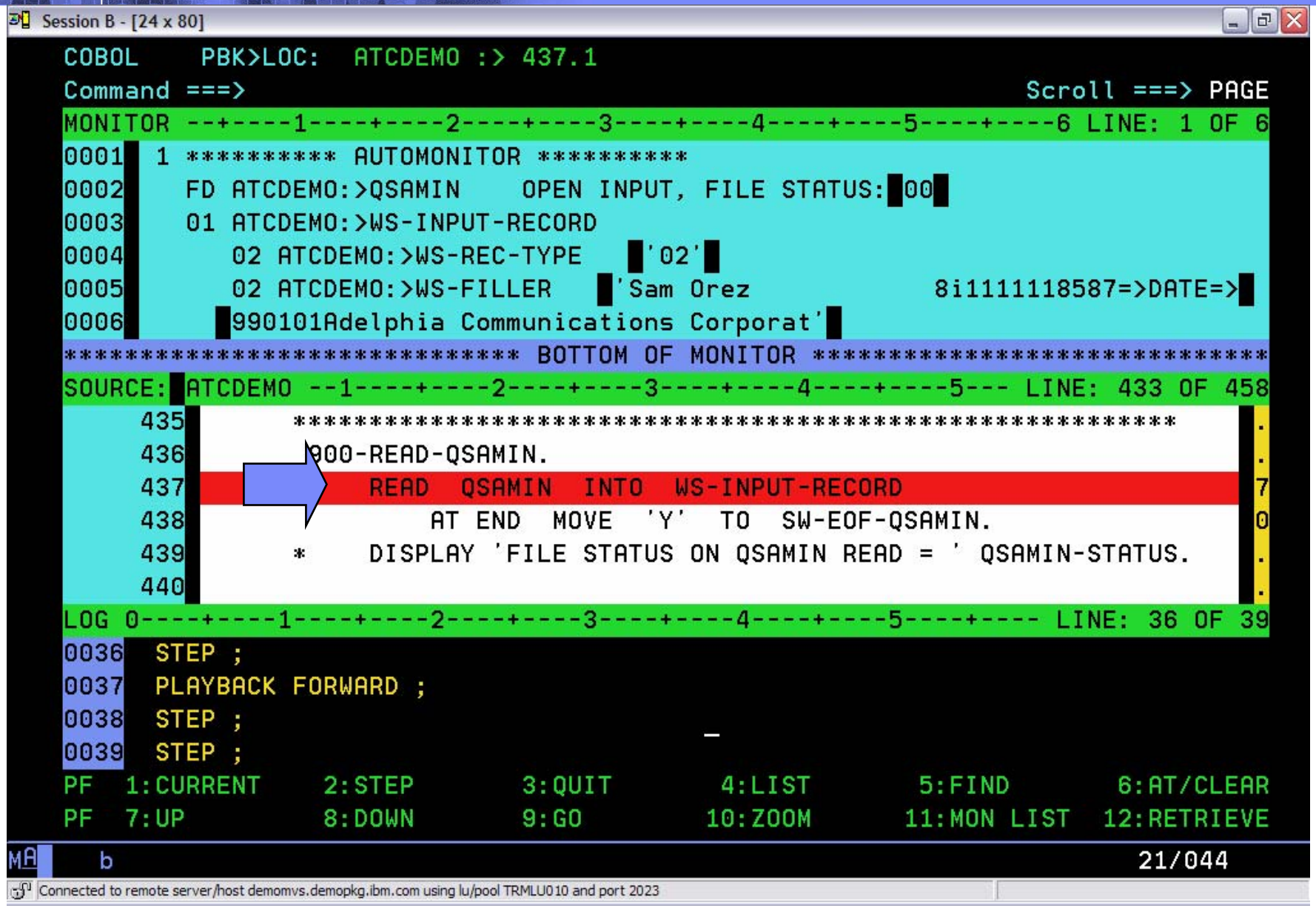

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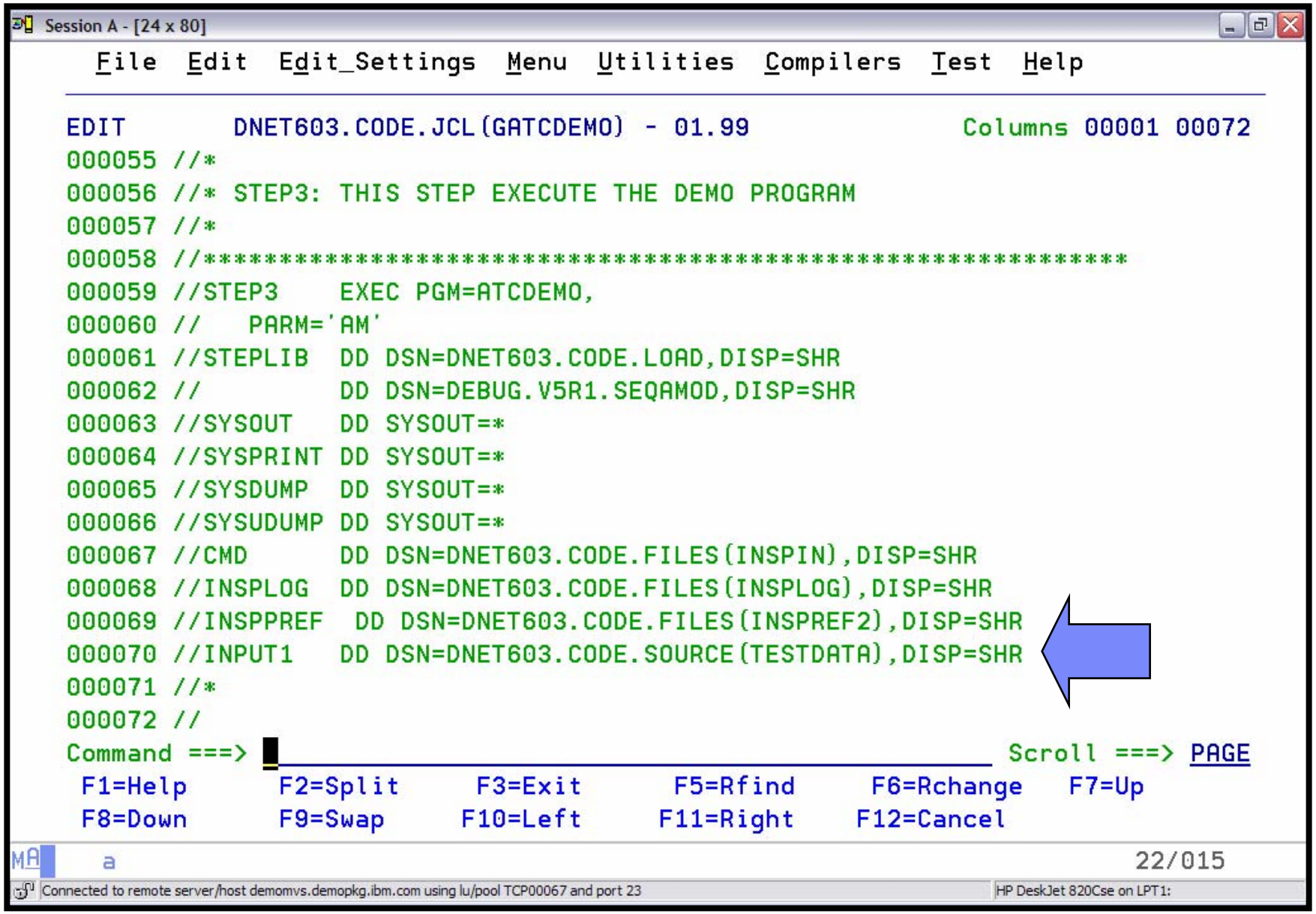

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Data Management:

IBM File Manager
Support for VSAM, QSAM, DB2, IMS

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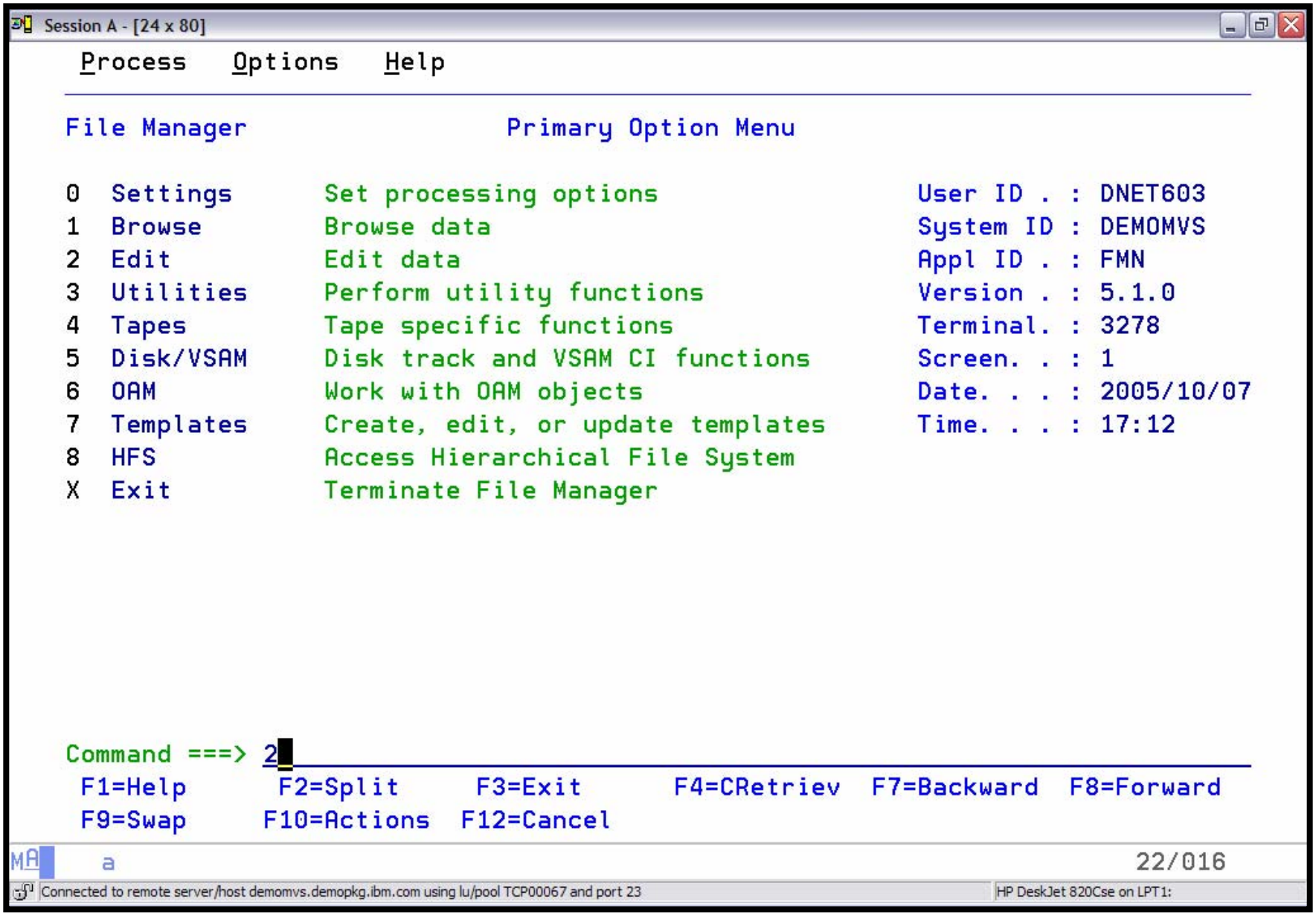

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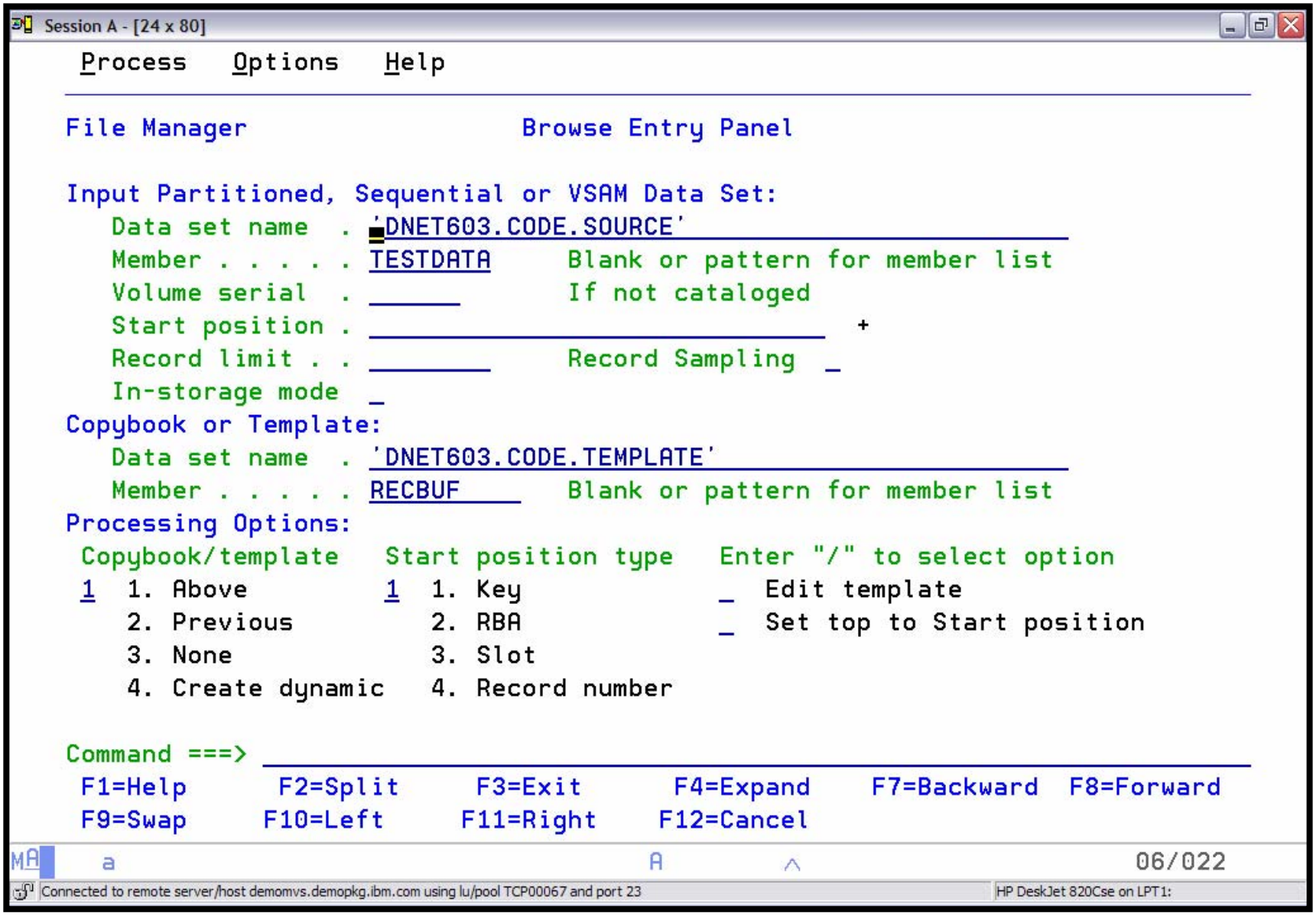

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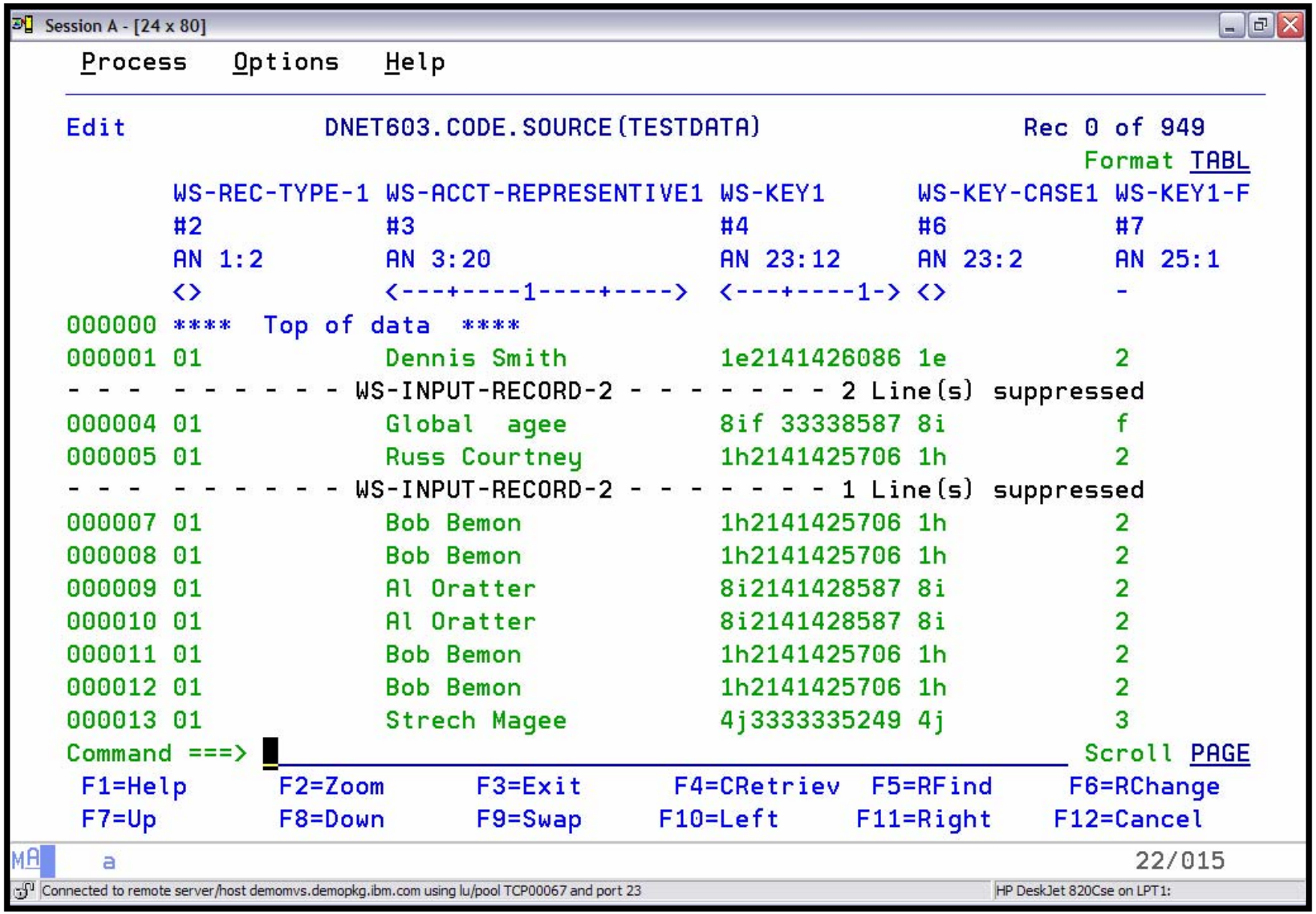

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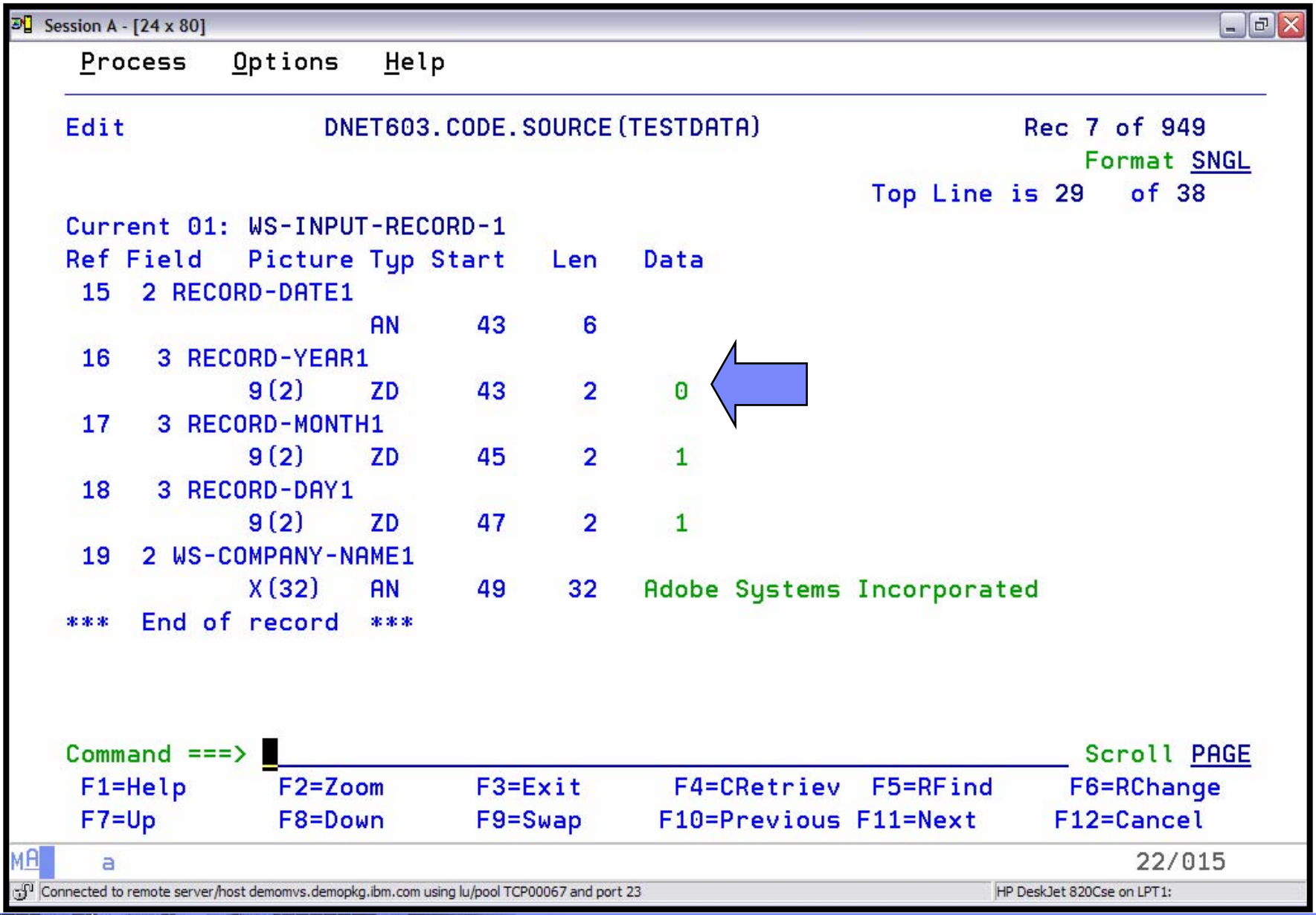

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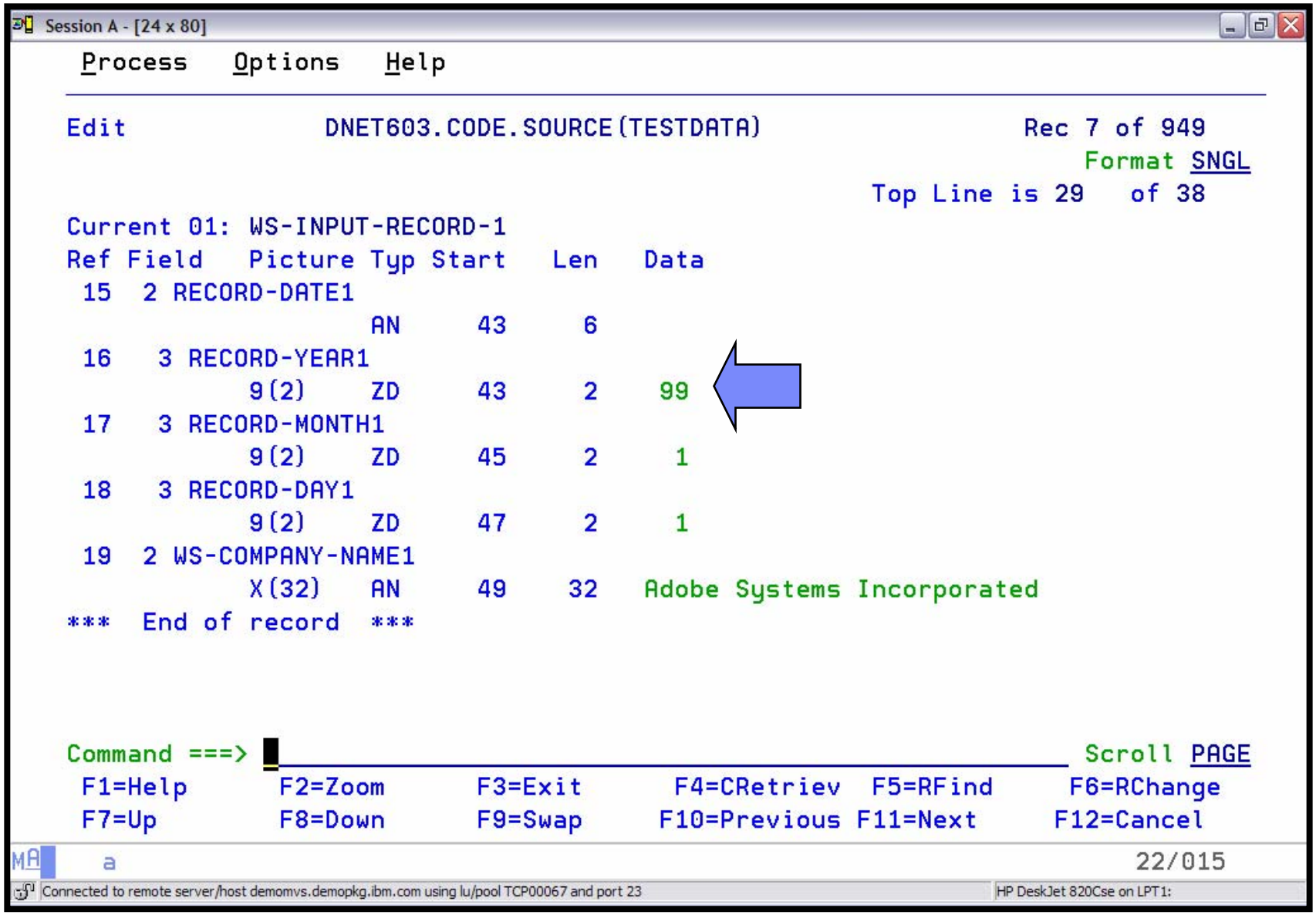

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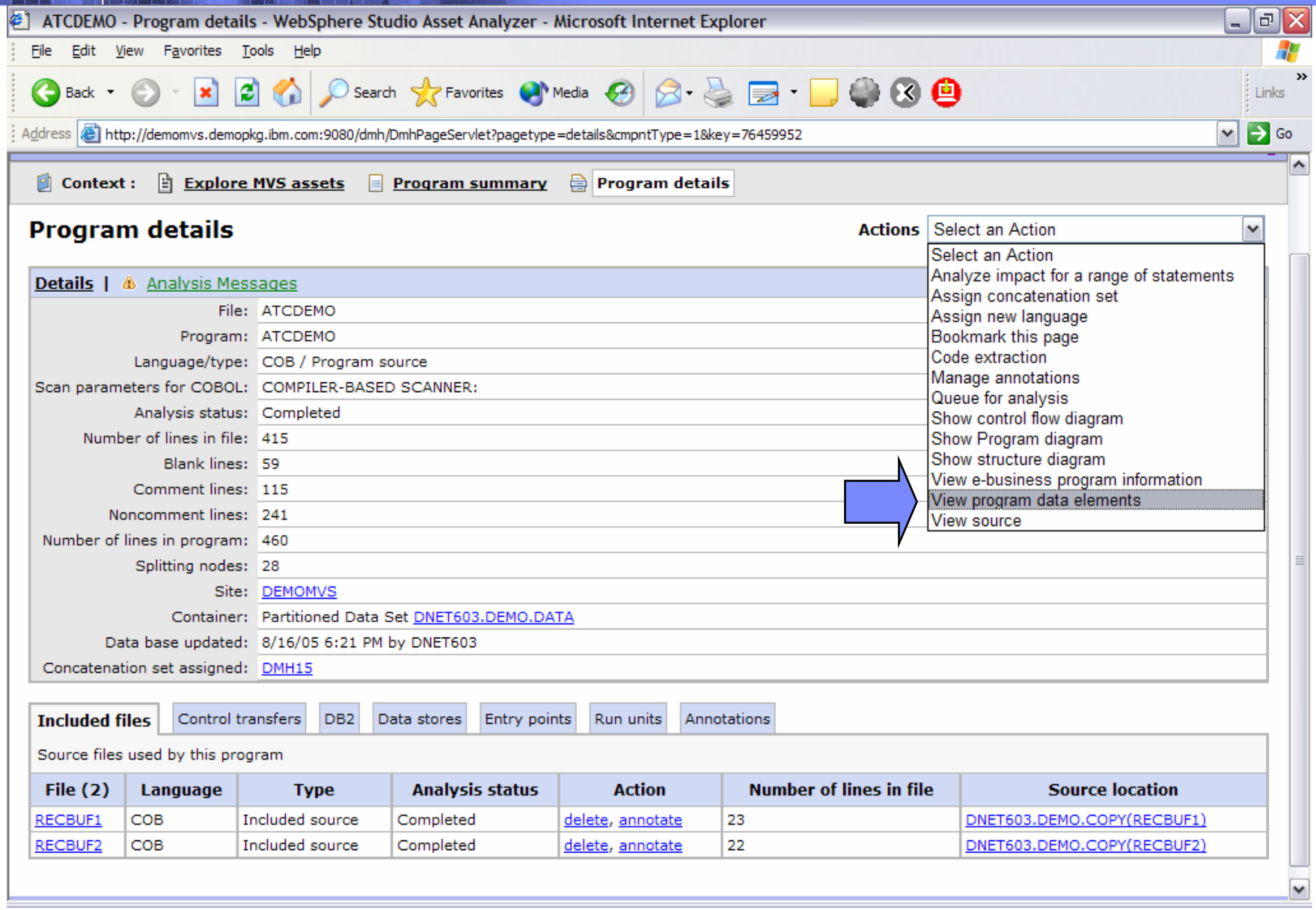

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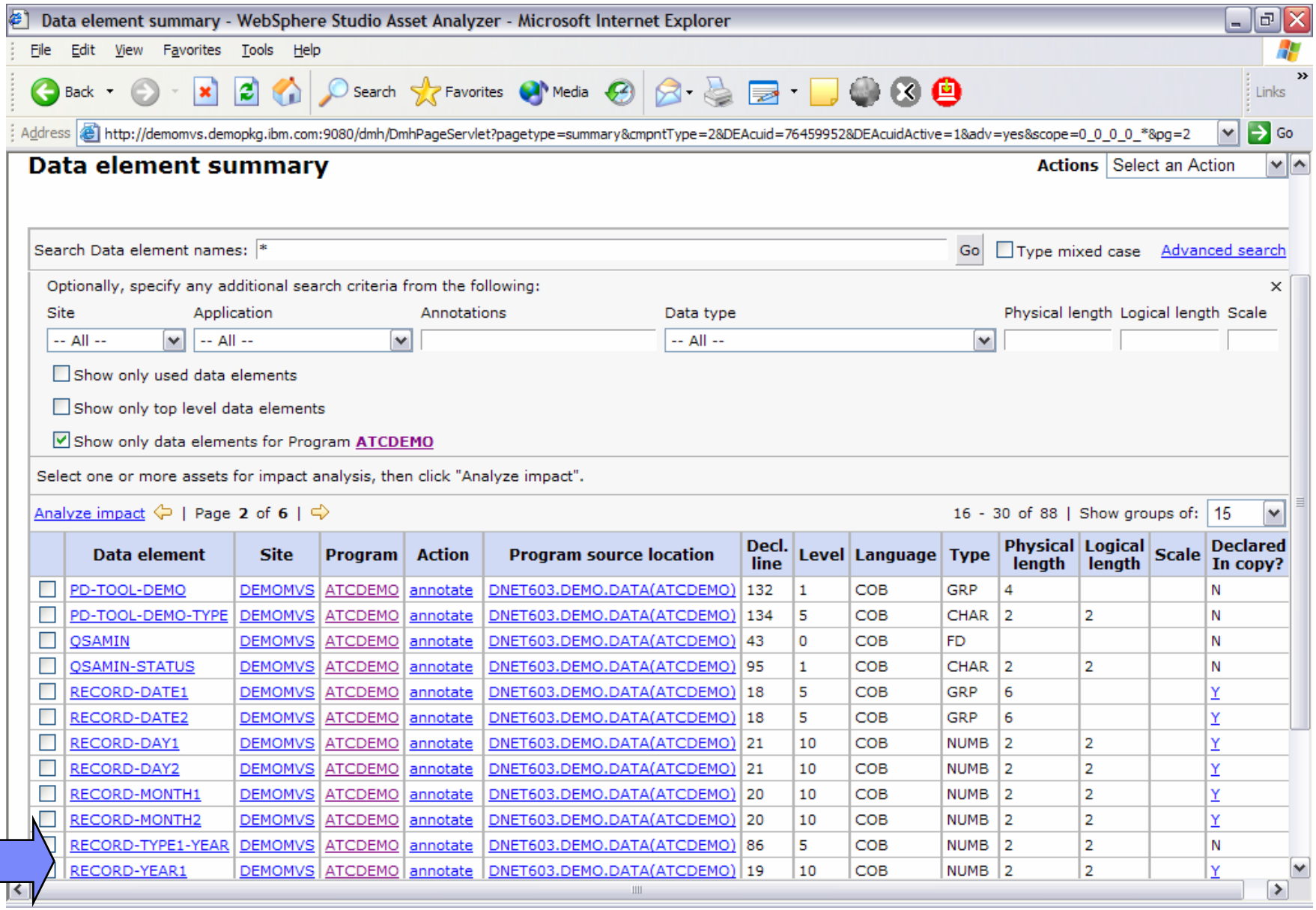

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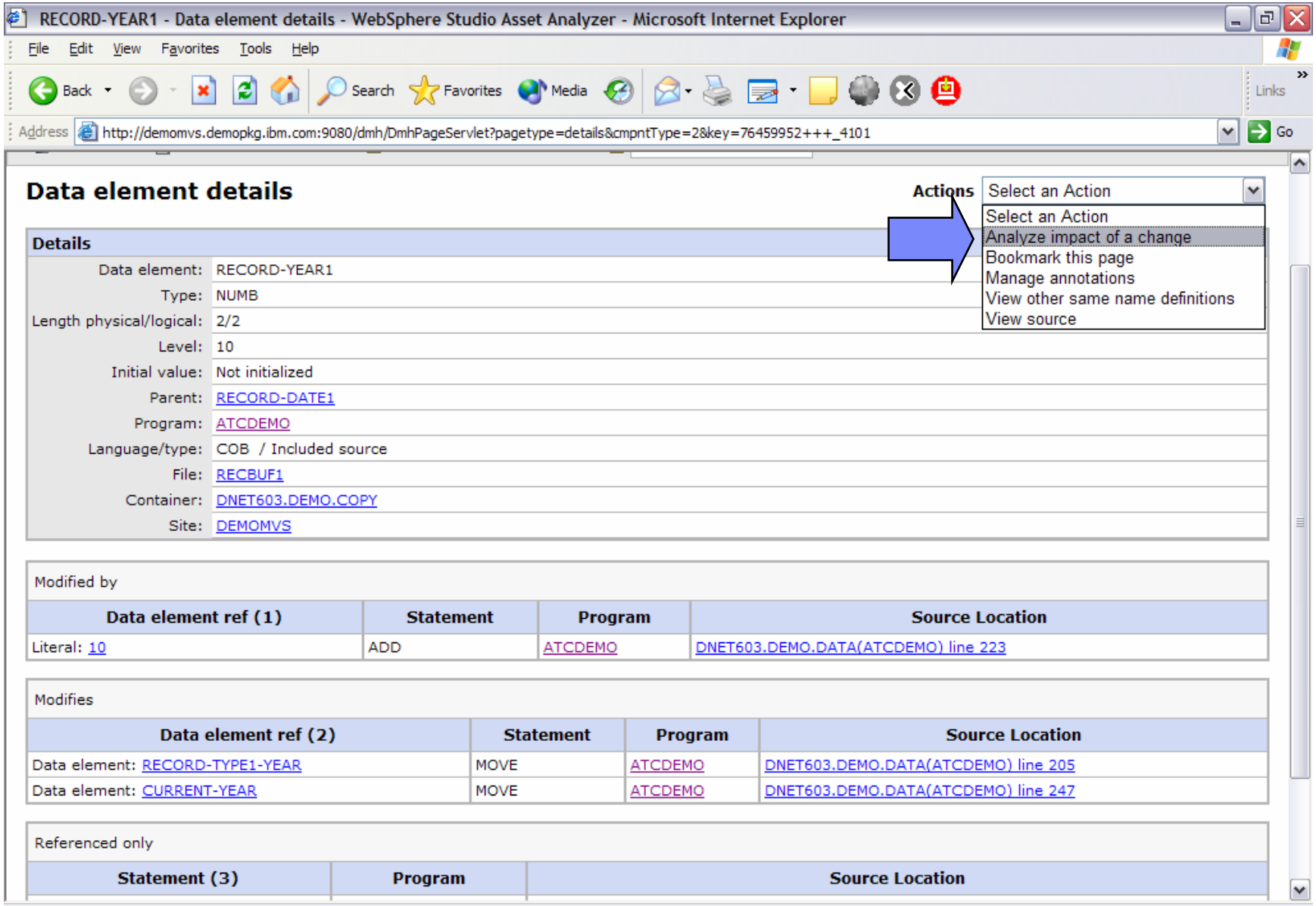

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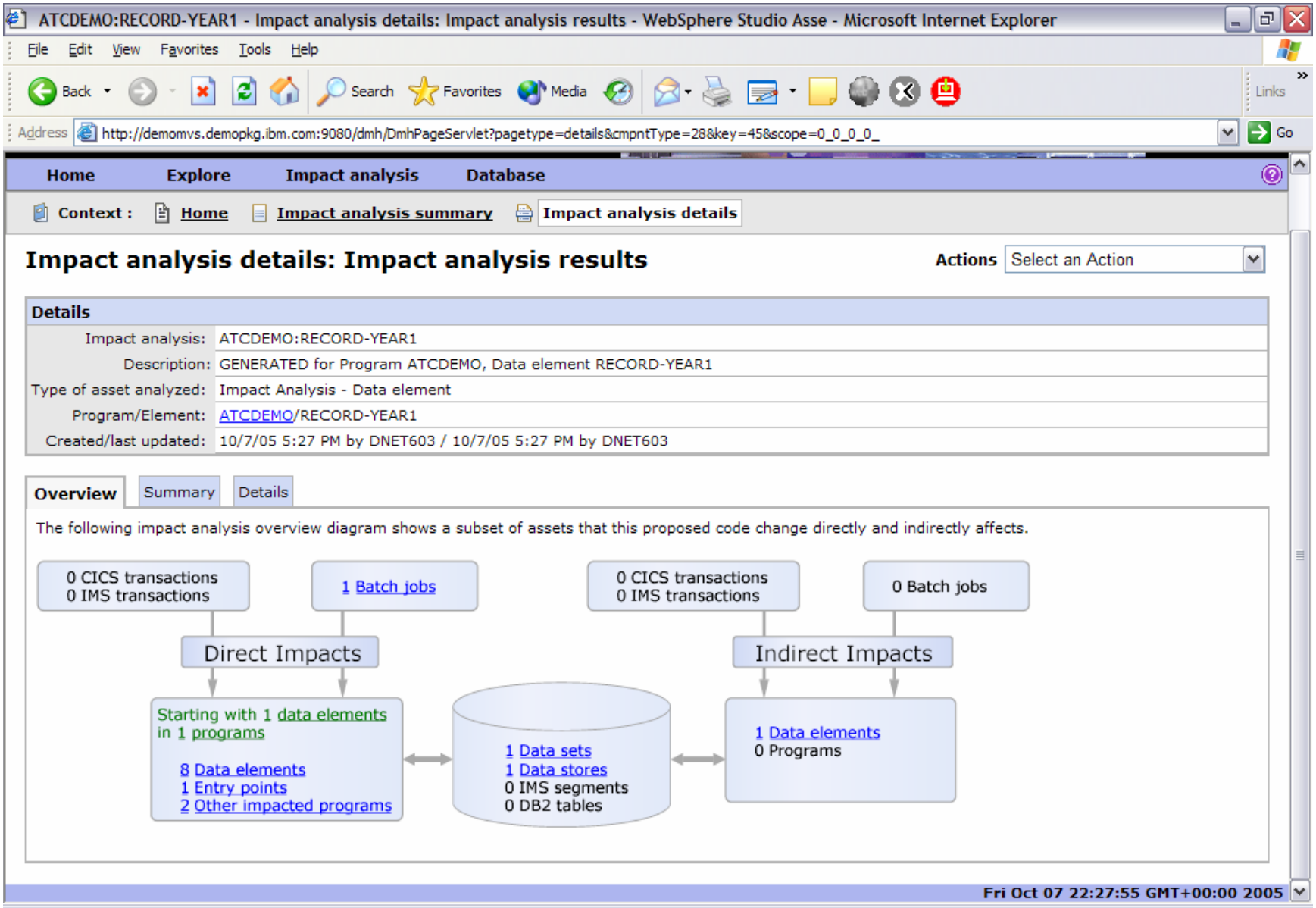

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IBM Application Performance Analyzer

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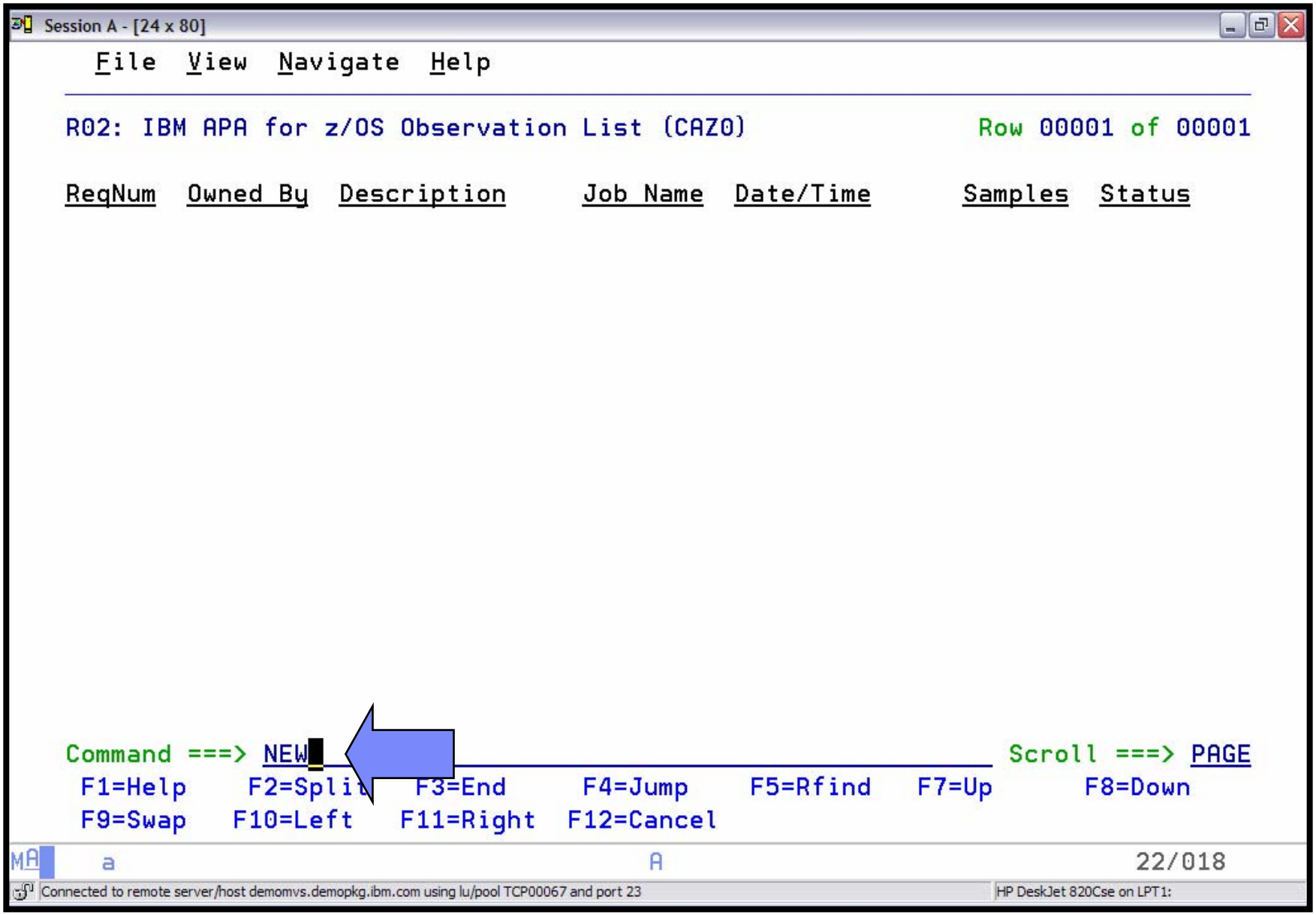

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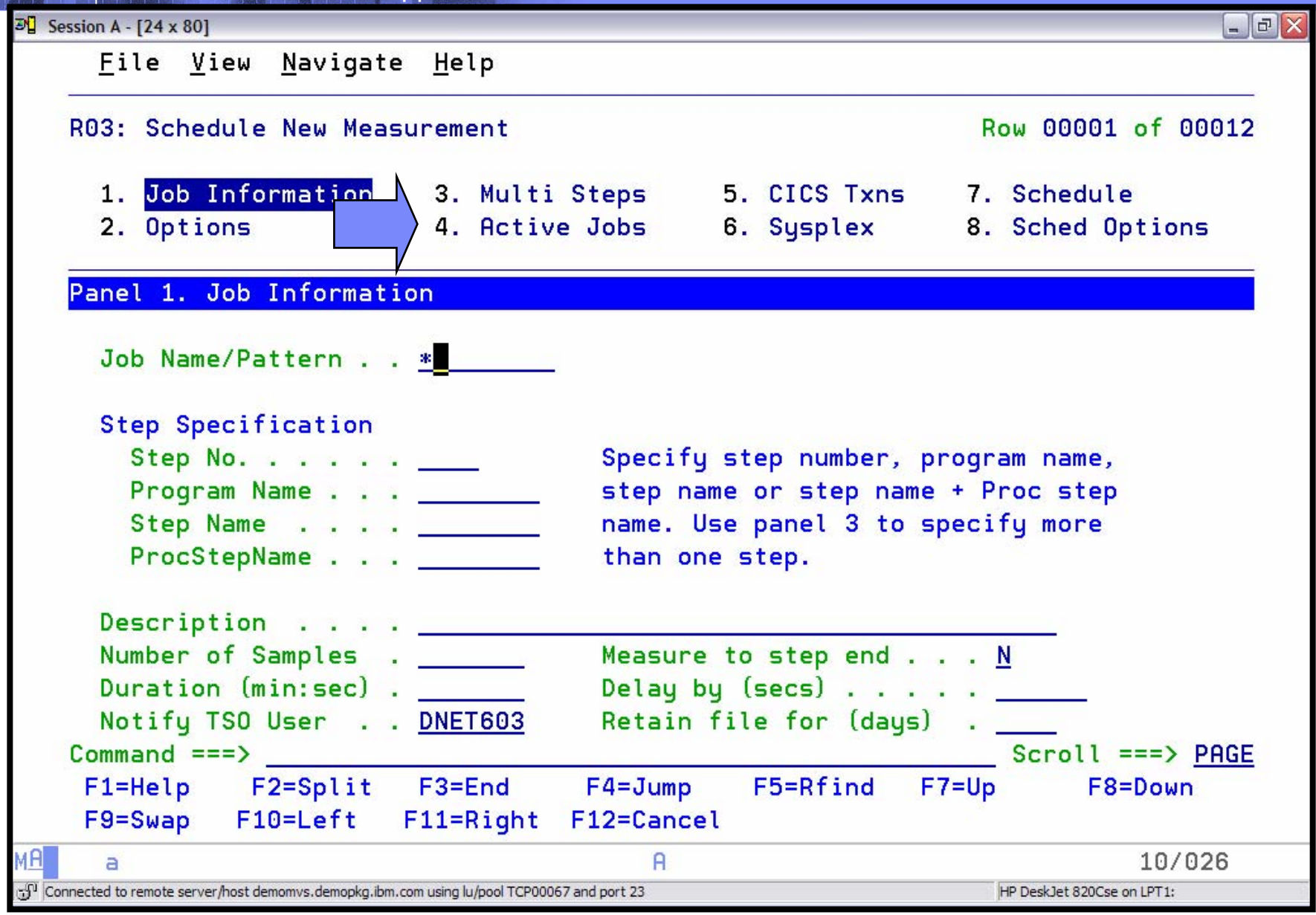

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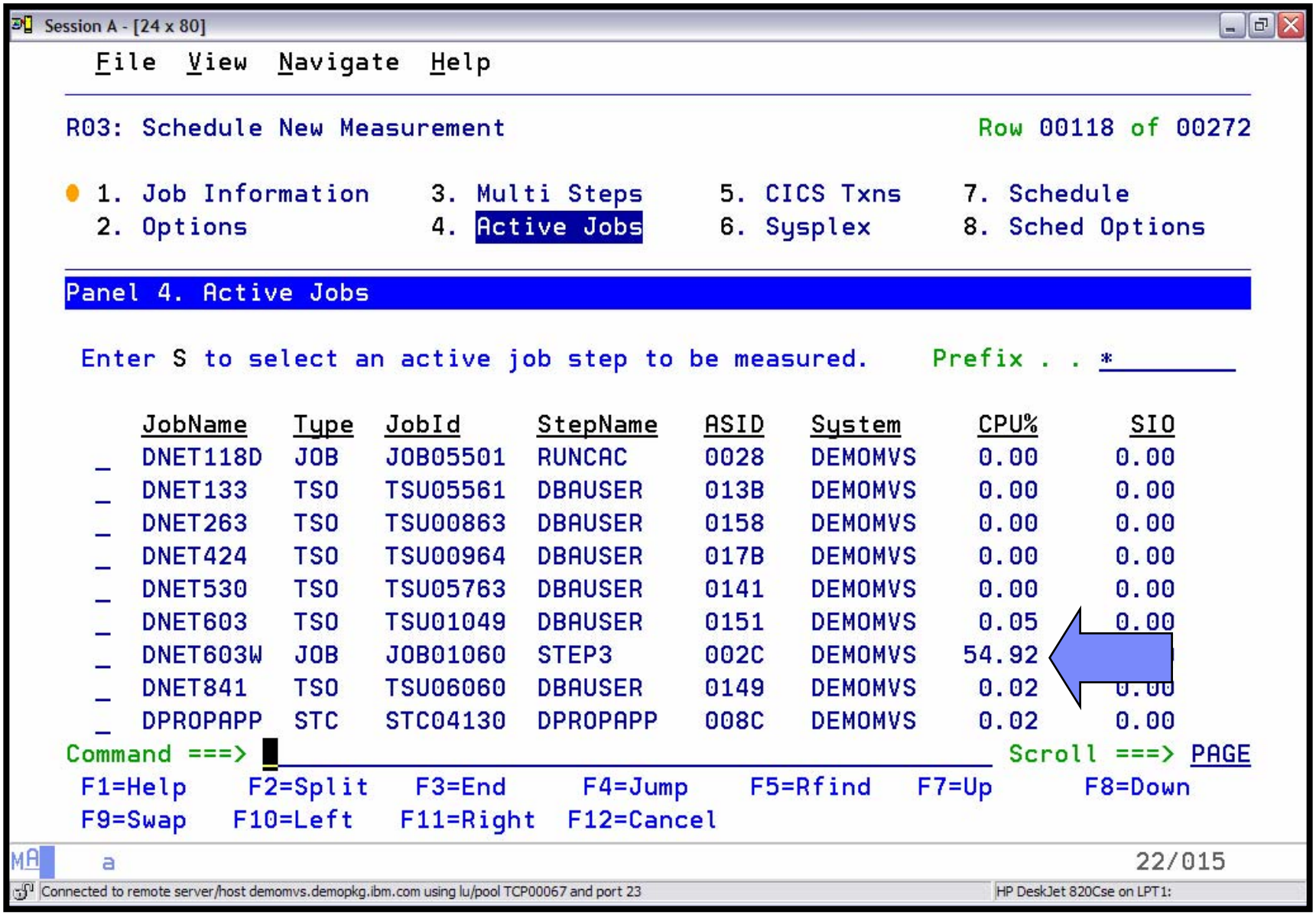

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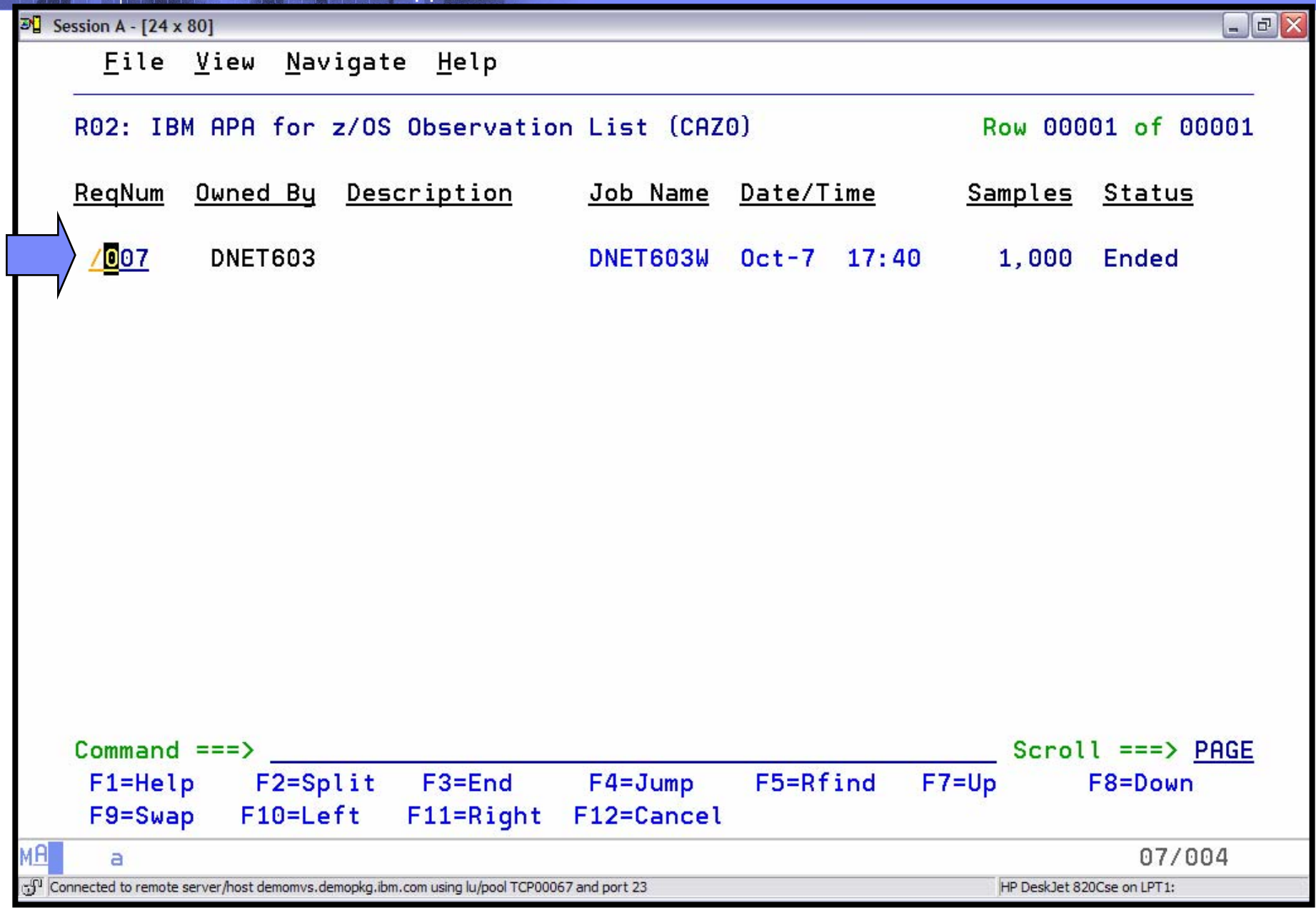

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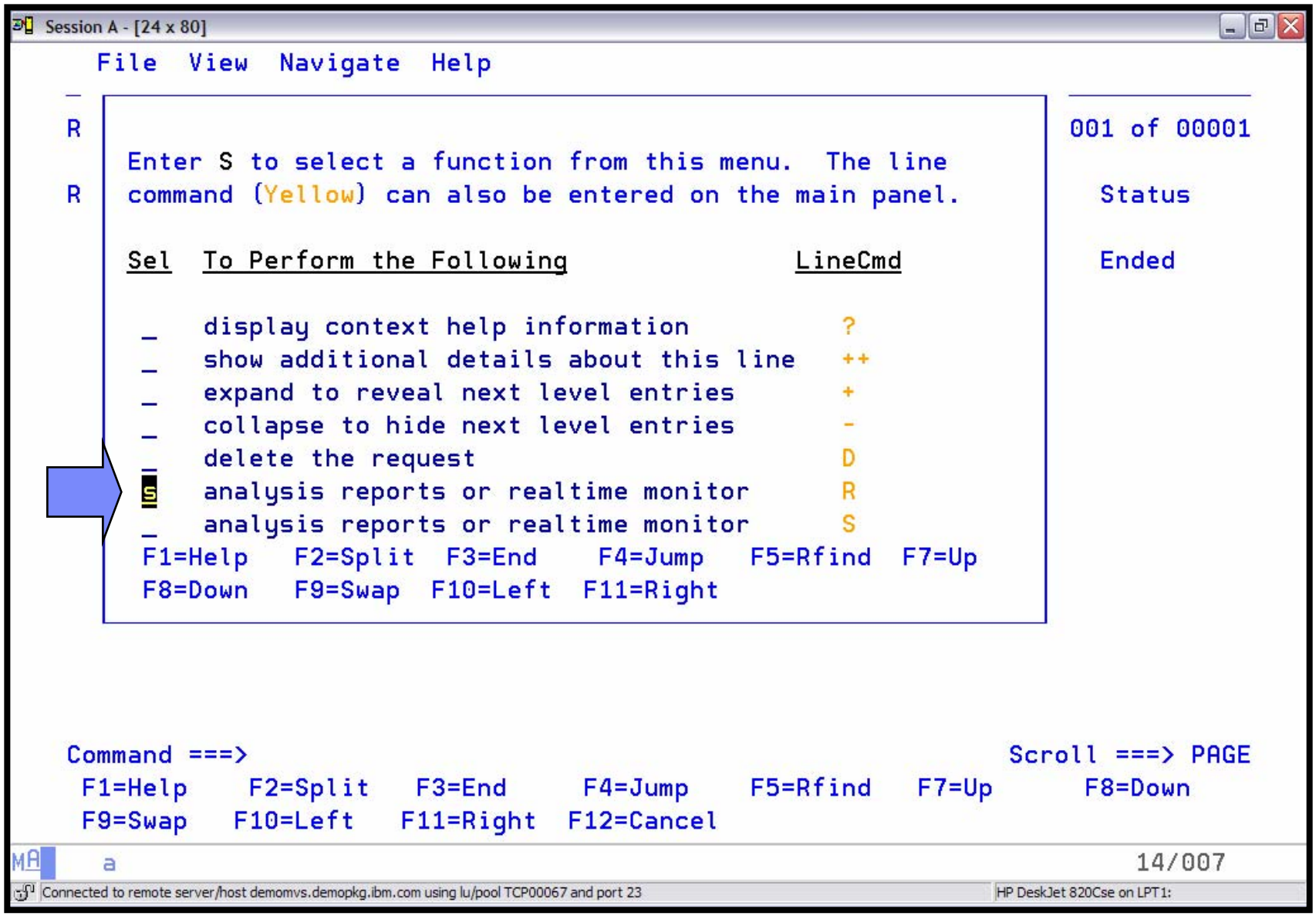

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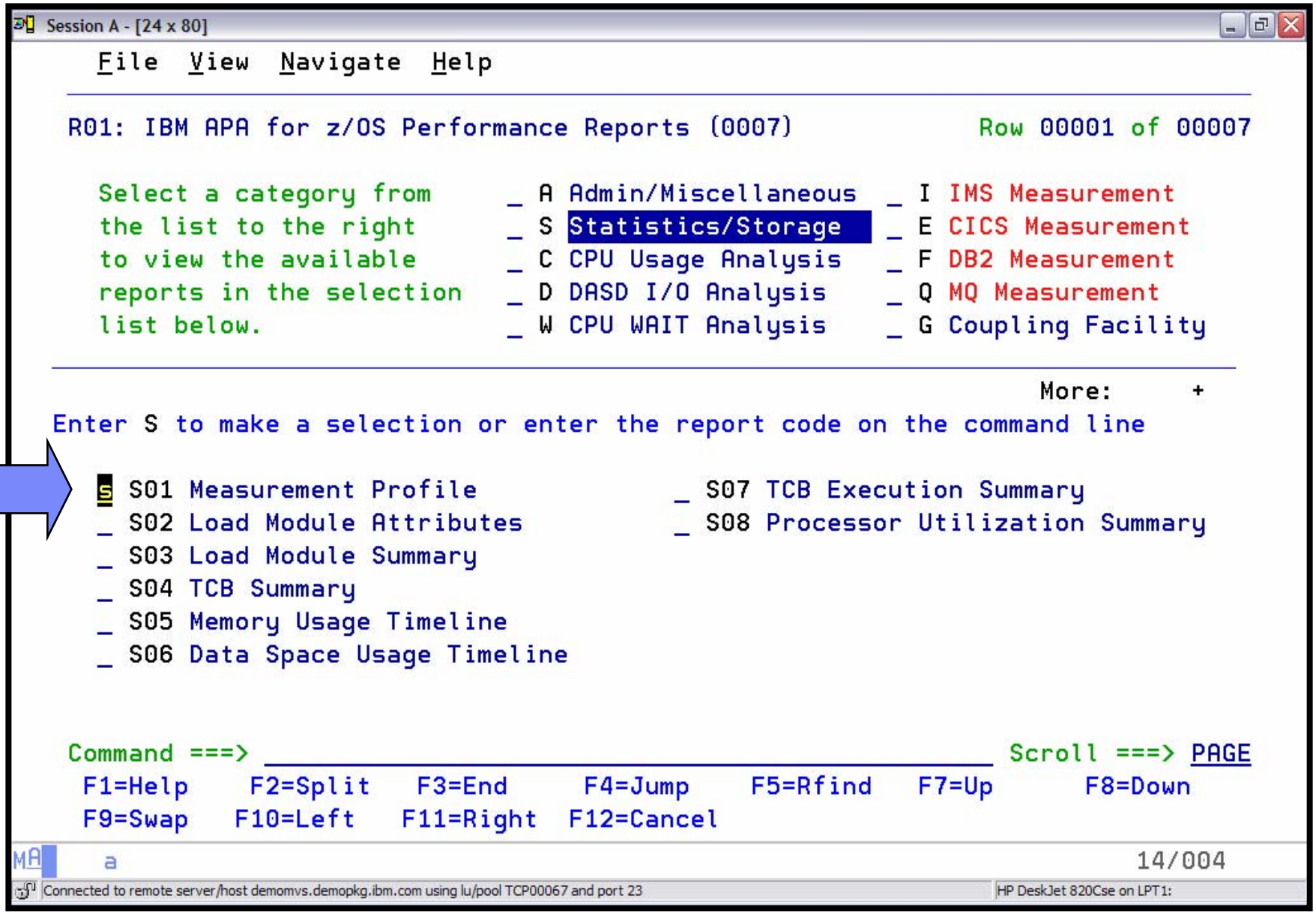

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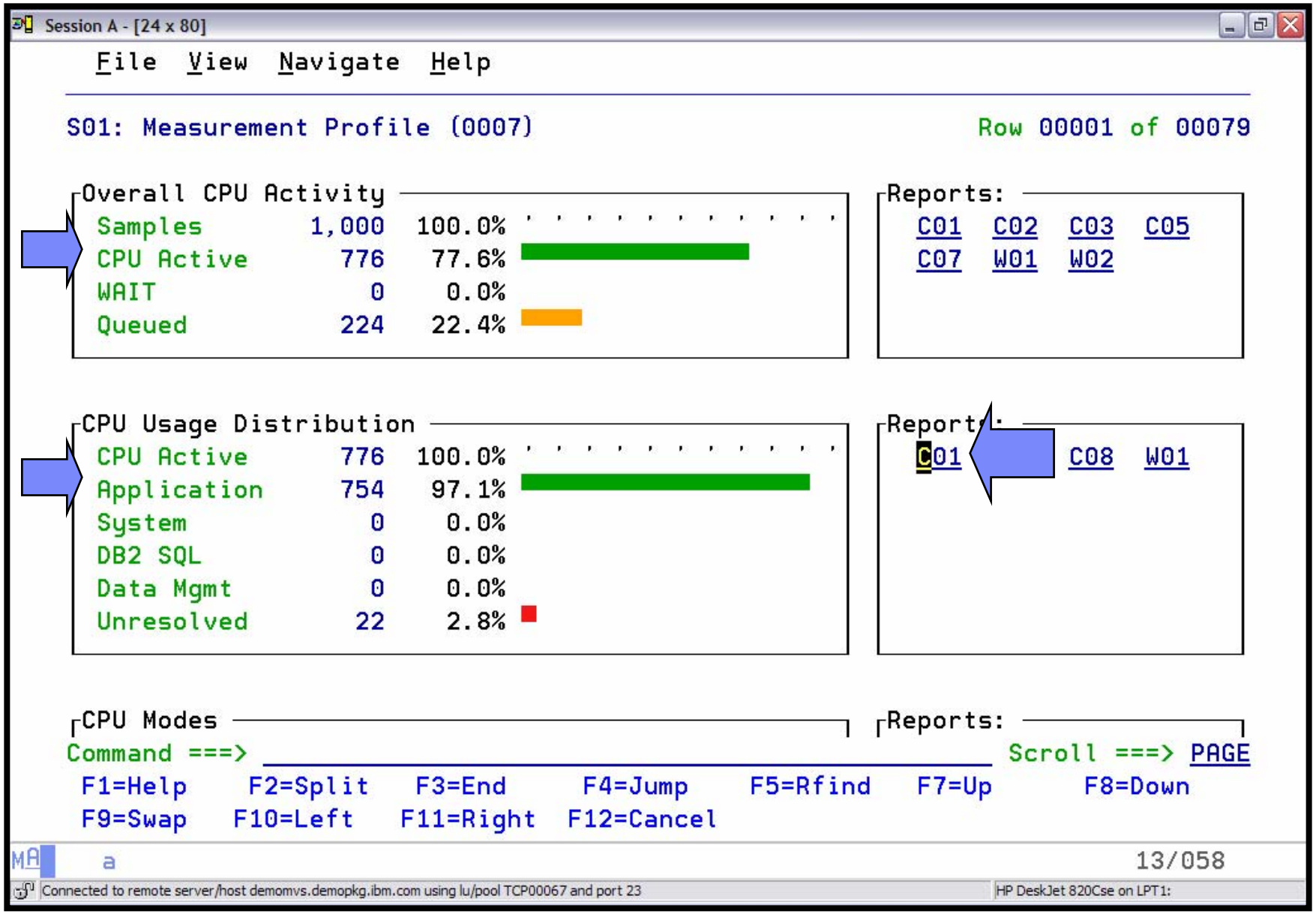

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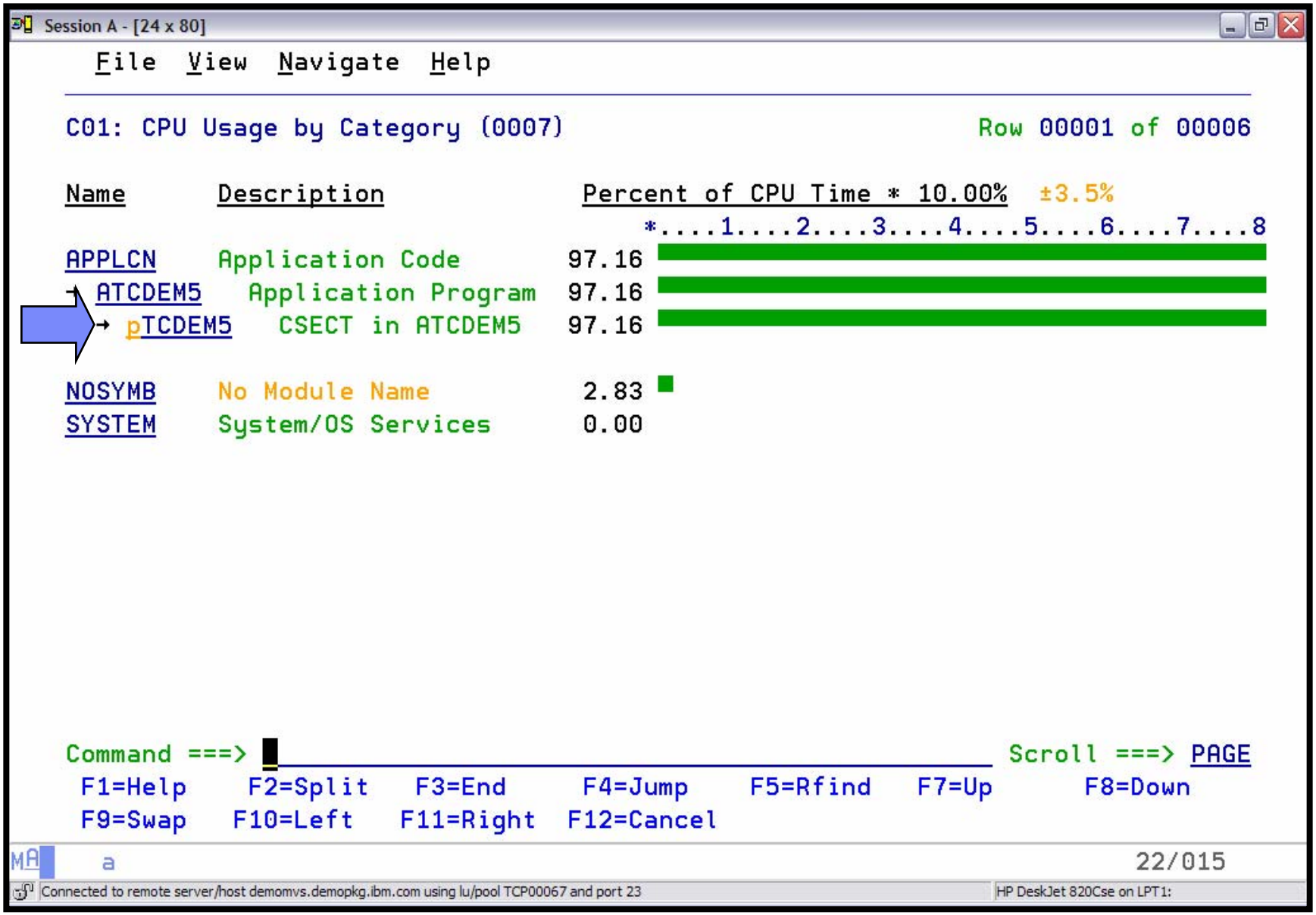

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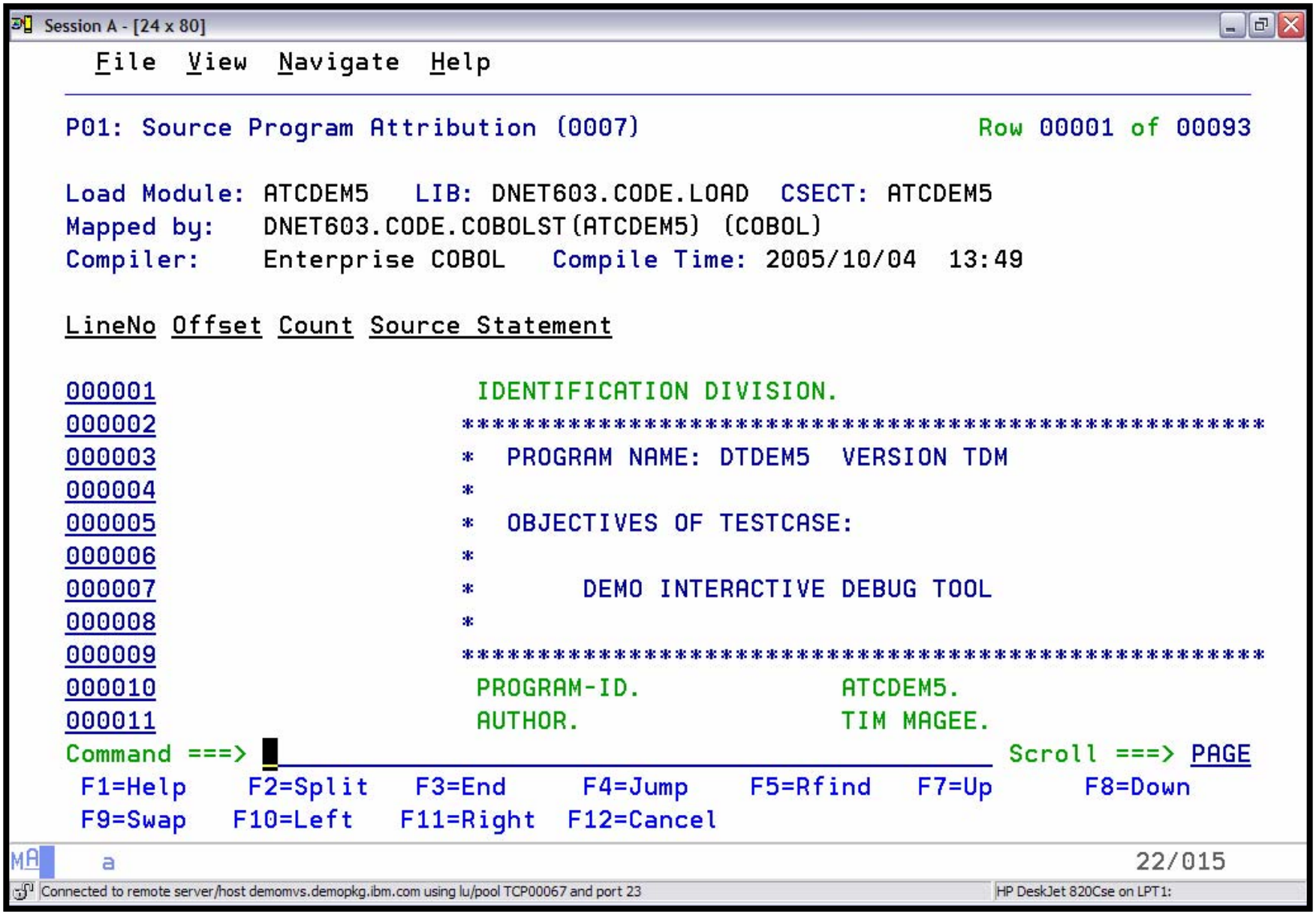

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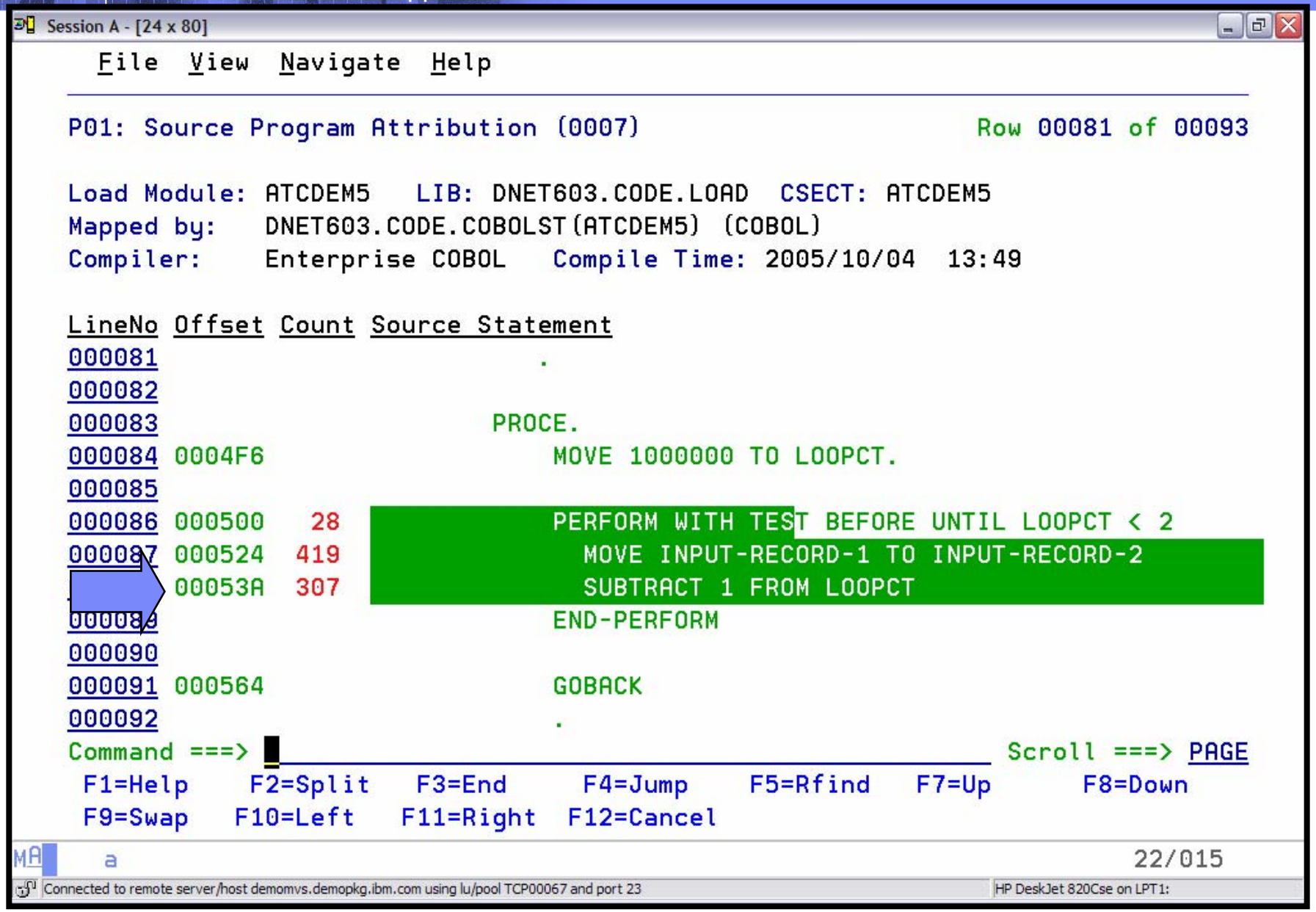

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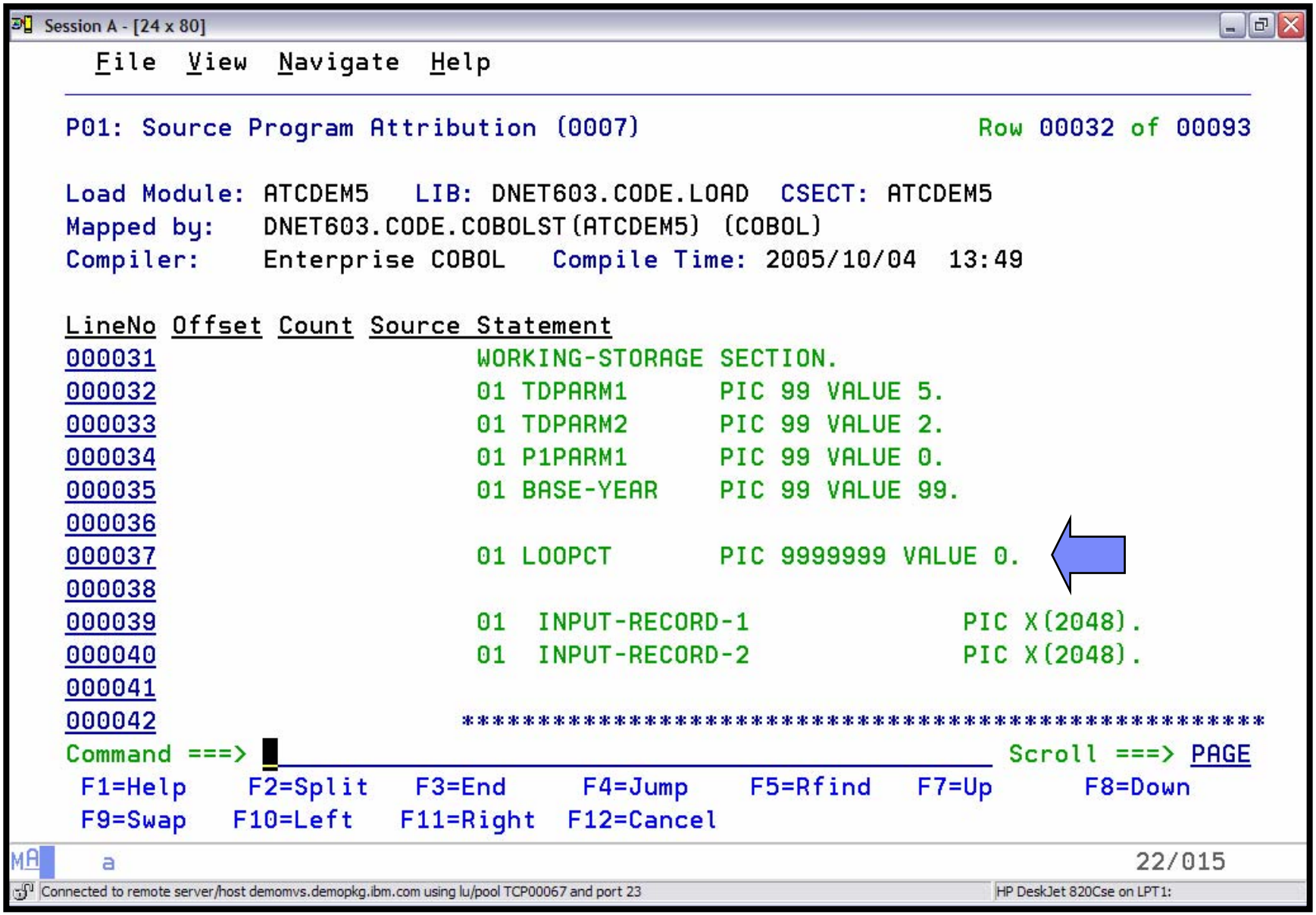

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Summary

- **Session available for replay**
- **Live webcast on testing scenarios**
- **Product demos**

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For More Information

- IBM Product ID's
  - File Manager for z/OS V5 (5655-M21)
  - File Export for z/OS (5697-I12)
  - Debug Tool Utilities and Advanced Functions for z/OS V5 (5655-M19)
  - Application Performance Analyzer (5697-N37)
  - Workload Simulator (5655-I39)
  - CICS Performance Analyzer (5655-F38)
  - CICS Interdependency Analyzer for z/OS (5697-J23)
  - CICS VSAM Copy (5655-L66)
  - Rational Performance Tester (5724-J96 part D556ULL)
  - Rational Functional Tester Extension (5724J07 part options: authorized user D53ZTLL or floating user D53ZZLL)
  - Websphere Developer for zSeries – WDz (5724-L44)
  - Websphere Studio Asset Analyzer (5655-M22)
  - Websphere Application Monitor (5697-J18)

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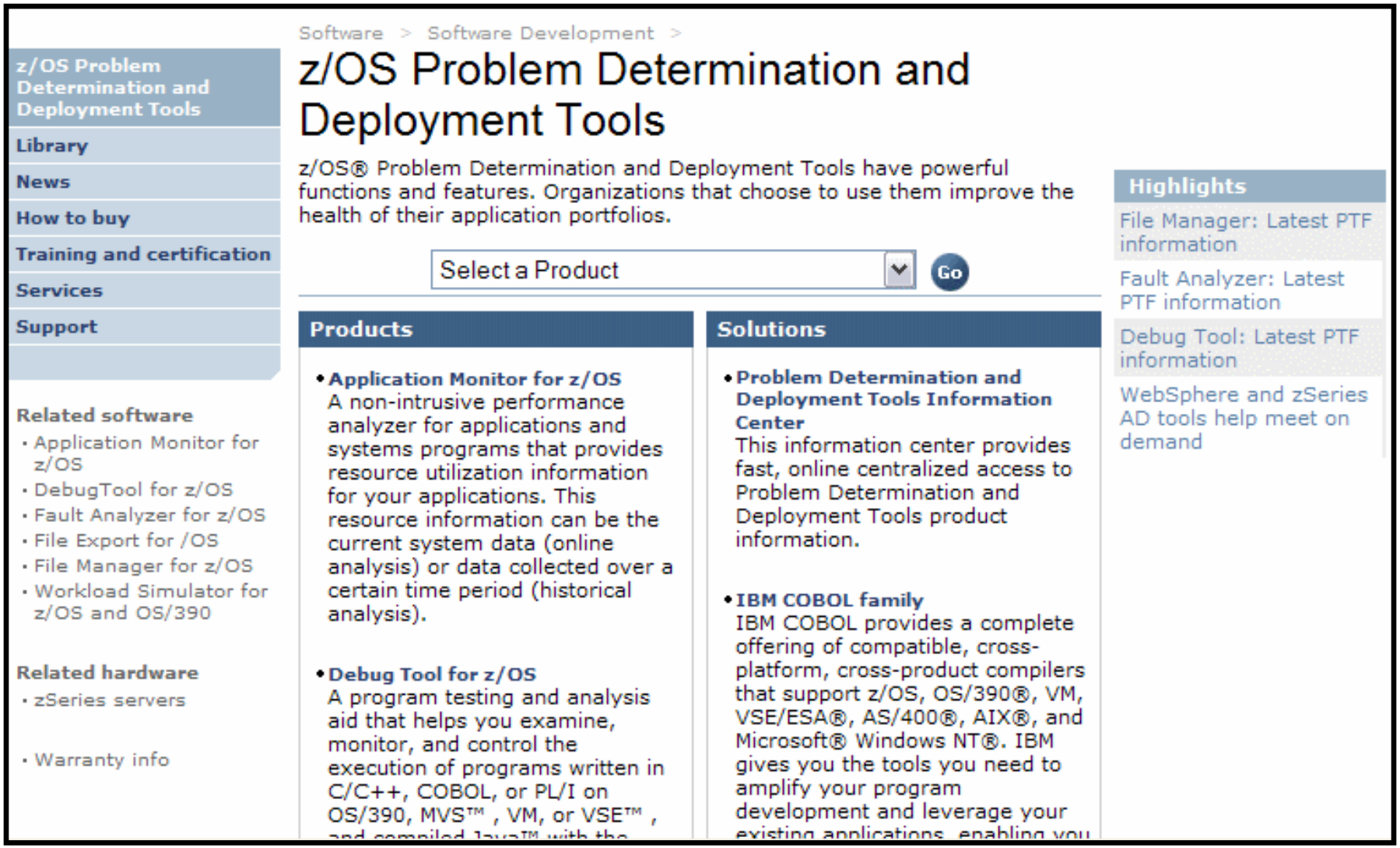
Get more information about AD tools at www.ibm.com/software/awdtools/deployment



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Related software
- Application Monitor for z/OS
- DebugTool for z/OS
- Fault Analyzer for z/OS
- File Export for /OS
- File Manager for z/OS
- Workload Simulator for z/OS and OS/390

Related hardware
- zSeries servers
- Warranty info

Products

- **Application Monitor for z/OS**
  A non-intrusive performance analyzer for applications and systems programs that provides resource utilization information for your applications. This resource information can be the current system data (online analysis) or data collected over a certain time period (historical analysis).
- **Debug Tool for z/OS**
  A program testing and analysis aid that helps you examine, monitor, and control the execution of programs written in C/C++, COBOL, or PL/I on OS/390, MVS™ , VM, or VSE™ ,

Solutions

- **Problem Determination and Deployment Tools Information Center**
  This information center provides fast, online centralized access to Problem Determination and Deployment Tools product information.
- **IBM COBOL family**
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Highlights

- File Manager: Latest PTF information
- Fault Analyzer: Latest PTF information
- Debug Tool: Latest PTF information
- WebSphere and zSeries AD tools help meet on demand

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Polling Questions

- **Would you like to see these and more testing scenarios on a live one-on-one webcast?**

  * 1 – Yes

  * 2 – No

- **If this session was informative would you recommend it to a coworker or associate to listen to the replay?**

  * 1 – Yes

  * 2 - No

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Polling Questions

- **If you want more information on the following tools press 1 for yes or 2 for no**
- ***(this will be asked one product at a time)***
  - 1 yes / 2 no : File Manager
  - 1 yes / 2 no : File Export
  - 1 yes / 2 no : Debug Tool Utilities & Advanced Functions for z/OS V5
  - 1 yes / 2 no: Application Performance Analyzer
  - 1 yes / 2 no: Workload Simulator
  - 1 yes / 2 no: CICS Performance Analyzer
  - 1 yes / 2 no: CICS Interdependency Analyzer
  - 1 yes / 2 no CICS VSAM Copy
  - 1 yes / 2 no Rational Performance Tester
  - 1 yes / 2 no Rational Functional Tester Extension
  - 1 yes / 2 no Websphere Developer for zSeries – WDz
  - 1 yes / 2 no Websphere Studio Asset Analyzer
  - 1 yes / 2 no Websphere Application Monitor

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Q & A Session

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