Hewlett Packard Enterprise

NonStop Technical Boot Camp 2023 TBC23-TB66 Discover the Latest Advancements in the HPE NonStop Manageability Portfolio

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September 2023

Forward-looking statements

This is a rolling (up to three year) Roadmap and is subject to change without notice

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Agenda

Introduction to NonStop Manageability

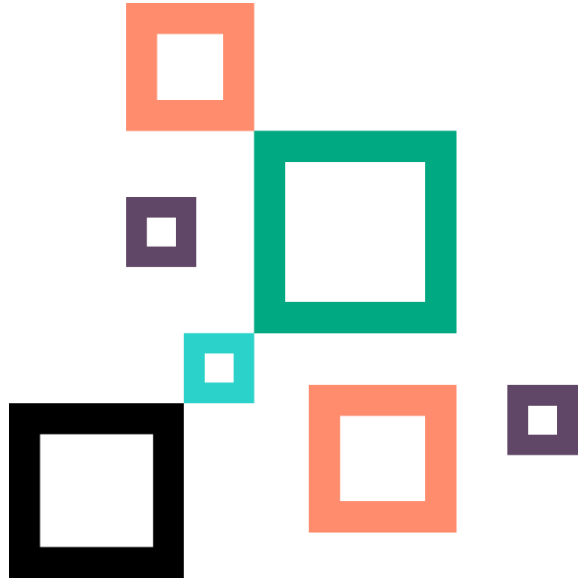
Standalone OSM Event Viewer

System Disk Snapshot and Restore

Introduction to NonStop Manageability

NonStop manageability strategy

- Modernize & make it easy to manage NonStop systems
- Minimize training
- Centralize & integrate into Enterprise Management frameworks
- Support new platform and capabilities
- Provide business and system analytic metrics
- Provide customers with choices that match the skills of their IT Staff
  - from deep NonStop knowledge, to solutions that require a very little NonStop syntax knowledge



Manageability product portfolio

Serviceability

- HPE Insight RS
- HPE iLO
- NonStop System Console
- OSM Suite of Tools

Enhanced Management

- ATM/POS Trans. Analyzers
- **DataEdge for HPE NonStop** New
- C-Deep for HPE NonStop
- SNMPv3 Agent for HPE NonStop
- MQGate for HPE NonStop
- Operations Agent for NonStop (OVNM)
- Sentinel for HPE NonStop
- Web ViewPoint Enterprise
  - Base24 and Connex plug-ins

Expert Management

- ASAP
- Capacity Manager
- Enform Optimizer
- EMS Analyzer
- Real-Time Proc. Monitor
- Seeview
- Viewsys

Performance Management

- Measure
- Local Analyst (LA)
- Performance Agent for NonStop (OVNPM)
- Performance Mgmt. Bundles
- Remote Analyst (RA)

NonStop System Console (NSC)

Converged NonStop systems

- Based on HPE ProLiant technology
- Available in both a rackmount and deskside configurations
- Runs Windows Server 2022 OS and a suite of NSC specific software
- Two NSCs are required per maintenance LAN
- A pair of NSCs can manage up to 8 converged NonStop systems on the same maintenance LAN

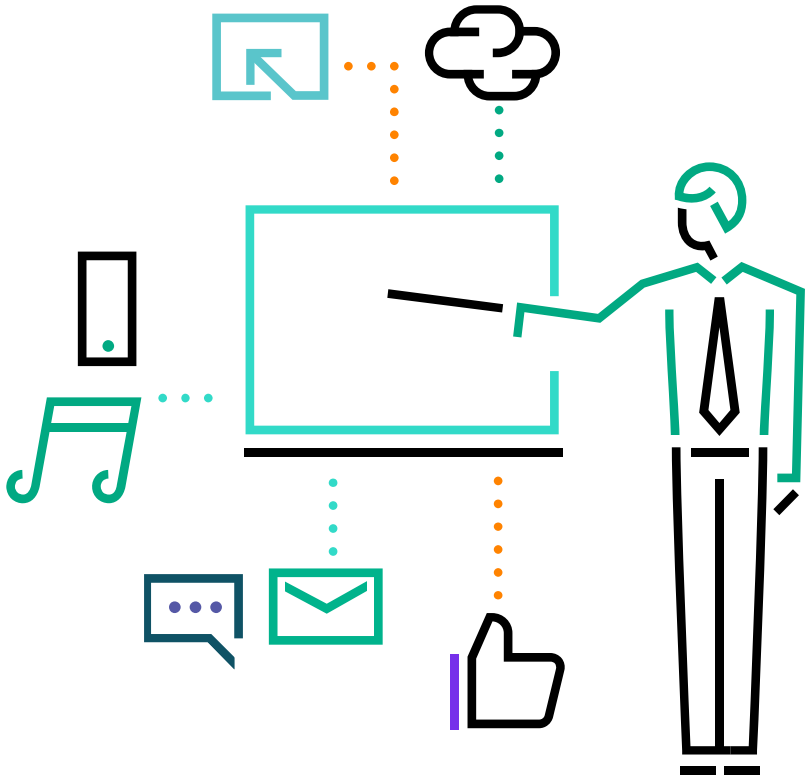
Virtualized NonStop systems

- Runs on Windows Server 2022
- One vNSC* is required per maintenance LAN
- A single vNSC can manage up to 8 Virtualized NonStop systems

**vNSC is a Virtualized NonStop System Console*

What can be installed on the NSC?

- Products that come with the NSC installer DVD
  - Latest version is **Update 41**
- Insight Remote Support (Insight RS)
- Security products (Anti-Virus, firewall, or other products IT departments require for security)
- Security patches



New features introduced

Serviceability

- **NSC**
  - Software Installer Update 41
  - Windows Server 2022
- **OSM**
  - Standalone Event Viewer
  - System disk snapshot and restore

Enhanced Management

- **OVNM 1.7.2**
  - New functions and queries added in the Legacy Display Agent
  - Restore of the correlation feature in Legacy Display Agent
- **Web ViewPoint Enterprise**
  - Enhanced Dashboard Visualizations - Support for multiple axes, pie chart, column charts, etc.
  - Ability to change how much data to query and retain on dashboard for all graph widgets
  - Ability to view live alert logs
  - Ability to define user access for Admin, Manager and Staff
  - Support for composite metric to define metrics using arithmetic expressions

Performance Management

- **Remote and Local Analyst**
  - Application analytic monitoring
  - Solution recommendations
  - Automated analytics generation
  - Click drilldowns for discoveries

Future plans

Serviceability

- **NSC**
  - Hardware refresh
  - Support for TLS1.3
- **OSM**
  - System Disk Snapshot & Recovery Wave 2.0
  - Support for OpenSSL 3.x

Enhanced Management

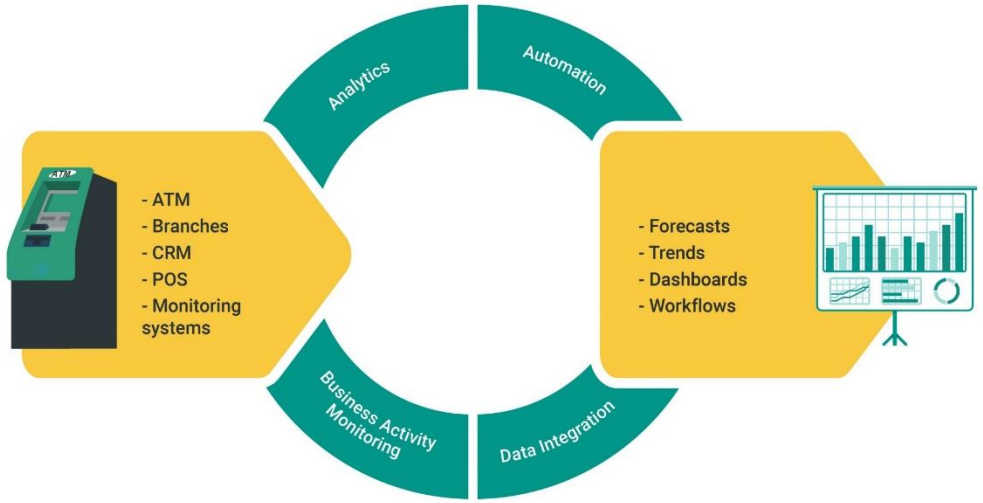
- **OVNM**
  - Replacement of Event Console Desktop Client with a web based application
  - NonStop Splunk adapter to forward EMS and OSS/Guardian logs
  - Java Monitoring Gateway for monitoring of NonStop OSS Java application
  - Composite thresholds based on 2 or more different subsystems like CPU, PROCESS and DISK

Performance Management

- **Local and Remote Analyst**
  - Smart scanners
  - Automated exception detections
  - Enhanced UI and user experience
  - Seamless product upgrades
- **OVNPM**
  - Dynamic Instance Discovery based on configuration in System Report - new instances to be discovered matching the criteria without manual intervention
  - Enhanced Correlation Features for automatic impact analysis

DataEdge for HPE NonStop

- Data Integration and Streaming Analytics platform
  - Ingest, clean, enrich a variety of data
  - Perform analytics
  - Provide operational business intelligence to make real time decisions
- Support for ingestion of disparate data streams with statistics calculations at high volumes, velocity and variety
- Modern service oriented architecture, highly available
- Responsive user interface with focus on mobility (different devices) and different UI form factors
- Support for ATM and POS financial transactions applications that run on the HPE NonStop (ACI BASE24 Classic/EPS, FIS Connex, etc.)
- Strategic replacement for ATM & POS Transaction Analyzer



Standalone OSM Event Viewer

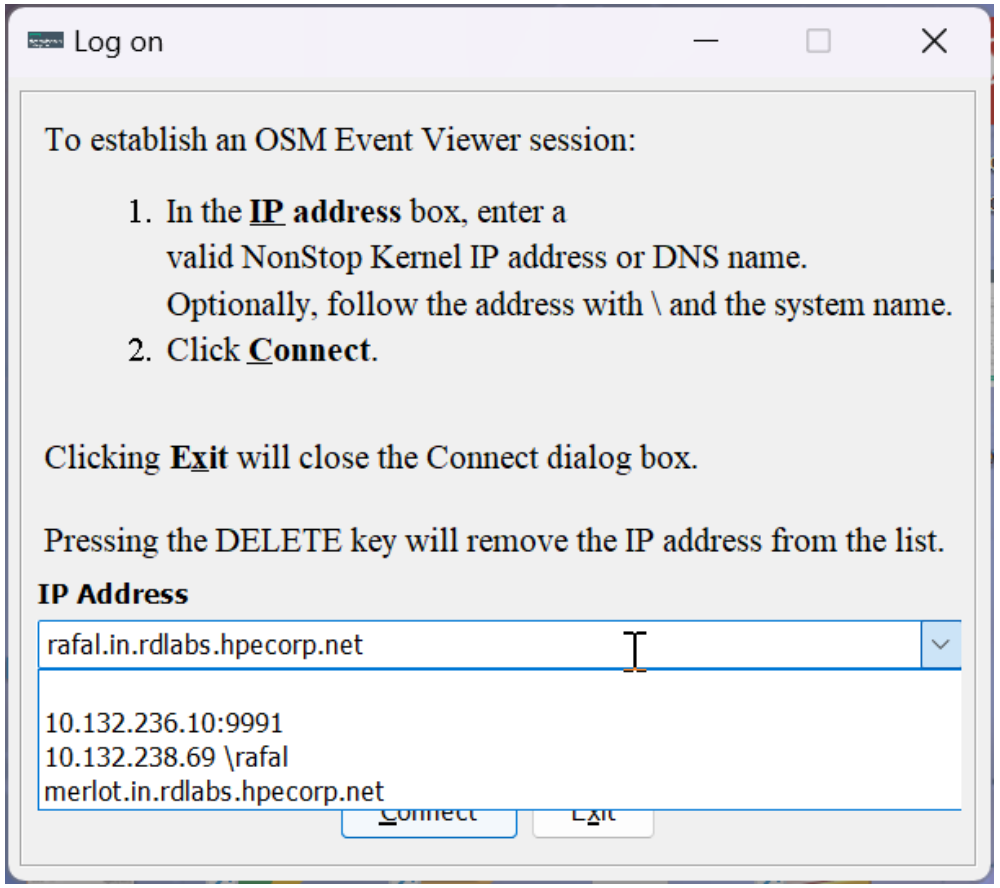
Overview

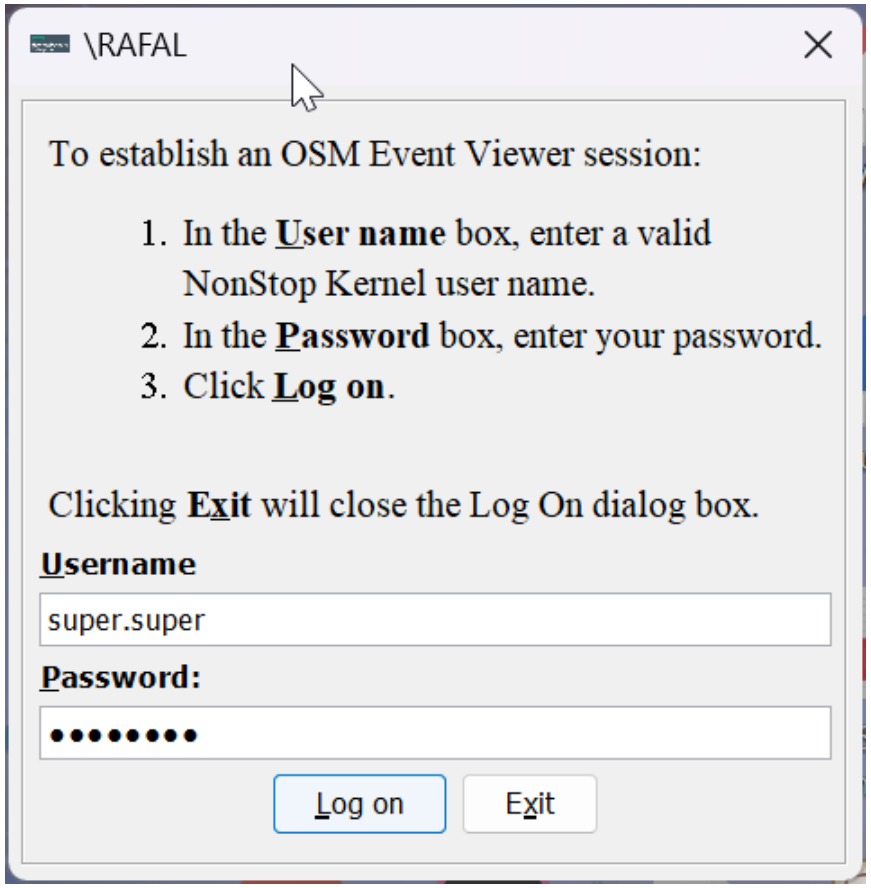
- **Standalone Application**
  - Java based desktop application
  - Similar look and feel
  - No more JavaScript/browser-based vulnerabilities
  - Proven framework
    - OSM Suite of tools are based on Java Swing Framework
      - OSM SC client also a Java Swing app
  - Single installation file for OSM Service Connection and Event Viewer clients

- **L Series only**
  - T0682L02^BBN and later

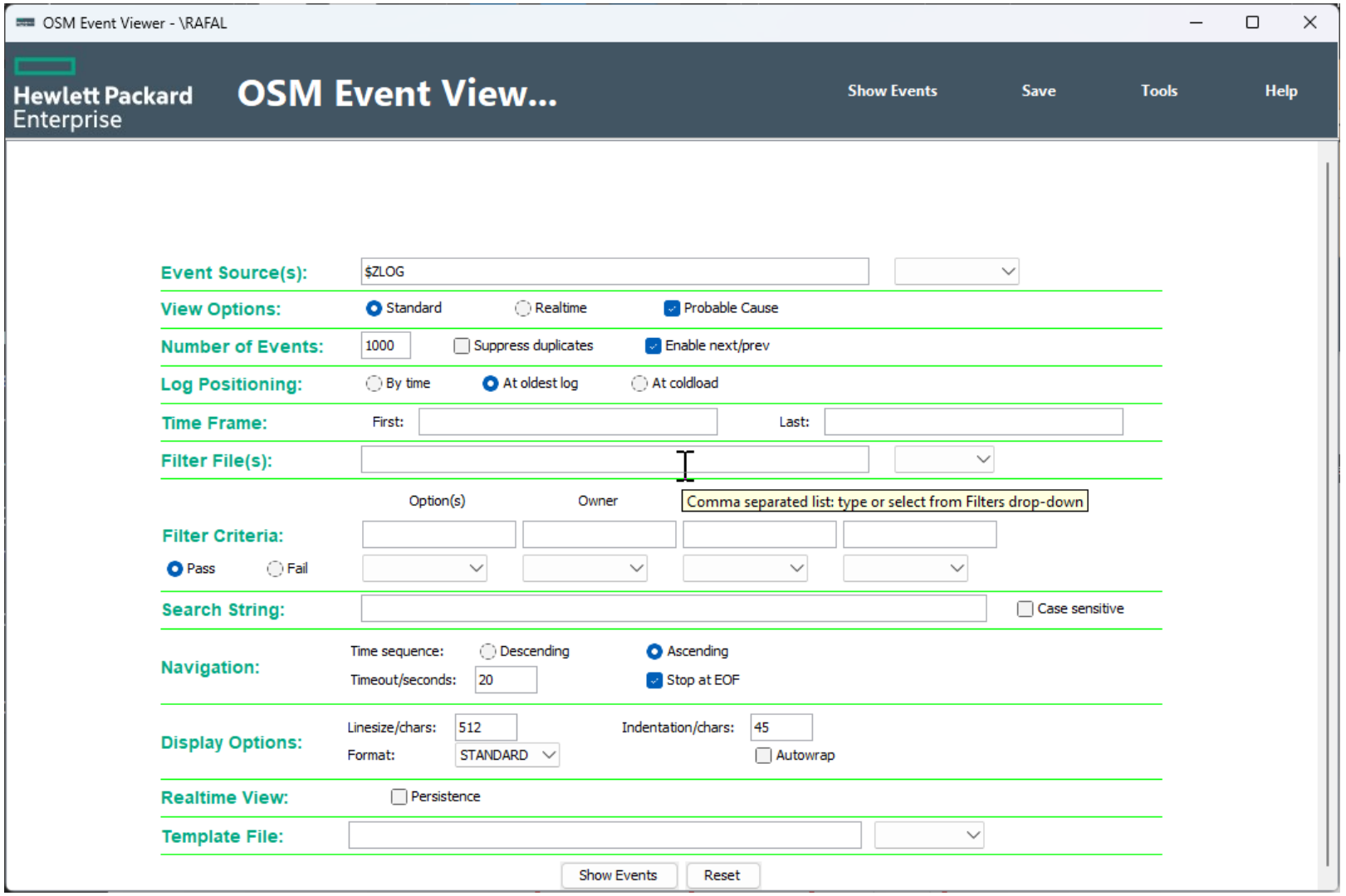
Logon

- Can be invoked using either Desktop Shortcuts or Start menu



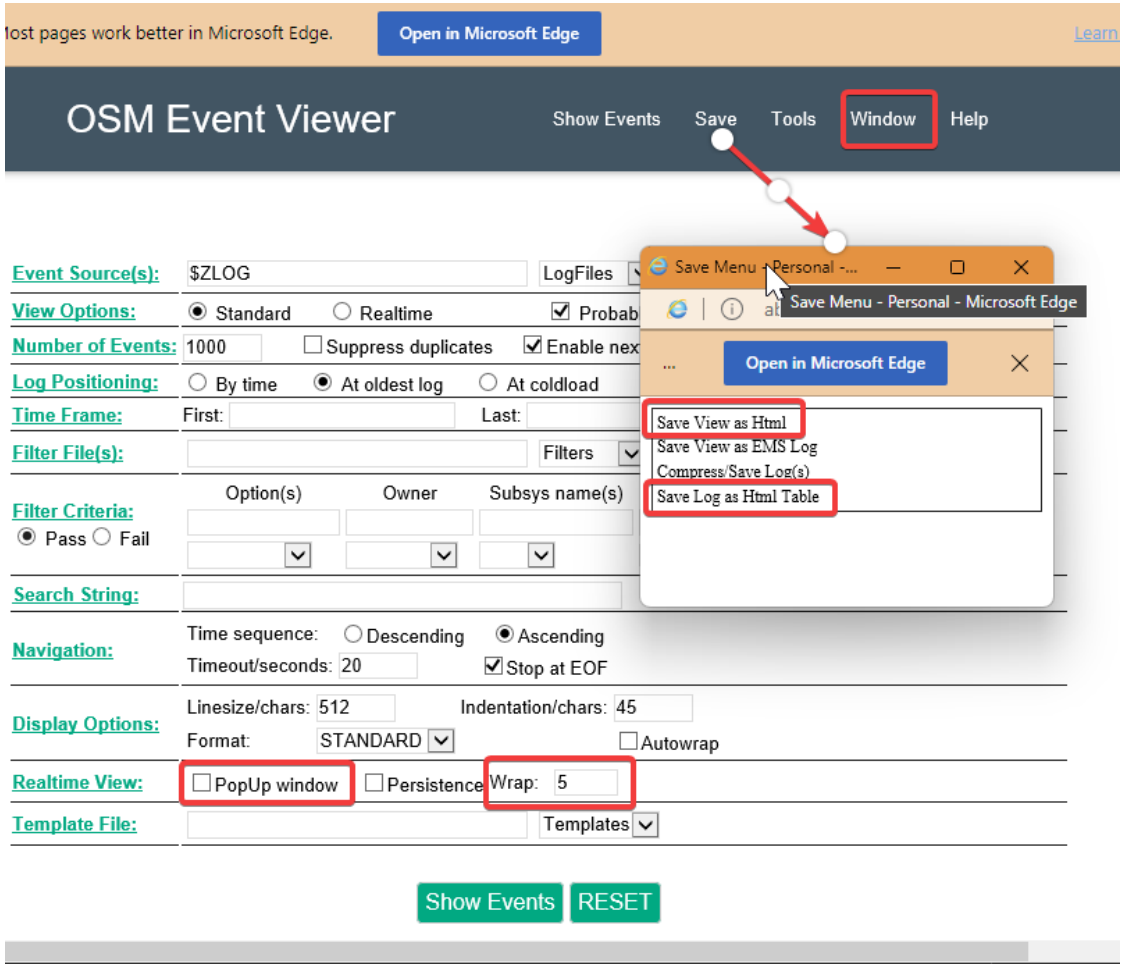


New Homepage

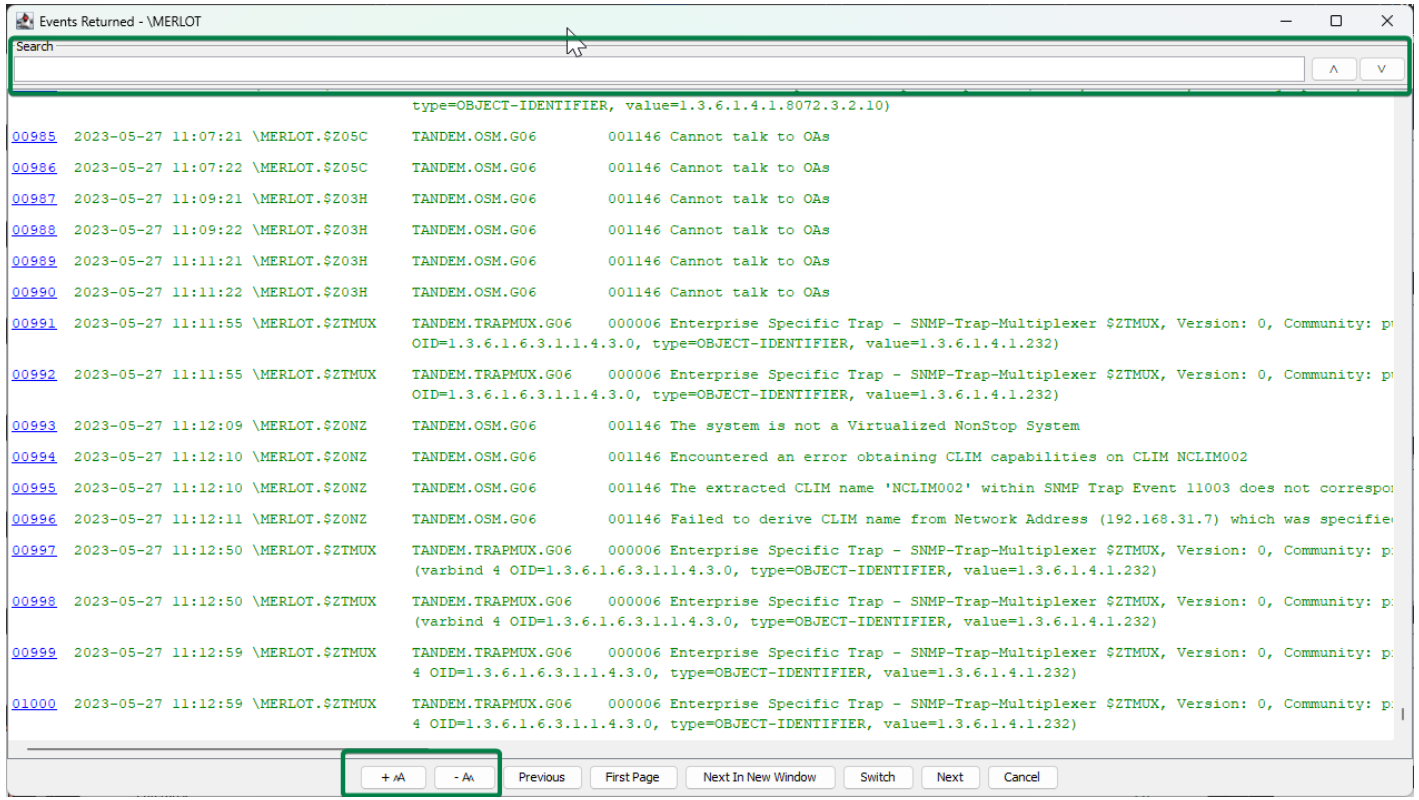


Web-based application Homepage

- Removed features highlighted in red boxes



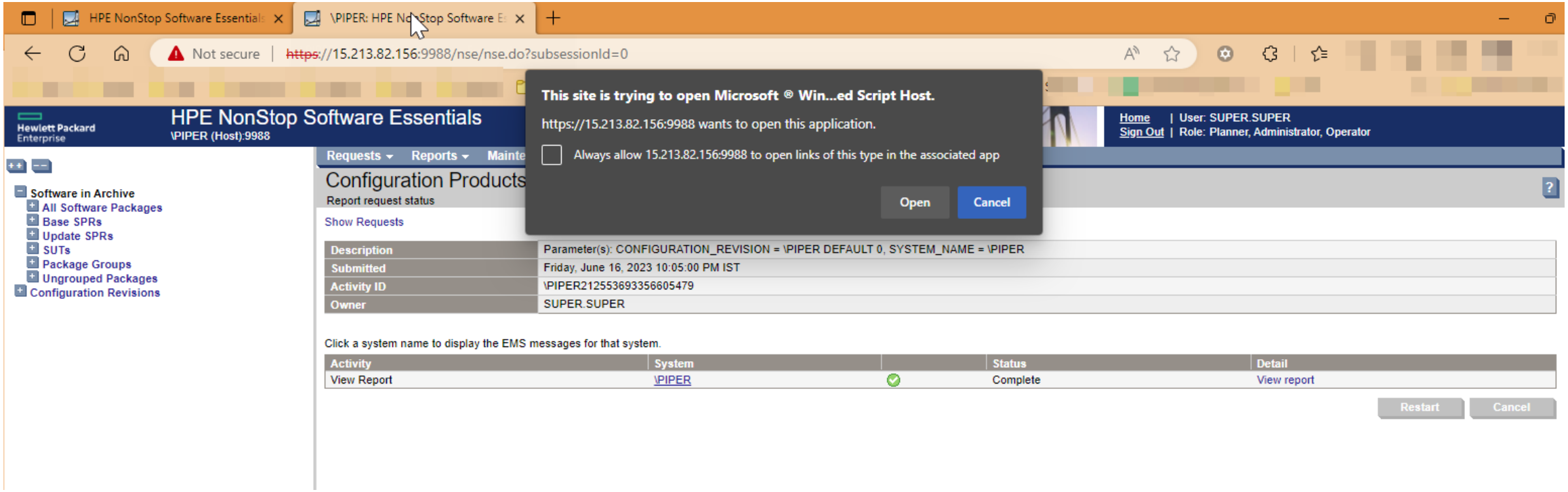
Events Window



- A text box to search for a specific event
- Buttons to increase/decrease font size

Invoking Event Viewer from NSE client

- Windows OS shows a warning. User can check “Always allow…” checkbox and click Open.
- After entering the credentials, users will be taken to the list of events window bypassing the homepage.



System Disk Snapshot and Restore

System Disk Snapshot and Restore

- Creates an online backup of $SYSTEM disk on a virtual tape or disk drive through OSM guided procedures
  - Backup $SYSTEM by stopping the mirror disk
  - Backup $SYSTEM when both primary and mirror disks are in the started state
- Restores $SYSTEM disk using the backed-up contents from a virtual tape or disk
  - Uses **System Disk Restore Tool** while the NonStop system is down to restore $SYSTEM
- Supported on L-series systems

Supported NonStop system types and tapes

- NonStop systems
  - NS8 X4
  - NS4 X4
  - NS7 X2/X3
  - NS3 X2/X3
  - NS2 X2/X3
  - Virtualized NonStop

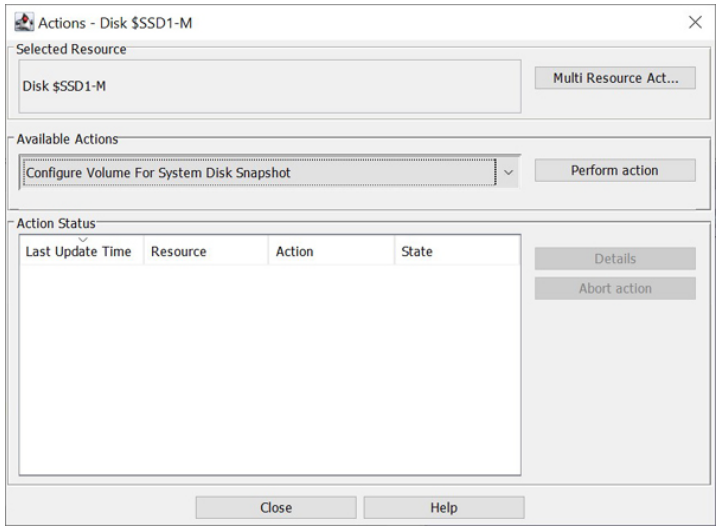
- Supported tapes
  - BackBox VTC/VTR and virtualized BackBox

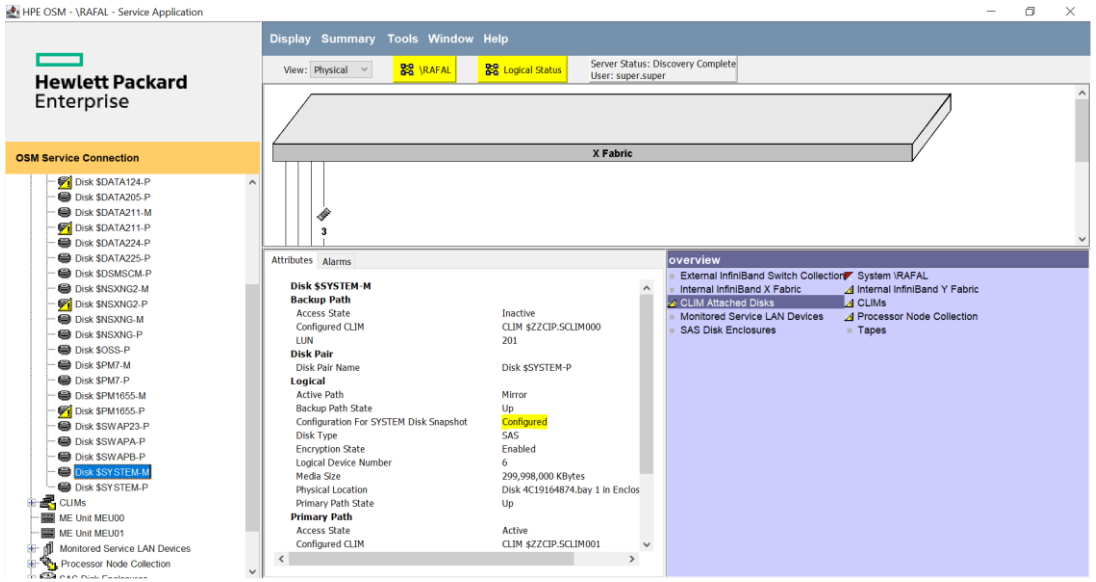
Software versions

- **RVU requirements**
  - Available as default from L23.08 onwards
  - The minimum RVU is L21.06 with required SPRs
    - T0853L03^DCR CLIM Software DVD (CLIM DVD)
    - T0682L02^BBN OSM Service Connection (RVU)
    - T0634H06^ACY OSM Console Tools DVD (NonStop Console DVD)
    - T0954V04^AAV BackBox H4.11 (Required only if backup destination is Tape)
    - T0964V01^AAJ VTR R1.05 (Required only if backup destination is Tape)

Configure volume for taking snapshot

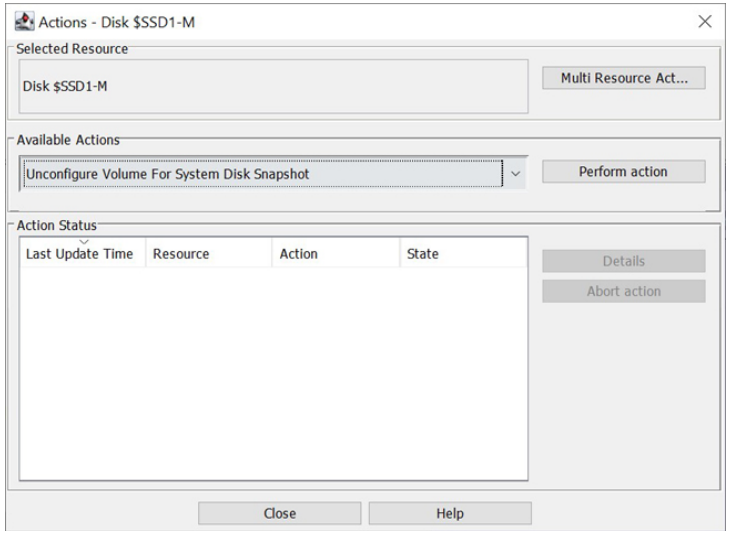
- **Configure Volume for System Disk Snapshot** must be run on each of the disks including **SYSTEM** disk that is used for taking a snapshot
- Only Configured disks will be used to be store the snapshot
- **Configure Volume for System Disk Snapshot** compares the size of a volume with $SYSTEM disk. Disks with smaller size are not configured.
- **Configuration For SYSTEM Disk Snapshot** attribute can be used to verify whether the disk is configured or not
- Default value for all disks including $SYSTEM is **Unconfigured**

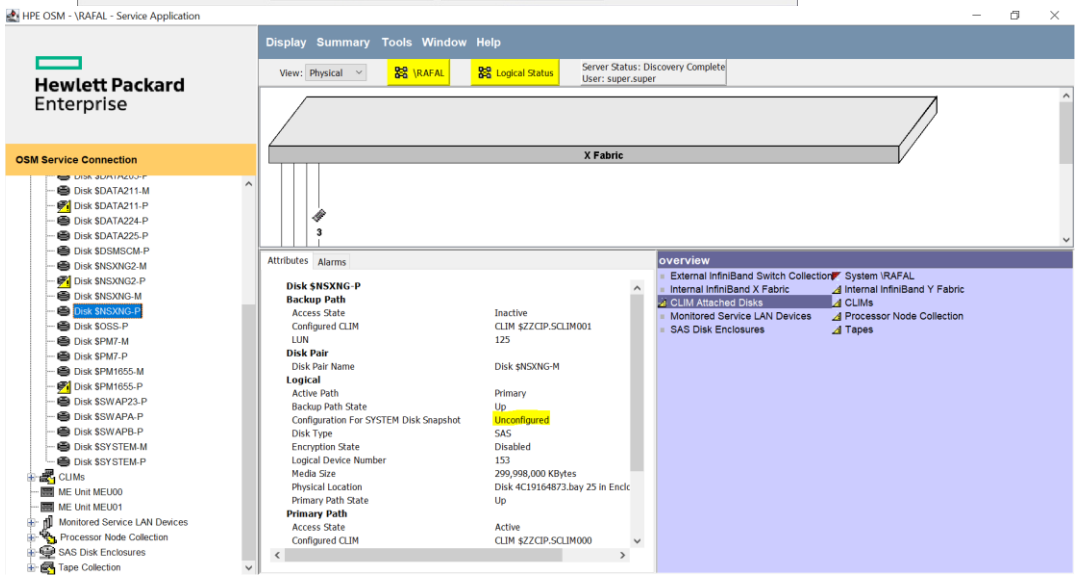




Unconfigure volume for System Disk Snapshot

- Run **Unconfigure Volume For System Disk Snapshot** on the disk to remove a disk from the list of configured disks.
- **Unconfigure** the smaller disks if SYSTEM disk is restored with larger size disk.
- **Configuration For SYSTEM Disk Snapshot** attribute can be used to verify disk is configured or not.

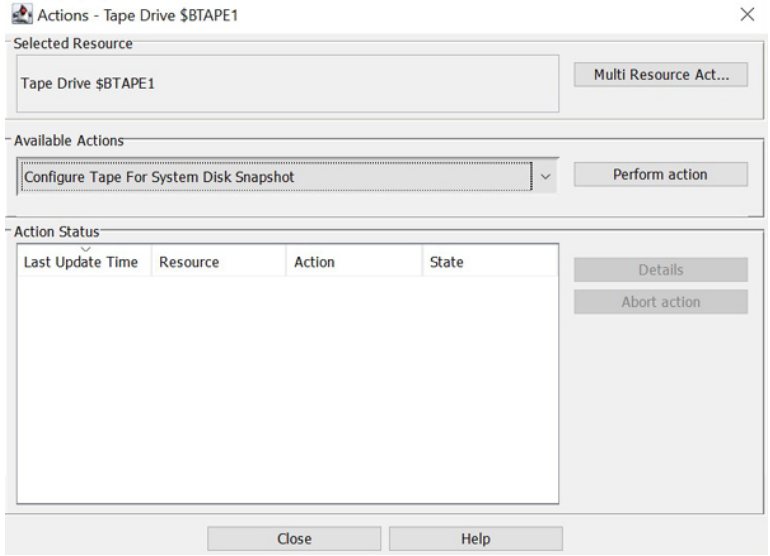


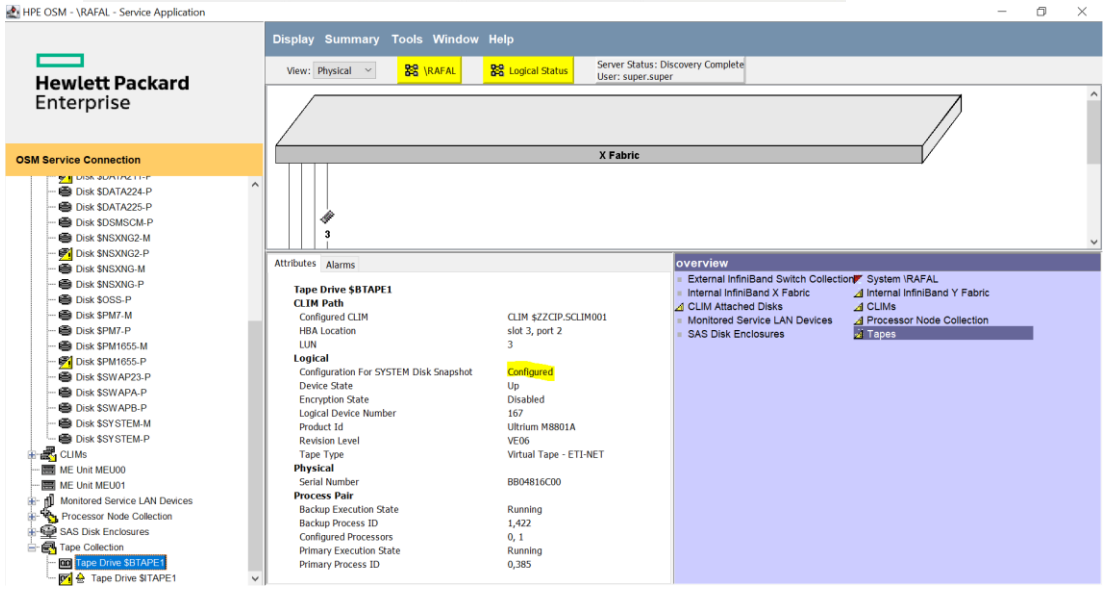


Configure tape for taking snapshot

- **Configure Tape for System Disk Snapshot** must be run on each of the tape used for taking a snapshot
- Only BackBox tapes are supported
- Only **Configured** tapes can be used as destination for snapshot
- **Configuration For SYSTEM Disk Snapshot** attribute can be used to verify tape is configured or not

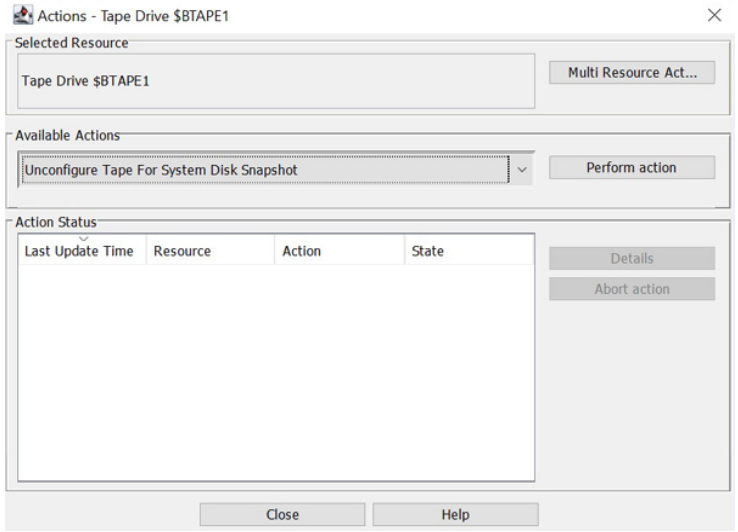
Note: As of the first release, OSM does not have a way to compare the size of a tape with $SYSTEM disk. It is user's responsibility to compare the size of tape in the Backbox GUI.

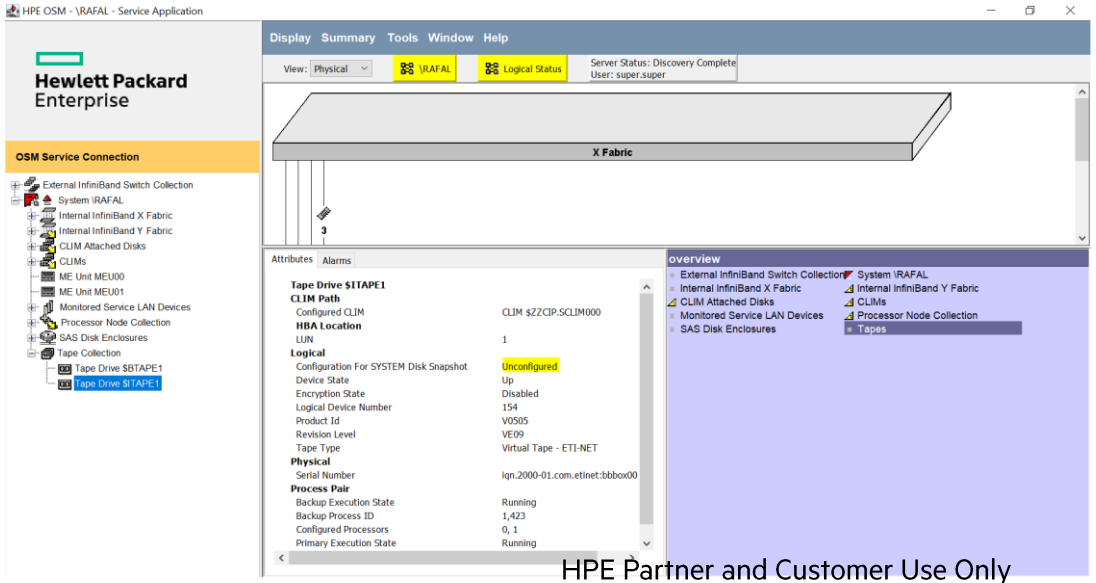




Unconfigure tape for System Disk Snapshot

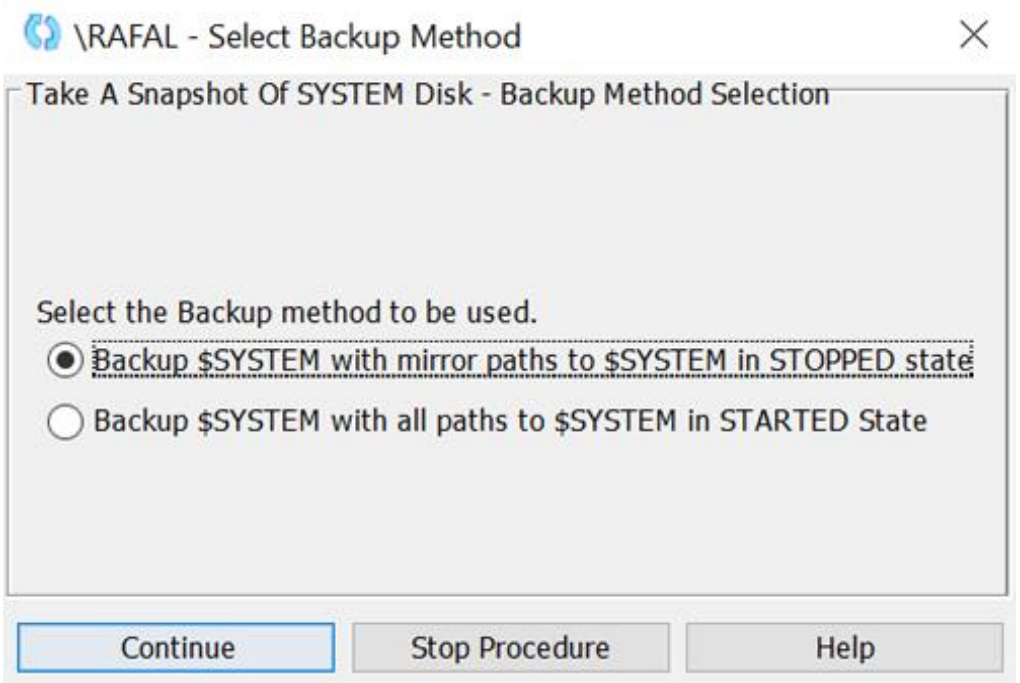
- Run **Unconfigure Tape For System Disk Snapshot** on the tape to be removed from the list of configured tapes
- **Unconfigure** the smaller tapes if SYSTEM disk is restored with larger size disk
- **Configuration For SYSTEM Disk Snapshot** attribute can be used to verify tape is configured or not





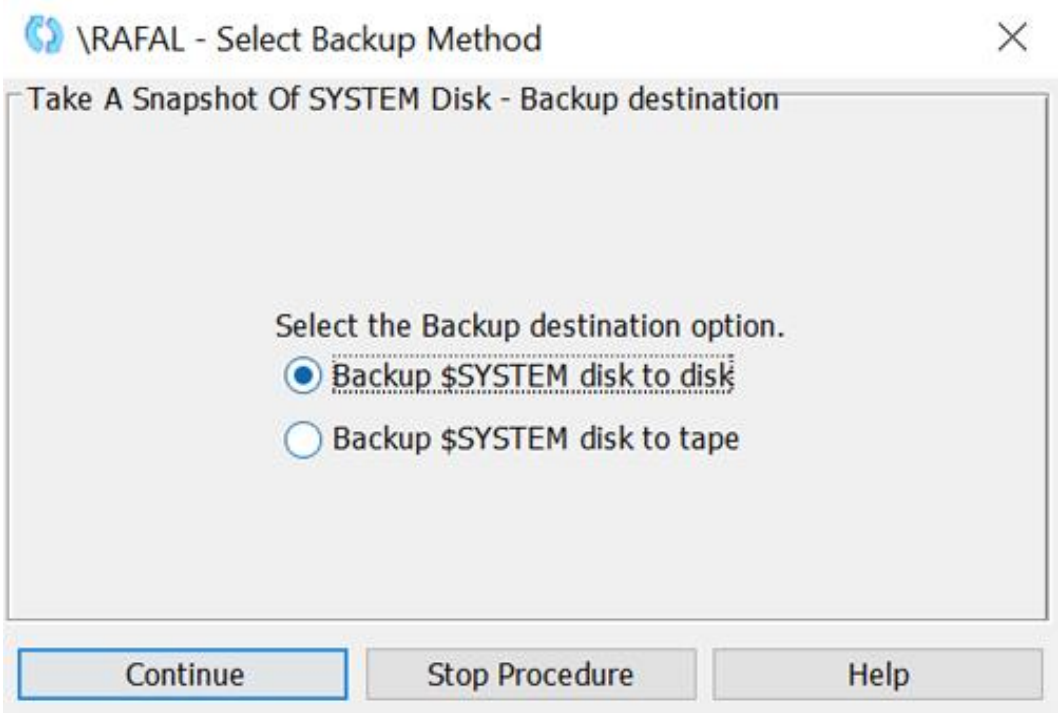
Snapshot methods

- Two types of backup methods
  - Backup **$SYSTEM** with mirror paths to **$SYSTEM** in stopped state
  - Backup the **$SYSTEM** when both the primary and mirror disks are in the **STARTED** state

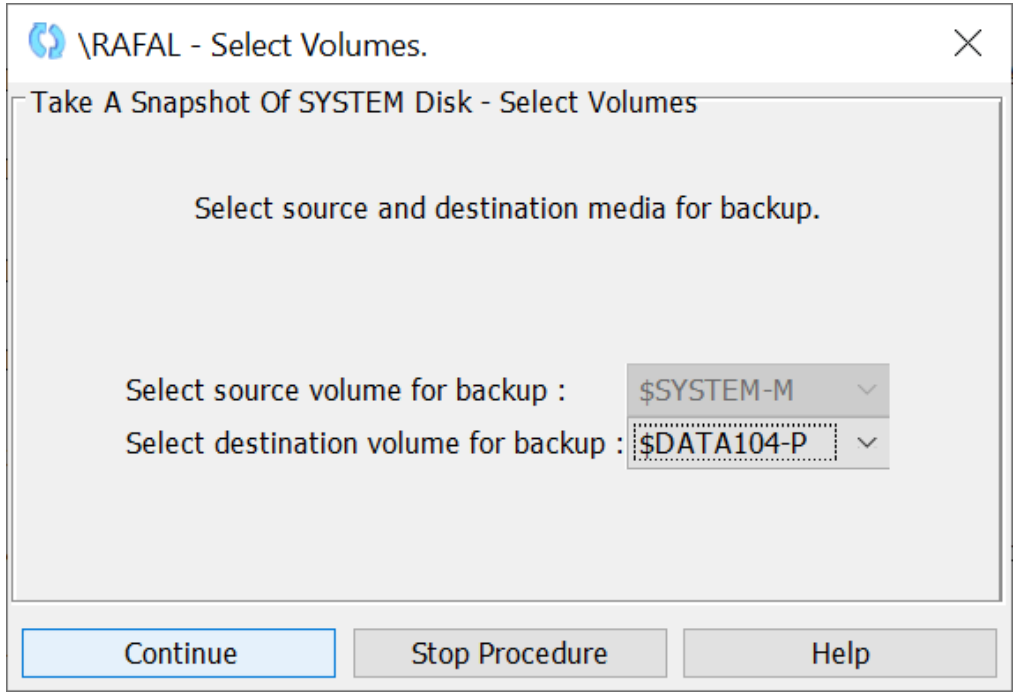


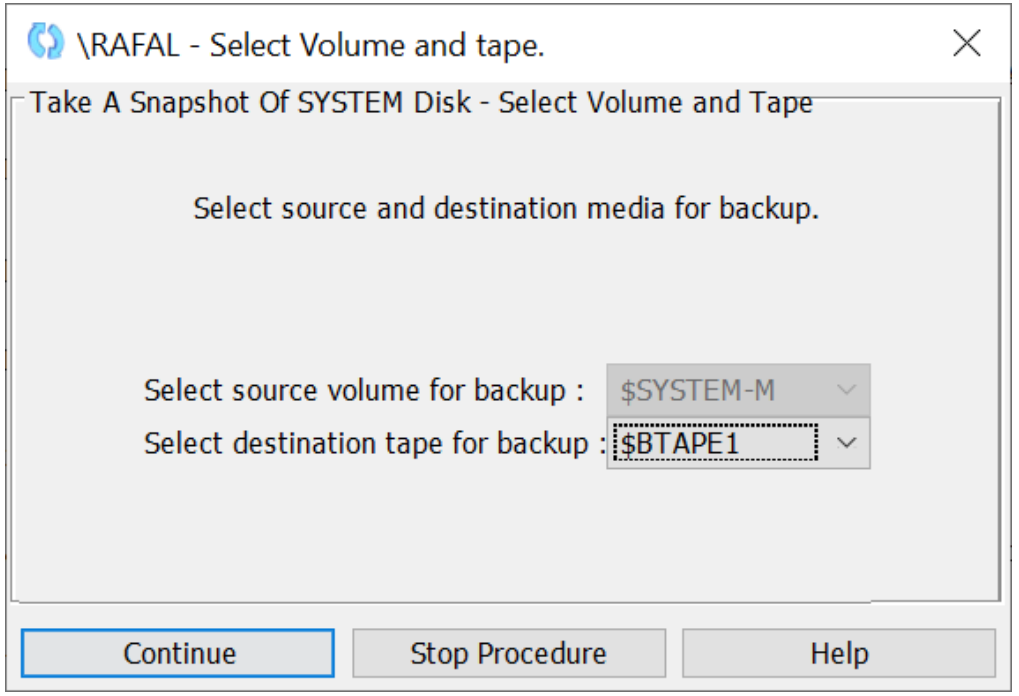
Snapshot destinations

- Both backup methods support
  - $SYSTEM disk to disk
  - $SYSTEM disk to BackBox tape

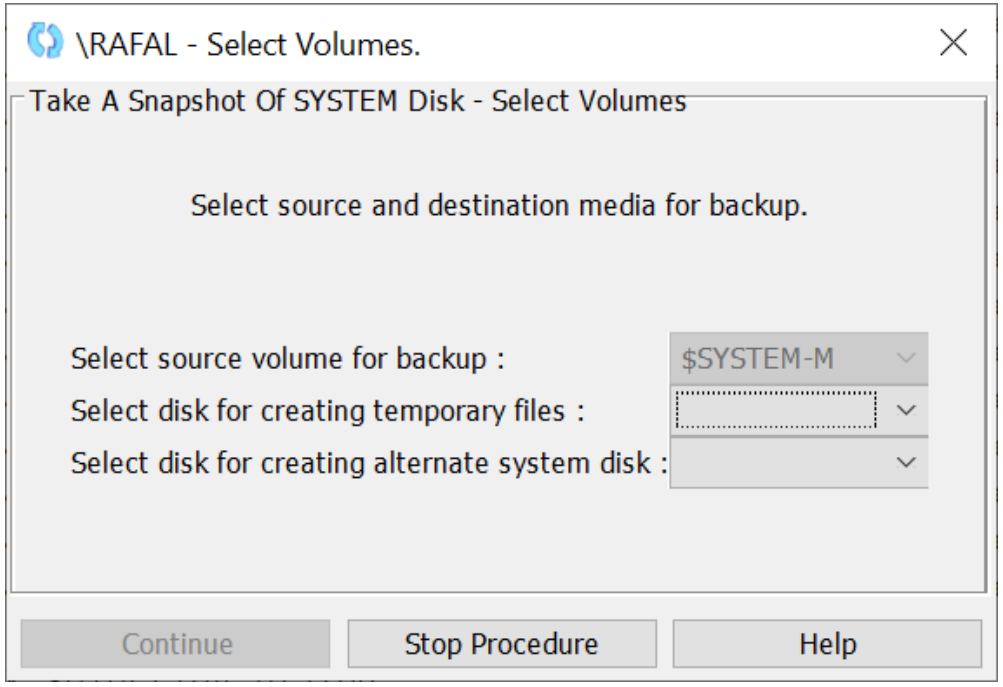


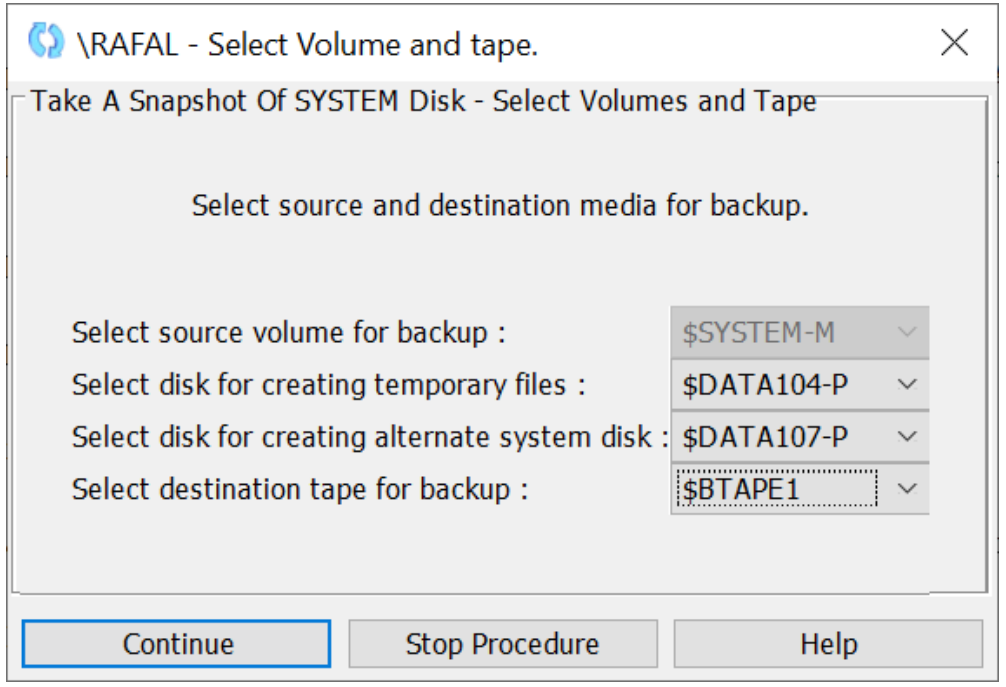
Disks\Tape required for mirror paths to $SYSTEM in stopped state method



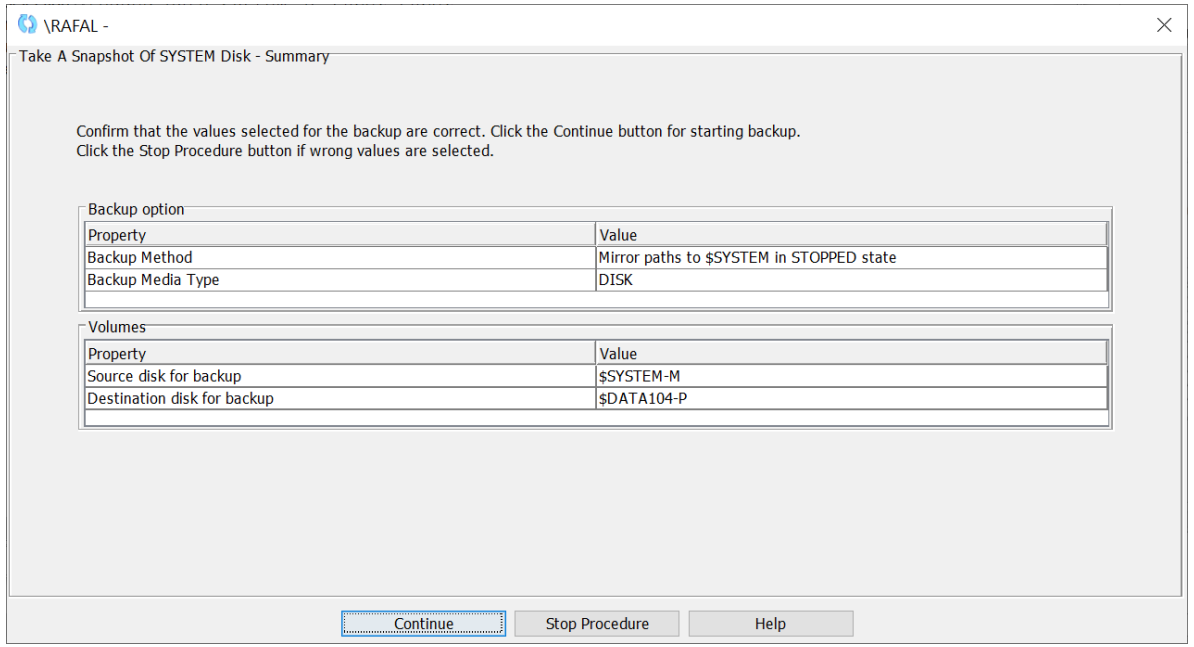


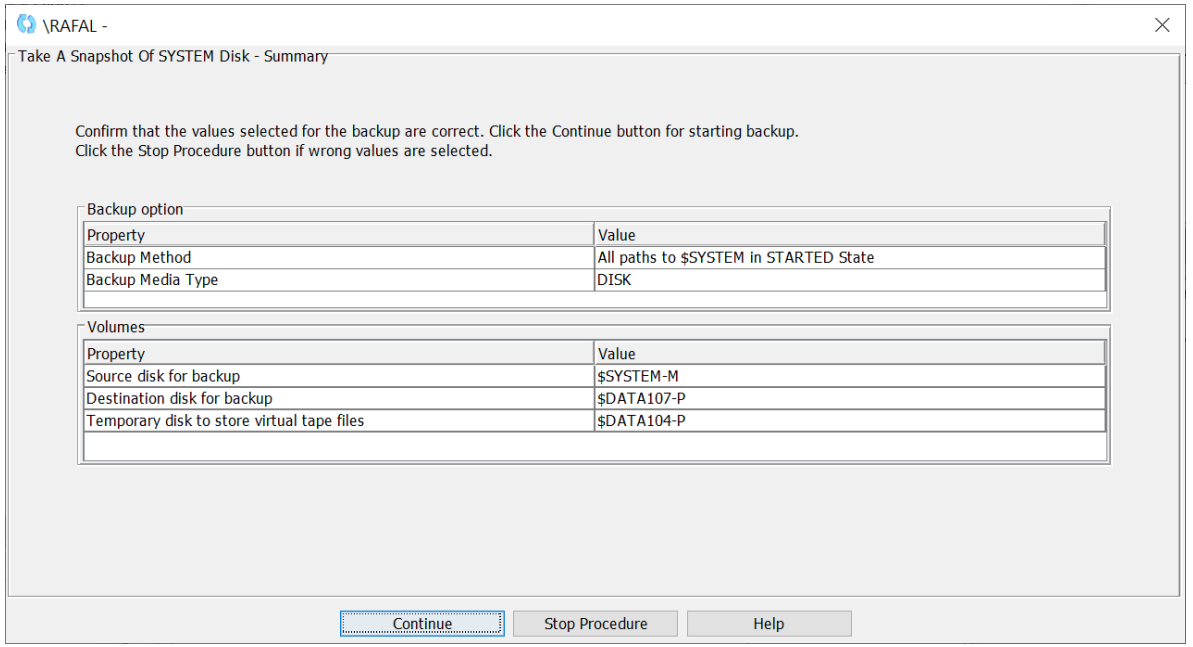
Disks\Tape for all paths to $SYSTEM in STARTED state snapshot method



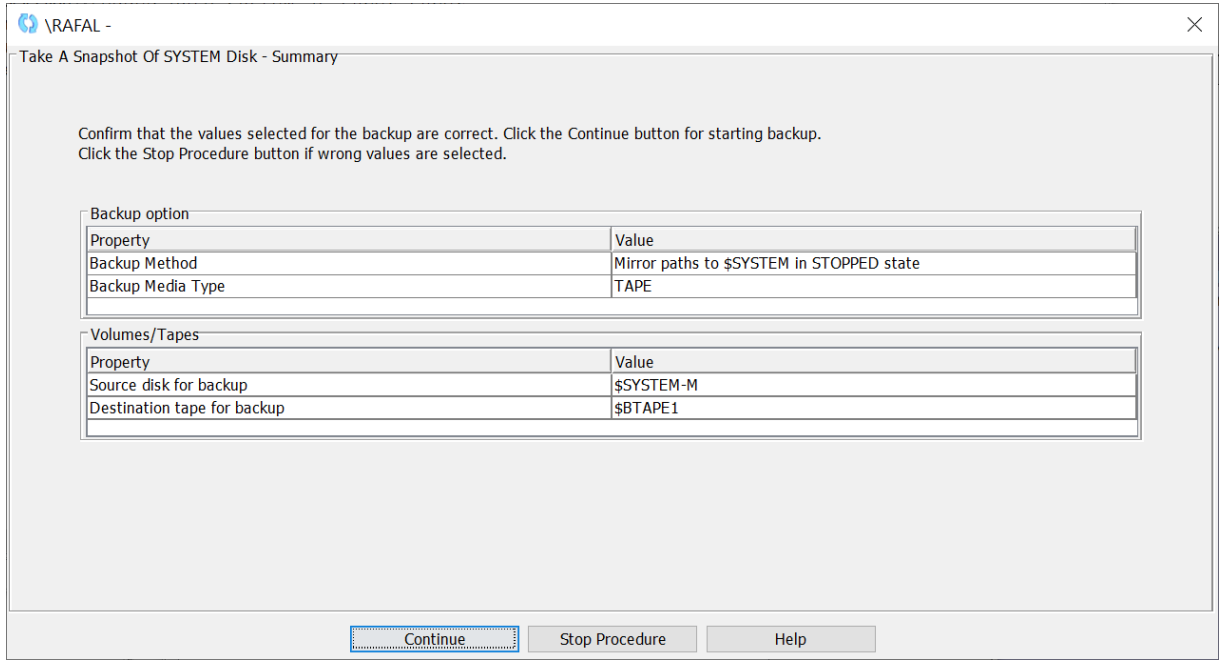


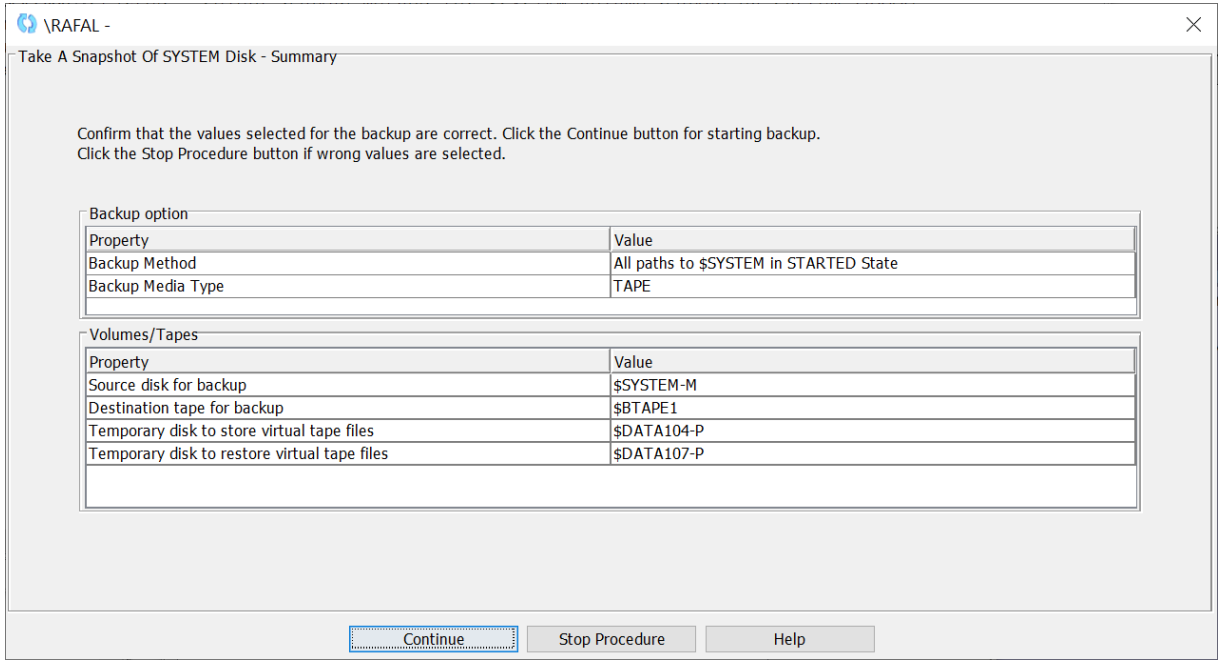
Summary screen (Disk)





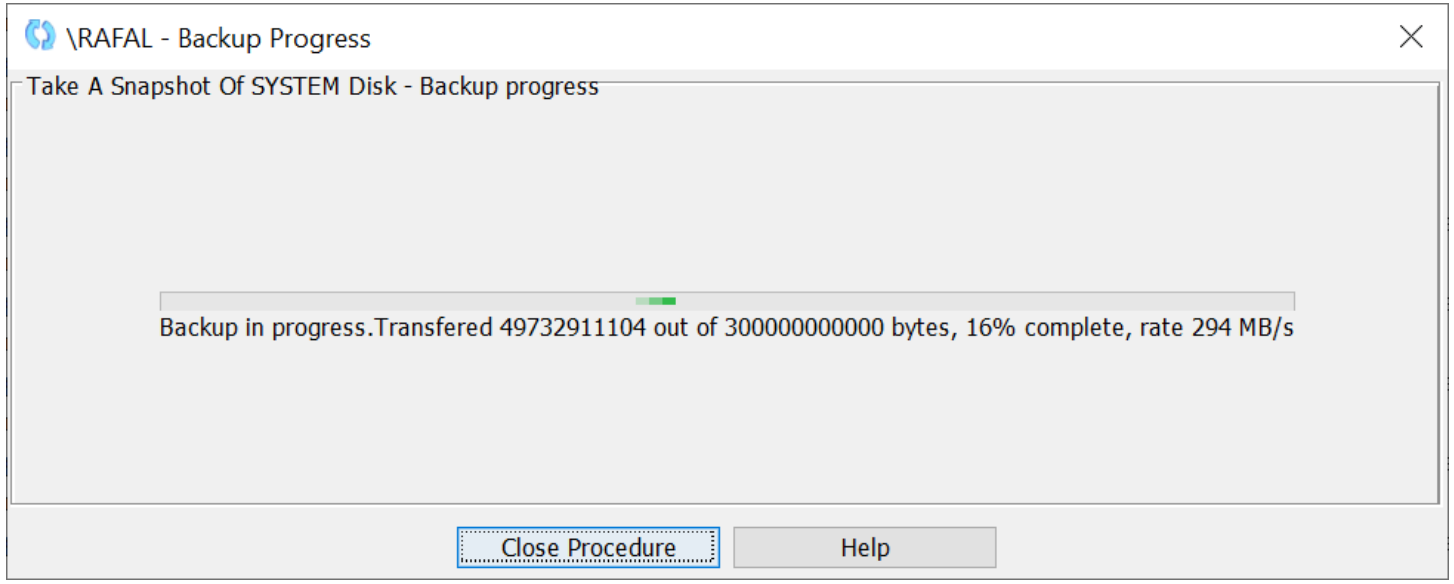
Summary screen (Tape)



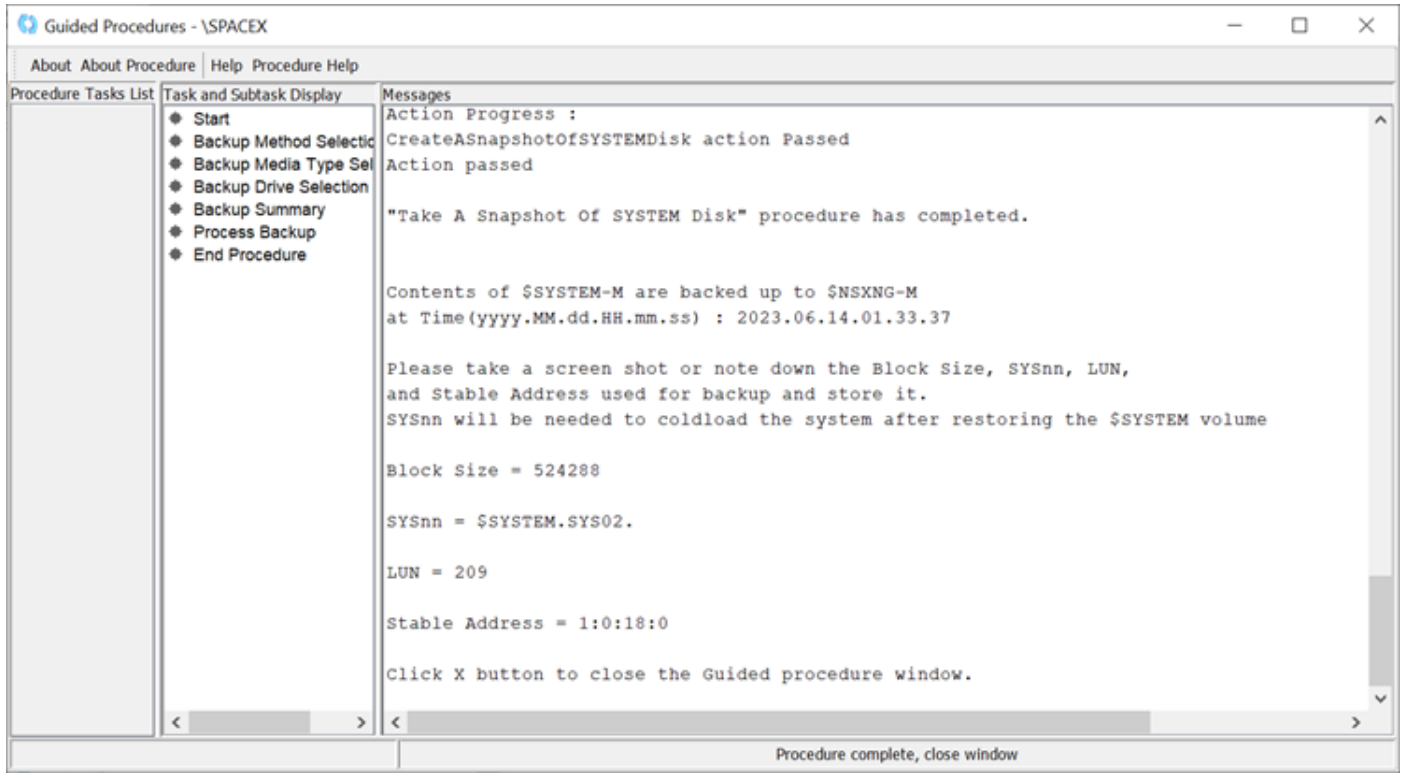


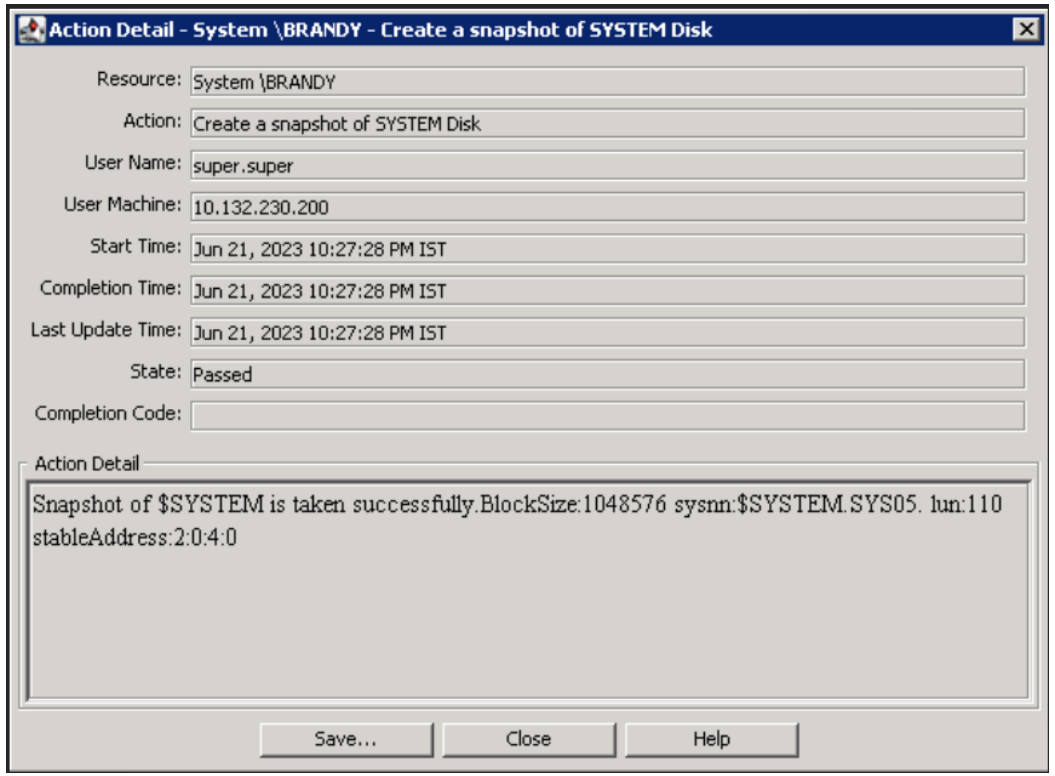
Backup progress

- Displays progress of backup
- Displays transferred bytes, size of source disk, percentage complete, transfer rate (dd in CLIM)



Success Message





- The Block Size, SYSnn, LUN, Stable Address are needed during restore. Please save them.

EMS Messages

- **Started to take a Snapshot of SYSTEM Disk guided procedure**
  - 2023-06-12 19:56:59 \SPACEX.$Y2M6 TANDEM.OSM.G06 001146 Started Take a Snapshot of SYSTEM Disk guided procedure.
- **Block size usage**
  - 2023-06-12 19:56:59 \SPACEX.$Y2M6 TANDEM.OSM.G06 001146 Block size used for Take a Snapshot of SYSTEM Disk guided procedure :524288
- **Successfully took a snapshot of $SYSTEM disk**
  - 2023-06-12 19:54:21 \SPACEX.$Y2M6 TANDEM.OSM.G06 001146 Snapshot of $SYSTEM is taken successfully.
- **Take a Snapshot of SYSTEM Disk guided procedure failure**
  - 2023-06-12 19:58:10 \SPACEX.$Y2PV TANDEM.OSM.G06 001146 Take a Snapshot of SYSTEM Disk guided procedure failed.

Configurable parameters

- **BACKUP_DD_BLOCK_SIZE**: This flag allows transferring data in blocks of 512 Bytes to 1048576 bytes (1 Megabyte). 524288 bytes(0.5 Megabyte) is the default block size.

- **BACKUP_DD_CPU_USAGE_LIMIT_PERCENTAGE**: This flag limits the CPU usage of DD process used by OSM for taking a snapshot of SYSTEM disk. This flag supports a range 1–50, 1 means use only 1% CPU. By default, when a flag is not used, transfer is done at full speed.

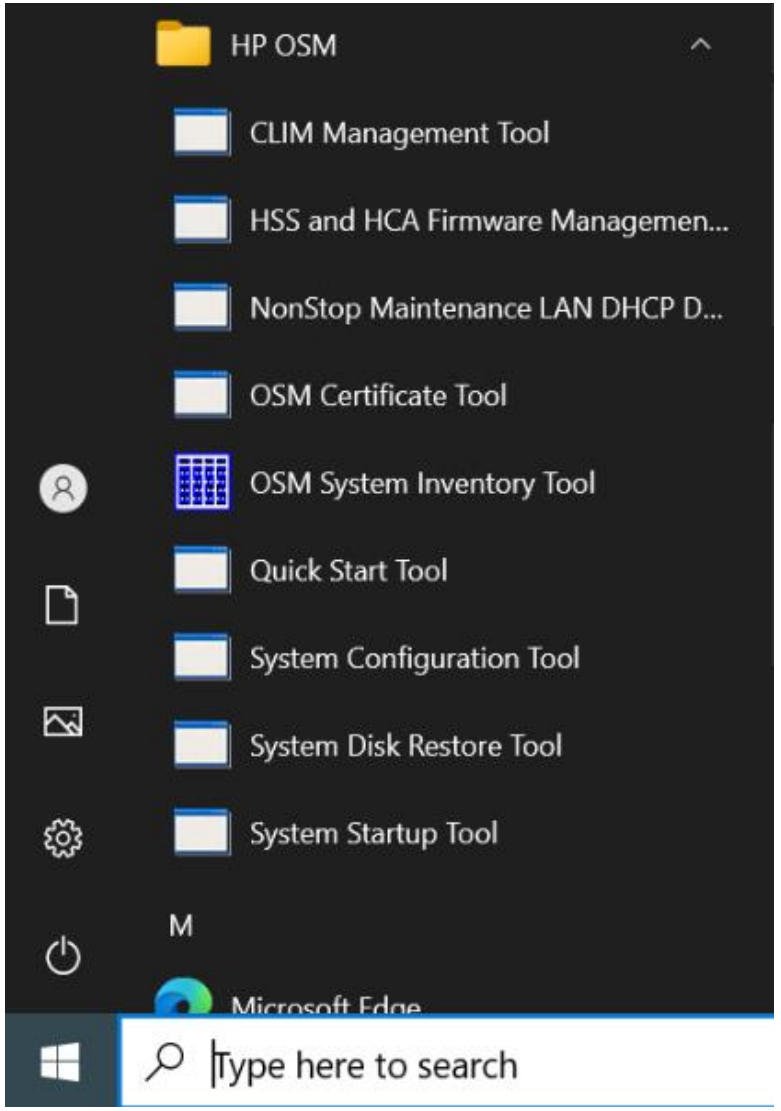
- **BACKUP_BR_PROCESS_PRIORITY**: This flag allows user to set NSK process priority of NonStop backup and restore processes used by OSM for taking a snapshot of SYSTEM disk when all paths to SYSTEM disk are in STARTED state. 149 is default.

- **CIPPRVD_TACLCMD_TIMEOUT_OVERRIDE**: This flag is applicable for Backup $SYSTEM disk when all Paths to $SYSTEM are in STARTED state. Backup Method HDD to HDD snapshot takes few hours to complete. By default, time out for BR Backup and BR Restore is 360 minutes. This flag allows user to set time out value from 1 minute to 580 minutes.

System Disk Restore Tool

Installation and launch

- System Disk Restore Tool gets installed as part of OSM Console tools
- Runs only from NSC, as it needs maintenance LAN connection to SCLIMs
- Can be run either from Primary NSC or the Backup NSC
- System Disk Restore Tool can be launched by clicking **Start > HP OSM > System Disk Restore Tool**

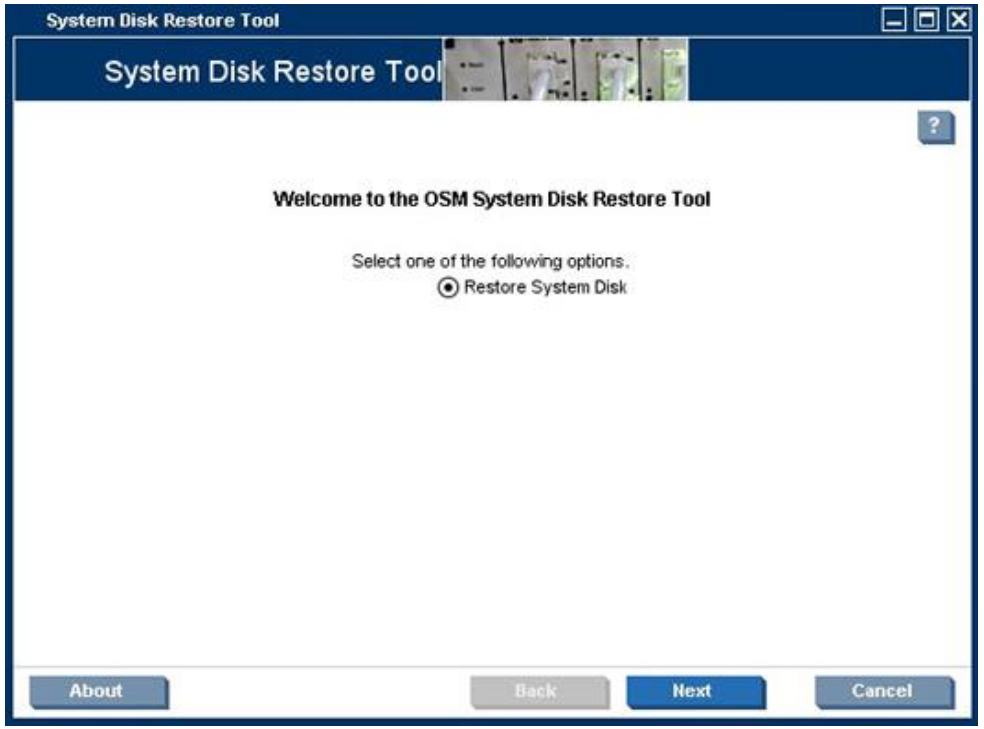


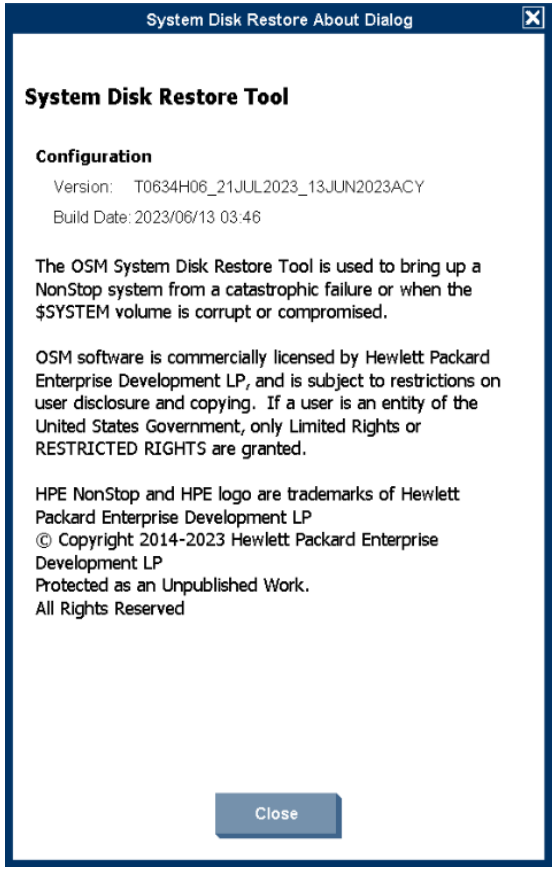
Prerequisites for running SYSTEM Disk Restore

- Snapshot of $SYSTEM disk must have been taken using OSM service connection
- **System Disk Restore** tool must be run when NSK is down
- Use the **Block Size**, **SYSnn**, **LUN**, **STABLE ADDRESS**, and **TIME STAMP** that were used for the backup operation
- Power on only one SCLIM having connection to snapshot disk/tape and restored disk. All other SCLIMs must be shut down
- The tool can run only with the root user ID of CLIM
- The disks or tapes used must be connected to the same storage CLIM as **$SYSTEM**
- The tool assumes that the destination disk for restore is equal or greater than the disk or tape containing the snapshot of **$SYSTEM**
- Partitioned disks, disks part of the SMF pool or encrypted disks are not supported
- For restoring from a tape, the BackBox must be configured in Standalone mode and tape LUN must be mounted to SCLIM

- Note: Restoring to an SSD is faster than to an HDD

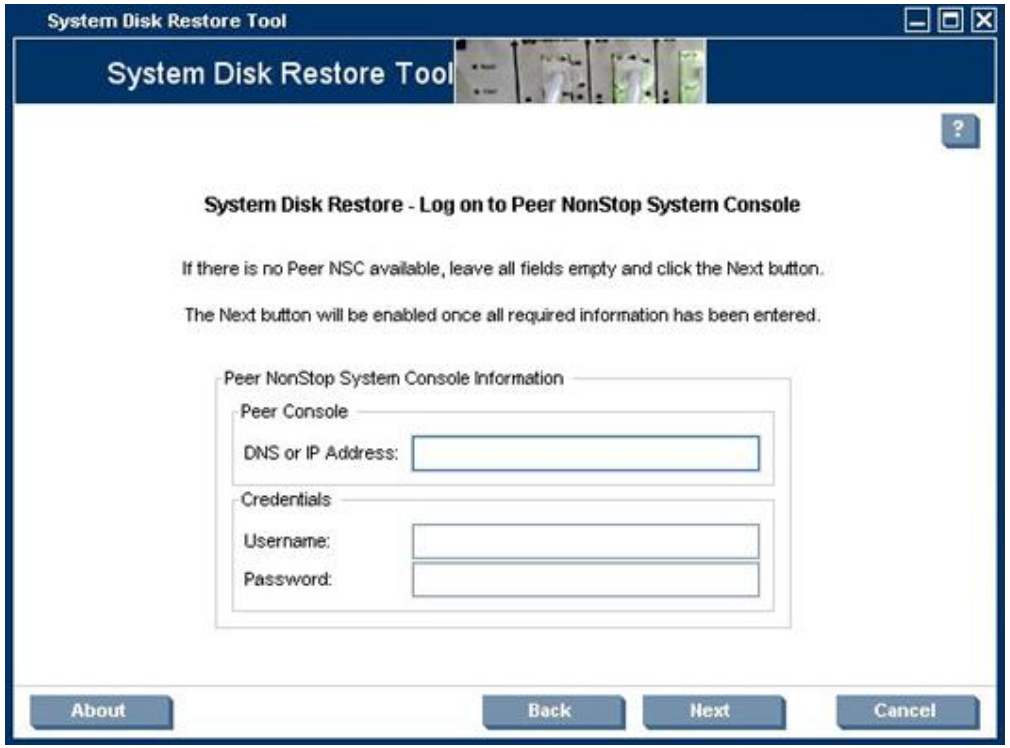
System Disk Restore Tool





Peer NSC

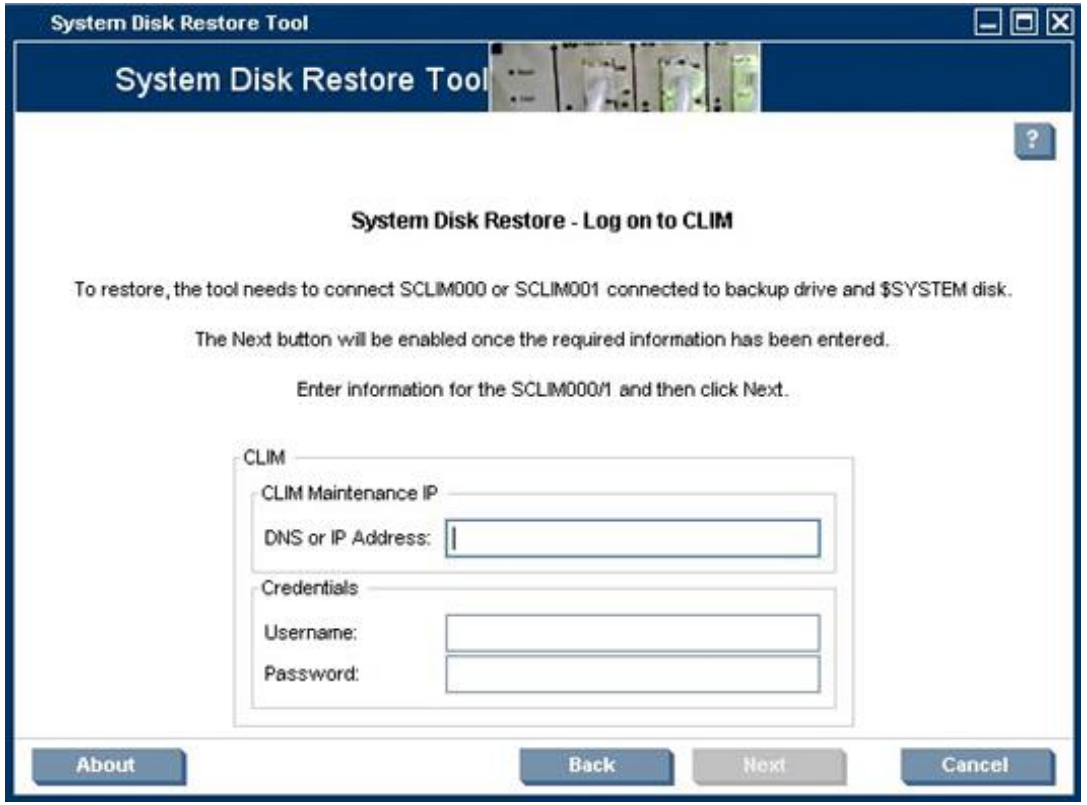
- Tool runs on only one NSC
- Peer NSC is optional
  - If Peer NSC is entered tool checks if restore is in progress from peer NSC
- Can display status of previously started restore



SCLIMs

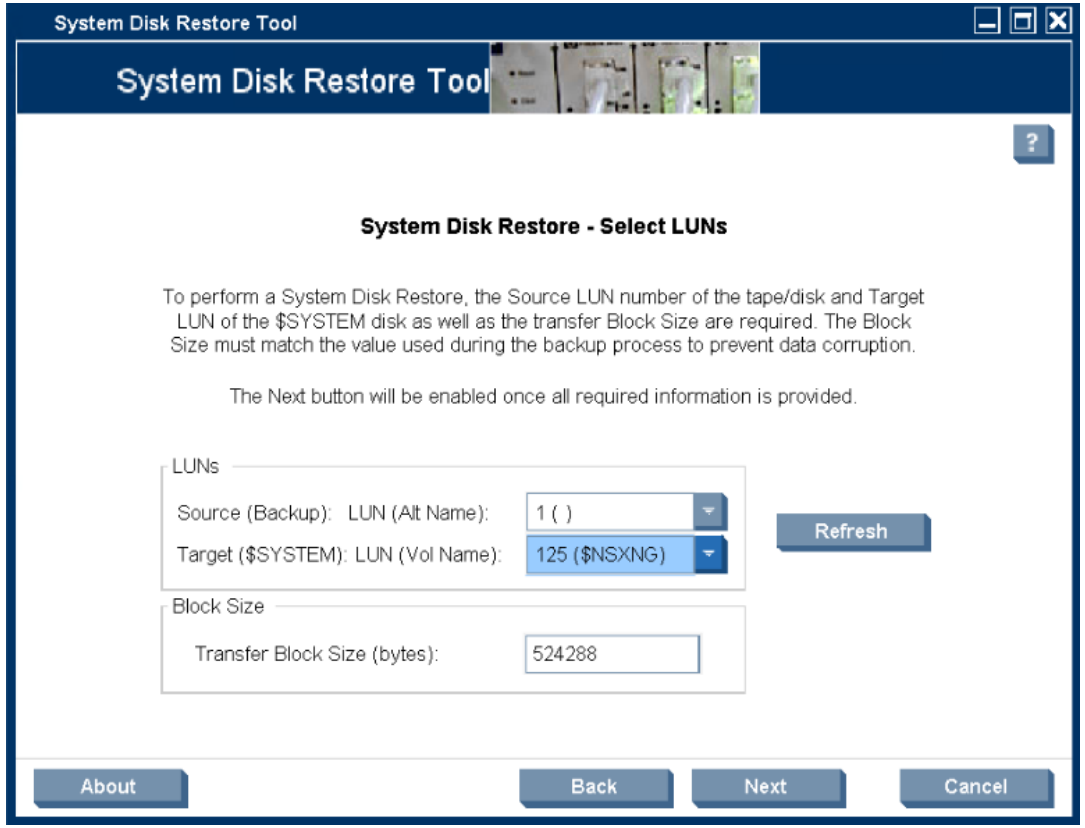
- Any CLIM where source disk/tape and destination disk are connected can be used to restore but for loading the system, MEUs are needed. Hence preferred SCLIMs to be connected are SCLIM000/ SCLIM001.

- Only SCLIMs have connection to disks



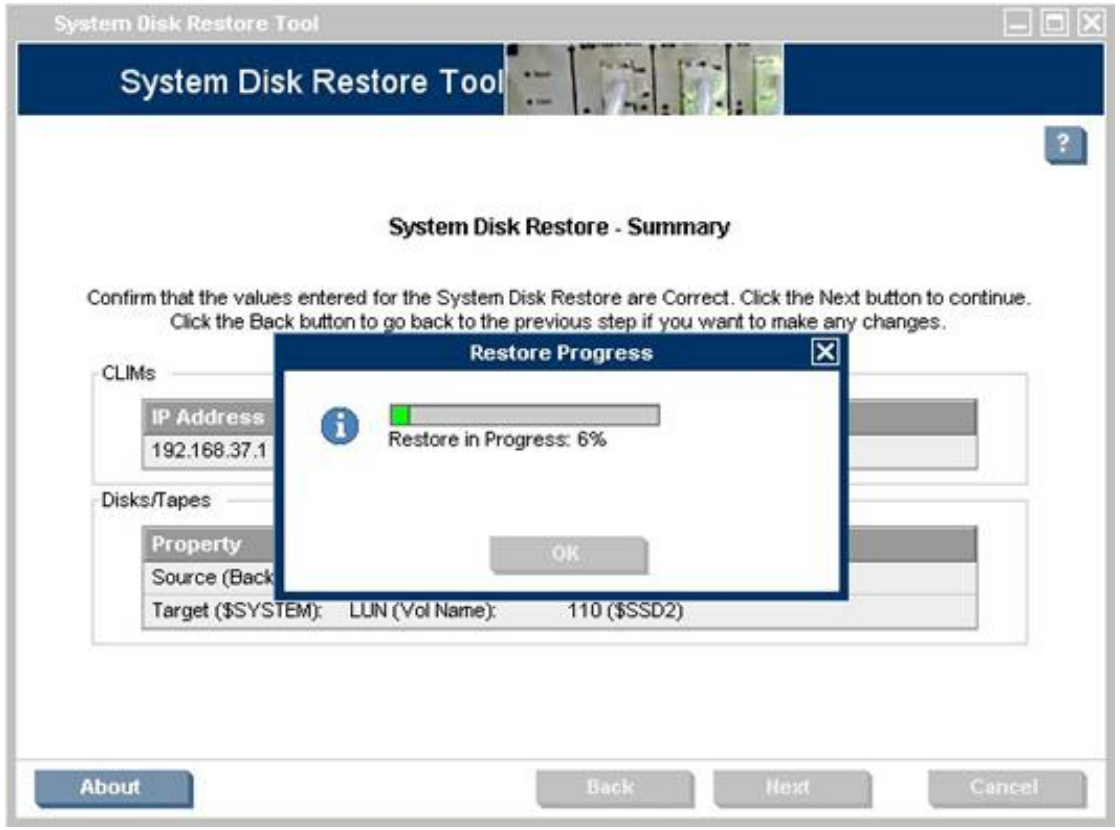
LUN Selection for $SYSTEM disk restore

- Alt Name of source LUN will be displayed
- Vol Name of destination LUN will be displayed
- For tape only LUN number will be listed
- For new disks only LUN number will be listed
- Target block size is set to 0.5 MByte (524288) by default

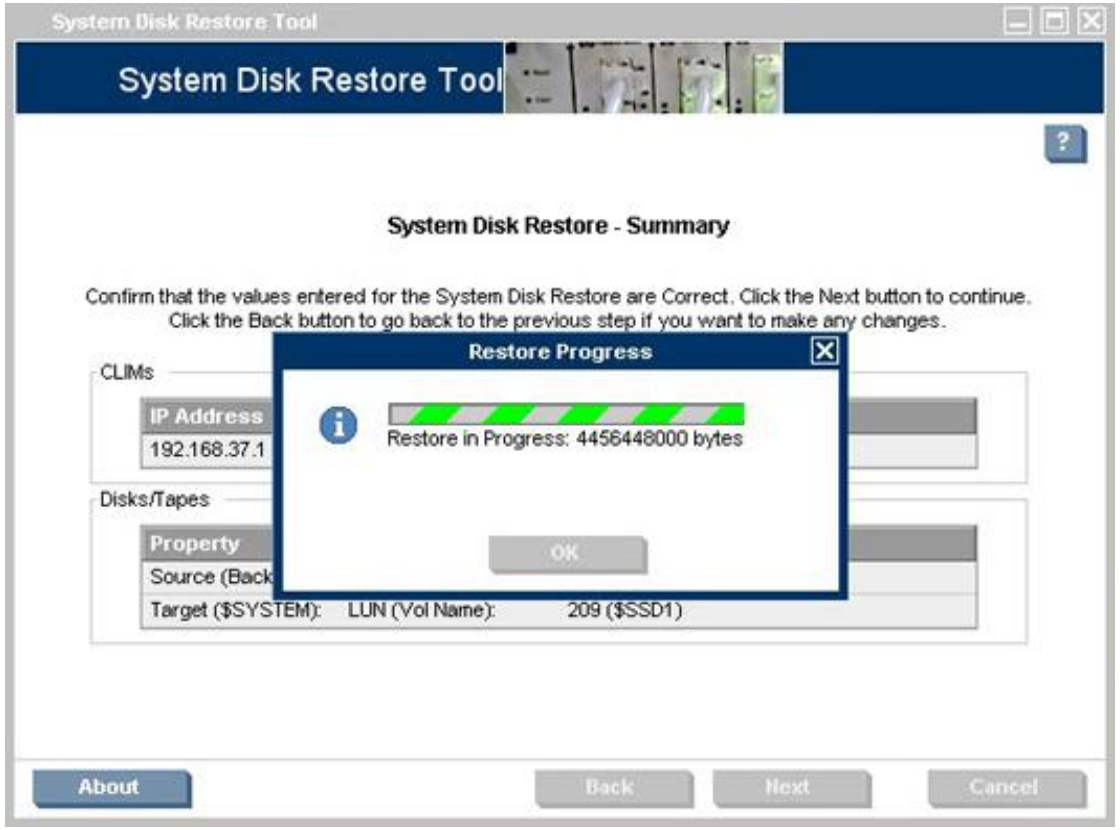


Tracking Restore progress

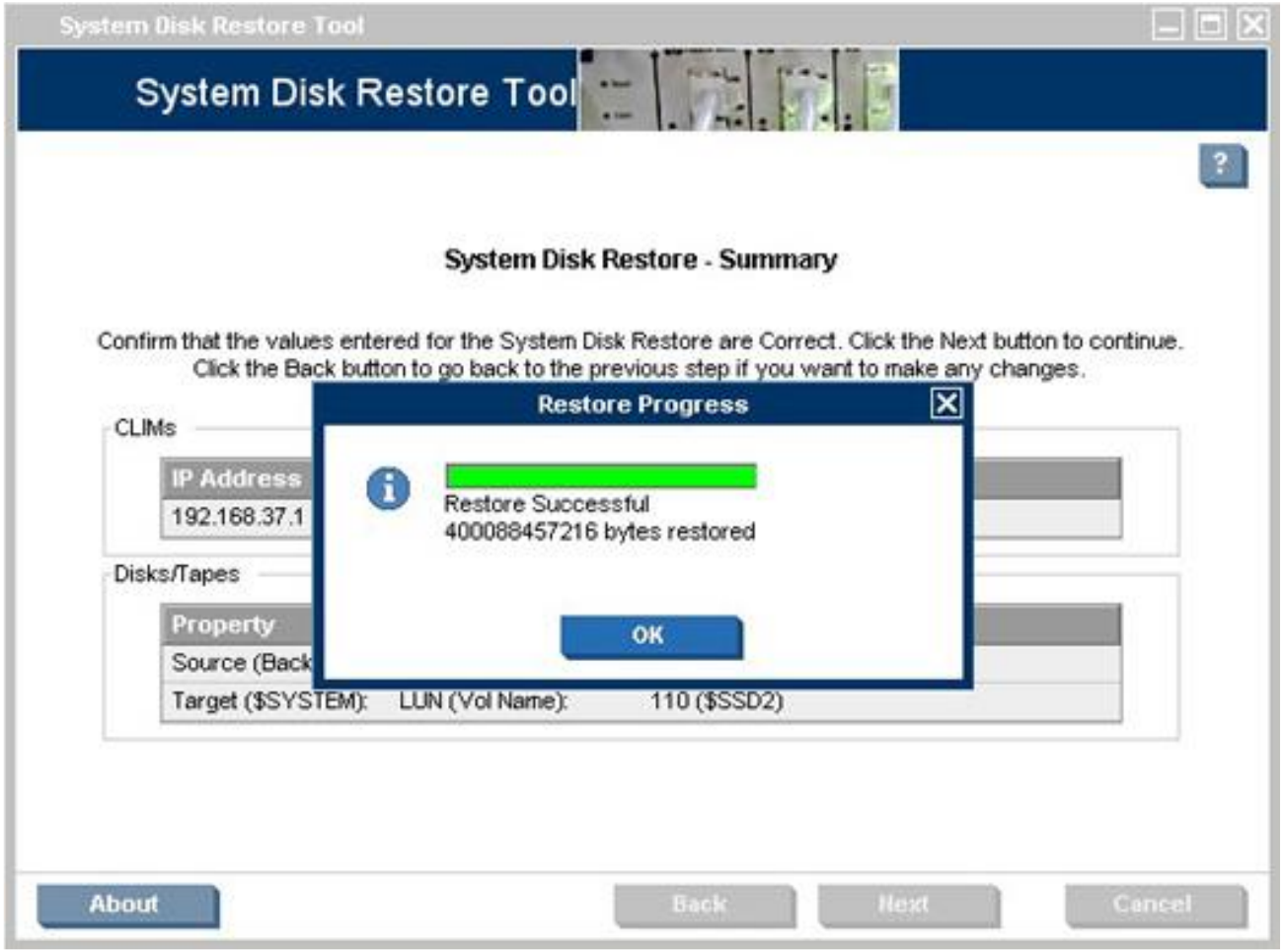
Tape to Disk restore



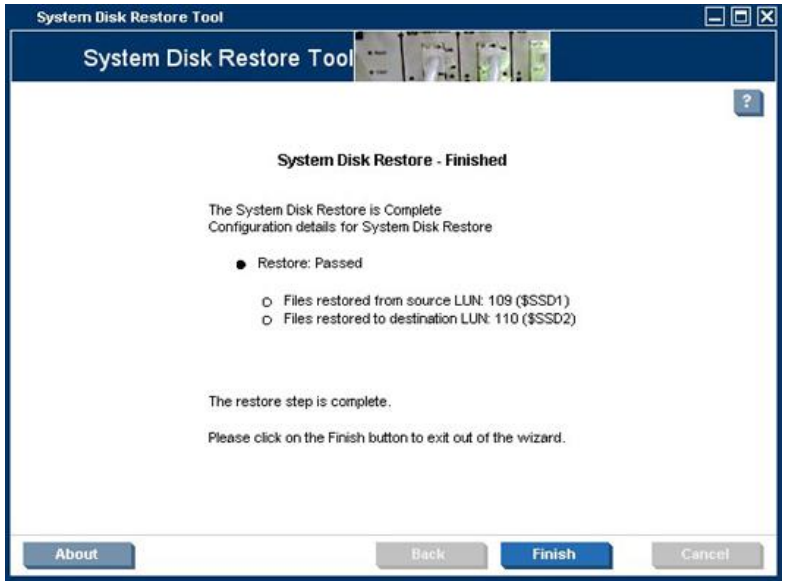
Disk to Disk Restore

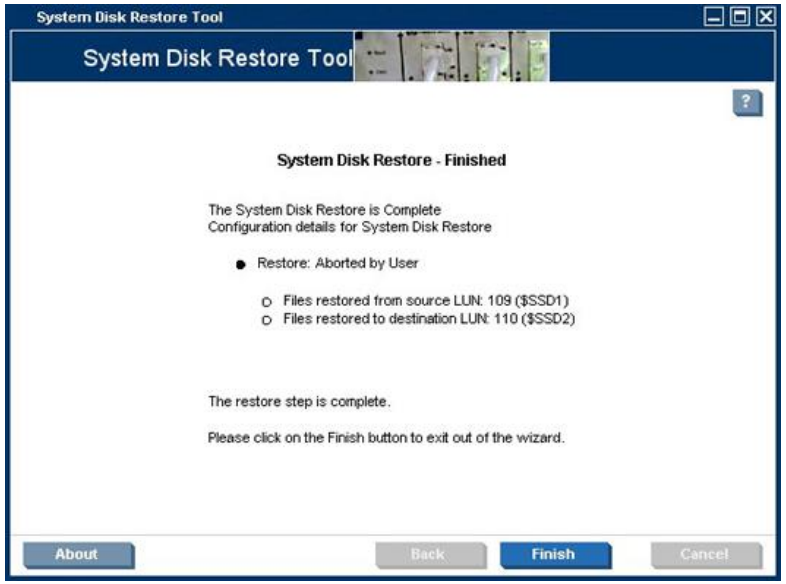


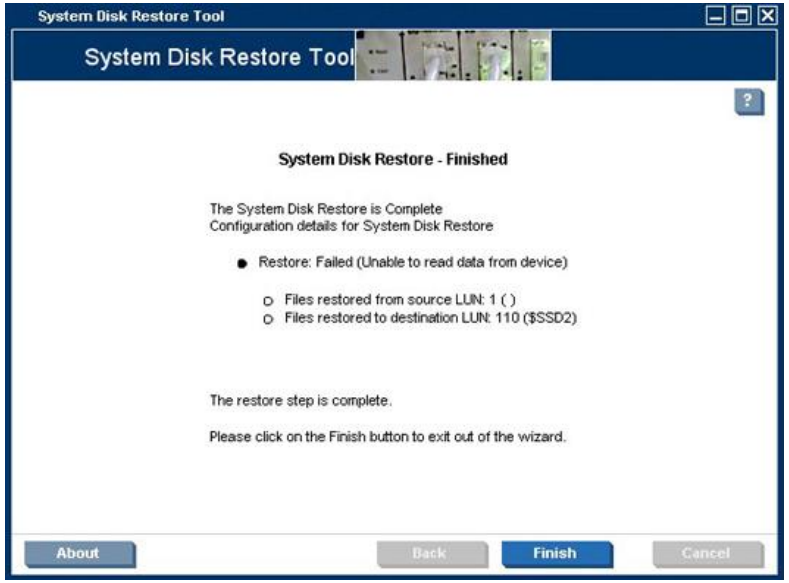
Restore success



Summary







Post Restore actions

- Power on the rest of the SCLIMs.
- Revive $SYSTEM mirror.
- Start OSM Service Connection client and connect to NSK
  - Verify all disks come back to STARTED state after all the CLIMs are in STARTED state. Start the disks that are in STOPPED state using start disk action in OSM or run SCF command to start the disks.
  - Run **Delete progress of SYSTEM Disk snapshot** action on **SYSTEM** object
  - Verify the disks those were configured for taking snapshot of SYSTEM disk are still relevant. Run **Unconfigure Disk for SYSTEM Disk Snapshot** action on disks those are no longer used for taking snapshot.
  - Add any disks required for taking snapshot of SYSTEM disk by running **Configure Disk for SYSTEM Disk Snapshot action**

Reference Documents

OSM Configuration Guide

OSM User Guide

NonStop System Console Installer and Management Guide

OSM SYSTEM Disk Snapshot and Restore User Guide

BackBox User Guide

VTR User Manual

NonStop Partnership– It's a Beautiful Thing!

Thank you for attending this talk TBC23-TB66 Discover the Latest Advancements in the HPE NonStop Manageability Portfolio

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