

QoreStor Dictionary Expansion Utility – User Guide

1. Overview

The Dictionary Expansion Utility automates the process of safely expanding a QoreStor system's deduplication dictionary. It provides automated checks for system memory, metadata disk space, service control, and operational validation before and after expansion. This guide is designed for mid-level technical users familiar with Linux administration and QoreStor system operations.

2. Prerequisites

Before running the script, ensure the following:

- You are logged in as the 'root' user or as 'qsadmin' with sudo privileges.
- The QoreStor command-line utilities (system, ctrlrpc, uhd_extend) are available in PATH.
- The QoreStor services are operational.
- Sufficient permissions to stop and start system services.

3. Script Usage

The script can be executed directly from a terminal session. Example:

- `./Dictionary_Expansion_<version>.sh [options]`
- Use the '`--help`' flag to display available options and behavior details.

4. Command-line Options

Option	Description
<code>--help</code>	Displays help information and exits.
<code>--dry-run</code>	Simulates all actions without making changes. Shows planned operations and commands.
<code>--fast-start</code>	Reduces service startup timeout and polling interval for testing scenarios.
<code>--show-all-sizes</code>	Displays all possible dictionary sizes regardless of system constraints.

5. Operation Workflow

The script executes the following major steps in order:

1. 1. Display system information and memory statistics.
2. 2. Verify main data and metadata partition details.
3. 3. Evaluate the maximum supported dictionary size based on available memory and disk space.
4. 4. Allow user to select a new target dictionary size.
5. 5. Confirm memory and disk space availability for the new size.
6. 6. Stop QoreStor services (with visual spinner feedback).
7. 7. Execute or simulate the dictionary expansion using uhd_extend.
8. 8. Restart services and verify that the system returns to 'Filesystem is fully operational for I/O.' state.

6. Interactive Confirmations

The script prompts for user confirmation at key stages. The user can type the full word or just the first letter for each option.

- Before stopping services: Confirm whether to proceed with stopping QoreStor services. Default is 'No'.
- After stopping services: Choose whether to cancel, skip, or proceed with dictionary expansion.
- Before restarting services: Confirm whether to restart QoreStor services after expansion. Default is 'Yes'.

7. Dry Run Mode

When executed with the '--dry-run' flag, the script performs all checks and displays planned actions without executing system commands. This mode is ideal for validation, planning, and system readiness checks before performing a live expansion.

8. Logging

Each run of the script creates a timestamped log file in the current directory, named in the format:

dictionary_expansion_YYYYMMDD_HHMMSS.log

The log records all actions, user selections, warnings, and system state information for audit and troubleshooting.

9. Safety and Recovery

During expansion, the script automatically renames existing dictionary files to prevent data loss:

- Current dictionary: dict2 → dict2.old
- New dictionary: dict-<timestamp> → dict2

In case of failure during activation, the script performs an automatic rollback by restoring dict2.old.

10. Notes and Best Practices

- Always perform a dry-run before live expansion.
- Ensure sufficient metadata and memory resources before selecting larger dictionary sizes.
- Monitor log files for warnings about high projected disk usage.
- After successful expansion, remove old dictionary files (dict2.old) if disk space is constrained.

11. Support

For assistance or troubleshooting, contact the system administrator or QoreStor support, providing the log file generated during script execution.