



Hewlett Packard
Enterprise

MANAGING YOUR APPLICATIONS WITH HPE NONSTOP NSGIT

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BRIEF INTRODUCTION TO NSGIT AND GIT

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INTRODUCTION

What is git

- The industry standard **git** distributed version control system
- Used in most organizations and operating system vendors
- Manages development and release assets
- Provides software transport with 100% fidelity of content and history
- Allows distributed collaboration
- Tracks all contributors no matter where they originate
- Ensures content is protected from unknown changes even with elevated user permissions

**Even if someone penetrates your environment,
integrity of changes can be ensured**

WHAT MAKES (NS)GIT IMPORTANT

- All source code, object code, release artifacts, production scripts are stored and known at all times
 - Losing code becomes a thing of the past
- All objects code comes from known sources and are verifiable and always correct
 - No more 3am calls worrying about what was installed, how it was built, or who approved it
 - Audit trails move with the code from development to production
 - History can be maintained for every release file and production script
 - Ensures that only tested code gets to production
- Reduced time to market for features and fixes
 - No more wasting developer time with manual processes
 - No more waiting for one developer to finish before starting a change
 - Parallel development allows everyone to work multiple changes at the same time
- Move to standard commercial off the shelf software and standards
 - No more proprietary processes or techniques required, even for heritage Guardian code
 - NonStop is brought into the enterprise standard management structure

Being able to work on features and fixes in parallel is key

INTRODUCTION

What NSGit Adds to the Git Ecosystem

- Front-end to the industry standard **git** distributed version control system
- Translator of Guardian content to and from **git**
- Provides **git** command interface and capabilities to Guardian users in TACL
- Maps the **git** hierarchical structure to Guardian sub-volumes
- Provides file name mapping of Guardian to enterprise names
- Maintains all Enscribe file types and attributes
- Supports difference engines for source, Enscribe files, native and non-native objects
 - Critical for incremental release build processes
- Can be translated into any NLS region supported by **git** (UTF-8 encoding)

Enables parallel development in Guardian and tracking of production changes

NSGIT INTRODUCTION

Key Benefits to Development and Operations



Git-like interface from TACL

Works on top of git in OSS
Maps Git Hierarchies to multiple subvolumes
Work anywhere – OSS or Guardian
Configurable Workflows in OSS and Guardian



Dual-mode files:

Guardian names in Guardian
OSS names in OSS
Repositories with Multiple subvolumes



Support for:

Native and code 100 objects
Enscribe structured files
DDL dictionary distribution
POBJ distribution
SQL/MP tables
SSH and GPG content signing



File attribute preservation

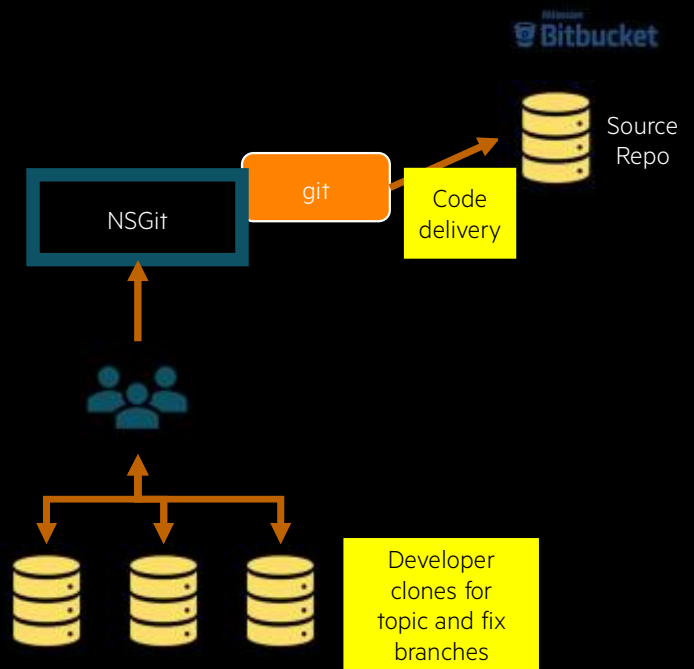
File Codes
File Types
Extents
Keys and alternate keys

SUMMARY OF NSGIT OPERATIONS

What the Developer Does from GUARDIAN

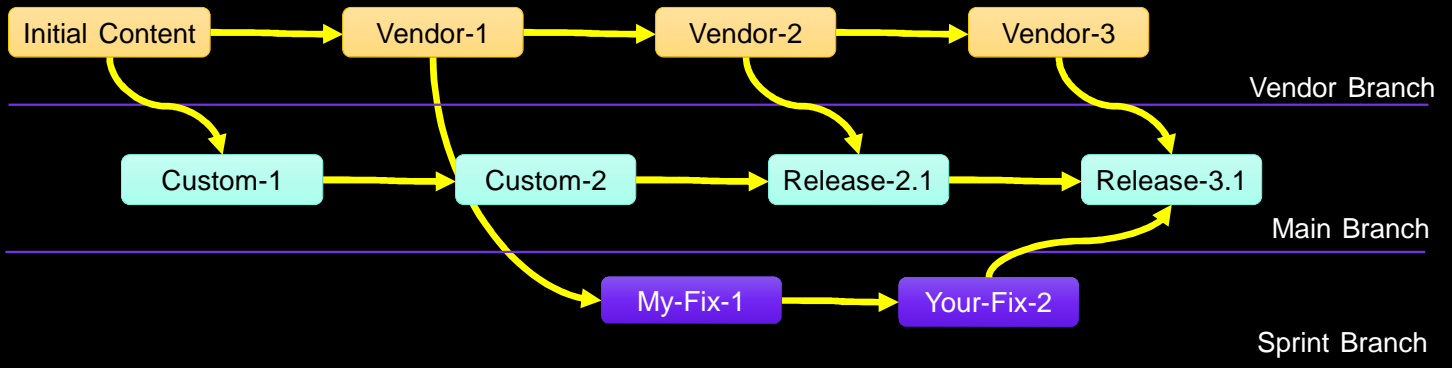
- **nsgit switch branch** – starts a new work cycle
- **nsgit add files** – stage a set of changes
- **nsgit commit** – creates a new multi-file version
- **nsgit push** – delivers code to the source repo on the enterprise server

This represents 90% of all interactions



**MANAGING ANY APPLICATION USING
NSGIT - INCLUDING BASE24,
CONNEX, AND YOUR HOME GROWN
APP**

HISTORY OVERVIEW OF AN APPLICATION - MAIN BRANCH



- Vendor made 3 deliveries after the initial migration into NSGit
- Two custom changes were delivered in prior Sprint.
- Release-3.1 used all custom changes and three vendor deliveries and two delivered fixes in the Sprint
- Note: Topic branches not shown to keep the picture simplified.

BENEFITS OF NSGIT FOR BASE24, CONNEX, ETC.

Are you really protected by your existing version control system?

- You might think you are protected by your system, procedures and security
- What if someone with SUPER.SUPER or other permitted user hacks your catalog?
 - The history will not appear to change
 - You will never know your code has changed
 - Until it is too late
 - You could be vulnerable to malicious code injections
- With NSGit:
 - Changes can be signed with SSH or GPG keys
 - If a change is made without authorisation, signatures are invalidated, and hacks detected
 - The enterprise git server has your official copy for recovery
 - Your release files can be validated for signature integrity at any time on any platform

Prohibits ransomware insertion even with SUPER.SUPER or root on Linux

BENEFITS OF NSGIT FOR BASE24, CONNEX, ETC.

Your existing version control system can limit how you work

- Legacy version control systems on NonStop do not support parallel development
- Everyone has to work along the same code path or project
- You cannot easily work on fixes while enhancements are ongoing
- Cannot change the order that features get to production without significant manual effort
- Long-term projects are very difficult to take on, so get perpetually postponed
- Only one person at a time can modify a file, causing delays
- With NSGit:
 - Parallel development is built-in
 - Code can be integrated into multiple releases
 - Fixes can be done on a priority basis
 - Long-term development can be interrupted and resumed at any time
 - Multiple teams and multiple people can work on the same code at the same time
 - Approvals happen during code delivery instead of each change
 - Developer interaction with NSGit is very easy and saves time

Changing direction is hard

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BENEFITS OF NSGIT FOR BASE24, CONNEX, ETC.

Older VCS apps lack of Integration with Continuous Integration/Delivery systems

- Your legacy version control system probably does not integrate with industry standard automation systems
- Git represents the largest ecosystem for continuous integration and delivery products
- Built-in capabilities of the enterprise git include:
 - Audit of approvals, including code review, discussions, and review change tracking
 - Branch-level security to protect release deployment
 - Integration with issue tracking systems
 - Integration with build systems like Jenkins, Travis
- NSGit also includes its own workflow system for deeper integration over SSH
- Industry standard enterprise-wide automation allows builds to occur on multiple platforms including NonStop OSS and Guardian

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CONCLUSION

Reducing Human Deployment Interactions

CONCLUSION

- **NSGit** provides robust safeguards to code hacking anywhere in the Software Supply Chain with verification at every deployment step
- **NSGit** integrates with industry standard technologies that enables rapid software testing and deployment of new product capabilities to customers
- **NSGit** is the only Guardian solution that both enables faster time to market and reduced risk to companies, because it is backed by the git ecosystem



ORDERING INFORMATION

HPE NonStop model	PID/SKU ^{1, 2}	Product name
HPE Virtualized NonStop	BE100ACE	HPE NSGit SW
HPE NonStop X	BE100AC	HPE NSGit SW
HPE NonStop i	QSA10V1	HPE NSGit SW

¹ HPE NSGit requires term-limited license keys that can be obtained by sending an email request to [License Manager](#). License keys supplied for BE100AC, BE100ACE, and QSA10V1 are not compatible with HPE NSGit license keys acquired from any source other than HPE, and vice versa.

² HPE Installation and Startup service is strongly recommended. Pricing can be obtained by reaching out to your HPE NonStop sales representative.

THANK YOU

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