



# DISCOVER 2011

INTRODUCING NONSTOP DEVELOPMENT  
ENVIRONMENT FOR ECLIPSE (NSDEE)



LAS VEGAS  
6-10 JUN



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# MODERNIZE

*Your development environment using Eclipse  
and NSDEE*

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# Overview

- Demonstrate how easy it is to use NonStop Development Environment for Eclipse (NSDEE) to modernize your NonStop development environment
  - Value proposition
  - Installation and upgrade
  - A few key concepts
  - Project creation
  - Development workflow: Edit→Build→Deploy→Debug
  - NSDEE roadmap next steps
- Approach
  - A visual tour
  - Highlight recent improvements in NSDEE 2.1



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## About you?

- Eclipse
  - Familiar with Eclipse?
  - Using Eclipse?
- NSDEE
  - Attended a past NSDEE presentation?
  - Using NSDEE?
  - Using EPE?
- What languages do you use?
  - Java?
  - C/C++?
  - COBOL?
  - pTAL?
  - DDL?
  - SQL?



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## CUSTOMER PROBLEM



### Challenges

## Development Challenges

Development has become more complex

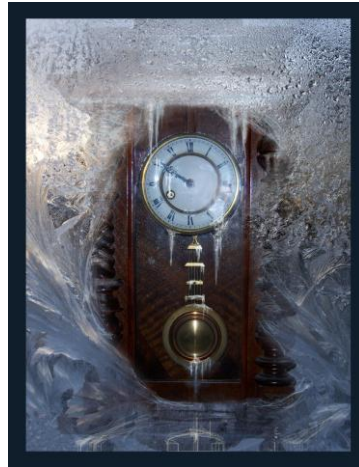
- I don't need to tell you, but we are all struggling with the reality of
  - Increasing complexity
  - “do more with less”
- Gone are the days of a single platform and single technology stack
  - Developers increasingly work with multiple technologies an multiple platforms
  - Open source has become a transformational and driving force
  - Pace of technology evolution continues to increase
  - Organizations value “standard skills” to reduce training and increase flexibility
  - Organizations want to optimize software development cycle time
- Increasingly difficult for proprietary tools to meet these needs



# Development Challenges

Development environments are often frozen in time

- Once created, development environments are rarely updated unless there is a:
  - Platform migration
  - Significant new project
- Consequences
  - Fail to benefit from modern tools
  - Harder to hire and retain talent
- Not for lack of desire, but... migrations can be costly



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# Development Challenges

NonStop has lacked wide selection of current development tools

- Past tools
  - Tandem Extensions for Codewright (TEC)
  - Tandem Development Suite (TDS, based on Borland IDE)
- Aging current tools
  - Enterprise Toolkit (ETK, based on Visual Studio)
  - Visual Inspect



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Increasingly difficult for proprietary tools to keep up



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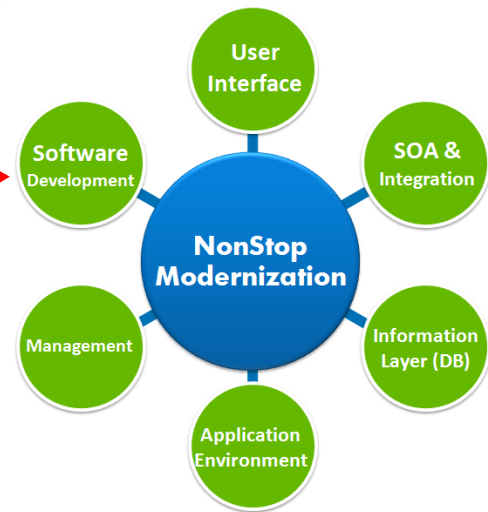


*NONSTOP MODERNIZATION  
WITH NSDEE*



# NonStop Modernization Initiative

- All Modern. All Standard. 100% NonStop
- Software Development component
  - Embrace standards and open source
  - Leverage and extend industry standard tools
    - GDB based debuggers
    - Eclipse based Integrated Development Environment (IDE)
  - Support SOA adoption
  - Support application deployment on scalable run-time with NonStop fundamentals



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## Integrated Development Environment 101

- A GUI for software development
  - Simplifies software development workflows (**edit→build→deploy→debug**)
  - Integrates development tools
  - Language and API aware editing
  - Provide information about program structure
- Users
  - Some prefer IDEs, some command-line tools
  - Not necessarily an either or choice
  - Increasingly important to “next gen” developers
- Benefits
  - Simplifies development
  - Integrates tools for multiple technologies
  - Common interface for multiple platforms
  - Reduces application development complexity
- Industry leading IDEs:
  - Visual Studio – Focused on .NET
  - Eclipse – Open source, supports MANY technology stacks
  - NetBeans – Oracle owned; Supports Java, C/C++, and scripting languages



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# Introducing NSDEE

- Go forward" NonStop Integrated Development Environment (IDE)
  - Supersedes Enterprise Plug-ins for Eclipse (EPE)
  - Platform for future IDE functionality; Visual Studio-based ETK is mature
- Eclipse-based
  - Industry standard IDE
  - Common development desktop for multiple platforms and technologies
  - Users benefit from rich ecosystem of extensions
- Supports
  - Windows-based ("local") development
  - NonStop-based ("remote") development
  - IDE Integrated Debugging for Integrity NonStop systems

NonStop IDE First!

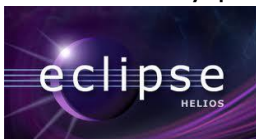
NonStop IDE First!

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# The Power of Eclipse

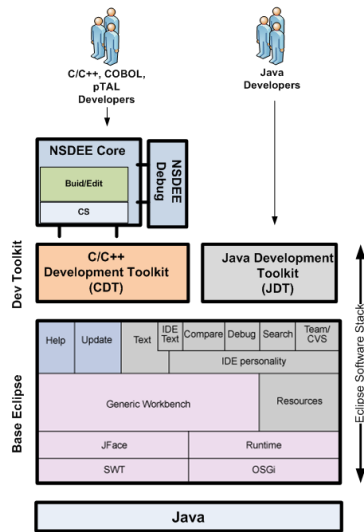
- Leading "open source" IDE
- Architecture
  - Java based
  - OSGI Component model
  - Used as an IDE platform
  - Used as a framework for building stand-alone applications
- Runs on many platforms
- Rich plug-in 'ecosystem'
  - Innumerable IDE frameworks and plug-ins:
    - Java Development (JDT)
    - C/C++ Development (CDT)
    - • NSDEE
    - SQL Explorer
    - UML modeling
    - Embedded device development
    - ...
  - Yearly major releases



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# NSDEE Architecture



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- NSDEE Core
  - Supports C, C++, COBOL, pTAL
  - Local edit and build
  - Remote edit and build
- NSDEE Debug
  - Integrated debugging for Integrity NonStop systems
- NSDEE 2.1 builds on eclipse CDT 7 and uses Eclipse File System (EFS)
- NonStop Java developers can install the standard eclipse JDT (now bundled with 2.1)

## NSDEE Build Models

### Local Build

- Execute build on Windows
  - Source files reside on Windows
  - Uses NonStop cross-compilers with cygwin make
- *Standard make model*
  - User defines and manages the makefile
  - NSDEE defines environment variables
- *Managed make model*
  - IDE uses knowledge of dependencies to generate and maintain the makefile
  - Useful for small programs, less so for large ones

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### NonStop Build

- Execute build on NonStop system
  - Source files and tools reside on NonStop
  - OSS make
  - Guardian GMAKE
- Standard make model
- Allows the IDE to be used with legacy NonStop applications





# NSDEE Targets all NonStop developers

- Windows hosted cross-compiler users
  - Can run existing makefiles from NSDEE
  - Can use the IDE while continuing to use command-line tools
- Enterprise ToolKit (ETK) users
  - Can import existing projects to NSDEE
  - Benefit from the cross-platform nature of eclipse
  - Can leverage more third-party extensions
- NonStop hosted users
  - First NonStop IDE to support NonStop hosted development!
  - Build on OSS or Guardian
- Visual Insect users
  - Benefit from IDE integrated debugger during the edit->build->deploy->**debug** cycle
  - Still use Visual Insect for production debugging
- Enterprise Plug-in for Eclipse (EPE) users
  - Free upgrade to NSDEE!



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## Customer Journey from Proprietary to Industry Standard Tools

- Many have started but are at different points along the way
- Biggest challenge: embracing CHANGE
- Expectations are key
- Requires some “give and take”
- Challenge
  - Tools familiar to long-time developers no longer available
  - Sometimes less integrated
  - Often have to rely on documentation from several sources
  - Tools may have some “rough edges” or lack customizations
- Benefits
  - New capabilities previously unavailable with proprietary tools (debugger memory leak detection)
  - Increased flexibility
  - Faster rate of evolution
  - The ability to use the same tools and skills across platforms



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# Installation and Upgrade



## Installation


### NSDEE Prerequisites

- To use NSDEE
  - A Windows PC running 32-bit Microsoft Windows Vista or Windows XP
  - Java run-time, version 5 (or later)
  - Eclipse Helios with CDT 7.0.0 
- To build local projects
  - Cygwin Make package version 3.81 (or later)
  - NonStop cross-compilers for the languages you want to use
- To debug
  - An Integrity NonStop system
  - Native Inspect T1237H01 ^AAT (or later)
- To use SQL/MX
  - A NonStop system with SQL/MX compiler
  - SQL/MX preprocessors installed on your local machine
- To Use SQL/MP
  - A NonStop system with the SQL/MP compiler



# Installing NSDEE 2.1

## Install Base Eclipse

- Java users: 
  1. Expand **eclipse-java-helios-win32.zip** (175 MB)
  2. Run Eclipse
  3. Use **Help->Install New Software...** to install the bundled version of CDT
- Non-Java users:
  1. Expand **eclipse-cpp-helios-win32.zip** (89MB)

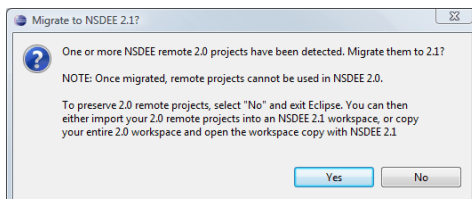
## Install NSDEE

- Run Eclipse
- Use **Help->Install New Software...** to install
  - NSDEE-Core.zip
  - NSDEE-Debugger.zip \*
- Follow readme instructions to install CDT patches

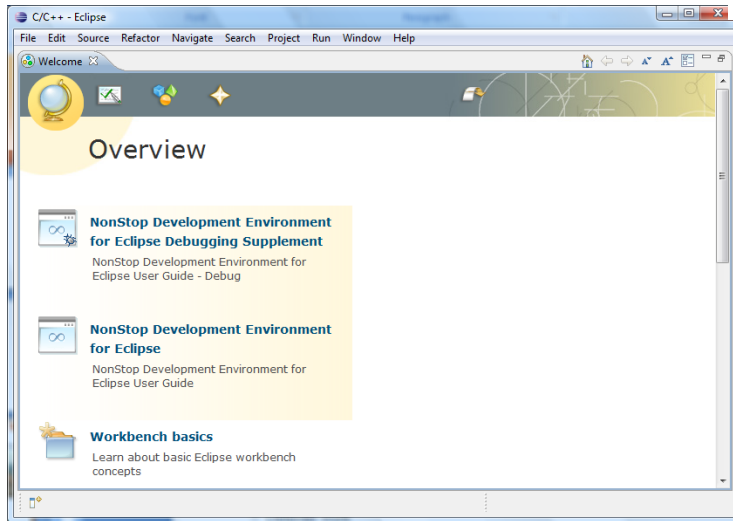


# Migrating to NSDEE 2.1

- EPE users use existing EPE migration wizard
- ETK users use improved ETK migration support
- NSDEE 2.0 users
  - Install the new versions of eclipse and NSDEE (you can keep existing versions)
  - Create a back-up copy of NSDEE 2.0 projects
  - NSDEE 2.1 automatically converts 2.0 projects to 2.1 when loaded



# NSDEE Welcome Page



- Displayed when your first launch Eclipse
- **Help->Welcome**

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## Key Concepts

Folder goes here




## Key Concepts

- **Eclipse Perspective** – A collection of views that are useful for a particular activity. With NSDEE you will use:
  - NonStop perspective
  - Debug perspective
- **Eclipse View** – A tabbed pane within a perspective. You can control which views are displayed, drag-and-drop views to different locations, and double-click a view's tab to maximize or minimize it.
- **Eclipse Workspace** – A container for organizing a collection of related projects. State that persists between eclipse sessions is managed on a per-workspace basis. NSDEE recommends against combining local and remote projects in the same workspace.
- **CDT** – C/C++ Development Toolkit. Base eclipse framework that NSDEE builds on.  
**Tip: CDT documentation is a useful reference**

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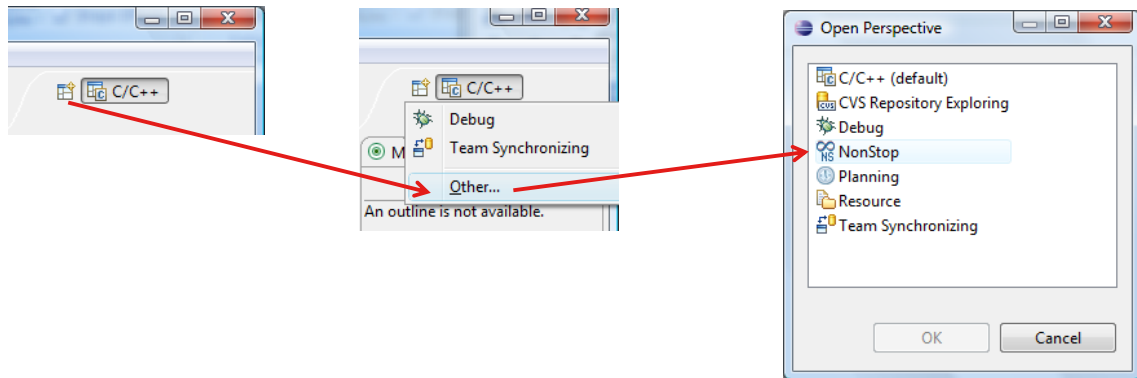
## Unification of Local and Remote Perspectives

- NSDEE 2.0 had separate Eclipse perspectives for
  - Local development – NonStop Local
  - Remote development – NonStop Remote
- Issues
  - Functional differences between perspectives
  - Interface differences between perspectives
  - More complex usage model
- Solution 
  - Unify perspectives into a single NonStop perspective capable of supporting local and remote development
  - Leverage Eclipse File System (EFS) capabilities to enable improved functionality with remote files

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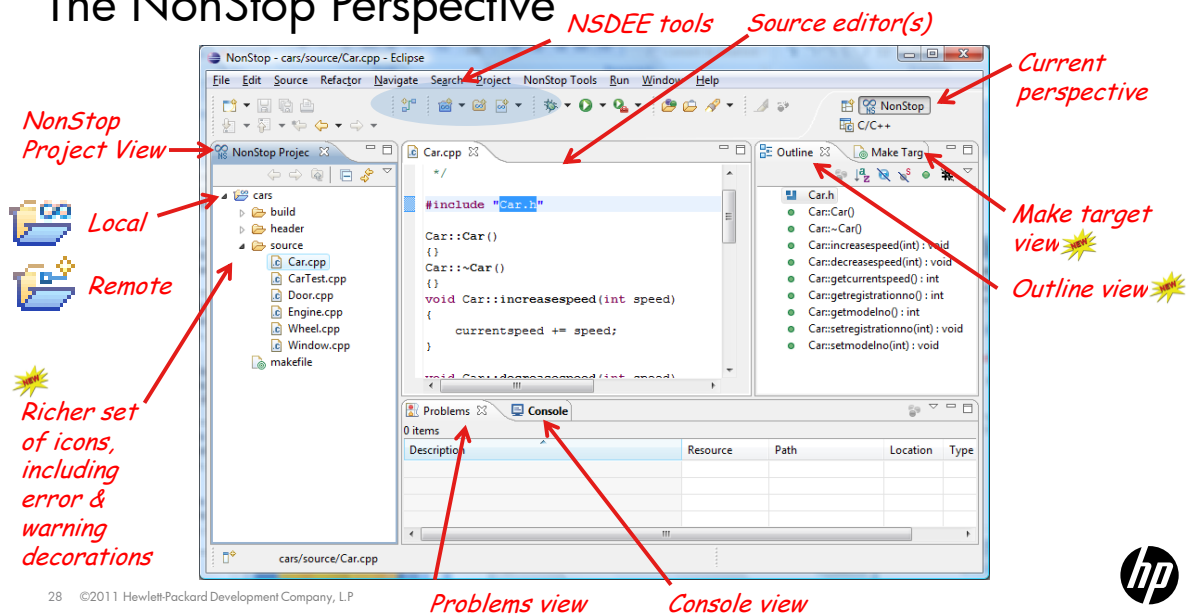
## Step 0: Open the NonStop Perspective



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## The NonStop Perspective



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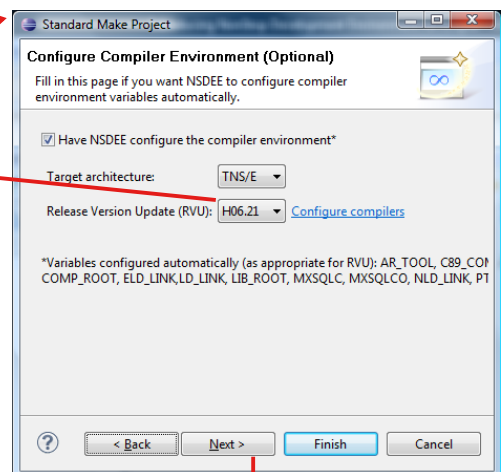
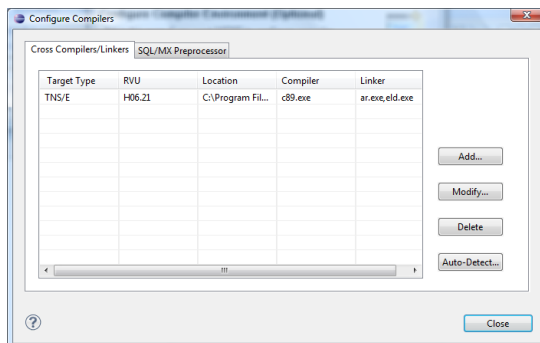
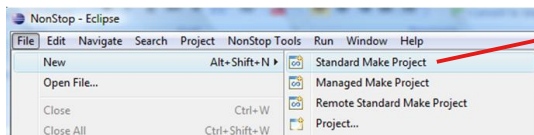


# Project Creation



## Project Creation: Local

### Creating Local Projects

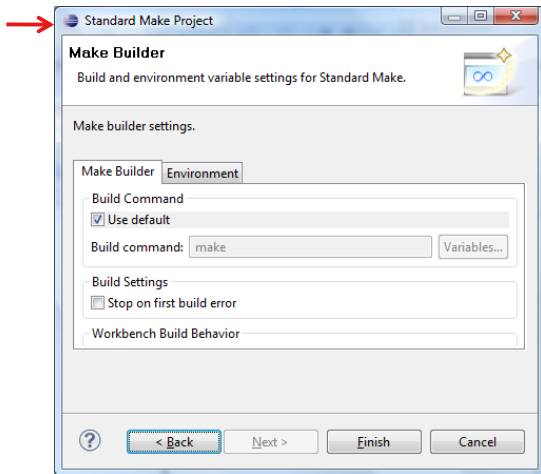


*Optionally configure NonStop cross-compilers*

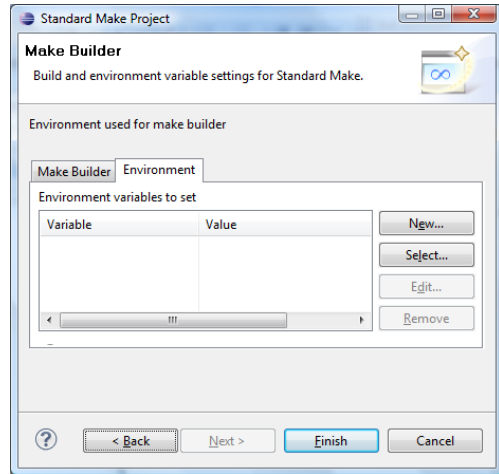




## Creating Local Projects (cont')



*Optionally set make options*

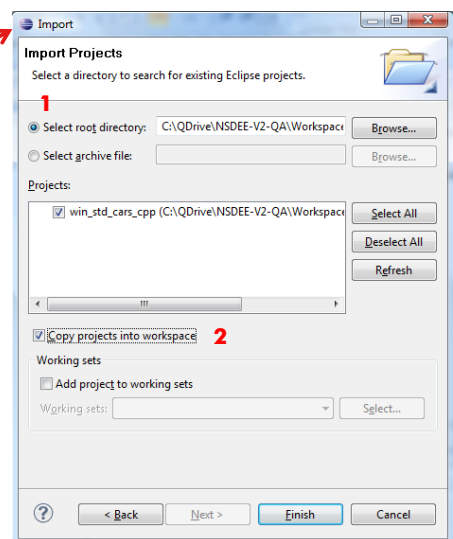
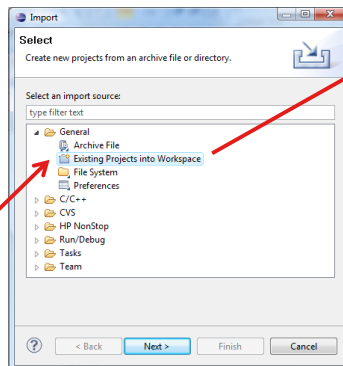
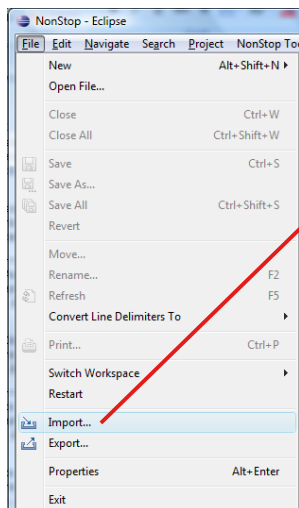


*Optionally set environment variables*

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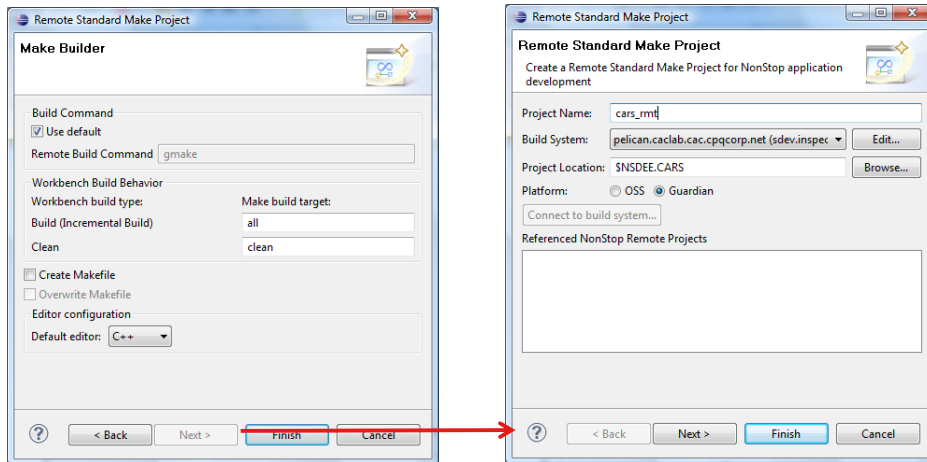
## Or import an existing project



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# Creating Remote Projects

## Example



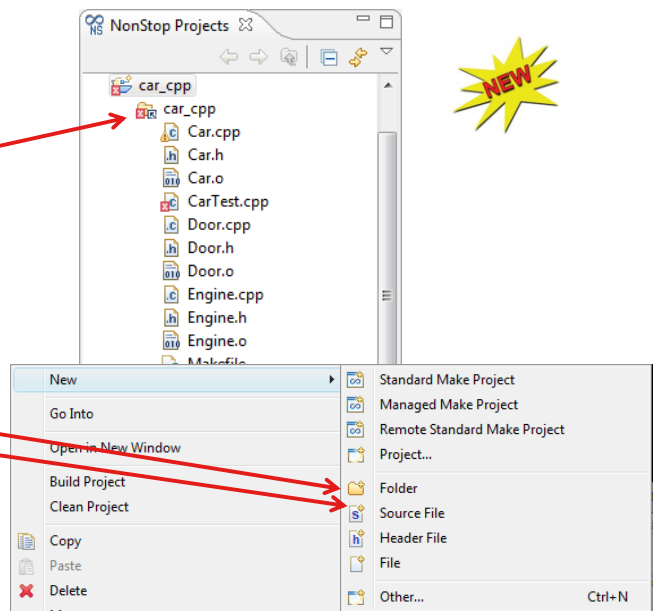
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# Remote Projects

## NSDEE 2.1 Improvements

- Improved usability and integration
  - Error and warning decorators
  - Remote Project menu replaced by standard project menu
  - Copy/paste supported between local and remote projects
  - Remote projects now uses standard New File and New Folder commands and wizards.
- Unused Navigation view has been deleted

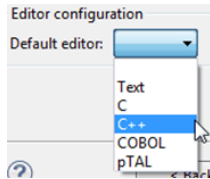



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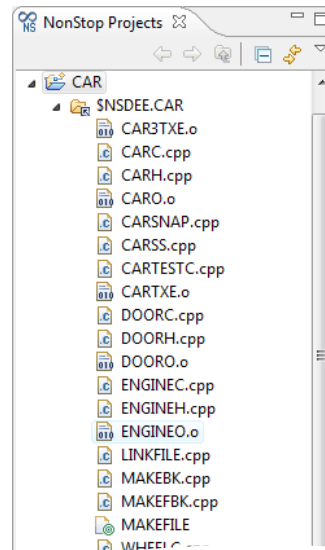
# Remote Projects

Guardian virtual file extensions

- Default file type defined at project creation



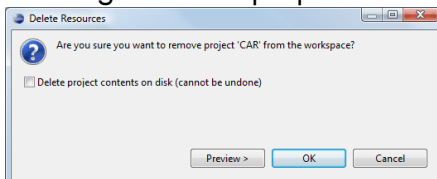
- NSDEE 2.1 lists a “virtual file extension” for Guardian files to identify their type 
- Can use **Open With...** to open a different language editor



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# Project Considerations

- You can now mix local and remote projects in a single Eclipse workspace  
**Note:** best practice is for workspaces to group logically related projects
- Deleting a remote project now displays a standard Eclipse dialog



– Note: Selecting delete project contents will NOT delete NonStop hosted files.



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## Development Workflow

Edit→Build→Deploy→Debug

```
while( n < (document.
{
    n++;
    calc = ev
    i++;
    i++;
```



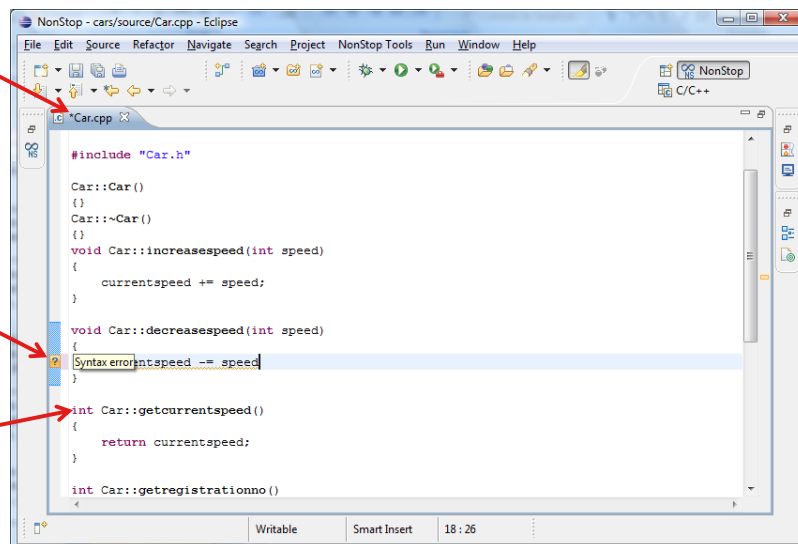
Edit→Build→Deploy→Debug

## Editors

*Tip: double  
click tab to  
maximize or  
minimize*

*Syntax errors  
listed for  
C/C++*

*Language  
elements are  
color coded*

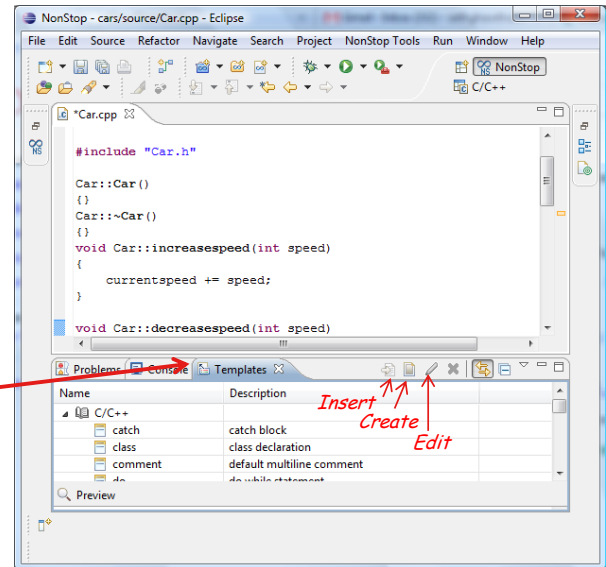
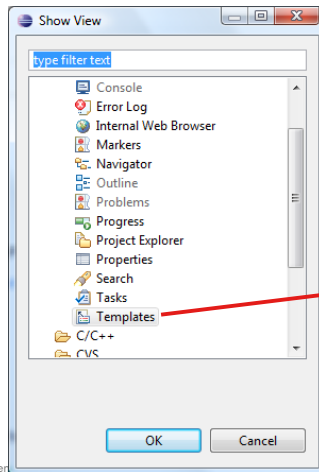


*Less "language  
awareness" for  
COBOL and  
pTAL*



## Using Templates

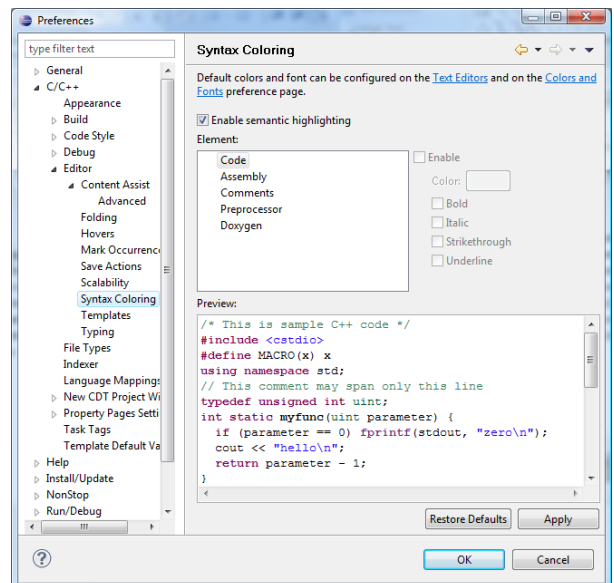
- **Window→Show View→Other...**
- Generate recurrent text
- Can be parameterized



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## Configuring editors

- Eclipse provides many configuration options
- **Window→Preferences**
- **Tip:** To display line numbers **General→Editors→Text Editors**
- Language specific configuration presently not supported for COBOL or pTAL.



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# Development Workflow

Edit→**Build**→Deploy→Debug



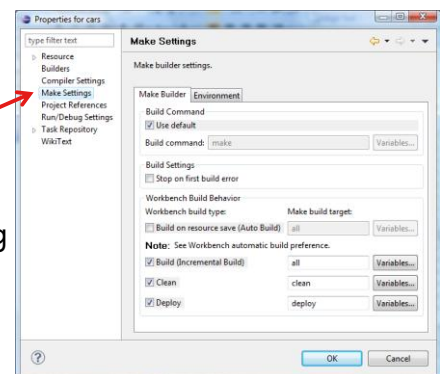
41

Edit→**Build**→Deploy→Debug

## Building projects

Invoke build command

- Build commands disabled when Build Automatically is checked
- Invoke **Build Project** command from either
  - Right-mouse button menu
  - or Project menu
- Other operations
  - **Clean project** – invokes clean step
  - **Deploy project** – invokes deploy step
- Project properties make settings control the mapping of operations to make targets and the environment variables passed to the build.

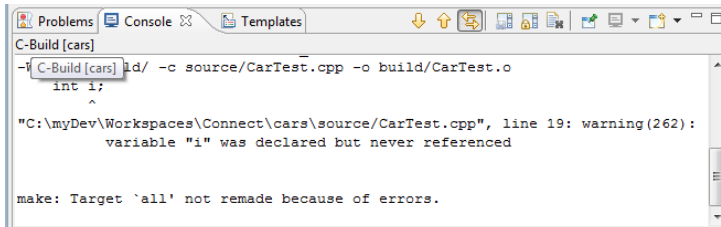


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# Building projects

## Viewing build output

- Raw build output is listed in the Console view



```

C-Build [cars]
ld/ -c source/CarTest.cpp -o build/CarTest.o
int i;
^
"C:\myDev\Workspaces\Connect\cars\source\CarTest.cpp", line 19: warning(262):
    variable "i" was declared but never referenced

make: Target `all' not remade because of errors.
  
```

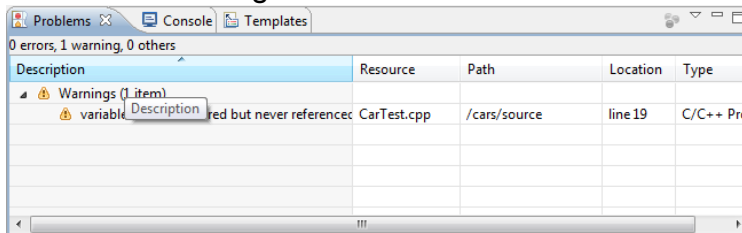
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# Building Projects

## Correcting build errors and warnings

- Errors and warnings are listed in the Problems view



Description	Resource	Path	Location	Type
Warnings (1 item) variable 'i' was declared but never referenced	CarTest.cpp	/cars/source	line 19	C/C++ Problem

- Double click on an entry to position at the corresponding source location
- Editor lines annotated to mark problems
- Project view files annotated to mark problems
- Improved remote build error navigation 

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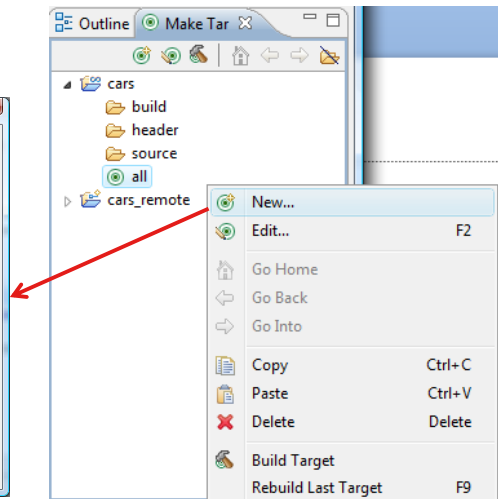
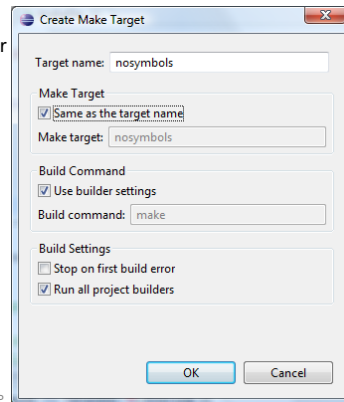


## Make Target view

- Use the Make Target view to define and invoke custom make targets



- Note:** Cannot add targets for Managed make projects



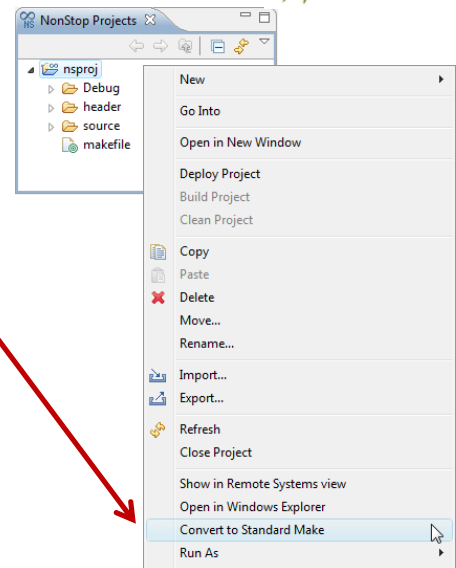
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## Converting Managed Make to Standard Make



- Select **Convert To Standard Make** from NonStop Projects view context menu\*
- Benefits:
  - User control over makefile
  - Fine-grained control of build process
  - Path for ETK migration to Standard Make

- \***Note:** Conversion cannot be reversed. Consider creating a workspace copy.



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## Build Considerations

- Standard make recommended for large projects
- Managed make
  - Not supported for remote projects
  - Will be superseded by use of CDT build mechanisms
- Remote project builds
  - OSS projects use OSS make by default
  - Guardian projects use GMAKE by default

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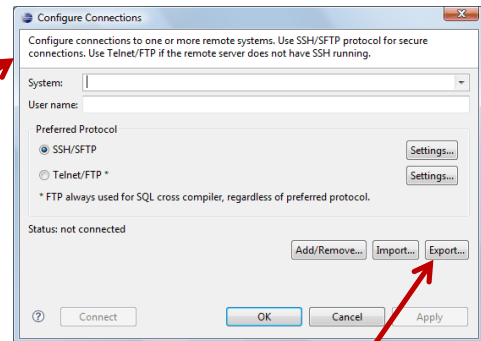
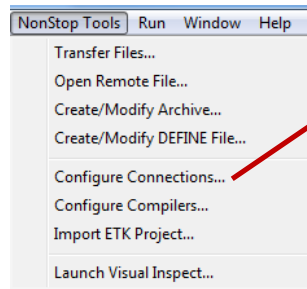
## Development Workflow

Edit→Build→Deploy→Debug



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# Defining a NonStop Connection



- Define a connection:  
**NonStop Tools** ⇒ **Configure Connections...**

- Specify the system
- Specify user
- Select protocol
- Click: **Connect**

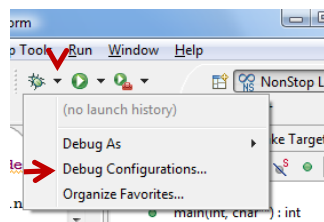
Connection information is stored per eclipse Workspace. You can export and import configurations between workspaces

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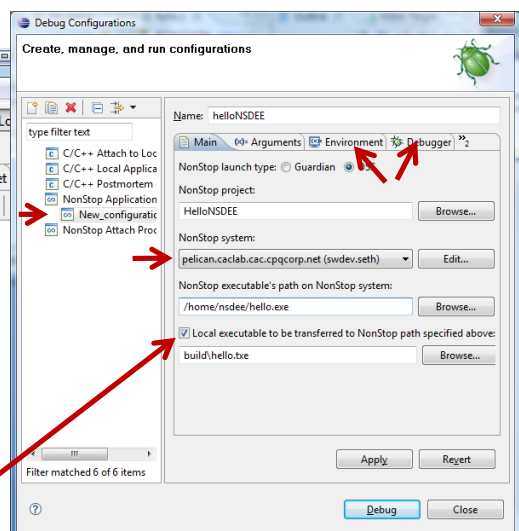


# Creating a Launch Configuration

- Defines how to launch (run or debug) a project's executable on the NonStop system



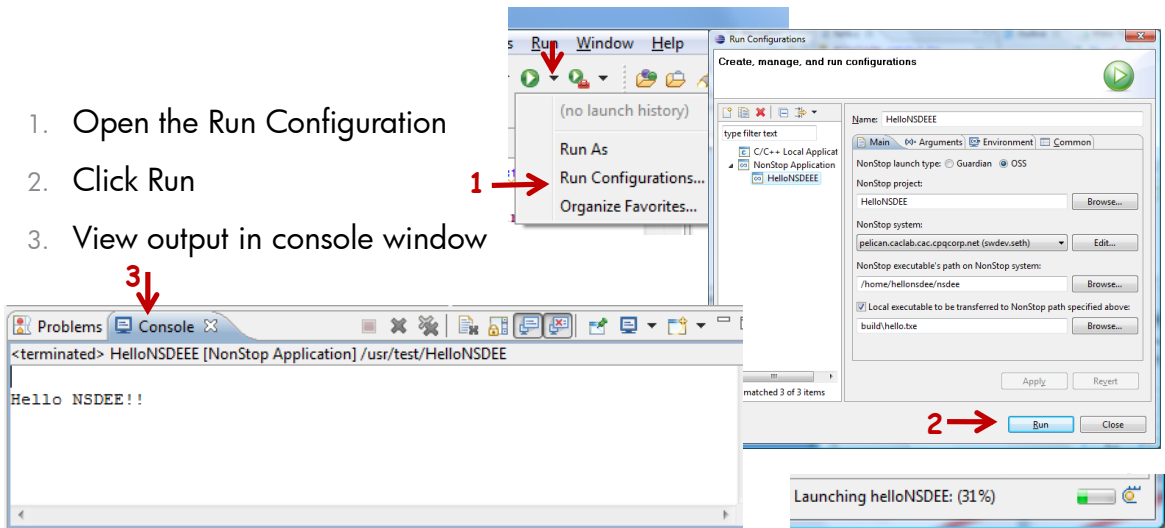
- Create
  - Invoke **Debug Configurations...**
  - NonStop Application
  - Complete required fields
  - Optionally specify additional info
- Apply and Close**



50 ©2011 Hewlett-Packard Development Company, L.P. Copy local executable to NonStop

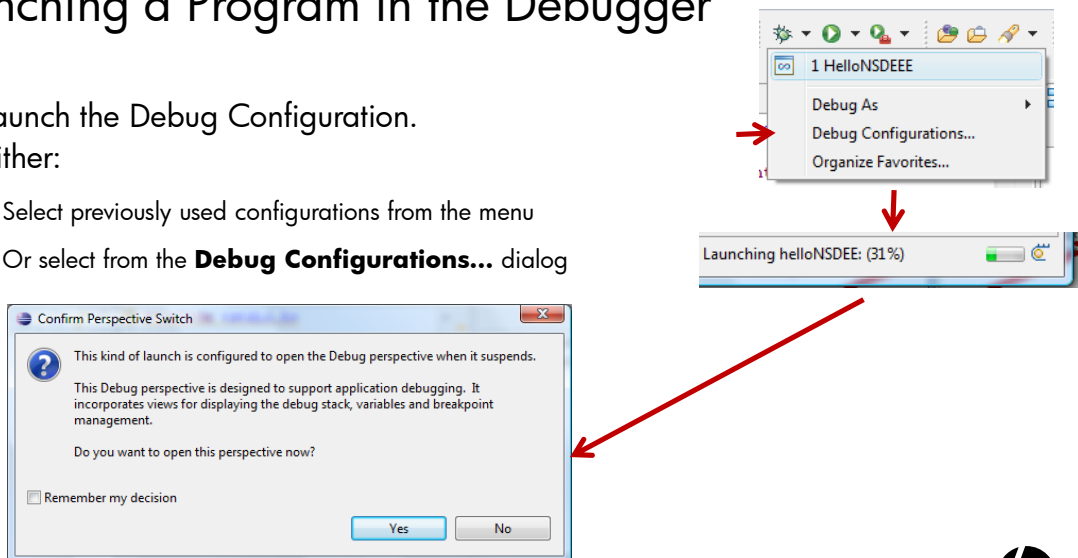
# Launching a Program on a NonStop Server

1. Open the Run Configuration
2. Click Run
3. View output in console window



# Launching a Program in the Debugger

1. Launch the Debug Configuration.  
Either:
  - Select previously used configurations from the menu
  - Or select from the **Debug Configurations...** dialog



## Development Workflow

Edit→Build→Deploy→Debug



Edit→Build→Deploy→Debug

## NSDEE Debugging

- **Focus:** debug phase of the IDE workflow
  - Debugs eclipse-built applications during development
  - NSDEE is not yet a stand-alone or production debugger
  - Does not yet support some NonStop debugging features (info opens, ...)
- Supports debugging C, C++, and COBOL on Integrity NonStop systems
- Recommend compiling at optimization level O0 during development
- Uses Native Inspect as “back-end”
- Some Debug Perspective features are not available with NonStop
  - Watchpoints, Step Filters, ...
- Controlling GUI update/step performance
  - Use debug configuration to set defaults
  - Enable/disable items

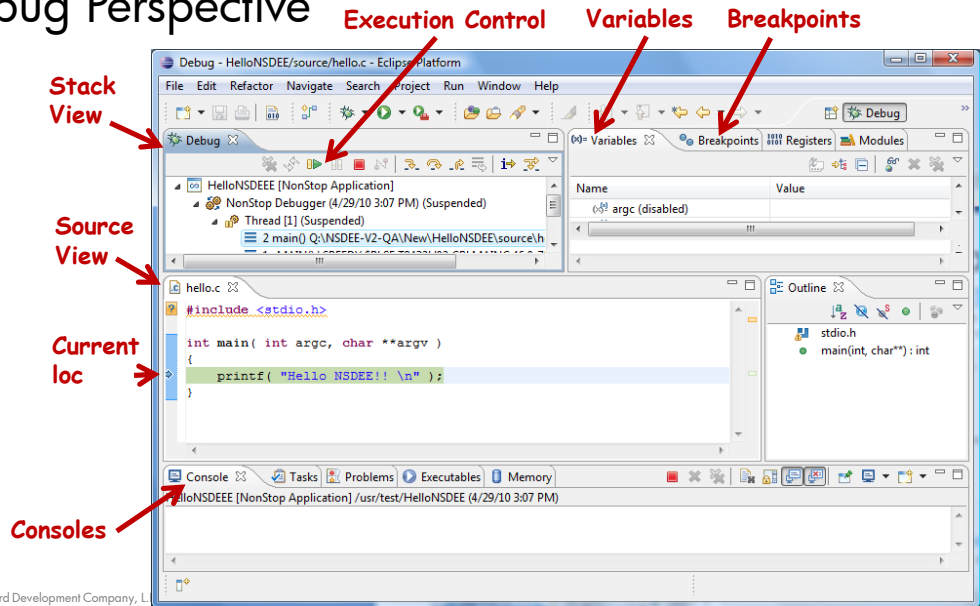
Automatically track\*:

- ☐ Variable values in Variables view
- ☐ Shared library loads and unloads in Modules view

\*Note: Enabling automatic tracking slows stepping performance.



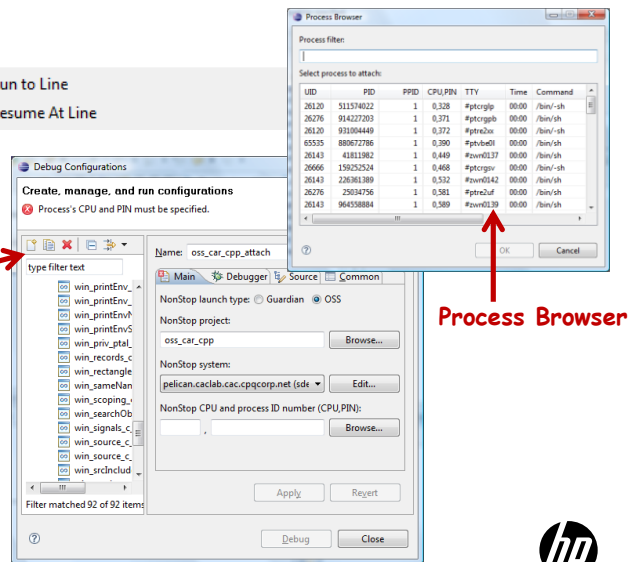
# The Debug Perspective



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## Session and Execution Control

- Execution control
  - Resume, Suspend, Step in, Step Over, Step Out
  - Run To Line
  - Resume At Line
- Right Mouse menu operations
  - Run To Line Make sure target line is selected
  - Resume At Line Must have consistent register state
- Attach to a running process using a NonStop Attach Process Debug Configuration
  - Attach to a running process using a NonStop Attach Process Debug Configuration
- Session control
  - Stop
  - Disconnect



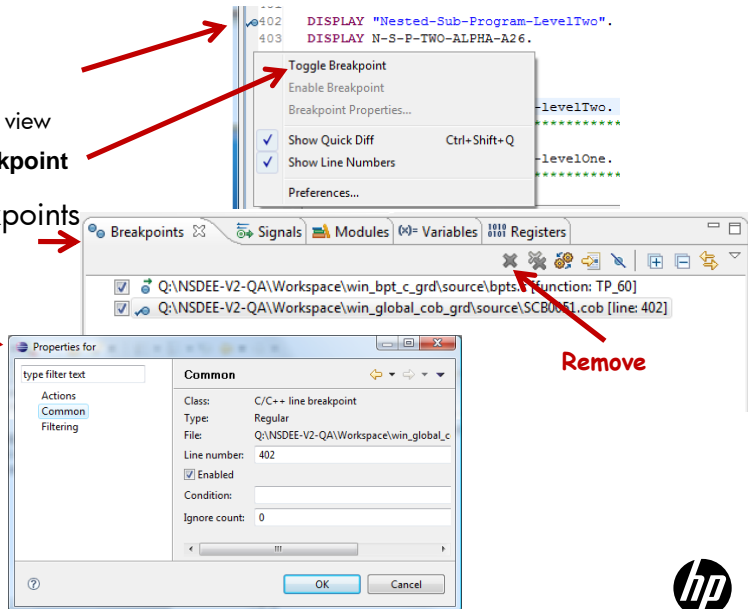
Process Browser

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# Breakpoints

- Setting code breakpoints
  - Click breakpoint column in source view
  - or use Right Mouse: **Toggle Breakpoint**
- Breakpoints View lists breakpoints
- Enable/disable breakpoints
- Breakpoint properties
- Breakpoints persist per-workspace between sessions
- Can import/export

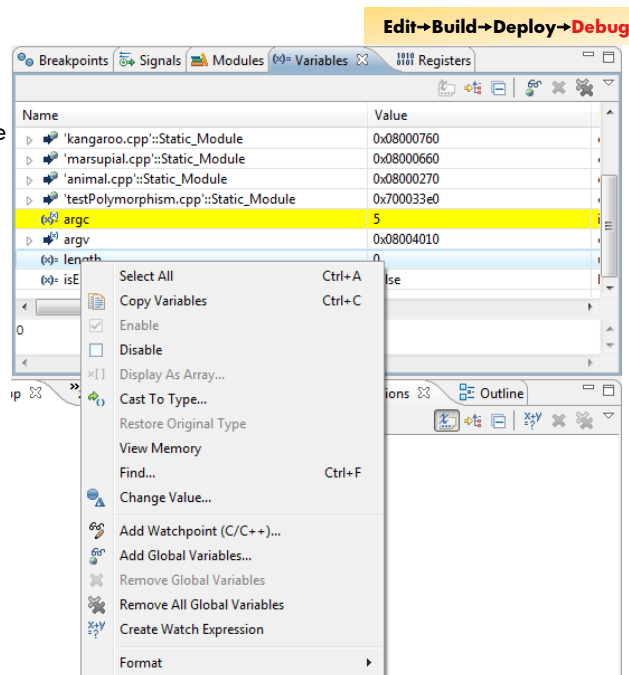


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# Variables View

- Displays local variables for selected stack frame
- Displays specified globals
  - Add
  - Remove
- Changed values are highlighted
- Operations
  - Expand/collapse
  - Enable/disable
  - Cast To Type...
  - Display As Array...
  - Change Value...
  - Format
- Can also display C/C++ variables using the mouse pointer in the source view

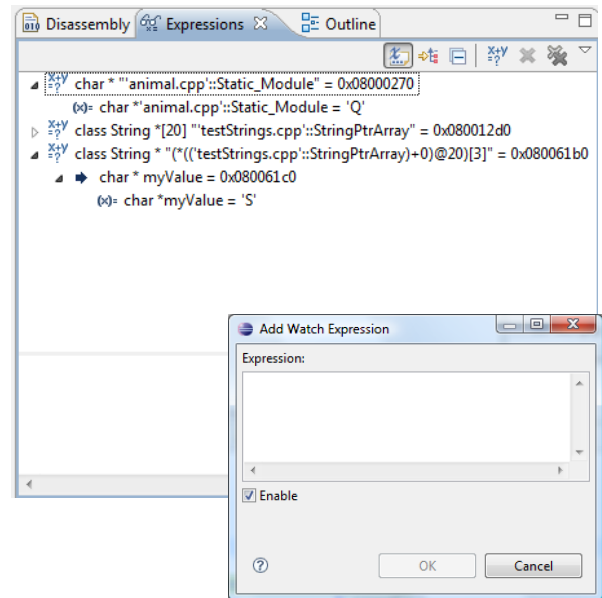


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## Expressions View

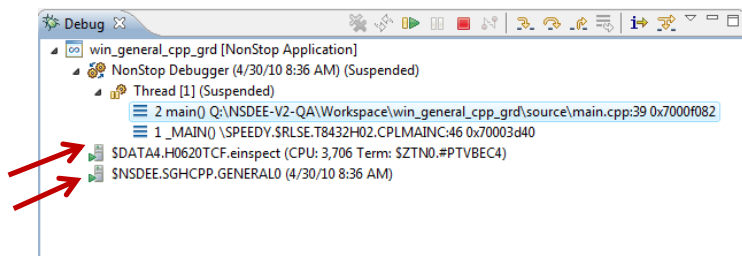
- Displays specified variables and expressions
- To add an expression either
  - Right Mouse: **Add Watch Expression...**
  - or drag-and-drop text from source view
  - or drag-and-drop an item from the variables view
- Expressions are reevaluated in the current context each time the program is suspended



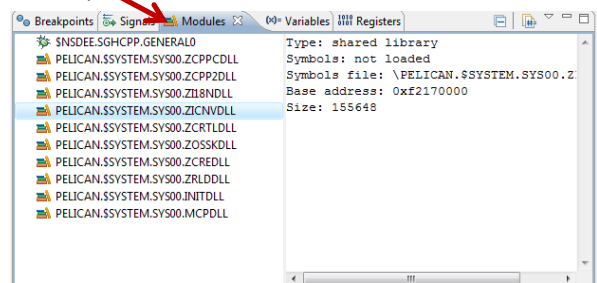
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## Other Views

- Debug view displays
  - Program execution stack
  - Debugger process
  - Process being debugged



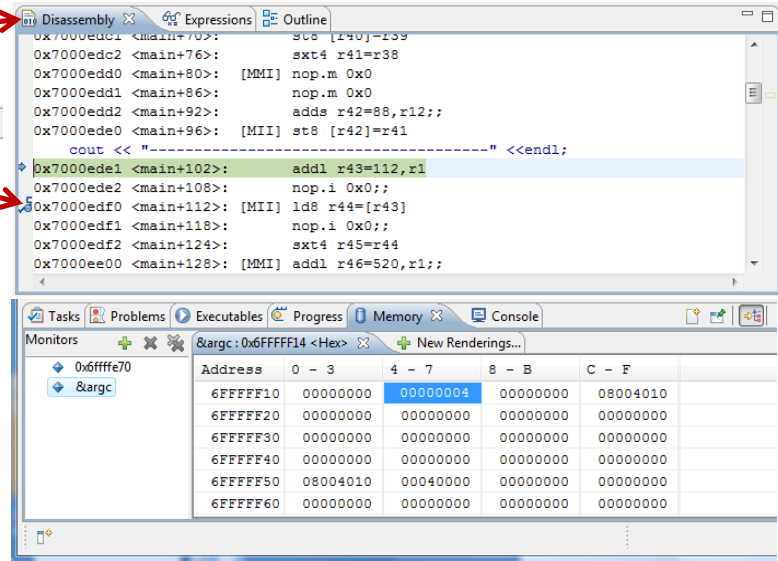
- Modules view displays DLLs (shared libraries)
- Signals view not supported in this release



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## Machine-level Debugging (1 of 2)

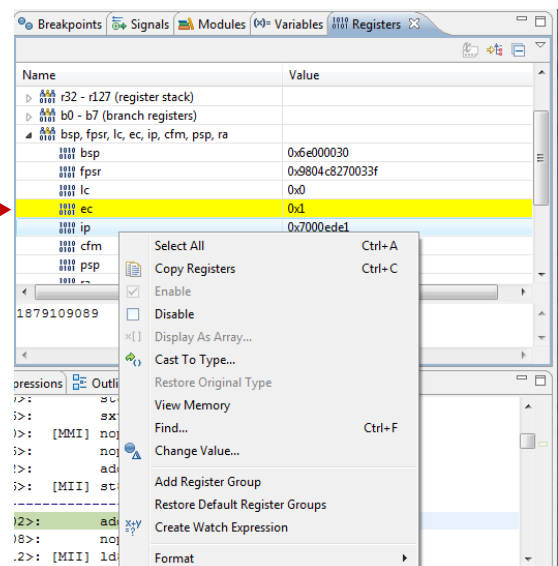
- Disassembly view
- Step instructions
- Instruction breakpoints
- Memory view
  - Monitors display memory in different formats
  - Modify memory
  - Changes highlighted



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## Machine-level Debugging (2 of 2)

- Registers view
  - Enable/disable to control performance
  - Changes highlighted
- Operations
  - Change value...
  - Cast To Type...
  - Create Watch Expression...
  - Format...



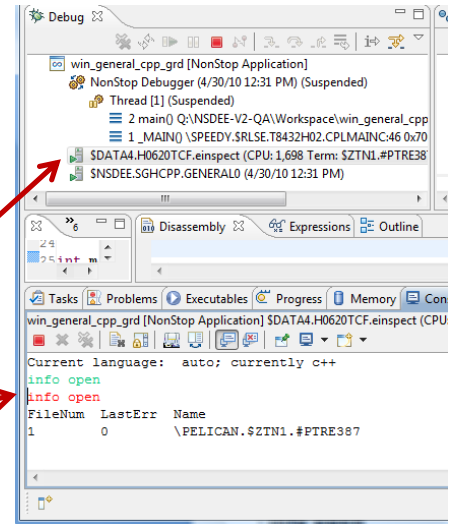
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## Console Commands

- A sub-set of Native Inspect commands can be entered from the debugger console

- b** *location*
- catch load** | **unload** | **stop** | **abend**
- info open**
- ih** and **mh**
- mab** and **dmab**
- print**
- save**
- Vq**

- Click debugger Debug view item
- Enter command in Console view



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## Debugging Considerations

- NSDEE debugging only supported on Integrity NonStop servers
- pTAL debugging currently not supported
- You can define launchers to
  - Attach to a running process
  - Debug a process snapshot file



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## NSDEE NEXT STEPS



*This is a rolling (up to three year) Statement of Direction and is subject to change without notice*

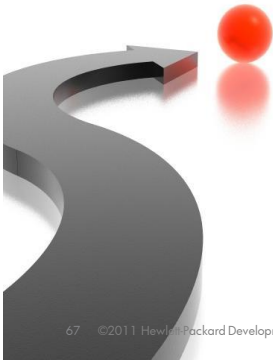
## FORWARD-LOOKING STATEMENTS

This document contains forward looking statements regarding future operations, product development, product capabilities and availability dates. This information is subject to substantial uncertainties and is subject to change at any time without prior notification. Statements contained in this document concerning these matters only reflect Hewlett Packard's predictions and / or expectations as of the date of this document and actual results and future plans of Hewlett-Packard may differ significantly as a result of, among other things, changes in product strategy resulting from technological, internal corporate, market and other changes. This is not a commitment to deliver any material, code or functionality and should not be relied upon in making purchasing decisions.



## NSDEE Next Steps

- On-going
  - Support growing installed base
  - Support current software versions
  - Continue to improve “out-of-box” experience
  - Continue to improve Eclipse integration
- Medium-term
  - Windows 7 support
  - Enable and support ETK migrations
  - Interoperate with NonStop Samba
  - Leverage CDT build mechanisms
  - Improve NonStop SQL support
- Long-term
  - Utilize Eclipse DSF to provide improved debugging
    - Debugging non-NSDEE created programs
    - NonStop initiated debug requests
    - NonStop specific debugging



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## Summary

- NSDEE extends the industry standard Eclipse IDE to support NonStop
  - Builds on an IDE that is available for many platforms
  - Offers a rich ecosystem of open source and third-party extensions
- NSDEE targets all NonStop development environments
- NSDEE is the first NonStop IDE to support
  - NonStop hosted (“remote”) development
  - Integrated debugging
- NSDEE offers significant functional and integration improvements over EPE
- NSDEE is the future platform for NonStop IDE and debugger GUI enhancements
- NSDEE will continue to evolve

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# SQL development using Eclipse Plug-in

Quantum Freeware



## Eclipse + Quantum plug-in + NonStop JDBC Type 4 driver (T1249)

### Installation

- Install eclipse + GEF (Help, software updates, find and install, search for new features to install, select Sites to search, then in one of the sites select Graphical Editing Framework and install it according to instructions).
- Install Quantum plug-in (Help, software updates, find and install, search for new features to install, new remote site: name : quantum:

### DataSource definition

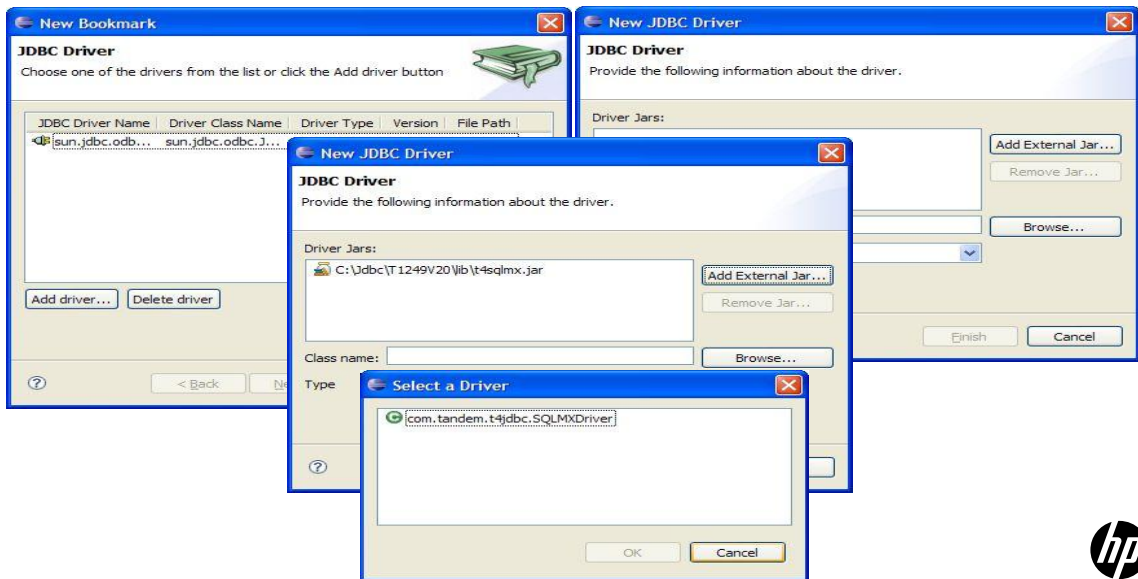
- Open Quantum perspective
  - click new database bookmark
  - add driver, add the external jar & browse to the jar file location,
  - click browse and select to select the class name which is resolved automatically for you
- Enter user id; password and url and name the bookmark

### Test

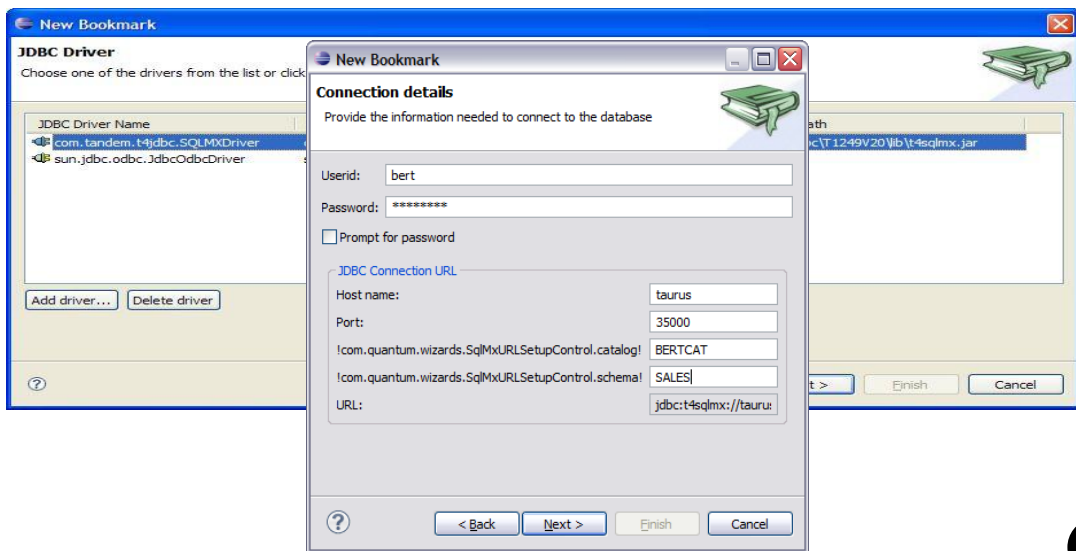
- Select previously created bookmark and click connect



## Eclipse + Quantum plug-in + type 4 driver

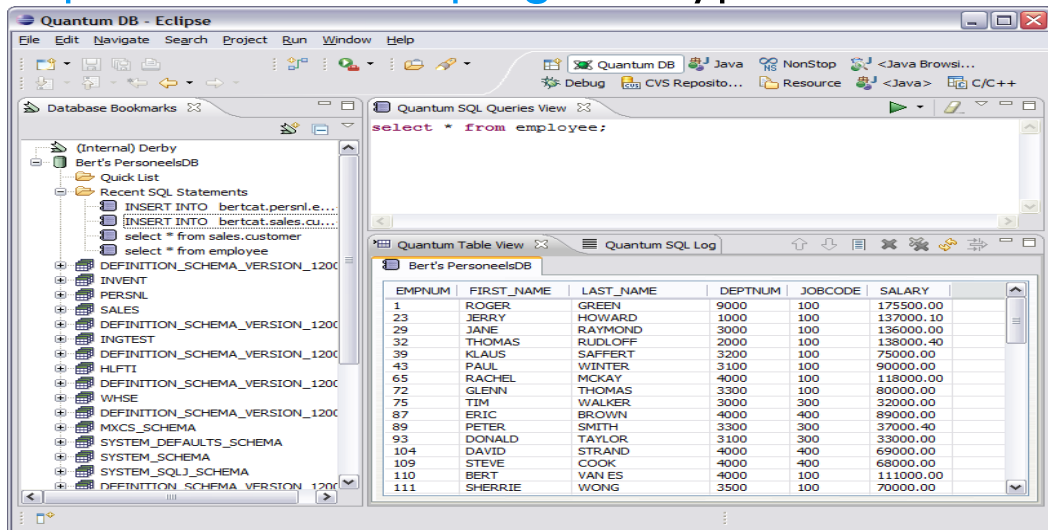


## Eclipse + Quantum plug-in + type 4 driver

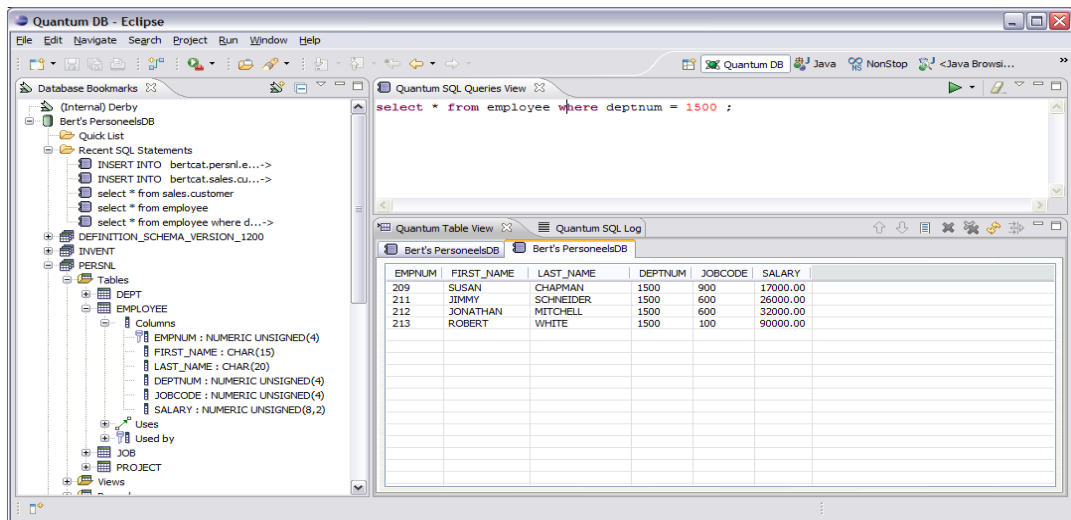




## Eclipse + Quantum plug-in + type 4 driver



## Eclipse + Quantum plug-in + type 4 driver



## And Now, The Demo



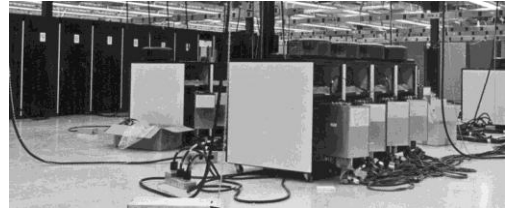
### DDL - Completing the puzzle of workstation development

A Workstation-based DDL compiler  
for ECLIPSE by Nexbridge

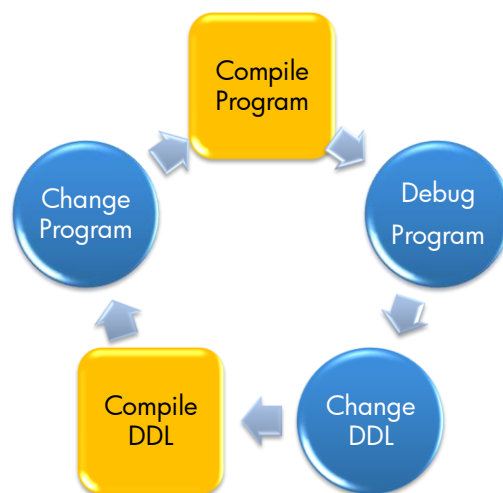


# What It Is

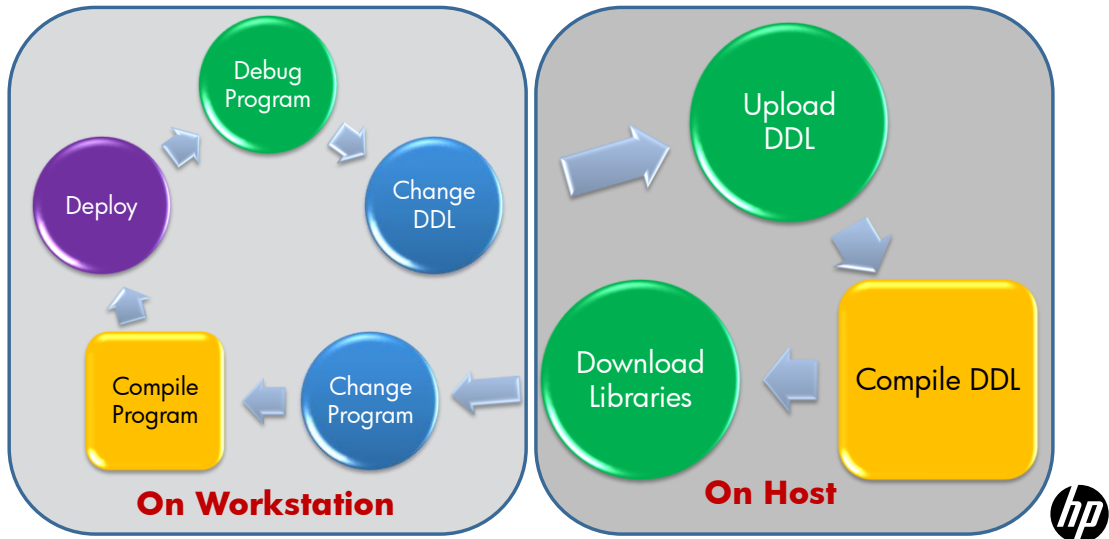
- ECLIPSE-based plug-in
- DDL text editor
- Compiler
- No connectivity requirements



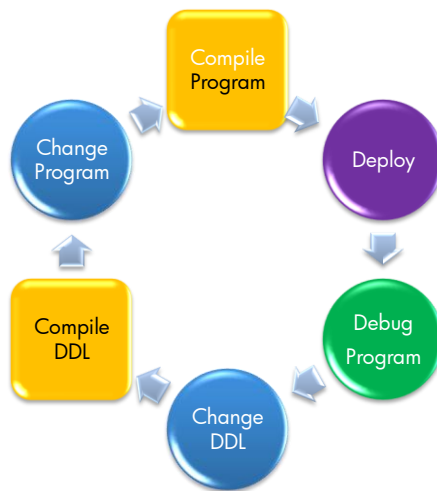
## Host-Based Process



## NSDEE Process with DDL



## NSDEE Process with NskDdl



# What It Has

- Standard DDL syntax
- Run-anywhere Java 1.6 implementation
- Workstation to Guardian file mappings
- DEFINE mapping support
- Batch mode execution
- Speed
- Convenience



## Language Support

### **Standard Languages**

- C
- COBOL
- TAL
- FUP
- TACL

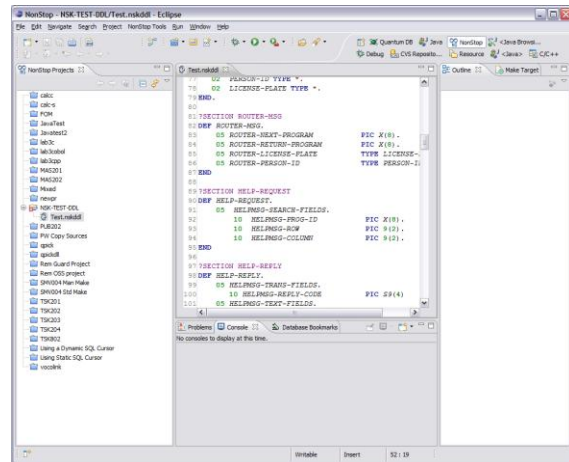
### **Extension Languages**

- Java (ddl2java)
- XSD
- WSDL
- Documentation Website
- EGI (in progress)
- More to come...



# ECLIPSE Support

- Helios
- Integrated Problem Markers
- Integrated TODO Markers
- Color coding
- Local file support
- Build-on-save integration
- Annotations (e.g., @Deprecated)



## Some Differences

- No dictionary
  - Contents not preserved between compiles
  - Fast compiles make this acceptable
- No PASCAL or BASIC support



# Key Usage Scenarios

- “Keep source compatible”
  - Use file name mapping to GUARDIAN files
- “Always compile on workstations”
  - Local path names in sources

**WILL FINAL COMPILES BE DONE  
ON THE NONSTOP?**



And Now, The Demo

More information [www.nexbridge.com](http://www.nexbridge.com)



# We want



## Happy Customers

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# We Value your Feedback

- We are always interested in your feedback
- Especially on:
  - ETK migration impediments
  - Importance of pTAL debugging support
  - NonStop SQL needs
  - Importance of improved COBOL and pTAL editing support
  - The Importance of Linux hosting?
  - Additional debugging capabilities
- Take our survey!



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## Resources

- NSDEE Product Page
  - [www.hp.com/go/nsdee](http://www.hp.com/go/nsdee)
- Demo Videos on YouTube™
  - NSDEE 2.1 update
  - Introducing NonStop Development Environment for Eclipse (NSDEE)
  - NonStop Development Environment for Eclipse (NSDEE) Hello NSDEE Demo
  - NonStop Development Environment for Eclipse (NSDEE) Local Projects
  - NonStop Development Environment for Eclipse (NSDEE) Remote Projects
  - NonStop Development Environment for Eclipse (NSDEE) Debugging

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## Resources

- NSDEE Software
  - Trial version:
    - <https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=HSB98V1>
    - (or via [www.hp.com/go/nsdee](http://www.hp.com/go/nsdee))
  - Order:
    - HP NonStop Development Version 2.1 for Eclipse - Core (NSDEE 2.1 - Core)
      - Product #: SB99V1, QSB99V1, HSB99V1
    - HP NonStop Development Version 2.1 for Eclipse - Core with Debugging (NSDEE 2.1 - Core with Debugging)
      - Product #: QSB98V1, HSB98V1
- Eclipse
  - [www.eclipse.org](http://www.eclipse.org)
  - [www.eclipse.org/cdt](http://www.eclipse.org/cdt)

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THANK YOU



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