Oracle Developer Studio Integrated Development Environment

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DEVELOPER STUDIO

The Oracle Developer Studio IDE is specifically tailored for C, C++, Fortran and mixed-language Java and C/C++ development, improving productivity and reducing time to market

Introduction

The Oracle Developer Studio IDE delivers a premier environment for the development of serial and parallel C, C++, Fortran and mixed-language Java and C/C++ enterprise applications. It is optimized to help maximize the return on hardware and engineering skills, enabling development teams to focus on innovating and differentiating where it matters.

Productive development teams contribute a tremendous amount of value and are great assets for organizations. Great development tools are instrumental in boosting developer productivity, allowing developers to leave the routine work behind and focus on the work that is going to give your applications a leading edge. The Oracle Developer Studio IDE greatly increases developer efficiency, enabling the creation of high-performance, high quality, robust and easily maintainable enterprise applications for on-premise or cloud environments. In addition, the advanced development platform enables developers to further enhance their skill set, by simplifying advanced memory, threading and performance analysis.

Next-generation IDE

The Oracle Developer Studio IDE is built on the award-winning NetBeans platform. It extends the NetBeans platform by leveraging advanced analysis and debugging capabilities from the Oracle Developer Studio tool suite.

The NetBeans platform has attracted millions of active users across the globe. The high level of community involvement enables Oracle Developer Studio IDE users to benefit from exhaustive community testing on thousands of projects of different styles and nature, myriads of extensible Oracle-supported and community contributed plug-ins, and the ability the extend the IDE with Java, Python, PHP and many other languages.

The rich language-aware code editor is part of NetBeans and it evolves very rapidly driven by feedback from thousands of native developers. It provides a comprehensive and complete list of features, enabling efficient coding and reverse engineering. In addition, the IDE leverages powerful Oracle Developer Studio features, allowing users to utilize these technologies within the IDE. These include:

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- Industry-leading debugger (dbx Debugger) that simplifies the debugging of complex applications
- Performance analysis capabilities that help identify hotspots and bottlenecks in serial and parallel applications
- Thread analysis tooling that identifies hard-to-pinpoint race and deadlock conditions in multithreaded code
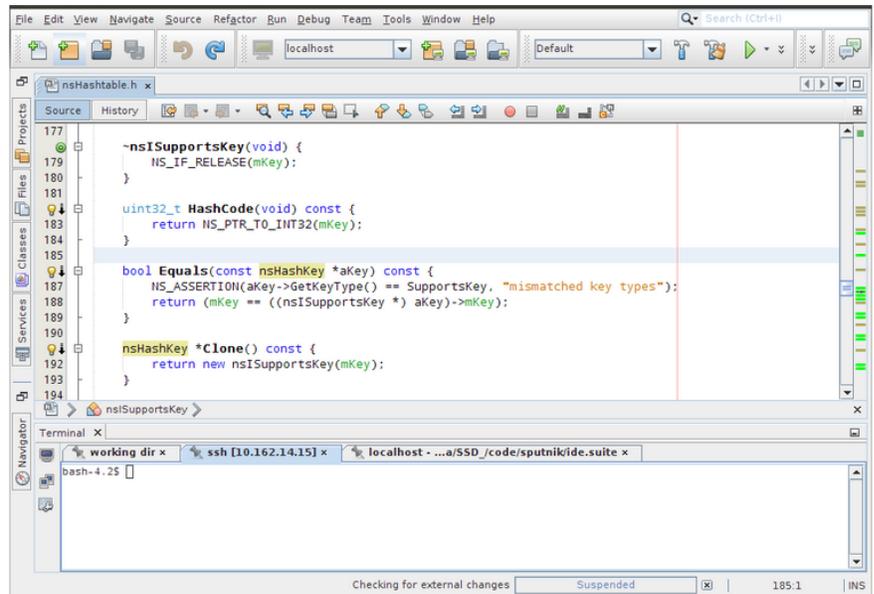- Static and dynamic code analysis that highlights common coding errors, including memory leaks and usage information

Figure 1. Oracle Developer Studio IDE

Rich Language-aware C, C++, Fortran and mixed-language Java and C/C++ Code Editor

The rich language-aware editor supports all the expected features available in modern IDEs, including code folding, syntax highlighting, symantec highlighting, code completion, declaration navigation, definition navigation, code snippets, code assistance, breadcrumbs, secure coding hints, pinnable terminals and much more. It also supports a variety of ways to look for certain information including a quick search and the ability to go to a particular file, type or symbol. The editor also provides many capabilities that are useful for reverse engineering, including:

- **Find Usages:** Identifies all reference to a variable, function, class or method
- **Call Graph:** Visualizes the call hierarchy, allows navigation of function calls and export of graphs to text formats
- **Type Hierarchy:** Shows the parent / child hierarchy of classes
- **Include Hierarchy:** Helps users understand include dependencies
- **Macro View:** Displays preprocessed source code and helps read code that uses meta-programming

In addition, the editor provides premier support for complicated C++ code by adding special annotations that help developers understand if a method overrides a parent method or is overridden in a child class, a class has children, a template has specializations, and if a type specializes a template. In all of the cases above it is

possible to navigate to the related entities. The editor is aware of overridden methods and template specializations, offering smart navigation and code completion.

Advanced Analysis for Improved Application Quality

Oracle Developer Studio provides advanced performance, memory, and thread analysis tools to help developers create scalable, reliable, high-quality applications. The Oracle Developer Studio IDE leverages a sub-set of these powerful technologies.

The Oracle Developer Studio IDE facilitates visual debugging by exposing all the power of the Oracle Developer Studio dbx debugger. Beyond the debugger, there is a Profile-on-Run action that leverages advanced performance analysis capabilities to collect information about the application during run-time with impressive precision, detail, and negligible overhead. It provides an intuitive visualization of CPU, memory and thread synchronization usage, allowing users to quickly identify hotspots / bottlenecks and easily navigate to problematic areas in the code and fix issues.

For more complex issues, there are two additional types of run-time analysis that are reported real-time: Memory Access Errors and Data Races and/or Deadlocks. The memory access errors feature identifies memory leaks, uninitialized memory reads, buffer overruns and many other typical but dangerous and hard-to-find programmatic errors. The data races and deadlocks feature identifies concurrent access to data in memory that has occurred without proper synchronization as well as dead locks. It reports both actual and potential issues.

The IDE also prevents issues while developers are coding by providing secure coding hints. The static analysis feature displays errors in the editor real-time, as a programmer is actively coding. This feature dramatically increases productivity by discovering bugs early in the development process.

Remotely Develop Oracle Solaris or Linux Applications

The Oracle Developer Studio IDE supports remote development, enabling the creation of Oracle Solaris or Linux applications from Microsoft Windows, Apple Mac, or other Unix operating systems. This allows users to run the IDE locally on their desktop and remotely build, run, debug and analyze server-side applications on premise or in cloud-based IT environments. After an easy and automated intial setup, the remote development process is fully transparent for the user. Developers are able to create a desktop distribution for Microsoft Windows, Apple Mac, or other Unix desktops which provides these remote capabilities in a client-server model. In addition, the Oracle Developer Cloud Service IDE plug-in allows developers to access the Oracle Cloud to pull, edit and push source code, launch builds, monitor build progress, and access Compute VMs. Oracle Developer Studio IDE provides the following unique capabilities:

- **Remote File System (FS) Browser:** Explore a remote FS tree or sub-tree
- **Open Projects from Remote Host:** Remote projects which have been left open in the IDE when exiting or remote projects that been recently accessed can be opened in the same way as local projects. The user does not have to remember where they reside. For other projects it is possible to access them through Remote FS browser and simply open the same way as if it is local.
- **Create Remote Project:** Easily and quickly create a remote project
- **Remote Toolbar:** Enabled by default in the desktop distribution, this toolbar provides

users a with a quick and easy way to select a default development host, connect/disconnect the default host, create/open a remote project, and open a remote file.
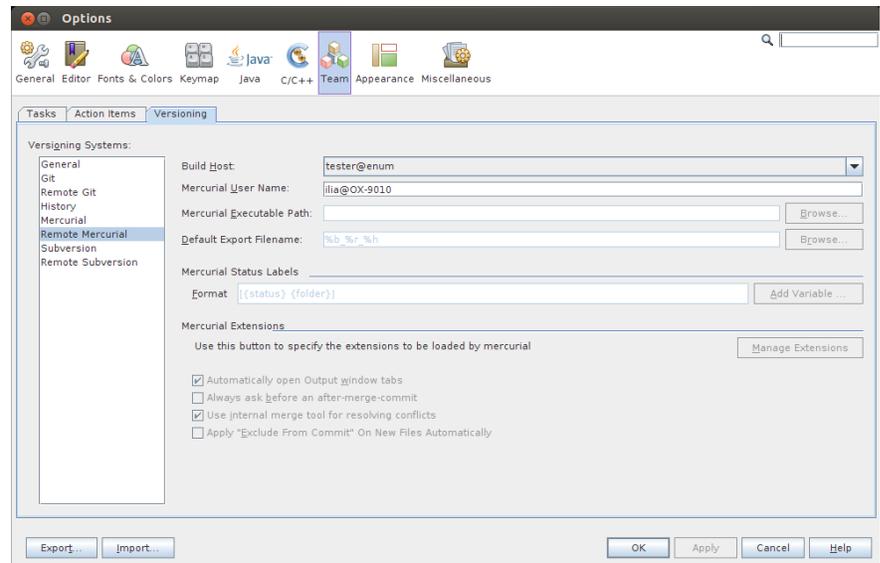

Figure 2. Remote Development

The remote development capabilities help developers better utilize desktop resources and more efficiently create server-side enterprise applications. The IDE only utilizes desktop resources and is typically more responsive compared with remote desktop technologies, such as VNC. This lower use of server resources enables more productive use of development servers. In this model, tools such as the compilers, debuggers and advanced analysis tools are invoked on the server using a SSH protocol and remote files are accessed using a secure SSH/SFTP protocol or an alternate file sharing mechanism specified by the user.

Complete Support for Large Enterprise Applications

The Oracle Developer Studio IDE provides excellent support for large enterprise applications with a minimal memory footprint and fast response times for large source repositories. It also provides:

- **Project Creation**: Large mature projects with sophisticated build systems are traditionally difficult to put under any IDE control. The simple drag-n-drop feature makes it easy to populate a project, configure editor support, and build the application.
- **Editor Support:** Code navigation and analysis is typically challenging for large projects and the IDE is engineered for these cases. To ensure it deals well with a large number of files, the parser is heavily multi-threaded and uses as many CPU cores as possible.
- **Version Control:** All large projects are kept under some version control and support for it is a key part of a developers' productivity when using IDE. The IDE provides first-class support for popular version control systems such as, CVS, Subversion, and Mercurial. Plugins for Git and ClearCase support is available in the NetBeans Update Center.
- **Projectless Debugging:** The IDE provides a great interactive debugging

environment and allows developers to leverage this environment and debug executable binaries that are not part of an IDE project.

- **Oracle Database Support:** The Oracle Developer Studio IDE streamlines the process of creating Oracle Database applications with support for Pro*C and OCI/OCCI through its intelligent language aware code editor, code completion, code folding, syntax highlighting and much more.

- **Oracle Tuxedo Support:** The Oracle Developer Studio IDE includes support for Oracle Tuxedo development with support for developing Tuxedo applications using ATMI and SCA programming models. It enables the creation of Tuxedo application projects, including server, component and client sub-projects.

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