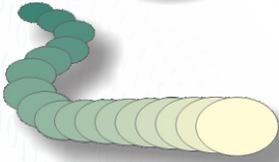


CONTROLTM



Software Management & Library System

Hundreds of the world's largest corporations, institutions and governments use CONTROL to protect and manage their software

- Manage version control over files, projects and entire systems
- Protect files with industrial strength security and reliability
- Organize software in an object oriented manner
- Ensure full referential integrity
- Dependencies Analysis for languages from COBOL to JAVA
- Reproduce any version of your source and executables
- Maintain a source & object repository with cross references



Do you have everything under CONTROL?

SIMPLIFY SOFTWARE MAINTENANCE

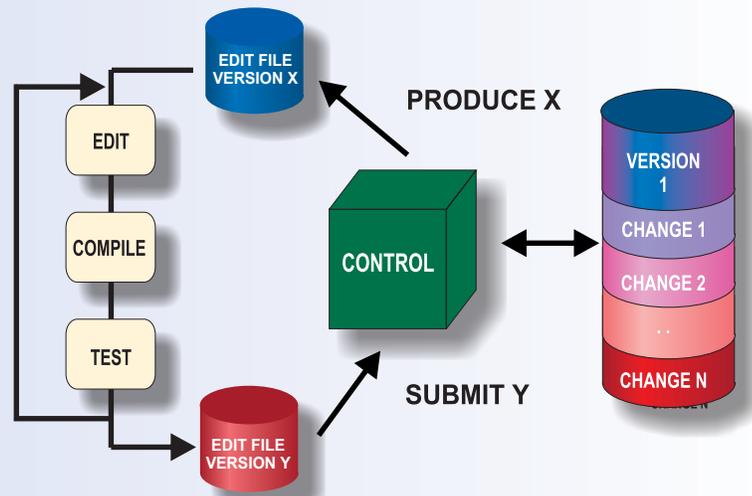
CONTROL archives all versions of your important files in compressed form along with audit trail information. It accepts changes made with any methodology, even third party updates. When a new version is ready, a SUBMIT command causes CONTROL to compute the differences relative to the prior version and capture them.

The PRODUCE command can reproduce any past version along with reference files that match. Other features allow you to see what changed, when, by whom and why.

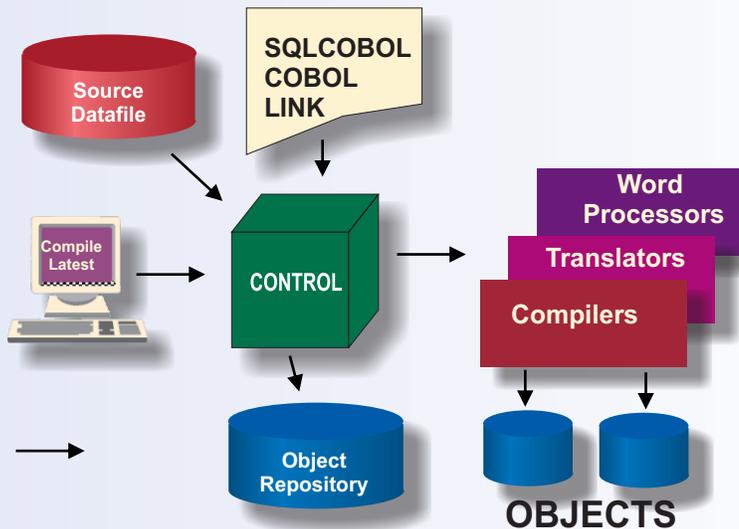
Only the change information is saved in the Datafile. Special compression techniques further reduce storage requirements. In one benchmark, 150 versions of a text source with audit trail and change history required less space than two original versions.

Since a Datafile is a single file, backup of software is simplified. If you restore a CONTROL Datafile, you restore the complete history of the module.

REVISION CONTROL



OBJECT TRACKING



OBJECT TRACKING & REFERENTIAL INTEGRITY

CONTROL manages object files by executing compiles and maintaining a database of the results. CONTROL can use a multi-step METHOD (or script) to compile, translate or otherwise convert the source into a final object. At that point, it stores a 'fingerprint' of the object along with the versions of all source components and build information. Later, CONTROL can use the database to reproduce the source which went into the object for audit or debugging purposes.

As the primary source file is produced, it is interpreted by CONTROL which looks for references to COPY or INCLUDE files. CONTROL develops a tree of reference, version and time stamp information and ensures that all the correct matching references are also produced (if necessary) before starting the compile.

If you attempt to recompile the same source with the same build instructions, CONTROL will advise you that the compilation is unnecessary or update only those dependencies that have changed -- saving you time.

INDUSTRIAL STRENGTH SECURITY

The CONTROL security system adds more flexibility and protection to your files. Each Datafile contains a list of user access codes. By specifying one of six classification codes you define the capabilities of each user. At one end of the spectrum, the Administrator has full access to change any version. At the other end, a support user has read-only access. Each Datafile can have any number of authorized users, and the security structure can dynamically restrict users from a given range of versions.

SIMULTANEOUS ACCESS

CONTROL allows different user groups to change various versions of the same file in parallel. While the programming staff is developing a new release, QA can test another and operations can install emergency fixes -- simultaneously without impacting each other.

SECURITY USER CLASSES



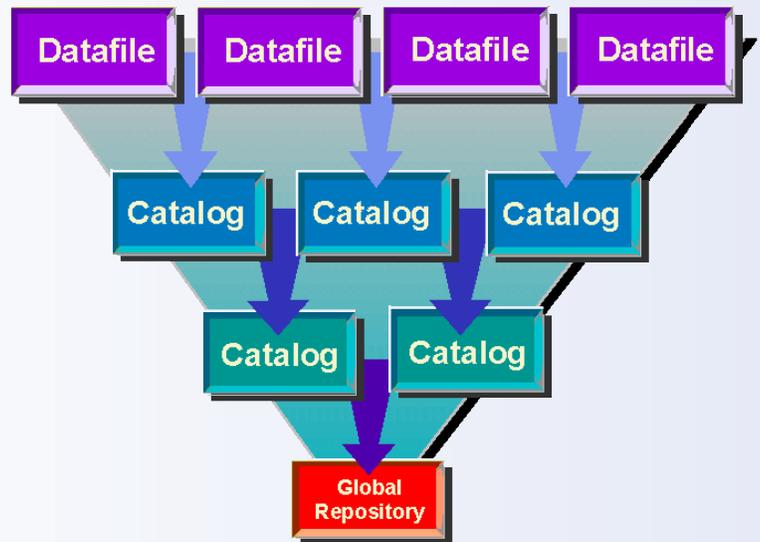
A RELATIONAL DATABASE OF YOUR SOFTWARE

CONTROL builds a database of Datafiles and organizes them into Catalogs. Each Catalog acts as a 'parts list' from which the nature, makeup and configuration of a complete project or subsystem can be displayed, built and controlled.

A Datafile contains information regarding security aspects, revision levels, dates and an audit trail of changes for a module. Special security markers (ONLINE, TEST & DEVEL) identify which versions are accessible to which users.

At the highest level, CONTROL maintains a global database of all Catalogs and Datafiles. Names, descriptions and general information are maintained automatically. Using CONTROL's SQL-like INDEX command or a user written program, generalized questions can be answered such as "Which Datafiles have been modified since June 6?" or "Which Datafiles have descriptions containing 'micro'?".

CONTROL FILE STRUCTURE



The CONTROL file structure is a hierarchy that you can mold to fit your organization. Datafiles hold all the information needed to reproduce any version of a single source or object module. Catalogs group Datafiles into meaningful projects or subsystems in a top down manner. All Datafiles and Catalogs are recorded in the Global Repository which provides fast and flexible queries. Unlike a simple directory, multiple CONTROL Catalogs can have read-only links to shared Datafiles, and components of a Catalog can be geographically distributed.

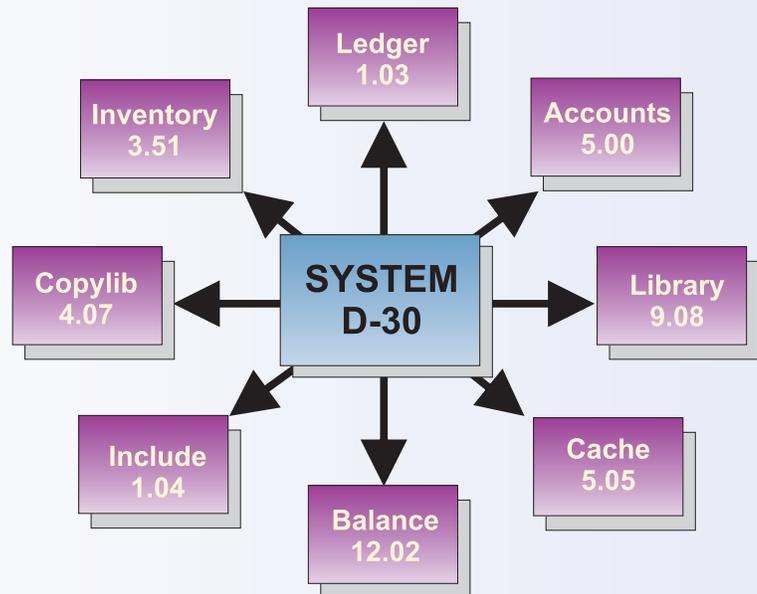
CONTROL ENTIRE SYSTEMS

Some products can keep track of the versions of individual source files. With CONTROL, users can snapshot a variety of components into a SYSTEM RELEASE. With this higher level of version control, you can manage projects or subsystems as easily as a single module.

Catalogs can hold any number of system release names so the entire history of the project can be tracked or reproduced. The HISTORY command can show you all components SINCE a date or a previous system release.

As new systems are completed, the system release ensures that all the correct versions are carried through Quality Assurance. Even versions of COPY files or sub Catalogs are tracked to provide consistent builds and referential integrity. If testing requires correction to some modules, the system release can be updated and finally locked. This insures that the tested versions are the ones that actually go into production.

SYSTEM RELEASE



A System Release is a snapshot of the versions of each entry in a Catalog. In the example above, the system release is called 'D-30' and represents several modules, each at a different numeric revision. The naming convention is flexible to your needs and there is no limit to the number of system releases you can have.

Once a snapshot is created, the name is an alias for the version in question. The command 'GROUP COMPILER SYSTEM D-30' would reproduce and compile all matching versions of every component in the Catalog.

Automate your builds with

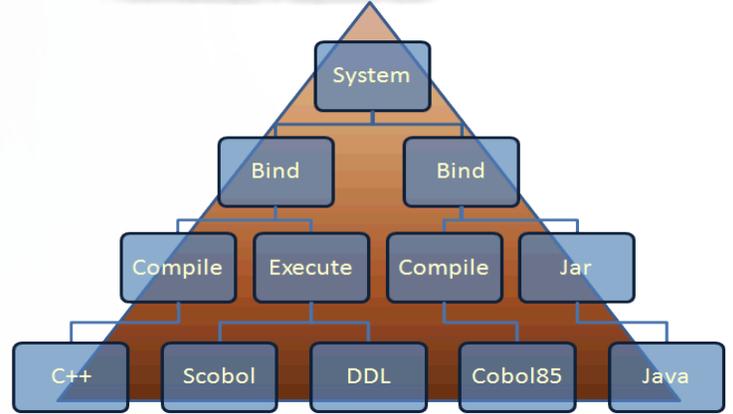


Image having a tool that can choreograph any number of compiles, links & other operations and at the same time ensure it uses all the correct matching versions of your input files!

nciGENESIS is a multithreaded builder for NonStop that can automate complex projects. It is a rule-based script interpreter that extends the power of CONTROL.

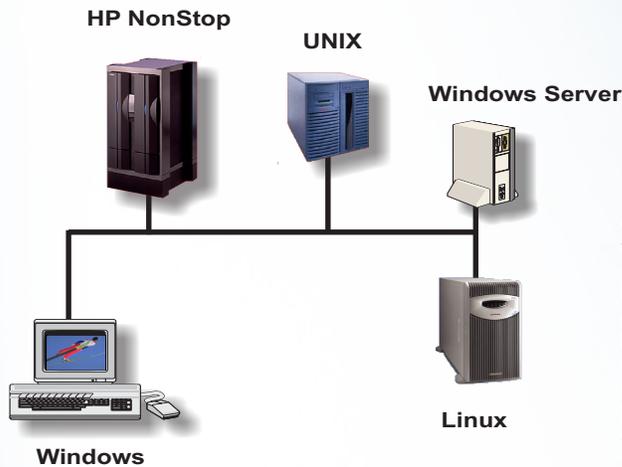
Using nciGENESIS, you define a job as a series of goals and methods. From these rules, it determines the fastest and most efficient execution strategy. Performing operations in parallel, it can skip previously completed steps -- saving enormous amounts of time.

In the diagram to the right, you can see that a whole system is a tree of prerequisite steps. If you were to change a source file, nciGENESIS would determine which steps are affected by the change. It would then determine how many CPUs were available and start as many steps as practical in different processors. Synchronization of the steps is automatically handled by nciGENESIS.



Everything is tied together by the Version Controlled Archive. This ensures when you build something, all the matching versions are used (automatically).

Moving to New Technology?



Check out



Software Management System

CONTROL-CS uses the same Datafiles and Catalogs, but lets you **share and compare**

information between other operating systems and hardware with ease. It connects all your platforms to workstations in a LAN, VPN or Intranet/Internet arrangement.

CONTROL-CS is not simply a graphical front end, but a true client/server system, capable of interfacing with tools like Visual Studio and Eclipse. It lets you transfer files between platforms, edit, compile and build with button clicks. And all with the security and reliability CONTROL

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