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Knowledge/Process Management: The Business Case for the CS KnowledgeBase™

The CS KnowledgeBase addresses the serious requirement for proven processes, procedures, high-level architectures, and document templates which form the basis for Knowledge Management within a development organization. The CS KnowledgeBase is appropriate for projects across a broad spectrum of IT organizations and delivers its content through the award-winning CS/10,000 process management environment.

The CS KnowledgeBase plugs directly into CS/10,000, and can be accessed by both Management Client and Thin Client users. The CS KnowledgeBase is the most current and complete set of system development processes for the Windows platform and includes knowledge and process support for Object Oriented Analysis and Design, Data Warehousing, Rightsizing, Internet Development, Standard Client/Server, and Online Transaction Processing (OLTP).

The CS KnowledgeBase does the high-level design work for you

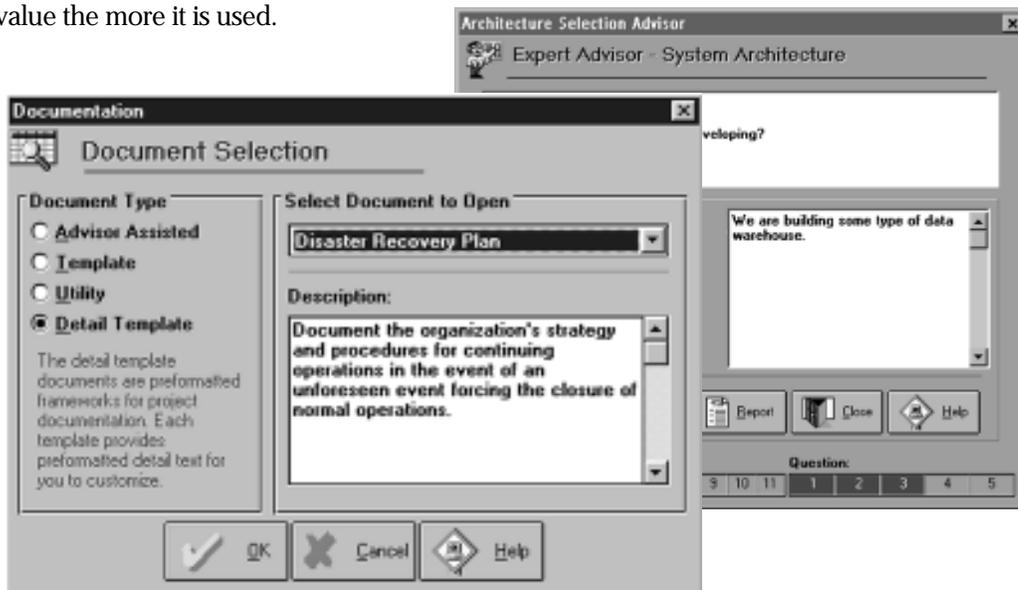
Managers and developers simply answer a series of business and technical questions to define the system requirements. Then the CS KnowledgeBase's underlying expert system automatically selects the appropriate processes and architectures to solve the problem. This eliminates the burdensome task of handpicking, copying, pasting, and customizing processes and architectures for each project.

The CS KnowledgeBase does the documentation for you

The CS KnowledgeBase is accompanied by 30 detailed document templates which provide out-of-the-box documentation for your system development effort. Most project documents are variations on a few basic themes: the CS KnowledgeBase provides a full set of document templates which provide the starting point and much of the content to satisfy even stringent system development documentation requirements.

The CS KnowledgeBase does the estimation for you

Using a US Patented neural network technology, the CS KnowledgeBase delivers unparalleled estimation power, making it possible for the first time to realize accurate software project estimates. Over time, as the CS KnowledgeBase's neural network "learns" from the results of completed projects, its accuracy grows dramatically, making it a tool that increases in value the more it is used.



Knowledge/Process Management for Managers and Project Leaders

The CS KnowledgeBase extends the capabilities of the underlying CS/10,000 environment into a wide array of critical processes and architectures that Managers and Project Leads require. Today's complex systems blend multiple technologies and are often "first of a kind" systems. The CS KnowledgeBase brings order out of chaos, by focusing on the key critical processes for the most popular technologies in use today. Some highlights of the process database include the following methodologies:

Object Oriented Analysis and Design Methodologies

- Booch Modeling
- OMT Modeling
- UML Modeling
- CORBA Application Framework Design
- Object-Relational Mapping
- State Modeling
- OLE/COM Implementation
- CORBA/COM Interoperability Implementation
- Reusable Business Objects Implementation
- Reusable Legacy Wrapper Objects Implementation

Data Warehousing Methodologies

- Dimensional Business Modeling
- Data Repository Modeling through Implementation
- Metadata Repository Design through Implementation
- Warehouse Database Design through Implementation
- Data Aggregation/scrubbing Strategy through Implementation
- Database Design Optimization through Implementation

Rightsizing Methodologies

- Rightsizing Requirements Definition
- Legacy System Analysis
- Rightsized Architecture Definition
- Legacy Data Conversion
- Rightsizing Transition Planning
- Rightsizing Migration Prototypes

Internet/Intranet Development Methodologies

- Web Site System Requirements Definition
- Internet Vendors Research
- Web Site Navigational Workflow Design
- Web Server Planning
- Web Database Middleware Strategy
- Web Server Security Planning
- Firewall Architecture Selection and Planning
- Web Site Content Development
- Intranet Network Implementation
- Web Server Installation and Configuration
- Firewall Construction
- Web Site Database Server Software Setup
- Web Data Access Installation and Configuration
- Web Site Prototyping

Knowledge/Process Management for Managers and Project Leaders (Continued)

Standard Client/Server Methodologies

- Project Charter Definition
- Team-based System Analysis
- Client/Server Architecture Definition
- Application Development Standards Definition
- Configuration Management Standards Definition
- Business Event Modeling
- Functional Design using JAD
- User Interface Modeling
- Data Modeling
- Distributed System Modeling
- Functional Design
- System Fault Tolerance Planning through Implementation
- Unit/System Test Plan Development through Implementation
- Network Planning through Implementation
- Database Server Planning through Implementation
- Production System Planning through Implementation
- Disaster Recovery Planning through Implementation
- GUI Prototyping through Implementation
- Performance Prototyping through Implementation
- Logical/Physical Database Design through Implementation
- Server-side Transaction Implementation
- Application Logic Implementation

Online Transaction Processing (OLTP)

- On-line Business Requirements Analysis
- OLTP Fault Tolerance Requirements Analysis
- Transaction Settlement System Requirements Analysis
- Scalability Requirements Analysis
- Disaster Recovery Requirements Analysis
- TP Monitor Research and Selection
- Transaction Design through Implementation
- Transaction Processing Server Design through Implementation
- Transaction Settlement System Design through Implementation
- Fault Tolerance Design through Implementation
- TP Monitor Installation and Configuration
- OLTP System Testing
- User Centers Installation and Configuration

Features of the CS KnowledgeBase

The CS KnowledgeBase delivers megabytes of knowledge, direct to the desktop through the proven CS/10,000 interface engine. Managers and developers who take advantage of this wealth of information will see immediate productivity gains. Some of the highlights of the CS KnowledgeBase include:

Six Methodologies for System Development deliver the industry's hottest technologies, just when managers and developers need them most. From information on how to design a Web Database Middleware Strategy to Fault Tolerance Strategies for OLTP systems, the CS KnowledgeBase is a virtual encyclopedia of critical information organized in convenient and concise processes. Object Oriented, Data Warehousing, Rightsizing, Internet/Intranet, Standard Client/Server and OLTP methodologies are thorough, easy to understand, and written for users who may have little or no prior experience in these areas.

Data Warehousing Architectures encompass the most successful approaches used in the industry. These architectures extend the already rich CS/10,000 technical architecture environment to include detailed graphical diagrams along with textual explanation of critical architectures for the Data Warehousing project leader, including: Star Schema Data Warehouse, Star Schema Data Marts, ROLAP Server Engines with Data Repository, MOLAP Server Data Marts, Distributed MOLAP Data Marts, Distributed ROLAP Data Marts, Distributed Star Schema Data Marts, and many others.

Detailed Document Templates jump start the system documentation process, giving both the framework and a large part of the content for the critical system documents that would otherwise take days and weeks to produce. Why sit down to write a Disaster Recovery Plan from scratch when the CS KnowledgeBase can give you the format and intelligent suggestions for content down to the most detailed level? Highlights from the Detailed Document Templates include: Database Definition Document, Disaster Recovery Plan, Object Design Document, Package Evaluation and Selection Document, Production Rollout Plan, Project Charter, System Functional Specifications, System Implementation Plan, System Test Plan, and many more.

Expert System-Based Advisors will automatically guide you through the steps of selecting the appropriate processes and architectures for your project requirements. The CS KnowledgeBase Task Advisor and Architecture Advisor utilize CS/10,000's award-winning user interface to gather your business and technical requirements through a friendly questionnaire. Then the highly tuned expert system quickly works out the most appropriate processes and architectures based on the your answers to the questionnaire. It's quick, it's almost effortless, and best of all, it works!

US Patented Neural Network Technology drives the CS KnowledgeBase's estimation engine, which delivers both out-of-the-box estimates, for general use, along with long-range learning capabilities. The real power of the CS KnowledgeBase's estimator is its ability to learn from past projects. The more you use the estimator, the smarter it gets. This makes CS/10,000 and the CS KnowledgeBase one of the only products that actually *appreciates* with age. Only CS/10,000 and the CS KnowledgeBase apply neural network technology to the project estimation problem, and the results are as good as the data that you put into it.

CS KnowledgeBase Configuration Options

Client Side Options

CS/10,000 Management Client

The Management Client provides total and complete access to the CS KnowledgeBase, including the capability to customize and even re-author the six methodologies, the Task Advisor and Architecture Advisor, the Neural Network, the Detail Document Templates, and the Data Warehousing Architectures.

CS/10,000 Thin Client

The Thin Client technology provides a lightweight alternative for users who need simplified access to the CS KnowledgeBase. Complete access to the methodologies is delivered, along with the capability to customize and re-author the processes.

Server Side Options

CS KnowledgeBase Oracle™ Version

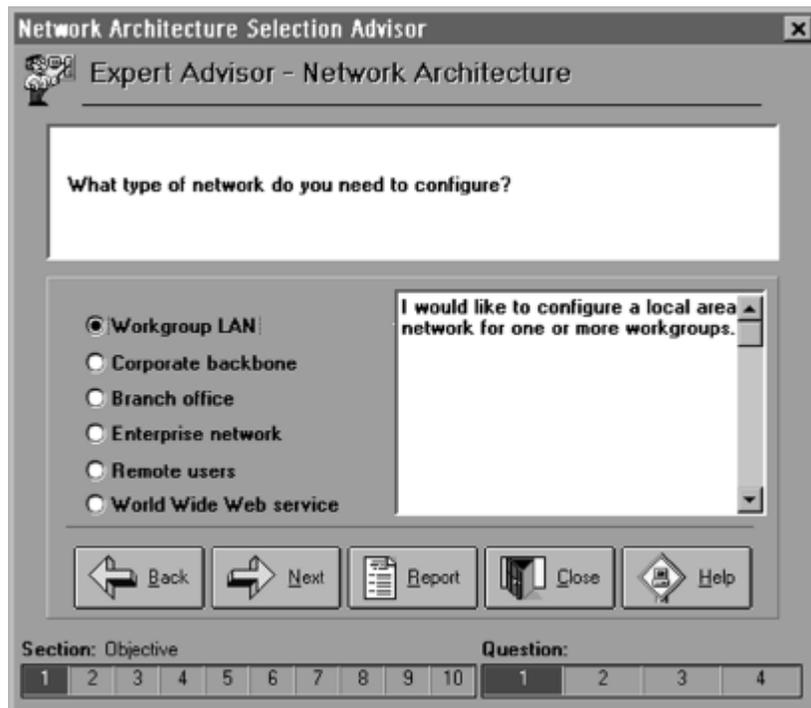
Fully compatible with Oracle Server versions 7.1 and above, the CS KnowledgeBase delivers its total process solution through the powerful framework of Oracle's relational technology.

CS KnowledgeBase Access Version

Embedded directly into the installation process, the Access version requires zero database setup and is virtually maintenance free. This option is ideal for single users and workgroups.

CS KnowledgeBase SQL Server Version

The CS Knowledgebase is also compatible with SQL Server, versions 7.0 or greater.



The CS KnowledgeBase Up Close

Customize and Configure Your
Knowledge Management Environment

Up Close

Six Fully Configurable Methodologies

The CS KnowledgeBase delivers a tremendous wealth of knowledge in the format of pre-configured processes for the development of today's complex systems. These processes are presented within the fully configurable CS/10,000 environment. Object Oriented Analysis and Design, OLTP, Internet/Intranet, Data Warehousing, Rightsizing, and standard methodologies can be quickly customized, configured and turned into state-of-the-art project plans.

The CS KnowledgeBase uses an underlying relational database to store the processes and methodologies. This makes configuration and customization quick as well as secure. All changes and additions to the CS KnowledgeBase are saved using standard SQL transactional logic, guaranteeing an open repository for other applications.

The tool provided by the CS/10,000 process management software gives process managers and project managers the ability to customize the CS KnowledgeBase using standard spreadsheet commands:

Copy, Paste, Duplicate, Delete and **Add** are easily accessible and powerful functions for process customization.

Once a process has been customized, the CS KnowledgeBase can be further extended through the use of process templates. By simply saving the customized processes as a reusable process template, the customizations become immediately available to the entire organization through the shared relational database interface.

Customizable Data Warehousing Architectures

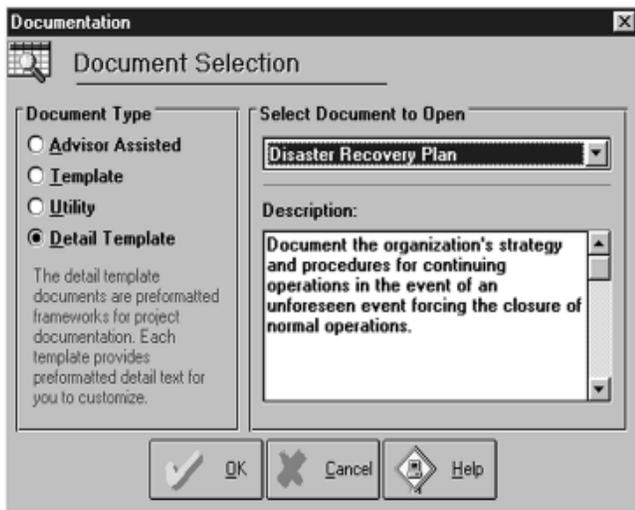
The Data Warehousing Architectures in the CS KnowledgeBase combine diagrams with detailed textual explanations of popular and proven data warehousing approaches. All architectures can be browsed via the CS/10,000 Architecture Browser tool, and the architecture components are all pre-linked to the underlying CS/10,000 Products Database. This makes it possible to quickly traverse from a conceptual architecture to a physical model.

Because the design of Data Warehousing architectures will almost certainly involve one or more experts working in conjunction with the CS KnowledgeBase, the architectures are completely customizable. The CS/10,000's active link to the VISIO® drawing system, allows area experts to make small or large changes to the architecture templates using all the powerful tools provided by VISIO®.

Customizable Detailed Document Templates

From a list of 30 detailed templates; managers and developers will welcome the chance to drastically reduce the time required to produce professional-quality documentation for the most challenging system development deliverables. Rather than sit down in front of a blank screen again to produce a System Test Plan or a Database Design Document, start with one of the CS Knowledgebase's detailed templates and craft a solution from a robust starting point.

Because the CS Knowledgebase's detail templates are stored in Microsoft Word formats, it is easy to customize them and add site-specific standards. By maintaining an open documentation standard, the CS Knowledgebase makes its wealth of information both accessible as well as easy to modify.



Customizable Architecture and Task Advisors

The CS Knowledgebase takes advantage of the fully customizable expert system interface provided by the CS/10,000 process management software. The Architecture and Task Advisors that are delivered with the CS Knowledgebase are pre-configured with series of questions which extract business and technical requirements

The Advisors are “intelligent”, as they regularly analyze the answers provided to determine which areas of questioning, or “question sections” to open. This way, the only questions that have to be answered are those which pertain to the problem at hand.

If these questions need to be modified or extended for the specific purposes of an organization, then this can be done.

Neural Network-Based Estimation That Learns

The US Patented neural network which drives the CS KnowledgeBase’s estimation engine is designed from the ground up to be a fully configurable “learning machine”. By taking advantage of extremely sophisticated neural technology, the estimator can use data from past projects to tune its parameters more precisely.

Over time, as more project actuals are processed by the neural network, the CS KnowledgeBase’s estimation capability improves. The more accurate data it has to work with, the more it can learn. This makes using the CS KnowledgeBase more than an exercise in process management: it is also an exercise in *continuous process improvement*

To use the CS KnowledgeBase’s estimator is unexpectedly easy. All the user is required to do is answer a series of business and technical questions that are posed by the *Estimation Advisor*. Then the CS KnowledgeBase does the rest, processing the answers against the neural network’s stored weighted values to produce a project estimate.

Training the estimator is equally easy. The user simply selects the projects that have accurate actual values, and then the estimator’s learning engine takes over, processing all the actual values through tens of thousands of iterations, until the most optimum weighted values are achieved.



The CS KnowledgeBase Walk Through

Overview

The purpose of this tutorial is to get you started with your first CS KnowledgeBase project. The tutorial begins with the creation of projects, and continues by walking you through the CS KnowledgeBase's expert system questionnaires to determine the appropriate client/server and network architectures. After selecting products to configure your architectures, you will generate a customized project plan and learn how to estimate the project plan. Utilizing CS KnowledgeBase's convenient project management features, you can review and print your project plan and generate an automated Project Charter document.

As you complete each step, keep in mind that the CS KnowledgeBase is the content which you are viewing through the CS/10,000 User Interface. CS KnowledgeBase Content includes architectures, tasks, task descriptions, and documents.

Logging into CS/10,000

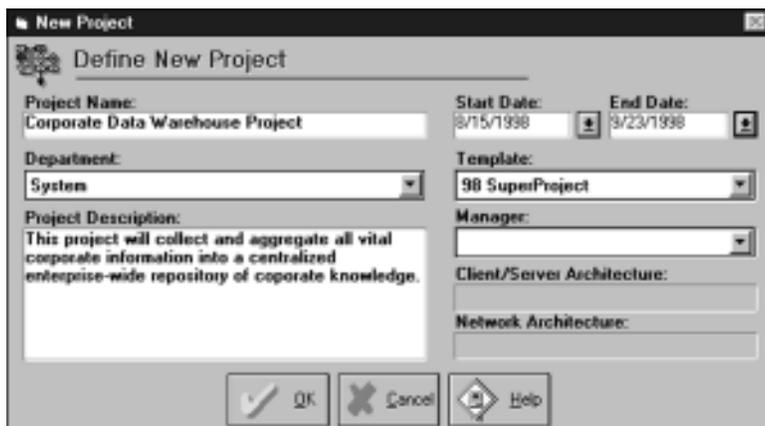
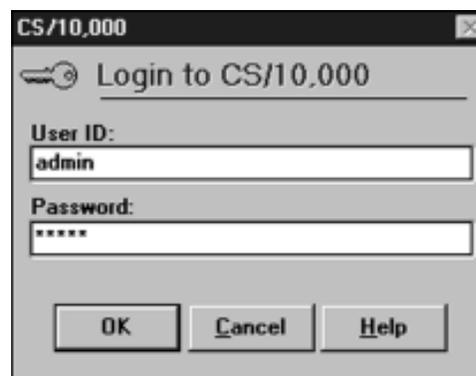
This section covers how to log into CS/10,000's security system to begin your session. Different levels of functionality will be available, depending upon your user access level and scope.

Type "admin" into the User ID textbox. Enter "admin" in the Password textbox and click OK.

Starting a New Project

In this step, you will create a new CS KnowledgeBase project.

Walk Through



Once you have logged into the system, create a new project by clicking on the 'Project' menu and selecting 'New...' from the list of options. When the **New Project** window displays, specify a name for your new project, choose a department from the listbox, create a brief description and select start and end dates from the dropdown calendars. The **Template** listbox should read "98 SuperProject"— don't change this default option. Leave the **Manager** dropdown listbox blank for now.

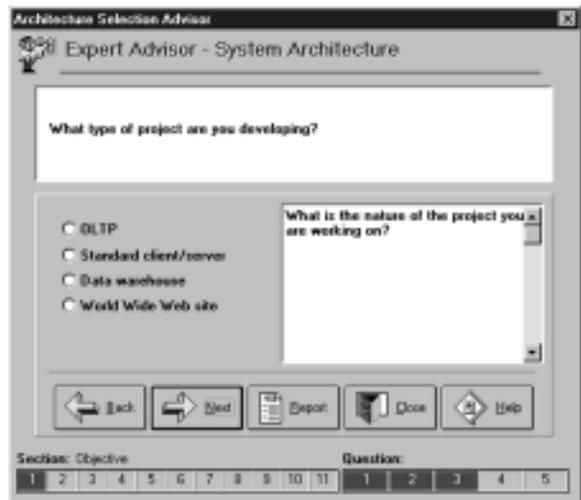
Click **OK** to create your new project.

Selecting a Client/Server Architecture

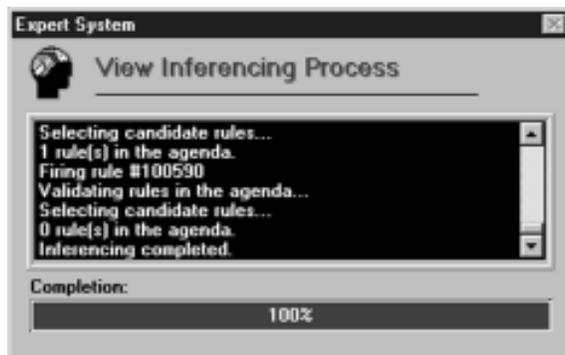
This section will guide you through selecting a client/server architecture. To accomplish this, you will utilize the CS KnowledgeBase's expert system that makes architecture recommendations based upon your system requirements.

To open CS KnowledgeBase's **Architecture Selection Advisor Window**, go to the 'Advisor' menu and select 'C/S Architecture Selection'. This window gathers your business and technical requirements by asking a series of commonsense questions. Answer the questions by clicking the radio button corresponding to the most appropriate choice. Click the Next button to go to the next question and the Back button to go back and change previous answers.

When you have finished, click the Report button. The CS KnowledgeBase's expert system will then review your responses to the questions and recommend the most appropriate architectures for your project.

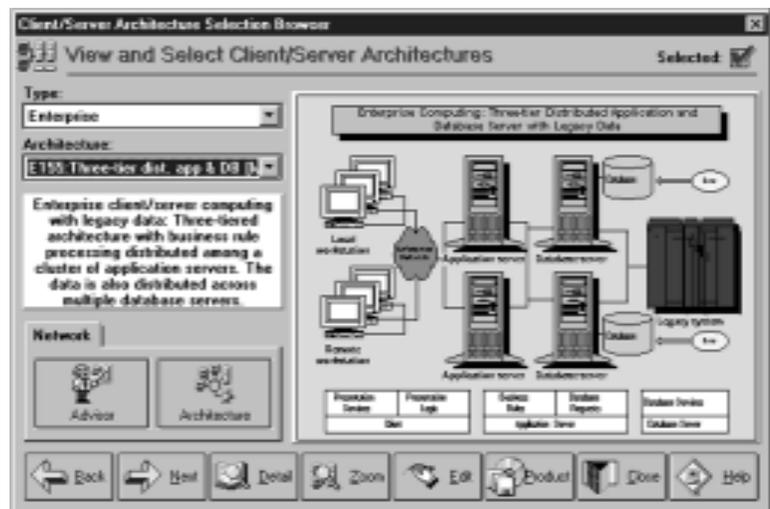


Note: You may click the Report button at any time, even if you have not answered all the questions; however, the more questions you answer, the more accurate the experts system's recommendations will be.

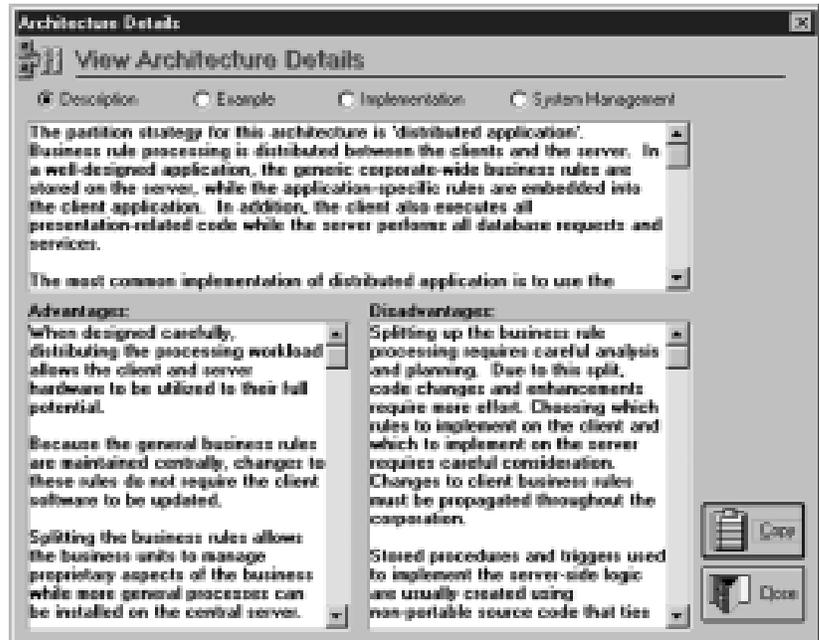


The **Expert System** window will appear while the CS KnowledgeBase is analyzing your responses to the questions and determining which architectures are appropriate for your business needs. When the inferencing process has finished, the list of recommended architectures will be displayed in the **Architecture Recommendations** window. Select an architecture from the list and click the View button to view the architectures in more detail.

From within the **Client/Server Architecture Selection Browser**, choose the Zoom button to see a full-screen view of the architecture. Click the Detail button to open the **Architecture Details** window. This area provides detailed information on each architecture enabling you to make an informed decision as to which architecture best fits your system needs. Click the Close button when you have finished reviewing the details.

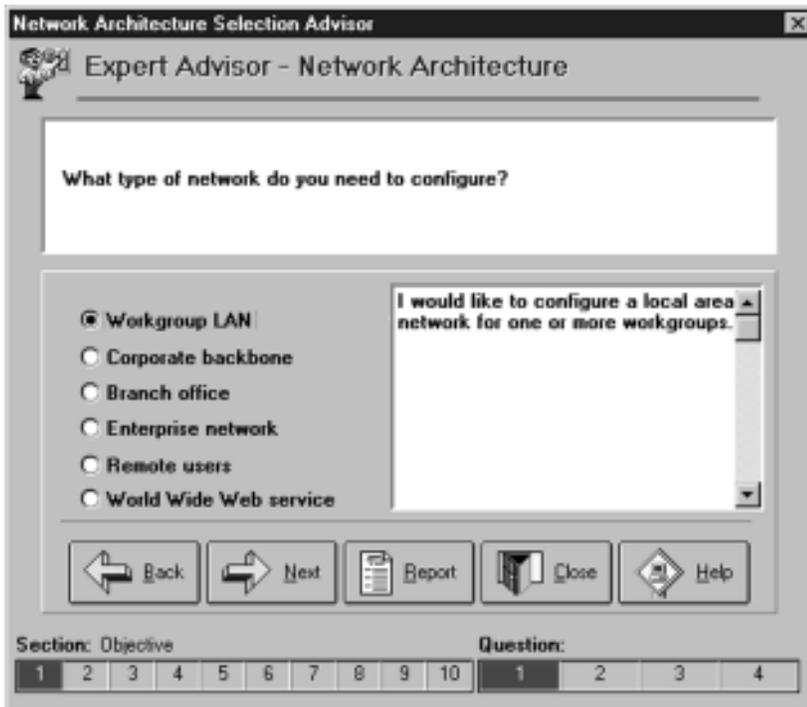


If the expert system recommends more than one architecture, you can click the Next button to view the other recommended architectures. Once you have decided upon one of the candidate architectures, click the Select checkbox in the upper right corner to assign that architecture to your project. When CS/10,000 asks if you want to invoke the **Task Advisor**, select No. For the purposes of this tutorial, choosing a network architecture will be the next step.



Choosing a Network Architecture

In this step, the CS KnowledgeBase will assist you in selecting a network architecture based upon your specified requirements.



To determine the best network architecture, select 'Network Architecture Selection...' from the 'Advisor' menu.

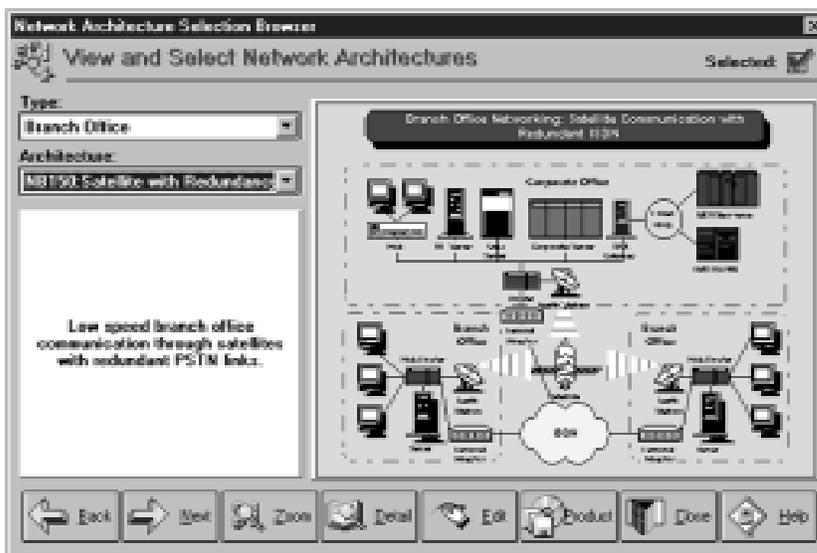
The Network Architecture Selection Advisor functions in the same way as the Client/Server Architecture Selection Advisor. Once you have answered all the questions, click on the Report button to invoke the CS KnowledgeBase's expert system to recommend appropriate network architectures for your project. When the expert system finishes analyzing your requirements, click the View button on the **Architecture Recommendations** window to open the **Network Architecture Selection Browser** and view the architectures in more detail. Review the selected architectures following the same steps outlined in the previous section. When you have determined the

network architecture you would like to implement, click the Selected checkbox to assign the architecture to the current project.

Selecting Products for Your Architecture

Using the *Client/Server* or *Network Architecture Selection Browser* windows, you can easily select products for any of the architectural components. Before exiting the *Network Architecture Selection Browser* window, use CS KnowledgeBase's automated link to products and select several products for the selected architecture.

With the *Network Architecture Selection Browser* open, move the mouse over any component within the architectural diagram. Notice that the mouse cursor changes to a cross-hair as you move over each of the architectural components. Double-click on an architectural component to open up the *Architecture Component Details* window that gives a description of the component on which you clicked. To select products for the architectural component, select the *Product Configurator* tab. The configurator will walk you through the process of selecting appropriate products for that component.



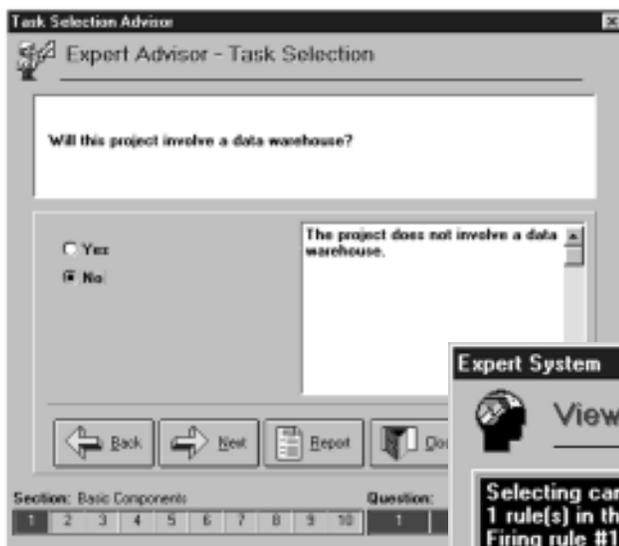
First choose a Product Category and click on the Next button. Then choose a Product Class and click on the Next button. Select several products from the available products listbox by clicking on the down arrow. Click on the Next button. When you are asked *What would you like to do next?*, choose the *View Product Detail* option to open the *Product Selection Browser* window.

The **Product Selection Browser** window provides details for the selected products and information on the product vendors, including world headquarters, international locations and Internet address if available. After reviewing product and vendor information, click the **Close** button to return to the **Network Architecture Selection Browser** window. Return to the main CS/10,000 window by closing any open windows.

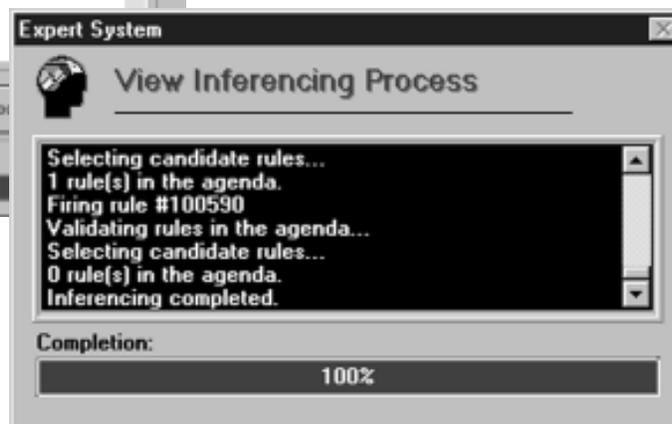


Customizing Your Project Plan

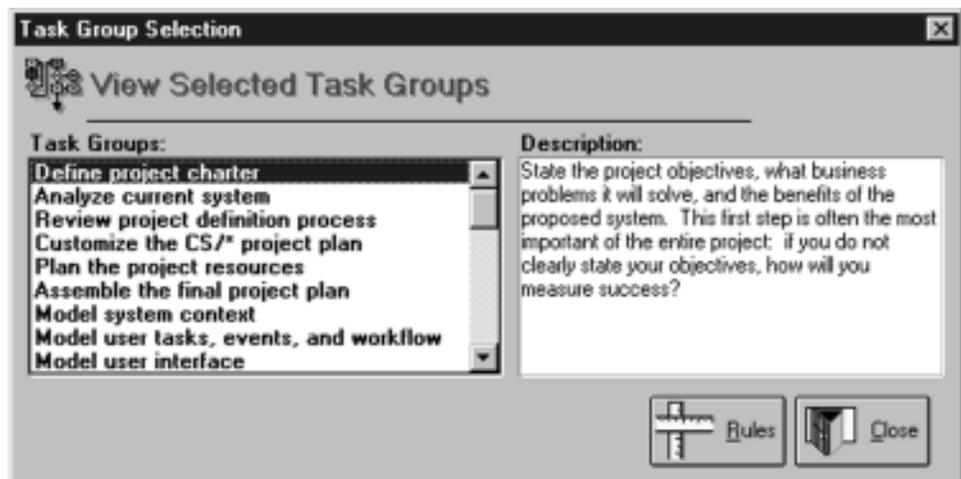
In this step, the CS KnowledgeBase expert system creates a customized project plan, complete with task details and deliverables, based upon your business and technical requirements.



Choose 'Task Selection...' from the 'Advisor' menu to display the **Task Selection Advisor**. The Intelligent Questionnaire guides you through the process of defining your requirements. When you have finished answering all the questions, click on the **Report** button to run the expert system to automatically generate a project plan, based on your requirements.



When the expert system has finished creating the project plan, CS/10,000 displays a list of all the task groups which have been selected. When you click Close, the system will generate the individual tasks, based upon the selected task groups. These tasks will be displayed in the main CS/10,000 task grid.



Reviewing Your Project Plan

Now that you have selected an architecture and generated a project plan, you are ready to begin detailing and customizing the project plan.

Click on the 'Define' phase for your project in the Object Tree on the left of the task grid.

The task grid will then display all of the task groups for the Define phase and related project management information for each task. You can then begin to customize the tasks in the task grid to suit your personal project requirements. Using the Task menu, or toolbar options you can copy and paste tasks in the project plan, edit or create task groups and sub-tasks and change the position of tasks in the project task grid.

To indent a task, select the task that you wish to indent. Click on the **Indent** button in the toolbar. The task will be moved to the right in your project task grid. Similarly, you can outdent a task by selecting it and clicking on the **Outdent** button in the toolbar. The task will be moved to the left in your project task grid.

CS/10,000's highest level task is the task group header, which appears in magenta on the task grid. You can create a new task group header by using the **Outdent** button on the toolbar. Select the task which you would like to set up as a task group header, and click the **Outdent** button on the toolbar until the task becomes magenta. All tasks following a task group header are colored green and are part of the same task group, until the next task group header. Deliverables are yellow.

Running the Project Estimator

Once you have customized your project plan, the **Estimation Advisor** will walk you through the estimation process. The Project Estimator provides a baseline for predicting project effort and helps you to allocate your resources more intelligently.

In the 'Advisor' menu, click on 'Project Estimation...' to open up the **Estimation Advisor**. This feature follows the same Intelligent Questionnaire format employed by the entire series of advisors. Once you have answered all the questions, click on the **Report** button to generate the project estimate.

The estimation will be calculated as total project effort, and partitioned by project phase and task group.

Click on the **Save** button to save the estimate. The **Save Project Estimates** window opens. Type a name for this project estimate. Leave the **Update Project Tasks** field checked, so that your project plan will be updated with the hours estimated for each task.

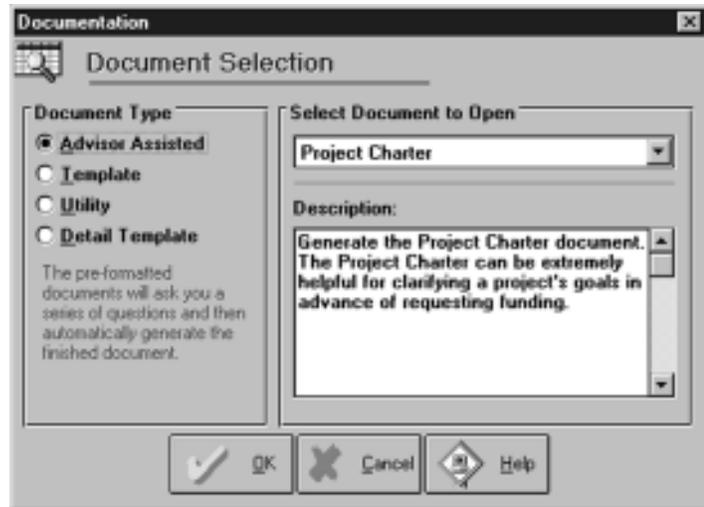
Printing the Project Plan

CS/10,000 provides a number of comprehensive pre-formatted reports. One of these is the Project Tasks report.

Choose **Reports** from the main menu. The **CS/10,000 Reporting** window appears. Select the **Project Tasks** report from the list of reports. Click **OK** to preview the report.

The **CS/10,000 Reporting Preview** window opens with the Project Tasks report.

Use the navigation buttons in the lower left corner of the window to move through the report. From the **File** menu select **Print** to print out the report.



Using the Detail Templates

The next step is to generate a Project Charter document.

Select 'Project Documentation...' from the 'Advisor' menu to bring up the **Documentation** window. Select the **Detail Template** document type. Choose any document from the **Select Document to Open** dropdown listbox and click **OK**. The document will open in Microsoft Word.

Browse through the document. Note that boiler-plate text is in normal font, while text that requires customization is italicized and enclosed in brackets.