ASG-Estimate™
User's Guide

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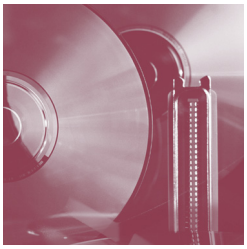

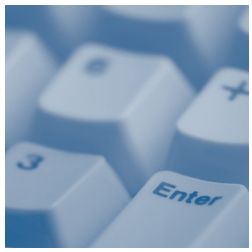

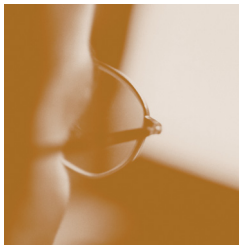

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Preface

This *ASG-Estimate User's Guide* provides information about using ASG-Estimate (herein called Estimate). Estimate provides you with the means to estimate the effort required to make changes to applications for large-scale projects.

Estimate enables organizations to accomplish these tasks:

- Define the enterprise, business group, and application profile of the business.
- Gather information about business applications.
- Estimate the time and cost of making large-scale application changes.

The *ASG-Estimate User's Guide* is intended for everyone involved in the change process.

Allen Systems Group, Inc. (ASG) provides professional support to resolve any questions or concerns regarding the installation or use of any ASG product. Telephone technical support is available around the world, 24 hours a day, 7 days a week.

ASG welcomes your comments, as a preferred or prospective customer, on this publication or on any ASG product.

About this Publication

This publication consists of these chapters:

- Chapter 1, "Overview," discusses what Estimate is, its terminology, how it works, and its benefits.
- Chapter 2, "Getting Started," explains how to use online help and how to verify or modify user options.
- Chapter 3, "Using the TaskManager to Complete the Estimate Process," discusses in detail the TaskManager and its use.
- Chapter 4, "Defining the Enterprise," describes the process of defining an enterprise.
- Chapter 5, "Analyzing Applications," contains basic information for analyzing an application.
- Chapter 6, "Defining an Impact Project," describes high-level tasks and the process of defining an impact project.
- Chapter 7, "Executing the Impact Process," details the impact process and how to review and refine the criteria to determine the impacted data items.
- Chapter 8, "Defining Cost Factors," describes the process of defining cost factors for the impact project.
- Chapter 9, "Summarizing the Impact Project," explains how to use the accumulated and analyzed data and the statistical information produced in the impact project.
- Chapter 10, "Finalizing the Impact Project," provides considerations, guidelines, and high-level procedures to apply the knowledge to the enterprise.
- Chapter 11, "Estimate Reports," gives details on the different reports available to you, including report groups and types, options defaults, generating, and viewing or printing reports.

Related Publications

The documentation library for ASG-Estimate consists of these publications (where *nn* represents the product version number):

- ASG-*Application Definition and Analysis User's Guide* (ALL0200-*nn*) describes defining and analyzing an application in ASG-Alliance, ASG-Recap, and ASG-Estimate.
- *ASG-Center Installation Guide* (CNX0300-*nn*) describes installation and customization procedures for ASG-Center. ASG-Center must be installed before installing ASG-Estimate.
- *ASG-Estimate Installation Guide* (TMX0300-*nn*) provides installation instructions for ASG-Estimate.
- *ASG-Estimate User's Guide* (TMX0200-*nn*) describes how to use ASG-Estimate to measure the complexity, financial, and resource impacts of code conversion projects.

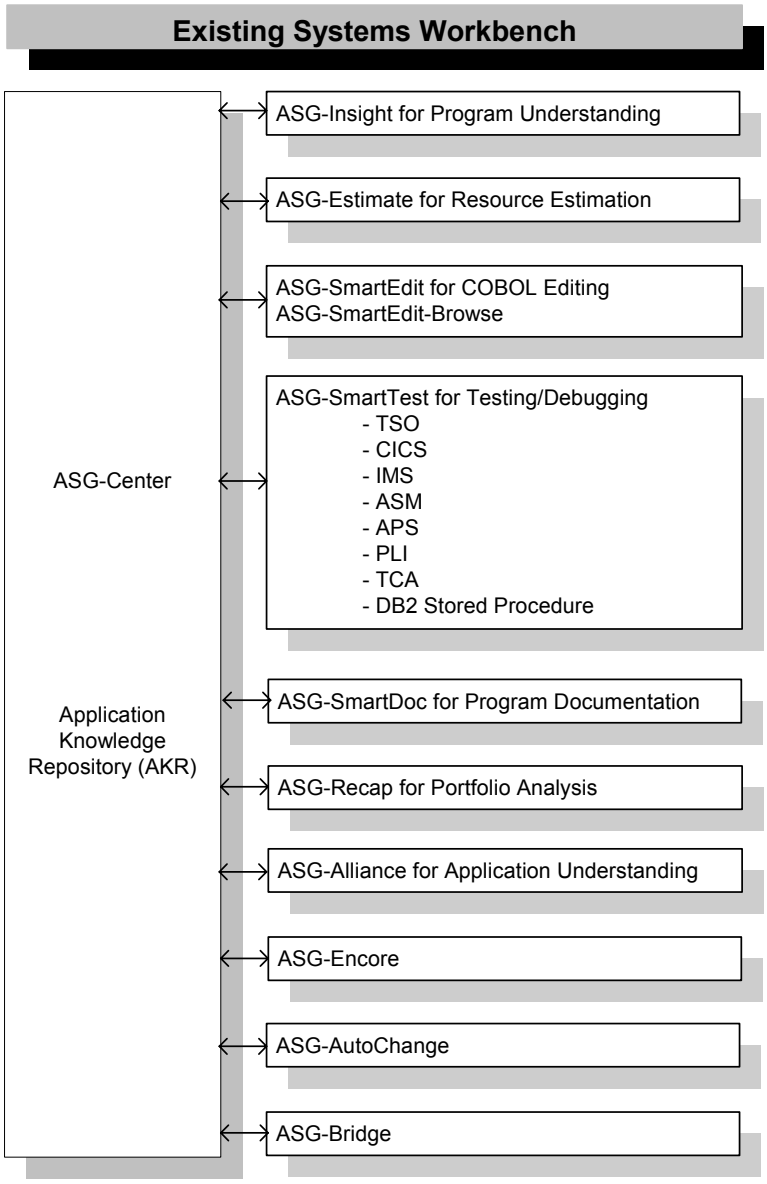
Note:

To obtain a specific version of a publication, contact the ASG Service Desk.

ASG-Existing Systems Workbench (ASG-ESW)

ASG-ESW (herein called ESW) is an integrated suite of components designed to assist organizations in enhancing, redeveloping, or re-engineering their existing systems. ESW products use the Application Knowledge Repository (AKR) to store source program analysis information generated by the Analytical Engine. Figure 1 represents the components of ESW.

Figure 1 • ASG Existing Systems Workbench



This table contains the name and description of each ESW component:

ESW Product	Herein Called	Description
ASG-Alliance	Alliance	The application understanding component that is used by IT professionals to conduct an analysis of every application in their environment. Alliance supports the analysis and assessment of the impact of change requests upon an entire application. Alliance allows the programmer/analyst to accurately perform application analysis tasks in a fraction of the time it would take to perform these tasks without an automated analysis tool. The impact analysis from Alliance provides application management with additional information for use in determining the resources required for application changes.
ASG-AutoChange	AutoChange	The COBOL code change tool that makes conversion teams more productive by enabling quick and safe changes to be made to large quantities of code. AutoChange is an interactive tool that guides the user through the process of making source code changes.
ASG-Bridge	Bridge	The bridging product that enables field expansion for program source code, without being required to simultaneously expand the fields in files or databases. Because programs are converted in smaller groups, or on a one-by-one basis, and do not require file conversion, testing during the conversion process is simpler and more thorough.
ASG-Center	Center	The common platform for all ESW products. Center provides the common Analytical Engine to analyze the source program and store this information in the AKR. This common platform provides a homogeneous environment for all ESW products to work synergistically.

ESW Product	Herein Called	Description
ASG-Encore	Encore	The program re-engineering component for COBOL programs. Encore includes analysis facilities and allows you to extract code based on the most frequently used re-engineering criteria. The code generation facilities allow you to use the results of the extract to generate a standalone program, a callable module, a complement module, and a CICS server. Prior to code generation, you can view and modify the extracted Logic Segment using the COBOL editor.
ASG-Estimate	Estimate	The resource estimation tool that enables the user to define the scope, determine the impact, and estimate the cost of code conversion for COBOL, Assembler, and PL/I programs. Estimate locates selected data items across an application and determines how they are used (moves, arithmetic operations, and compares). Time and cost factors are applied to these counts, generating cost and personnel resource estimates.
ASG-Insight	Insight	The program understanding component for COBOL programs. Insight allows programmers to expose program structure, identify data flow, find program anomalies, and trace logic paths. It also has automated procedures to assist in debugging program abends, changing a computation, and resolving incorrect program output values.
ASG-Recap	Recap	The portfolio analysis component that evaluates COBOL applications. Recap reports provide function point analysis and metrics information, program quality assessments, intra-application and inter-application comparisons and summaries, and historical reporting of function point and metrics information. The portfolio analysis information can also be viewed interactively or exported to a database, spreadsheet, or graphics package.
ASG-SmartDoc	SmartDoc	The program documentation component for COBOL programs. SmartDoc reports contain control and data flow information, an annotated source listing, structure charts, program summary reports, exception reports for program anomalies, and software metrics.

ESW Product	Herein Called	Description
ASG-SmartEdit	SmartEdit	The COBOL editing component that can be activated automatically when the ISPF/PDF Editor is invoked. SmartEdit provides comprehensive searching, inline copybook display, and syntax checking. SmartEdit allows you to include an additional preprocessor (for example, the APS generator) during syntax checking. SmartEdit supports all versions of IBM COBOL, CICS, SQL, and CA-IDMS.
ASG-SmartTest	SmartTest	The testing/debugging component for COBOL, PL/I, Assembler, and APS programs in the TSO, MVS Batch, CICS (including file services), and IMS environments. SmartTest features include program analysis commands, execution control, intelligent breakpoints, test coverage, pseudo code with COBOL source update, batch connect, disassembled object code support, and full screen memory display.

Invoking ESW Products

The method you use to invoke an ESW product depends on your system setup. If you need assistance to activate a product, see your systems administrator. If your site starts a product directly, use the ISPF selection or CLIST as indicated by your systems administrator. If your site uses the ESW screen to start a product, initiate the ESW screen using the ISPF selection or CLIST as indicated by your systems administrator and then typing in the product command on the command line.

The product names can also vary depending on whether you access a product directly or through ESW. See "ESW Product Integration" on page xiv for more information about using ESW.

To initialize ESW products from the main ESW screen, select the appropriate option on the action bar pull-downs or type the product shortcut on the command line.

Product Name	Shortcut	ESW Pull-down Options
Alliance	AL	Understand ▸ Application
AutoChange	CC	Change ▸ Conversion Set
Bridge	BR	Change ▸ ASG-Bridge
Encore (Re-engineer)	EN	Re-engineer ▸ Program
Estimate	ES	Measure ▸ ASG-Estimate
Insight (Understand)	IN	Understand ▸ Program
Recap (Portfolio Analysis)	RC	Measure ▸ Portfolio
SmartDoc (Document)	DC	Document ▸ Program
SmartEdit	SE	Change ▸ Program **Or** Change ▸ Program with Options
SmartTest	ST	Test ▸ Module/Transaction

ESW Product Integration

Because ESW is an integrated suite of products, you are able to access individual ESW products directly or through the main ESW screen. As a result, you might see different fields, values, action bar options, and pull-down options on a screen or pop-up depending on how you accessed the screen or pop-up.

Certain ESW products also contain functionality that interfaces with other ESW products. Using SmartTest as an example, if Alliance is installed, SmartTest provides a dynamic link to Alliance that can be used to display program analysis information. If Insight is installed and specified during the analyze, the Insight program analysis functions are automatically available for viewing logic/data relationships and execution path. For example, the Scratchpad option is available on the Options pull-down if you have Insight installed. Access to these integrated products requires only that they be installed and executed in the same libraries.

Examples

Example 1. Figure 2 shows the Encore Primary screen that displays when you access Encore directly.

The Encore Primary screen contains these eight action bar menu items: File, View, Extract, Generate, Search, List, Options, and Help.

Figure 2 • Encore Primary Screen

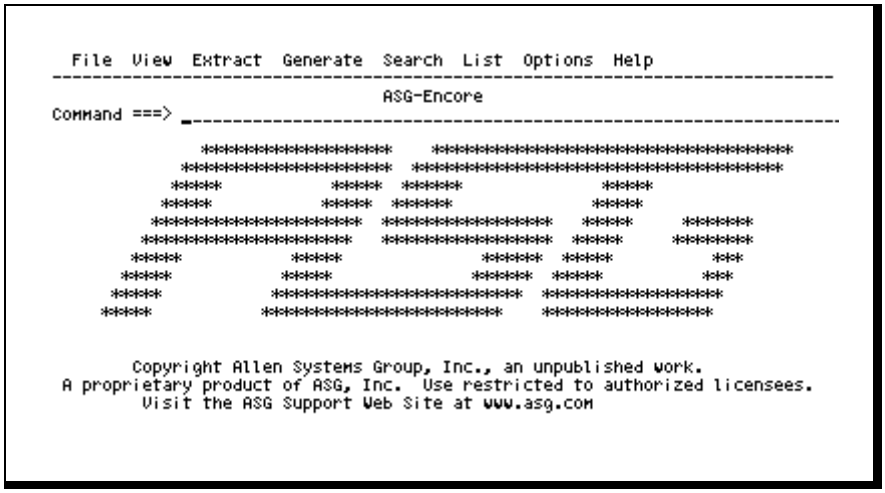
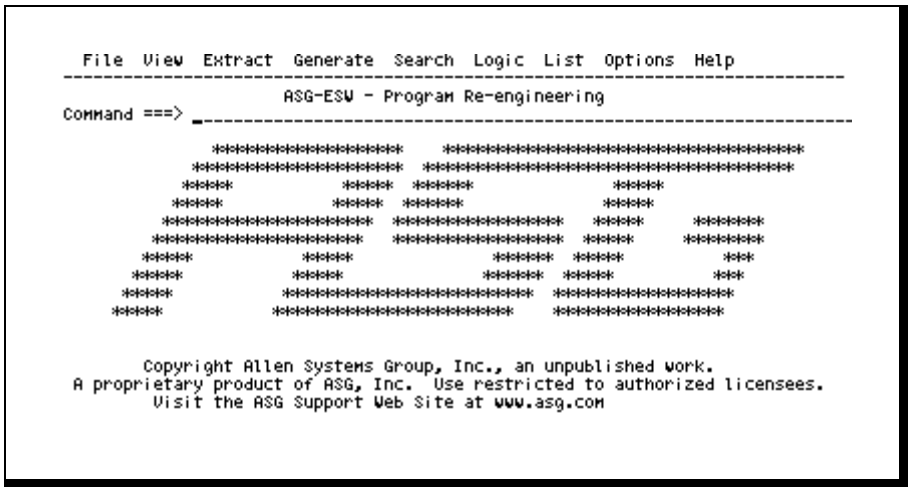


Figure 3 shows the Encore Primary screen that displays when you access Encore through ESW by selecting Re-engineer ▸ Program from the ESW action bar menu. Notice that the Primary screen name changes to ASG-ESW - Program Re-engineering when you enter Encore through ESW. Also, the Logic menu item displays if Insight is installed.

Figure 3 • ESW Encore Primary Screen



Example 2. Figure 4 shows the File - Analyze Submit pop-up that displays when you access SmartTest directly. Figure 5 shows the File - Analyze Submit pop-up that displays when you access SmartTest through ESW.

Notice that the Analyze features field in Figure 5 lists additional ESW products than shown on Figure 4. This field is automatically customized to contain the ESW products you have installed on your system.

The actions shown on these screens also vary. For example, the D action (ASG-SmartDoc Options) is available on the File - Analyze Submit screen if the SmartDoc product is installed on your system. In Figure 4, the ASG-SmartDoc Options action is not available.

Figure 4 • File - Analyze Submit Screen

```
                          File - Analyze Submit
Command ===> ____________________________________________________________

           E - Edit JCL                                S - Submit JCL

Compile and link JCL (PDS or sequential):
   Data set name  'USER12.REL.CNTL(VIAPCOBC)'

Analyze features (Y/N):
   ASG-SmartTest:  Y   Extended Analysis:  N

AKR data set name 'USER12.GENERAL.AKR'
AKR program name                       (if overriding PROGRAM-ID)

Analyze options:
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

Compile? (Y/N) . . . . . . . . . Y     (Y if needed by features)
Link load module reusable? (Y/N) Y
```

Figure 5 • File - Analyze Submit Screen (Accessed through ESW)

```
                          File - Analyze Submit
Command ===> ____________________________________________________________

           E - Edit JCL     S - Submit JCL     D - ASG-SmartDoc Options

Compile and link JCL (PDS or sequential):
   Data set name  'USER12.REL.CNTL(HTEST)'

Analyze features (Y/N):
   ASG-Insight:  Y   ASG-SmartTest:  Y   Extended Analysis:  N
   ASG-SmartDoc:  N   ASG-Encore:  N
AKR data set name 'USER12.GENERAL.AKR'
AKR program name  __________           (if overriding PROGRAM-ID)

Analyze options:
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

Compile? (Y/N) . . . . . . . . . Y     (Y if needed by features)
Link load module reusable? (Y/N) Y     (ASG-SmartTest
```

Publication Conventions

ASG uses these conventions in technical publications:

Convention	Represents
ALL CAPITALS	Directory, path, file, dataset, member, database, program, command, and parameter names.
Initial Capitals on Each Word	Window, field, field group, check box, button, panel (or screen), option names, and names of keys. A plus sign (+) is inserted for key combinations (e.g., Alt+Tab).
`lowercase italic monospace`	Information that you provide according to your particular situation. For example, you would replace *`filename`* with the actual name of the file.
`Monospace`	Characters you must type exactly as they are shown. Code, JCL, file listings, or command/statement syntax. Also used for denoting brief examples in a paragraph.
Vertical Separator Bar (|) with underline	Options available with the default value underlined (e.g., Y|N).

1 Overview

This chapter discusses Estimate, its terminology, how it works, and its benefits, and contains these sections:

Section	Page
Estimate Overview	1
Estimate Terminology	2
How Estimate Works	2
Estimate Information Requirements	4
The Benefit of Using Estimate	5
How To Use Estimate	5

Estimate Overview

Estimate is a tool for estimating the cost of code conversion projects that span your business enterprise. Using information about your organization and its business applications, you can develop and apply change criteria to produce an estimate of the resources required for the project.

Estimate creates a database to answer these common conversion project questions:

- How many items are affected?
- How big is the project?
- How much will it cost?

You analyze and manage this information based on your site's unique environment and requirements.

Estimate Terminology

You can facilitate your understanding of Estimate and the terminology used throughout this book by becoming familiar with these terms and their definitions.

- An enterprise is a hierarchical model that represents your business. It might represent your entire company, a specific functional unit, or a department.
- A Business Group contains a related set of applications; for example, all applications used by your Human Resources department.
- An application is a group of programs that perform a specific function; for example, programs that maintain personnel records.
- A node is a marker for a level in the enterprise model:
  - The enterprise node is the highest level of the enterprise model.
  - A Business Group node is subordinate to the enterprise node and points to a related set of application nodes.
  - An application node is subordinate to a Business Group or the enterprise and points to a specific application definition and its analysis data.
- An application definition consists of the COBOL, load module, JCL, CICS, IDMS, PL/I, and IMS components and attributes associated with an application.
- The engineering objective is a project goal. For example, this could involve expanding a mailing code field or converting a currency.
- Impact criteria include the data item search patterns that determine the data items generated and the cost factors applied to the impact project.
- The impact process is the activity that applies impact criteria and produces the resulting data.
- An impact project is a repository for impact criteria and resulting data.

How Estimate Works

The functionality of Estimate focuses on an impact project. Estimate incorporates a definition of the enterprise and the impact process itself to develop the impact project estimate.

Enterprise Definition Process

You can set up the enterprise structure to represent the business functions you want to evaluate.

To define the enterprise

1. Create an enterprise to represent the high-level business organization, that is, your company, your division, or your sector.
2. Add business groups under the enterprise if applicable to your organization.
3. Add applications under the enterprise or related business groups.
4. Create an impact project to contain your impact criteria, which includes this information:
   - Data item Search Criteria
   - Cost factors
   - Impact options
   - Data resulting from the impact process

Impact Process

The impact process creates an impact project based on an engineering objective. The impact process applies this objective to the enterprise data, and is used to perform these tasks:

- Define impact criteria.
- Identify the impact of the data-item conversion for each application.
- Summarize the results for all applications.
- Produce impact and cost reports to document the impact project results.

Estimate Information Requirements

This section describes the types of knowledge or information needed to complete an impact project.

Enterprise Expertise

An understanding of the impact project at the enterprise level is necessary to set up and manage the impact process. Enterprise expertise includes knowledge of these areas:

- Project management information such as the maintenance costs and staffing requirements for applications.
- The structure of the organization and its systems. To build the model, you must have an outline of the enterprise structure that answers these types of questions:
  - Which applications belong to each functional business group?
  - Which applications cross departmental lines and could be associated to the enterprise independently?
- The project team's expertise and availability, identified by answering these types of questions:
  - Who is responsible for the applications and staff within each business group?
  - Who are the application specialists with detailed knowledge of each application and its programs?
  - How much time can each specialist devote to the implementation?

Application Expertise

Technical knowledge and a working understanding of each application are necessary to refine and tailor the impact criteria. Application expertise includes knowledge of this information:

- Potentially impacted data items particular to an application
- Complexity of the programs
- Job, data, and project priorities
- Staff expertise and availability
- Person and CPU hours required for the engineering and testing tasks

The Benefit of Using Estimate

Estimate allows you to report the impact and cost of different implementation strategies. Focus on one enterprise to complete multiple projects using different impact criteria, data item search criteria, and cost factors.

At the enterprise level, you might examine strategies based on these issues:

- Will outsourcing some of the tasks allow us to complete the conversion project in a timely manner? Will it be cost effective?
- Will using more Level I programmers be cost effective? Will a lack of expertise cause the completion date to slip?

At the application level, strategies for programs might examine these issues:

- What is the cost of changing the fundamental data structures compared to the cost of changing the procedural code?
- What is the cost of changing the procedural code with bridging routines compared to the cost of changing the data structures?
- You compare implementation strategies and finalize the best of them for your impact project. The completed impact project should present the most cost-effective and technically feasible plan for implementing the engineering objective.

How To Use Estimate

Completing the tasks required to achieve your project goal requires the expertise supplied by your organization's project management staff and the task management facilities supplied by Estimate.

Project Management

Your impact project is likely to be implemented by a variety of staff members with assigned roles to play. Their roles tend to center on activities at the enterprise level or the application level.

Enterprise-level Responsibilities

These responsibilities require the expertise to direct the effort at the highest level. Typically, at this level you perform these tasks:

- Define the enterprise.
- Add Business Groups and Applications.

- Create the impact project.
- Define the criteria for evaluating the impact of the conversion on the enterprise.
- Propagate the criteria to the business groups and applications within the enterprise.
- Generate enterprise and business group summary reports.
- Set the project's engineering objective based on impact project team input and management directives.
- Generate the final Engineering Cost Summary report.
- Establish consistent practices for all applications.

Application-level Responsibilities

These responsibilities require in-depth knowledge of the applications and of cost, time, and staffing. Typically, at this level you perform these tasks:

- Review and refine the impact criteria for the application.
- Review and refine the data item search criteria and impact options until the list of impacted data items reflects the applications.
- Review and edit the cost factors until they reflect program maintenance time and staffing for the particular work group.
- Summarize and report impact results for the business groups and applications.
- Adjust the search criteria and impact options to provide the clearest picture of the conversion impact.

Task Management

The TaskManager provides task management, which tracks and performs the many tasks required to complete the Estimate process. It is most useful for first time users and when a complex enterprise consisting of many groups and applications is being analyzing.

Before you can use the TaskManager for the first time, you must name the initial enterprise. Naming the enterprise is a straightforward process that can be accomplished using actions from the Edit pull-down. The enterprise definition process is discussed in "Defining the Enterprise" on page 33. Using TaskManager is explained in "Using the TaskManager to Complete the Estimate Process" on page 27.

All sections in this guide present procedures for manually completing tasks.

2 Getting Started

This chapter explains how to use online help and how to verify or modify user options, and contains these sections:

Section	Page
Online Help	7
Verifying User Options	9
Allocating an AKR for the Enterprise	19
Converting an Existing Enterprise	20
Defining a New Enterprise	21
Session Management	22

Online Help

Context-sensitive help provides answers to most questions about the contents of screens and pop-ups in Estimate. Online help includes this information about screens and pop-ups, error messages, and Estimate messages:

- Screen and pop-up help.
- All the options and fields for each screen and pop-up are described in online help. Any special processing considerations are also noted.
- Abend help.
- Online help lists and explains all system, ESW, and IMS errors.
- Estimate messages.

The format for messages is `ASGnnnnx text`, where `nnnn` is the message number, `x` is the severity level, and `text` is the message text. Severity levels are described in this table.

Level	Description
I	Informational - no action required.
W	Warning - a non-critical error condition exists.
E	Error - a critical error condition exists.
D	Disaster - a serious error condition exists. The product is unable to continue.
T	Termination - the product terminated with the specified error.

Accessing Online Help

This table describes the various methods by which you can access online help.

Method	Description
Press PF1	Displays help for the current screen, pop-up, or message.
Select Help from an action bar	Displays Help pull-down that lists help options.
Type HELP or ? on the command line	Displays help for the current screen, pop-up, or message.

Online Help Navigation Commands

After accessing online help, the commands listed in this table assist you in navigating within the help system.

Command	Description
TOC	Displays the Table of Contents.
Index or I	Displays the help index. If you are on an index screen, you can enter a letter on the command line and press Enter to display the index screen for that letter.
Back	Returns to previously displayed help screen.

Command	Description
Enter	Displays next screen in a continuation series.
Help Abends	Displays the Abends help screen where you can choose from a list of topics related to abends.
End	Exits online help.

Verifying User Options

At installation, these options (used to define the operating environment for Estimate) are set to default values:

- Product parameters
- Product allocations
- Log/List file processing
- PF key assignments

The first time you use Estimate, verify that the default options reflect the correct settings. For descriptions of the individual options on each screen, see the online help for the screen.

Product Parameters

To verify or change product parameters

1. From the Estimate primary screen or any screen with Options on the action bar, select Options ▸ Product parameters and press Enter to display the Options - Product Parameters pop-up (see Figure 1 on page 10).

Figure 1 • Options - Product Parameters Pop-up

```
          Options - Product Parameters

Enter the desired product parameters and then
press Enter.

Alarm  . . . . . . . . . . YES  (Yes or No)
Confirm Analyze submit . . NO   (Yes or No)
Confirm Library delete . . YES  (Yes or No)
AMF ISPF Stats Required    YES  (Yes or No)

Enterprise View Options:

   Display Full Names  . . NO   (Yes or No)
   Enable Node Tabs  . . . YES  (Yes or No)
   Retain Current Node . . YES  (Yes or No)
   Retain Cursor Position  YES  (Yes or No)
```

2 Verify or modify the parameters.

3 Press PF3 to exit and save any changes.

The Options - Product Parameters pop-up controls these product parameters:

Parameter	Description
Alarm	Specifies whether an alarm sounds when an error message is displayed. The default is YES.
Confirm Analyze Submit	Specifies whether a confirmation panel displays when you submit a job.
Confirm Library Delete	Specifies whether a confirmation panel displays before you execute a delete.
AMF ISPF Stats Required	Specifies whether the Application Maintenance Facility (AMF) requires the ISPF statistics (time date stamp) to determine if a source member has been modified. Choosing NO allows the AMF to use a potentially resource-intensive calculation to determine if members without ISPF statistics have been modified. See the *ASG-Application Definition and Analysis User's Guide* for more details.
Enterprise View Options	
Display Full Names	Specifies whether you want to display full or short names on all screens. The default is to display short names.

Parameter	Description
Enable Node Tabs	Enables the Tab key. If you set this field to YES, you can use the TAB key to move the cursor from node to node in the Enterprise and Impact Views.
Retain Current Node	Retains the current node. If you set this value to YES, the current node remains active when you exit the Enterprise View. The node is active when you redisplay the view. The default is YES.
Retain Cursor Position	Sets the cursor position. If you set this value to YES, the cursor remains fixed after you press Enter. If the value is NO, the cursor returns to the command line when you press Enter. The default is YES.

Product Allocations

Use the Options - Product Allocations pop-up to specify the allocation parameters for the Log and List files.

Note:

Management Class, Storage Class, and Data Class provide various parameters for newly allocated datasets. These parameters apply only if you have SMS active at your site. Your System Administrator determines the valid entries for these parameters.
The Storage Class and Volume serial parameters are mutually exclusive.

To verify or change product allocations

1. From the Estimate primary screen or any screen with Options on the action bar, select Options ▸ Product allocations and press Enter to display the Options - Product Allocations pop-up (see Figure 2 on page 12).

Figure 2 • Options - Product Allocations Pop-up

```
File  View  Options  Help
--------------------------------------------------------------------------------
                        Options - Product Allocations
Command ===> ____________________________________________________________________

Specify allocation information.
                     Log File        List File
Generic unit  . . . SRTDA            ________  (Group name or unit address)
Volume serial . . . SRT801           SRT801    (Blank for default volume)

         (Analysis) Work File        Work File (Other)
Generic unit  . . . SYSDA            SYSDA     (Group name or unit address)
Volume serial . . . ______           ______    (Blank for default volume)
Space units . . . . CYLS             CYLS      (BLKS, TRKS or CYLS)
Primary space . . . 050              5         (Space units)
Secondary space . . 010              5         (Space units)
Alternate node  . . ________

--------------------------------------------------------------------------------
```

2 Verify or modify the allocation information.

3 Press PF3 to exit and save any changes.

The Options - Product Allocations pop-up controls these parameters:

Parameter	Description
Log File	Specify the Management Class and Storage Class, or the Generic unit and volume serial number for the Log file that is allocated in the event an internal error occurs. The Log file is used for error messages and log commands. File characteristics are specified on the Options - Log/List Definition pop-up. See "Log/List Definition" on page 13 for additional information.
List File	Specify the Management Class and Storage Class, or the Generic unit and Volume serial number for the List file that is allocated the first time a request is made to print output. The List file is used for all printed output. File characteristics are specified on the Options - Log/List Definition pop-up.

Parameter	Description
Work File	Specify the Management Class, Storage Class, and Data Class unit and space requirements for the Work files: Analysis (batch) and Other (online). If an analyze job abends, the Analysis work file is retained and used during the restart of the analyze job. Estimate assigns the name VIAUT3 to the Analysis work file. The Analysis work file is deleted when Estimate completes a successful analyze. The Other work file is used for intermediate storage during an online session. The Other work file is deleted when you exit the product.
Alternate Node	Enter a high-level dataset name qualifier if you do not want to use your TSO USERID as the high-level qualifier for the work file name.

Log/List Definition

Log/list definitions specify process options and job statement information for log/list files. The Options - Log/List Definition pop-up is also used to customize the dataset names and to process the Log and List files.

To verify or change log/list options

1 From the Estimate primary screen, or some other screens with an Options keyword on the action bar, select Options ▸ Process Log/List file and press Enter to display the Options - Log/List Definition pop-up, as shown in Figure 3.

Figure 3 • Options - Log/List Definition Pop-up

```
                        Options - Log/List Definition
Command ===> ____________________________________________________________

Specify Log/List options.  Then press PF key for action.

Options                    Log            List
----------------           ---            ----
Process option  . . . . . . K             PD
Primary tracks     . . . . 1              1
Secondary tracks      . . . 2              5
Lines per page  . . . . . . 56             56
Sysout class  . . . . . . . *              *

Process options:  PK (print/keep), PD (print/delete), K, or D.

Job statement information:
  //VIA123  JOB (DEVJXS,283200),
  //          MSGCLASS=A
  //*   INSERT '/*ROUTE PRINT NODE.USER' HERE IF NEEDED.
  //*

     PF4=Customized Names  PF5=Process log file  PF6=Process list file
```

2 Verify or modify the information.

3 Press PF3 to exit and save any changes.

These fields and PF keys are used on the Options - Log/List Definition pop-up:

Field	Description
Process option	Enter one of the options listed in the process options field. These are the available options: • PK - Print and keep • PD - Print and delete • K - Keep without printing • D - Delete without printing
Primary TRACKS	Specifies the number of primary tracks allocated. A size change does not take effect until the next allocation occurs. The default is 1.
Secondary TRACKS	Specifies the number of secondary tracks allocated. A size change does not take effect until the next allocation occurs. The default is 1.
Lines per page	Determines the number of print lines per page. Typical maximum values are 60 for six lines per inch and 80 for eight lines per inch. The default is 60.
Sysout class	Specifies the SYSOUT class value. The default is * which sends the SYSOUT to the destination specified in the MSGCLASS parameter on the job statement.
Job statement information	Enter the appropriate job statement information for your installation.

PF Key	Description
PF4 = Customized Names	Press PF4 to customize the name of the dataset where the Log or List file is allocated. This is available when specifying the K or PK process option.

PF Key	Description
PF5 = Process log file	Press PF5 to print or deallocate the log file. A new file is allocated to collect additional data, if required. You must enter job statement information before selecting the PK or PD processing option.
PF6 = Process list file	After verifying the Options for the list file, press PF6 to process the list file. If you specified the PK or PD processing option, enter the required job statement information before selecting this option. You do not need to exit the product to print the list file.

Note:

The Log file is only allocated if an internal error, such as an abend occurs. It contains ESW error messages that can aid the debugging process. The List file contains print output and is allocated when a print request is issued.

To customize the Log or List dataset name

If you specify the K or PK process option, you can customize the dataset where the log or list file is allocated. By default, Estimate allocates the Log and List files as `USERID.TEM`*`nnnnn`*`.VIA`*`xxxxx`*, where *nnnnn* is a sequential number from 00001 to 99999 and *xxxxx* is LOG for Log, and LIST for List files. If you have specified a TSO prefix, the prefix will be appended to the beginning of the file name allocated for the Log and List files.

1 Press PF4 to display the Options - Log/List Name Customization pop-up, shown in Figure 4.

Figure 4 • Options - Log/List Name Customization Pop-up

```
                    Options - Log/List Name Customization
Command ===> ____________________________________________________________

You can define a customized name when you choose option PK (print/keep) or
K (keep) by specifying U(ser).  Specifying Y(es) on Prompt later lets you
define a custom name as you process each log/list file.  Otherwise,
specify data set name and file mode.  Then press Enter.

Options                   Log     List
------------------------- ---     ----
File Naming . . . . . . . S       S      U(ser) or S(ystem)
Prompt later for DSN  . . _       _      Y(es)  or N(o)

The following are needed if U(ser) and N(o) are specified above

Log Data set name   ____________________________________________    (Seq)
     File Mode  . . _      O(verwrite) or A(ppend)
List Data set name  ____________________________________________    (Seq)
     File Mode  . . _      O(verwrite) or A(ppend)
```

2 Type `U` in the File Naming field for Log or List to indicate a user-defined dataset name. If you specify `N` in the Prompt later for DSN field, you must enter a dataset name in the corresponding Data set name field, and specify Overwrite or Append in the File Mode field.

If you specify `Y` in the Prompt later for DSN field, Estimate prompts you for the dataset name during file processing. For example, if you specify Yes in the Prompt later for DSN field for the Log file, the Log Name Customization pop-up displays, as shown in Figure 5.

Figure 5 • Log Name Customization Pop-up

```
                          Log Name Customization
Command ===> ____________________________________________________________

The current log file's data set name is shown below.  To have a custom
name, specify a new sequential data set name.  If it already exists, it
has to have LRECL=137 and RECFM=V; and specify the file mode.  Then press
Enter.

Current Data set name : ''
Custom  Data set name   ____________________________________________
        File Mode . . . _      O(verwrite) or A(ppend)
```

PDS Allocation

PDS allocations specify DASD information for the report and export datasets. Estimate creates a Report PDS for each type of report. The names of the report datasets have this format:

```
<high-level qualifier>.<enterprise>.VIARxxx,
```

Or

```
<high-level qualifier>.<impact>.VIARyyy,
```

where *xxx* and *yyy* correspond to the abbreviations for the reports.

The Export datasets contain service members and spreadsheet files. Estimate creates an Export PDS for each node in the enterprise. The names of the export datasets have this format:

```
<high-level qualifier>.<node>.<impact>.
```

To verify or change report dataset allocation parameters

1. From the Estimate primary screen, or some other screens with an Options keyword on the action bar, select Options ▸ PDS allocations and press Enter to display the PDS Allocation Parameters pop-up, shown in Figure 6.

Figure 6 • PDS Allocation Parameters Pop-up

```
                PDS Allocation Parameters

Select the type of allocation parameters to be
changed then press Enter.

List Option
__  1.  Report Allocation Parameters.
    2.  Export Allocation Parameters.
```

2. Select Report Allocation Parameters and press Enter to display the Report Dataset Allocation Parameters pop-up, shown in Figure 7.

Figure 7 • Report Dataset Allocation Parameters Pop-up

```
                Report Dataset Allocation Parameters

The parameters listed in this panel apply to the report
partitioned datasets.

PDS Format:  VARIABLE BLOCK LRECL=137

PDS allocation parameters:
  Generic unit  . . . . ________
  Volume serial . . . . __________
  Space unit  . . . . . CYLS
  Primary . . . . . . . 1
  Secondary . . . . . . 1
  Directory blocks  . . 50
```

3. Verify or modify the information.

4. Press PF3 to exit and save any changes.

These PDS allocation parameters are specified for the Report and Export PDSs:

Field	Description
Generic unit	Specify the storage device generic unit name if required by your site.
Volume Serial	Specify the storage unit's volume serial number if required.
Space unit	Specify whether the space allocation units are in blocks, cylinders or tracks. The valid types are BLOCKS, CYLINDERS, or TRACKS.
Primary	Specify the Number of tracks, blocks, or cylinders for primary allocation.
Secondary	Specify the Number of tracks, blocks, or cylinders for secondary allocation.
Directory blocks	Specify the Number of directory blocks to allocate for the PDS directory. There could be a PDS member for each node in the enterprise.

To verify or change export PDS allocation parameters

1 Select Export Allocation Parameters on the PDS Allocation Parameters pop-up and press Enter to display the Export PDS Allocation Parameters pop-up, shown in Figure 8.

Figure 8 • Export PDS Allocation Parameters Pop-up

```
                Export PDS Allocation Parameters

The parameters listed in this panel apply to the PDS
which contains the service member export data.

PDS Format:  FIXED BLOCK LRECL=133

PDS allocation parameters:
  Generic unit  . . . . ________
  Volume serial . . . . __________
  Space unit  . . . . . CYLS
  Primary . . . . . . . 1
  Secondary . . . . . . 1
  Directory blocks  . . 50
```

2 Verify or modify the information.

3 Press PF3 to exit and save any changes.

Allocating an AKR for the Enterprise

Before you create an enterprise, you must allocate an AKR as the repository for all information Estimate uses. The AKR stores the enterprise, impact results, and applications. Save the enterprise and all of its impact projects in one AKR. Produce the impact results by including data from applications saved in any AKR.

AKR management is site-specific. Allocate or use an existing AKR based on your site's repository conventions.

Note:

See Appendix A, "Allocating AKR Space," on page 149 for information about AKR space allotment.

To allocate an AKR

1 From the Estimate primary screen, select File ▸ AKR Utility and press Enter to display the File - AKR Utility pop-up, shown in Figure 9.

Figure 9 • File - AKR Utility Pop-up

```
                        ASG-ESW - AKR Utility
Command ===> ____________________________________________________________

       Blank - Display member list       D - Delete member
       A     - Allocate/expand AKR       R - Rename member

Application Knowledge Repository (AKR):

   Data set name . . 'YIA123.GENERAL.AKR'
   Member  . . . . . __________  (if "R" or "D" selected)
   New name  . . . . __________  (if "R" selected)

   Volume serial . . ______      (if not cataloged)
   Password  . . . .             (if password protected)
```

2 Complete these steps:

a Type A on the command line.

b Enter the dataset name for your AKR.

3 Press Enter to display the File - AKR Allocate/Expand pop-up. Complete the necessary fields. The fields displayed depend on whether:

- Your site uses BDAM or VSAM AKRs
- SMS is turned on

4 Submit your job.

5 Verify the successful completion. The condition code should be 0 or 4.

6 Press PF3 to return to the Estimate primary screen.

Converting an Existing Enterprise

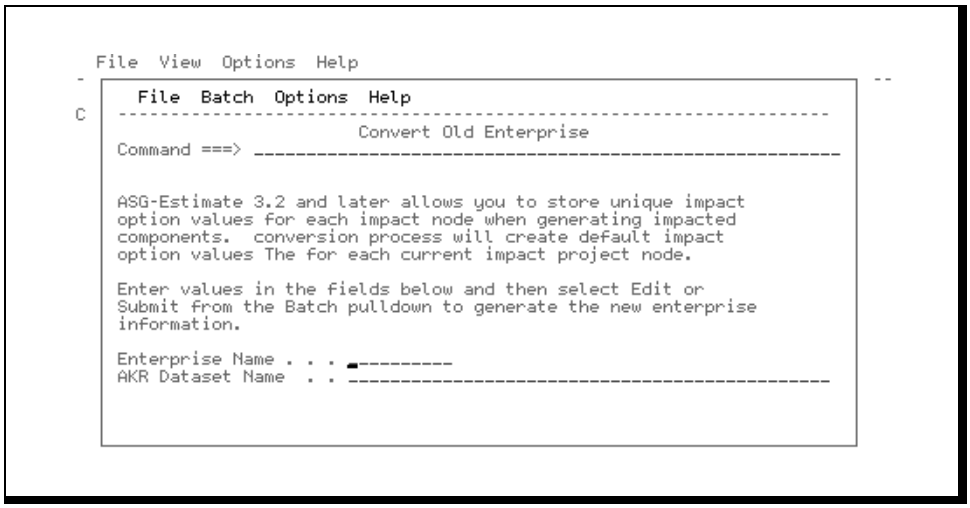
Estimate Releases 3.2 and above includes a facility to convert an enterprise created with Version 2.0, 3.0, or 3.1. This conversion enables Estimate to store impact options used to generate the impacted components in the enterprise AKR.

If you are upgrading from Estimate 2.0, ASG recommends that you reanalyze your applications to take advantage of improvements in Release 3.0 and above.

To convert an existing Release 2.0, 3.0, or 3.1 enterprise

1 From the Estimate primary screen, select File ▸ Convert Old Enterprise and press Enter to display the Convert Old Enterprise pop-up, shown in Figure 10.

Figure 10 • Convert Old Enterprise Pop-up



2 Enter the old enterprise name and AKR dataset name.

3 Select Batch ▸ Submit job to convert the enterprise.

Defining a New Enterprise

If you do not have existing enterprises to convert, you should define an enterprise to reflect the structures within the organization you want to work with.

To create a new enterprise

1. From the Estimate primary screen, select File ▸ New Enterprise and press Enter to display the New Enterprise pop-up, shown in Figure 11.

Figure 11 • New Enterprise Pop-up

```
File  View  Options  Help
                              New Enterprise

 Enter the Enterprise information and press Enter.

 Name  . . . . . . . . . --------
 Full Name . . . . . . . ------------------------------
 Description . . . . . . ------------------------------------------------
                         ------------------------------------------------

 AKR dataset name  . . . ----------------------------------------------

 Report Dataset
 High Level Qualifier    --------------------------  (3 node maximum)

       Copyright Allen Systems Group, Inc., an unpublished work.
A proprietary product of ASG, Inc.  Use restricted to authorized licensees.
        Visit the ASG Support Web Site at www.asg.com
```

2. Identify the enterprise by entering the Name, Full Name, and an optional Description.

3. Type the AKR dataset name.

4. Type a high-level qualifier of up to three nodes for reports, for example, USERHLQ. Estimate creates the datasets in this format:

   `USERHLQ.<enterprise name>.VIAR<xxx>`

   Note:
   Also use this naming convention to create impact project datasets. The last three characters represent the particular report.

5 Press Enter to display the Report Dataset Allocation Parameters pop-up, shown in Figure 12. Allocate the dataset for reports. For more information about the options on this pop-up, see "PDS Allocation" on page 16.

Figure 12 • Report Dataset Allocation Parameters Pop-up

```
                Report Dataset Allocation Parameters

The parameters listed in this panel apply to the report
partitioned datasets.

PDS Format:  VARIABLE BLOCK LRECL=137

PDS allocation parameters:
  Generic unit  . . . . _______
  Volume serial . . . . _________
  Space unit  . . . . . CYLS
  Primary . . . . . . . 1
  Secondary . . . . . . 1
  Directory blocks  . . 50
```

6 Press Enter to return to the Enterprise View screen. The enterprise node has been created and its name displays on the Enterprise View screen.

Session Management

This section provides a high-level description of how you work within Estimate. After you define the enterprise and create an impact project, the remaining work consists of managing the impact process for each engineering objective. For detailed procedures about defining the enterprise, see "Defining the Enterprise" on page 33. Detailed procedures for defining the impact project are presented in "Defining an Impact Project" on page 45.

To manage an Estimate session, or work period, you can perform these functions:

- Open an enterprise
- Close an enterprise
- Set and reset the scope for your activities
- Resume a session
- Refresh the view

To open an enterprise

1 Select File ▸ Open enterprise from the Estimate Primary screen and press Enter to display the Open Enterprise pop-up, shown in Figure 13.

Figure 13 • Open Enterprise Pop-up

```
                              Open Enterprise

Enter the Enterprise information and press Enter.

Name  . . . . . . . . . TTG-ENT     (blank for Enterprise list)
AKR dataset name  . . . 'VIAUSR.TM60_AKR'
```

2 Type the enterprise name and the AKR dataset name and press Enter.

Or

Leave the Name field blank and press Enter for a list of available enterprises. Select the enterprise that you want to work with from the list of available enterprises and press Enter to display the Enterprise View screen.

To close an enterprise

- From the Enterprise View screen, select File on the action bar and choose Close enterprise. Press Enter to return to the Estimate primary screen.

To set the scope

Estimate provides a scope facility that enables you to limit your activities to a selected portion of the entire enterprise. This facility is available from the Enterprise View, Impact View, and Impact Process screens. If you set the scope to a business group, it includes all applications in that group. If you set the scope to an application, Estimate focuses only on the selected application.

1 To set the scope, from the Enterprise View, Impact View, or Impact Process screen, select View ▸ Set Scope and press Enter to display the Set Enterprise Scope pop-up, shown in Figure 14.

Figure 14 • Set Enterprise Scope Pop-up

```
                              Set Enterprise Scope
Command ===> ____________________________________________ Scroll ===> CSR

Position the cursor on the node to be set as the current Enterprise
scope and press Enter.

                                                            (Node 1 of 6)
TTG-ENT                                                        ENTERPRISE
|--> RWONLY                                                   APPLICATION
|--> ALEX01                                                   APPLICATION
|--> EZT                                                      APPLICATION
|--> GRIYO                                                          GROUP
     |--> APPNODE1                                            APPLICATION
****************************** BOTTOM OF DATA ****************************
```

2 Position your cursor on the node you want to select for display and press Enter.

The Enterprise View, Impact View, or Impact Process screen now displays only the selected node. A message indicates that the Scope feature is active.

Note:

When you start TaskManager on any of those three screens, your task list is limited to the selected node. The Scope remains active for the impact project until you reset it.

To reset the scope from the Enterprise View, Impact View, or Impact Process screen

1. Select View ▸ Reset Scope and press Enter.
2. Press Enter to return to the Enterprise View, Impact View, or Impact Process screen. The scope is reset to include the entire enterprise.

To resume a session

You may need many work sessions to complete an impact project. Each time you exit Estimate, it maintains the enterprise name, Estimate name, current node, and current scope from the session. This enables you to start work the next time at the same point where you ended the previous session.

1. From the Estimate primary screen, select File ▸ Resume session.
2. Press Enter to display the Resume Session pop-up, shown in Figure 15, and Enter again to return to your previous session.

Figure 15 • Resume Session Pop-up

```
                              Resume Session

Press Enter to resume the prior session.

Enterprise Name . . . . TTG-ENT
AKR dataset name  . . . 'VIAUSR.TM60.AKR'

Impact Name . . . . . . TESTIMP_
Selected Node . . . . . TT-ENG
Current Scope . . . . . __________
```

Because many users may work simultaneously on the enterprise definition or impact project, you may want to refresh the view. Refreshing displays changes other users have made.

To refresh the enterprise view or the impact view

- From the Enterprise View or the Impact View screen, select File ▸ Refresh. If other users moved, added, or deleted applications or business groups, you can view the changes on this screen.

3 Using the TaskManager to Complete the Estimate Process

This chapter discusses the TaskManager and its use in detail, and contains these sections:

Section	Page
Who Should Use the TaskManager	27
What the TaskManager Does for You	28
Activating the TaskManager	28
The TaskManager Task Matrices	29

Who Should Use the TaskManager

Knowledgeable staff can perform all project management functions manually using the Estimate screens. This is especially true for some of the less involved aspects of an impact process. It is also relatively easy to perform the work manually if the enterprise is small and a limited number of users are involved in the conversion.

For complex impact projects involving many users and for complicated portions of the Estimate process, it is difficult to track the tasks and their status. To meet this challenge, Estimate offers a TaskManager feature. This feature provides process screens to integrate, track, and guide enterprise definition and impact process tasks.

What the TaskManager Does for You

TaskManager performs these functions:

- Provides screens to implement and manage tasks.
- Automatically displays, prioritizes, and sequences tasks based on the nature and current state of the impact project.
- Tracks task completion and dependencies.
- Displays tasks related to a selected business group or application.

Activating the TaskManager

The TaskManager can be activated from either the Enterprise View or Impact View screens. Activating the TaskManager from the Enterprise View screen causes the Enterprise Definition Process screen to display. Activating the TaskManager from the Impact View screen causes the Impact Process screen to display.

The TaskManager facility enables you to manage all the phases of this Estimate process.

To activate TaskManager

1 From the Enterprise View screen, select TaskManager ▸ Definition Tasks and press Enter to display the Enterprise Definition Process screen, shown in Figure 16.

Figure 16 • Enterprise Definition Process Screen

```
  Tasks  Edit  Options  Help
--------------------------------------------------------------------------------
                         Enterprise Definition Process
Command ===> ____________________________________________ Scroll ===> CSR

This facility identifies which tasks should be completed in the current
process.  Tasks are listed in the sequence they should be performed.

Action : G=Go To  C=Complete  A=Activate  E=Explain

A Node    Typ Tasks                                                Opt    Sequence
_ TTG-ENT   A Analyze the Application in the AKR                          1
_ TTG-ENT   E Create a Y2K Impact project                            Y    2
_ TTG-ENT   E Create a Euro Impact project                           Y    3
_ TTG-ENT   E Open an Impact project                                 Y    4
****************************** BOTTOM OF DATA ********************************
```

Or

From the Impact View screen, select TaskManager ▸ Impact process and press Enter to display the Impact Process screen (Figure 17 on page 29).

Figure 17 • Impact Process Screen

```
  Tasks  Edit  View  Options  Help
--------------------------------------------------------------------------------
                                Impact Process
Command ===> _____________________________________________ Scroll ===> CSR

This facility identifies which tasks should be completed in the current
process.  Tasks are listed in the sequence they should be performed.

Impact : IMPACT
Action : B=Bypass  G=Go To  C=Complete  A=Activate  E=Explain

A Node    Typ Tasks                                              Opt  Sequence
_ TTG-ENT   E Edit base Search Criteria for MYS-ASSEMBLER          Y         1
_ TTG-ENT   E Edit base Search Criteria for MYS-COBOL              Y         2
_ TTG-ENT   E Edit base Search Criteria for MYS-PL/I               Y         3
_ TTG-ENT   E Edit base Search Criteria for NATURAL                Y         4
_ TTG-ENT   E Edit base Search Criteria for EASYTRIEVE             Y         5
_ TTG-ENT   E Edit base Search Criteria for FORTRAN                Y         6
_ TTG-ENT   E Edit base Search Criteria for MODEL204               Y         7
_ TTG-ENT   E Edit base Search Criteria for IDEAL                  Y         8
_ RWONLY    A Review/edit costing factors                          Y         9
_ ALEX01    A Review/edit costing factors                          Y        10
_ EZT       A Review/edit costing factors                          Y        11
  APPNODE1  A Review/edit costing factors                          Y        12
```

2 Select an action command.

Estimate generates a list of tasks for each node in the enterprise. The screen indicates the node names, a recommended order for performing the tasks or the current status of each, and available action commands.

Note:

As you complete each task listed and return to the Impact Process screen, it is essential that you refresh the task list to display additional dependent tasks.

The TaskManager Task Matrices

These tables list the possible tasks that the TaskManager may list on either the Enterprise Definition or Impact Process screens. The first table shows the Enterprise Definition Process screen tasks. The second table shows the Impact Process screen tasks. Both tables list the appropriate section and page number for additional instructions on completing the task.

Enterprise Definition Process Tasks	
Tasks	**References**
Define subordinate group or application	See "Adding Business Group and Application Nodes" on page 34.
Analyze the Application in the AKR	See "Analyzing an Application" on page 41.

You can add more than one subordinate node to a parent node (e.g., multiple groups in the enterprise, or multiple applications in the enterprise and groups). From the Enterprise Definition Process screen, use the A action to re-activate the Define subordinate Group or Application node task for the parent node, and use the G action to add another node. Repeat this procedure until all necessary nodes have been added to the parent node.

Impact Process Tasks	
Tasks	**References**
Analyze the application in the AKR	See "Analyzing an Application" on page 41.
Edit base search criteria for `<language>`	See "Defining Search Criteria" on page 47.
Propagate base search criteria for `<language>`	See "Propagating Search Criteria" on page 54.
Review/edit costing factors	For the enterprise and groups: see "Defining Cost Factors" on page 83. For applications: see "Reviewing Cost Factors at the Application Level" on page 105.
Propagate costing factors	See "Propagating Cost Factors" on page 94.
Generate candidate list for `<language>`	See "Generating the Candidate Dataitem List" on page 63.
Refine candidate list for `<language>`	See "Refining the Candidate Dataitem List" on page 65.
No matching candidates for `<language>`. Review criteria.	See "To re-edit the search criteria" on page 65.
Generate impact task reports	See "Generating Reports" on page 123 and "Impact Task Reports" on page 131.
Generate impacted components	See "Finalizing the Impacted Components List" on page 75.
Generate impact report	See "Generating Impact Reports" on page 101.
Generate summary information	See "Summarizing the Impact Project" on page 97.
Generate engineering cost report	See "Generating the Engineering Cost Summary Report" on page 114.

Impact Process Tasks	
Tasks	**References**
Analyze the application in the AKR	See "Analyzing an Application" on page 41.
Edit base search criteria for <*language*>	See "Defining Search Criteria" on page 47.
Propagate base search criteria for <*language*>	See "Propagating Search Criteria" on page 54.

4 Defining the Enterprise

This chapter describes the process of defining an enterprise, and contains these sections:

Section	Page
Adding Business Group and Application Nodes	34
Creating an Application Definition	36
Importing an Application Definition	38
Exporting an Application Definition	38

It is necessary to gather as much information as possible about the application structure of your enterprise before starting Estimate. The business groups and applications added to the enterprise reflect this structure.

An impact project is created to hold impact criteria and the impact results generated through the estimating process.

The procedures described in this section represent high-level tasks that determine the overall direction and focus of the impact process. Performing these tasks requires a thorough understanding of the structure of the organization represented by the enterprise.

Adding Business Group and Application Nodes

After you create the enterprise for your conversion project, you can add business group and applications nodes to reflect the structure of your organization.

To add a business group node

1 From the Enterprise View screen, select Edit ▸ Add group node and press Enter to display the Add Group Node pop-up, shown in Figure 18.

Figure 18 • Add Group Node Pop-up

```
                    Add Group Node

Enter the Group information and press Enter.

Parent Node : TTG-ENT (Enterprise)

Name  . . . . _______
Full Name . . ______________________________
Description   ____________________________________________
              ____________________________________________

_____________________________________________________________ -
```

2 Enter a Name, Full Name, and optional Description for the Business Group and press Enter.

The name of the Business Group displays on the Enterprise View screen as a subordinate node to the enterprise.

To add an application node

You can add an application to a business group or an enterprise node, but not to another application. The application node can point to any application in any AKR. The application name can be different from the node name, but it is recommended that the two names be the same.

Note:

For detailed information about application definitions, see the *ASG-Application Definition and Analysis User's Guide*.

1 Select a node as a parent for the application you want to add. On the Enterprise View screen, place the cursor on a business group or the enterprise and press Enter.

2 Select Edit ▸ Add application node and press Enter to display the Add Application Node pop-up, shown in Figure 19.

Figure 19 • Add Application Node Pop-up

```
                          Add Application Node

Enter the Application information and press Enter to continue.

Parent Node . . . . : TTG-ENT (Enterprise)

Name  . . . . . . . . ________
Full name . . . . . . _____________________________
Description . . . . . ____________________________________________________
                      ____________________________________________________

AKR dataset name  . . ____________________________________________
AKR Application name  __________
```

3 Enter the information requested:

- The Name, Full name, and an optional Description.
- The dataset name for the AKR that contains the application and the name of the application in the AKR.

4 Press Enter.

If you entered the AKR dataset name and AKR application name of an existing application, the Edit Application Definition pop-up displays, shown in Figure 20.

Figure 20 • Edit Application Definition Pop-up

```
                Edit Application Definition

ASG6501I APPLICATION "YIAFORI" SUCCESSFULLY OPENED.

Do you want to edit the Application Definition?

Select
1   1.  Yes
    2.  No
```

If you choose not to edit the definition, the Enterprise View screen displays and the application name displays subordinate to its parent node.

If you entered the name of an application that does not exist, the Create Application pop-up, shown in Figure 21, presents three options: create an application definition, import a definition, or cancel.

Figure 21 • Create Application Pop-up

```
                Create Application

The application selected does not exist.
To continue creating an application,
select an action from the list below.

Options
3   1.  Create definition
    2.  Import definition
    3.  Cancel
```

Creating an Application Definition

This procedure guides you through entering minimal information into the application definition. Use the *ASG-Application Definition and Analysis User's Guide* to create a more complete application definition.

Note:

The more complete an application definition is, the more accurate the results from the Estimate process.

To create an application definition

1. From the Create Application pop-up, select Create definition and press Enter to display the Application Maintenance Facility screen, shown in Figure 22. The application name is displayed with a `NO COMPONENTS DEFINED` message in the upper-right corner of the screen.

Figure 22 • Application Maintenance Facility Screen

```
                        Application Maintenance Facili    NO COMPONENTS DEFINED
Command ===> ____________________________________________ Scroll ===> CSR

Action: A=Anlz B=Brws C=Clr D=Del H=Hide M=Mod N=New O=Opt S=Sel X=Excl Z=Zoom
0 lines hidden                                                     1 of 1
  Definition Entity                            Src  Type        Status        >
- ------------------------------------------- ---- ----------- -------------->
_  YIAFORI                                          APPLICATION EMPTY DEF
********************************* BOTTOM OF DATA ********************************
```

2 To define a library for the application, select Edit ▸ Add Library and press Enter. Select a language type, such as Assembler, and press Enter. The Add <*Language*> Library pop-up displays, shown in Figure 23.

Figure 23 • Add ASM Library Pop-up

```
                        Add ASM Library
Command ===> ____________________________________________________

Specify library information.  Then press PF key for action.

Data set name   _________________________________________

Source manager  1   1.  PDS
                    2.  Panvalet
                    3.  Librarian
                    4.  Sequential
                    5.  Endevor
                    6.  User

Volser  . . . . ______    (if volume not cataloged)
Password  . . .           (if password protected)

                PF4=Members  PF6=Add  PF11=Browse
```

3 Enter the dataset name of the file containing the application source code and specify a Source manager.

4 To add the library, press the Add PF key. A `DATA SET ADDED` message displays in the upper-right corner of the pop-up.

5 Press PF3 until the Enterprise View screen displays. The name of the new application displays under its parent in the enterprise structure.

Importing an Application Definition

To import an application definition

1 On the Create Application pop-up, select Import definition and press Enter. The Import Application Definition pop-up displays, shown in Figure 24.

Figure 24 • Import Application Definition Pop-up

```
                    Import Application Definition

Identify the file which contains the application definition.
   Dataset name . . 'DATASET.TEST.CNTL'
   Member name  . .

Identify the target AKR and Application.  This information is
optional; if either is specified, it overrides the corresponding
information in the import file.
   AKR  . . . . . . 'VIAUSR.TEST.AKR'
   Application  . . COBOL_
```

2 Enter the dataset name and application name (member name). This identifies the file that contains the application definition member you want to import.

Note:

The application definition being imported must be in a sequential or PDS file. It could be a result of a previously exported application with some modifications as necessary.

3 Press Enter to import the definition. The name of the application you created displays under its parent in the enterprise structure.

Exporting an Application Definition

While you are using Estimate, you may want to export an application definition you have created in Estimate for use by other products. You may export the definition from the AKR where it is currently located. The Export feature exports an existing application definition to a sequential or PDS file that can be accessed by other products.

Prerequisite: The Enterprise View or Application Maintenance Facility screen is displayed and you have allocated an 80 column fixed record length sequential or PDS file to store the exported application definition.

To export an existing application definition

1 On the Enterprise View or Application Maintenance Facility screen select File ▸ Export application and press Enter to display the File - Export Definition pop-up, shown in Figure 25.

Figure 25 • File - Export Definition Pop-up

```
                        File - Export Definition
Command ===> ____________________________________________________________

Type AKR and Export information, then press enter.

Application Knowledge Repository (AKR):

   Data set name  . . . _YIADYAP.APPL.AKR'
   Application name . . ABBEY-AL

Export:

   Data set name  . . . ________________________________________
   Member . . . . . . . ABBEY-AL
```

2 Specify the AKR dataset name and the Application name where the Estimate application is stored.

3 Specify an existing sequential or PDS file name and if a PDS, the member name where you want to export the application definition.

4 To export the definition, press Enter. A message displays on the File - Export Definition pop-up indicating that the application has been exported.

Note:

If the application has been analyzed and the impact has been run, you can automatically export both the application definition and the list of impacted data items for use by AutoChange. (See Appendix D, "AutoExport for AutoChange," on page 205.)

5 Analyzing Applications

This section contains basic information for analyzing an application. For detailed instructions on performing an analyze, reviewing the results, and correcting the problems, see the *ASG-Application Definition and Analysis User's Guide*.

The analyze process gathers information about the components in the application definition and stores this information in the application's AKR. The analysis also finds and records relationships among all application components. This information is required to complete the impact process.

Defining an application is an iterative process, one that you are likely to repeat several times to refine the results. You run the analysis, review the results, make modifications, and run the analysis again until you reach the application definition you want.

To satisfy analyze requirements, use Estimate to perform these functions:

- Analyze an application
- Correct an analyze job
- Execute the analyze task

Analyzing an Application

You must analyze an application if these statements apply:

- It was not analyzed using Estimate or Alliance.
- The application definition changed since the last analysis.
- An application analysis job did not complete successfully. A return code of 0 or 4 indicates successful completion.

You can analyze an entire application or analyze it incrementally selecting only some members of the application. The full analysis analyzes every member in the application and can require a large amount of resources. The incremental analysis analyzes only the members you select and is less resource-intensive.

The last step of an application analysis is semantic linking. Semantic linking is a resource-intensive phase of the analyze process that identifies the relationships among the application components. The semantic linking phase is required before you can use the AKR for impact assessment.

If your application is large, you may not have the resources to run a full analysis. In this case, perform incremental analyses on portions of your application only, with the semantic linking option disabled.

Follow the same process on each section as if analyzing the entire application (submit the section, review the results, modify the application definition, and resubmit). Then, after analyzing all the application components, run an incremental analysis with only one item selected and the semantic linking option enabled.

Note:

You may also select members and analyze from a single batch job. This eliminates the need to use online facilities to perform regularly scheduled analysis of applications.

To analyze the entire application

1. From the Enterprise View, Application Maintenance Facility, or Impact View screen, choose an application, select File ▸ Analyze, and press Enter.

2. From the File - Analyze pop-up, choose Select analysis type and press Enter to display the Analyze - Select Analysis Type pop-up.

3. To select every member in the application for analysis, select Full analysis... all libraries/members and press Enter to display the Full Analysis Confirmation pop-up.

4. Confirm that you want to analyze all members in the application by pressing Enter. The File Analyze pop-up displays.

5. Select Submit application analysis batch job and press Enter to display the Analyze - Submit Application pop-up.

6 In the Do Semantic Linking (Y/N)? field, specify whether you want the analysis job to perform semantic linking. This establishes the relationships among the entities collected. This phase is required before you can use the AKR for impact project assessments.

Semantic linking, performed each time you execute the analysis, is a CPU-intensive process. To reduce CPU use during the application definition and analysis process, specify N in the Do Semantic Linking field for each analysis until you resolve all problems with the definition. After you resolve all problems, run the analyze job again specifying Y in the Do Semantic Linking field.

7 On the Analyze - Submit Application pop-up, make any necessary changes to the job card in the Job statement information field. This information is appended to the beginning of the JCL submitted to analyze the application.

8 Press F4 to specify Analyze Execution Options, if needed.

9 Press PF6 to submit the Analyze job.

To run an incremental analysis

1 From the Enterprise View, Application Maintenance Facility, or Impact View screen, choose an application, select File ▸ Analyze, and press Enter tos display the File - Analyze pop-up.

2 Choose Select analysis type.

3 Enter the option that corresponds with the analysis you want to run:

Choose	If
Full Analysis...all libraries	The application was never analyzed, or some members within the application were removed from the application definition.
Incremental…select libraries/members	Members are to be selected manually to analyze. You can select any program or component for incremental analysis.

4 From the Select Analysis Library Type pop-up, select the library type for the libraries and members you want to analyze.

5 Press PF3 to return to the File - Analyze pop-up.

6 Select Submit Application analysis batch job to display the Analyze - Submit Application pop-up.

7 Change the Do Semantic Linking field or job card information if necessary. Press PF4 to specify Analyze Execution Options, if needed. Press PF6 to submit the Analyze job.

To run an automatic analysis

1 From the Enterprise View, Application Maintenance Facility or Impact View screen, choose an application, select File ▸ Analyze, and press Enter to display the File - Analyze pop-up.

2 Choose Select analysis type.

3 Choose Auto-analysis to have the batch analyze job automatically select any member that needs to be analyzed, including members that have never been analyzed, that were analyzed incorrectly (bad analyze return code), or that were modified after the last analyze.

4 On the File - Analyze pop-up, select Submit Application analysis batch job to display the Analyze - Submit Application pop-up.

5 Change the Do Semantic Linking field or job card information, if necessary. Press PF4 to specify Analyze Execution Options, if needed. Press PF6 to submit the Analyze job.

Additional Information

A complete set of instructions for creating application definitions and analyzing applications is provided in the *ASG-Application Definition and Analysis User's Guide*.

6 Defining an Impact Project

This chapter describes high-level tasks and the process of defining an impact project and contains these sections:

Section	Page
Creating an Impact Project	46
Defining Search Criteria	47
Propagating Search Criteria	54

After you define the enterprise, you must create an impact project. During the impact project definition, impact criteria for the enterprise are established. Impact criteria include the search patterns that determine the data items generated and the cost factors applied to the impact project.

The enterprise expertise required to define impact criteria includes knowledge of these items:

- The objective of the impact project
- The site's programming languages
- The overall complexity of the programs in each language
- Project management values and methods for your site

In defining the impact criteria, you establish the base criteria parameters to be reviewed and refined during the impact process.

Note:

The tasks described here require high-level enterprise expertise. It is essential that the search criteria established at the enterprise level be reviewed and refined as necessary for each application.

Creating an Impact Project

Creating an impact project sets up a repository for impact criteria and resulting data. Open an existing impact project for edits or create a new impact project.

Note:

It is advisable to use detailed knowledge of each application to review the search criteria and refine them as necessary early in the process. The more narrowly the criteria are defined, the smaller and more targeted the lists of data items to examine.

To create an impact project

1 From the Enterprise View screen, select Project ▸ New Impact and press Enter to display the New Impact pop-up, shown in Figure 26.

Figure 26 • New Impact Pop-up

```
                                  New Impact

Enter the Impact information and press Enter.                Type : Y2K

Name  . . . . . . . . ________
Full Name . . . . . . ________________________________
Description . . . . . ________________________________________________________
                      ________________________________________________________

Enter the DSNs for the default Search Criteria for each language:
                                                                        1 of 8
MVS ASSEMBLER .. 'VIAUSR.CE60T001.CNTL(VIAJSASM)'
MVS COBOL ...... 'VIAUSR.CE60T001.CNTL(VIAJSCOB)'
MVS PL/I ....... 'VIAUSR.CE60T001.CNTL(VIAJSPLI)'
NATURAL ........ 'VIAUSR.CE60T001.CNTL(VIAJSNAT)'
EASYTRIEVE ..... 'VIAUSR.CE60T001.CNTL(VIAJSOTH)'
FORTRAN ........ 'VIAUSR.CE60T001.CNTL(VIAJSOTH)'
MODEL204 ....... 'VIAUSR.CE60T001.CNTL(VIAJSOTH)'
IDEAL .......... 'VIAISR.CE60T001.CNTL(VIAJSOTH)'
*************************** BOTTOM OF DATA ******************************
```

2 Enter the name, full name, and description (optional).

3 Review the DSNs displayed for the default search criteria for each installed language.

The `<ASG>.<CENTER>.CNTL` library contains a member with the default search criteria for each installed language.

Press Enter.

4 On the Report Dataset Allocation Parameters pop-up, review the information and modify if necessary.

5 To modify any information, type over what is displayed on the pop-up.

With caution, you can copy search criteria defaults from one language to another. Any edited or customized criteria are replaced when the other language receives the copied criteria.

6 Press Enter to create and save the impact project. The Impact View screen displays the enterprise structure.

Note:

If desired, you can generate reports displaying definition information about the enterprise and dataset storage and allocation information. See "Estimate Reports" on page 117 for detailed information about Estimate reports.

Defining Search Criteria

Search criteria determine the data items that become impact candidates. You can add search criteria items or change existing criteria to refine the search for impact candidates.

The values defined in the `<ASG>.<CENTER>.CNTL` member show this search criteria data:

Column 1	Column 2	Column 3	Column 4
T	T	DN	*DATE*

Where:

Column	Contents
Column 1	Specifies Include (T) or Exclude (F) criteria for impact.
Column 2	Specifies Base (T) or application (F). See definitions for Base Search Criteria and Application Search Criteria in the sections following this table.

Column	Contents
Column 3	Specifies search criteria types. These are the valid values: • DN = dataname • EM = declaration/picture (edit mask) • V = value • LL = logical length • PL = physical length • RA = arithmetic • RC = conditional
Column 4	Specifies the search pattern.

Base Search Criteria

When you define an enterprise initially, all criteria are defined at the base level. You then propagate the base search criteria to all nodes in the enterprise.

The base search criteria is defined on a language by language basis. Define the Base Search Criteria for each language used on the New Impact pop-up. You can propagate base search criteria to other nodes in the enterprise.

Application Search Criteria

Refining candidate data items at the application level helps determine the actual impacted data items. (See "Executing the Impact Process" on page 57 for information about defining the search criteria at the application level.) Application search criteria are specific to an application and cannot be propagated to other nodes.

Search Criteria Types

These criteria types can be specified for each search criteria item:

Criteria Type	Description	Acceptable Search Pattern
Data Name	Name of variable	Alphanumeric
Edit Mask	Declaration of a variable	Alphanumeric
Logical Length	Numeric value specifying the number of displayable characters	Numeric

Criteria Type	Description	Acceptable Search Pattern
Physical Length	Numeric value specifying the number of bytes used by a variable	Numeric
Arithmetic	Any data item used in arithmetic statement	YES or blank
Conditionals	Any data item used in a conditional statement	YES or blank
Value	Initial value defined to a variable	Alphanumeric

Using Wildcards in Search Criteria Entries

When defining Data Name, Edit Mask, and Value type search criteria the expected search pattern is a string. Within this string, you can use the wildcard character asterisk (*) at the beginning or end of the search pattern.

To add or change a base search criteria item

1. Access the Impact View screen and select the Enterprise node to add or change base criteria.

2. Set the current language. Select Options ▸ Select Current Language and press Enter to display the Language Selection List pop-up, shown in Figure 27, which lists all the programming languages used in the application.

   Select a language to designate the current language and press Enter to return to the Impact View screen showing the selected language in the Language field.

Figure 27 • Language Selection List Pop-up (single language selection)

```
                         Language Selection List
Command ===> ____________________________________________ Scroll ===> CSR

Select desired Language(s).  Then press Enter.

                                                                 1 of 5
  Name              Description
- ----------------  ---------------------------------------------------
_ MYS ASSEMBLER     'ASSEMBLER LANGUAGES FOR MYS SYSTEMS'
/ MYS COBOL         'COBOL LANGUAGES FOR MYS SYSTEMS'
_ MYS PL/I          'PL/I LANGUAGES FOR MYS SYSTEMS'
_ NATURAL           'NATURAL LANGUAGE VERSIONS'
_ EASYTRIEVE        'EASYTRIEVE LANGUAGE'


************************** BOTTOM OF DATA **************************
```

3 Select Edit ▸ Search Criteria and press Enter to display the Dataitem Search Criteria screen, shown in Figure 28, which lists the existing criteria for the current language.

Figure 28 • Dataitem Search Criteria Screen

```
  File  Edit  View  Options  Help
--------------------------------------------------------------------------------
                              Dataitem Search Criteria
Command ===> _____________________________________________ Scroll ===> CSR

Impact : Y2KIMPAC             Language : MYS-COBOL        Node : TTG-ENT

List Include Options for dataitems:
/  Group level           /  Unreferenced          /  88 level

Action : S=Select  U=Unselect  A=Add Entry  C=Change Entry  D=Delete
                                                                 18 entries
  Role Set  Type         String Mask or Dataitem (all)
_ INCL BASE DATANAME     *-CENT
_ INCL BASE DATANAME     *-DT*
_ INCL BASE DATANAME     *CENTURY*
_ INCL BASE DATANAME     *DATE*
_ INCL BASE DATANAME     *GREGORIAN*
_ INCL BASE DATANAME     *JULIAN*
_ INCL BASE DATANAME     *YEAR*
_ INCL BASE DATANAME     *YR*
_ INCL BASE DATANAME     *YY*
_ EXCL BASE DATANAME     *-D
  EXCL BASE DATANAME     *-DA
```

4 To add or change an entry, use one of these methods:

To	Do This	Results
Add an item	Use the A action to add a new item. You can only add one item at a time. or Select ▸ Add Entry.	Add Criteria Entry pop-up displays. (See Figure 29 on page 51.)
Change an item	Use the C action to select one or more entries to change. or Select Edit ▸ Change Entry.	Change Criteria Entry pop-up displays. (See Figure 30 on page 51.)

Figure 29 • Add Criteria Entry Pop-up

```
                        Add Criteria Entry
Command ===> ____________________________________________________

Enter a search criteria pattern and select usage options. Then
press Enter.

Search pattern . . _____________________________________

Add criteria to:                Criteria type:
__  1.  Base Criteria           __  1.  Data Name
    2.  Application Criteria        2.  Declaration
                                    3.  Logical Length
Criteria action:                    4.  Physical Length
__  1.  Include pattern             5.  Arithmetics
    2.  Exclude pattern             6.  Conditionals
                                    7.  Value
```

Figure 30 • Change Criteria Entry Pop-up

```
                      Change Criteria Entry

Enter a search criteria pattern and select usage options. Then
press Enter.

Search pattern . . *-CENT

Add criteria to:                Criteria type:
1   1.  Base Criteria           1   1.  Data Name
    2.  Application Criteria        2.  Declaration
                                    3.  Logical Length
Criteria action:                    4.  Physical Length
1   1.  Include pattern             5.  Arithmetics
    2.  Exclude pattern             6.  Conditionals
                                    7.  Value
```

5 Specify the criteria type and appropriate search pattern. (See "Search Criteria Types" on page 48.)

6 Specify the base criteria option to indicate you want to add this entry to the base search criteria.

7 Select a Criteria Action and press Enter to return to the Dataitem Search Criteria screen.

- Specify the Include pattern option to include data items matching the specified search pattern in the Candidate Dataitem List.
- Specify the Exclude pattern option to exclude data items matching the specified search pattern from the Candidate Dataitem List.

For example, you may want to include *date*, but exclude *update*.

Note:

If you selected several default criteria to change at the same time, press Enter as you complete each change. When you finish the last change, the Dataitem Search Criteria screen displays.

8 Select File ▸ Save criteria when you finish defining your Base Search Criteria.

9 Press PF3 to return to the Impact View screen.

If you attempt to exit the screen without saving, the Save Work pop-up displays. Choose one of these options:

To	Choose
Save additions and changes and return to Impact View	Save and exit
Cancel any additions or changes and return to Impact View	Cancel and exit
Save work and remain on Dataitem Search Criteria screen	Continue working

Note:

To add entries for an alternate language that does not have a defined search criteria list, complete the steps in "To add or change a base search criteria item" on page 49.

To set search criteria include options

Define the search criteria options at the enterprise level to propagate and standardize throughout the enterprise. You must apply the search criteria options consistently.

1. On the Dataitem Search Criteria screen (see Figure 28 on page 50), type a slash (/) in the group-level items field to include Group-level items.

   Or

   To exclude group-level items, delete the slash.

   A group-level item is one composed of subordinate items.

2. To include unreferenced items, type a slash in that field.

   Or

   To exclude unreferenced items, delete the slash.

   An unreferenced item is one that has no uses or modifications.

3. To include 88-level flags, type a slash in that field.

   Or

   To exclude 88-level items, delete the slash.

   An 88-level item associates a value, values, or a range of values with a condition name in a COBOL program.

4. To save your entries, press PF3 and respond to the prompts.

5. Press Enter to return to the Impact Process screen.

Propagating Search Criteria

After you define the base search criteria for each language, propagate the base search criteria. This applies the search pattern list for each language to all nodes in the enterprise.

To propagate base search criteria for a language

1. On the Impact View screen, select the Enterprise node.

2. Select Edit ▸ Propagate search criteria and press Enter to display the Propagate Base Search Criteria pop-up, shown in Figure 31. The enterprise node displays in the Propagate From field.

Figure 31 • Propagate Base Search Criteria Pop-up

```
  File  Options  Help
-------------------------------------------------------------
                Propagate Base Search Criteria

Enter the target node name; then press Enter.

Propagate From : APPNODE1
            To   ________  (clear and press Enter to select)
Languages : MYS-COBOL

Options:
_  Propagate to subordinates.
_  Replace criteria at target. (Default is merge)
```

3. To select a node to propagate to, clear the To field and press Enter to display the Select node pop-up, shown in Figure 32.

Figure 32 • Select Node Pop-up

```
                                Select Node
Command ===> ____________________________________________ Scroll ===> CSR

Position the cursor to the node to select, and press Enter.

                                                          (Node 1 of 9)
TTG-ENT                                                     ENTERPRISE
|--> RWONLY                                                APPLICATION
|--> ALEX01                                                APPLICATION
|--> EZT                                                   APPLICATION
|--> GRIYO                                                       GROUP
|    |--> APPNODE1                                         APPLICATION
|--> YIAJFC                                                APPLICATION
|--> YIAMJH                                                APPLICATION
|--> YIAABC                                                APPLICATION
****************************** BOTTOM OF DATA ****************************
```

4 Place the cursor on the desired node.

To propagate the base search criteria for this language to all nodes, select the enterprise node and when back at the Propagate Base Search Criteria pop-up, select the Propagate to subordinates option.

5 To return to the Propagate Base Search Criteria pop-up, press Enter. The selected node displays in the To field.

6 Press Enter to propagate and return to the Impact view screen.

7 Executing the Impact Process

This chapter details the impact process and how to review and refine the criteria to determine the impacted data items, and contains these sections:

Section	Page
Editing the Search Criteria at the Application Level	58
Generating the Candidate Dataitem List	63
Refining the Candidate Dataitem List	65
Finalizing the Impacted Components List	75

The enterprise model has been defined, an impact project opened, and the base search criteria defined and propagated. You can now execute the impact process and apply the search criteria. The result of this process is the impact project data.

The project team should consider the project outcome before beginning this process:

- What results do you want? Do you want to see a worst case scenario that includes all potential data items, including unreferenced and group level items?
- What standards do you have for your selection criteria? Should you exclude all single byte and very large items that are probably not date-related candidates?
- What edit approach are you going to use for the data items? Will you first assign a disposition to known categories and then concentrate on items that require research?

Note:

Standards should exist for editing search criteria and refining candidate data items. The standards should be applied consistently to all applications in the enterprise.

Based on the edit guidelines, use application-level expertise to review and refine the criteria to determine the impacted data items. This detailed knowledge of the programs in the applications is essential to continue with the impact process.

These are the steps to execute the impact process:

- Edit the search criteria at the application level.
- Generate the Candidate Dataitem List.
- Refine the Candidate Dataitem List.
- Finalize the Impacted Components List.

Editing the Search Criteria at the Application Level

Base search criteria were set for each programming language in the enterprise and propagated to all other nodes during the impact project definition. Careful review and refinement of the search criteria at the application level is vital to generating accurate, meaningful impact project results.

Guidelines

The first step is to refine the search criteria according to your impact project's established standards. For example, do you want to include or exclude optional items? Within the standards, you can use editing tools to perform these functions:

- Add or change the search criteria to reflect the data items unique to the applications.
- Edit the criteria to include or exclude specific patterns.
- Set the options to include or exclude group-level items, 88-level entries, or unreferenced items. Including optional items creates a longer list but may be appropriate for a worst case scenario.

Note:

Editing the search criteria may be an iterative process. If the resulting Candidate Dataitem List does not contain the desired results, re-edit the criteria and regenerate the list until the results are relevant.

Edit the Search Criteria

The Dataitem Search Criteria screen lists default search patterns and any site-specific additions or changes made at the enterprise level. After reviewing the list, you can add, modify, or delete entries to make the list more relevant with respect to the application being processed.

To review the base search criteria for a language

1. On the Impact View screen, place the cursor on the application node to be processed and press Enter.

   If all the programs in the selected application are coded in one language, the current language is automatically set to that language. If the programs in the selected application are coded in more than one language, you must select one of those languages to be the current language. To set the current language:

   a. Select Options ▸ Select current language and press Enter to display the Language Selection List pop-up shown in Figure 27 on page 49. This list displays all the programming languages used in the application.

   Or

   b. Select the language that you want to work with and press Enter. The Language field of the Impact View screen displays the selected language.

2. Select Edit ▸ Search criteria and press Enter to display the Dataitem Search Criteria screen for the selected language (see Figure 28 on page 50).

3. Review the base search criteria to determine what changes are needed to make the criteria more relevant to the selected application.

To add or change application criteria

1 Access the Dataitem Search Criteria screen after selecting an application node and setting the current language. (See "To review the base search criteria for a language" on page 59.)

2 To add or change an entry, use one of these methods:

To	Do This	Results
Add an item	Use the A action to add a new item. You can only add one item at a time. or Select Edit ▸ Add Entry.	Add Criteria Entry pop-up displays (Figure 29 on page 51)
Change an item	Use the C action to select one or more entries to change. or Use the S action to select an entry to change. Select Edit ▸ Change Entry.	Change Criteria Entry pop-up displays (Figure 30 on page 51)

3 Specify the criteria type and appropriate search pattern. See "Search Criteria Types" on page 48.

4 Specify the Base or Application Criteria option to indicate whether you want to add this entry to the Application Search Criteria or the Base Search Criteria.

5 Select a Criteria Action and press Enter to return to the Dataitem Search Criteria screen.

   a Specify the Include pattern option to include data items matching the specified search pattern in the Candidate Dataitem List.

   b Specify the Exclude pattern option to exclude data items matching the specified search pattern from the Candidate Dataitem List.

Note:

If you selected several default criteria to change at the same time, press Enter as you complete each change. When you finish the last change, the Dataitem Search Criteria screen displays.

6 Select File ▸ Save criteria and press Enter when you finish defining your Base Search Criteria.

7 Press PF3 to return to the Impact View screen.

8 If you attempt to exit the screen without saving, the Save Work pop-up displays. Choose one of these options:

To	Choose
Save additions and changes and return to Impact View	Save and exit
Cancel any additions or changes and return to Impact View	Cancel and exit
Save work and remain on Dataitem Search Criteria screen	Continue working

To delete an entry

▶ Type D next to the entry and press Enter.

To locate a search string pattern

1 Select Edit ▶ Find and press Enter to display the Find pop-up, shown in Figure 33.

Figure 33 • Find Pop-up

```
                    Find
Enter a search string, and press Enter.
  _____________________________
```

2 Enter a search string and press Enter. Estimate selects (highlights) any search criteria in the list that contain the search string.

Setting the Search Criteria Options

Enable or disable search criteria options at the application level to include or exclude certain data item categories on the Candidate Dataitem List.

Use the Dataitem Search Criteria screen to perform these options:

1 To include Group level items that also match the search criteria, type a slash (/) in that field. To exclude group level items, delete the slash.

2 To include unreferenced items, type a slash in that field. To exclude unreferenced items, delete the slash.

3 To include 88-level flags, type a slash in that field. To exclude 88-level items, delete the slash.

Reviewing the Search Criteria List

To verify the selections and edits on the Dataitem Search Criteria screen, you can choose to include or exclude certain criteria.

To include or exclude criteria using the Data Item Search Criteria List

1 Select View ▸ Include and press Enter to display the Include in View pop-up for search criteria, shown in Figure 34.

Figure 34 • Include in View Pop-up for Search Criteria

```
                Include in View

Select the information to include in the
view, then press Enter.

Base Search Criteria:
/  Inclusion entries
/  Exclusion entries

Local Application Search Criteria:
/  Inclusion entries
/  Exclusion entries
```

2 Select the appropriate action:

a Type a slash (/) next to Inclusion entries to display base search criteria included on the Candidate Dataitem List. To hide the entries, delete the slash.

b Type a slash next to Exclusion entries to display base search criteria excluded from the Candidate Dataitem List. To hide the entries, delete the slash.

c Type a slash next to Inclusion entries to display local application search criteria included on the Candidate Dataitem List. To hide the entries, delete the slash.

d Type a slash next to Exclusion entries to display local application search criteria excluded from the Candidate Dataitem List. To hide the entries, delete the slash.

3 Press Enter to return to the Dataitem Search Criteria screen.

4 Save any changes you make to the Search Criteria. Select File ▸ Save criteria and press Enter, or press PF3 and follow the prompts.

Note:

You must save the changes to the Data Item Search Criteria List before you generate the Candidate Dataitem List for the application.

5 To return to the Impact View screen, select File ▸ Exit and press Enter.

Generating the Candidate Dataitem List

Generating a Candidate Dataitem List applies search criteria to programs in the application producing a list of matching data items. A thorough understanding of the applications is essential to generating a Candidate Dataitem List for the business unit.

Note:

Time for generating the list varies widely. Applications with fewer than 100 programs may take less than a minute. Large applications require proportionally more time. Schedule your batch jobs with consideration of CPU resources.

To generate the Candidate Dataitem List for an application

1 On the Impact View screen, select the application that you want to process.

2 Select Generate ▸ Candidates list and press Enter to display the Generate Candidates pop-up, shown in Figure 35.

Figure 35 • Generate Candidates Pop-up

```
 Foreground  Batch  Options  Help
-------------------------------------------------------------
                    Generate Candidates
Command ===> _____________________________________________
Impact : TTGY2K                      Application : RWONLY
Languages : MVS-COBOL

Select Foreground or Batch to generate the information.
```

3 If all the programs in the selected application are coded in one language, the current language is automatically set to that language. If the programs in the selected application are coded in more than one language, you can select any or all of those languages and generate a candidate data item list for each. To select multiple languages for the generation:

a Select Options ▸ Select language and press Enter to display the Language Selection List pop-up, shown in Figure 36. This list displays all the programming languages used in the application and provides an additional entry, (-ALL-), at the top of the list that allows you to select all the languages at once.

Figure 36 • Language Selection List Pop-up (Multiple Languages Selection)

```
                         Language Selection List
Command ===> _____________________________________ Scroll ===> CSR

Select desired Language(s).  Then press Enter.

                                                              1 of 5
  Name              Description
- ----------------  --------------------------------------------------
_ MYS ASSEMBLER     'ASSEMBLER LANGUAGES FOR MYS SYSTEMS'
/ MYS COBOL         'COBOL LANGUAGES FOR MYS SYSTEMS'
_ MYS PL/I          'PL/I LANGUAGES FOR MYS SYSTEMS'
_ NATURAL           'NATURAL LANGUAGE VERSIONS'
_ EASYTRIEVE        'EASYTRIEVE LANGUAGE'


*************************** BOTTOM OF DATA ***************************
```

b Select the languages that you want to generate candidate data item lists for by placing a slash (/) in the space before the language or select (-ALL-) to select all the languages used in the application, and press Enter. The Languages field of the Generate Candidates pop-up displays the selected languages.

4 Generate the list in Foreground or Batch. Look for a message that the list was generated or the batch job completed.

5 Press PF3 to return to the Impact View screen.

6 Refine the Candidate Dataitem List to ensure you identify the most relevant impacted components. If no matches were found, a `NO MATCHING CANDIDATES` message displays for that node.

To re-edit the search criteria

1. From the Impact View screen, select Edit ▸ Search criteria and press Enter to display the Dataitem Search Criteria screen.

2. Check the list and if you are satisfied that the list is complete, conclude that the change does not impact the application's programs in that language. If you are not satisfied with the list, you can edit it.

   Note:
   See "Editing the Search Criteria at the Application Level" on page 58.

3. If you changed the search criteria, regenerate the Candidate Dataitem List.

Refining the Candidate Dataitem List

You should review and refine the Candidate Dataitem List for each programming language in each application. The list contains the actual data items in the programs that match the search criteria. How detailed the refinement is depends on the desired project outcome and on the search criteria edit that created the list.

To achieve the desired impact project results, edit the list based on application expertise and your site's editing standards.

Guidelines

The editing method used should refine each Candidate Dataitem List in a consistent manner. The editing method for a date conversion impact project includes these steps:

1. Accept all data items that are definitely date-related.

2. Reject all data items that are definitely not dates.

3. Research and accept or reject (that is, disposition) undetermined data items.

Estimate provides selection and research options to support your methodology. Use select matching to select data items by data length, data reference, or a matching search string, then accept or reject selected items as a group. This option enables you to find these items:

- Data items whose length is within the plausible range for a date, and data items that are too small or too large to be considered.
- Non-date fields that contain date related keywords, such as, date, year, or century that were not removed from the search criteria.

- Comparison fields such as DATE IS TRUE and relational fields such as GREATER THAN DATE that may not be actual date fields.

Use the Show context option to research undetermined data items. This option provides record layout information, including parent and child hierarchy. Based on the data moved to or from related fields, you may need to consider additional data items.

To complete this task, apply a disposition to all data to create a final list that includes only items that are actually impacted by the change.

Reviewing the Candidate Dataitem List

Before you can refine the Candidate Dataitem List, you must review the data items in the list to determine if they are relevant.

To review the Candidate Dataitem List

1 On the Impact View screen, select the application that you want to access the Candidate Dataitem List for.

2 You must select one language as the currently selected language. If the selected application consists of programs written in more than one language, a separate Candidate Dataitem List was generated for each language. The Candidate Dataitem List can only be accessed for one language at a time:

a Select Options ▸ Select current language and press Enter to display the Language Selection List pop-up (see Figure 27 on page 49.) This list shows all the programming languages in the application.

b Select a language by placing a slash (/) in the space before the language and pressing Enter. The Language field of the Impact View screen displays the selected language.

If all programs in an application are written in the same language, that language is automatically set as the current language when you select the application.

3 Select Edit ▸ Candidate dataitem list and press Enter to display the Candidate Dataitem List screen, shown in Figure 37.

Figure 37 • Candidate Dataitem List Screen

```
  File  Edit  View  Disposition  Options  Help
--------------------------------------------------------------------------------
                              Candidate Dataitem List
Command ===> _____________________________________________ Scroll ===> CSR

Impact : Y2KIMPAC      Language : MYS-COBOL         Application : APPNODE1
Action : S=Sel U=Unsel A=Accept R=Reject C=Clr Y=View B=Brws I=Add Criteria
6 entries                                                          1 of 6
  Disp Program  Lvl Dataitem                        Declaration        Size
- ---- -------- --- ------------------------------ ---------------- ------
_      YIAIDTTG  5  DET-LAST-BILL-DATE             999999                6
_      YIAIDTTG  5  DET-START-DATE                 999999                6
_      YIAIDTTG  10 LAST-BILL-DATE                 9(6)                  6
_      YIAIDTTG  10 LOAN-START-DATE                9(6)                  6
_      YIAIDTTG  5  MASTER-REPORT-DATE             X(8)                  8
_      YIAIDTTG  10 YEAR-TO-DATE-INTEREST          9(13)V99             15
****************************** BOTTOM OF DATA ******************************
```

4 Review data items that display on the list and determine whether:

- Most of the listed data items relevant to your impact project.
- All the data items you know are relevant display on the list.

If the data items that display on the list are not relevant, you may have to re-edit the Search Criteria and generate a new Candidate Dataitem List.

To re-edit the search criteria and regenerate the candidate data item list

Go directly to the Dataitem Search Criteria screen from the Candidate Dataitem List screen.

1 Select Edit ▸ Search criteria and press Enter to display the Dataitem Search Criteria screen.

2 Re-edit the search criteria (see "Editing the Search Criteria at the Application Level" on page 58).

3 Press PF3 to exit the Dataitem Search Criteria screen and display the Candidate Dataitem List screen (see Figure 35 on page 63).

4 Regenerate the list (see "To generate the Candidate Dataitem List for an application" on page 63).

5 Review the regenerated Candidate Dataitem List screen (see "Refining the Candidate Dataitem List" on page 65).

6 Press PF3 to return to the Impact View screen and save any changes to the Candidate Dataitem List before generating impacted components or summary information.

You can also add Search Criteria directly from the Candidate Dataitem List screen. Type the IMS action next to one of the data items and press Enter to display the Add Criteria Entry pop-up. To add a search criteria entry, see "To add or change application criteria" on page 60.

Dispositioning Data Items

Estimate tools enable you to perform these functions:

- Select data items for dispositioning.
- Accept or reject the selected data items.
- Research data items.
- Tailor the list to check the disposition.
- Re-edit the search criteria, if necessary.
- Save the edits.

Use application expertise to disposition the data items in the list. You can disposition data items as accepted (i.e., impacted by the change) or rejected (i.e., not impacted by the change). You must assign a disposition to all data items.

To select a particular data item for dispositioning

▶ On the Candidate Dataitem List screen, scroll through the list and use the S action. Press Enter to highlight the data item.

To locate a data item for dispositioning by search string

1. On the Candidate Dataitem List screen, select Edit ▶ Find and press Enter to display the Find pop-up (see Figure 37 on page 67).

2. Enter a search string and press Enter. Any data items that contain the search string are highlighted on the Candidate Dataitem List screen.

To select for dispositioning data items that match certain criteria

1 On the Candidate Dataitem List screen, select Edit ▸ Select matching and press Enter to display the Select Matching Entries pop-up, shown in Figure 38.

Figure 38 • Select Matching Entries Pop-up

```
                         Select Matching Entries

Choose selection options and press Enter.  In order to match, an entry
must match criteria in all the groups selected.

Select by  _  Physical  or  _  Logical Data Length:
   _  Specified length1:      ____
   _  Specified length2:      ____
   _  Specified length3:      ____
   _  Specified length4:      ____
   _  Range values:    GT-EQ: ____  LT-EQ: ____

_  Select by Data Reference:
   _  Use   _  Mod   _  Arith   _  Cond   _  Sort

_  Select by String:
   _  Name  OR      _  Value    OR    _  Declaration
      which matches:   ____________________________

Options:
_  Merge with Current Selections      _  Exclude unselected data
```

2 Select any or all of these matching criteria:

Criteria	Action
Select by Physical or Logical Data Length	Specifies physical or logical data length. Select Physical or Logical Data Length.
Select by Data Reference	Specifies the reference type using one or more of these options: • Use: (item is used) • Mod: (item is modified) • Arith: (item is used in arithmetic) • Cond: (item is used in a conditional) • Sort: (item is sorted)
Select by String	Specifies a name, value, or declaration string. Type a search string. You can use a wildcard (*) in your search string, but it is not necessary. If the string is found anywhere in the name, value, or picture field, the line is highlighted.

3 Select the Merge with Current Selections option if you want to merge matching items to currently selected items in candidate data item list. Currently selected items in the list are unselected if you do not choose this option.

4 Select the Exclude unselected data option to remove any unselected items from the Candidate Dataitem List.

5 Press Enter to start the search and return to the Candidate Dataitem List screen. The number of matching items displays on the top right of the screen. `NONE SELECTED` displays if no matches are found. Matches display highlighted in the list. A status line above the list shows the total number of entries, the number of any excluded items, and the number of currently viewable items.

To accept data items

1 On the Candidate Dataitem List screen, type `S` to select data items and press Enter.

2 Select Disposition ▸ Accept or type or type `A` to accept data items. These actions occur:

- Accepts the selected data items as impacted.
- Accepts the unselected data items as impacted.
- Accepts any undispositioned data items as impacted. This applies a disposition to any remaining data items not already assigned a disposition status.

3 Press Enter to apply the dispositions and return to the Candidate Dataitem List screen.

- If you tailored your display to include accepted data items, the selected items display an ACC (accepted) status.
- If you did not tailor your display to include accepted data items, accepted items are removed from the display and the list is reordered.

4 When you press PF3 to exit from the Candidate Dataitem List screen, the Save Work pop-up displays. Choose to save and exit, cancel and exit, or continue working.

To reject data items

1. On the Candidate Dataitem List screen, select data items to be rejected. Type `S` next to the data items and press Enter.

2. Select Disposition ▸ Reject or type or type `R` to reject data items. These actions occur:
   - Rejects selected candidates.
   - Rejects unselected candidates.
   - Rejects undispositioned candidates. This rejects any remaining data items that do not have an assigned disposition status.

3. Press Enter to apply the disposition and return to the Candidate Dataitem List screen.
   - If you tailored your display to include rejected data items, the selected items are displayed with a REJ (rejected) status.
   - If you did not tailor your display to include rejected data items, rejected items are removed.

To change a disposition

After assigning a disposition, you may decide to change it.

1. Select View ▸ Include and press Enter to display the Include in View pop-up.

2. Choose to display items rejected or accepted or both in the view and press Enter.

3. Type `C` (Clear) next to the data item whose disposition you want to change.

   When you press Enter, the status is removed from the Disp field. Follow the procedures in "Dispositioning Data Items" on page 68 to reapply a disposition.

To remove all dispositions

1. From the Candidate Dataitem List screen, select Disposition ▸ Restart - Clear all dispositions.

2. Press Enter. A message displays to inform you that the dispositions were cleared.

Researching Data Items for Disposition

Before being accepted or rejected, some data items require additional research. You can use actions from the View pull-down to see record layout information for selected data items and to customize the content and format of the information shown on the Candidate Dataitem List screen.

To display record layout information

1 Select View ▸ Show context and press Enter.

Or

Type `V` next to the entry for the data item you want to view and press Enter to display the Dataitem Context View screen.

2 Type `V` next to the entry for the data item and press Enter to display the Dataitem Context View screen, shown in Figure 39.

Figure 39 • Dataitem Context View Screen

```
  File  Options  Help
--------------------------------------------------------------------------------
                              Dataitem Context View
Command ===> _____________________________________________ Scroll ===> CSR

                                                                   1 of 18
                                                                      >>>
Record Layout                                                 Uses  Mods  Arith
------------------------------------------------------------ ----- ----- -----

Selected Dataitem is DET-LAST-BILL-DATE

Dataitem defined in VIATTG.DEVL.COBOL(VIAIDEMO)
   1  DETAIL-LINE2                                              1     0     0
      5  DET-CC                X                                 0     0     0
      5  _FILLER               X(17)                             0     0     0
      5  DET-NAME              X(24)                             0     1     0
      5  _FILLER               X(31)                             0     0     0
      5  _FILLER               X(16)                             0     0     0
      5  DET-YTD-INT           9999999999999.99                  0     1     0
      5  _FILLER               X(2)                              0     0     0
      5  _FILLER               X(17)                             0     0     0
      5  DET-LAST-BILL-DATE    999999                            0     1     0
      5   FILLER               X(1)                              0     0     0
```

3 The Dataitem Context View screen displays source code record layout information for the selected item.

4 Press PF3 to return to the Candidate Dataitem List screen.

To browse the source code file of a data item

1. Type `B` next to the entry for the data item and press Enter. The Browse Entry Panel pop-up displays for COBOL programs, shown in Figure 40. For non-COBOL programs, an ISPF browse session for the member displays.

Figure 40 • Browse Entry Panel Pop-up

```
                          Browse Entry Panel

Source Input:

   Data Set Name . . . 'VIATTG.DEVL.COBOL(VIAIDEMO)'
   Volume Serial . . . ______          (Required if not cataloged)

   Data Set Password   ________        (If password protected)

Zoom-In Line Format:
1   1.  Note Lines
    2.  Data Lines
```

2. Enter the volume serial number and password, if required.

3. Enter the number for the format in which you want Copybooks to be expanded when executing a ZOOM IN command. Specify Note Lines to expand Copybooks as note lines that are excluded when a SCROLL command is executed. Specify Data Lines to expand Copybooks as real data lines, allowing you to scroll to each instance of a target, even if it displays in a Copybook.

4. Press Enter to browse the source code file.

5. Press PF3 to return to the Candidate Dataitem List screen. You may have to repeat this several times.

To format the Candidate List Display

1 Select View ▸ Format display and press Enter to display the Candidates Presentation pop-up, shown in Figure 41.

Figure 41 • Candidates Presentation Pop-up

```
  Edit  Options  Help
-------------------------------------------------------------------------
                        Candidates Presentation
Command ===> _____________________________________________________________

                     Sort order    Display order   Display width
                     ----------    -------------   -------------  1 of 18
Dataitem                 2             4               30
Program                  1             2               8
Size                     __            6               6
Lvl                      __            3               3
Disp                     __            1               4
Mod                      __            __              6
Use                      __            __              6
Arithmetic               __            __              6
Conditional              __            __              6
Sort                     __            __              6
Declaration              *             5               16
Pgm mbr                  __            __              8
Pgm library              __            __              44
Copy mbr                 __            __              8
```

2 Specify a structure for these information fields:

- Sort order—the order data is entered in the list. Type a number 1 through 17. Items display as defined in the program if no sort order is specified.
- Display order—the screen position for this field. Type a number 1 through 18. Only fields with a specified position display on the screen.
- Display width—the width for the field.

3 Press PF3 to return to the resorted Candidate Dataitem List screen.

Note:

If one of the fields in your sort criteria is the Disposition column, you can use the Re-sort Display option to return the candidates in the display to their original order. From the Candidate Dataitem List screen, select View ▸ Re-sort display and press Enter.

To tailor the view to check the disposition

1 Select View ▸ Include and press Enter to display the Include in View pop-up (for the Candidate Dataitem List screen, see Figure 42).

Figure 42 • Include in View Pop-up (for the Candidate Dataitem List)

```
                    Include in View

To include lines in the view, enter options below; then
press Enter.

_  Include rejected items in the view.
_  Include accepted items in the view.
```

2 Place a slash (/) before the Include rejected items in the view field to include rejected data items in the display.

3 Place a slash (/) before the Include accepted items in the view field to include accepted data items in the display.

4 Press Enter to return to the modified Candidate Dataitem List screen.

To view only selected items in the list

1 Select View ▸ Exclude non-selected lines. Unselected lines are hidden. A status line above the list shows the total number of entries, the number of any excluded items, and the number of currently viewable items.

2 Select View on the action bar and choose Reset excluded lines to return the hidden unselected lines to the list.

Finalizing the Impacted Components List

After reviewing and refining the Candidate Dataitem List for each programming language used in the applications, add related components and synonyms to create an Impacted Components List. These descriptions apply to the Impacted Components List:

- Synonyms are data items that receive a value from or pass a value to an impacted data item.
- Components include databases, screen maps, files, and procedures related to a program. If the program contains impacted data items, these related components may be affected by program activity or execution.

The final Impacted Components List includes all impacted data items assigned an accepted disposition and their related components and synonyms. You can accept the components and synonyms as impacted or reject them as not impacted. Use the finalized Estimate list to summarize and report on the impact to the business group.

Note:

Time for generating the list varies widely. Applications with fewer than 100 programs may take less than a minute. Large applications require proportionally more time. Schedule your batch jobs with consideration of CPU resources.

Complete these steps to finalize the impact list:

- Review the impact options and edit them if necessary.
- Propagate impact options.
- Generate the Impacted Components List.
- Review the Impacted Components List.
- Perform a final disposition.

To review and edit the impact options

1 On the Impact View screen, select Edit ▸ Impact Options

Or

from the Generate menu, select Impacted Components, then select Options ▸ Impact Options to display the Impact Options pop-up, shown in Figure 43.

Figure 43 • Impact Options Pop-up

```
  Edit  Options  Help
-------------------------------------------------------------------------
                                Impact Options
Command ===> ____________________________________________________________

Impact : Y2KIMPAC                                      Node : APPNODE1

Select desired Impact Options.

Base Impact Targets:                 Application     Assignments
   Targets                          Level Synonyms  To    From   Alternates
   -------------------------------  --------------  --    ----   ----------
/  Accepted Candidates              /               _     _      _
/  Parents of Candidates            /               _     _      _
_  Children of Candidates           _               _     _      _

Expanded Impact Targets:             Application     Assignments
   Targets                          Level Synonyms  To    From   Alternates
   -------------------------------  --------------  --    ----   ----------
/  Base Impact Targets              /               _     _      _
/  Parents of Base Impact Targets   /               _     _      _
_  Children of Base Impact Targets  _               _     _      _
```

2 Select options as needed. Base impact target options expand the impact analysis results of the accepted candidates. Expanded impact target options further expand the impact analysis of the base impact targets.

3 Select Edit ▸ Save to save impact options.

4 Select Edit ▸ Restore Defaults to restore default impact options.

To propagate impact options

You may use different sets of impact options for different application nodes in your enterprise. However, in most cases, you want to use a consistent set of impact options across your enterprise. You can set the same impact options for several nodes at once by using the Propagate Impact Options feature.

1 Edit and save the impact options for your enterprise node by choosing the Edit - Impact options menu option in the Impact View.

2 Propagate the enterprise node's impact options to the rest of the nodes beneath it by choosing the Edit - Propagate impact options menu option. The From and To nodes should both be your enterprise node name, shown in Figure 44. Turn on the option to propagate to subordinates.

3 Press Enter to propagate the impact options.

Figure 44 • Propagate Impact Options Pop-up

```
                    Propagate Impact Options

Enter the target node name; then press Enter.

Propagate From : APPNODE1
            To   _______  (clear and press Enter to select)

Options:
_  Propagate to subordinates.
```

To generate the impacted components list

All of the data items on the candidate list should be dispositioned as accepted or rejected before this action is taken. If you have not dispositioned all of the data items, return to the Candidate Dataitem List screen and complete the dispositioning of the candidates for the selected language. Then retry this action.

1 On the Impact View screen, select the application that you want to generate an Impacted Components List for.

2 Select Generate ▸ Impacted Components and press Enter to display the Generate Impacted Components pop-up, shown in Figure 45.

Figure 45 • Generate Impacted Components Pop-up

```
  Foreground  Batch  Options  Help
-------------------------------------------------------------
                 Generate Impacted Components
Command ===> _____________________________________________

Impact : Y2KIMPAC                      Application : APPNODE1

Select Foreground or Batch to generate the Impacted Components
```

3 Generate the list in Foreground or Batch. Look for a message that the list generated or the batch job completed.

4 Press PF3 to return to the Impact View screen.

To review the Impacted Components List

The Impacted Components List displays all impacted data items plus candidate components, which are synonyms and non-program components. The list is organized by entity, component, name, and entity type. Estimate also provides additional information about the component, for example, whether it is a synonym.

You can choose to see the record layout of the program in which the data item resides and how the item interacts in the program.

1 From the Impact View screen, select Edit ▸ Impacted components and press Enter to display the Impacted Components List screen, shown in Figure 46.

Figure 46 • Impacted Components List Screen

```
  File  Edit  View  Disposition  Options  Help
-------------------------------------------------------------------------------
                         Impacted Components List
Command ===> _____________________________________________ Scroll ===> CSR

Impact : EN50TEST              Application : BILLING                  1 of 37
Action : S=Select  U=Unselect  R=Toggle Reject  V=View Context
  DISP ENTITY NAME                              ENTITY TYPE            INFO
- ---- ------------------------------------- ---------------------- -------
_      WS-TEMPA                                DATAITEM               SYN
_      WS-TEMPB                                DATAITEM               SYN
_      WS-TEMPX                                DATAITEM               SYN
_      WS-TEMPY                                DATAITEM               SYN
_      WS-TEMP1                                DATAITEM               SYN
_      WS-TEMP2                                DATAITEM               SYN
_      SYS010                                  DD
_      SYS110                                  DD
_      REPTFILE                                DSN
_      VIASPAY1                                DSN
_      200-PRINT-FILE                          FD/FILEVAR/DCB
_      200-PRINT-FILE                          FD/FILEVAR/DCB
_      VIASTP0J                                JOB
_      VIASTP0P                                PROC
_      VIASTP01                                PROGRAM/PROCEDURE/FUNC
```

2 To display record layout information for a data item or synonym, on the Impacted Component List screen:

- Type S to select a data item. Select View ▸ Show context.

Or

- Type V (View Context) to select the item whose context you want to examine.

3 Press Enter to display the Dataitem Context View pop-up showing the source code record layout information for the selected item (see Figure 39 on page 72):

- Hierarchical relationships—parents, siblings, and children of the selected item
- Uses and modifications

4 Press PF3 to return to the Impacted Components List screen.

5 Select View ▸ Sort View to sort the list. Press Enter to display the Sort View pop-up, shown in Figure 47.

Figure 47 • Sort View Pop-up

```
                    Sort View

Select the sort field for the impacted components view;
then press enter.

Sort view by:
2   1.  Entity Name
    2.  Entity Type
```

6 Specify whether to sort by entity name or entity type.

7 Press Enter to return to the resorted Impacted Components List screen.

Performing a Final Disposition

Use the Disposition feature to accept or reject undispositioned candidate components as impacted by the change. Data items previously accepted as impacted on the Candidate Dataitem List cannot be changed.

Note:

Any component not assigned a disposition is accepted as impacted.

To reject components

1. On the Impacted Component List screen, type `S` to select components and press Enter. Select Disposition on the action bar and choose a Reject option:

   Toggle Reject selected components.

   Or

   Toggle Reject unselected components.

   Or

   Type R to reject components.

2. Press Enter to apply a disposition and return to the Impacted Components List.
   - If you tailored your display to include rejected components, the selected entities are displayed with a REJ (rejected) status.
   - If you did not tailor your display to include rejected components, rejected entities are removed from the display and the list reordered.

3. Press PF3 to exit from the Impacted Component List screen and display the Save Work pop-up, shown in Figure 48.

   Figure 48 • Save Work Pop-up

```
                    Save Work

Your work has not been saved.  Select the
disposition for your work.

Options
3   1.  Save and exit.
    2.  Cancel and exit.
    3.  Continue working.
```

4. Choose to save and exit, cancel and exit, or continue working. If you choose one of the exit options, the Impact View screen is displayed.

To tailor the view to check the component disposition

1 Select View ▸ Include and press Enter to display the Include in View pop-up, shown in Figure 49.

Figure 49 • Include in View Pop-up (for the Impacted Components List)

```
                    Include in View

To include lines in the view, enter options below; then
press Enter.

▬  Include rejected items in the view.
_  Include accepted items in the view.
/  Include synonyms of items in the view.
```

a Select Include accepted items in the view to include accepted components in the display.

b Select Include rejected items in the view to include rejected components in the display.

c Select Include synonyms of items in the view to include synonyms in the display.

2 Press Enter to return to the Impacted Components List screen.

8 Defining Cost Factors

This chapter describes the process of defining cost factors for the impact project and contains these sections:

Section	Page
Setting Cost Factors	83
Propagating Cost Factors	94

Setting Cost Factors

Setting Base Cost Factors

Base Cost Factors are used in CPU resource computation and for project timeline calculations. This information is entered in this manner:

- Base Cost Factors:
  - Unit of Cost
  - Cost per CPU Hour
- Timeline Duration:
  - Project Dates - Start and End
  - Number of Work Months

To set base cost factors

1. On the Impact View screen, select the enterprise node.

2. Select Costing ▸ Factors and press Enter to display the Costing Factors pop-up, shown in Figure 50.

Figure 50 • Costing Factors Pop-up

```
                    Costing Factors

  Select one of the following actions, then press Enter.

  __  1.  Base Cost Factors...
      2.  Person Time Factors...
      3.  Language Maintenance Time Factors...
      4.  Component Maintenance Time Factors...
      5.  CPU Time Factors...
      6.  Program Classification Factors...
```

3. Select Base Cost Factors action and press Enter to display the Base Cost Factors pop-up, shown in Figure 51.

Figure 51 • Base Cost Factors Pop-up

```
  Edit  Options  Help
-----------------------------------------------------------------------
                          Base Cost Factors
Command ===> ____________________________________________________________

Base cost factors are used in CPU resource computation and for
project timeline calculations.

Base Cost Factors:
   Unit of Cost  . . . . . . USD           (US Dollar, etc.)
   Cost per CPU Hour . . . . 300.0000      (four decimal places max.)

Timeline Duration:
2  1. Project Dates - Start  . . ___________  (DD-MMM-YYYY)
                    - End  . . . ___________  (DD-MMM-YYYY)
   2. Number of Work Months  . . 12    (1 to 120)
```

4. Enter this necessary information:

   - Your unit of cost (e.g., US Dollars, Pounds, Francs, etc.)
   - Your site's cost per CPU hour
   - Your project's start and end dates *or* the number of months

5. Select Edit ▸ Restore defaults to restore the defaults.

6 Press PF3 and respond to the prompts to save any changes.

7 Press Enter to return to the Costing Factors pop-up.

Setting Person Time Cost Factors

Person time cost factors are values used to compute the cost per person hour for staff assigned to the impact project. Estimate provides default values for these factors; however, you can customize the values to represent your particular business.

Space is provided to enter the time cost factors for up to 50 different staff positions. For each position, enter this information:

Cost Factor	Description
Type of Staff	The job or position title of staff required to complete the project
Cost/Hour	The cost per hour for job or position type
Hours/Day	The number of hours per day job or position type works
Days/Month	The number of working days per month for job or position type
% of Responsibility	The percent of project responsibility assigned to job or position type

To set person time cost factors

1 From the Costing Factors pop-up (see Figure 50 on page 84), select Person Time Factors and press Enter to display the Person Time Cost Factors pop-up, shown in Figure 52.

Figure 52 • Person Time Cost Factors Pop-up

```
  Edit  Options  Help
-------------------------------------------------------------------------------
                          Program Classification Formula
Command ===> _______________________________________________________________

Operators are +, -, *, and /.  Fill in the table from left to right.  Blank
space is permitted.

   Opr | Metric | Opr | Metric | Opr | Metric | Opr | Metric | Opr | Metric
  =====+========+=====+========+=====+========+=====+========+=====+=======
 1  =  |  CC    |  *  |  SSV   |  +  |  EC    |  *  |  EC    |  *  |  SSV
 2  +  |  KC    |  *  |  SSV   |  +  |  LE    |  *  |  LE    |  *  |  SSV
 3  +  |  REC   |  *  |  SSV   |  +  |  OPJ   |  +  |  ALT   |  +  |  GOS
 4  +  |  ENT   |  +  |  EXT   |  -  |  ---   |  -  |  ---   |  -  |  ---
 5  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 6  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 7  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 8  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 9  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---

Metrics: SSV, CC, EC, KC, CV, LOC, LE, REC, OPJ, ALT, GOS, ENT, EXT, DC, DD
```

2 Add any additional functional Project positions, for example, Project Manager.

3 Edit or enter this information for your site:

- Cost per hour for each position, for example, $65 dollars per hour for the Project Manager
- Hours per day, for example, 8 for some sites and 7 for others
- Number of working days per month
- Estimated percentage of responsibility for each Project position, for example, 50 percent for senior staff, 25 percent for junior staff, 25 percent for the manager

Note:

The sum of all values entered in the % of Responsibility column must equal 100.

4 Select Edit ▸ Restore defaults to restore the defaults.

5 Press PF3 and respond to the prompts to save any changes.

6 Press Enter to return to the Costing Factors pop-up.

Setting Language Maintenance Time Factors

Language maintenance time factors are values used to compute the staff time spent performing re-engineering and testing tasks in each programming language category.

This information is entered for each language at each of the five program classification levels (where class 1 is the easiest and class 5 is the most difficult):

- Number of Code Changes per Compile
- Minutes to Change each Data Definitions per program
- Minutes to Change each Data Use per program
- Minutes to Change each Data Mod per program
- Minutes to Understand Program
- Minutes to Create Test Data per program
- Minutes to Unit Test per program
- Minutes to System Test per program

To set language maintenance time factors

1. From the Costing Factors pop-up (see Figure 50 on page 84), select Language Maintenance Time Factors and press Enter to display the Language Maintenance Time Factors pop-up, shown in Figure 53.

Figure 53 • Language Maintenance Time Factors Pop-up

```
 Edit  Options  Help
-------------------------------------------------------------------------------
                    Language Maintenance Time Factors
Command ===> _____________________________________________ Scroll ===> CSR

                                                                  1 of 63
 Pgm Classifications (1=Easy, 5=Difficult) : --1-- --2-- --3-- --4-- --5--
ASM  MVS  Number of Code Changes per Compile    25    20    15    10     5
          Minutes to Change each Data Def/Pg     3     5     8    10    12
          Minutes to Change each Data Use/Pg     6     8    11    13    15
          Minutes to Change each Data Mod/Pg    10    12    15    17    20
          Minutes to Understand Program        120   240   480   600   720
          Minutes to Create Test Data/Pgm      120   240   480   600   720
          Minutes to Unit Test/Pgm             240   480   960  1440  1920
          Minutes to System Test/Pgm           360   720  1440  2160  2880

COB  MVS  Number of Code Changes per Compile    25    20    15    10     5
          Minutes to Change each Data Def/Pg     3     5     8    10    12
          Minutes to Change each Data Use/Pg     6     8    11    13    15
          Minutes to Change each Data Mod/Pg    10    12    15    17    20
          Minutes to Understand Program        120   240   480   600   720
          Minutes to Create Test Data/Pgm      120   240   480   600   720
```

This pop-up is organized by language and program class:

- The languages displayed, for example, COBOL or PL/I, are based on the parameters set up during Estimate installation.
- Classes 1 through 5 indicate program difficulty.

2 For each language, review:

- The estimated number of code changes for each program class.
- The number of minutes for each engineering and testing task for each program class.

3 Edit the defaults based on your site's programs and estimating methodology.

4 Select Edit ▸ Restore defaults to restore the defaults.

5 After reviewing and making any necessary changes to the factors press PF3 to display the Save Work pop-up. Select one of the available dispositions.

6 Press Enter. If you selected one of the exit options, the Costing Factors pop-up displays.

Setting Component Maintenance Time Factors

Component maintenance time factors are values used to compute the staff time spent re-engineering and testing components including databases, procedures, screen maps, and files. Specify the amount of time (in minutes) required to change each type of component in the project.

To set component maintenance time factors

1 From the Costing Factors pop-up (see Figure 50 on page 84), select Component Maintenance Time Factors and press Enter to display the Component Maintenance Time Factors pop-up, shown in Figure 54.

Figure 54 • Components Maintenance Time Factors Pop-up

```
  Edit  Options  Help
-----------------------------------------------------------------
                Components Maintenance Time Factors
Command ===> ______________________________________ Scroll ===> CSR

                                                          1 of 50
           Component Name                 Time to Modify (In Minutes)
---------------------------------------- ---------------------------
 AREA                                     15
 CATALOG                                  15
 CICS-TRANSACTION                         15
 COLUMN                                   15
 COPYMEMBER/INCLUDE                       15
 CSD                                      15
 CSECT                                    15
 CURSOR                                   15
 DATABASE                                 15
 DATAITEM                                 15
 DBD                                      15
 DD                                       15
 DSN                                      15
 ENTRY                                    15
```

This pop-up is organized by:

- Component name
- Time to modify (in minutes)

2. Review the time to modify for each Component. If desired, edit to reflect your site.

3. Select Edit ▸ Restore defaults to restore the defaults.

4. After reviewing and making any necessary changes to the factors, press PF3 to display the Save Work pop-up. Select one of the available dispositions.

5. Press Enter. If you selected one of the exit options, the Costing Factors pop-up displays.

Setting CPU Time Estimation Factors

CPU time estimation factors are values used to compute the CPU hours used when re-engineering and testing tasks are performed.

Specify seconds of CPU time required to perform each of these tasks for the specified maximum number of lines of code:

- Precompile/Compile/Link
- Execute Unit Test
- Execute System Test

To set CPU time estimation factors

1 From the Costing Factors pop-up shown in Figure 50 on page 84, select CPU Time Factors and press Enter to display the CPU Time Estimation Factors pop-up, shown in Figure 55.

Figure 55 • CPU Time Estimation Factors Pop-up

```
  Edit  Options  Help
-------------------------------------------------------------
                 CPU Time Estimation Factors
Command ===> _____________________________________________

                   ----------- CPU Seconds for Task ----------
    Program        Precompile/       Execute          Execute
 Lines of Code     Compile/Link      Unit Test       System Test
 -------------     ------------      ----------      -----------
    To   1K         1                1                4
    To   2K         1                1                4
    To   3K         1                1                4
    To   4K         1                2                4
    To   5K         2                2                5
    To  10K         2                2                5
    To  20K         2                3                5
    To  40K         3                3                6
    To  60K         3                3                6
    To  80K         3                4                6
    To 100K         4                4                7
    To 120K         4                5                7
  Over 120K         5                5                8
```

This pop-up is organized by these factors:

- Incremental lines of code from 1,000 to greater than 120,000
- Engineering and testing tasks that consume CPU hours

2 Review the CPU Seconds for Task columns for each incremental block of program code to be changed. Edit for your site, if desired.

3 Select Edit ▸ Restore defaults to restore the defaults.

4 After reviewing and making any necessary changes to the factors, press PF3 to display the Save Work pop-up. Select one of the available dispositions.

5 Press Enter. If you selected one of the exit options, the Costing Factors pop-up displays.

Editing Program Classification Factors

Program classification factors are a set of values calculated by assigning a COBOL program's metrics to a number on a metrics table. The metrics represent the program's maintainability as measured by complexity, size, and structure. Use the metric to simplify the Program Classification Formula. This formula determines the program's classification index as 1 through 5.

For non-COBOL programs, the formula does not apply. You must assign a classification based on general knowledge of each programs' maintainability.

Note:

The default values are based on accumulated metric information. Modify only after careful consideration.

To edit program classification factors

1. From the Costing Factors pop-up, shown in Figure 50 on page 84, select Program Classification Factors and press Enter to display the Program Classification Factors pop-up, shown in Figure 56.

Figure 56 • Program Classification Factors Pop-up

```
                    Propagate Costing Factors

Enter the To node and Costing Factors to copy; then press Enter.

Propagate From : TTG-ENT
            To   _________  (clear and press Enter to select)

Costing Factors to copy:
_  Base Cost factors
_  Person time factors
_  Language Maintenance Factors
_  Component Maintenance Factors
_  CPU time factors
_  Program Classification factors

Options:
_  Propagate to subordinates.
```

This pop-up is organized by these factors:

- The type of metric
- A value to represent the metric

2. Review the values for each COBOL program metric.

3. Type the new value over the old to modify a value.

4. Select Edit ▸ Restore defaults to restore the defaults.

5 After reviewing and making any necessary changes to the factors, press PF3 to display the Save Work pop-up. Select one of the available dispositions.

6 Press Enter. If you selected one of the exit options, the Costing Factors pop-up is displayed.

Editing the Program Classification Formula

The default values in the Program Classification Formula are based on metrics expertise. It is strongly recommended that you do not change any values until you use the defaults to generate Estimate results.

To edit the Program Classification Formula

1 From the Program Classification Factors pop-up, select Edit ▸ Classification formula.

2 Press Enter to display the Program Classification Formula pop-up, shown in Figure 57. This pop-up displays how the Program Classification index is calculated.

Figure 57 • Program Classification Formula Pop-up

```
  Edit  Options  Help
-------------------------------------------------------------------------------
                          Program Classification Formula
Command ===> _______________________________________________________________

Operators are +, -, *, and /.  Fill in the table from left to right.  Blank
space is permitted.

   Opr | Metric | Opr | Metric | Opr | Metric | Opr | Metric | Opr | Metric
  =====+========+=====+========+=====+========+=====+========+=====+=======
 1  =  |  CC    |  *  |  SSV   |  +  |  EC    |  *  |  EC    |  *  |  SSV
 2  +  |  KC    |  *  |  SSV   |  +  |  LE    |  *  |  LE    |  *  |  SSV
 3  +  |  REC   |  *  |  SSV   |  +  |  OPJ   |  +  |  ALT   |  +  |  GOS
 4  +  |  ENT   |  +  |  EXT   |  -  |  ---   |  -  |  ---   |  -  |  ---
 5  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 6  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 7  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 8  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---
 9  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---   |  -  |  ---

Metrics: SSV, CC, EC, KC, CV, LOC, LE, REC, OPJ, ALT, GOS, ENT, EXT, DC, DD
```

Note:

See "Calculating Program Difficulty Classification," on page 151.

3 Type the new value over the old to modify a value.

4 Select Edit ▸ Restore defaults to restore the defaults.

5 Press PF3 and respond to the prompts to save any changes.

- If you have only COBOL programs in your enterprise applications, press PF3 until the Impact View screen displays.

- If you have non-COBOL programs in your enterprise applications, press PF3 to return to the Program Classification Factors pop-up. Follow the procedure in "Assigning a Default Classification to Languages" on page 93.

Assigning a Default Classification to Languages

To assign a classification to languages

1 On the Program Classification Factors pop-up (Figure 57 on page 92), select Edit ▸ Language defaults and press Enter to display the Default Language Classification pop-up, shown in Figure 58. This pop-up displays default classification values for all languages supported by Estimate.

Figure 58 • Default Language Classification Pop-up

```
  Edit  Options  Help
-------------------------------------------------------------------------------
                    Default Language Classification
Command ===> _____________________________________________ Scroll ===> CSR

Please assign a default program classification for all the languages
listed below.  The classification value must be between 1.0 and 5.0. A
high value indicates higher maintenance difficulty. Enter the default
program classification for each language, then press Enter.

Language         Program Classification
                                                                  1 of 6
MVS-ASSEMBLER .......... 3.0
MVS-COBOL .............. 3.0
MVS-PL/I ............... 3.0
NATURAL ................ 3.0
EASYTRIEVE ............. 3.0
IDEAL .................. 3.0
***************************** BOTTOM OF DATA ******************************
```

2 Evaluate the values based on the maintainability of programs in that language at your site. To edit a value, type over a new value of 1.0 to 5.0 the displayed value.

3 Select Edit ▸ Restore defaults to restore the defaults.

4 Press PF3 and respond to the prompts to save any changes.

5 Press Enter if you selected one of the exit options. The Program Classification Factors pop-up displays.

6 Press PF3 until the Impact View screen displays.

Propagating Cost Factors

To propagate costing factors to all subordinate nodes

1. On the Impact View screen, select the enterprise node.

2. Select Edit ▸ Propagate costing factors and press Enter to display the Propagate Costing Factors pop-up, shown in Figure 59.

Figure 59 • Propagate Costing Factors Pop-up

```
                    Propagate Costing Factors

Enter the To node and Costing Factors to copy; then press Enter.

Propagate From : TTG-ENT
            To   _________  (clear and press Enter to select)

Costing Factors to copy:
_  Base Cost factors
_  Person time factors
_  Language Maintenance Factors
_  Component Maintenance Factors
_  CPU time factors
_  Program Classification factors

Options:
_  Propagate to subordinates.
```

3. Select cost factors to propagate and place a slash (/) next to each type of factor you want to propagate.

4. The enterprise node displays in the Propagate From field. Clear the To field by using the Delete key or by placing spaces over the text in the field. Press Enter to display the Select Node pop-up, shown in Figure 60.

Figure 60 • Select Node Pop-up

```
                                Select Node
Command ===> ____________________________________________ Scroll ===> CSR

Position the cursor to the node to select, and press Enter.

                                                          (Node 1 of 9)
TTG-ENT                                                      ENTERPRISE
|--> RWONLY                                                 APPLICATION
|--> ALEX01                                                 APPLICATION
|--> EZT                                                    APPLICATION
|--> GRIYO                                                        GROUP
     |--> APPNODE1                                          APPLICATION
|--> YIAJFC                                                 APPLICATION
|--> YIAMJH                                                 APPLICATION
|--> YIAABC                                                 APPLICATION
****************************** BOTTOM OF DATA ****************************
```

5 Select the enterprise node to propagate the cost factors to all nodes. Press Enter to return to the Propagate Costing Factors pop-up. The enterprise node displays in the To field

6 Type a slash (/) next to Propagate to Subordinates and Press Enter to propagate and return to the Impact View screen. A message indicates that costing factors were propagated.

9 Summarizing the Impact Project

This chapter explains how to use the accumulated and analyzed data and the statistical information produced in the impact project, and contains these sections:

Section	Page
Reviewing Summary Information	99
Generating Impact Reports	101
Reviewing Cost Factors at the Application Level	105
Propagating Cost Factors from the Business Groups	107
Generating Cost Factor Reports	107

The impact summary process accumulates and analyzes the data created in the impact process. It also generates statistical information about the impact project. After you generate the summary, you can run Impact reports to document the detail and summary information for the applications. Based on the Estimate results, you may decide to adjust cost factors at the application level.

Impact summary information is rolled up through the enterprise. This means that you generate summary information at the application level first, then the business group, and finally the enterprise. All application statistics are included in the related Business Group summary, and all application and business group statistics are included in the enterprise summary.

To generate summary information for each application

1. On the Impact View screen, select an application node to be summarized.

2. Select Generate ▸ Summary information and press Enter to display the Generate Summary Information pop-up, shown in Figure 61.

Figure 61 • Generate Summary Information Pop-up

```
  Foreground  Batch  Options  Help
--------------------------------------------------------------------------
                        Generate Summary Information
Command ===> ____________________________________________________________

This action generates summary information for an application, all the
applications within a group, or all the applications within the
enterprise.

Enter the application name, group name, or enterprise name which contains
the applications to be summarized.  Then select Foreground or Batch to
generate the summary.

Summarize applications within . . . RWONLY    (clear and Enter to select)

_  Use member name as program name
```

3. Generate the information in Foreground or Batch. Look for a message that the summary was generated or the batch job completed.

4. To continue to generate summary information for each application, enter the name of next application node in the Summarize applications within field and repeat step 3. Keep repeating this step until all the applications have been summarized.

5. Press PF3 to return to the Impact View screen.

To generate summary information for each Business Group

1. On the Impact View screen, select a node to be summarized.

2. Select Generate ▸ Summary information and press Enter to display the Generate Summary Information pop-up.

3. Verify that the Summarize applications within field displays the name of the Business Group node.

4. Generate the information in Foreground or Batch. Look for a message that the summary was generated or the batch job completed.

5 To continue to generate summary information for each group, enter the name of next group node in the Summarize applications within field and repeat step 3 on page 98. Keep repeating this step until all the groups have been summarized.

6 Press PF3 to return to the Impact View screen.

To generate summary information for an enterprise

1 On the Impact View screen, select the enterprise node.

2 Select Generate ▸ Summary information and press Enter to display the Generate Summary Information pop-up (see Figure 61 on page 98).

3 Verify that the Summarize applications within field displays the name of the enterprise.

4 Generate the information in Foreground or Batch. Look for a message that the summary was generated or the batch job completed.

5 Press PF3 to return to the Impact View screen.

Reviewing Summary Information

Summary information provides statistics about the impact to the business group, and if applicable, to the applications. Review this information to determine the high-level, overall impact.

- Statistics for each category includes this information:
  - Physical line and statement
  - Symbol and data item
  - Affected programs
  - Affected data items in program
  - Affected references
  - Impacted components

- For an application, this additional information is included:
  - Language statistics
  - Program count by language statistics
  - Data item statistics: from copybooks and programs, referenced and unreferenced
  - Data item activity: uses, modifications, arithmetic, conditionals, SORTs
  - Impacted item reference by program statistics
  - Application component detail

To review the summary information

1. On the Impact View screen, select the application, business group, or enterprise node you want to review and press Enter.

2. Select View ▸ Summary information and press Enter to display the Summary Information screen, shown in Figure 62.

Figure 62 • Summary Information Pop-up

```
                                Summary Information
Command ===> _____________________________________________ Scroll ===> CSR

Impact : Y2KIMPAC

*******************************************************
** Summary for Node: TTG-ENT
*******************************************************

Physical Line and Statement Statistics:

  ID        Lines of Code % Total   Statements % Total
  -------- -------------- -------  ----------- -------
  RWONLY              552   11.00          422   25.18
  ALEX01             1190   23.71          893   53.28
  EZT                3277   65.29          361   21.54
  GRIYO                 0    0.00            0    0.00
  VIAJFC                0    0.00            0    0.00
  VIAMJH                0    0.00            0    0.00
  VIAABC                0    0.00            0    0.00
  ======== ============== =======  =========== =======
  TOTALS             5019  100.00         1676  100.00
```

If the node summarized is an application, this information is shown:

- The ID column displays the application name.
- The percentage for the totals displayed is 100 percent.

If the node summarized is a business group, this information is shown:

- The ID column includes the name of each application node in the group.
- Each application displays a percentage of the total 100 percent, for example, Payroll Deductions at 40 percent and Payroll Taxes at 60 percent.

If the node summarized is the enterprise, this information is shown:

- The ID column includes the name of each business group that makes up the enterprise.
- Each business group displays a percentage of the total 100 percent, for example, Services at 30 percent, Finance at 50 percent, and Training at 20 percent.

3 After you are done reviewing the summary information, press PF3 to return to the Impact View screen.

Generating Impact Reports

Impact reports document the detailed results and the summary statistics of the impact process. View the information online or print the reports for review. These reports show how the conversion project affects the applications. Analyze impact reports to determine the engineering strategy for the impact project.

Generating reports for a business group or enterprise includes information about its subordinate groups and applications.

Note:

For information about generating, viewing, and printing reports, see "Estimate Reports" on page 117.

To generate an Impact Report

1 On the Impact View screen, select the node you want to generate a report for and press Enter.

2 Select Generate ▸ Reports and press Enter to display the Generate Reports pop-up, shown in Figure 63.

Figure 63 • Generate Reports Pop-up

```
                    Generate Reports

Select one of the following report groups, and press Enter.

__  1.  Definition Reports...
    2.  Impact Task Reports...
    3.  Impact and Summary Reports...
    4.  Estimation Factor and Costing Reports...
```

3 Select Impact and Summary Reports and press Enter to display the Generate Impact and Summary Reports pop-up, shown in Figure 64.

Figure 64 • Generate Impact and Summary Reports Pop-up

```
  Foreground  Batch  Options  Help
-------------------------------------------------------------------
                Generate Impact and Summary Reports
Command ===> ____________________________________________________

Subject: RWONLY (Application)
Languages : MYS-COBOL

Select the desired report(s) to generate, and set the options.  Then
select Foreground or Batch to generate the reports.

_  Impacted Dataitem List (IDN)
_  Affected Programs in Application (PGM)
_  Affected Program Lines (LIN)
_  Impact Summary (IMP)
_  Summary Information (SUM)
_  Dataitem Search Criteria (DSC)

Options:
_  Include subordinate groups         _  View report using editor
_  List report criteria               _  Fold text to upper case
_  Use member name as program name    _  Include impact options
```

4 Verify the Subject field displays the correct node.

If the applications in the selected node contain more than one language, select Options ▸ Select languages and press Enter. The Language Selection List pop-up displays. Select one or more or all languages that apply to the applications in the node. Press Enter to return to the Generate Impact and Summary Reports pop-up for the node. Verify that the Languages field displays the selected languages.

5 Use this list to select the Impact Reports you want to generate:

Report Name	Description
Impacted Dataitem List (IDN)	Reports impacted data items and synonyms.
Affected Programs in application (PGM)	Reports programs and copy members that contain references to the impacted data items.
Affected Program Lines (LIN)	Lists the number of source code line references to impacted data items.
Impact Summary (IMP)	Reports the total data items, the total impacted data items, the total components, and the total impacted components.
Summary Information (SUM)	Reports statistics for the number of physical lines of code and statements, symbols, impacted programs, impacted data items per program, and impacted data item references and statements.
Dataitem Search Criteria (DSC)	Reports the data item search criteria that were used to generate the candidate list.

6 Select the options you want applied to your reports.

- Select the Include subordinate groups option.

  You must select this option to report on all subordinate application nodes.

- Select the View Report using Editor option to view the reports in the editor immediately after generating.
- Select the Include Impact Options option to include the impact options that were used to generate the impacted components.

7 Generate the reports:

a Select Foreground ▸ Generate and View and press Enter to generate in the Foreground.

b Select Batch ▸ Submit job and press Enter to generate in batch.

Note:

If you generate reports in batch, the View report using Editor option is ignored.

If you selected the Impacted Dataitem List (IDN) report, the Impacted Dataitem List Report pop-up displays, shown in Figure 65.

Figure 65 • Impacted Dataitem List Report Pop-up

```
                Impacted Dataitem List Report

Enter the report options, and press Enter to continue.

Include:
_  Synonyms of Final data items (if generated)
_  Items rejected from the Impacted Components List

Order by:
2   1.  Entity Name
    2.  Entity type
```

c Select the report options to include in the report and press Enter.

d If you selected the Affected Program Lines (LIN) report, the Affected Program Lines Report pop-up displays, shown in Figure 66.

Figure 66 • Affected Program Lines Report Pop-up

```
                Affected Program Lines Report

Enter the report options, and press the Enter key to continue.

Selected programs: (blank for all programs)
_-------  --------  --------  --------  --------  --------

Order by:
2   1.  Data item
    2.  Program
```

e Select the report options to include in the report and press Enter. Look for a message that the reports were generated or the batch job completed.

8 Press PF3 to return to the Impact View screen.

Reviewing the Reports

Review the reports to determine the impact to the applications in the node and choose the engineering strategy for the conversion.

Reviewing Cost Factors at the Application Level

Depending on the impact to the applications, you may want to review the cost factors at the application level. Impact information that was unavailable or unknown when the impact criteria were defined may now be applied to the cost factors values. This information could include these items:

- Specific project participation for actual staff relative to other projects, vacation, individual expertise, etc.
- Maintenance time for program engineering and testing tasks based on the impact to each language in your applications.
- Maintenance time for components based on the impact to your applications.
- Program difficulty based on your knowledge of the metrics and characteristics of the programs in your applications.

Note:

This section provides high-level instructions for editing Cost Factors. For detailed instructions, see "Defining Cost Factors" on page 83.

Review and, if necessary, edit cost factors for these categories:

- Person time
- Language maintenance time
- Component maintenance time
- Program classification factors

To edit the person time cost factors

1. On the Impact View screen, select the application node that you want to edit cost factors for.
2. Select Costing ▸ Factors and press Enter to display the Costing Factors pop-up (see Figure 50 on page 84).
3. Select Person Time Factors and press Enter to display the Person Time Cost Factors pop-up (see Figure 52 on page 86).
4. Edit the project staff information for your applications:
   - **a** Add any additional functional project positions.
   - **b** Edit or enter the cost per hour, hours per day, and days per month.
   - **c** Edit or enter the estimated percentage of responsibility for each position.

To edit the language maintenance time factors

1. From the Costing Factors pop-up, select Language Maintenance Time Factors and press Enter to display the Language Maintenance Time Factors pop-up (see Figure 53 on page 87).

2. For each language in your applications, you can edit these values:
   - The estimated number of code changes for each program class.
   - The number of minutes for each engineering and testing task for each program class.

To edit the component maintenance time factors

1. From the Costing Factors pop-up, select Component Maintenance Time Factors and press Enter to display the Component Maintenance Time Factors pop-up (see Figure 54 on page 88).

2. Review the Time to Modify (in minutes) for each component type and edit to reflect your applications.

To edit the program classification factors

1. From the Costing Factors pop-up, select Program Classification Factors and press Enter to display the Program Classification Factors pop-up (see Figure 56 on page 91).

2. Review the values for each COBOL program metric.

3. Type the new value over the old value to modify a value for your application.

4. Review the Program Classification Formula. Select Edit ▸ Classification formula. (See "Program Classification Formula Pop-up" on page 92 for an explanation.)

   Note:

   The default values in the Program Classification formula are based on accumulated metrics experience. ASG strongly recommends that you do not change any values until you use the defaults to generate impact results.

5. Assign a classification to all languages supported by Estimate. Select Edit ▸ Language defaults. Edit the values according to the maintainability of programs in that language.

Propagating Cost Factors from the Business Groups

Depending on the nature of your impact project and your applications, you can perform these functions:

- Edit the Cost Factors for each application.
- Edit the Cost Factors for the business groups and use the procedure below to propagate the business group factors to the subordinate applications.

To propagate cost factors from a business group

1. On the Impact View screen, select the business group that you want to propagate cost factor from.
2. Select Edit ▸ Propagate costing factors and press Enter to display the Propagate Costing Factors pop-up (see Figure 59 on page 94).
3. Select cost factors to propagate by placing a slash (/) next to each type of factor you want to propagate. The application or business group node displays in the Propagate From field.
4. Clear the To field and press Enter to specify the propagate scope. The Select Node pop-up displays. (See Figure 60 on page 94.)
5. Select the business group to propagate the Cost Factors to all application nodes within the business group. Press Enter to return to the Propagate Costing Factors pop-up. The business group node displays in the To field.
6. Type a slash (/) next to Propagate to Subordinates.
7. Press Enter to propagate and return to the Impact View screen. A message indicates that the cost factors were propagated.

Generating Cost Factor Reports

To document resource requirements for converting your applications, you can run cost factor reports. Cost Factor reports can be run at the enterprise, business group, and application levels.

To generate cost factor reports

1. On the Impact View screen, select the node that you want to generate the report for.
2. Select Generate ▸ Reports and press Enter to display the Generate Reports pop-up (see Figure 63 on page 102).

3 Select Estimation Factor and Costing Reports and press Enter to display the Generate Estimation Factor and Costing Reports pop-up, shown in Figure 67.

Figure 67 • Generate Estimation Factor and Costing Reports Pop-up

```
  Foreground  Batch  Options  Help
-------------------------------------------------------------------
           Generate Estimation Factor and Costing Reports
Command ===> _____________________________________________________

Subject: RWONLY (Application)
Languages : MYS-COBOL

Select the desired report(s) to generate, and set the options.  Then
select Foreground or Batch to generate the reports.

_  Costing factors (CFT)
_  Classification factors (CLS)
_  Engineering Cost Summary (CST)

Options:
_  Include subordinate groups         _  View report using editor
_  List report criteria               _  Fold text to upper case
_  Use member name as program name    _  Include impact options
```

4 Verify that the Subject field displays the correct node.

If the applications in the selected node contain more than one language, select Options ▸ Select languages and press Enter to display the Language Selection List pop-up (see Figure 36 on page 64). Select one or more or all languages that apply to the selected node. Press Enter to return to the Generate Estimation Factor and Costing Reports pop-up for the node. Verify that the Languages field displays the selected languages.

5 Type a slash (/) next to the factors reports to select the reports to be generated. These are the valid reports:

- Costing factors (CFT)
- Classification factors (CLS)
- Engineering Cost Summary (CST)

6 Select the options you want applied to your reports.

a Select the Include subordinate groups option if your selected node is a business group or the enterprise and you want information about subordinate nodes.

b Select the View Report using Editor option to view the reports in the editor immediately after generating.

c Select the Include Impact Options option to include the impact options that were used to generate the impacted components.

7 Generate the reports in Foreground or Batch.

If you selected the Costing factors report (CFT), the Costing Factors report pop-up displays, shown in Figure 68.

Figure 68 • Costing Factor Reports Pop-up

```
                    Costing Factors Report

Select the Costing Factors to include; then press
Enter.

_  Base Cost Factors
_  Person Time Factors
_  Language Maintenance Time Factors
_  Component Maintenance Time Factors
_  CPU Time Factors
_  Program Classification Factors
_  Program Classification Algorithm
_  Default Language Classifications
```

8 Select the costing factors to include in the report and press Enter.

If you selected the Classification factors report (CLS), the Program Classification Factors report pop-up displays, shown in Figure 69.

Figure 69 • Program Classification Factors Report Pop-up

```
             Program Classification Factors Report

Select the report options, and press Enter to continue.

Include:
_  Program Classification Factors
_  Program Classification Formula
_  Classified Programs Report

Order Report by:
1   1.  Program Name
    2.  Classification
```

9 Select the report options to include in the report and press Enter.

Look for a message that the reports were generated or the batch job completed.

Note:

For information about generating the Engineering Cost Summary Report (CST) see "To generate the Engineering Cost Summary Report" on page 114.

10 Press PF3 to return to the Impact View screen.

10 Finalizing the Impact Project

This chapter provides considerations, guidelines, and high-level procedures to apply the knowledge to the enterprise, and contains these sections:

Section	Page
Determining the Engineering Strategy	112
Generating the Engineering Cost Summary Report	114

Estimate is a tool to accumulate knowledge about your applications and the impact of a conversion project on those applications. How you apply the knowledge to the enterprise is discretionary and site-dependent. Finalizing the Estimate impact project requires input from both the enterprise- and application-level perspectives. Decisions made about specific applications are rolled up to the business group and enterprise levels.

These are possible conclusions reached at the application level:

- The sheer size and complexity of the gross payroll application make it a poor conversion candidate.
- Payroll Taxes is a complex but vital application that must be converted because of regulatory impact.
- Payroll Deduction applications of average size and complexity are good conversion candidates.

These are possible conclusions reached at the enterprise level:

- You could hire Contract staff to complete the project by the year-end date.
- A study is in progress to convert the General Ledger to client/server next year.

Finalizing the impact project includes determining the engineering strategy or conversion plan and reporting the plan.

These are some considerations when determining the engineering strategy might include:

- Impact to the enterprise as documented by impact summaries and reports
- Costing estimates as documented by Costing Factors Reports
- Site-specific issues including:
  - Project priority
  - Job priority
  - Data priority
  - Scheduling
  - Pending projects and changes
  - Customer, government, vendor, or other external requirements

Determining the Engineering Strategy

The engineering strategy is the change plan for the conversion. Apply the strategy to the impact data and cost factors by generating the Engineering Cost Summary report.

Estimate provides these strategy options:

- Data-change strategy assumes primarily that the data in the data stores is going to change. All impacted data declarations in the programs must change, but only 25% of the procedural code. Typically only impacted constants within the procedural code need to be modified.

  Bridging logic, adjustment routines, or other programming techniques would be used to convert the data. Resources would be required to convert 25% of the code.

- Code-change strategy assumes primarily that the procedural code is going to change. All impacted procedural code must change, but only 25% of the data declarations.

  Resources would be required to convert all the code. Bridging logic, adjustment routines, or other programming techniques would be used to convert 25% of the data.

- Free form or mixed strategy assumes that you are going to use some mixture of the data-change and code-change strategies, along with other secondary strategies that may affect the volume of impacts.

Guidelines

If you used search criteria and cost factor defaults in the impact process, the defaults are designed for the average project. This strategy averages the impact project costs.

To provide several scenarios on which to base an implementation decision, consider generating one report using the data-change strategy and another using the code-change strategy. Depending on the results, you can generate a final report using a free form, mixed strategy customized for your project and site.

To finalize the impact project results

1. Print and assemble impact reports from all node levels and Costing Reports from the business group and application levels.

2. Conduct a team meeting to determine an engineering strategy.

3. Evaluate Estimate results at all enterprise levels.

4. Document unique or vital information about these specific aspects of the applications:
   - Size
   - Complexity
   - Priority
   - Nature and extent of the estimate
   - Relationships with other applications

5. Evaluate these costs at the business group and application levels:
   - Staff
   - Equipment
   - Conversion tasks to include re-engineering and testing programs and components

6. Consider these site-specific issues:
   - Examine any external factors customers, the government, vendors, and others might impose.
   - Examine priorities, such as scheduling, other projects, jobs, and data.

7. Evaluate whether the data-change, code-change, or free form, mixed strategy options best suits your site and project.

8 Determine how to use the options. For example:

- Use code-change strategy to document a worst-case scenario implementation, such as having to change everything.
- Use data-change strategy to document a plan to convert the data using bridging logic.
- Depending on the results of the first two strategies, use free form, mixed strategy to develop a customized plan for your project.

Generating the Engineering Cost Summary Report

The Engineering Cost Summary report documents the cost of your impact project according to your engineering strategy. It is the culmination of the impact process.

Note:

This procedure covers generating the report information. For a sample and detailed information about the Engineering Cost Summary report, see "Estimate Reports" on page 117.

To generate the Engineering Cost Summary Report

1 On the Impact View screen, select the node for which you want to generate the report.

2 Select Generate ▸ Reports and press Enter to display the Generate Reports pop-up (see Figure 63 on page 102).

3 Select Estimation Factor and Costing Reports and press Enter to display the Generate Estimation Factor and Costing Reports pop-up displays (see Figure 67 on page 108).

4 Verify that the Subject field displays the correct node.

If the selected node contains more than one language, select Options ▸ Select languages and press Enter to display the Language Selection List pop-up (Figure 36 on page 64). Select one or more or all languages that apply to the selected node. Press Enter to return to the Generate Estimation Factor and Costing Reports pop-up for the node. Verify that the Languages field displays the selected languages.

5 Type a slash (/) next to the report name to select the Engineering Cost Summary (CST) report.

6 Type a slash (/) next to Include subordinate groups Under Options.

7 Select Foreground ▸ Generate and View, or select Batch ▸ Submit job, and press Enter to display the Engineering Cost Summary Report pop-up, shown in Figure 70.

Figure 70 • Engineering Cost Summary Report Pop-up

```
                    Engineering Cost Summary Report

Data Change Strategy:  Assume that primarily the data in the data
stores will change.  Therefore, all the affected data declarations in
programs must change, but only 25% of the affected procedural code.

Code Change Strategy:  Assume that primarily the procedural code will
change.  Therefore, all the affected procedural code in programs must
all change, but only 25% of the affected data declarations.

Free-form (mixed) Strategy:  Assume that some mixture of the Data
Change and Code Change strategies will be used, along with other
secondary strategies which may affect the volume of impacts.

Select Primary Engineering Strategy:
_  1. Data Change Strategy
   2. Code Change Strategy
   3. Free-form Strategy
       Percent of Affected Data Declarations to change ___  (0 - 999)
       Percent of Affected Procedural lines to change  ___  (0 - 999)

_  Include Timeline Report
```

8 Type the number of one of the three engineering strategies under Select Primary Engineering Strategy to select your engineering strategy.

Note:

Enter only one number to generate this report.

9 If you selected Free-form Strategy, specify this information:

- A percentage in the Percent of Affected Data Declarations to Change field.
- A percentage in the Percent of Affected Procedural Lines to Change field.

Note:

You can specify percentages up to 999. Percentages over 100 are allowed to provide the flexibility to assign greater emphasis to the calculation of a value.

10 Type a slash (/) next to Include Timeline Report to include a timeline report.

11 Press Enter to generate the report. Look for a message that the report was generated or the batch job completed.

12 Press PF3 to return to the Impact View screen.

Note:

For detailed information about generating, viewing, and printing reports, see "Estimate Reports" on page 117.

11 Estimate Reports

This chapter gives details on the different reports available to you, including report groups and types, options defaults, generating, and viewing or printing reports, and contains these sections:

Section	Page
Introduction	118
Report Group and Report Types	119
Report Options Defaults	121
Generating Reports	123
Viewing and Printing Reports	129
Definition Reports	130
Impact Task Reports	131
Impact and Summary Reports	132
Estimation Factor and Costing Reports	136

Estimate provides a variety of reports to help you track the data, estimate the time and cost, and assess the impact of the changes needed to implement your conversion project.

Note:

For samples of the reports and descriptions of their fields, see "Report Layout and Field Definitions," on page 155.

Introduction

Reports are organized into these four groups according to their type and usage:

- Definition
- Control
- Impact and summary
- Estimation factor and costing

You can generate reports individually or as a group at appropriate points during the definition and impact processes. (See "Generating Reports" on page 123.) For example, you can generate Definition reports after you define an enterprise, its business groups, and applications. You may choose to generate Impact and Summary reports after you identify impacted data items.

You can select an enterprise, business group, or application node as the subject for most reports, with these exceptions:

- The Storage and Allocation report from the Definition reports group displays storage and allocation information for the entire enterprise, regardless of the node selected.
- The Project Task List report from the Impact Task reports group displays tasks based on the impact project, rather than the selected node. This list displays the tasks from the Impact Process screen.
- The Costing Factors - CPU Time Factors report from the Estimation Factors and Costing reports group displays CPU time estimation factors based on the enterprise, regardless of the node selected.

Generally, report formats include these characteristics:

- A header indicating this information:
  - Report name
  - Name of the selected node, project, enterprise, or application
  - Business Group path
  - Page number
  - Date, time, and user ID
- An optional report trailer identifies the report selection criteria and includes these fields:
  - Report Type: the name of the report being generated
  - Report Subject: the names of the selected node and its subordinates
  - Subject Type: the type of the selected node
  - Report Options: a list of the selected options

Report Group and Report Types

Estimate provides reports to assist in assessing the impact of changes. To simplify viewing and printing reports, they are organized in related report groups. This section provides a brief description of the groups and the reports each contains.

Definition Reports

Definition reports display the definition information for a selected enterprise, business group, or application node. This group also displays the storage and allocation information for the datasets that store information about the enterprise, the reports, and the impact projects. This group includes these reports:

- Definition report
- Storage and Allocation report

Impact Task Reports

Impact Task Reports display impact process task information, candidate data items, and programs that contain references to candidate and impacted data items. This report group includes these reports:

- Project Task List report
- Candidate Dataitem report
- Program Contains Dataitem report

Impact and Summary Reports Group

Impact and Summary reports display the actual impacted data in your applications that may need to be changed for your conversion project. This group includes these reports:

Report	Description
Impacted Dataitem List Report	Displays the data items you identified as impacted by the change. If you generated impacted components and selected the option to include them on the report, this list displays synonyms of impacted data items. Review the synonyms to determine if your conversion project impacts them.
Affected Programs in Application Report	Displays which programs and copybooks contain references to items on the Impacted Dataitem List. Generate this for an enterprise, a business group, or an application node. The report displays information about impacted programs for all applications within the selected node.

Report	Description
Affected Program Lines Report	Displays the number of source code line references to impacted data items in all programs within the selected node.
Impact Summary Report	Displays the summarized Estimate information for all components of a selected node. This information includes program metrics, data definition, data activity, and activity statistics. Activity statistics include counts for the number of times impacted data is referred to in arithmetic expressions, conditional statements, and SORT statements.
Summary Information Report	Displays information gathered when summarizing statistics of impacted data items in programs for an impact project. The statistics include counts for the number of physical lines of code and statements, symbols, impacted programs, impacted data items per program, and impacted data item references and statements.
Dataitem Search Criteria Report	Displays the search criteria that were used to generate the candidate list.

Estimation Factor and Costing Reports

Estimation Factor and Costing reports display the factors used to estimate the time and cost to make the required changes to your applications for your conversion project. This group includes these reports:

- The Costing Factors Report displays the estimated time and cost factors required for changes to applications in your project. This report includes these options:
  - Base cost factors
  - Person time cost factors
  - Language maintenance time factors
  - Component maintenance time factors
  - CPU time factors report
  - Program classification factors
  - Program classification formula
  - Default language classification

- The Classification Factors report displays the values involved in computing the Program Classification Index. This index is a measure of the perceived difficulty of a program. The difficulty is derived from software metrics formulas, which you can modify. This report includes these options:
  - Program classification factors
  - Program classification formula
  - Classified programs
- The Engineering Cost Summary report displays the impacted data statistics and time and cost estimates of making changes. The estimates are based on a combination of engineering strategies, which are plans for program re-engineering of applications impacted by the conversion project.

Report Options Defaults

Estimate allows you to set defaults for reports, including the lines per page, the language types to include, and view options. The report includes these view options:

- Information about subordinate nodes
- Report criteria
- Ability to view the report in edit mode
- Ability to display and print the report in upper case

Each time you generate reports during the enterprise definition or impact processes, the Generate Reports screen displays the default values you specified. If you change the language type or option flags for generating a specific report, those values remain in effect the next time you access the Generate Reports screen.

To change the options, from the Impact Process or any of the Generate Reports screens, change the defaults in the Options - Report pop-up (Figure 71 on page 122). Language type and report option flags can be temporarily over-ridden when you generate reports; the lines per page options from the Generate Reports screens cannot be overridden.

Use the Options - Report pop-up to set the default values for report options available on the Generate Reports screens for all report groups.

To set report options

1 From the Enterprise View, Impact View, or Generate Reports screens, select Options ▸ Report and press Enter to display the Options - Report pop-up, shown in Figure 71.

Figure 71 • Options - Report Pop-up

```
                          Options - Report

Specify the default Report Options and press Enter.

Default Lines per Page  . . . . . 60   (20 to 100)

Default Option Flags:
_  Include subordinate groups         _  View report in editor
_  List report criteria               _  Fold text to upper case
_  Use member name as program name    _  Include impact options
```

2 Type over the Default Lines per Page field. Specify from 20 to 100 lines to change the default lines per page.

3 Enter a slash (/) in the line command area to specify default option flags:

- Include subordinate groups option reports information for the selected node and all subordinate business group and application nodes.
- The List report criteria option provides a trailer section at the end of the report that includes these fields.

Field	Description
Report Type	The type of report being generated.
Report Subject	The name of the selected node.
Subject Type	The type of node for the report being generated, for example, enterprise, business group, or application type.
Options	The default option flags selected for the report, which includes these options: • View Report using Editor option: display the report in a TSO/ISPF edit session. If you do not choose this option, the report is displayed in browse mode. • Fold Text to Upper Case: view the entire report in upper case.

- The Use member name as program name option substitutes the member name for the program name in the reports. This option is important when the program ID inside the program source does not match the source member name.
- The View report in editor option allows you to view the report in edit mode instead of browse mode.
- The Fold text to upper case option displays and prints the report in upper case.
- The Include impact options option displays the impact options that were used to generate the impacted components.

4 Press Enter to display the Enterprise View, Impact View, Impact Process, or Generate Reports screen.

Generating Reports

Estimate reports can be generated during the Enterprise Definition and Impact process. The reports generated by Estimate are stored in PDS members associated with either the enterprise or a specific impact project. (For more information about storing reports, see "Viewing and Printing Reports" on page 129.) Generate the individual reports or a group of reports by using the procedures outlined in this section.

Generating Reports from the Enterprise View

To generate Definition reports on the Enterprise View screen

1 Select a node to generate reports for and press Enter.

2 Select Generate ▸ Reports and press Enter to display the Generate Definition Reports pop-up, shown in Figure 72.

Figure 72 • Generate Definition Reports Pop-up

```
  Foreground  Batch  Options  Help
-------------------------------------------------------------------
                    Generate Definition Reports
Command ===> _____________________________________________________

Subject: RWONLY (Application)

Select the desired report(s) to generate, and set the options.  Then
select Foreground or Batch to generate the reports.

_  Definition Report (DEF)
_  Storage and Allocation Report (STO)

Options:
_  Include subordinate groups         _  View report using editor
_  List report criteria               _  Fold text to upper case
```

The Generate Definition Reports pop-up allows you to select several types of reports and specify report options.

3 Enter any character in the selection field next to the report name to select the report(s) you want to generate.

- The Definition Report (DEF) displays the definition of the selected node and its subordinates, (if the Include subordinate groups option is selected and the selected node is either the enterprise or a business group).
- The Storage and Allocation report (STO) displays the datasets where the Enterprise and its subordinate's information is stored.

4 To select any of these report options, enter any character in the selection field next to the report option.

- The option to Include subordinate groups reports information for the selected node and all subordinate business group and application nodes.
- The option to List report criteria provides a trailer section at the end of the report being generated, which includes these options:
  - Report Type displays the name of the report being generated.
  - Report Subject displays the selected node name.
  - Subject Type displays the type of node selected for the report being generated (e.g., Enterprise, Business Group, or Application type).
  - Options displays the selected options.
  - The option to View Report using Editor displays the report in a TSO/ISPF edit session. If you do not choose this option, the report is displayed in browse mode.
  - The Fold Text to Upper Case option lets you view the entire report in upper case.

5 Select the desired actions from the Foreground pull-down to submit an online report request.

Note:

This option generates a report in foreground TSO. If your site has limited TSO, consider whether to use foreground TSO if you expect a large report.

- Select Foreground ▸ Generate and view to submit a report request in Foreground mode.

  The report(s) is produced and stored in the appropriate PDS member. Then, it is displayed in a TSO/ISPF session for you to browse.

  If you want to view the report in an edit mode, you must select the View Report using Editor report option before viewing the report.

- Select Foreground ▸ View existing to view an existing report or set of reports.
- To print an existing report or set of reports, you must first set up jobcards, and then you can select Foreground ▸ Print existing.

  This print request creates a print file using jobcards that you have specified on the Options - Batch Execution pop-up. Access this pop-up by selecting Options ▸ Batch execution. Use the appropriate jobcards for your site.

To return to the Enterprise View screen press PF3.

6 Select the desired action from the Batch pull-down to submit a batch job report request. The reports are not available until the batch job completes.

a To edit the batch job JCL, select Batch ▸ Edit job on the Generate Definition Reports screen. You can change information about the existing jobcards or add new JCL.

b Select Submit job to submit the batch job.

A file is created to store the report in a PDS. This is how the file name is constructed:

- The high-level qualifier you specified when defining the enterprise.
- The enterprise name.
- A seven-digit qualifier that starts with VIAR, followed by the three-digit report identifier for the selected report (e.g., Definition Report identifier is DEF, Storage and Allocation Report identifier is STO). For example:

```
USERID.ENTRPRST.VIARDEF
```

The batch job generates a member in the PDS with the same name as the selected node. The member contains the report data for the selected node, for example, ACCTNG.

- To print a report after submitting a batch report job, switch to a TSO/ISPF session after the batch job completes. Use the utilities function to print the file created in the batch report job.
- To return to the Enterprise View screen after submitting a batch job, press PF3.

Generating Reports from the Impact View

Estimate provides various reports from the Impact View screen. You may select one of these report groups from the Generate Reports pop-ups:

- Definition Reports
- Impact Task Reports
- Impact and Summary Reports
- Estimation Factor and Costing Reports

After you have made your selection, the appropriate Generate Reports screen displays so you can select the type of report(s) you want to generate and the options you want to use.

Note:

The Impact View screen must be displayed.

To generate reports from the Impact View screen

1 Select the node that you want to generate reports for and press Enter.

2 Select Generate ▸ Reports and press Enter to display the Generate Reports pop-up, shown in Figure 73.

Figure 73 • Generate Reports Pop-up

```
                    Generate Reports

Select one of the following report groups, and press Enter.

__  1.  Definition Reports...
    2.  Impact Task Reports...
    3.  Impact and Summary Reports...
    4.  Estimation Factor and Costing Reports...
```

The Generate Reports pop-up allows you to select one of several groups of reports. Once you have selected the report group, the appropriate Generate Reports pop-up is displayed.

For example, if you select the Impact and Summary Reports group, the Generate Impact and Summary Reports pop-up is displayed. (See "Report Group and Report Types" on page 119 for more information about report groups and associated types.)

3 If the selected node contains more than one language, select Options ▸ Select languages and press Enter to display the Language Selection List pop-up. Select one or more or all languages that apply to the selected node. Press Enter to return to the appropriate Generate Reports pop-up for the node. Verify that the Languages field displays the selected languages.

4 Enter any character in the selection field next to the report name to select the report(s) you want to generate.

5 Enter any character in the selection field next to the report option to select any of these report options.

- The option to Include subordinate groups reports information for the selected group and all subordinate Business Group and Application nodes.
- The option to List report criteria provides a trailer section at the end of the report being generated:
  - Report Type displays the name of the report being generated.
  - Report Subject displays the selected node name.
  - Subject Type displays the type of node selected for the report being generated (e.g., Enterprise, Business Group, or Application type).
  - Options displays the selected options.
- The View report using editor option displays the report in a TSO/ISPF edit session. If you do not choose this option, the report is displayed in browse mode.
- The Fold text to upper case option lets you view the entire report in upper case.

6 Select Foreground on the action bar to submit an online report request.

Note:

This option generates a report in foreground TSO. If your site is limited on TSO resources, and you expect a large report, you should consider whether you want to use foreground TSO resources.

a Select Foreground ▸ Generate and view to submit a report request to view a report online.

The report(s) is produced and stored in the appropriate PDS member. It is then displayed in a TSO/ISPF session for you to browse.

If you want to view the report in an edit mode, you must return to the corresponding Generate Reports pop-up by pressing the End key and then selecting Foreground ▸ View report using editor report option before viewing the report.

b Select Foreground ▸ View existing to view an existing report or set of reports.

c To print an existing report or set of reports, you must first set up jobcards, and then you can select Print existing.

This print request creates a print file using jobcards that you have specified on the Options - Batch Execution pop-up. Access this pop-up by selecting Options ▸ Batch execution. You should set up jobcards to include a message class to release the output to a printer, and to route the output to a valid printer. Use the appropriate jobcards for your site.

Press PF3 to return to the Impact View screen after you have reviewed or printed the online report(s).

7 Select Batch on the action bar to submit a batch job report request. The reports are not available until the batch job completes.

a Select Batch ▸ Edit job and press Enter to edit the batch job JCL. You may change information about the existing jobcards or add new JCL.

b Select Batch ▸ Submit job to submit the batch job.

A file is created to store the report in a PDS. The file name is constructed using these components:

- The high-level qualifier you specified when defining the Enterprise.
- The impact project name.
- A seven-digit qualifier that starts with VIAR, followed by the three-digit report identifier for the selected report (e.g., Impact Summary Report acronym is IMP, Engineering Cost Summary Report acronym is CST). For example:

  `USERID.IMPACT1.VIARIMP.`

The batch job generates a member in the PDS with the same name as the selected node. The member contains the report data for the selected node. For example, ACCTNG.

c To print a report after submitting a Batch report job, switch to a TSO/ISPF session after the batch job completes. Use the Utilities function to print the file created in the Batch report job.

d Press PF3 to return to the Impact View screen after submitting a batch job.

Viewing and Printing Reports

To view and print reports

- If you generate the reports online, using Foreground ▸ Generate and view, the reports display in a TSO/ISPF session for you to browse. To browse previously generated reports, select Foreground ▸ View existing.
- If you generated reports in batch mode using Batch ▸ Submit JCL, you must wait until the batch job completes to view the reports. From the Enterprise View or Impact View, select Foreground ▸ View existing to display the existing reports in a TSO/ISPF session for you to browse.
- To view the report using an editor, select View report using editor. Use the Generate and view or View existing options to display the report in a TSO/ISPF edit session.

Note:

For more information about generating reports, see "Generating Reports" on page 123.

To print an existing report

1. Select Foreground ▸ Print existing from the Generate Reports pop-up.
2. This print request creates a print file using jobcards that you specified on the Options - Batch Execution pop-up. Access this pop-up by selecting Options ▸ Batch Execution. Set up jobcards to include a message class to release the output to a printer and to route the output to a valid printer. Use the appropriate jobcards for your site.
3. To print a report generated as a batch job, you must access the PDS where the report was stored. Reports generated by Estimate are stored in PDS members associated with either the enterprise or a specific impact project.

   Each report type has a three-character identifier used in the PDS names to indicate where the report is stored. The PDS name is in this format:

   ```
   <HLQ>.<Enterprise or Impact Project name>.VIAR<three-character identifier>
   ```

For example:

```
MAINT.IMPACT1.VIARDEF
```

where:

MAINT	Specifies the High-level qualifier
IMPACT1	Specifies the impact project name
VIAR	Specifies the report designator constant
DEF	Specifies the three-character identifier for Definition Report

The Storage and Allocation report lists all the datasets allocated for an enterprise. Use this naming convention to identify a report PDS.

Reports can be re-printed at any time. When a report is generated for a particular node, a member matching that node name is created in the appropriate report PDS.

Definition Reports

Definition Reports display definition information for a selected enterprise, business group, or application node. This group also displays the storage and allocation information for datasets used to store information about the enterprise, Enterprise Definition and Impact reports, and impact projects.

Definition Report

The Definition report displays the number of levels and nodes, the level number, the node type, and the definition for the selected node. The value in the Definition field is the node name. If you choose to include subordinate nodes when you generate the report, definition information is also displayed for each subordinate node.

You can generate the report for an enterprise, business group, or application node. The report prints the enterprise first, followed by its business groups and subordinates, applications, and then the data items. Each business group and application prints on a new page.

A three-character identifier accesses the PDS where the report is stored. The identifier for this report is DEF. A report summary displays the number of members in application component libraries, number of nodes total and by group and application, and number of levels.

If duplicate applications exist, the trailer section of the report provides a cross-reference of the duplicate applications within the selected node.

Storage and Allocation Report

The Storage and Allocation report lists the storage and allocations for the datasets that store node definitions and impact projects for the enterprise. A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is STO. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Impact Task Reports

The Impact Task report displays impact process task information, candidate data items, and programs that contain references to candidate and impacted data items.

Project Task List Report

The Project Task List Report displays the list of suggested tasks for the enterprise. It is the printed version of the task list displayed on the Impact process screen. You might use the report when the task list spans multiple pages on the screen.

This report is generated for an impact project. The report is printed in task sequence order. Tasks marked as bypassed for generation can be chosen for inclusion.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is TSK. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

A summary report displays total tasks, tasks bypassed, and tasks open.

Candidate Dataitem Report

The Candidate Dataitem report displays the data items that match the search criteria. This report is generated for a selected application node for a given language. The report is printed in enterprise, business groups, application, or item declaration order. You can also choose to include the accepted or rejected candidates on the report. A new page prints for each business group and each application.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is CAN. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Program Contains Dataitem Report

The Program Contains Dataitem report displays which programs contain references to the data items listed on the Candidate Dataitem and Affected Dataitem lists. The report is generated for an enterprise, a business group, or an application for a given language. The printing order is language, program, and data. Enter selected program names or leave the lines blank for a report with all impacted programs.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is PCD. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Impact and Summary Reports

The Impact and Summary reports display the actual impacted data in your applications that you may need to change. This group includes Summary reports of the impacted data.

Impacted Dataitem List Report

The Impacted Dataitem List Report displays the data items identified as impacted by the change. If you generated impacted components and select the report option to include synonyms of final data items, this report shows which data items are synonyms of the impacted data items. Review the synonyms to determine if they are impacted by the change. The Comments field shows whether the dataname is a synonym. You can also specify a report option to include a list of rejected items from the Impacted Components List.

The Impacted Dataitem List report also identifies items from the Impacted Data Item List no longer supported in the search criteria. This means that you cannot retrieve Estimate information for the items. The Comments field identifies whether the data item was removed from the search criteria.

This report is generated for an enterprise, a business group, or an application node. The report may be printed in enterprise, business group, application, or data item order. A new page prints for each business group and each application.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is IDN. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Affected Programs in Application Report

The Affected Programs in Application report displays which programs and copybooks contain references to items on the Impacted Dataitem List. The report includes all applications in the node and affected copybooks used by the impacted programs.

The report is generated for an enterprise, a business group, or an application node. When you generate the report in Estimate, you can enter selected program names or leave those lines blank to generate a report with all impacted programs. Select whether the report is printed in language or program order.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is PGM. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Affected Program Lines Report

The Affected Program Lines report displays the number of source code line references to impacted data items for all programs in the applications within the selected node. The report lists the data item, the line number in the program or copybook where the data item is defined, the line numbers of each reference to the data item, and the total number of affected lines of code.

Data items defined in copybooks have a numeric identifier code listed in the Copy field. The code is assigned in the order that copybooks are encountered in the program. The list of copybooks the program refers to is printed after the program detail.

The report includes counts of data items and references at the program level. Totals for the program are listed after the program lines of code. Totals for the application are displayed after the last program's code.

The report is generated for an application node. Choose whether to print the report in program or data item order. A new page is printed for each program and a new line prints for each data item.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is LIN. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Impact Summary Report

The Impact Summary report displays the summarized impact information for all components of a selected node. This information includes program metrics, data definition, data activity, and activity statistics. Activity statistics include counts for the number of times impacted data items are used in arithmetic expressions, conditional statements, and SORT statements.

Use this report to review the characteristics of the impact on particular application components. It is useful to see where the points of impact occur in your application when you assess the difficulty of a re-engineering project. The Impact Summary Report displays the number of arithmetic expressions and conditional statements by program for each application in the selected node.

Use the Essential Complexity and Scientific Software Volume metrics to compare programs on complexity and functional size.

The report is generated for a selected enterprise, business group, or application node. The print order is enterprise, business group, application, and then data item.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is IMP. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

To report Estimate summary statistics for the selected node and its subordinates, choose the option to include subordinate nodes when you generate the report. For example, if you select a business group node, subordinate business group and application nodes are included in the summary.

A new page is printed for each business group and each application associated with the business group.

If any amount field on the report exceeds the report field size, an error code (*ERR*) prints in that field on the report. The error condition is not applicable to the Item, Item Type, and Pgm Class fields. To resolve an error condition, determine if the application should be divided into multiple applications.

Summary Information Report

The Summary Information report displays information gathered when summarizing statistics of impacted data in programs for an impact project. The statistics include counts for the number of physical lines of code and statements, symbols, impacted programs, impacted data items per program, and impacted data item references and statements. The statistics are collected for a selected enterprise, business group, or application node.

If you select an application node and the application or its components changed, a message prints out at the top of the report indicating that the summary information is outdated. The message also recommends that you generate a new summary.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is SUM. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Note:

You must generate the summary information for the node before generating this report.

Program Statistics

The first section of the Summary Information report describes the program statistics for the selected node. When you select a node, it may include subordinate nodes. The information is summarized for the selected node and for each of its subordinate nodes and includes these statistics:

- Physical line and statement
- Symbol and dataitem
- Affected program
- Affected dataitems in program
- Affected reference
- Impacted component

The percentages of total (% Total) fields listed on this report are individual node amounts compared to total amounts for the selected node. If the selected node has subordinate nodes, the percentages display for each subordinate node. If the selected node does not have subordinate nodes, these fields display 100 percent.

Statistics Totals

The second section of the Summary Information report describes the statistics totals for the selected node and its subordinates. The section includes this information:

- Application statistics totals
- Language statistics totals

Affected Program and Dataitem Statistics

The third section of the Summary Information report describes the impacted program and data item statistics for the selected node and its subordinates. The section includes this information:

- Affected program counts by language statistics
- Affected dataitem statistics
- Affected dataitem activity

Affected Data Reference Statistics

The fourth section of the Summary Information report describes the impacted data reference statistics for the selected node and its subordinates. This section includes this information:

- Affected data reference by program statistics
- Impacted components count

Dataitem Search Criteria Report

The Dataitem Search Criteria Report provides a list of the base and application level search criteria used to generate the Candidate Dataitem List.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is DSC. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

Estimation Factor and Costing Reports

Estimation Factor and Costing reports display the factors used to estimate the time and cost to make required changes to your applications for the change. This report group includes these reports:

- The Costing Factors report. Select one or more of these options to include in this report:
  - Base cost factors
  - Person time cost factors
  - Language maintenance time factors
  - Component maintenance time factors
  - CPU time factors
  - Program classification factors
  - Program classification formula
  - Default language classification
- The Classification Factors report. Select one or more of these options to include in this report:
  - Program classification factors
  - Program classification formula
  - Classified programs
- The Engineering Cost Summary report displays the impacted data statistics and time and cost estimates for the changes. The estimates are based on a combination of engineering strategies and plans for program re-engineering of applications impacted by the change.

Costing Factors Report

The Costing Factors report displays the estimated time and cost factors required for changes to the applications in your impact project.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is CFT. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

You can include one or more of these options in the Costing Factors report:

- Base cost factors
- Person time cost factors
- Language maintenance time factors
- Component maintenance time factors
- CPU time factors
- Program classification factors
- Program classification formula
- Default language classification

Base Cost Factors

This option displays the unit of cost, cost per CPU hour, and timeline duration. Use these factors to compute the people and CPU resources needed to modify application components. Timeline duration is the estimated time it takes to complete the project.

Person Time Cost Factors

This option displays the type of staff required to complete a project, and the time the staff spends performing engineering and testing tasks.

Language Maintenance Factors

This option the estimated number of minutes to perform engineering and testing tasks for each program class designation by language.

Component Maintenance Factors

This option displays the estimated time needed to modify each component in the application.

CPU Time Estimation Factors

This option displays the estimated CPU seconds needed to compile, link, and test source code changes. The estimates are based on the size of the program. This report is a printed version of the CPU Time Estimation Factors screen.

Program Classification Factors

This option displays the weight designation for each metric type used in estimating the Program Classification factor. Weight designation indicates the upper boundary of the value range for acceptability at that weight for the metric type. This designation is displayed as entered on the Program Classification Factors screen.

Program Classification Formula

This option represents the data entered on the Program Classification Formula screen, stated in an arithmetic expression.

Default Language Classifications

This option displays the default program classification values for each language.

Classification Factors Report

The Classification Factors report displays the values involved in the computation of the Program Classification Index. The Program Classification Index is a measure of the perceived difficulty of a program. The perceived difficulty is derived from software metrics formulas, which can be modified.

Generate the report for an enterprise, a business group, or an application. The print order is enterprise, its business groups and their subordinates, and then its applications. Select report sorting by program or by classification. A new page prints for each business group, application, and program.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is CLS. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

You can include one or more of these options in the Classification Factors report:

- Program classification factors
- Program classification formula
- Classified programs

Program Classification Factors

This option displays the weight designation for each metric type for estimating the Program Classification factor. Weight designation indicates the upper boundary of the value range for acceptability at that weight for the metric type. This designation is displayed as entered on the Program Classification Factors screen.

Program Classification Formula

This option represents the data entered on the Program Classification Formula screen, stated in an arithmetic expression.

Classified Programs

This option displays the program class and metric values calculated for each program using the Program Classification Factors and Formula.

Engineering Cost Summary Report

The Engineering Cost Summary report displays the impacted data statistics and time and cost estimates of making the changes. The estimates are based on a combination of these high-level engineering strategies for program re-engineering.

- Data-change strategy assumes primarily that the data in the data stores is going to change. All impacted data declarations in the programs must change, but only 25% of the procedural code. Typically only date constants within the procedural code need to be modified.
- Code-change strategy assumes primarily that the procedural code is going to change. All impacted procedural code must change, but only 25% of the data declarations.
- Free form or mixed strategy assumes that you are going to use some mixture of the data-change and code-change strategies, along with other secondary strategies that may affect the volume of impacts.

Using this report, you can cost out an assumption that a certain percentage of impacted data structures and procedural lines change. Specify the percentages for the changes.

In practice, when you plan an engineering project, you must consider many other factors and combinations of strategies, usually dependent on the specific characteristics of your development and operating environment.

The report is generated for an enterprise, a business group, or an application node. The report is printed in the order of the enterprise, its business groups, their applications, and then dataitems. A new page is printed for each business group, and each application.

A three-character identifier accesses the PDS where the report is stored for printing. The identifier for this report is CLS. (For more information about printing reports, see "Viewing and Printing Reports" on page 129.)

If you specify the Include Timeline report, the timeline factors, impacts, and resource load estimate are included for the selected node. The timeline factors are the effective hours per day and the workdays per month. The timeline basis is the projected start and finish date and calendar days in the timeline. The timeline impacts are the work hours, days, and months.

If any amount field on the report exceeds the report field size, an error code (*ERR*) prints in that field on the report. This error condition is not applicable to the Pgm Class, field, Item, and Item Type fields.

To resolve the error condition, consider these two areas:

- Review for accuracy the Estimation Factors used to derive the amounts. You may need to set them at lower values. (See "Defining Cost Factors" on page 83.)
- Determine if the application should be divided into multiple applications.

Glossary of Terms

88-level item
A data item that associates a value, values, or a range of values with a condition-name in a COBOL program.

action bar
The line of keywords at the top of a screen. Each keyword represents a category of actions that may be performed on that screen. A pull-down with actions is selected by moving the cursor to the desired keyword and pressing Enter. Also see CUA.

AKR
See "Application Knowledge Repository" on page 142.

analyze
A batch process that gathers information, including organization, data relationships, and execution paths. The process stores the analyzed information in the Application Knowledge Repository (AKR).

- During the first phase of the Analyze, the Application Analytical Engine retrieves the information from the AKR and gathers information about application components and their relationships.
- During the second phase of the Analyze, the application information is used as input for semantic linking, which establishes relationships between components.

application
A group of programs, libraries, files, screens, and databases that are used collectively to perform a related business function. Also, a node on the enterprise, subordinate to a business group or directly to the enterprise.

Application Analytical Engine
The ESW Application Analytical Engine (AAE) is a static application analyzer. Static means that the AAE analyzes an application from the source code, not while the application is executing. During the Analyze process, the AAE retrieves information from the AKR and gathers information about the application components and their relationships.

application definition
The COBOL, PL/I, Assembler, NATURAL, or alternate language components and attributes defined in Estimate. See the *Application Definition and Analysis User Guide* for more details.

application expertise
Detailed knowledge and working understanding of the Applications in the enterprise. Application expertise includes knowledge of:

- Potentially impacted data items particular to an application
- Complexity of the programs
- Job, data, and project prioritization
- Staff expertise and availability
- Person and CPU hours required for the engineering and testing tasks

Application Knowledge Repository
A BDAM or VSAM file that serves as a repository for the information used by Estimate. The Application Knowledge Repository (AKR) contains the enterprise and defined and analyzed Applications. Depending on the site's AKR management, a single AKR can be defined for the impact project or separate AKRs can be used.

ariths
The number of times a data item is used in a calculation.

base cost factors
Values used to set the unit of cost, cost per CPU hour, and the project timeline.

business group
A Node on the enterprise that represents a related set of Applications. For example, the Human Resources Business Group Node could include the Gross Payroll, Payroll Deductions, and Payroll Taxes Applications.
Business Nodes can be added to the enterprise or to another Business Node. Business Nodes help to organize the enterprise structure into logical business units. Impact information summarized and reported at the Business Node level can include information for the related Applications.

candidate data item
A data item that may be impacted by the a conversion project. Candidate data items are located by search criteria (default or user defined) patterns. The data items are displayed on the Candidate Dataitem List. Candidate data items are then accepted to become impacted data items or are rejected and removed from the impact process.

code-change strategy
An engineering strategy option that is applied when the Engineering Cost Summary Report is generated. Code-change strategy assumes that the procedural code will change. All impacted procedural code must change, but only 25% of the data declarations.

components
During the application definition and analyze process, components that are related to programs are identified. These components include databases, screen maps, files, and procedures. If a program contains impacted data items, these related components may be affected by program activity or execution.

component maintenance time factors
Values used to compute what staff time will be spent re-engineering and testing components (databases, procedures, screen maps, and files).

conds
The number of times a data item is used in a conditional statement.

cost factors
Values that are used to calculate the resource requirements (time, staff, equipment) for an impact project. Cost Factors include Base, Person Time, Language Maintenance Time, Component Maintenance Time, CPU Time, and Program Classification. These factors are defined in their individual glossary items.

CPU time factors
Values used to compute the CPU hours used as re-engineering and testing tasks are performed.

CUA
Common User Access that provides easy access to Estimate features. CUA includes action bars, pull-downs, and pop-ups.

data-change strategy
An engineering strategy option applied when you generate the Engineering Cost Summary Report. Data-change strategy assumes that the data in the data stores will change. All impacted data declarations in the programs must change, but only 25% of the procedural code.

data item
A field or part of a record that contains data. A term for fields defined in the DATA DIVISION of a COBOL program. This includes variable names, files, groups, array elements, and fully qualified datanames.

dead component
A component that is not used in the application being analyzed. This may be a component that is no longer used after changes were made to the application or it may indicate that the application was not completely defined.

declaration
Describes the characteristics of a data item. For example, in COBOL, the declaration is the level number of the item, such as 10.

discovered component
Component discovered while processing JCL members during the analyze process that is not included in the application definition, but appears to be needed by components that are defined. For example, the analyze may discover a source library in a COBOL compile JCL member that is not included in the application definition.

disposition
The action taken to accept a data item that is impacted or to reject a data item that is not impacted. You execute the disposition action on the Candidate Dataitem List. You must disposition all data items before you can summarize and finalize the impact project.

engineering objective
A project goal, such as converting all Applications to a format that accepts a ZIP+4 entry.

engineering strategy
A plan for program re-engineering. The engineering strategy is applied to the impact data and the cost factors when you create the Engineering Cost Summary Report. Engineering strategies include:

- Data-change strategy
- Code-change strategy
- Free-form or mixed strategy (using a percentage of each strategy)

enterprise
A model that represents your business. The enterprise model contains business groups and applications.

enterprise definition
The process that creates the enterprise structure. The process involves creating an enterprise, adding the appropriate subordinate nodes, and creating an impact project to contain the impact criteria and resulting data.

enterprise expertise
Understanding of the impact project at the enterprise level. Enterprise expertise includes knowledge of the Engineering objective, structure of the organization and its systems, and the Project team's expertise and availability.

essential complexity
Metric that measures how well a program is logically structured. The Essential Complexity is determined by counting the number of GOTOs that are not GOTO exits. A value of 1 indicates that a program is perfectly structured. Higher values indicate that a program is less structured. Essential complexity is factored into the program class.

free-form strategy
See "mixed strategy" on page 146.

group
See "business group" on page 142.

group-level item
A data item composed of subordinate items.

impact criteria
The data item search patterns that determine the candidate data items generated and the cost factors that are applied to the impact project.

impacted data item
A data item that the engineering objective identified as impacted. Impacted data items are identified, that is, dispositioned, on the Candidate Dataitem List.

impact options
The options used when generating impacted components to control the synonyms that are detected.

impact process
The activity that applied the impact criteria and produces the resulting impact data.

impact project
The repository for impact criteria and resulting impact data. You create the impact project in the enterprise definition process.

language maintenance time factors
Values used to compute the time staff spends performing engineering and testing tasks in each programming language category.

list file
A file that contains print output and is allocated when a print request is issued.

log file
A file that contains an ESW error messages that can aid the debugging process. The log file is only allocated if an internal error, such as an abend, occurs.

logical line of code
One statement in a program that may wrap to more than one physical line. Logical line counts do not include blank lines or comments; they do include expanded copy members. In the Identification and Environment divisions of a COBOL program, each line of code counts as a physical line and as a logical line.
For example:

- In the COBOL procedure division, each COBOL verb such as IF, MOVE, ADD, COMPUTE, and GOBACK counts as a logical line of code.
- In the COBOL data division, each level such as 01 or 10 counts as one logical line of code.

See physical line of code.

maintainability index
The degree of difficulty assigned to a program in relation to understanding, re-engineering, and testing the program. See also Program Class.

member
The PDS member name

metrics
A measure of program quality or complexity.

missing component
A component that is expected but not found during the analyze. This could be a component that was found in the previous analyze and is now deleted or a component referred to by another component, but that is not in the application definition sources.

mixed strategy
An engineering strategy option applied when you generate the Engineering Cost Summary Report. Mixed or free-form strategy assumes that you use some mixture of the data-change and code-change strategies, along with other secondary strategies that may affect the volume of the impacts. Free-form strategy allows you to customize the extent to which you use code-change and data-change strategies.

node
A level in the Estimate enterprise structure. A node refers to the enterprise, a business group, or an application.

person time estimation factors
Values used to compute the cost per person hour for staff assigned to the impact project.

physical line of code
Each line in a source program including blank lines, comments, and expanded copy members.
See "logical line of code" on page 146.

points of impact
The program(s) and copybook(s) where an impacted data item is defined, referenced, or modified.

pop-up
A window that displays as the result of selecting an item on a pull-down or pop-up, or as the result of entering certain commands. It is superimposed on the screen to allow entry of information for the requested action.

program-ID
The program source name, specified in the IDENTIFICATION DIVISION of a COBOL program (PROGRAM-ID), or the CSECT name of a program that is not COBOL.

program class
The program's difficulty classification. For COBOL programs, you calculate this classification by applying the program classification factors to the program classification formula. For PL/I, Assembler, NATURAL, and other alternate language programs, you assign a default language classification.

program classification factors
Values calculated by assigning a program's metrics to a weighted number on a metrics table. The metrics represent the program's maintainability in terms of complexity, size, and structure. The metric weight simplifies the program classification formula. The program classification formula determines the program's Classification index of 1-5.

pull-down
The list of actions that displays when a keyword is selected on the action bar. On a pull-down, actions followed by the ellipsis (...) need more information to execute. Actions not followed by the ellipsis activate the associated function when selected.

refresh list
The action on the Enterprise Definition or Impact Process TaskManager screen that updates the status of the task list.

scope
The feature that limits the impact project display to a selected node. When scope is in effect, only tasks for the selected node display on the Enterprise Definition or Impact Process TaskManager screen.

search criteria
The search patterns that determine the data items that become impact candidates. Search criteria defaults are provided for each installed language. The defaults based on site and application requirements can be edited. Search criteria are displayed on the Dataitem Search Criteria List. See also search pattern.

search pattern
A text string that is used for the data item search. The question mark (?) and asterisk (*) characters can be used in search strings. The ? is used as a single-character substitute and the * as a multiple-character substitute.
For example, the text string can begin with an asterisk, end with an asterisk, be bracketed by asterisks, or contain an asterisk only.

*CENT	indicates all entity names ending with CENT.
CENT*	indicates all entity names beginning with CENT.
CENT	indicates all entity names with CENT in the name.

Software Science Volume Metric
Metric that measures the size of a program by factoring in data and variables (operands) and COBOL verbs (operators). This metric is based on the premise that the larger the application or program, the more difficult it is to understand and maintain. The Software Science Volume Metric is factored into the program class.

symbol
Any item found during the analysis process such as a data item, record, paragraph name, FD, DD name, step name, program name.

synonyms
Data items that contain common data through an assignment from one data item to another within the scope of a program. Synonyms include all data items that refer exactly to the same data, that is, data items in direct ASSIGNMENT statements such as MOVE, ADD, and REDEFINE.

TaskManager
The automated feature to manage impact project tasks. Use TaskManager to direct tasks from the Enterprise Definition Process and the Impact View screens, track task status, sequence tasks, tailor the view to the specified Scope, and customize the impact project.

unreferenced item
A data item that has no "uses" or "modifications."

uses
The number of times a data item's value is used or read, in the program procedural code.

wildcard characters
See "search pattern" on page 148.

Appendix A
Allocating AKR Space

It is important that you allow enough space for storing all the information for the enterprise and the impact project. After you define an enterprise, you do not change it often—its size remains fairly constant.

An impact project contains the results of applying an engineering objective such as a date conversion to the applications the enterprise structure defines. The size of the impact project varies according to the size and complexity of each application and the number of languages in the applications. Since the impact sizes are difficult to calculate, the space they need in an AKR is also difficult to calculate.

Determining Size Factors

Use these questions and equations to help you produce an initial AKR size estimate. You may still need to expand the AKR size later.

Your answers to these questions help determine the amount of space to allocate for the AKR:

- Do you have an existing Enterprises?
  - — If no, assume an enterprise contains 75 nodes. Enter 75 in the Number of Nodes below.
  - — If yes, fill in the number of nodes in your enterprise in the space below.

  Number of nodes = _____

- How many impacts (engineering objectives) do you require? (Minimum is 1.)

  Number of estimates =_____

- How many different languages such as COBOL, PL/I, Assembler, NATURAL, and so on, does your applications use?

  Number of languages = _____

- How many of each application type do you expect to use with Estimate?

Large applications (over 2500 programs)	=	_____
Medium applications (1000 to 2500 programs)	=	_____
Small applications (less than 1000 programs	=	_____
Total applications	=	_____

Performing Calculations

Use the numbers calculated in the previous section to complete these calculations:

Node space

(Number of nodes / 75) * 10 cyls	=	_____cyls

Impact space

(Num. of impacts * num. of languages) * 2 cyls	=	_____cyls

Application space

(Num. of large Applications * 12cyls	=	_____cyls
(Num. of medium Applications * 6 cyls)	=	_____cyls
(Num. of small applications * 3 cyls)	=	_____cyls
Approximate initial space allocation (total column)	=	_____cyls

Appendix B

Calculating Program Difficulty Classification

Estimate provides default values for the Program Classification Factors, a Program Classification Formula, and computations that calculate the difficulty classification for a program. If desired, set up your own values for the estimation factors and create your own formula to derive the Program Difficulty Classification.

This information is a description of the procedure used to calculate the Program Difficulty Classification:

- The lowest possible rating of program difficulty is calculated using the Program Classification Formula. The term for this value is LOW.
- The highest possible rating of program difficulty is calculated using the Program Classification Formula. The term for this value is HIGH.
- The range is the difference between the HIGH and LOW values. The term for this value is RANGE.
- The range is divided into four equal sections. The terms for these sections are R1, R2, R3, and R4. The number of the section is referred to as RANGE SECTION NUMBER.
- The formula value is calculated by substituting the program's actual metrics and exceptions in the Program Classification Formula. The term for this value is FORMULA VALUE.

The Program Difficulty Classification is derived using this criteria:

- If the formula value is equal to the LOW value, the Program Difficulty Classification is set to 1.0.
- If the formula value is greater than the LOW value, the formula value is scaled down to a value between 1.0 and 5.0. The scale value is calculated by using the computation provided by Estimate. The term for this value is SCALE VALUE.
- The Program Difficulty Classification that is derived by these computations is rounded when displayed using standard rounding procedures. The program difficulty classification is displayed on the Program Classification, Impact Summary, and Engineering Cost Summary reports.

To calculate the program difficulty classification

1. Calculate the LOW value.

   a. For each metric in your Program Classification Formula, substitute the lowest possible rating.

   b. On the Program Classification Formula screen, calculate the lowest possible rating using the Program Classification Formula you set.

2. Calculate the HIGH value:

   a. For each metric in your Program Classification Formula, substitute the highest possible rating.

   b. Calculate the highest possible rating using the Program Classification Formula you set on the Program Classification Formula screen

3. Calculate the RANGE as the HIGH value minus the LOW value.

4. Divide the RANGE into four equal sections. The names of the sections are referred to as R1, R2, R3, and R4. The number of the section is referred to as RANGE SECTION NUMBER.

5. Calculate the FORMULA VALUE. For each metric in your Program Classification Formula, substitute the actual metric and exception ratings to calculate the program's formula value.

   a. If the program's formula value is equal to the calculated lowest possible rating, set the program's Difficulty Classification to l.0.

   b. If the formula value is greater than the calculated lowest possible rating, scale down the formula value.

6. Calculate the SCALE VALUE. If the formula value lies in range RX, where RX is one of the ranges Rl through R4, calculate the program's scale value using this calculation:

   SCALE VALUE = *X* + [{formula value - (low + ((*X*-l)*(range/4)))} / (ran~e/4)1]

Sample Calculation

SAMPLE FORMULA: `SSV + EC + CV`

1 Calculate the lowest rating of program difficulty.

LOW	=	SSV	+	EC	+	CV
3	=	1	+	1	+	1

2 Calculate the highest rating of program difficulty.

HIGH	=	SSV	+	EC	+	CV
15	=	5	+	5	+	5

3 Calculate the range between highest and lowest rating of program difficulty.

RANGE	=	HIGH	–	LOW
12	=	15	–	3

4 Divide the range into four equal sections:

- R1 includes values greater than 3 and less than or equal to 6.
- R2 includes values greater than 6 and less than or equal to 9.
- R3 includes values greater than 9 and less than or equal to 12.
- R4 includes values greater than 12 and less than or equal to 15.

5 Calculate the formula value:

```
FORMULA VALUE = SSV + EC + CV 7= 2 + 3 + 2
```

(These values are used as a sample of a particular program's actual metrics.)

6 Calculate the scale value. The scale value is calculated in this example because the formula value is greater than the calculated LOW rating.

LOW	=	3
HIGH	=	14
RANGE	=	12
FORMULA VALUE	=	7
X	=	2 (Represents the range section number)
SCALE VALUE	=	X + [{formula value - (low + ((X-l)*(range/4)))} / (range/4)]
2.3	=	2 + [{7 - (3 + ((2-1)*(12/4)))} / (12/4)]

7 Program Difficulty Classification = Rounded SCALE VALUE

Program Difficulty Classification = 2

Appendix C

Report Layout and Field Definitions

Definition Report

Figure 74 and Figure 75 on page 156 shows the Definition Report generated by Estimate.

Figure 74 • Definition Report

```
ESTIMATE Rx.x LVL000              DEFINITION REPORT                              DEF
                        ENTERPRISE CEXX IN PROJECT YEAR2K
  ENTERPRISE: CEXX                                                 PAGE:          1
  GROUP PATH: N/A                                                  DATE: DD-MMM-YYYY
 APPLICATION: N/A                                                  TIME:    HH:MM:SS
                                                                     BY:     VIAUSER
================================================================================

 LVL TYP DEFINITION
 --- --- ---------------------------------------------------------------------
   1 ENT CEXX
   2 GRP    GROUP1
   3 APP       ASM
               AKR: VIAUSR.CEXX.AKR(ASM)
   4 LIB       ³  CICS           (ASG.VIA8CICS.DFHCSD)
     MEM       ³  ³-
   4 LIB       ³  ASSEMBLER      (VIAJAZ.CEXX1.ASM)
     MEM       ³  ³- ASMCICS
     CPY       ³  ³  ³- COPYLIB  (SYS1.MACLIB)
     CPY       ³  ³  ³- COPYLIB  (CICS.V170.MACLIB)
     MEM       ³  ³- CALLED$3
     CPY       ³  ³  ³- COPYLIB  (VIAJAZ.CEXX1.ASM)
     CPY       ³  ³  ³- COPYLIB  (VIAAL20.CEXX.ASM)
     CPY       ³  ³  ³- COPYLIB  (VSPAS20.PROD.MACLIB)
     CPY       ³  ³  ³- COPYLIB  (VIASH42.SPRT.MACLIB)
     CPY       ³  ³  ³- COPYLIB  (VIASH42.PROD.MACLIB)
     CPY       ³  ³  ³- COPYLIB  (SYS1.MACLIB)
     CPY       ³  ³  ³- COPYLIB  (SYS1.MODGEN)
     CPY       ³  ³  ³- COPYLIB  (SYS1.AMODGEN)
     CPY       ³  ³  ³- COPYLIB  (PASCAL.VSVER.SAMPMAC1)
     MEM       ³  ³- DXNASMAC
     MEM       ³  ³- NESTMAC
     CPY       ³  ³  ³- COPYLIB  (VIAJAZ.CEXX1.ASM)
     CPY       ³  ³  ³- COPYLIB  (SYS1.MACLIB)
     MEM       ³  ³- NOMACLIB
     CPY       ³  ³- COPYLIB     (VIAJAZ.CEXX1.ASM)
     CPY       ³  ³- COPYLIB     (VIAAL20.CEXX.ASM)
     CPY       ³  ³- COPYLIB     (SYS1.MACLIB)
     APP       ASM SUMMARY: 6 MEMBERS IN 2 LIBRARIES, 10 COPY LIBRARIES

   3 APP       COBOL
               AKR: VIAUSR.CEXX.AKR(COBOL)
   4 LIB       ³  COBOL          (VIAUSR.CEXX.COBOL)
     MEM       ³  ³- CLEAN
     APP       COBOL SUMMARY: 1 MEMBER IN 1 LIBRARY, 0 COPY LIBRARIES
```

Figure 75 • Definition Report (continued)

```
ESTIMATE  Rx.x LVL000                DEFINITION REPORT                    DEF
                             ENTERPRISE CEXX IN PROJECT YEAR2K
  ENTERPRISE: CEXX                                          PAGE:           2
  GROUP PATH: N/A                                           DATE: DD-MMM-YYYY
 APPLICATION: N/A                                           TIME:    HH:MM:SS
                                                              BY:     VIAUSER
 ==============================================================================

 LVL TYP DEFINITION
 --- --- ---------------------------------------------------------------------
      3 APP       EASYTRIV
                AKR: VIAUSR.CEXX.AKR(EASYCOB)
   4 LIB        ³  EASYTRIV       (VIAUSR.EASY.TRIEVE)
     MEM        ³  ³- PROGRAM
     MEM        ³  ³- RSLEZT
     MEM        ³  ³- RSPEZT
     APP        EASYTRIV SUMMARY: 3 MEMBERS IN 1 LIBRARY, 0 COPY LIBRARIES

3 APP       NATURAL
                AKR: VIAUSR.CEXX.AKR(NATURAL)
   4 LIB        ³  NAT2.2S        (VIAJAZ.CEXX1.NATURAL)
     MEM        ³  ³- ANNIV#2
     MEM        ³  ³- DEPT#EMP
   4 LIB        ³  NAT2.2S        (VIAJAZ.CEXX2.NATURAL)
     MEM        ³  ³- ANNIV#2
     APP        NATURAL SUMMARY: 3 MEMBERS IN 2 LIBRARIES, 0 COPY LIBRARIES

     GRP    GROUP1 SUMMARY: 13 MEMBERS IN 6 LIBRARIES, 10 COPY LIBRARIES
2 GRP    GROUP2
   3 APP        BILLING
                AKR: VIADVAP.APPL.AKR(BILLING)
   4 LIB        ³  COBOL          (TRAIN02.TRAINING.SRCLIB)
     MEM        ³  ³- VIASTP01
     MEM        ³  ³- VIASTP02
     MEM        ³  ³- VIASTP04
     MEM        ³  ³- VIASTP05
     MEM        ³  ³- VIASTP07
     MEM        ³  ³- VIASTP08
     MEM        ³  ³- VIASTP09
     MEM        ³  ³- VIASTP10
     MEM        ³  ³- VIASTP11
     MEM        ³  ³- VIASTP12
     MEM        ³  ³- VIASTP13
     CPY        ³  ³- COPYLIB     (TRAIN02.TRAINING.COPYLIB)
   4 LIB        ³  JCL            (TRAIN02.TRAINING.JCLLIB)
     MEM        ³  ³- VIASTP0J
   4 LIB        ³  LOAD MODULE    (TRAIN00.TRAINING.LOADLIB)
     MEM        ³  ³- VIASTP01
     MEM        ³  ³- VIASTP02
     MEM        ³  ³- VIASTP04
     MEM        ³  ³- VIASTP05
     MEM        ³  ³- VIASTP07
     MEM        ³  ³- VIASTP08
     MEM        ³  ³- VIASTP09
     MEM        ³  ³- VIASTP10
     MEM        ³  ³- VIASTP11
     MEM        ³  ³- VIASTP12
     MEM        ³  ³- VIASTP13
     APP        BILLING SUMMARY: 23 MEMBERS IN 3 LIBRARIES, 1 COPY LIBRARY

     GRP    GROUP2 SUMMARY: 23 MEMBERS IN 3 LIBRARIES, 1 COPY LIBRARY

     ENT CEXX SUMMARY: 36 MEMBERS IN 9 LIBRARIES, 11 COPY LIBRARIES

  SUMMARY:

     NUMBER OF GROUP NODES:        2
     NUMBER OF APPLICATION NODES:  5
     TOTAL NUMBER OF NODES:        8
     NUMBER OF LEVELS:             4
```

This table describes the fields on the Definition Report.

Field	Description
Lvl	Location of the node in the enterprise definition.
Typ	Type of node. Valid types are enterprise, business group, application, or application component. Valid components are library name, member name, or copy library name.
Definition	Node definition name. Valid names, depending on the node type selected, are enterprise, business group, application, application component library, member name of the application component library or of the copylib of the application component.
App	Total number of members, libraries, and copy libraries for the selected application.
Grp	Total number of members, libraries, and copy libraries for the selected node.
Ent	Total number of members, libraries, and copy libraries for the enterprise.
Number of Group Nodes	Total number of business group nodes in the report.
Number of Application Nodes	Total number of application nodes in the report.
Total Number of Nodes	Total number of business group and application nodes in the report.
Number of Levels	Total number of levels for the selected node.

Storage and Allocation Report

Figure 76 shows the Storage and Allocation Report generated by Estimate.

Figure 76 • Storage and Allocation Report

```
ESTIMATE Rx.x LVL000              STORAGE AND ALLOCATION REPORT                  STO
                              ENTERPRISE CEXX IN PROJECT YEAR2K
  ENTERPRISE: CEXX                                                 PAGE:           1
  GROUP PATH: N/A                                                  DATE: DD-MMM-YYYY
 APPLICATION: N/A                                                  TIME:    HH:MM:SS
                                                                     BY:     VIAUSER
 ==============================================================================
                                                ALLOCATED   --USED---   DIR BLKS   NUM
 LVL TYP ALLOCATION                            TRKS EXTS   TRKS EXTS   MAX USED   MBRS
 --- --- ----------------------------------  ---- ----   ---- ----   --- ----   ----
   1 ENT CEXX
         VIAUSR.CEXX.CEXX.VIARDEF              16   2       3   2     10    1     12
         VIAUSR.CEXX.CEXX.VIARSTO              15   1       4   1     10    1      1
         VIAUSR.CEXX.YEAR2K.VIARCFT           150   1      21   1     10    1     10
         VIAUSR.CEXX.YEAR2K.VIARTSK           150   1       3   1     10    1      1
         VIAUSR.CEXX.YEAR2K.VIARCAN           150   1       4   1     10    1     10
         VIAUSR.CEXX.YEAR2K.VIARIDN           150   1      27   1     10    1     10
         VIAUSR.CEXX.YEAR2K.VIARPCD           150   1      37   1     10    1     10
         VIAUSR.CEXX.YEAR2K.VIARPGM           150   1       5   1     10    1     10
         VIAUSR.CEXX.YEAR2K.VIARLIN           150   1      24   1     10    1     10
         VIAUSR.CEXX.YEAR2K.VIARIMP           150   1       4   1     10    1     11
         VIAUSR.CEXX.YEAR2K.VIARSUM           150   1       3   1     10    1     11
         VIAUSR.CEXX.YEAR2K.VIARCLS           150   1       4   1     10    1     11
         VIAUSR.CEXX.YEAR2K.VIARCST           150   1       5   1     10    1     11
        --------------------------------- --  ----        ----                    ----
         ALLOCATION TOTALS:                   681         144                     118
```

This table describes the fields on the Storage and Allocation Report.

Field	Description
Lvl	Level number of the selected node relative to the enterprise definition. An enterprise node is a level one. The level number for a business group node or an application node is determined by the location of the node in the enterprise definition.
Typ	Type of node. Valid types are an enterprise, a business group, an application, or an application component. Valid components are a library name, member name, or copy library name.
Allocation	Selected node's short name and long name (in parentheses) and allocated dataset names associated with the selected node.
Allocated Trks	Allocated tracks for dataset.
Allocated Exts	Allocated extents for dataset.
Used Trks	Used tracks for dataset.
Used Exts	Used extents for dataset.

Field	Description
Dir Blks Max	Maximum directory blocks for dataset.
Dir Blks Used	Directory blocks used for dataset.
Num Mbrs	Number of members in the dataset.
Allocation Totals	Total allocated tracks, used tracks, and number of members in the dataset.

Project Task List Report

Figure 77 shows the Project Task List Report generated by Estimate.

Figure 77 • Project Task List Report

```
ESTIMATE 2001 Rx.x LVL000                    Project Task List Report                        TSK
Enterprise CE43 in Project YEAR2K
  Enterprise: CEXX                                                                Page:          1
  Group Path: N/A                                                                 Date: DD-MMM-YYYY
 Application: N/A                                                                 Time:    HH:MM:SS
                                                                                    By:      CONAXM
 ==========================================================================================
 Node            Task Description                                Optional    Status/Sequence
 --------------  ----------------------------------------------  --------    ---------------
 BILLING   (app) Analyze the Application in the AKR                    No                  1
 CEXX      (ent) Edit base Search Criteria for MVS-ASSEMBLER         Yes                  2
 CEXX      (ent) Edit base Search Criteria for MVS-COBOL             Yes                  3
 CEXX      (ent) Edit base Search Criteria for MVS-PL/I              Yes                  4
 CEXX      (ent) Edit base Search Criteria for NATURAL               Yes                  5
 CEXX      (ent) Edit base Search Criteria for FORTRAN               Yes                  7
 CEXX      (ent) Edit base Search Criteria for MODEL204              Yes                  8
 CEXX      (ent) Edit base Search Criteria for IDEAL                 Yes                  9
 ASM       (app) Review/edit costing factors                         Yes                 10
 COBOL     (app) Review/edit costing factors                         Yes                 11
 NATURAL   (app) Review/edit costing factors                         Yes                 13
 GROUP1    (grp) Review/edit costing factors                         Yes                 14
 BILLING   (app) Review/edit costing factors                         Yes                 15
 GROUP2    (grp) Review/edit costing factors                         Yes                 16
 CE43      (ent) Review/edit costing factors                         Yes                 17
 COBOL     (app) Generate Summary information                         No                 18


 Total Tasks:              18
 Tasks Bypassed:            0
 Tasks Open:               18
```

This table describes the fields on the Project Task List Report.

Field	Description
Node	Name and type of the selected node.These are the value types: (ent) = Enterprise (grp) = Group (app) = Application
Task Description	Description of each task listed on the Impact View screen.
Optional	Flag that displays YES if the task is optional, or NO if the task is required.
Sequence/Status	Sequence in which the task must be performed or task status, completed or bypassed.
Total Tasks	Total number of tasks on the Project Task List.
Tasks Bypassed	Number of tasks with a bypassed status.
Tasks Open	Number of tasks not completed or bypassed.

Candidate Dataitem List Report

Figure 78 shows the Candidate Dataitem List report generated by Estimate.

Figure 78 • Candidate Dataitem List Report

```
ESTIMATE 2001 Rx.x LVL000          Candidate Dataitem List Report                    CAN
                                 Application COBOL in Project YEAR2K
  Enterprise: CEXX                                                    Page:          1
  Group Path: GROUP1                                                Date: DD-MMM-YYYY1
 Application: COBOL                                                  Time:    HH:MM:SS
                                                                       By:      CONAXM

==========================================================================================
 Program     Language          Lvl  Dataitem               Declaration         Disposition
 ----------  ----------------  --- -----------------    --------------------
----------------
 CLEAN       MVS-COBOL           5  DATE-FIELD-21                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-22                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-23                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-24                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-25                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-26                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-27                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-28                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-29                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-30                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-31                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-32                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-33                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-34                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-35                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-36                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-37                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-38                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-39                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-40                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-41                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-42                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-43                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-44                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-45                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-46                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-47                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-48                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-49                     X(08)
 CLEAN       MVS-COBOL           5  DATE-FIELD-50                     X(08)
 CLEAN       MVS-COBOL           5  DATE-YY                           X(02)
 CLEAN       MVS-COBOL           2  DATER                     Removed from criteria
 CLEAN       MVS-COBOL           2  DATER                     Removed from criteria
 CLEAN       MVS-COBOL           2  DATE1                             X(06)
 CLEAN       MVS-COBOL           2  DATE1                             X(06)
 CLEAN       MVS-COBOL           1  TEST-DATE                 Removed from criteria
 CLEAN       MVS-COBOL           1  TEST-DATE                 Removed from criteria
 CLEAN       MVS-COBOL           1  WS-DATE-INFO              Removed from criteria
```

This table describes the fields on the Candidate Dataitem List report.

Field	Description
Program	Name of program that defines, references, or modifies the candidate data item.
Language	Language type of the program.
Lvl	Level number of the candidate data item definition.
Dataitem	Candidate data item name.
Declaration	Format and size of the candidate data item.
Disposition	Indicates if candidate data item was removed from search criteria if you select the option to include removed data items on the report.

Program Contains Dataitem Report

Figure 79 shows the Program Contains Dataitem Report generated by Estimate.

Figure 79 • Program Contains Dataitem Report

```
1ESTIMATE Rx.x LVL000                Program Contains Dataitem Report                        PCD
                                   Application COBOL in Project YEAR2K
 Enterprise: CEXX                                                          Page:           1
 Group Path: GROUP1                                                        Date: DD-MMM-YYYY
Application: COBOL                                                         Time:    HH:MM:SS
                                                                             By:     VIAUSER
 ==========================================================================================
 PROGRAM:  CLEAN
 LANGUAGE: MVS-COBOL

 Lvl Dataitem                  Declaration           Size Uses Mods Arit Cond Sort Copy   Affected
 --- ----------------------- -------------------- ------ ---- ---- ---- ---- ---- ---- ----------
   5 BIG-DATE                  X(08)                   8    1    0    0    0   No   No        Yes
   1 CURRENT-DATE                                      8    1    0    0    0   No   No        Yes Syn
   1 DATE-A                    X                       1    1    3    0    0   No   No        Yes
   1 DATE-B                    X                       1    0    1    0    0   No   No        Yes
   1 DATE-C                    X                       1    1    0    0    0   No   No        Yes
   5 DATE-FIELD-01             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-02             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-03             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-04             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-05             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-06             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-07             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-08             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-09             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-10             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-11             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-12             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-13             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-14             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-15             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-16             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-17             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-18             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-19             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-20             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-21             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-22             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-23             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-24             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-25             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-26             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-27             X(08)                   8    0   31    0    0   No   No        Yes
   5 DATE-FIELD-28             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-29             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-30             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-31             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-32             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-33             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-34             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-35             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-36             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-37             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-38             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-39             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-40             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-41             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-42             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-43             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-44             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-45             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-46             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-47             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-48             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-49             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-FIELD-50             X(08)                   8    0    0    0    0   No   No        Yes
   5 DATE-YY                   X(02)                   2    0    0    0    0   No   No        Yes
   2 DATER                                             6    0    0    0    0   No   No        Yes
   2 DATER                                             6    0    0    0    0   No   No        Yes
   2 DATE1                     X(06)                   6    0    0    0    0   No   No        Yes
   2 DATE1                     X(06)                   6    0    0    0    0   No   No        Yes
   1 PGM1DD1-REC               X(100)                100    0    1    0    0   No   No        Yes Syn
   1 TEST-DATE                                         6    0    0    0    0   No   No        Yes
   1 TEST-DATE                                         6    0    0    0    0   No   No        Yes
   5 WS-COND-CHECK             X(01)                   1    1    0    0    1   No   No        Yes Syn
   1 WS-DATE-INFO                                      6    0    1    0    0   No   No        Yes
   1 WS-NEW                                          400    0    0    0    0   No   No        Yes Syn
   5 WS-PGM1DD1-AAAA           X(05)                   5    0    1    0    0   No   No        Yes Syn
   1 WS-PGM1DD1-REC                                    8    1    3    0    0   No   No        Yes Syn
   1 WS-STUFF                                         11    1    0    0    0   No   No        Yes Syn
  10 YY                        X(2)                    2    0    0    0    0   No   No        Yes
  10 YY                        X(2)                    2    0    0    0    0   No   No        Yes
 --- ----------------------- -------------------- ------ ---- ---- ---- ---- ---- ---- ----------
 TOTALS:   71 Dataitems                                7   41    0    1    0    0         71
```

This table describes the fields on the Program Contains Dataitem Report.

Field	Description
Application	Name of the application duplicated in structure or missing in structure.
Program	Name of program that defines, references, or modifies the candidate data item.
Language	Language type of the program.
Lvl	Level number of the impacted data item definition.
Dataitem	Affected data item name.
Declaration	Format of the impacted data item.
Size	Size of the impacted data item.
Uses	Number of uses of the impacted data item in this program.
Mods	Number of times the impacted data item was modified in this program.
Arit	Number of times the impacted data item was used in arithmetic expressions in this program.
Cond	Number of times the impacted data item was used in conditional statements in this program.
Sort	Indicates whether the impacted data item was used in sort statements in this program.
Copy	Indicates whether the impacted data item displays in a copybook in this program.
Affected	Indicates whether this is an impacted data item and if it is a synonym (Syn).
Totals	Field totals: • Dataitems: Number of data items from the Candidate Dataitem List. • Report and Impacted Component List Report. • Uses, Mods, Arit, and Cond: Count totals for each field. • Sort, Copy and Impacted: Total Yes entries.

Impacted Dataitem List Report

Figure 80 shows the Impacted Dataitem List report generated by Estimate.

Figure 80 • Impacted Dataitem List Report

```
ESTIMATE Rx.x LVL000                    Impacted Dataitem List Report                      IDN
                                      Application COBOL in Project YEAR2K
  Enterprise: CEXX                                                          Page:           1
  Group Path: GROUP1                                                        Date: DD-MMM-YYYY
 Application: COBOL                                                         Time:    HH:MM:SS
                                                                              By:     VIAUSER
 ==========================================================================================
 Entity Type          Language       Lvl Entity Name        Program    Declaration    Comment
 ---------------      -------------- --- ------------------ ---------- ------------- -------------
 DATAITEM             MVS-COBOL        5 BIG-DATE           CLEAN      X(08)
 DATAITEM             MVS-COBOL        1 CURRENT-DATE       CLEAN                       Synonym
 DATAITEM             MVS-COBOL        1 DATE-A             CLEAN      X
 DATAITEM             MVS-COBOL        1 DATE-B             CLEAN      X
 DATAITEM             MVS-COBOL        1 DATE-C             CLEAN      X
 DATAITEM             MVS-COBOL        5 DATE-FIELD-01      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-02      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-03      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-04      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-05      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-06      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-07      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-08      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-09      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-10      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-11      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-12      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-13      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-14      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-15      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-16      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-17      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-18      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-19      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-20      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-21      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-22      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-23      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-24      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-25      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-26      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-27      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-28      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-29      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-30      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-31      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-32      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-33      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-34      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-35      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-36      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-37      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-38      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-39      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-40      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-41      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-42      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-43      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-44      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-45      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-46      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-47      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-48      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-49      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-FIELD-50      CLEAN      X(08)
 DATAITEM             MVS-COBOL        5 DATE-YY            CLEAN      X(02)
 DATAITEM             MVS-COBOL        2 DATER              CLEAN
 DATAITEM             MVS-COBOL        2 DATER              CLEAN
 DATAITEM             MVS-COBOL        2 DATE1              CLEAN      X(06)
 DATAITEM             MVS-COBOL        2 DATE1              CLEAN      X(06)
 DATAITEM             MVS-COBOL        1 TEST-DATE          CLEAN
 DATAITEM             MVS-COBOL        1 TEST-DATE          CLEAN
 DATAITEM             MVS-COBOL        5 WS-COND-CHECK      CLEAN      X(01)          Synonym
 DATAITEM             MVS-COBOL        1 WS-DATE-INFO       CLEAN
 DATAITEM             MVS-COBOL        5 WS-PGM1DD1-AAAA    CLEAN      X(05)          Synonym
 DATAITEM             MVS-COBOL       10 YY                 CLEAN      X(2)
 DATAITEM             MVS-COBOL       10 YY                 CLEAN      X(2)
 RECORD/DSECT/STRUCTU MVS-COBOL          PGM1DD1-REC        CLEAN      CLEAN
 RECORD/DSECT/STRUCTU MVS-COBOL          WS-NEW             CLEAN      CLEAN
 RECORD/DSECT/STRUCTU MVS-COBOL          WS-PGM1DD1-REC     CLEAN      CLEAN
 RECORD/DSECT/STRUCTU MVS-COBOL          WS-STUFF           CLEAN      CLEAN
 DD                                      PGM1DD1            CLEAN
 FD/FILEVAR/DCB                          PGM1DD1            CLEAN
 PROGRAM/PROCEDURE/FU                    CLEAN              CLEAN
```

This table describes the fields on the Impacted Dataitem List Report.

Field	Description
Entity Type	Any distinguishable item that is represented in the results of the analysis. Examples of entities include PROGRAM, FD, RECORD, DATAITEM, LOADMODULE, LIBRARY, and PROC.
Language	Language type of the impacted entity.
Lvl	Level number of the impacted entity.
Entity Name	Name of the impacted entity.
Program	Name of program that references the impacted data item.
Declaration	Format and size of the impacted entity.
Comment	Indicates whether the impacted entity is a synonym or was removed from the search criteria.

Affected Programs in Application Report

Figure 81 shows the Affected Programs in Application report generated by Estimate.

Figure 81 • Affected Programs in Application Report - Affected Programs

```
ESTIMATE Rx.x LVL000                Affected Programs In Application Report              PGM
                                        Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                          Page:          1
  Group Path: GROUP2                                                      Date: DD-MMM-YYYY
 Application: BILLING                                                      Time:    HH:MM:SS
                                                                             By:      CONAXM
 ==================================================================================

 AFFECTED PROGRAMS:

Language    Program     Program ID   Type     Lines Code               Location
---------  ----------  ----------  ------  ------------ --------------------------------
MVS-COBOL      VIASTP01    VIASTP01                 330 TRAIN02.TRAINING.SRCLIB(VIASTP01)
MVS-COBOL      VIASTP02    VIASTP02                  53 TRAIN02.TRAINING.SRCLIB(VIASTP02)
MVS-COBOL      VIASTP04    VIASTP04                 330 TRAIN02.TRAINING.SRCLIB(VIASTP04)
MVS-COBOL      VIASTP07    VIASTP07                 174 TRAIN02.TRAINING.SRCLIB(VIASTP07)
MVS-COBOL      VIASTP08    VIASTP08                2228 TRAIN02.TRAINING.SRCLIB(VIASTP08)
MVS-COBOL      VIASTP09    VIASTP09                 687 TRAIN02.TRAINING.SRCLIB(VIASTP09)
MVS-COBOL      VIASTP10    VIASTP10                2215 TRAIN02.TRAINING.SRCLIB(VIASTP10)
MVS-COBOL      VIASTP11    VIASTP11                6150 TRAIN02.TRAINING.SRCLIB(VIASTP11)
MVS-COBOL      VIASTP12    VIASTP12                7741 TRAIN02.TRAINING.SRCLIB(VIASTP12)
MVS-COBOL      VIASTP13    VIASTP13                7875 TRAIN02.TRAINING.SRCLIB(VIASTP13)
---------    ----------  ---------- ------------------------------------------------------
MVS-COBOL             10                            27783
```

This table describes the fields on the Affected Programs in Application Report.

Field	Description
Language	Language type of the impacted program.
Program	Library member name that contains the impacted data item. The member is usually named after the program ID name.
Program ID	Affected program ID name from the source code.
Type	Types of commands being used in the impacted program, such as CICS or IMS.
Lines Code	Number of physical lines of code.
Location	Library and member name where the impacted program resides.
Lines Code Total	Total number of physical lines of code by language.

Affected Programs in Application - Affected Copybooks

Figure 82 shows the Affected Programs in Application - Affected Copybooks report generated by Estimate.

Figure 82 • Affected Programs in Application Report - Affected Copybooks

```
ESTIMATE Rx.x LVL000          Affected Programs In Application Report                    PGM
                                Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                          Page:          2
  Group Path: GROUP2                                                      Date: DD-MMM-YYYY
 Application: BILLING                                                      Time:    HH:MM:SS
                                                                             By:     VIAUSER

==========================================================================================

 AFFECTED COPYBOOKS:

    Language          Member      Times Used  Lines Code  Location
   ----------------  ----------  ----------  ---------- ------------------------------------
   MVS-COBOL         VIASMAST            5          24  TRAIN02.TRAINING.COPYLIB(VIASMAST)
   ----------------  ----------  ----------  ---------------------------------------------
    MVS-COBOL                1                        24
```

This table describes the fields on the Affected Programs in Application - Affected Copybooks Report:

Field	Description
Language	Language type of the impacted program.
Member	Copybook member name that contains the impacted data item.
Times Used	Number of times the copybook is used.
Lines Code	Number of physical lines of code.
Location	Dataset and member name where the impacted copybook resides.
Language Total Members	Total number of impacted copybooks by language.
Lines Code Total	Total number of physical lines of code by language.

Figure 83 shows the Affected Programs Lines report generated by Estimate.

Figure 83 • Affected Program Lines Report

```
ESTIMATE Rx.x LVL000                 Affected Program Lines Report                    LIN
                                  Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                     Page:          1
  Group Path: GROUP2                                                 Date: DD-MMM-YYYY
 Application: BILLING                                                 Time:    HH:MM:SS
     Program: VIASTP07      Language: MVS-COBOL                         By:     VIAUSER

==========================================================================================

 Program     Dataitem                        Defined  Copy  References
 ----------  ------------------------------- -------  ----- -------------------------------------
 VIASTP07    HDG-DATE                              34        128
 VIASTP07    LAST-BILL-DATE                        22     1
 VIASTP07    LOAN-INFORMATION                      16     1
 VIASTP07    LOAN-START-DATE                       20     1
 VIASTP07    MASTER-IN                              1     1  84
 VIASTP07    MASTER-REPORT-DATE                    81        86, 128
 VIASTP07    RPT-HDG-LINE1                         32        129
 VIASTP07    RPT-HDG-LINE2                         44        132
 VIASTP07    TOTAL-REPORT                          18        129, 132, 137, 142, 147
 VIASTP07    YEAR-TO-DATE-INTEREST                 24     1  117
------------------------------------------------------------------------------------------
 Totals -    References:      12
             Data Items:      10

 Copybooks Referenced

     1  TRAIN02.TRAINING.COPYLIB(VIASMAST)

Affected Programs :

 VIASTP07
Summary:  12 references to 10 data items in 1 programs(s) in application
           9 affected lines of code in application
```

This table describes the fields on the Affected Programs Lines report.

Field	Description
Program	Name of the program that contains impacted lines of code.
Language	Language type of the impacted program.
Program	Program ID name that contains impacted lines of code.
Dataitem	Name of the impacted data item.
Defined	Physical source member or physical copy member line number in the program where the affected data item is defined.
Copy	Copybook number, in the Copybooks Referenced table, that is being referenced.
References	Physical source member or physical copy member line number(s) in the program where the affected data items are referenced.
Totals - References	Total number of times the impacted data item is referenced.

Field	Description
Totals - Dataitems	Total number of impacted data items in the program.
Copybooks Referenced	Names of the datasets where impacted data items are referenced.
Affected Programs	Names of the programs that contain impacted lines of code.
Summary	Total number of references compared to the total number of data items in the total number of programs in the application, and the total number of affected lines of code.

Impact Summary Report

Figure 84 shows the Impact Summary report generated by Estimate.

Figure 84 • Impact Summary Report

```
ESTIMATE Rx.x LVL000                    IMPACT SUMMARY REPORT                                          IMP
                                 APPLICATION BILLING IN PROJECT YEAR2K
  ENTERPRISE: CEXX                                                                    PAGE:           1
  GROUP PATH: GROUP2                                                                  DATE: DD-MMM-YYYY
 APPLICATION: BILLING                                                                 TIME:    HH:MM:SS
                                                                                        BY:     VIAUSER
==============================================================================================================

          ITEM   PGM   ESSNTL SOFTWARE  DATA   ---DATA DEFINITION--    --DATA ACTIVITY--  -ACTIVITY STATS-      TOTAL
 ITEM       TYPE  CLASS COMPLX  VOLUME   UNREFD IN CPY IN PGM  TOTAL    USES  MODS  TOTAL   ARITHS CONDS  SORTS IMPACTS
 -------- ----  ----- ------ --------- ------ ------ ------  ------   ----- ----- -----  ------ ------ ------  --------
 VIASTP01   COB   1.2      1      3432      1      0     11      11      7    10    17      0      0      0        28
 VIASTP02   COB   1.0      1       200      0      0      1       1      0     1     1      0      0      0         2
 VIASTP04   COB   1.2      1      3432      0      0      8       8      6     6    12      0      0      0        20
 VIASTP07   COB   1.0      3       959      3      5      5      10      7     5    12      1      0      0        22
 VIASTP08   COB   2.3     18     39580     22      0     82      82    124    92   216     17     44      0       298
 VIASTP09   COB   1.2      3      5960     10      0     15      15     11    11    22      0      0      0        37
 VIASTP10   COB   1.9     10     35780      8      0     72      72     70    81   151      0      1      0       223
 VIASTP11   COB   2.6     35     26480    141      0    216     216    119   136   255      0     42      1       471
 VIASTP12   COB   3.0     53     69762    100      0    122     122     43    45    88      0      1      0       210
 VIASTP13   COB   3.0     29     71181    109      0    171     171    185   133   318     97     45      0       489
 ========= ====  ===== ====== =========  ====== ====== ======  ======  ===== =====  =====  ===== =====  ======  ========
 TOTALS:                154   256766    394      5    703     708    572   520  1092    115    133      1      1800
 AVERAGES:        1.8    15   25677     39      1     70      71     57    52   109     12     13      0       180
 PERCENT OF TOTAL:                                 0%    39%     39%   32%   29%   61%                           100%


 COMPONENT TYPE                  COMPONENT NAME
 ============================    ============================
 DD                              CONTROL
                                 DATASET
                                 DCPRF000
                                 DCPRF001
                                 DCPRF001
                                 DCPRF002
                                 DCPRF002
                                 DCPRF002
                                 DTOTALS
                                 SYS010
                                 SYS110
                                 SYS111
 ENTRY                           'VIASTP02'
 FD/FILEVAR/DCB                  CONTROL-FILE
                                 DAILY-TOTALS
                                 DATASET-FILE
                                 SPOOL-MASTER
                                 SPOOL-1-MASTER
                                 SPOOL-2-MASTER
                                 200-PRINT-FILE
                                 200-PRINT-FILE
 MAP                             MAPNAME
 MEMBER                          VIASMAST
 PROGRAM/PROCEDURE/FUNCTION      VIASTP01
                                 VIASTP04
                                 VIASTP07
                                 VIASTP08
                                 VIASTP09
                                 VIASTP10
                                 VIASTP11
                                 VIASTP12
                                 VIASTP13


 SUMMARY FOR NODE : GROUP2

 TOTALS:                154      256766     394      5    703     708     572   520  1092    115    133      1      1800
 AVERAGES:        1.8    15       25677      39      1     70      71      57    52   109     12     13      0       180
 PERCENT OF TOTAL:                                 0%    39%     39%     32%   29%   61%                           100%
```

This table describes the fields on the Impact Summary report.

Field	Description
Item	Program ID name that contains impacted lines of code.
Item Type	Language type of the impacted program.
Pgm Class	Degree of program difficulty in understanding and making changes. Class is calculated using these steps: **1** Collect metrics and exceptions for the program. **2** Compare them to values entered on the Program Classification screen. **3** Use the factors in the Program Classification Formula to scale down the program's metrics and exceptions to a value between 1 and 5. **4** If errors are found when calculating the Pgm Class, a code displays in this field and a default value is used. Review descriptions of the different codes and the current default value in a legend that displays at the end of the report.
Essntl Complx	Essential Complexity metric that measures the structure of a program by counting GOTOs that are not GOTO exits. A value of 1 indicates the program is structured.
Software Volume	Software Science Volume metric that measures the size of an application or program by counting the number of operators and operands.
Data Definition- UnRefd	Number of datanames that are identified as impacted and defined, but not referenced, in the application(s).
Data Definition- In Cpy	Number of occurrences where impacted data items are defined in a copybook.
Data Definition - In Pgm	Number of occurrences where impacted data items are defined in a program.
Data Definition - Total	Total number of impacted data item occurrences in copybooks and programs.
Data Activity - Uses	Number of occurrences where impacted data items are referenced in terms of uses.
Data Activity - Mods	Number of occurrences where impacted data items are referenced in modifications.

Field	Description
Data Activity - Total	Total number of impacted data item occurrences in Uses and Modifications.
Activity Stats - Ariths	Number of occurrences where impacted data items are referenced in Ariths statements.
Activity Stats - Conds	Number of occurrences where impacted data items are referenced in Conds statements.
Activity Stats - Sorts	Number of occurrences where impacted data items are referenced in Sort statements.
Total Impacts	Totals for data definition and data activity occurrences.
Totals	Totals calculated by summing up the individual application component counts for all the items in the application.
Averages	Averages for the individual application components based on the number of items and the totals amounts.
Percent of Total	Percentages of totals for data definition and data activity compared to total impacts field.
Component Type	Item in the application definition such as a COBOL source library or a load module library.
Component Name	Name of the component.

Summary Information Report

Figure 85 shows the Summary Information report generated by Estimate.

Figure 85 • Summary Information Report Section 1 - Program Statistics

```
ESTIMATE Rx.x LVL000                    Summary Information Report                      SUM
                                     Application COBOL in Project YEAR2K
  Enterprise: CEXX                                                          Page:          1
  Group Path: GROUP1                                                      Date: DD-MMM-YYYY
 Application: COBOL                                                        Time:    HH:MM:SS
                                                                             By:     VIAUSER
==========================================================================================

 ******************************************************
 ** Summary for Node: COBOL
 ******************************************************

 Physical Line and Statement Statistics:

   ID        Lines of Code % Total   Statements % Total
   -------- -------------- -------  ----------- -------
   COBOL               159  100.00          146  100.00
   ======== ============== =======  =========== =======
   TOTALS              159  100.00          146  100.00


 Symbol and Data Item Statistics:

   ID           Symbols % Total  Data Items % Total
   --------  ---------- -------  ---------- -------
   COBOL            197  100.00          86  100.00
   ========  ========== =======  ========== =======
   TOTALS           197  100.00          86  100.00


 Affected Programs Statistics:

   ID          Programs % Total     Affected % Total  % Affected
   -------- ----------- -------  ----------- -------  ----------
   COBOL              1  100.00            1  100.00      100.00
   ======== =========== =======  =========== =======  ==========
   TOTALS             1  100.00            1  100.00      100.00


 Affected Data Items in Program Statistics:

   ID        Data Items % Total     Affected % Total  % Affected
   -------- ---------- -------  ----------- -------  ----------
   COBOL             86  100.00           71  100.00       82.56
   ======== ========== =======  =========== =======  ==========
   TOTALS            86  100.00           71  100.00       82.56


 Affected Reference Statistics:

   ID        Data Item Refs % Total  References Affected % Total  % Affected
   -------  --------------- -------  ------------------- -------  ----------
   COBOL                 53  100.00                  48  100.00       90.57
   =======  =============== =======  =================== =======  ==========
   TOTALS                53  100.00                  48  100.00       90.57


 Impacted Components Statistics:

   ID        Components % Total    Impacted % Total
   --------  ---------- -------  ---------- -------
   COBOL             10  100.00          3   30.00
   ========  ========== =======  ========== =======
   TOTALS            10  100.00          3  100.00
```

This table describes the fields on the Summary Information report.

Field	Description
Summary for Node	Name of the selected node.
ID - PLSS	Name(s) of the node(s) selected to generate summary statistics.
Lines of Code- - PLSS	Number of physical lines of code in programs associated with the selected node and its subordinates.
% Total - PLSS	Percentage of the total number of the physical lines of code in each node compared to the total lines of code for the selected node and its subordinates.
Statements - PLSS	Number of logical lines of code in each node within the selected node and its subordinates. The logical lines of code are counted as: IDENTIFICATION DIVISION: Each line is counted. ENVIRONMENT DIVISION: Each line is counted. DATA DIVISION: Each line is counted. PROCEDURE DIVISION: Each line is counted.
% Total - PLSS	Percentage of the total number of logical lines of code in each node compared to the total number of statements for the selected node and its subordinates.
Totals - PLSS	Total of physical and logical lines of code for the selected node and its subordinates.
ID - SDIS	Name(s) of the node(s) selected to generate summary statistics.
Symbols - SDIS	Number of symbols in each node within the selected node and its subordinates.
% Total - SDIS	Percentage of the total number of symbols in each node compared to the total number of symbols in the selected node and its subordinates.
Data Items - SDIS	Number of data items in each node within the selected node and its subordinates.
Totals - SDIS	Totals for symbols and data items for the selected node and its subordinates.
ID - APS	Name (s) of the node(s) selected to generate summary statistics.

Field	Description
Program - APS	Number of programs in each node within the selected node and its subordinates.
% Total - APS	Percentage of the total number of programs in each node compared to the total number of programs in the selected node and its subordinates.
Affected - APS	Number of impacted programs in each node within the selected node and its subordinates.
% Total - APS	Percentage of the total number of impacted programs each node compared to the total number of impacted programs in the selected node and its subordinates.
% Affected - APS	Percentage of the total number of impacted programs compared to the total number of programs in the selected node and its subordinates.
Totals - APS	Totals for programs and impacted programs for the selected node and its subordinates.
ID - ADIPS	Name(s) of the node(s) selected to generate summary statistics.
Dataitems - ADIPS	Number of data items per program in each node within the selected node and its subordinates. This amount may not include unreferenced data items, Level 88 data items, or node levels, depending on options selected.
% Total - ADIPS	Name(s) of the node(s) selected to generate summary statistics.
Affected - ADIPS	Number of impacted data items per program in each node within the selected node and its subordinates.
% Total - ADIPS	Percentage of the total number of impacted data items in each node compared to the total number of impacted data items in the selected node and its subordinates.
% Affected - ADIPS	Percentage of the total number of impacted data items compared to the total number of data items in the selected node and its subordinates.
Totals - ADIPS	Totals for data items and impacted data items compared to the total number of data items in the selected node and its subordinates.
ID - ARS	Name(s) of the node(s) selected to generate summary statistics.

Field	Description
Data Item Refs - ARS	Number of data item references in copybooks and programs in each node within the selected node and its subordinates.
% Total - ARS	Percentage of the total number of data item references, in copybooks and programs, in each node compared to the total number of data item references in the selected node and its subordinates.
References Affected - ARS	Number of impacted statements in programs in each node within the selected node and its subordinates.
% Total - ARS	Percentage of the total number of impacted statements in programs in each node compared to the total number of impacted statements in programs within the selected node and its subordinates.
% Affected - ARS	Percentage of the total number of impacted statements compared to the total number of statements in the selected node and its subordinates.
Total - ARS	Totals for all statements and impacted statements for the node and subordinates.
ID - ICS	Name(s) of the node(s) selected to generate summary statistics.
Components - ICS	Number of impacted components in each node within the selected node and its subordinates.
% Total - ICS	Percentage of the total number of impacted components in programs in each node compared to the total number of impacted components in programs within the selected node and its subordinates.
Total - ICS	Totals for all impacted components for the selected node and its subordinates.

Summary Information Report: Statistic

Figure 86 shows the Summary Information - Language Statistics Totals report generated by Estimate.

Figure 86 • Summary Information Report Section 2 - Language Statistics Totals

```
ESTIMATE Rx.x LVL000                Summary Information Report                SUM
                              Application COBOL in Project YEAR2K
  Enterprise: CEXX                                              Page:          1
  Group Path: GROUP1                                            Date: DD-MMM-YYYY
 Application: COBOL                                             Time:    HH:MM:SS
                                                                  By:     VIAUSER
 ==================================================================================

  Application: COBOL

    Total Symbols: 197
    Data Symbols:  86


  Language Statistics:

    MVS-COBOL :
      Physical LOC  : 159
      Logical LOC   : 146
      Comment Lines : 7
```

This table describes the fields on the Summary Information - Language Statistics Totals Report.

Field	Description
Total Symbols	Total number of symbols for each application in the selected node.
Data Symbols	Total number of data symbols for each application in the selected node.
Physical LOC	Total number of physical lines of code for all applications in selected node, by language.
Logical LOC	Total number of logical lines of code for all applications in the selected node, by language.
Comment Lines	Total number of comment lines for all applications in the selected node, by language.

Summary Information Report: Affected Program and Dataitem Statistics

Figure 87 shows the Summary Information - Affected Program and Dataitem Statistics report generated by Estimate.

Figure 87 • Summary Information Report, Section 3 - Affected Program and Data Item Statistics

```
ESTIMATE Rx.x LVL000                    Summary Information Report                    SUM
                                     Application COBOL in Project YEAR2K
  Enterprise: CEXX                                                        Page:          1
  Group Path: GROUP1                                                   Date: DD-MMM-YYYY
 Application: COBOL                                                     Time:    HH:MM:SS
                                                                          By:     VIAUSER
==================================================================================

  Affected Program Counts by Language Statistics:

                         Total  Affected  % Affected
                       --------  --------  ----------
     MVS-COBOL.......        1         1      100.00
                       ========  ========  ==========
     Combined........        1         1      100.00


  Affected Data Item Statistics:
                                                          Included
                         Total  Affected  % Affected  Synonyms
                       --------  --------  ----------  --------
     From COPYs......        0         0        0.00         0
     From Programs...       86        71       82.56         7
                       ========  ========  ==========  ========
     Combined........       86        71       82.56         7


     Unreferenced....       69        59       85.51
     Referenced......       17        12       70.59


  Affected Data Item Activity:

                         Total  Affected  % Affected
                       --------  --------  ----------
     Uses............        9         7       77.78
     Modifications...       44        41       93.18
                       ========  ========  ==========
     Combined........       53        48       90.57


     Supplemental Data Item Information
                         Total  Affected  % Affected
                       --------  --------  ----------
     Arithmetic......        0         0        0.00
     Conditionals....        2         1       50.00
     SORTs...........        0         0        0.00
```

This table describes the fields on the Summary Information - Affected Program and Dataitem Statistics Report.

Field	Description
Total - APCLS	Total number of programs by language (COBOL, PL/I, Assembler, or other), for all applications in the selected node.
Affected - APCLS	Total number of impacted programs, by language, for all applications in the selected node.
% Affected - APCLS	Percentage of the total number of programs compared to the total number of impacted programs, by language, for all applications in the selected node.
Combined - APCLS	Total number of programs and impacted programs for all languages for all applications in the selected node. Also displays the sum of the percentages of impacted programs for all languages.
Total - ADIS	Total number of data items in copybooks, programs, and unreferenced and referenced data items in the selected node.
Affected - ADIS	Total number of impacted data items in copybooks, programs, and unreferenced and referenced data items in the selected node.
% Affected - ADIS	Percentage of the total number of data items compared to the total number of impacted data items in copybooks, programs, and unreferenced and referenced data items in the selected node.
Included Synonyms - ADIS	Total number of synonyms included in copybooks and programs in the selected node.
Combined - ADIS	Combined totals for Total number of data items, affected data items, and % affected data items from copybooks, programs, and unreferenced data items, in the selected node.
Unreferenced - ADIS	Total number of unreferenced data items, number of unreferenced data items affected, and % of unreferenced data items affected from copybooks and programs, in the selected node.
Referenced - ADIS	Total number of referenced data items, number of referenced data items affected, and % of referenced data items affected from copybooks and programs, in the selected node.

Field	Description
Total - ADIA	Total number of uses and modifications data items for the selected node.
Affected - ADIA	Total number of affected uses and modifications data items for the selected node.
% Affected - ADIA	Percentage of the total number of uses and modifications data items compared to those in the selected node.
Combined - ADIA	Combined totals for total number of data items, affected data items, and % affected data items for the selected node.
Total - SDII	Total number of Arithmetic expressions, conditionals statements, and sort statements for the selected node.
Affected - SDII	Total number of affected arithmetic expressions, conditionals statements, and sort statements for the selected node.
% Affected - SDII	Percentage of the total number of arithmetic expressions, conditionals statements, and sort statements compared to those in the selected node.

Summary Information Report: Affected Data Reference Statistics

Figure 88 shows the Summary Information - Affected Data Reference Statistics report generated by Estimate.

Figure 88 • Summary Information Report, Section 4 - Affected Data Reference by Program Statistics

```
ESTIMATE Rx.x LVL000                    Summary Information Report                        SUM
                                     Application COBOL in Project YEAR2K
  Enterprise: CEXX                                                          Page:           1
  Group Path: GROUP1                                                        Date: DD-MMM-YYYY
 Application: COBOL                                                         Time:    HH:MM:SS
                                                                              By:     VIAUSER
 ==========================================================================================

  Affected Data Reference by Program Statistics:

    MVS-COBOL :

     Program      Items    Uses    Mods    Cond   Arith    Sort   COPYs
     ----------  ------ ------- ------- ------- ------- ------- -------
     CLEAN           71       7      41       1       0       0       0
     ========== ======= ======= ======= ======= ======= ======= =======
     Tot:     1      71       7      41       1       0       0       0


 Impacted Components Counts:

   Name                              Total    Impacted  % Total
   -------------------------------  -------  --------  -------
   CSECT                                  1         0     0.00
   DD                                     2         1    50.00
   ENTRY                                  2         0     0.00
   FD/FILEVAR/DCB                         2         1    50.00
   LIBRARY                                1         0     0.00
   MEMBER                                 1         0     0.00
   PROGRAM/PROCEDURE/FUNCTION             1         1   100.00
   ================================ =======  ========  =======
   TOTALS                                10         3    30.00

 *******************************************************
 ** End of Summary for Node: COBOL
 *******************************************************
```

This table describes the fields on the Summary Information - Affected Data Reference Statistics Report.

Field	Description
Pgm ID - ADRPS	Program ID name from source code that contains impacted data references.
Items - ADRPS	Number of impacted data items in the program.
Uses - ADRPS	Number of times the impacted data items were referenced in the program.
Mods - ADRPS	Number of times the impacted data items were modified in the program.
Cond - ADRPS	Number of times the impacted data items were referenced in a conditional statement.
Arith - ADRPS	Number of times the impacted data items were referenced in a arithmetic statement.
Sort - ADRPS	Number of times the impacted data items were referenced in a sort statement.
COPYs - ADRPS	Number of impacted data items, in copybooks, used by the program.
Tot: - ADRPS	Total number of programs and totals for the previous data reference occurrences by language, within the selected node.
Name - ICC	Name of the component.
Total - ICC	Total number of components in the selected node.
Impacted - ICC	Total number of impacted components in the selected node.
% Total - ICC	Percentage of impacted components in the selected node.
Totals - ICC	Totals for number of components, number of impacted components, and percentage of impacted components in the selected node.

Dataitem Search Criteria Report

Figure 89 shows the Dataitem Search Criteria report generated by Estimate.

Figure 89 • Dataitem Search Criteria Report

```
ESTIMATE Rx.x LVL000              Dataitem Search Criteria Report
DSC
                                   Application APLCTN in Project Y2K
  Enterprise: NTRPRZ                                          Page:         1
  Group Path: N/A                                           Date: DD-MMM-YYYY
 Application: APLCTN                                         Time:    HH:MM:SS
                                                               By:     VIAUSER
==================================================================================

 CURRENT LANGUAGE: MVS-COBOL
 ROLE  SET   TYPE         STRING MASK OR DATAITEM
----------------------------------------------------------------------------------
 INCL  BASE  DATANAME     *-CENT
 INCL  BASE  DATANAME     *-DT*
 INCL  BASE  DATANAME     *CENTURY*
 INCL  BASE  DATANAME     *DATE*
 INCL  BASE  DATANAME     *GREGORIAN*
 INCL  BASE  DATANAME     *JULIAN*
 INCL  BASE  DATANAME     *YEAR*
 INCL  BASE  DATANAME     *YR*
 INCL  BASE  DATANAME     *YY*
 EXCL  BASE  DATANAME     *-D
 EXCL  BASE  DATANAME     *-DA
 EXCL  BASE  DATANAME     *-DAY*
 EXCL  BASE  DATANAME     *-DD*
 EXCL  BASE  DATANAME     *-DY*
 EXCL  BASE  DATANAME     *-M
 EXCL  BASE  DATANAME     *-MM*
 EXCL  BASE  DATANAME     *-MO*
 EXCL  BASE  DATANAME     *-MTH*
```

This table describes the fields on the Dataitem Search Criteria report.

Field	Description
Current Language	Indicates language for search criteria list.
Role	Indicates whether the search pattern is included or excluded from the list.
Set	Indicates whether criteria is Base or Application level.
Type	Indicates criteria type.

Base Cost Factors Report

Figure 90 shows the Base Cost Factors report generated by Estimate.

Figure 90 • Costing Factors Report - Base Cost Factors

```
ESTIMATE Rx.x LVL000              Costing Factors Report                      CFT
                                  Application BILLING in Project YEAR2K
 Enterprise: CEXX                                                  Page:        1
 Group Path: GROUP2                                             Date: DD-MMM-YYYY
Application: BILLING                                             Time:   HH:MM:SS
                                                                   By:    VIAUSER
==============================================================================

 Base Cost Factors :
     Unit of Cost  . . . . . .  USD
     Cost per CPU Hour . . . .  300.0000
 Timeline Duration :
     Number of Work Months : 12
```

This table describes the fields on the Base Cost Factors report.

Field	Description
Unit of Cost	Unit of cost currency type, such as U.S. dollars.
Cost per CPU Hour	The cost per each CPU hour that is required to complete the project.
Number of Work Months	Estimated time to complete the project.

Person Time Cost Factors

Figure 91 shows the Person Time Cost Factors report generated by Estimate.

Figure 91 • Costing Factors Report - Person Time Cost Factors

```
ESTIMATE Rx.x LVL000                  Costing Factors Report                  CFT
                                    Application BILLING in Project YEAR2K
 Enterprise: CEXX                                                  Page:        2
 Group Path: GROUP2                                              Date: DD-MM-YYYY
Application: BILLING                                             Time:   HH:MM:SS
                                                                   By:    VIAUSER
==============================================================================
 Person Time Cost Factors :

    Type of staff     Cost/       Hours/  Days/  % of
                      Hour        Day     Month  Responsibility
    ----------------  ----------  ------  -----  --------------
    MANAGEMENT           50.0000     8.0     22      20
    SR. PROGRAMMER       50.0000     8.0     22      20
    PROGRAMMER           35.0000     8.0     22      20
    JR. PROGRAMMER       20.0000     8.0     22      20
    CONSULTANT           45.0000     8.0     22      20
```

This table describes the fields on the Person Time Cost Factors report.

Field	Description
Type of staff	Type of staff assigned to the project.
Cost/Hour	Cost per hour for the type of staff.
Hours/Day	Hours per day the type of staff works on the project.
Days/Months	Days per month the type of staff works on the project.
% of Responsibility	Percentage of project work for which the type of staff is responsible.

Language Maintenance Factors

Figure 92 shows the Language Maintenance Factors report generated by Estimate.

Figure 92 • Costing Factors Report - Language Maintenance Factors

```
ESTIMATE Rx.x LVL000                Costing Factors Report                          CFT
                              Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                      Page:          3
  Group Path: GROUP2                                                  Date: DD-MMM-YYYY
 Application: BILLING                                                  Time:    HH:MM:SS
                                                                         By:     VIAUSER
==========================================================================================
 Language Maintainence Factors :

            Pgm Classifications (1=Easy, 5=Difficult) :  --1-- --2-- --3-- --4-- --5--
     MVS-ASSEMBLER    Number of Code Changes per Compile       25    20    15    10     5
                      Minutes to Change each Data Def/Pgm       3     5     8    10    12
                      Minutes to Change each Data Use/Pgm       6     8    11    13    15
                      Minutes to Change each Data Mod/Pgm      10    12    15    17    20
                      Minutes to Understand Program           120   240   480   600   720
                      Minutes to Create Test Data/Pgm         120   240   480   600   720
                      Minutes to Unit Test/Pgm                240   480   960  1440  1920
                      Minutes to System Test/Pgm              360   720  1440  2160  2880
     MVS-COBOL        Number of Code Changes per Compile       25    20    15    10     5
                      Minutes to Change each Data Def/Pgm       3     5     8    10    12
                      Minutes to Change each Data Use/Pgm       6     8    11    13    15
                      Minutes to Change each Data Mod/Pgm      10    12    15    17    20
                      Minutes to Understand Program           120   240   480   600   720
                      Minutes to Create Test Data/Pgm         120   240   480   600   720
                      Minutes to Unit Test/Pgm                240   480   960  1440  1920
                      Minutes to System Test/Pgm              360   720  1440  2160  2880
     MVS-PL/I         Number of Code Changes per Compile       25    20    15    10     5
                      Minutes to Change each Data Def/Pgm       3     5     8    10    12
                      Minutes to Change each Data Use/Pgm       6     8    11    13    15
                      Minutes to Change each Data Mod/Pgm      10    12    15    17    20
                      Minutes to Understand Program           120   240   480   600   720
                      Minutes to Create Test Data/Pgm         120   240   480   600   720
                      Minutes to Unit Test/Pgm                240   480   960  1440  1920
                      Minutes to System Test/Pgm              360   720  1440  2160  2880
     NATURAL          Number of Code Changes per Compile       25    20    15    10     5
                      Minutes to Change each Data Def/Pgm       3     5     8    10    12
                      Minutes to Change each Data Use/Pgm       6     8    11    13    15
                      Minutes to Change each Data Mod/Pgm      10    12    15    17    20
                      Minutes to Understand Program           120   240   480   600   720
                      Minutes to Create Test Data/Pgm         120   240   480   600   720
                      Minutes to Unit Test/Pgm                240   480   960  1440  1920
                      Minutes to System Test/Pgm              360   720  1440  2160  2880
     EASYTRIEVE       Number of Code Changes per Compile       25    20    15    10     5
                      Minutes to Change each Data Def/Pgm       3     5     8    10    12
                      Minutes to Change each Data Use/Pgm       6     8    11    13    15
                      Minutes to Change each Data Mod/Pgm      10    12    15    17    20
                      Minutes to Understand Program           120   240   480   600   720
                      Minutes to Create Test Data/Pgm         120   240   480   600   720
                      Minutes to Unit Test/Pgm                240   480   960  1440  1920
                      Minutes to System Test/Pgm              360   720  1440  2160  2880
     IDEAL            Number of Code Changes per Compile       25    20    15    10     5
                      Minutes to Change each Data Def/Pgm       3     5     8    10    12
                      Minutes to Change each Data Use/Pgm       6     8    11    13    15
                      Minutes to Change each Data Mod/Pgm      10    12    15    17    20
                      Minutes to Understand Program           120   240   480   600   720
                      Minutes to Create Test Data/Pgm         120   240   480   600   720
                      Minutes to Unit Test/Pgm                240   480   960  1440  1920
                      Minutes to System Test/Pgm              360   720  1440  2160  2880
     FORTRAN          Number of Code Changes per Compile       25    20    15    10     5
                      Minutes to Change each Data Def/Pgm       3     5     8    10    12
                      Minutes to Change each Data Use/Pgm       6     8    11    13    15
                      Minutes to Change each Data Mod/Pgm      10    12    15    17    20
                      Minutes to Understand Program           120   240   480   600   720
                      Minutes to Create Test Data/Pgm         120   240   480   600   720
                      Minutes to Unit Test/Pgm                240   480   960  1440  1920
                      Minutes to System Test/Pgm              360   720  1440  2160  2880
```

This table describes the fields on the Language Maintenance Factors report.

Field	Description
Pgm Classifications	Degree of program difficulty in understanding and making changes. Program Classification Factors and Program Classification Formula determine program class designation.
Language	Language type of the program.
Number of Code Changes per Compile	Number of code changes made before executing a compile.
Minutes to Change Data Definitions	Estimated number of minutes needed to change a program's data definitions.
Minutes to Change Data Use	Estimated number of minutes needed to change a program's data references.
Minutes to Change Data Modifications	Estimated number of minutes needed to change a program's data manipulation, such as a calculation.
Minutes to Understand Program	Estimated number of minutes to understand a program and any program algorithms based on program class.
Minutes to Create Test Data	Estimated number of minutes to create test data based on program class.
Minutes to Unit Test	Estimated number of minutes needed to unit test based on program class.
Minutes to System Test	Estimated number of minutes needed to system test based on program class.

Component Maintenance Factors

Figure 93 shows the Component Maintenance Factors report generated by Estimate.

Figure 93 • Component Maintenance Factors

```
ESTIMATE Rx.x LVL000                Costing Factors Report                    CFT
                                 Application BILLING in Project YEAR2K
 Enterprise: CEXX                                                Page:        4
 Group Path: GROUP2                                            Date: DD-MMM-YYYY
Application: BILLING                                            Time:   HH:MM:SS
                                                                  By:    VIAUSER
==============================================================================
 Component Maintainence Factors :

                Component Name                Time to Modify (In Minutes)
     ---------------------------------------- --------------
     AREA                                                15
     CATALOG                                             15
     CICS-TRANSACTION                                    15
     COLUMN                                              15
     COPYMEMBER/INCLUDE                                  15
     CSD                                                 15
     CSECT                                               15
     CURSOR                                              15
     DATABASE                                            15
     DATAITEM                                            15
     DBD                                                 15
     DD                                                  15
     DSN                                                 15
     ENTRY                                               15
     FCT                                                 15
     FCTCSD                                              15
     FD/FILEVAR/DCB                                      15
     IDMS                                                15
     IDMSMAP                                             15
     IDMSRECORD                                          15
     IMS-FORMAT                                          15
     IMS-TRANSACTION                                     15
     IMSDYNALLOCMACRO                                    15
     JOB                                                 15
     LIBRARY                                             15
     LOADMODULE                                          15
     LOGICALRECORD                                       15
     MAP                                                 15
     MAPFIELD                                            15
     MAPSET                                              15
     MEMBER                                              15
     PCB                                                 15
     PCT                                                 15
     PPT                                                 15
     PROC                                                15
     PROGRAM/PROCEDURE/FUNCTION                          15
     PSB                                                 15
     RECORD/DSECT/STRUCTURE                              15
     SCHEMA                                              15
     SEGFIELD                                            15
     SEGMENT                                             15
```

This table describes the fields on the Component Maintenance Factors report.

Field	Description
Component Name	The name of the component.
Time to Modify (In Minutes)	The estimated number of minutes required to make a change to the component.

CPU Time Estimation Factors

Figure 94 shows the CPU Time Estimation Factors report generated by Estimate.

Figure 94 • Costing Factors Report - CPU Time Estimation Factors

```
ESTIMATE Rx.x LVL000              Costing Factors Report                      CFT
                                   Application BILLING in Project YEAR2K
 Enterprise: CEXX                                                  Page:        5
 Group Path: GROUP2                                             Date: DD-MMM-YYYY
Application: BILLING                                             Time:   HH:MM:SS
                                                                   By:    VIAUSER
==============================================================================
 CPU Time Estimation Factors

 CPU Seconds per Program Lines of Code (LOC) and Task:

                Program       Precompile/       Execute       Execute
             Lines of Code    Compile/Link     Unit Test     System Test
             -------------    ------------     ---------     -----------
                To   1 K                1             1               4
                To   2 K                1             1               4
                To   3 K                1             1               4
```

This table describes the fields on the CPU Time Estimation Factors report.

Field	Description
Program Lines of Code	Estimated number of physical lines of code used to measure CPU seconds needed to compile, link, and test changes.
Precompile/Compile/Link	Estimated number of CPU seconds needed to compile and link the associated estimated number of program lines of code.
Execute Unit Test	Estimated number of CPU seconds needed to unit test a program that has been changed.
Execute System Test	Estimated number of CPU seconds needed to system test program in an application that has been changed.

Program Classification Factors

Figure 95 shows the Program Classification Factors report generated by Estimate.

Figure 95 • Costing Factors Report - Program Classification Factors

```
ESTIMATE Rx.x LVL000                    Costing Factors Report                              CFT
                                 Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                          Page:          6
  Group Path: GROUP2                                                       Date: DD-MMM-YYYY
 Application: BILLING                                                      Time:    HH:MM:SS
                                                                             By:     VIAUSER
==================================================================================
 Program Classification Factors

      +-------------------------------------------------------------------------+
      |                                  |                W E I G H T              |
      | M E T R I C                      |   1     |   2     |   3     |   4     |  5  |
      +==========================+=========+=========+=========+=========+=========+=====+
      | Software Science Volume     (SSV) |    3000 |    7450 |   14900 |   33500 |  >  |
      | Cyclomatic Complexity       (CC ) |     100 |     250 |     400 |     500 |  >  |
      | Essential Complexity        (EC ) |       1 |       5 |      14 |      24 |  >  |
      | Knots Count                 (KC ) |       1 |       7 |      23 |      63 |  >  |
      | Control Variable            (CV ) |     180 |     450 |     675 |     800 |  >  |
      | Physical Lines of Code      (LOC) |     420 |    1220 |    3300 |    7830 |  >  |
      | Live Exits                  (LE ) |       0 |       1 |       2 |       3 |  >  |
      | Recursion                   (REC) |       0 |       1 |       3 |       4 |  >  |
      | Out-of-perform Jumps        (OPJ) |       0 |       5 |      12 |      23 |  >  |
      | Alters                      (ALT) |       0 |       1 |       2 |       5 |  >  |
      | Gotos                      (GOS) |     100 |     200 |     300 |     400 |  >  |
      | Entries                     (ENT) |       1 |       2 |       4 |       5 |  >  |
      | Exits                       (EXT) |       1 |       2 |       3 |       5 |  >  |
      | Dead Code                   (DC ) |       0 |       2 |       5 |       8 |  >  |
      | Dead Data                   (DD ) |      20 |      40 |      60 |     100 |  >  |
      +-------------------------------------------------------------------------+
```

This table describes the fields on the Program Classification Factors Report.

Field	Description
Metric	Name of the metric type and its acronym, used in estimating the program classification factor.
Weight	Weight designation indicating the upper boundary of the value range for acceptability at that weight for the metric type. This designation is displayed as entered on the Program Classification Factors screen.

Understanding Metrics

Metrics are a measure of program quality or complexity. Program classification factors are a set of values calculated by assigning a COBOL program's metrics to a number on a metrics table. The metrics represent the program's maintainability as measured by complexity, size, and structure. Use the metric to simplify the Program Classification Formula. This formula determines the program's Classification index of 1 through 5.

The Program Classification Factors option displays the weight designation for each metric type used in estimating the Program Classification factor. Weight designation indicates the upper boundary of the value range for acceptability at that weight for the metric type. This designation is displayed as entered on the Program Classification Factors screen.

Program Classification Formula

Figure 96 shows the Program Classification Formula report generated by Estimate.

Figure 96 • Costing Factors Report - Program Classification Formula

```
ESTIMATE Rx.x LVL000            Costing Factors Report                        CFT
                              Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                Page:         7
  Group Path: GROUP2                                            Date: DD-MMM-YYYY
 Application: BILLING                                            Time:   HH:MM:SS
                                                                   By:    VIAUSER
==============================================================================
 Program Classification Formula :

                            Cyclomatic Complexity * Software Science Volume
                            + Essential Complexity * Essential Complexity *
Software Science Volume
                            + Knots Count * Software Science Volume
                            + Live Exits * Live Exits * Software Science Volume
                            + Recursion * Software Science Volume
                            + Out-of-perform Jumps
                            + Alters
                            + Gotos
                            + Entries
                            + Exits   Exits
```

This table describes the fields on the Program Classification Formula report.

Field	Description
Program Classification Formula	Program Classification Formula represents the data entered on the Program Classification Formula screen stated in an arithmetic expression.

Default Language Classifications

Figure 97 shows the Default Language Classifications report generated by Estimate.

Figure 97 • Costing Factors Report - Default Language Classification

```
ESTIMATE Rx.x LVL000                Costing Factors Report                    CFT
                                  Application BILLING in Project YEAR2K
 Enterprise: CEXX                                                 Page:        8
 Group Path: GROUP2                                            Date: DD-MMM-YYYY
Application: BILLING                                            Time:   HH:MM:SS
                                                                  By:    VIAUSER
==============================================================================
 Default Language Classifications

     Language          Program Classification
     MVS-ASSEMBLER     3.0
     MVS-COBOL         3.0
     MVS-PL/I          3.0
     NATURAL           3.0
     EASYTRIEVE        3.0
     IDEAL             3.0
     FORTRAN           3.0
```

This table describes the fields on the Default Language Classifications report.

Field	Description
Language	The language type.
Program Classification	The default program classification value for the language.

Classification Factors Report

Figure 98 shows the Classification Factors - Program Classification Factors report generated by Estimate.

Figure 98 • Classification Factors Report - Program Classification Factors

```
ESTIMATE Rx.x LVL000                Program Classification Factors Report                 CLS
                                       Enterprise CEXX in Project YEAR2K
  Enterprise: CEXX                                                          Page:          1
  Group Path: N/A                                                          Date: DD-MMM-YYYY
 Application: N/A                                                          Time:    HH:MM:SS
                                                                             By:     VIAUSER
==========================================================================================

      +-------------------------------------------------------------------------------+
      |                                  |                W E I G H T                  |
      | M E T R I C                      |    1     |    2     |    3     |    4     |  5  |
      +==========================+=========+=========+=========+=========+=========+=====+
      | Software Science Volume      (SSV) |     3000 |     7450 |    14900 |    33500 |  >  |
      | Cyclomatic Complexity        (CC ) |      100 |      250 |      400 |      500 |  >  |
      | Essential Complexity         (EC ) |        1 |        5 |       14 |       24 |  >  |
      | Knots Count                  (KC ) |        1 |        7 |       23 |       63 |  >  |
      | Control Variable             (CV ) |      180 |      450 |      675 |      800 |  >  |
      | Physical Lines of Code       (LOC) |      420 |     1220 |     3300 |     7830 |  >  |
      | Live Exits                   (LE ) |        0 |        1 |        2 |        3 |  >  |
      | Recursion                    (REC) |        0 |        1 |        3 |        4 |  >  |
      | Out-of-perform Jumps         (OPJ) |        0 |        5 |       12 |       23 |  >  |
      | Alters                       (ALT) |        0 |        1 |        2 |        5 |  >  |
      | Gotos                       (GOS) |      100 |      200 |      300 |      400 |  >  |
      | Entries                      (ENT) |        1 |        2 |        4 |        5 |  >  |
      | Exits                        (EXT) |        1 |        2 |        3 |        5 |  >  |
      | Dead Code                    (DC ) |        0 |        2 |        5 |        8 |  >  |
      | Dead Data                    (DD ) |       20 |       40 |       60 |      100 |  >  |
      +-------------------------------------------------------------------------------+
```

This table describes the fields on the Classification Factors - Program Classification Factors report.

Field	Description
Metric	Name of the metric type and its acronym, used in estimating the program classification factor.
Weight	Weight designation indicating the upper boundary of the value range for acceptability at that weight for the metric type. This designation is displayed as entered on the Program Classification Factors screen.

Program Classification Formula

Figure 99 shows the Classification Factors - Program Classification Formula report generated by Estimate.

Figure 99 • Classification Factors Report - Program Classification Formula

```
ESTIMATE Rx.x LVL000          Program Classification Factors Report              CLS
                                     Enterprise CEXX in Project YEAR2K
  Enterprise: CEXX                                                 Page:         2
  Group Path: N/A                                               Date: DD-MMM-YYYY
 Application: N/A                                                Time:   HH:SS:MM
                                                                   By:    VIAUSER
================================================================================

 Program Classification Formula :

                              Cyclomatic Complexity * Software Science Volume
                              + Essential Complexity * Essential Complexity *
Software Science Volume
                              + Knots Count * Software Science Volume
                             + Live Exits * Live Exits * Software Science Volume
                              + Recursion * Software Science Volume
                              + Out-of-perform Jumps
                              + Alters
                              + Gotos
                              + Entries
                              + Exits   Exits
```

This table describes the fields on the Classification Factors - Program Classification Formula report.

Field	Description
Program Classification Formula	Represents the data entered on the Program Classification Formula screen stated in an arithmetic expression.

Program Classification Factors Report

Figure 100 shows the Classification Factors - Classified Programs report generated by Estimate.

Figure 100 • Classification Factors Report - Classified Program Report

```
ESTIMATE Rx.x LVL000          Program Classification Factors Report              CLS
                                     Enterprise CEXX in Project YEAR2K
  Enterprise: CEXX                                                  Page:         3
  Group Path: N/A                                                 Date: DD-MMM-YYYY
 Application: N/A                                                  Time:   HH:MM:SS
                                                                     By:    VIAUSER

==============================================================================

 Program    Class   SSV  CC   EC   KC   CV   LOC  LE   REC  OPJ  ALT  GOS  ENT  EXT  DC   DD
========= =======  ===  ===  ===  ===  ===  ===  ===  ===  ===  ===  ===  ===  ===  ===  ===
 CLEAN     1 (1.0)   1    1    1    1    1    1    1    1    1    1    1    1    1    1    1
 VIASTP01  1 (1.2)   2    1    1    1    1    1    2    2    2    1    1    1    2    5    1
 VIASTP02  1 (1.0)   1    1    1    1    1    1    1    1    1    1    1    1    1    2    1
 VIASTP04  1 (1.2)   2    1    1    1    1    1    2    2    2    1    1    1    2    5    1
 VIASTP05  1 (1.0)   1    1    1    1    1    1    1    1    1    1    1    1    1    2    1
 VIASTP07  1 (1.0)   1    1    2    2    1    1    1    1    1    1    1    1    1    1    1
 VIASTP08  2 (2.3)   5    2    4    3    2    3    1    1    2    1    1    1    4    3    2
 VIASTP09  1 (1.2)   2    1    2    3    1    2    1    1    3    1    1    1    1    1    5
 VIASTP10  2 (1.9)   5    2    3    3    2    3    1    1    3    1    1    1    1    5    2
 VIASTP11  3 (2.6)   4    2    5    5    2    4    1    1    4    1    1    1    2    3    5
 VIASTP12  3 (3.0)   5    2    5    5    3    4    1    1    1    1    1    1    5    3    5
 VIASTP13  3 (3.0)   5    2    5    5    4    5    1    1    2    1    1    2    4    3    5
```

This table describes the fields on the Classification Factors - Classified Programs report.

Field	Description
Program	Name (ID name) of program being classified.
Class	Program class calculated for the specific program.

Field	Description
Metric Values	Metric values calculated for the specific program using the Program Classification Factors and Formula. These are definitions for the codes used above: • SSV = Software Science Volume • CC = Cyclomatic Complexity • EC = Essential Complexity • KC = Knots Count • CV = Control Variable • LOC = Physical Lines Of Code • LE = Live Exits • REC = Recursion • OPJ = Out-of-Perform Jumps • ALT = Alters • GOS = GO TOs • ENT = Entries • EXT = Exits • DC = Dead Code • DD = Dead Data

Engineering Cost Summary Report

Figure 101 and Figure 102 on page 203 show the Engineering Cost Summary report generated by Estimate.

Figure 101 • Engineering Cost Summary Report (1)

```
ESTIMATE Rx.x LVL000                          Engineering Cost Summary Report                                  CST
                                            Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                                                   Page:          1
  Group Path: GROUP2                                                                               Date: DD-MMM-YYYY
 Application: BILLING                                                                              Time:    HH:MM:SS
                                                                                                     By:     VIAUSER
 ==========================================================================================================================

 Values less than 0.1 are rounded to 0.1 for display but are accurately summed
 Percentages less than 1 are rounded to 1 for display but are accurately tallied

       Item   Pgm  All  Impact  # of  ---------- Person Hours ---------  ----- CPU Hours --------  ------- Totals -----------
 Item    Type  Class  Defns  Defns Makes   Change  MakData  UntTest  SysTest   Makes  UntTest  SysTest   Person Hrs   CPU Hrs
 ---------- ----  ----- ------ ------ -----  ------- -------- -------- --------  ------- -------- --------  -----------
----------
 VIASTP01  COB     1     11     10     1      3.2      2.0      4.0      6.0      0.1      0.1      0.1       15.2      0.1
 VIASTP02  COB     1      1      1     1      2.0      2.0      4.0      6.0      0.1      0.1      0.1       14.0      0.1
 VIASTP04  COB     1      8      8     1      2.9      2.0      4.0      6.0      0.1      0.1      0.1       14.9      0.1
 VIASTP07  COB     1     10      7     1      2.7      2.0      4.0      6.0      0.1      0.1      0.1       14.7      0.1
 VIASTP08  COB     2     82     60     6     17.7      4.0      8.0     12.0      0.1      0.1      0.1       41.7      0.1
 VIASTP09  COB     1     15      5     1      3.0      2.0      4.0      6.0      0.1      0.1      0.1       15.0      0.1
 VIASTP10  COB     2     72     64     5     15.7      4.0      8.0     12.0      0.1      0.1      0.1       39.7      0.1
 VIASTP11  COB     3    216     75     9     32.0      8.0     16.0     24.0      0.1      0.1      0.1       80.0      0.1
 VIASTP12  COB     3    122     22     3     15.7      8.0     16.0     24.0      0.1      0.1      0.1       63.7      0.1
 VIASTP13  COB     3    171     62     9     32.9      8.0     16.0     24.0      0.1      0.1      0.1       80.9      0.1
 ======== ====  ===== ====== ====== =====  ======= ======== ======== ========  ======= ======== ========  ========== ========
 Totals:                708    314    37    128.1     42.0     84.0    126.0      0.1      0.1      0.1       380.1      0.1
 Averages:         2     71     31     4     12.8      4.2      8.4     12.6      0.1      0.1      0.1        38.0      0.1
 Percent of Total:                          34%      11%      22%      33%       0%       0%       0%        100%       0%

 Cost Totals:                              5123     1680     3360     5040        4        1        4       15203        9
 Cost Averages:                             512      168      336      504        0        0        0        1520        1
 Cost Percent of Total:                     34%      11%      22%      33%       0%       0%       0%        100%       0%


 Component Type                   Total Impacted  Person Hours  Cost
 ==============================  ==============  ============  ============
 DD                                           12           3.0        120.0
 ENTRY                                         1           0.3         10.0
 FD/FILEVAR/DCB                                8           2.0         80.0
 MAP                                           1           0.3         10.0
 MEMBER                                        1           0.3         10.0
 PROGRAM/PROCEDURE/FUNCTION                    9           2.3         90.0


 Summary of Impacted Components :
 Total Impacted Components : 32
 Total Person Hours        : 8.0
 Total Component Cost      : 320.0
```

This table describes the fields on the Engineering Cost Summary report.

Field	Description
Item	Program ID name.
Item Type	Language of the affected program.

Field	Description
Pgm Class	Program classification
All Defns	Total number of impacted data items in the program. This count includes referenced and unreferenced impacted data items.
Impact Defns	Total number of impacted data items that are referenced in the program. **Note:** If unreferenced data items were not included in the Candidate Dataname Generation options, the count in the All Defns field equals the count in the Impact Defns field.
# of Makes	Program preparations (i.e., number of compiles/links) needed to make the required changes to the program, based on your entries to the Person Time Estimation Factors pop-up and your engineering strategy for this project. Computed as: • # of affected data declarations to change = Impact Defns * % of affected data declarations to change, based on your engineering strategy for this project. • # of affected procedural lines to change = Total # of references and modifications of impacted data items in the program * % of affected procedural lines to change, based on your engineering strategy for this project. • # of Source code changes per program compile assembly, as entered on the Person Time Estimation Factors pop-up.
Person Hours	Estimated number of hours that is required for a programmer to code and compile changes, create test data, and test the changes, based on your entries to the Person Time Estimation Factors pop-up.

Field	Description
Person Hours - Change	Number of person hours needed to make the required changes to the program. This is computed as: • Time to understand the program + Time to make the changes • Time to understand the program, as entered in the Person Time Estimation Factors pop-up. (Based on the program classification.) • Time required to make the changes. This is computed as: — (# of Affected Data Declarations to change + Time to locate and change program data definition +) — (# of Affected Uses to change * Time to locate and change Program Data Uses) + — (# of Affected Modifications to change * Time to locate and change program data modification) — # of Affected Data Declarations to change = Impact Defns * % of Affected Data Declarations to change, based on the engineering strategy for this project. • Time to locate and change program data definition, as entered on the Person time Estimation Factors pop-up. This is computed as: — # of Affected References to change = Total # of references of impacted dataitems in the program * % of Affected procedural lines to change, based on the engineering strategy for this project. • Time to locate and change program data modification, as entered on the Person time Estimation Factors pop-up. This is computed as: — # of affected modifications to change = Total # of modifications of impacted data items in the program *% of affected procedural lines to change, based on the engineering strategy for this project. • Time to locate and change program data modification, as entered on the Person time Estimation Factors pop-up.
Person Hours - MakData	Number of person hours needed to create test data for the program, based on your entries to the Person Time Estimation pop-up.

Field	Description
Person Hours - UntTest	Number of person hours needed to system test data the changed program, based on your entries to the Person Time Estimation pop-up.
Person Hours - SysTest	Estimated number of person hours needed to system test the changed program, based on your entries to the CPU Estimation Factors pop-up.
CPU Hours	Estimated number of CPU hours required for a programmer to compile and test the changes, based on your entries to the CPU Estimation Factors pop-up.
CPU Hours - Makes	Number of CPU hours required to execute the number of makes. This is computed as: • # of Makes * CPU Hours per Make CPU hours per make, determined by the number of program lines of code specified on the CPU Time Estimation Factors pop-up.
CPU Hours - UntTest	Number of CPU hours required to unit test the changed program, as entered on the CPU Time Estimation Factors pop-up.
CPU Hours - SysTest	Number of CPU hours required for system testing the changed program, as entered on the CPU Time Estimation Factors pop-up.
Totals - Person Hrs	Total number of estimated hours a programmer needs to complete the various tasks of coding and testing changes.
Totals - CPU Hrs	Total number of estimated CPU hours needed to test the changes.
Totals	Total number of estimated hours, for each of the individual counts, for all programs within the application.
Averages	Averages of estimated hours based on the estimated totals divided by the number of programs within the application.
Percent of Total	Percentage of the total number of each individual column total under person hours compared to the total number of person hours for all items. Also displays the same for CPU Hours. For example: Change Total / Person Hrs Total = Percent of Total OR 13.6 / 22.4 = 60%

Field	Description
Cost Totals	Total cost per person hours and CPU hours based on cost per person hour and cost per CPU hour. For example: Cost per person hour X person hours total for changes = Total cost for person hour change or 50.0000 x 13.6 = 680
Cost Averages	Average cost for person hours and CPU hours, based on total cost divided by the number of items.
Cost Percent of Total	Percentage of the total cost. Calculated by dividing each person hour and CPU hour total by the combined totals of person hours and CPU hours.
Component Type	Item in the application, such as a COBOL source library or a load module library.
Total Impacted	Total number of impacted component occurrences in the application for the component type.
Person Hours	Estimated number of hours required to modify the impacted components in the application for the component type.
Cost	Estimated cost to modify the impacted components in the application for the component type.
Total Impacted Components	Total number of impacted components in the application.
Total Person Hours	Total number of estimated person hours required to modify all impacted components in the application.
Total Component Cost	Total estimated cost to modify all impacted components in the application.

Figure 102 • Engineering Cost Summary Report (2)

```
ESTIMATE Rx.x LVL000             Engineering Cost Summary Report                    CST
                                  Application BILLING in Project YEAR2K
  Enterprise: CEXX                                                        Page:         2
  Group Path: GROUP2                                                   Date: DD-MMM-YYYY
 Application: BILLING                                                   Time:   HH:MM:SS
                                                                          By:    VIAUSER

==================================================================================
 Timeline Report for BILLING
 ---------------------------------

 Timeline Factors:
     Effective Hours per Day .......          8.0
     Work Days per Month ...........           22

 Timeline Basis:
     Calendar months in timeline ...           12

 Timeline Impacts:
     Work Hours of Impact ..........       388.07
     Work Days of Impact ...........        48.51
     Work Months of Impact .........         2.20

 Resource Load ASG-Estimate:
     Work days in timeline .........       264.00
     Number of People Required .....         0.18


 Summary for Node : GROUP2

           Person Hours  Person Hours Cost    CPU Hours    CPU Hours Cost       Total Cost
     ------------ ----------------- ------------ ----------------- -------------------
 Dataitems  :        380.1          15202.7         0.1             9.2          15211.8
 Components :          8.0            320.0                                        320.0
----- ------------ ----------------- ------------ ----------------- -------------------
 Total Cost :        388.1          15522.7         0.1             9.2          15531.8


Timeline Report for GROUP2
 ---------------------------------

 Timeline Impacts:
     Work Hours of Impact ..........       388.07
     Work Days of Impact ...........        48.51
     Work Months of Impact .........         2.20
```

This table describes the fields on the Engineering Cost Summary report.

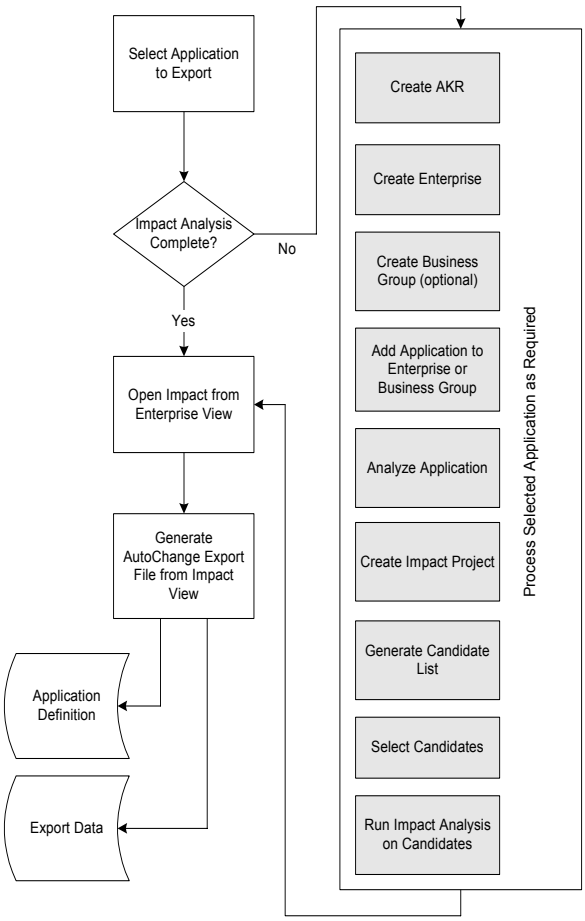
Field	Description
Effective Hours per Day	Effective hours per day, as entered on the base cost factors pop-up.
Work Days per Month	Work days per month, as entered on the base cost factors pop-up.

Field	Description
Calendar months in timeline	Estimated number of months required to complete the project.
Projected Start Date	Projected start date of the conversion project. (Not shown on this report.)
Projected Finish Date	Projected finish date of the conversion project. (Not shown on this report.)
Calendar days in timeline	Number of days available between the start and finish dates. (Not shown on this report.)
Work Hours of Impact	Total number of person hours.
Work Days of Impact	Work hours of impact divided by effective hours per day.
Work Months of Impact	Work days of impact divided by work days per month.
Work days in timeline	Effective hours per day divided by work days per month.
Number of People Required	Work hours of Estimate divided by (work days in time line multiplied by effective hours per day).
Person Hours	Estimated number of person hours required to modify the impacted entities in the application for the entity type (Dataitems and Components).
Person Hours Cost	Total cost of person hours based on cost per person hour. For example: Cost per person hour X Person Hours total for changes = Person Hour Cost
CPU Hours	Estimated number of CPU hours required to modify the impacted entities in the application for the entity type (Dataitems and Components).
CPU Hours Cost	Total cost of CPU hours based on cost per CPU hour. For example: Cost per CPU hour X CPU Hours total for changes = CPU Hour Cost
Total Cost	Total combined cost of person and CPU hours
(Total) Total Cost	Grand total for both dataitems and components.

Appendix D
AutoExport for AutoChange

Estimate allows you to export an application definition and its impacted data items to AutoChange. To open an existing impact or create a new impact see "Creating an Impact Project" on page 46. How you use this feature depends on your needs and preferences. In some cases, the export function may be the last step in your Estimate impact analysis. In other cases, you may complete the Estimate impact analysis and export the data later. Figure 103 shows how this feature is used.

Figure 103 • Overview of Export to AutoChange



To export an impacted project to AutoChange

1. From the Estimate primary screen, open the Enterprise containing the application you want to export.

2. From the Enterprise View screen, select Project on the action bar.

3. Select Project ▸ Open Impact and press Enter to display the Open Impact pop-up, shown in Figure 104.

Figure 104 • Open Impact Pop-up

```
                                  Open Impact
Command ===> _____________________________________________ Scroll ===> CSR

Select the Impact to open and press Enter.

  Name     Full Name                 Type Description
- -------- ------------------------- ---- ---------------------------------
_ Y2KIMPAC                           Y2K
_ TTGY2K                             Y2K
****************************** BOTTOM OF DATA ****************************
```

4. Select the Impact you want to export for use by AutoChange and press Enter. The Impact View screen displays, shown in Figure 105.

Figure 105 • Impact View Screen

```
 File  Edit  View  TaskManager  Generate  Costing  Options  Help
-------------------------------------------------------------------------------
                            Impact View - Y2KIMPAC
Command ===> ____________________________________________ Scroll ===> CSR

Language : MVS-COBOL
                                                              (Node 1 of 10)
TTG-ENT                                                            ENTERPRISE
|--> RWONLY                                                      APPLICATION
|--> ALEX01                                                      APPLICATION
|--> EZT                                                         APPLICATION
|--> GRIYO                                                             GROUP
|    |--> APPNODE1                                               APPLICATION
|--> VIAJFC                                                      APPLICATION
|--> VIAMJH                                                      APPLICATION
|--> VIAABC                                                      APPLICATION
|--> IDEMO                                                       APPLICATION
****************************** BOTTOM OF DATA ******************************
```

5 Select Generate ▶ AutoChange export file and press Enter to display the Generate Impact export for ASG-AutoChange pop-up, shown in Figure 106.

Figure 106 • Generate Impact Export for ASG-AutoChange Pop-up

```
  Batch  Options  Help
-----------------------------------------------------------------------
              Generate Impact Export for ASG-AutoChange
Command ===> _________________________________________________________

Impact : EN50TEST                      Application : BILLING

Application definition:

   Data set name . . 'VIAJFC.EXPORT.DEF'
   Member name . . . BILLING

Export data:

   Data set name . . 'VIAJFC.EXPORT.DATA'
   Member name . . . BILLING

Select Batch to generate the Impacted Components
```

6 In the fields following Application definition, type the target dataset and Member names for the application definition.

7 In the fields following Export data, type the target dataset and Member names for the application data.

Note:

All dataset names must be fully qualified.

8 From the Batch menu choose one of these actions:

To	Select	Resulting action
Export the impact	Submit job	Batch job is scheduled. Look for message that job was submitted.
Edit JCL	Edit job	JCL edit facility displays (Figure 107).

Figure 107 • JCL Edit facility

```
EDIT       VIAJFC.T121108.VIAJCL(VIAJCL) - 01.00          Columns 00001 00072
Command ===> _                                               Scroll ===> CSR
000005 //*
000006 //VIAJEXCV PROC SYSOUT='*',            PRINT OUTPUT CLASS
000007 //         SYSDA='SYSDA',              WORK FILE UNIT NAME
000008 //         VIASOFT='VIAINST',          ASG HI-LVL NODES
000009 //         CENTER='CE50T001'           ASG MIDDLE NODES
000010 //*
000011 //*************************************************************************
000012 //* EXECUTE ASG-ESTIMATE EXPORT PROGRAM.
000013 //*************************************************************************
000014 //VIAJPLEX EXEC PGM=VIAJPLEX,REGION=6000K,PARM=''
000015 //STEPLIB  DD  DSN=&VIASOFT..&CENTER..LOADLIB,DISP=SHR
000016 //VIAARPT  DD  SYSOUT=&SYSOUT
000017 //VIAPRINT DD  SYSOUT=&SYSOUT
000018 //VIALOG   DD  SYSOUT=&SYSOUT
000019 //SYSPRINT DD  SYSOUT=&SYSOUT
000020 //VIAUT2   DD  UNIT=&SYSDA,SPACE=(CYL,(10,5))
000021 //SYSIN    DD  DDNAME=SYSIN
000022 //*
000023 //         PEND
000024 //*
```

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