

11i Overview of Oracle Quality Management

Student Guide

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Preface

Profile

Before You Begin This Course

Before you begin this course, you should have the following qualifications:

- Thorough knowledge of inventory and shop floor processes
- Working experience with manufacturing production processes

Prerequisites

- There are no prerequisites for this course.

How This Course Is Organized

11i Overview of Oracle Quality Management is a Net Class course featuring lecture and hands-on exercises.

Related Publications

Oracle Publications

- System release bulletins
- Installation and user's guides
- read.me files
- Oracle Magazine

Typographic Conventions

Typographic Conventions in Text

Convention	Element	Example
Bold italic	Glossary term (if there is a glossary)	The <i>algorithm</i> inserts the new key.
Caps and lowercase	Buttons, check boxes, triggers, windows	Click the Executable button. Select the Can't Delete Card check box. Assign a When-Validate-Item trigger to the ORD block. Open the Master Schedule window.
Courier new, case sensitive (default is lowercase)	Code output, directory names, filenames, passwords, pathnames, URLs, user input, usernames	Code output: <code>debug.set ('I', 300);</code> Directory: <code>bin (DOS), \$FMHOME (UNIX)</code> Filename: Locate the <code>init.ora</code> file. Password: User <code>tiger</code> as your password. Pathname: Open <code>c:\my_docs\projects</code> URL: Go to <code>http://www.oracle.com</code> User input: Enter <code>300</code> Username: Log on as <code>scott</code>
Initial cap	Graphics labels (unless the term is a proper noun)	Customer address (<i>but</i> Oracle Payables)
Italic	Emphasized words and phrases, titles of books and courses, variables	Do <i>not</i> save changes to the database. For further information, see <i>Oracle7 Server SQL Language Reference Manual</i> . Enter <code>user_id@us.oracle.com</code> , where <i>user_id</i> is the name of the user.
Quotation marks	Interface elements with long names that have only initial caps; lesson and chapter titles in cross-references	Select "Include a reusable module component" and click Finish. This subject is covered in Unit II, Lesson 3, "Working with Objects."
Uppercase	SQL column names, commands, functions, schemas, table names	Use the SELECT command to view information stored in the LAST_NAME column of the EMP table.

Convention	Element	Example
Arrow	Menu paths	Select File—> Save.

Brackets	Key names	Press [Enter].
Commas	Key sequences	Press and release keys one at a time: [Alternate], [F], [D]
Plus signs	Key combinations	Press and hold these keys simultaneously: [Ctrl]+[Alt]+[Del]

Typographic Conventions in Code

Convention	Element	Example
Caps and lowercase	Oracle Forms triggers	When-Validate-Item
Lowercase	Column names, table names	SELECT last_name FROM s_emp;
	Passwords	DROP USER scott IDENTIFIED BY tiger;
	PL/SQL objects	OG_ACTIVATE_LAYER (OG_GET_LAYER ('prod_pie_layer'))
Lowercase italic	Syntax variables	CREATE ROLE <i>role</i>
Uppercase	SQL commands and functions	SELECT userid FROM emp;

Typographic Conventions in Navigation Paths

This course uses simplified navigation paths, such as the following example, to direct you through Oracle Applications.

(N) Invoice > Entry > Invoice Batches Summary (M) Query > Find (B) Approve

This simplified path translates to the following:

1. (N) From the Navigator window, select Invoice > Entry > Invoice Batches Summary.
2. (M) From the menu, select Query > Find.
3. (B) Click the Approve button.

Notations :

(N) = Navigator

(M) = Menu

(T) = Tab

(I) = Icon

(H) = Hyperlink

(B) = Button

Typographical Conventions in Help System Paths

This course uses a “navigation path” convention to represent actions you perform to find pertinent information in the Oracle Applications Help System.

The following help navigation path, for example—

(Help) General Ledger > Journals > Enter Journals

—represents the following sequence of actions:

1. In the navigation frame of the help system window, expand the General Ledger entry.
2. Under the General Ledger entry, expand Journals.
3. Under Journals, select Enter Journals.
4. Review the Enter Journals topic that appears in the document frame of the help system window.

Getting Help

Oracle Applications provides you with a complete online help facility.

Whenever you need assistance, simply choose an item from the Help menu to pinpoint the type of information you want.

To display help for a current window:

1. Choose Window Help from the Help menu, click the Help button on the toolbar, or hold down the Control key and type 'h'.

A web browser window appears, containing search and navigation frames on the left, and a frame that displays help documents on the right.

The document frame provides information on the window containing the cursor. The navigation frame displays the top-level topics for your responsibility, arranged in a tree control.

2. If the document frame contains a list of topics associated with the window, click on a topic of interest to display more detailed information.

3. You can navigate to other topics of interest in the help system, or choose Close from your web browser's File menu to close help.

Searching for Help

You can perform a search to find the Oracle Applications help information you want. Simply enter your query in the text field located in the top-left frame of the browser window when viewing help, then click the adjacent Find button.

A list of titles, ranked by relevance and linked to the documents in question, is returned from your search in the right-hand document frame. Click on whichever title seems to best answer your needs to display the complete document in this frame. If the document doesn't fully answer your questions, use your browser's Back button to return to the list of titles and try another.

11i Overview of Oracle Quality Management

Chapter 1

11i Overview of Oracle Quality Management

11i Overview of Oracle Quality Management

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Course Objective

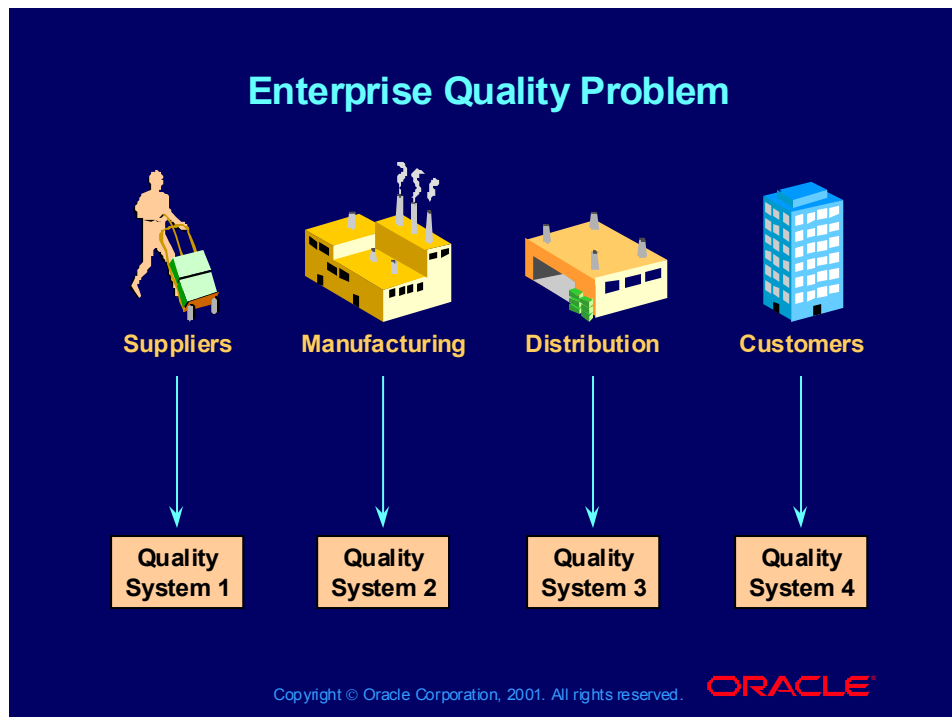
Course Objective

After completing this course, you should be able to describe basic features and benefits of Oracle Quality

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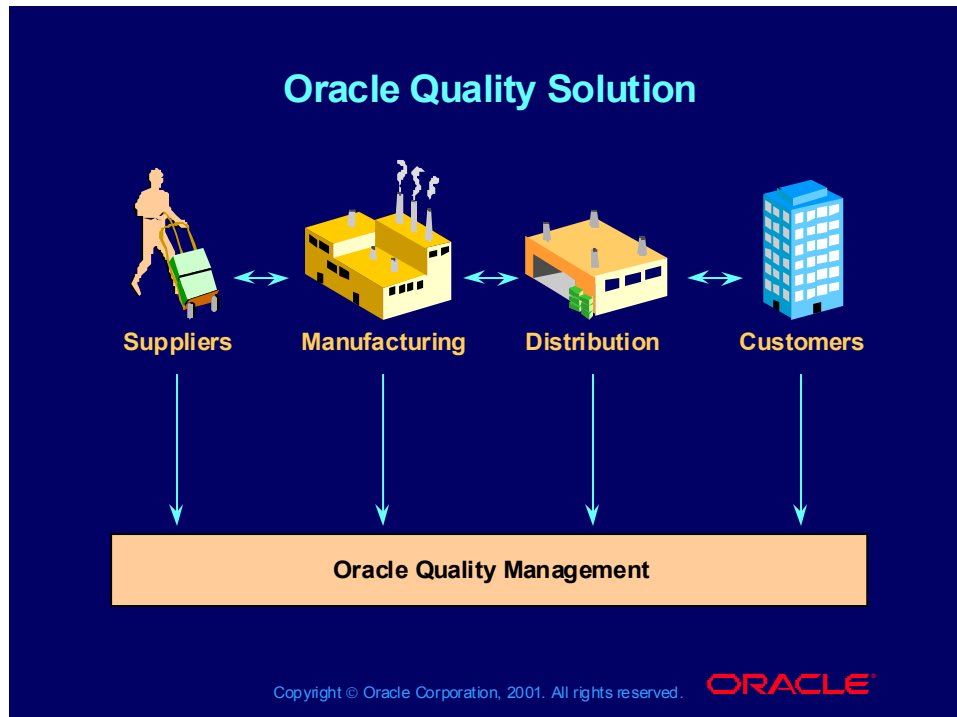
Enterprise Quality Problem



Overview

With increasing pressure to be competitive, companies are implementing quality systems throughout their organizations. These systems are not always integrated with business systems and frequently they are standalone databases. As a result, trying to correlate and analyze data gathered at different areas in the company can be difficult. For example, associating work in process test data with customer service repair data would be cumbersome.

Oracle Quality Solution



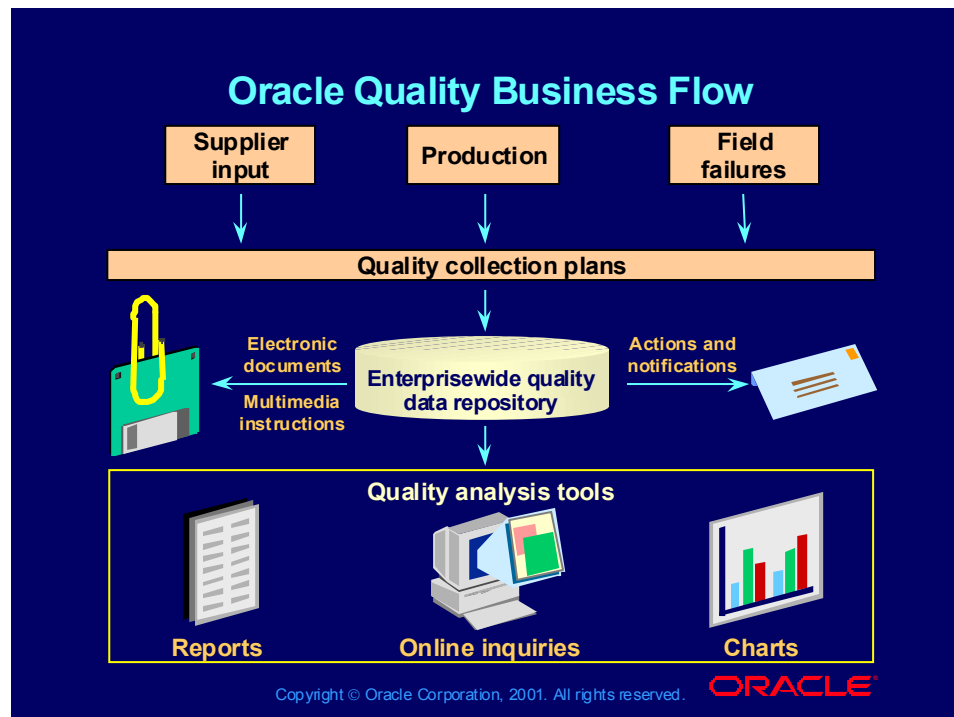
Oracle Quality Solution

Oracle Quality is integrated with the Oracle Manufacturing and Distribution applications to provide consistent quality data definition, data collection and data management across your enterprise and throughout your supply chain.

Oracle Quality:

- Enables your company to achieve consistent quality reporting across your organization by providing a central repository of quality data
- Provides complete data integration that reduces the amount of data being entered
- Automatically captures all information related to a transaction
- Maintains high data integrity
- Requires that data be entered only once and is available across the enterprise

Oracle Quality Business Flow



Oracle Quality Business Flow

You can use the Oracle Quality application to gather user-defined quality data. Data collected and input into Oracle Quality comes from functions such as these:

- Purchasing
- Production control
- Customer service

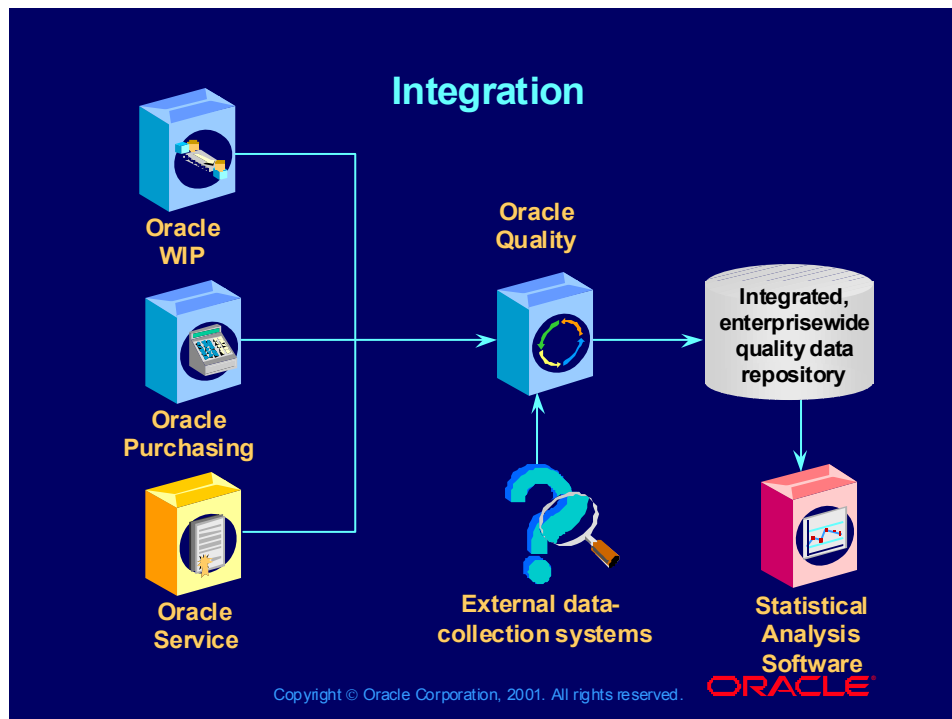
Examples of collection plans include the following:

- Incoming inspection
- Shop-floor inspection and test
- Final inspection
- Incident and failure details

Concepts of quality management in Oracle Quality include the following:

- Quality collection elements
- Specifications
- Quality collection plans that capture quality data for analysis and reporting
- Data collection
- Action rules and notifications
- Online inquiries, reports, and charts for analysis and reporting
- Attachments for procedures and documents that store multimedia and electronic documents

Integration



Product Integration

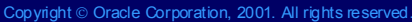
Collecting Data

Oracle Quality is integrated with Oracle Work in Process, Oracle Purchasing, and Oracle Service so that you can collect quality data during transactions.

Oracle Quality also has an open interface that allows data to be collected by external data-collection systems and imports this data into the central quality data repository.

Analyzing and Reporting Data

Oracle Quality is integrated with a software package for statistical quality and process control. Using these statistical quality-control capabilities, you can create custom graphs and reports.



Quality Collection Elements



Quality Collection Elements

The collection element is the foundation of the Oracle Quality application. The characteristics of the product or process define the collection elements. Quality collection elements represent the most basic data that you can collect and analyze.

You can use collection elements to accomplish the following:

- Identify the object that you are collecting information about:
 - Item
 - Lot number
 - Serial number
- Provide cross-reference information for analysis:
 - Supplier
 - Customer
 - Department
- Provide reference information:
 - Purchase order
 - Discrete job
 - Incident type
- Input key quality-control variables:
 - Temperature
 - Width

- Input key quality-control attributes:
 - Defect code
 - Cause code

You use collection elements to further define quality specifications, collection plans, and reports.

Collection Element Types

Collection Element Types			
Attribute		Reference	
Color	Blue Yellow Red	Job To Op Seq Lot	Oracle Work in Process
Disposition	Rework Scrap Use as is	PO number Supplier	Oracle Purchasing
Variable			
Diameter	2.75 cm + .05 cm		
Temperature	98° + 2°		

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Collection Element Types

A collection element type groups collection elements to distinguish types of data collected and is used for sorting and reporting quality data.

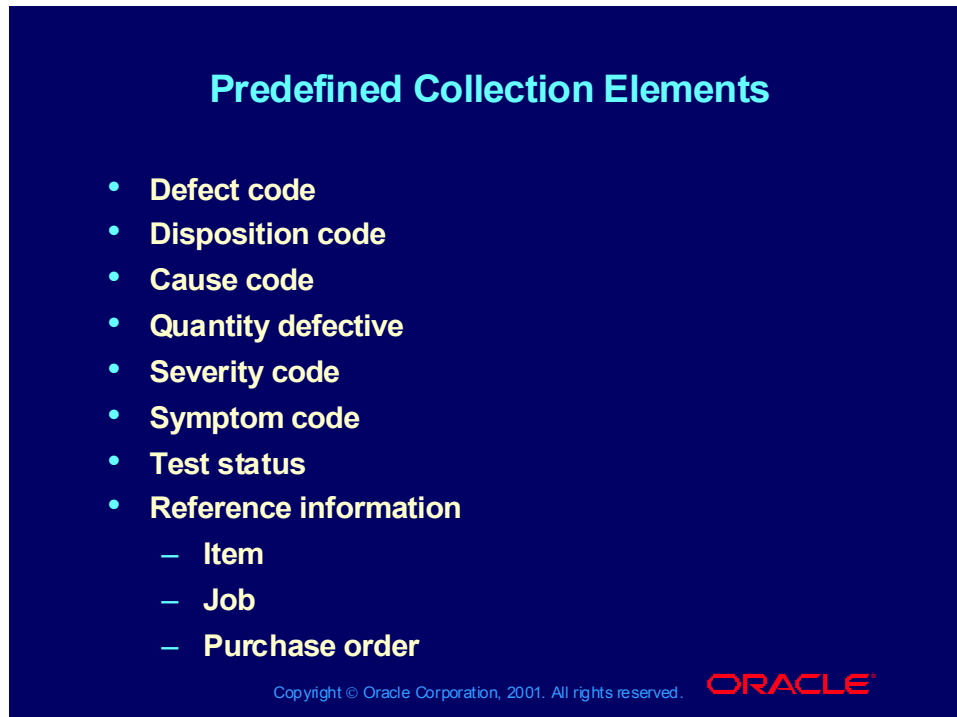
Predefined Collection Element Types

There are three predefined collection element types:

- Attribute: Often represents the outcome of a process or a discrete characteristic of an item
- Variable: Often represents numeric measurements
- Reference information: Refers to common objects defined in other Oracle Applications (They are also known as context elements because their values are derived in the context of transactions entered and saved in these applications.)

Each collection element must be associated with a collection element type.

Predefined Collection Elements



Predefined Collection Elements

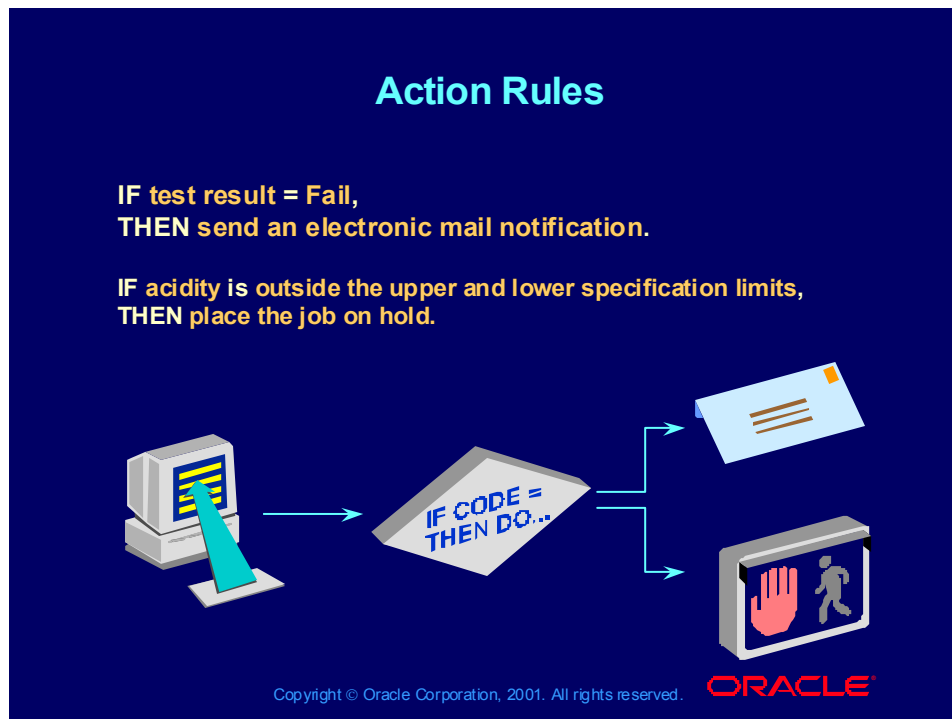
- Defect code
- Disposition code
- Cause code
- Quantity defective
- Severity code
- Symptom code
- Test status
- Reference information
 - Item
 - Job
 - Purchase order

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Predefined Collection Elements

In addition to reference information collection elements, Oracle Quality provides some predefined collection elements, as listed on the slide. You can create an unlimited number of additional collection elements.

Action Rules



Quality Actions

Depending on the quality data values collected, you may want to initiate certain actions. You can define collection element actions that are executed depending on a certain condition. This condition and the resulting action are defined as an action rule. Action rules are evaluated and executed during the quality data-collection process.

Types of Actions



Types of Actions

There are three types of actions in Oracle Quality.

Message Actions

- Display a message to the operator.
- Reject the input; forces you to enter an acceptable value before allowing you to continue.
- Post an entry to the Quality Action Log.

Alert Actions

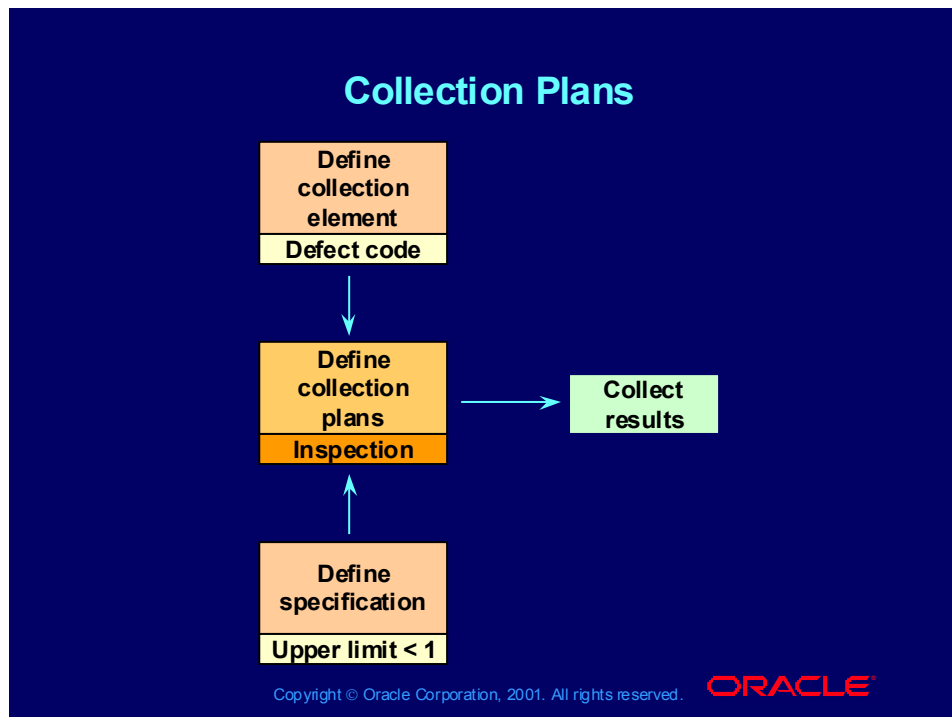
- Send an electronic mail notification.
- Execute an operating system script.
- Execute a SQL script.
- Launch a concurrent request.

Application-Specific Actions

- Work in Process actions
 - Place the job on hold.
 - Hold all schedules building this assembly on this production line.
 - Assign a shop-floor status to the interoperation step; you can specify a shop-floor status to assign to the To Move intraoperation step of the To Operation sequence.
- Purchasing actions
 - Accept the shipment.

- Reject the shipment; rejected shipments can be reinspected.
- Place the supplier on hold; prevents you from approving purchase orders for suppliers on hold.
- Place a document or release on hold; you cannot print, receive against, invoice, or approve purchase orders or releases that are on hold.
- Assign an ASL status; updates the approved supplier's status to the status that you specify.

Collection Plans



Collection Plans

Quality collection plans determine what data to collect, where to collect it, and what action to take based on the results. A collection plan is a test plan or inspection plan, consisting of a group of collection elements that you want to collect and analyze for a given business case.

Using Oracle Quality, you can create any number of collection plans to support the needs of your enterprise for quality data collection and analysis. For example, you can create collection plans to collect the following information:

- Supplier data
- Incoming inspection information
- Work-in-process defects
- Material review board data
- Equipment failures
- Details of field failures
- Customer complaints

Specifications

Specifications

Item Specification

Specification	Effective Date	Revision	Expiration Date
---------------	----------------	----------	-----------------

Item

Process Procedure

Test Condition

Characteristics	UOM	Target Value	Lower Spec Limit	Upper Spec Limit
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Disposition of Noncompliant Product

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Specifications

Products and services are designed to perform or accomplish a particular task. Specifications document the requirements to which a product or service should conform. They help ensure that the goods that you receive from a supplier, or that you produce or make for a customer, conform to quality standards.

Organizations develop specifications to document process or inspection procedures, disposition instructions, engineering drawings, or corrective actions.

You can use the Oracle Quality application to define specifications for the key quality characteristics of products that you manufacture or material that you receive from suppliers. Specification limits are retrieved during the collection of quality data, displayed in the Enter Quality Results window, and are used for evaluating action rules based on the specification.

Uses of Specifications

Uses of Specifications

- Specifications can be used to prohibit out-of-range values from being entered.
- Specifications display specification limits as quality results are being entered.
- You use specification limits to define action rules.

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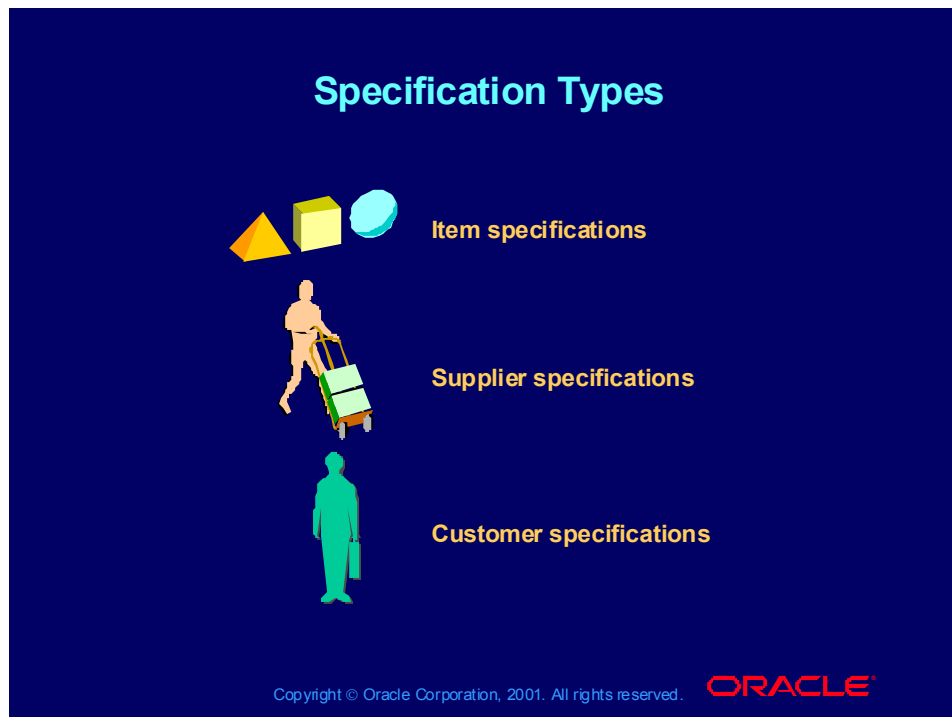
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Uses of Specifications

Specifications are used for the following purposes:

- During data collection, specifications prohibit entering values that lie outside the reasonable range of the specification.
- Specifications assist operators as they enter data, by allowing the display of specification limits during data entry.
- You define action rules based on specification limits.

Specification Types



Specification Types

When defining a specification, you must select a specification type. There are three types of specifications:

- Item specifications provide detail about an item.
- Supplier specifications provide detail about a supplier/item combination.
- Customer specifications provide detail about a customer/item combination.

Each type of specification can be based on either an item or an item category. If you are entering quality results for an item using a collection plan that is associated with a specification, but no specification exists for that item, Oracle Quality will use the specification defined for the category of that item.

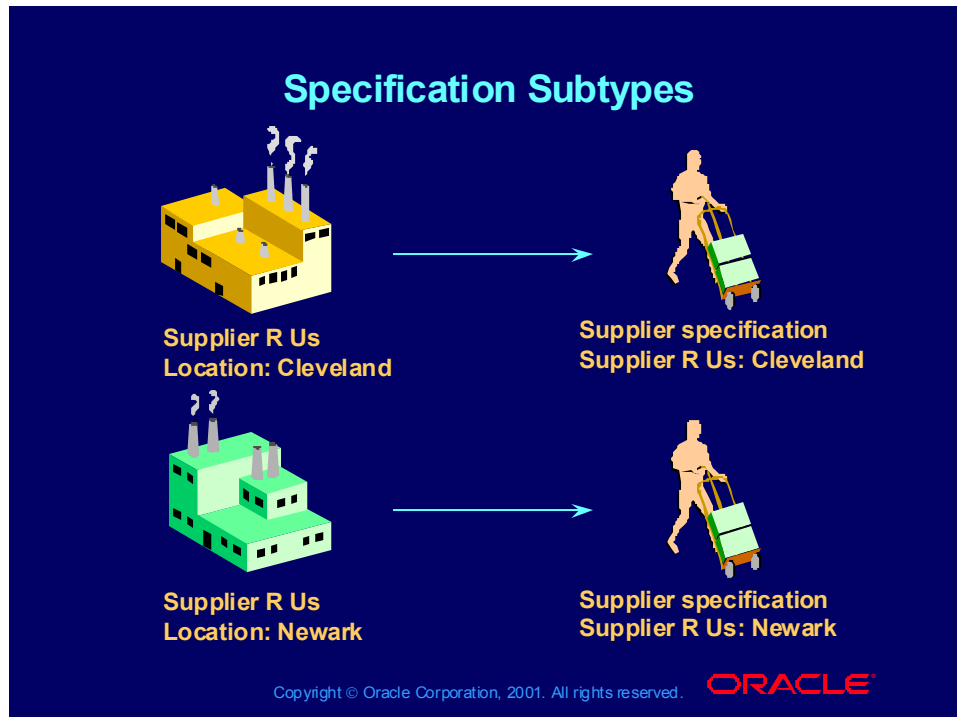
Specification Type Examples

Item specification: For a given item, thickness must be 0.55 inches, plus or minus 0.02 inches, torque strength must be between 4.5 and 5.2, and burn-in hours must be 48.

Supplier specification: Carbon black received from supplier XYZ must be tested to ensure that its particle size does not exceed 0.0026 millimeters.

Customer specification: Steel coils sold to customer ABC must always contain at least 1.5% molybdenum and 2.5% manganese, and they must have a tensile strength of at least 60.

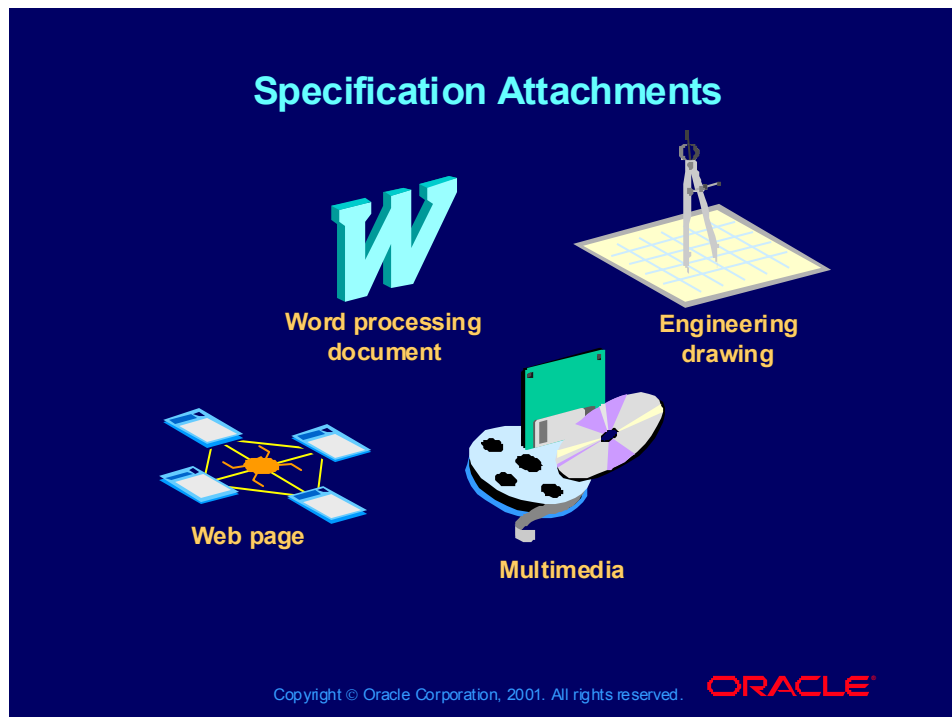
Specification Subtypes



Uses of Specification Subtypes

You can also define specification subtypes, which are used to create more detailed specifications. For example, if you require a different specification for deliveries from different locations from the same supplier, you could use specification subtypes to ensure that the correct specification is used.

Specification Attachments



Specification Attachments

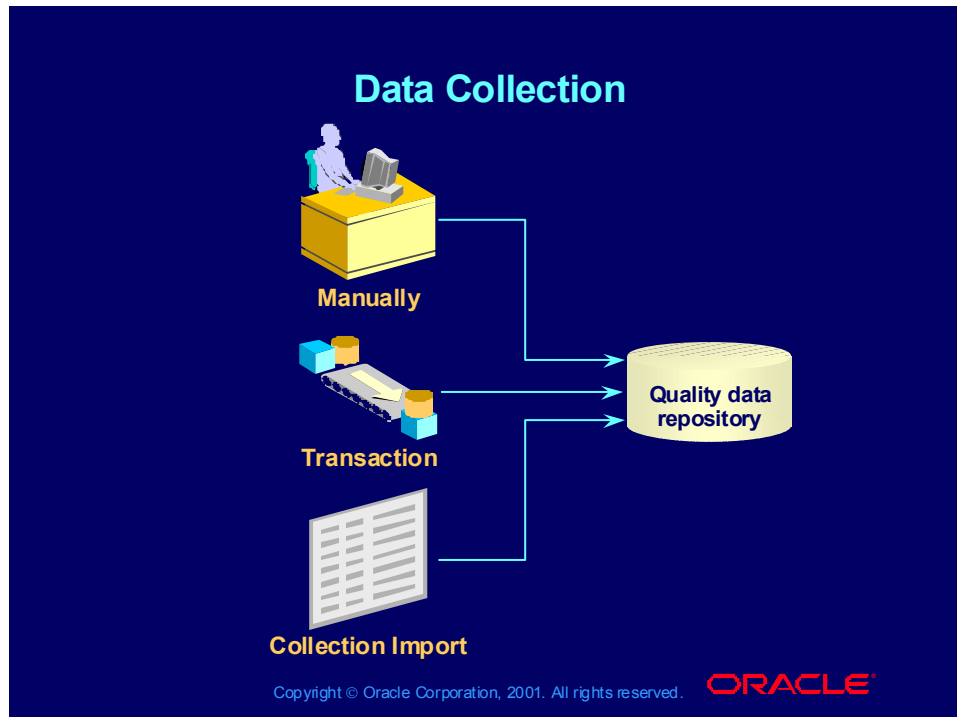
An attachment provides additional information regarding the specification. One example is the attachment of a drawing depicting an assembly process for an item. Each specification can have multiple attachments. Collection plans can also have attachments.

Attachments can be in any of these forms:

- Electronic documents (word processing document, spreadsheet)
- Images (engineering drawing)
- Multimedia instruction (video of an assembly procedure)
- Web page (specify a URL reference)
- Text (short or long—greater than 2,000 characters)

You can view specification attachments during the collection of quality data by clicking Attachments on the toolbar.

Data Collection

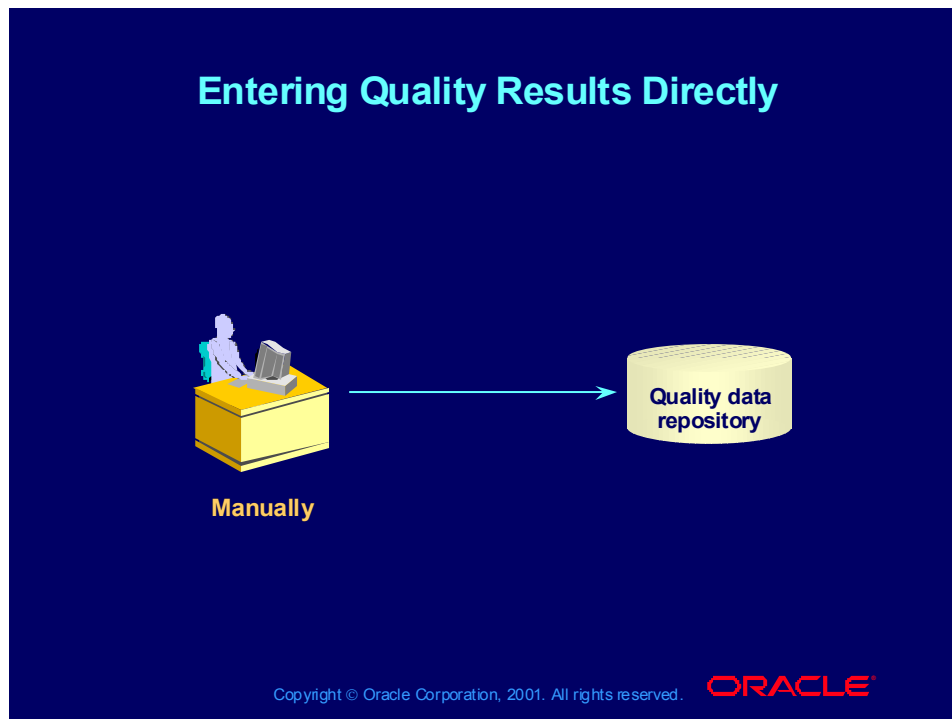


Data Collection Overview

Oracle Quality provides the following methods of collecting data:

- Entering results directly into Oracle Quality
- Collecting quality results during transactions within Oracle Purchasing, Oracle Work in Process, Oracle Flow Manufacturing, Oracle Supplier Management Portal, and Oracle Service
- Automatically, using the Oracle Quality Collection Import

Entering Quality Results Directly

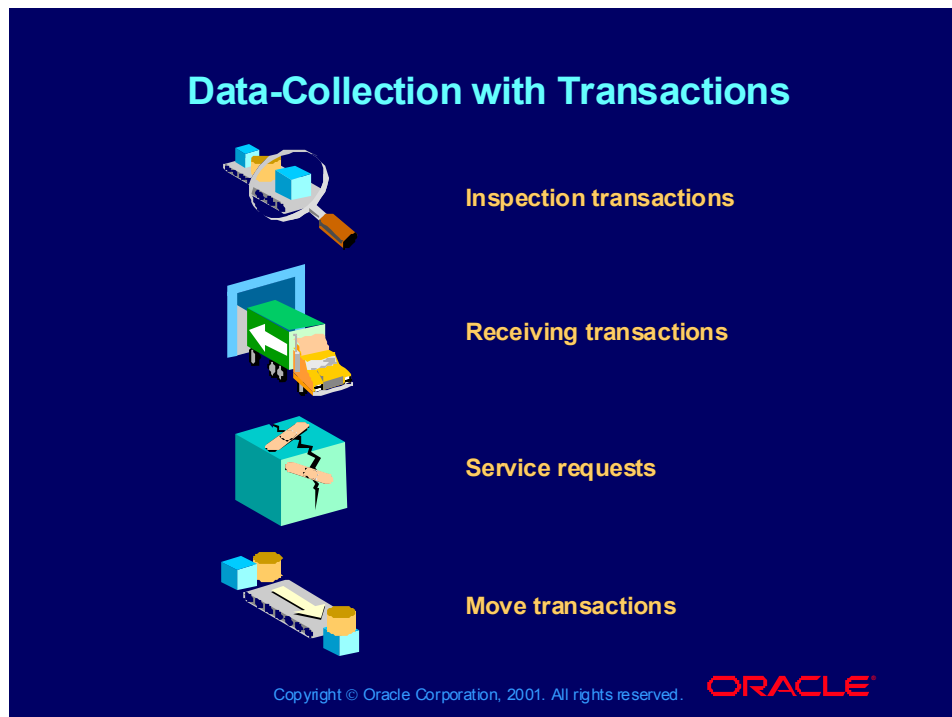


Entering Quality Results Directly

The first method of entering quality results is by manually entering data into the quality system. You can enter quality data directly into the collection plan using collection elements. Collection elements specified in the collection plan are automatically displayed in a spreadsheet format that allows several results to be entered at once.

As you enter results, the data is validated using the validation rules that you specified in the collection plan, such as acceptable values and valid data types.

Data-Collection with Transactions



Transactions

The second method for entering quality results is by collecting those results while using Oracle Applications transactions. As you execute a transaction, Oracle Quality searches for associated collection plans and evaluates the collection triggers. If the collection triggers are found to be true, the Enter Quality Results window is enabled for data entry.

You can associate the following transactions with your collection plans:

- Inspection transactions (Oracle Purchasing)
- Receiving transactions (Oracle Purchasing)
- Service requests (Oracle Service)
- Move transactions (Oracle Work in Process)

Oracle Purchasing

In Oracle Purchasing, you can collect quality data in two ways:

- You can use Oracle Quality instead of Oracle Purchasing to accept or reject items during receiving inspection. If you are using Oracle Quality, you can collect additional quality data during receiving inspection.
- You can collect quality data on items as you transfer and deliver them to other locations.

Oracle Service

You can collect data on service calls while entering service requests.

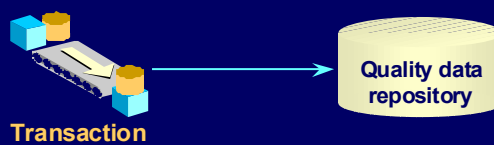
Oracle Work in Process

You can collect data on manufacturing processes during the WIP move transaction.

Transactional Data Collection

Transactional Data Collection

- Eliminates redundant data entry
- Enforces mandatory data collection
- Ensures data integrity
- Ensures timely quality data collection



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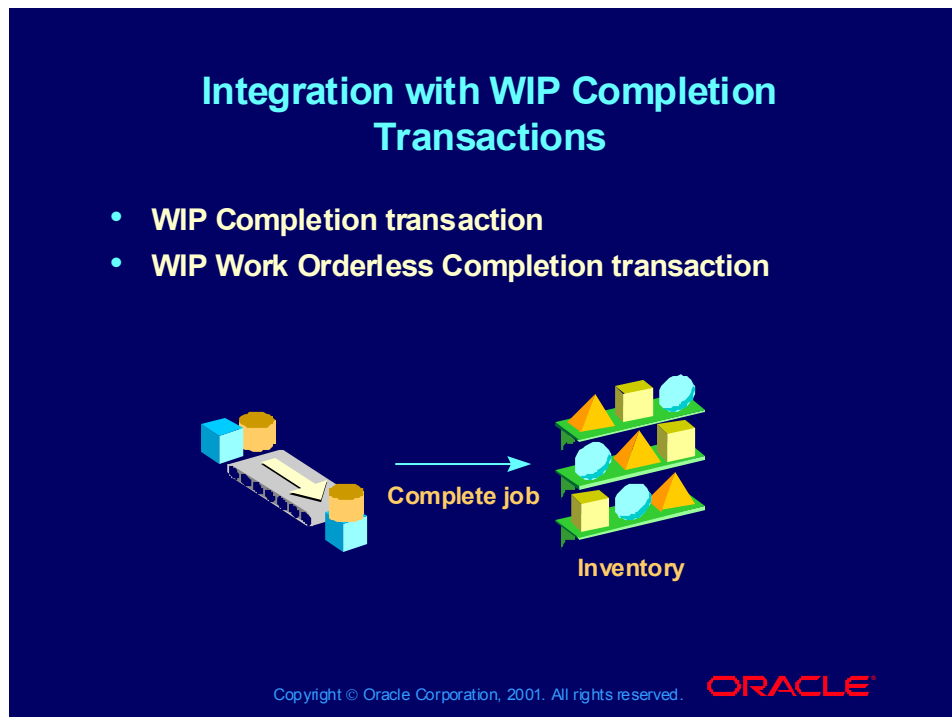
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Benefits of Transactional Data Collection

Transactional data collection offers the following advantages:

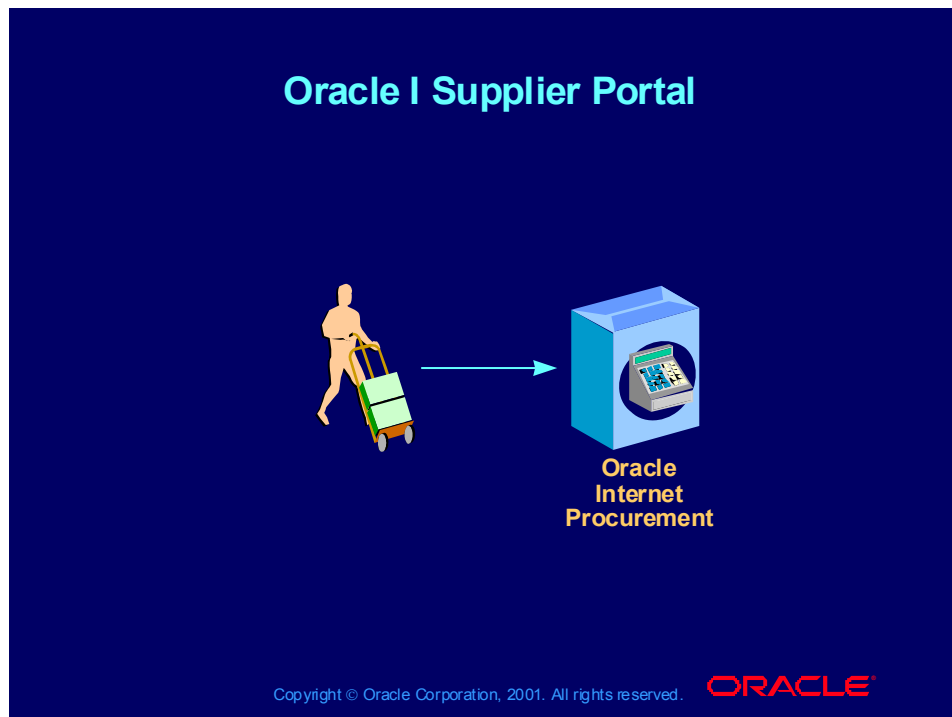
- Eliminates redundant data entry by writing context reference element data (job, item) to the quality data repository when you save the transaction
- Enforces mandatory collection of quality data by requiring that quality results are entered before the parent transaction can be saved
- Ensures data integrity by validating all reference elements
- Ensures that quality data collection is done in a timely manner

Integration with WIP Completion Transactions



WIP Completion Transactions Integration

You can collect quality data when completing a discrete job to inventory or when performing a work orderless completion. You can use this feature to collect inspection results and descriptive attributes of your assemblies when they are completed into inventory.



Self Service Quality

Using Oracle I Supplier Portal (formerly called Web Suppliers) you can have your suppliers enter or review quality data against purchase orders, including outside processing purchase orders.

About Oracle I Supplier Portal

Oracle I Supplier Portal enables your suppliers to review and research information that affects them directly. With Oracle I Supplier Portal authorized suppliers can use a standard Web browser to perform common business functions such as reviewing purchase agreements, tracking inventory balances, and verifying receipts. With a simple-to-use interface, your suppliers can register as new users; view schedules, orders, and requests for quotations; and perform other activities at their convenience. The portal provides your suppliers with direct and secure access to your systems, so that they can serve you better.

Setting Up Collection Plans

To enable a collection plan for your suppliers to use with Oracle I Supplier Portal, you must associate it with the correct quality collection transaction. You can use two different transactions:

- Self Service Outside Processing for outside processing purchase orders
- Self Service Shipments for standard purchase orders

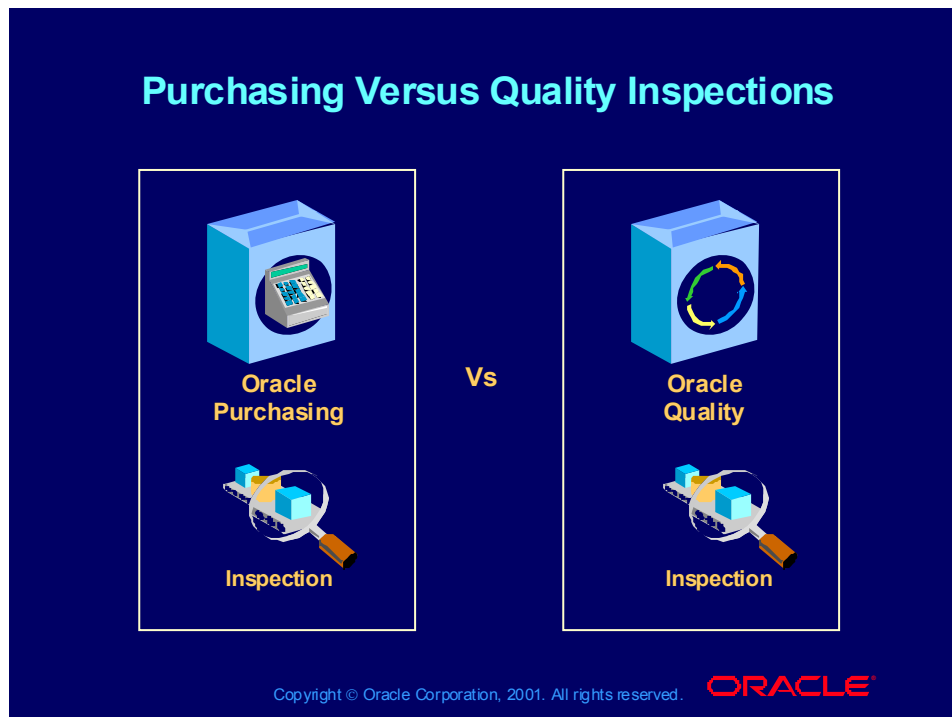
You can use two predefined collection plans as templates when defining your own collection plans:

- Template Self Service Outside Processing

- Template Self Service Shipments

Note: If you have set up a collection plan that can be accessed by multiple suppliers, be aware that all the suppliers will be able to view one another's data. To prevent this, you should make a different collection plan for each supplier.

Purchasing Versus Quality Inspections



Purchasing Versus Quality Inspections

You can use Oracle Quality instead of Oracle Purchasing to do a receiving inspection to determine whether to accept or reject the items.

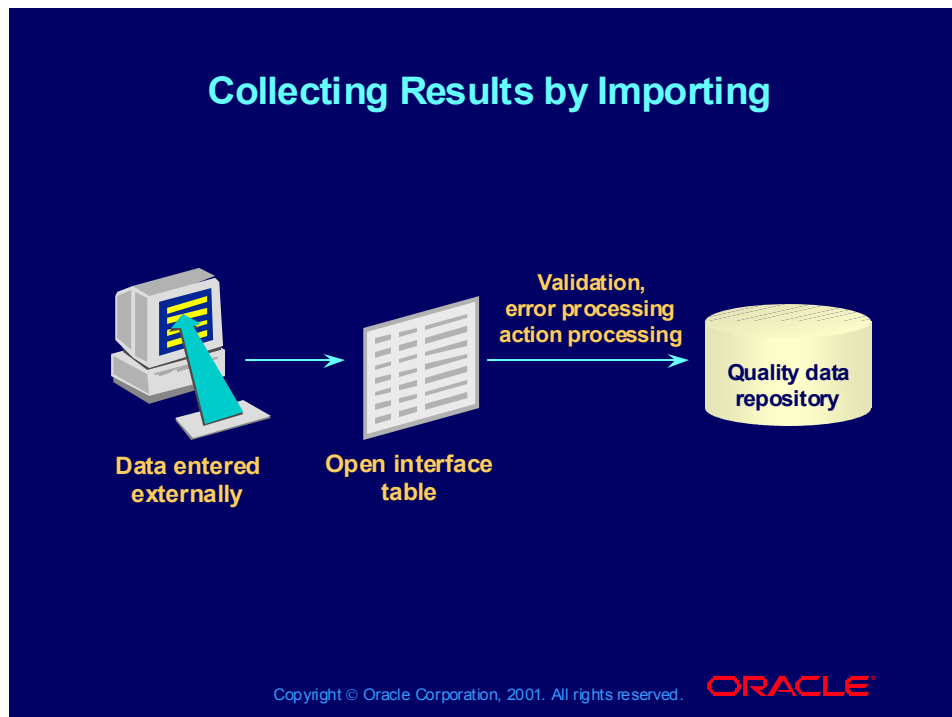
Oracle Purchasing

In Oracle Purchasing, you can enter the number of items that are accepted or rejected and enter some information about the inspection results. You can view the results online and print summary and detail reports to analyze your supplier's performance.

Oracle Quality

You can use Oracle Quality to perform the same inspection functions as Oracle Purchasing. You can also use Oracle Quality to collect additional attribute and variable data for collection elements in your collection plan and to analyze the data using charts, descriptive statistics, and custom reports. You can trigger certain actions, based on the results of the inspection.

Collecting Results by Importing

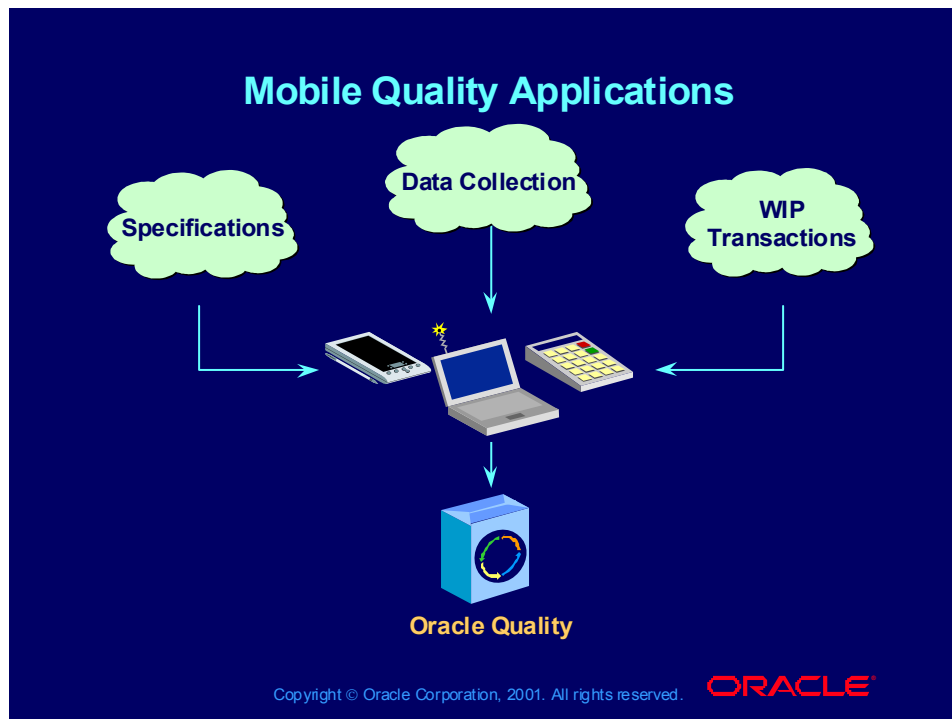


Importing

The third method for entering quality results is by collecting those results from sources external to Oracle Applications. You can insert new data into the quality data repository and update existing rows of data.

You can load data from the source into the Collection Import table, which temporarily stores the collection plan name and a value for each collection element on the collection plan. Data in the Collection Import table is validated by the Collection Import Manager, which imports valid records into the Quality Data Repository.

Mobile Quality Applications



Mobile Quality Applications

Oracle Mobile Quality Applications (MQA) are part of the mobile suite of applications that enable companies to extend the benefits of their Supply Chain applications to the mobile user.

Benefits of implementing the Mobile Quality Applications include:

- Eliminating duplicate data entry
- Reducing data entry errors
- Increasing productivity and reducing costs
- Improving inventory management by ensuring that appropriate tests are carried out during any movement of material

With Mobile Quality Applications, users will be able to perform data entry functions using devices that support Telnet clients. If your device is equipped with bar code scanners, you will also be able to enter data by simply scanning the bar codes.

Collecting Quality Data

You can query any quality collection plan and enter data directly. Inspectors can walk up to a laboratory or test crib, perform tests, and record the results immediately.

Specifications

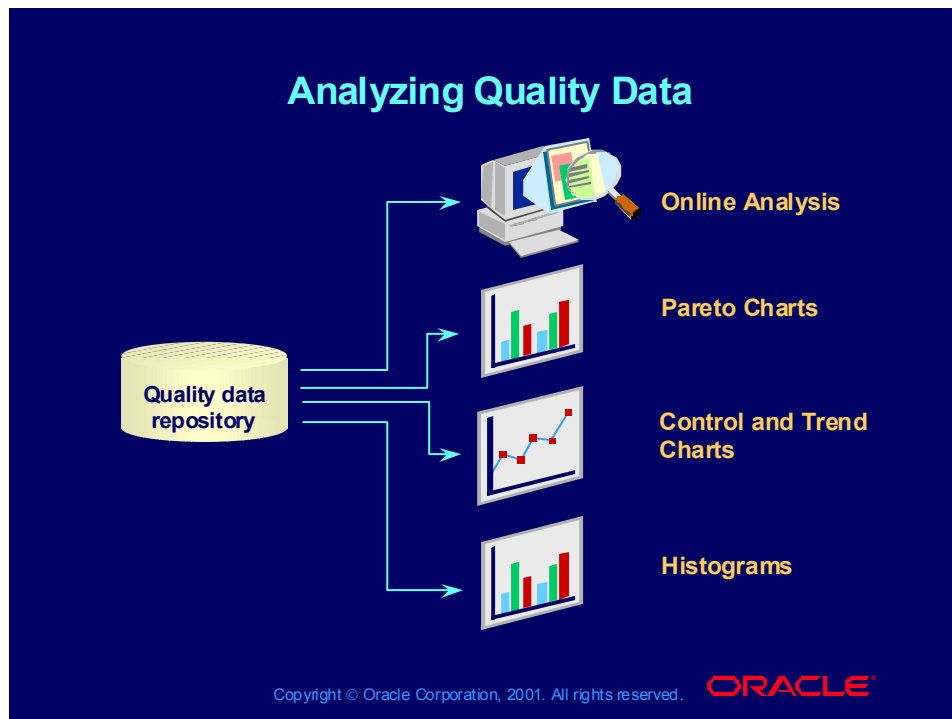
You can query any specification created in Oracle Quality whether it is an item specification, supplier specification, or a customer specification.

Transactional Data Collection

You can collect quality data whenever there is movement of material within your shopfloor or warehouse. Mobile Quality Applications support your data collection and inspection requirements while performing Work In Process transactions using a Telnet client. Examples of transaction data collection include:

- WIP move
- WIP return
- WIP scrap / reject
- WIP completions
- WIP workorderless completions
- Flow manufacturing completions
- WIP material transaction
- Template collection plans
- Lot serial support

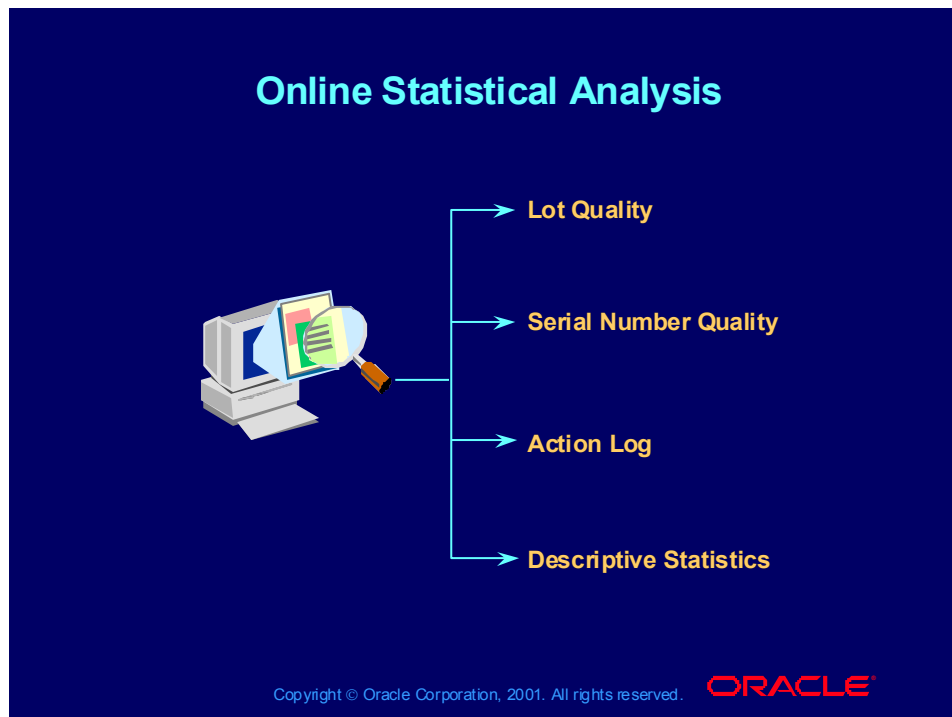
Analyzing Quality Data



Analyzing Quality Data

You can retrieve information from the Oracle Quality data repository in many ways. You can use the folder feature found in the inquiry windows. You can view the data in the form of Pareto charts, control charts, trend charts, or histograms. You can do basic statistical analysis on the data as well as create custom reports within Oracle Quality. You can also export quality results.

Online Statistical Analysis



Viewing Quality Results Online

You can find and view all quality results associated with a collection plan. You can also view detailed information such as the target value and specification limits for specific quality results values.

Viewing Quality Results by Lot Number

You can view quality results for specific lots and lot controlled items. You can monitor lot controlled assemblies, subassemblies, and components by creating and using collection plans to:

- Record quality characteristics about lots received from suppliers
- Track lots through production and record where a lot has been
- Track lot genealogy by recording the relationship between two lots
- Record end lot quality characteristics during or after production
- Record a lot and the customer it was shipped to

Viewing Quality Results by Serial Number

You can view quality results for serial number controlled items. You can monitor serial controlled assemblies, subassemblies, and components by creating and using collection plans to:

- Record quality characteristics about serialized units received from suppliers
- Record movement, inspection, test results and disposition of serialized items throughout the production process

- Maintain a history of inspection and test results for a particular serialized unit including the most current recorded activity or location in work in process
- Record serial number genealogy by recording the relationship between two serialized units; for example, record an assembly serial number and a component serial number
- Record the shipment of a serial controlled assembly and the customer site it was shipped to
- Record dead-on-arrival (DOA) details for a serialized unit when it is reported as failed at a customer site
- Record return material authorization (RMA) details upon notification of a defective, serialized unit

Viewing Action Log Entries

Entries are made in the Quality Action Log when the post an entry to the quality action log message action is invoked. Action log entries are also created when an action being processed in background mode fails. For each entry in the quality action log, the following information is displayed:

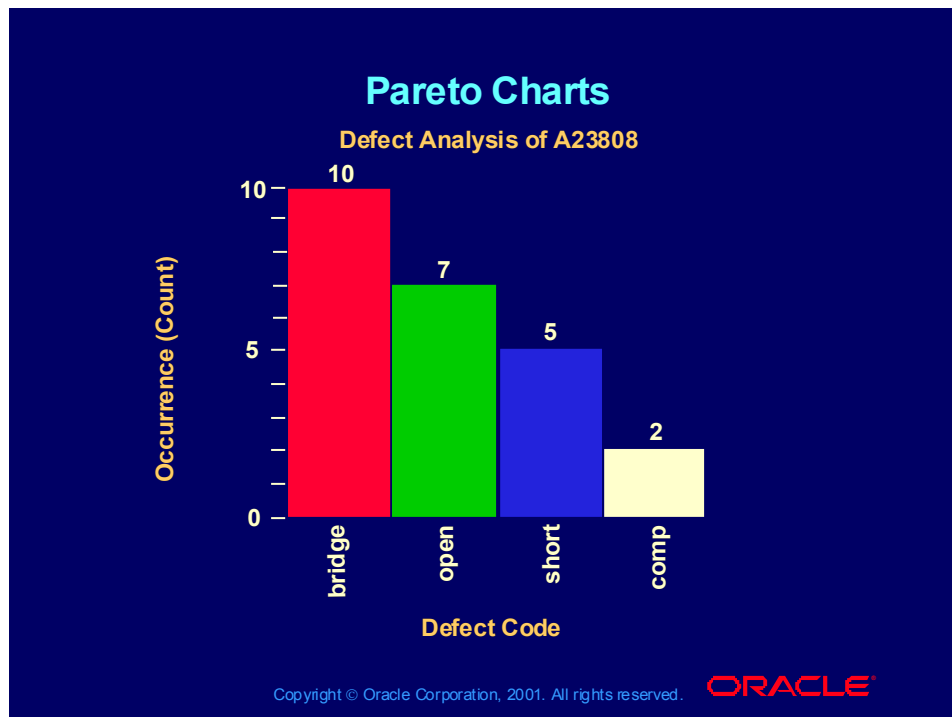
- Message tab: action Message
- Action Rule tab: Collection Element, Condition, Low, High, Result
- Collection tab: Collection Plan, Collection Number, Log (data entry) Date

Viewing Descriptive Statistics

You can compute basic statistics for quality results associated with any collection plan element using the Descriptive Statistics window. You can create descriptive statistic views from scratch or you can create them by copying settings from another chart, descriptive statistic view, or custom report. Copying settings allows you to view the same subset of data in different ways.

The statistics calculated include the sum, mean, variance, standard deviation, total number of occurrences (the count), number of null occurrences (that is, occurrences where a value was not entered for the collection element), maximum, minimum, and range. If you select specification limits, you can also calculate Cp and Cpk values as you view descriptive statistics. Cp and Cpk are measures of process capability, which is defined as the measured, inherent reproducibility of the product turned out by the process.

Pareto Charts



Pareto Charts

Pareto charts are based on Pareto's principle, which states that a small percentage of a group accounts for the largest fraction of the impact. In other words, 20% of the sources cause 80% of any problem. Pareto charts graphically show you the relative frequency or size of an event in a descending bar graph. You can create custom Pareto charts to help focus on top priorities, such as the types of failures that occur most frequently.

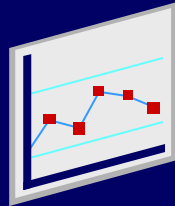
The X axis (horizontal dimension) on a Pareto Chart is the primary collection element for data analysis. It reflects the possible values for the primary collection element.

The Y axis (vertical dimension) represents the numeric measure, such as a count of occurrences of the primary collection element or the sum of a quantity.

Control Charts

Control Charts

- **Xbar and R charts**
- **Individual X and Moving Range charts**
- **Xbar and S charts**



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Control Charts

Control charts provide a graphical means of monitoring a process in real time. A control chart maps the output of a process over time and signals when a change occurs in the process. Control charts are used to analyze variable data.

The horizontal centerline on a control chart corresponds to the average quality at which the process should perform.

Two control limits, upper and lower, indicate that values falling between them can be attributed to chance variation. Values falling outside them indicate a lack of statistical control.

Types of Control Charts

Oracle Quality provides three pairs of control charts:

- Xbar and R charts (Xbar R)

These charts are used when the data falls naturally into meaningful homogeneous subgroups (readings by shift or by machine). The subgroups should consist of no more than ten values.

- The Xbar chart plots the average value of each subgroup over time. This is used to test for a shift in the average value of a process.
- The R chart plots the shift in the variance of a process. It plots the range of values within each subgroup.

- Individual X and Moving Range charts (X mR)

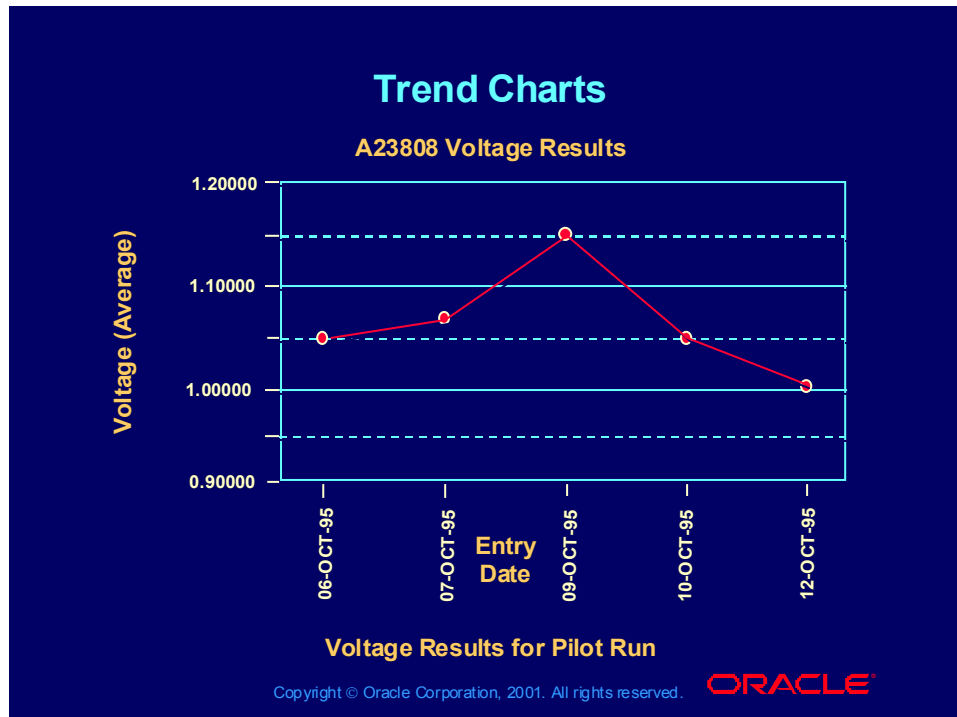
These charts are used when the data does not fall into meaningful subgroups and is instead based on individual data points.

- The X chart plots individual data points.
- The Moving Range (mR) chart plots a moving range value for each data point.

- Xbar and S charts (Xbar S)

These charts are similar to the Xbar and R charts, except that standard deviation is plotted instead of the range. This type of chart is typically used when the subgroups consist of more than ten values because it mitigates the effect of outlying data points.

Trend Charts



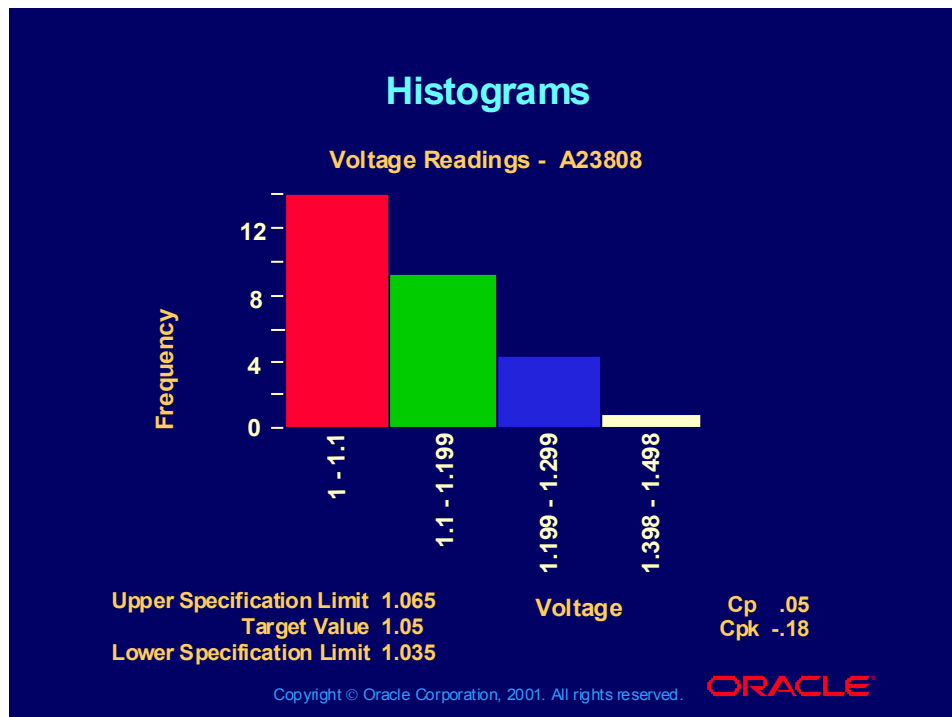
Trend Charts

You can use trend charts to analyze data collected over a period of time for a particular collection element. By observing the trend, you can take corrective action if the trend moves in an unfavorable direction.

The X axis on a trend chart represents individual results or groups of quality results presented collectively over time. You can chart individual results, or you can chart groups of results by collection number or by entry date.

The Y axis is the primary collection element whose value you are tracking and typically represents a variable collection element.

Histograms



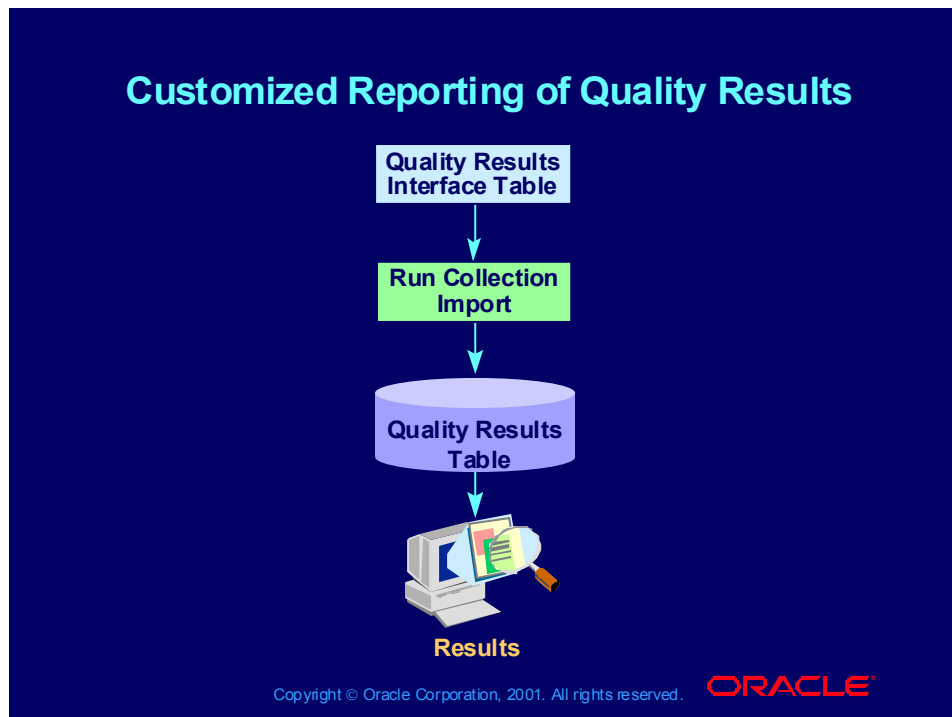
Histograms

Histograms graphically display the frequency distribution of data in bar form. This is done by partitioning the data into intervals and plotting the number of points in each interval. Histograms graphically show the distribution of data for elements with numeric data types. The histogram reveals the centering, variation, and shape of the data, which is typically bell shaped.

The X axis on a histogram reflects the intervals of possible values for the collection plan element.

The Y axis represents the count or sum of occurrences of the collection element.

Customized Reporting of Quality Results

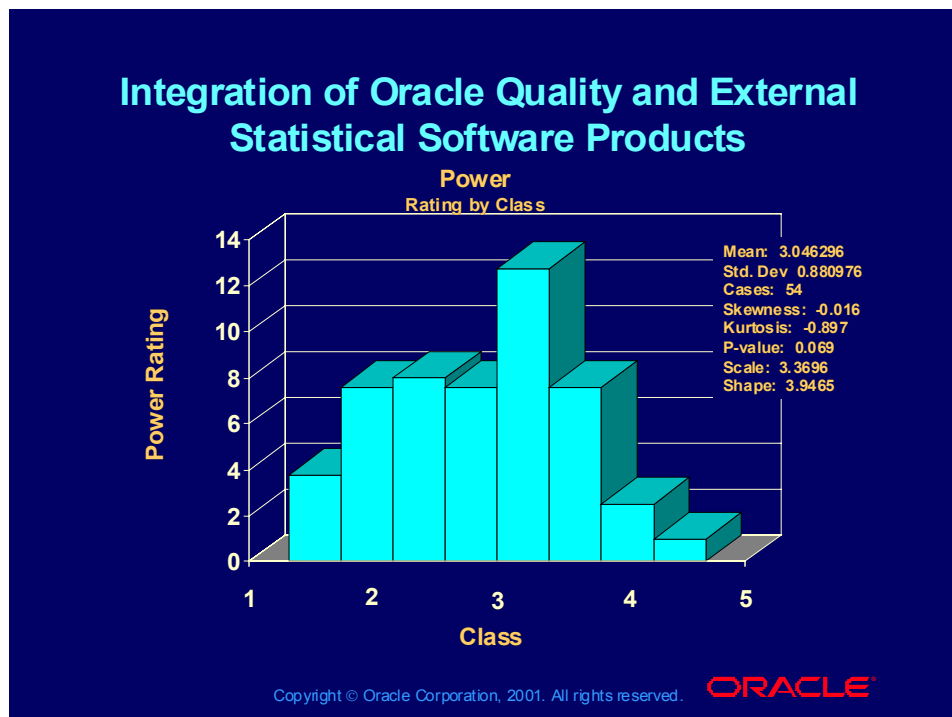


Customized Reporting of Quality Results

You can create your own custom reports using the Quality Results ReportWriter. By creating your own reports, you can:

- Include quality results for more than one collection element
- Sequence the results in any order
- Use functions (Average, Count, Sum, Min, Max) to further analyze your results

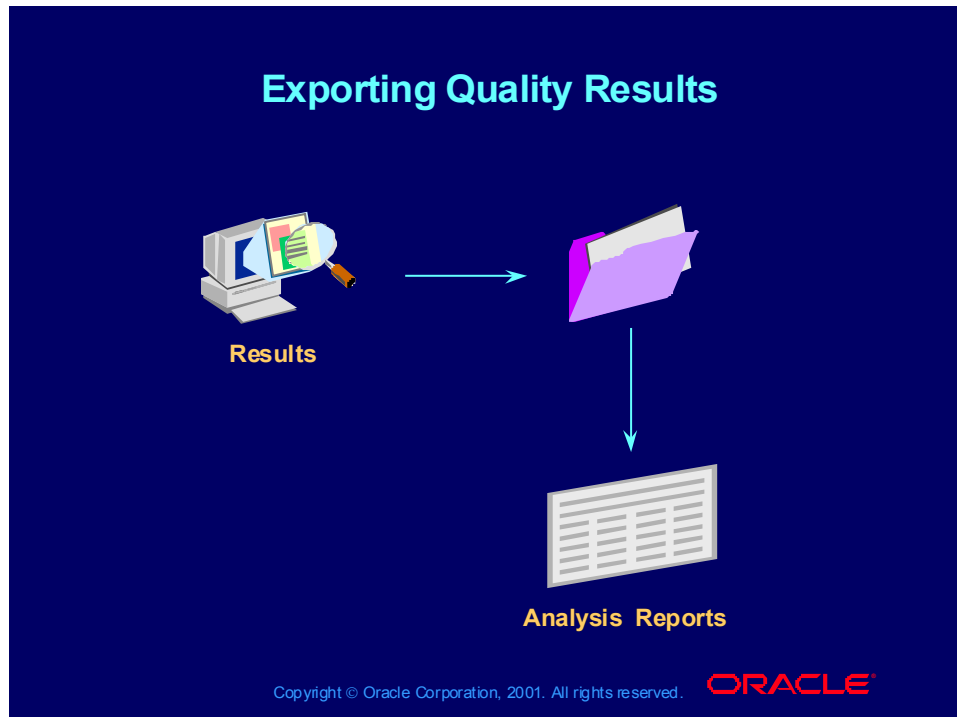
Integration of Oracle Quality and External Statistical Software Products



Analyzing Quality Data with External Statistical Products

You can choose to use the graphical capabilities of either Oracle Quality or external software products for statistical process control (SPC). For example, you can use Oracle Quality to collect and query collected data and then use Statware Statit to create sophisticated SPC charts, custom graphs, and reports.

Exporting Quality Results

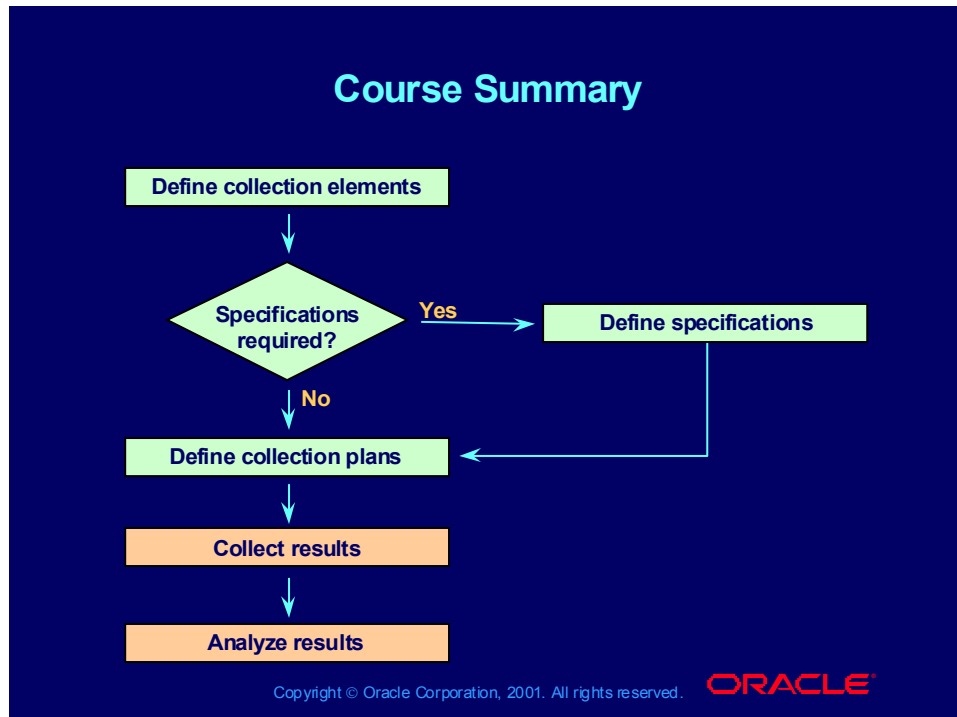


Exporting Quality Results

You can export quality results to a file and download the file to a spreadsheet, statistical analysis, or graphical presentation software package.

Each quality results inquiry window includes an Export Results function in the Special menu. A comma-delimited ASCII file is created from the retrieved quality results in your inquiry, chart, or report settings.

Course Summary



Summary

Data can be collected in three ways:

- Directly
- Within a transaction
- Using the Collection Import function

You can analyze your data in the following ways:

- Online inquiry
- Pareto charts, control charts, trend charts, and histograms
- Calculation of basic statistics
- Custom reports
- Export to statistical process control products or spreadsheets

