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Enterprise Edition

Training Guide

Service and Support Management

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About This Course

Course Description

QAD designed this course to cover the basics of preparing to implement the Service and Support Management module of QAD Enterprise Edition. The course includes:

- An introduction to the Service and Support Management module
- An overview of key business issues
- Setting up the Service and Support Management module
- Operating the Service and Support Management module
- References to other QAD materials, such as user guides and on-line help
- Activities and exercises throughout the course
  - Students practice key concepts and processes in the Service and Support Management module

Course Objectives

By the end of this class, students will:

- Analyze key business decisions before setting up the Service and Support Management module
- Set up and operate the Service and Support Management module

Audience

- Implementation consultants
- Members of implementation teams
- Operators

Prerequisites

- Initial QAD EE Setup training course
- Basic knowledge of:
  - Hardware and network configurations
  - QAD EE as it is used in the business
- Working knowledge of:
  - The manufacturing industry in general

Course Credit and Scheduling

This course will be completed in 5 days.

QAD Web Resources

From QAD's main site, you can access QAD's Learning or Support sites.

http://www.qad.com/

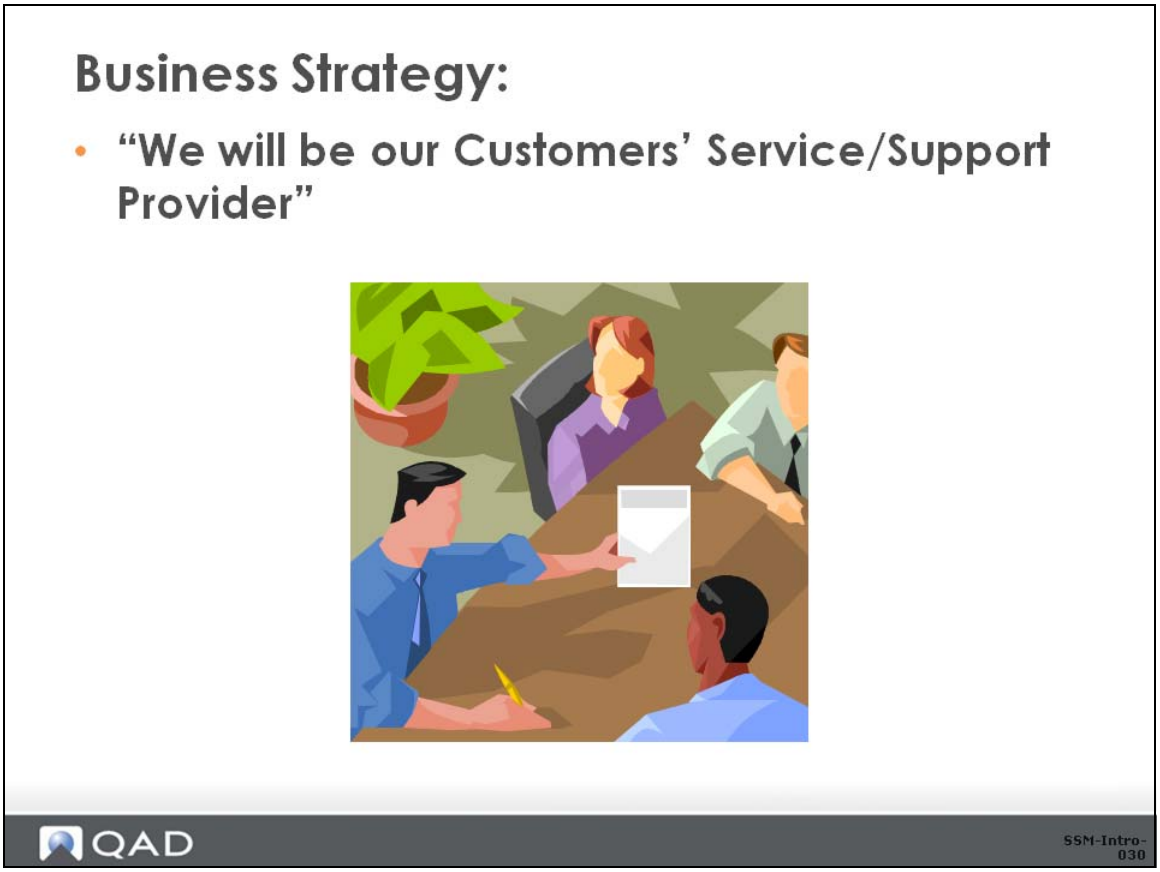
Virtual Environment Information

Enterprise Edition 2010 with add-on r01, Train Puerto Rico

Chapter 1

Foundations

Business Strategy



The Service and Support module addresses the needs of companies that have made a fundamental decision to be a service provider. These companies have recognized that service and support can play an increasingly strategic role in manufacturing markets and are learning that a well managed service and support strategy can be leveraged into long-term competitive advantages.

This chapter introduces the basic business concepts addressed by the Service and Support Management (SSM) module. A general overview of service is presented, followed by a brief introduction of the chapters to follow.

Role of Service and Support Management

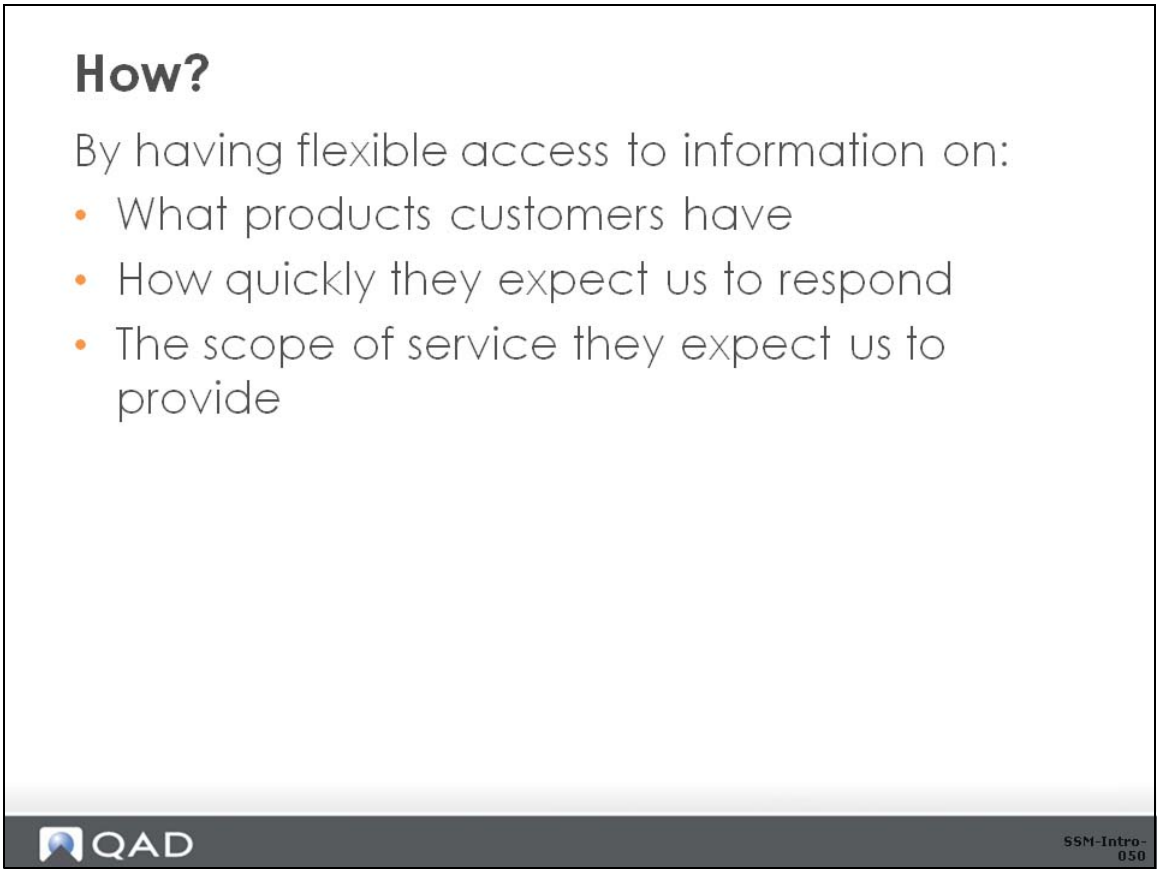
Service can be used to build long-term customer relationships or long-term customer loyalty-that is, service can help build markets, not just sales.

The relationships fostered by a well-managed customer service orientation can lead to more sales through the testimony of satisfied customers.

Those who service a product often learn as much or more about how it works than those who built it. Proper management of this service experience can provide visibility of this data through a service request (SR) system and drive new product development.

The revenue from service contracts extends throughout the lifetime of a product, providing a financial base for future development and growth.

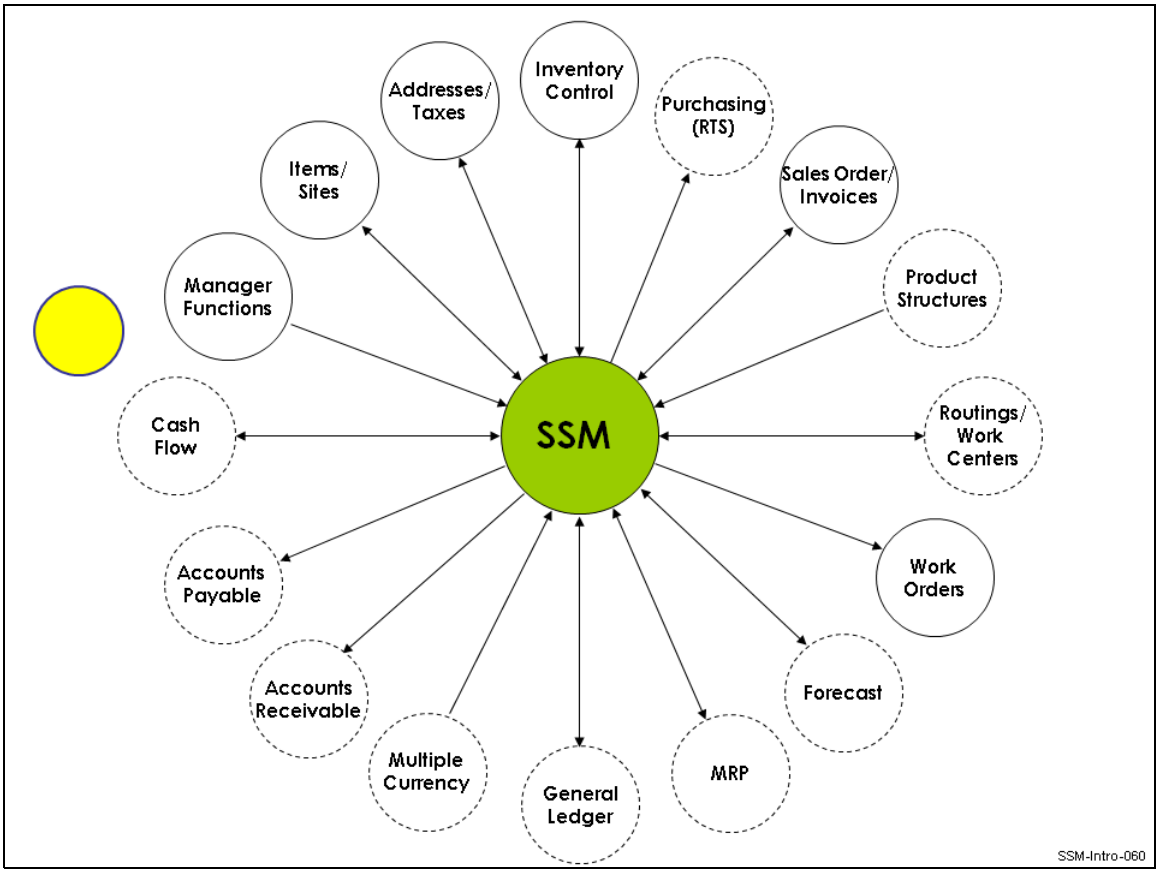
Role of Service and Support Management



The critical requirement to providing excellent and timely service is up-to-date information. This includes knowledge both about the products a customer has and about their expectations and understanding of the service relationship.

Using SSM provides a way of capturing this information and making it easily accessible on-demand.

SSM

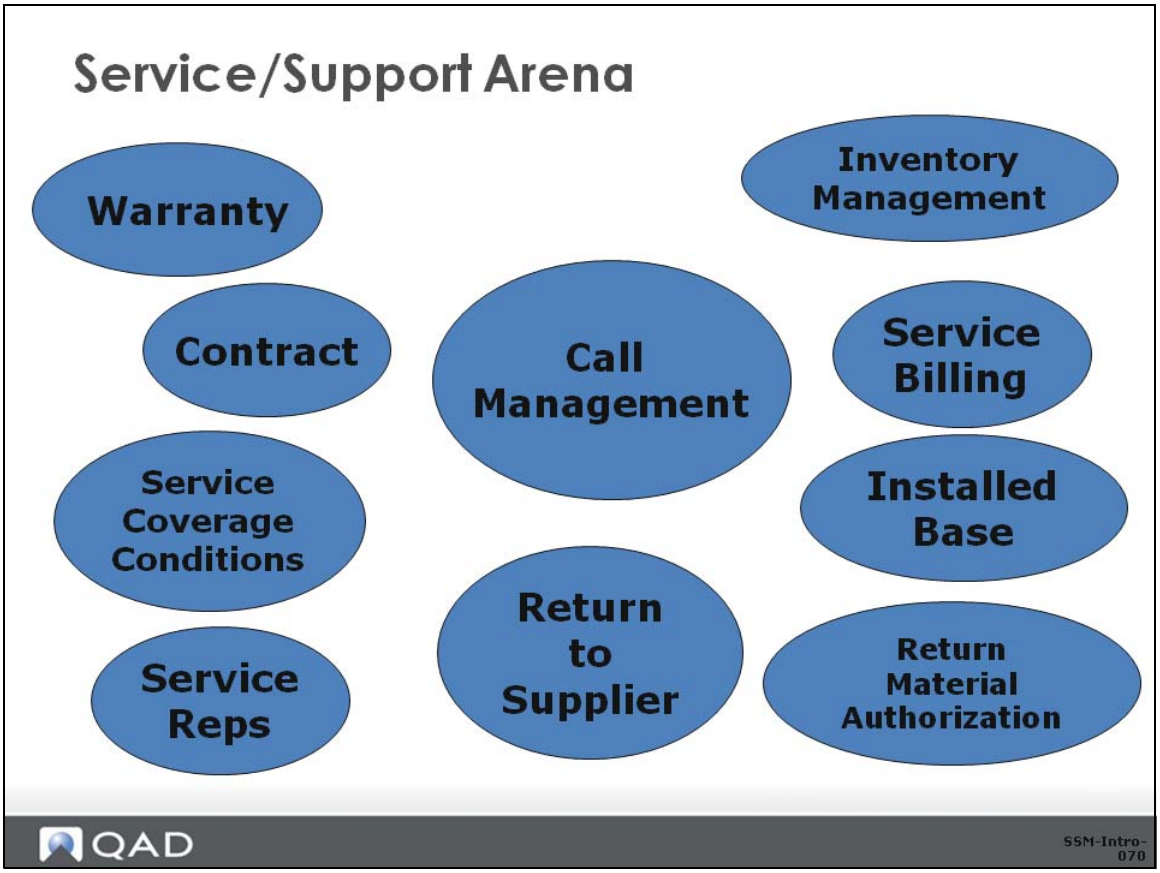


Many users who are unfamiliar with the scope of SSM functions think of service as an isolated area that has little to do with the rest of QAD EE. In fact, Service and Support Management relies heavily on information that is set up and managed in other QAD EE modules. This figure illustrates how SSM draws on data from other modules and is fully integrated with them. Modules with dashed lines are optional; those with solid lines are required to run SSM. The arrows indicate the direction of data flow.

Service functions do not passively use data defined in other areas of QAD EE. They also actively affect it. For example, service activity may interact with MRP requirements, allocations, and forecasting. Service affects general ledger accounts with both cost and revenue. Service activity is invoiced using standard sales order invoicing functions.

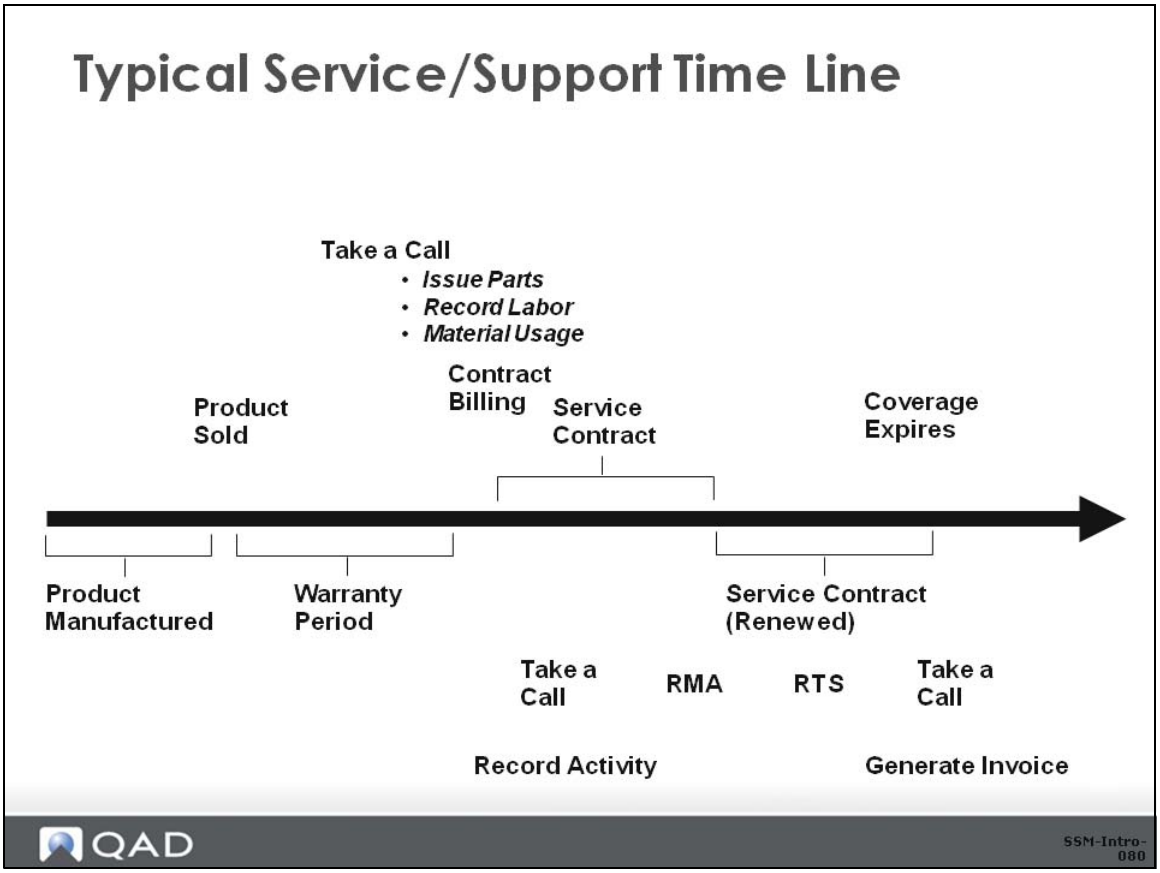
These are just a few examples of the way SSM interacts with other modules.

Service & Support Arena



Service and Support Management lets you set up and manage the interactions required for supporting, maintaining, or repairing an item, whether it is covered by warranty or service contract. A broad range of related functions provide a flexible arena capable of modeling many different kinds of business practices.

Typical Service / Support Time Line

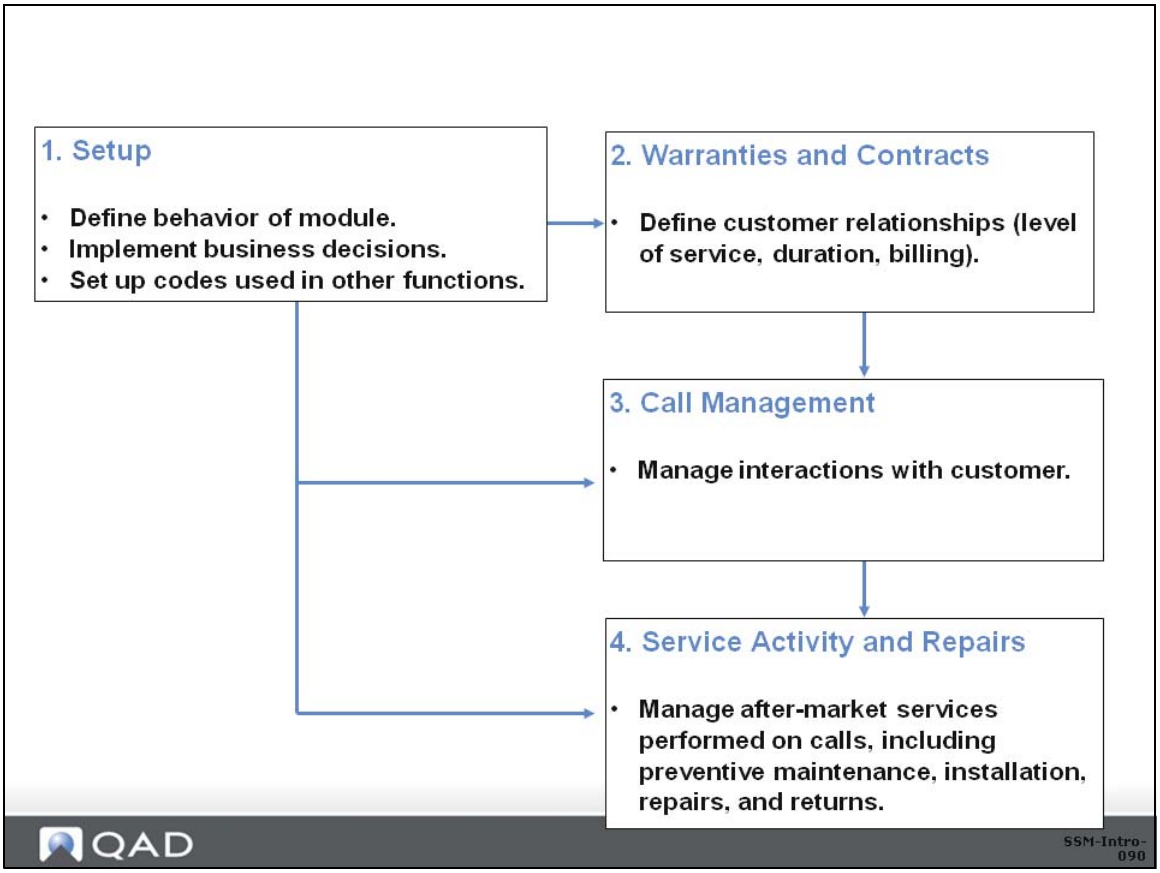


Service requirements typically begin when a product is sold. If you provide a warranty, the terms of service coverage are determined by the warranty while it is in force. Once the warranty expires, a contract may be sold that extends coverage under the same or different conditions. Contracts can be renewed when they expire. If not renewed, any further service becomes fully billable to the customer.

This time line illustrates the three main functional areas of SSM:

- Warranties and service contracts
- Managing contacts with end users
- Providing service activity and billing

Setup

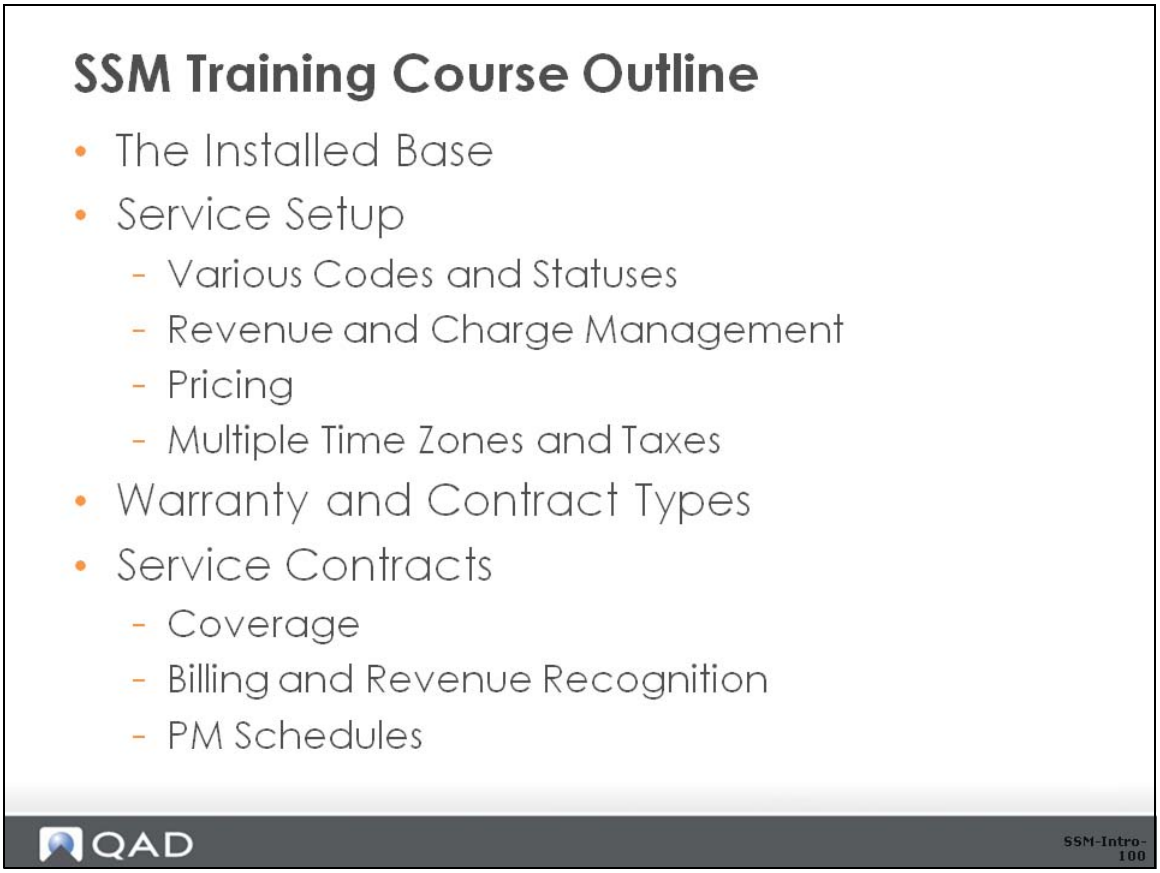


These functional areas, along with setup activities, determine a natural flow and logical progression from:

1. Defining the codes controlling service limits and variables to...
2. Defining the service relationship with the customer to...
3. Managing the contact that results (through a call) to...
4. Managing the physical response to a customer need, including repairs, installation, preventive maintenance, and returns.

In this figure, notice that all service activity is driven by the relationships defined in the warranty, contract type, or service contract supplying the terms of coverage for a particular activity.

Organization of this class

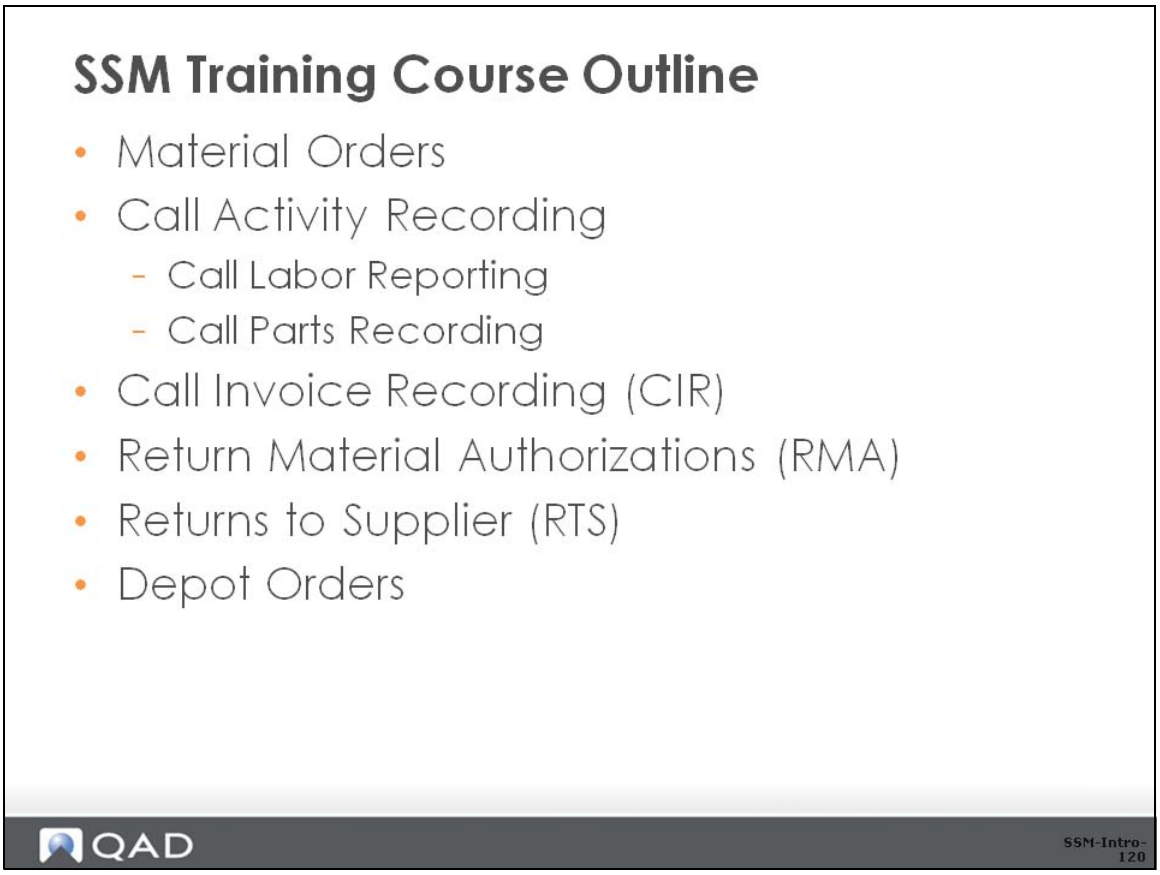


Most of the functions in SSM are interrelated: to fully understand one, you need to know something about all of them. In addition, many features of SSM are optional. Which features you use will depend largely on your own business requirements.

This course will give you an introduction to the entire scope of SSM, but it does not provide detailed instructions on all features. It follows the progression illustrated in the previous slide: setup, warranties and contracts, call management, service activities, and billing.

Most of the activities listed on this slide have to do with what is loosely termed implementation. Decisions regarding the installed base influence service policy. Warranty and contract types define your relationships with end users. Contracts drive coverage and billing, allow for deferred revenue recognition and provide means to schedule PM's.

Call Management records your daily interactions with end users. Call processing may be relatively simple or complex, depending on how many of the optional call management features you decide to use.



Call processing includes the recording of service activity to resolve the call, the definition of the parts and actions needed, the management inventory (both to and from the customer) and the generation of invoices.

RMAs and RTSs provide alternate ways of managing simple replacements and returns.

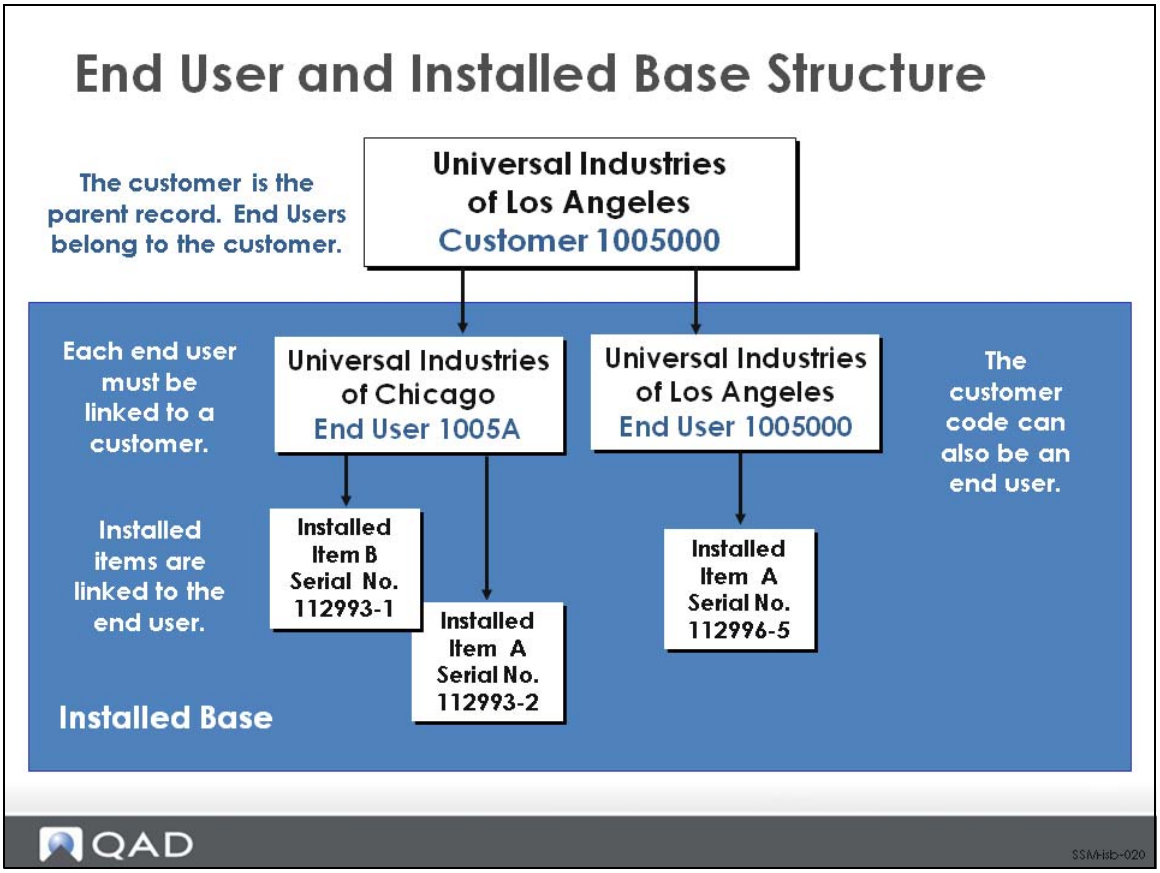
Chapter 2

Installed Base

Overview

Service and Support Management (SSM) enables service organizations to maintain information about the products they sell or service and the individuals who own them. Collectively, this information is the installed base (ISB). This chapter introduces business considerations related to the installed base and describes how to manage it.

Understanding Basic Terms



The installed base is a repository of information about items and the organizations that own and use them. An installed base record links three essential elements: an item, the customer who purchased it, and an end user. It also maintains details about an item, including serial number, installation date, warranty coverage, and how often maintenance is required.

The customer is the organization that purchased the item, and represents the parent record to which end users and installed items relate. Each end user must be linked to a customer and, in turn, each installed item must be linked to an end user. As shown in the figure above, the customer can also be an end user.

When the installed base is updated from sales orders, the customer is the sold-to address in Sales Order Maintenance. If you do not sell directly to customers but market your products through retail outlets, you can define a single customer record to use as a place holder in this relationship.

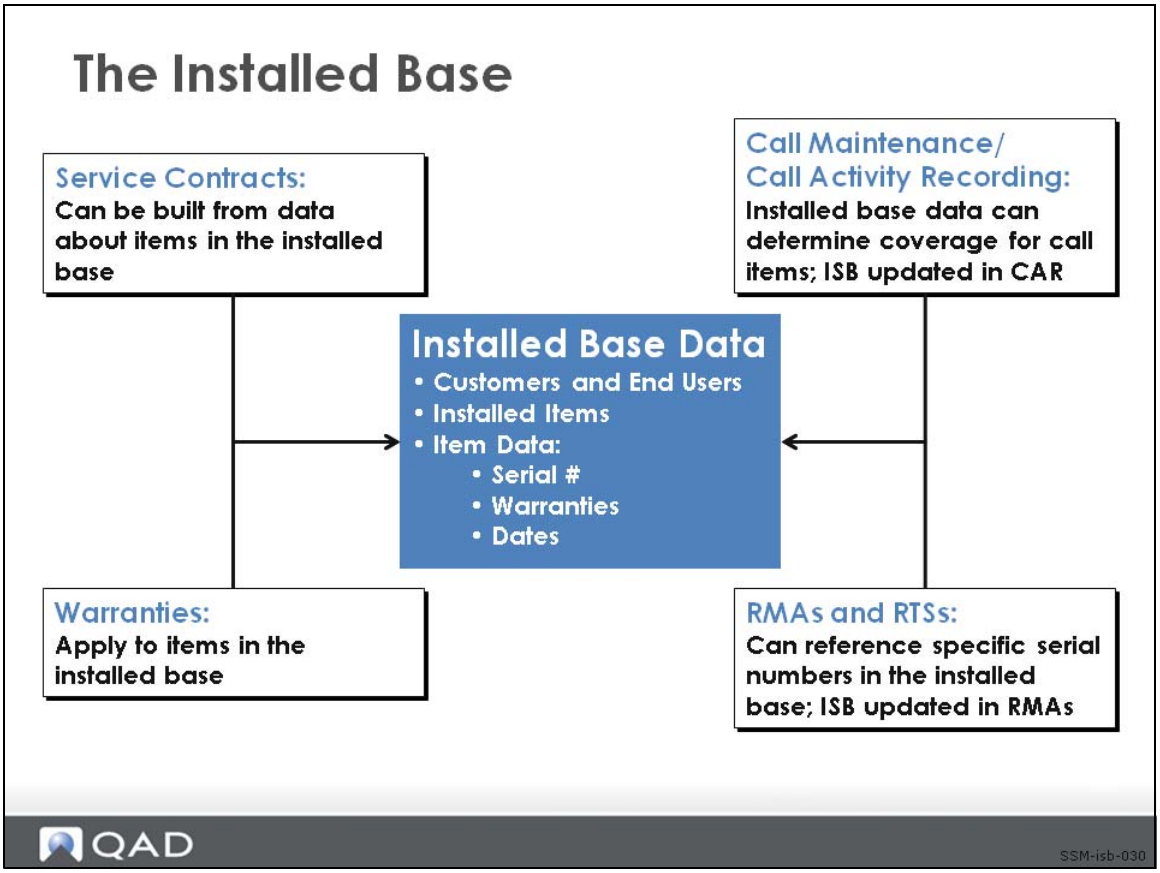
End users are the people who most often use an item, request maintenance for it, and report problems. When the installed base is updated from sales orders, the end user is the ship-to address in Sales Order Maintenance (7.1.1). The end user is not necessarily the customer.

Each customer can have many end users, but a given end user is linked to only one customer. Typically, the end user possesses the item, even though it might have been purchased by the main office.

Example A parent company buys a forklift and ships it to a warehouse. The parent company is the customer. The warehouse is the end user. The warehouse did not buy the forklift, but uses it at that location. Someone at the warehouse usually reports service problems.

A customer can also be the end user, but an end user cannot exist by itself-it must be linked to a valid customer record. The end user is always connected to the customer who purchased the item that the end user possesses.

The Installed Base



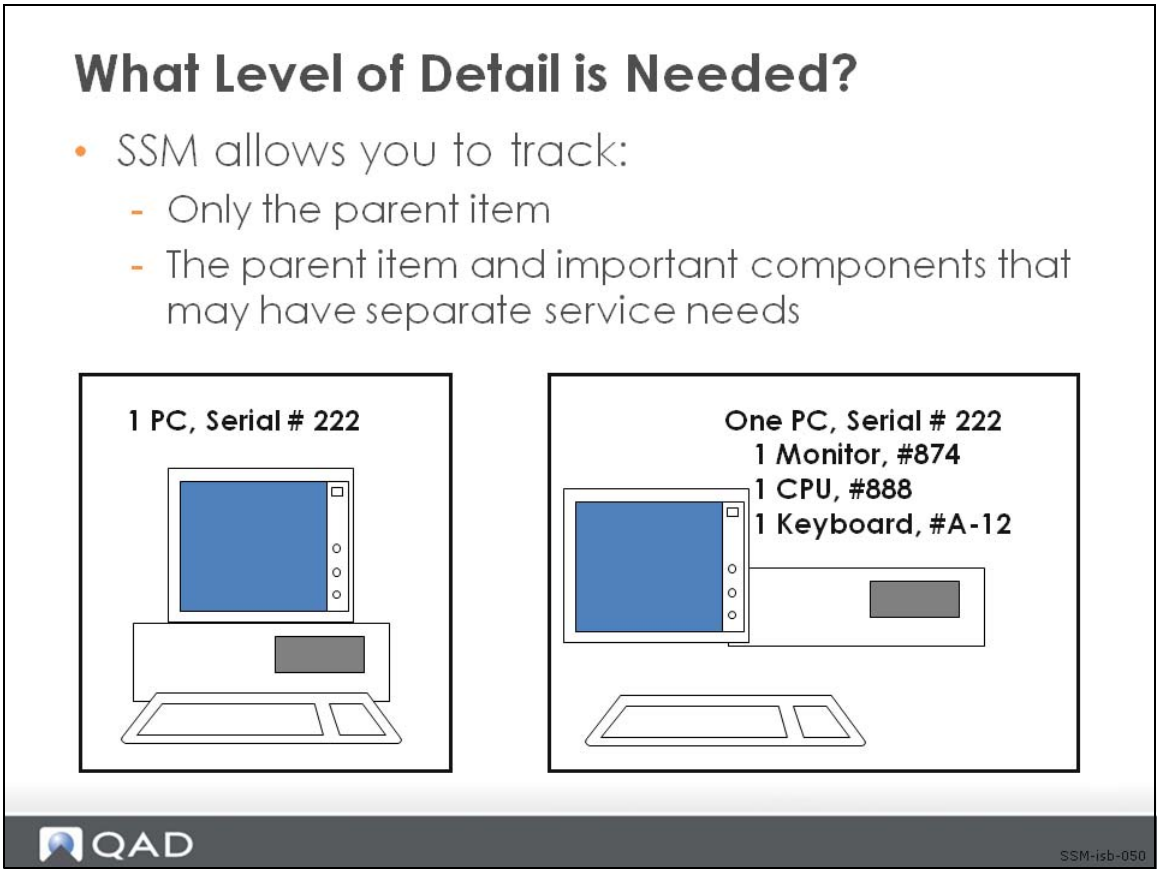
Maintaining an installed base is not required to use Service and Support Management. However, most key service activities refer to and can derive important information from it. This slide illustrates how the installed base is central to service functions. Every major service function can refer back to the installed base, and most of them can also update the installed base as information changes.

Should You Track the Installed Base?

Not every organization needs to track an installed base. For example, a repair center that accepts products manufactured by many different companies may not need to keep track of installed base information. The questions on this slide will help you determine if you need to implement an installed base.

The installed base is normally used only with lot or serial number controlled items, because these support unique item identifications. If you provide warranties, service only registered products, perform regularly scheduled maintenance, or face the possibility of a product recall, you will want keep track of the installed base.

What Level of Detail is Needed?

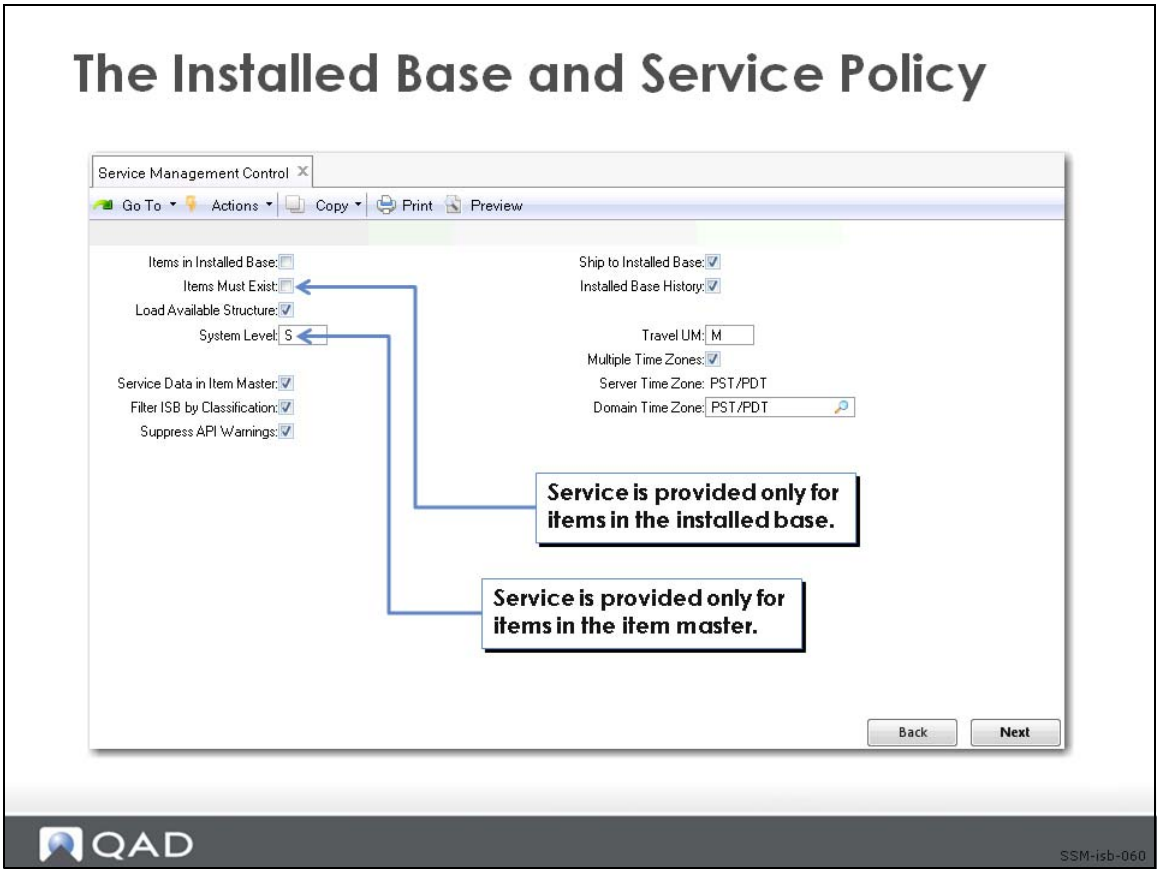


The answers to the previous questions also indicate how detailed the installed base records should be and which details are important.

For example, if warranties are offered from the date of purchase, your installed base records need to have a date of purchase for each item sold. If you are able to limit the warranty to customers who register the product, you will also need to track whether each sold item has been registered.

Another issue related to detail concerns coverage of components of an item sold. Especially with configured products, certain options may have warranty coverage distinct from the parent item.

The Installed Base and Service Policy



Key business decisions controlling the service activity are set in the Service Management Control (11.24). Should you take calls for items only in your item master or installed base? Will you load parents and their components into the ISB after the sales order shipment/invoice post? Do you utilize multiple time zones in managing service?

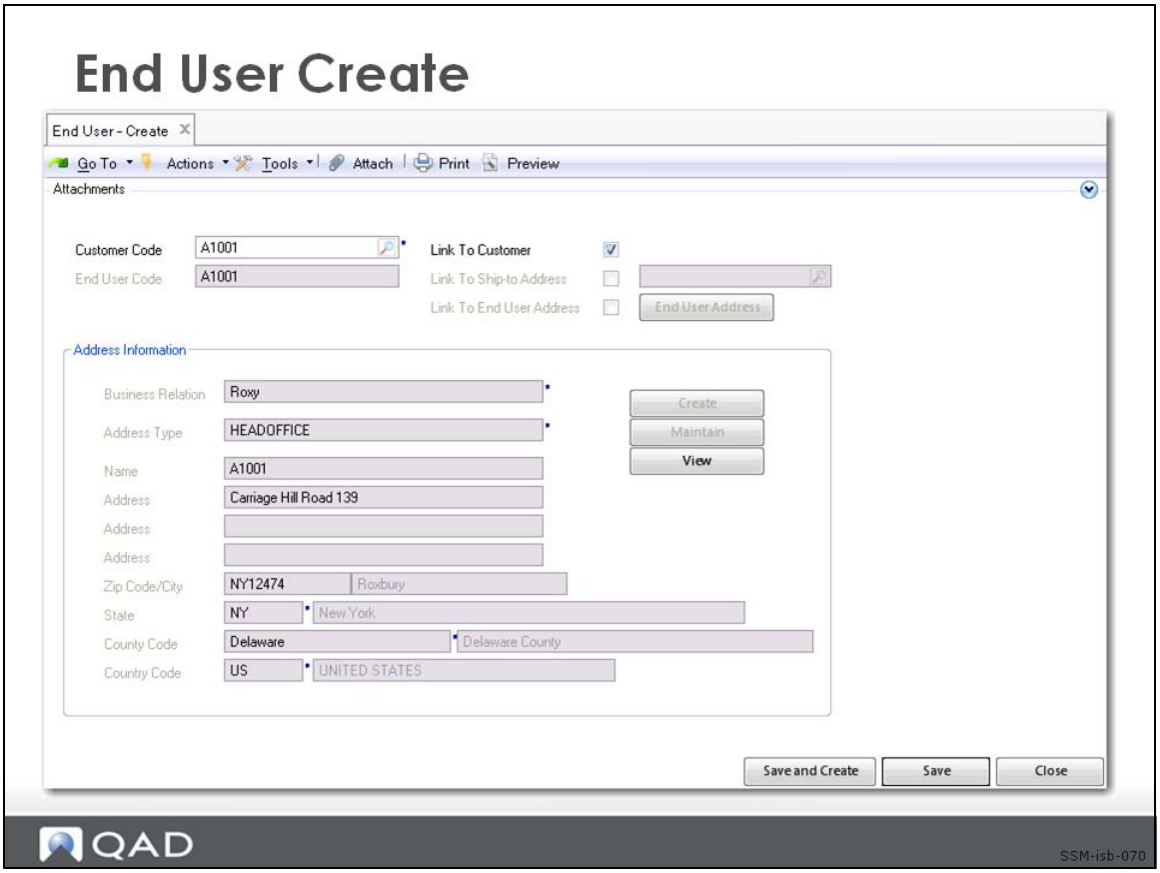
If you want to use the installed base as a validation database, you should set Items in Installed Base to Yes. When set to Yes, no service quotes, contracts, call quotes, or calls can be created referencing an item not in the installed base. When set to No, only a warning message is displayed in these functions.

The setting for the Items Must Exist field in the Service Management Control determines whether the installed base is restricted to inventory items. Setting Items Must Exist to No lets service personnel take calls for items that are not defined in your item master. This is important if you service items that you do not manufacture and sell.

Load Available Structure only has an effect if certain other conditions are also true:

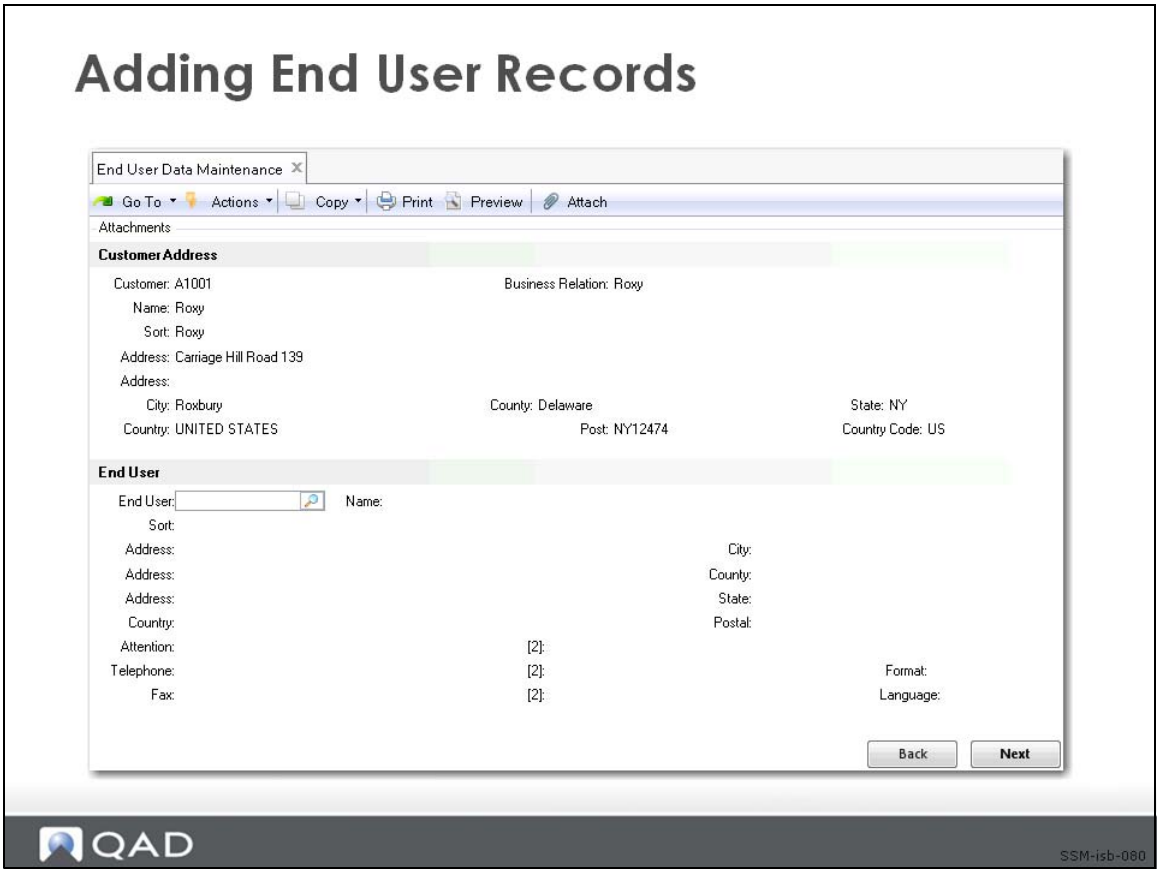
- The item must be one you manufacture or configure since the system uses transaction history records to determine the components.
- The parent and each component to be added to the installed base must also be defined as a service item with Service Item Maintenance and the Installed Base flag set to Yes.
- Manufactured items must be serial number controlled and created with a work order quantity of 1 to allow unique identification.
- The shipment quantity for configured items must be 1.

End User Create (27.20.3.1)



End user information provides part of the key in uniquely identifying items in the installed base. As mentioned previously, end users are not always the same as customers, although they may be. One customer can have many end users, but an end user is linked to only one customer. Customers are created using the Customer Create program found in the Customer Setup Menu.

Adding End User Records

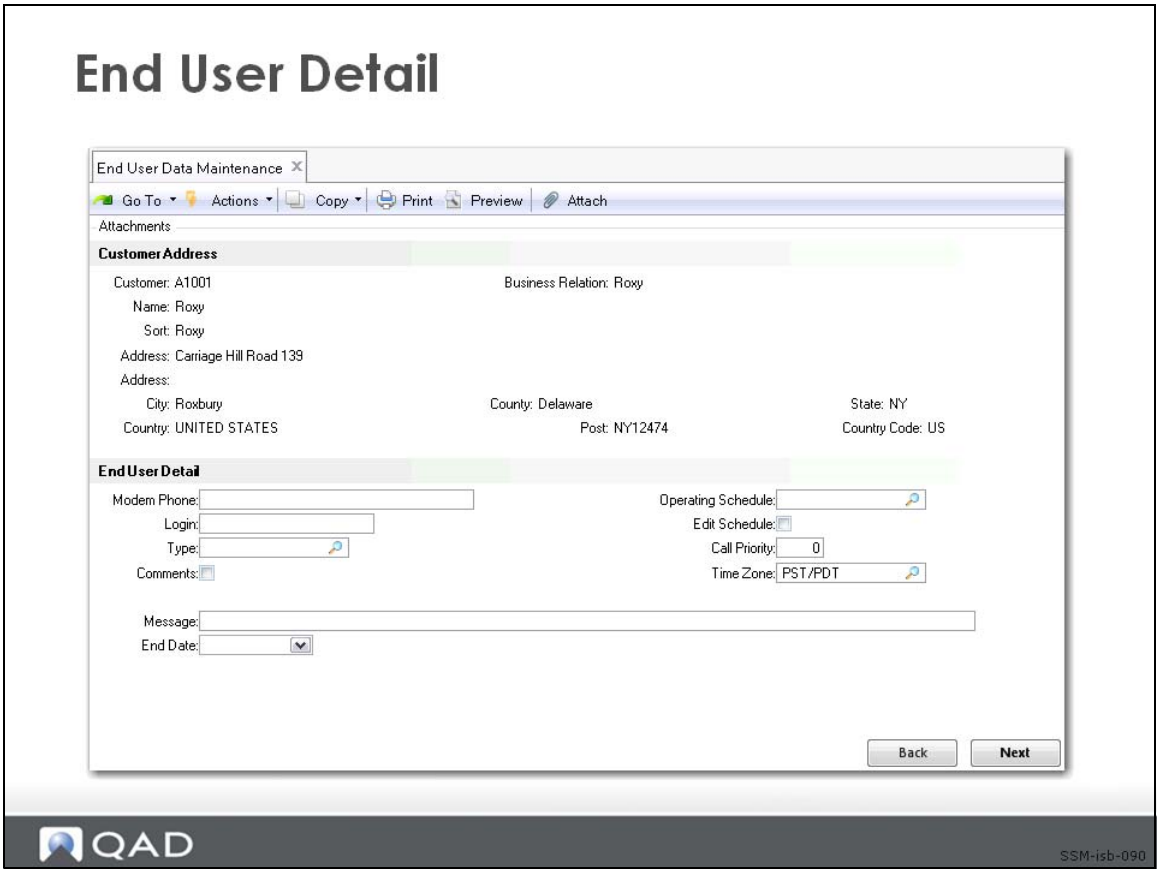


End users can be created in two ways:

Directly in the Customer Setup Menu, using the End User Create program.This method is best when adding a batch of new end users to the system, such as when processing product registration cards. When an end user is created directly, you have the opportunity to then specify detailed service information in End User Data Maintenance (11.9.1).

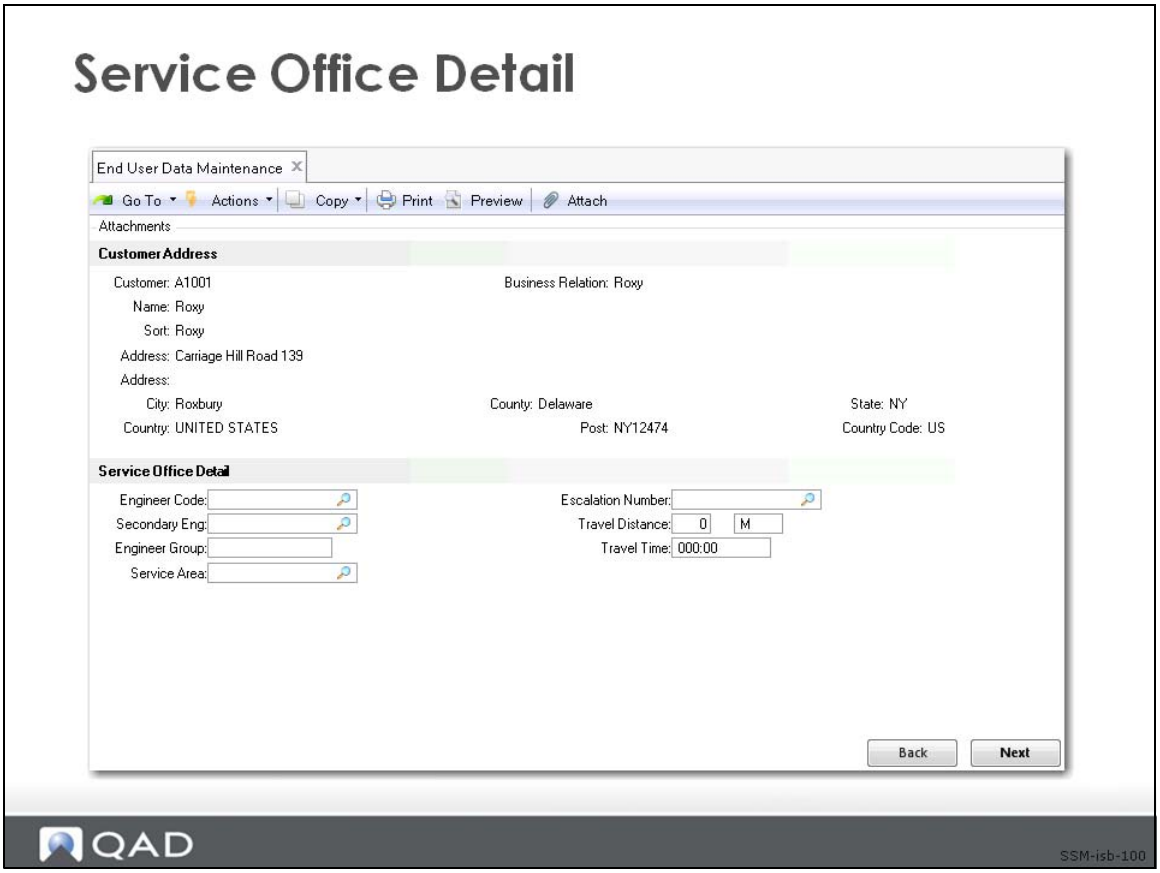
End users can also be created indirectly through the interface between service and the Sales Order module, and from other key service functions like Call Maintenance, Call Quote Maintenance, RMA Maintenance, and Contract Maintenance. In this case, only the minimum amount of data is specified however, additional data can be added at a later date by accessing the End User Data Maintenance function.

End User Detail



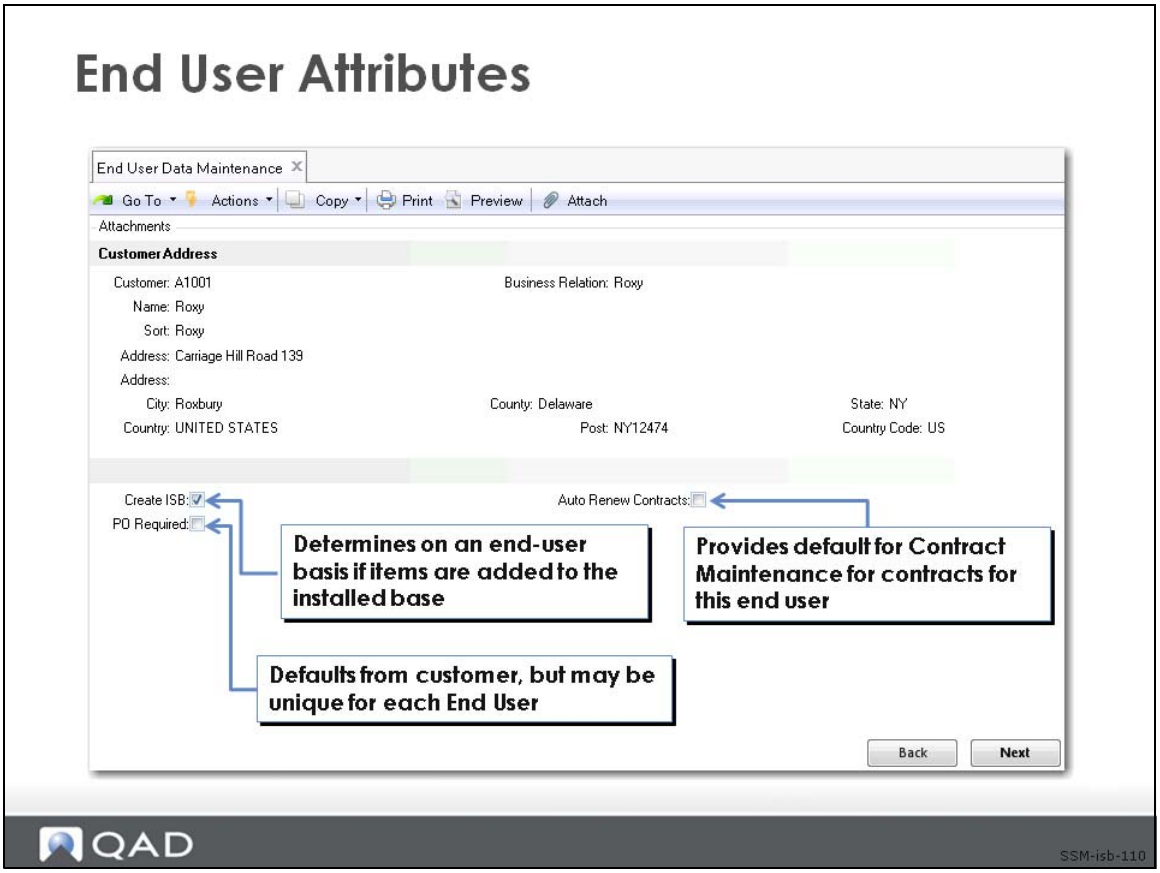
Some attributes of the end user are static data for reference and reporting. Most, however, affect other service functions. The end user type may affect the kind of warranty coverage an end user receives.

Service Office Detail



Escalation, travel distance and unit of measure may provide defaults when a call for this end user is created. The primary and secondary engineer associated with the end user, as well as the end user's area, affect the engineer scheduling function.

End User Attributes

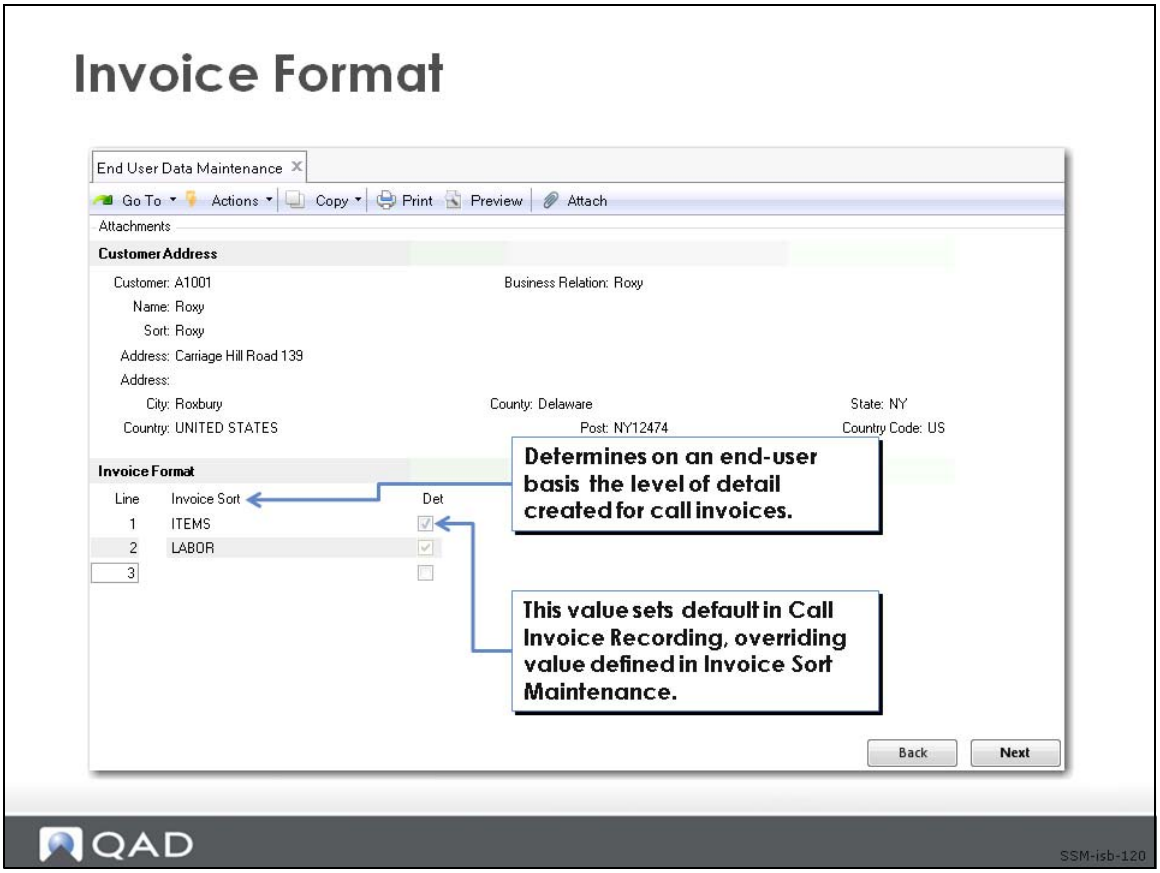


The value set in the Create ISB field is used in conjunction with the value defined for an item in the Installed Base field of Service Item Maintenance to determine if installed base records are normally created for this end user. This field defaults from the same setting in the End User Control, (11.9.24).

The value of PO Required is checked by RMAs, Service Contracts, Contract Quotes, Call Quote Maintenance, Call Maintenance, Call Activity Recording, and Call Quote Release to Recording.

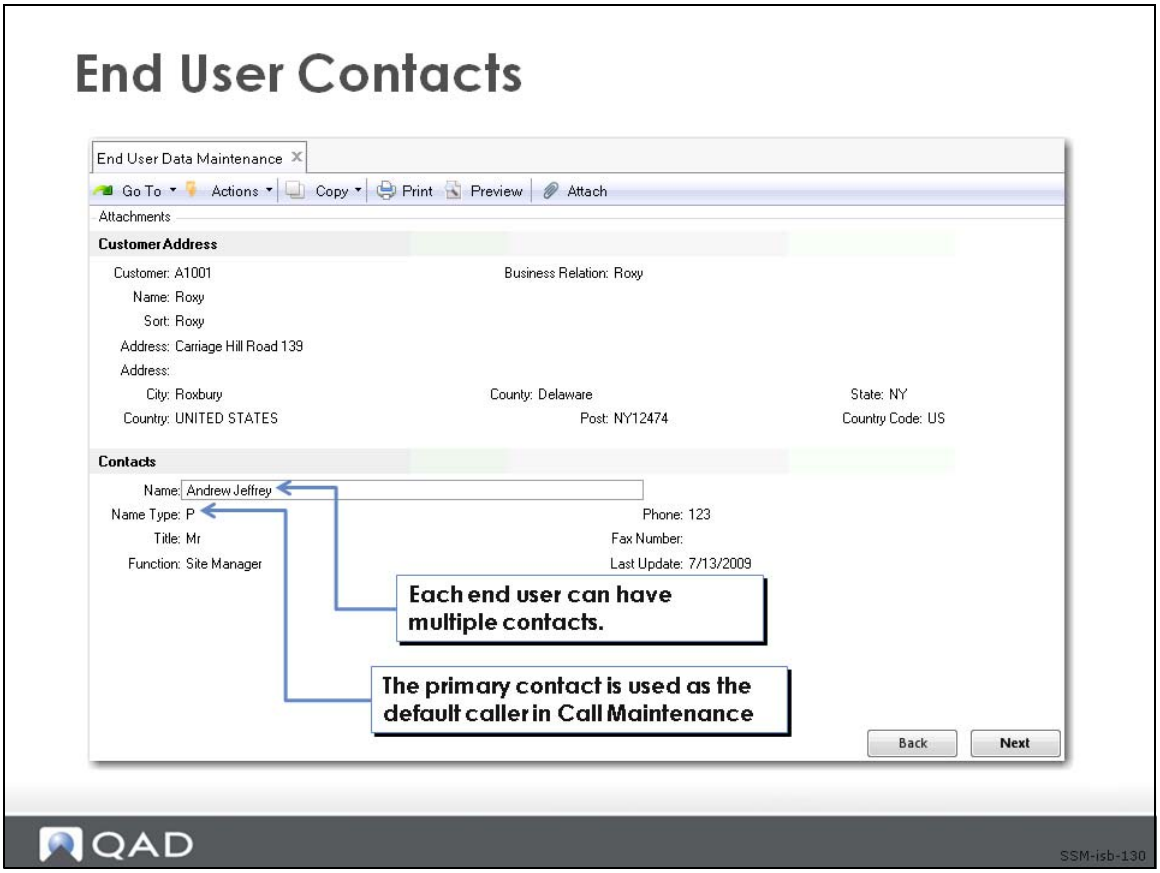
The value of Auto Renew Contracts provides a default in Contract Maintenance when contracts for this end user are created.

Invoice Format



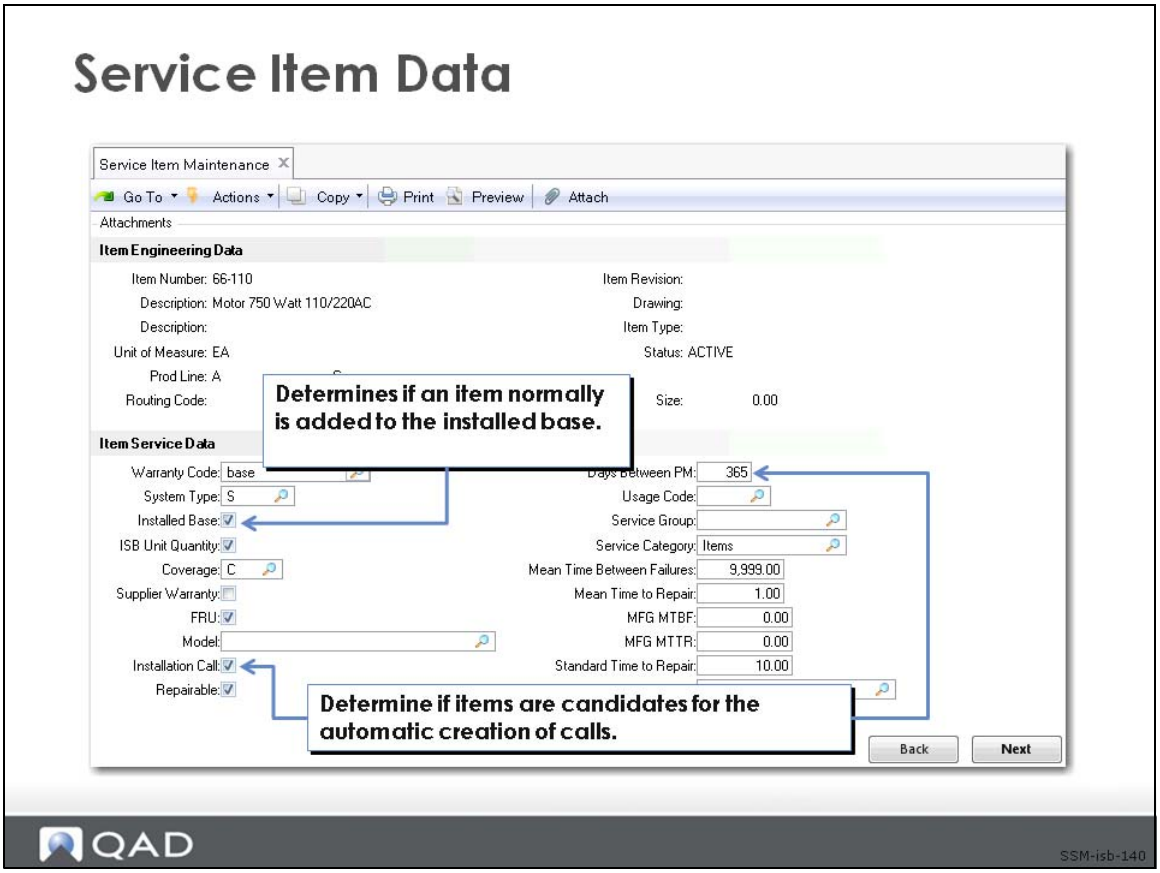
The Invoice Format frame of End User Maintenance enables you to define the level of detail you want displayed on printed invoices for this end user. The level of detail is initially defined for each invoice sort when it is set up. The detail level specified for an end user overrides the level associated with the invoice sort.

End User Contacts



Each end user address can have several contact names listed, one of which can be designated as the primary contact (Name Type = P). Each contact name can be stored along with a title, phone, and fax number. The first primary contact and associated phone number displays by default in the Caller and Phone fields when a new call is created for this end user. This information prints on the call to assist the engineer in on-site visits.

Service Item Maintenance



If you typically provide service for a well-defined set of items, you can define service attributes for them with Service Item Maintenance, (11.3.7). To use this function, the items must first be defined in Item Master Maintenance.

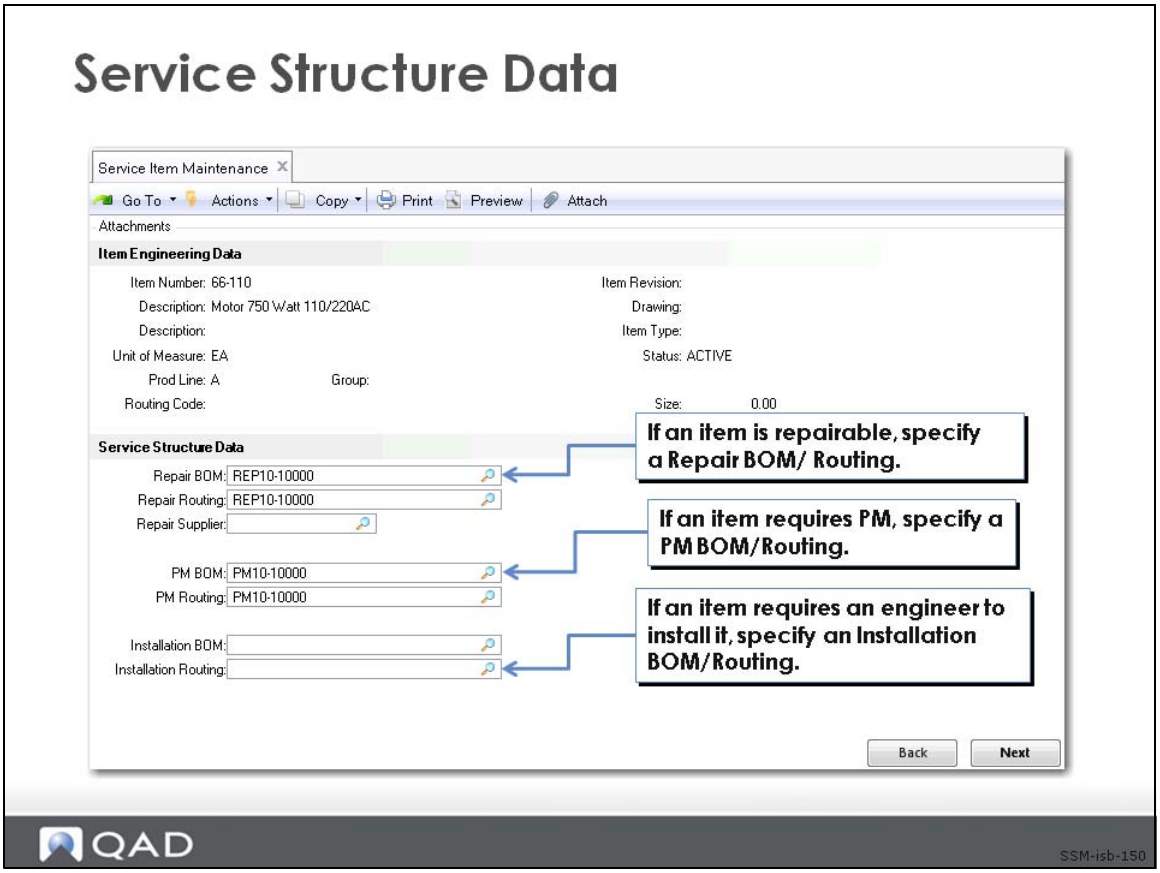
The information specified in Service Item Maintenance has a critical influence on key service activities including managing the installed base, recording service activity in Call Activity Recording, determining coverage for items in the installed base, the creation of installation calls, and definition of standard service BOMs and routings.

The model number associated with the item also becomes part of the installed base record. Call defaults may be set up by model. This can be useful if calls associated with various product models follow different paths.

The ISB Unit Quantity flag affects the creation of installed base records for non-serial number controlled items. If this is No, one installed base record can be created for multiple items on a sales order line, with the line item quantity. When set to Yes, each installed base record has a quantity of one. Serialized items are always added to the installed base with a quantity of 1.

Service categories are set up with Service Category Maintenance, (11.21.9). They allow detailed tracking of invoice costs and service coverage levels. A default item service category is defined in the Call Management Control, which is used in Call Activity Recording if no other service category is associated with the item.

Service Structure Data



Three default BOMs and routings may be associated with an item in Service Item Maintenance and are used by the system under different circumstances.

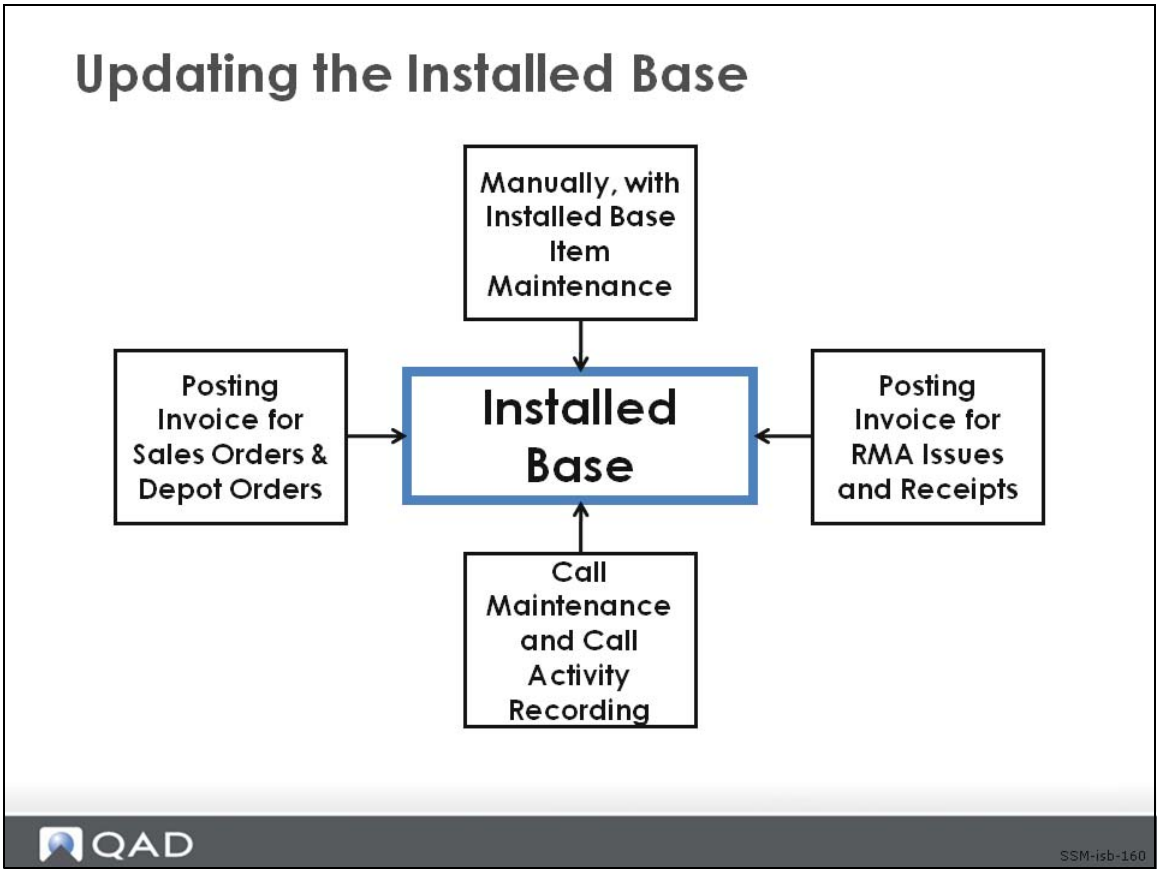
The Repair BOM and Routing are used by default for calls created with Call Maintenance, Call Quote Maintenance, and the Call Generator for work codes other than PM or Install. The Repair Routing is also used on work orders created by the RMA Release to Work Order function. A Repair BOM and Routing are normally specified only if repairable is Yes; otherwise, a warning is displayed.

The PM BOM and Routing are used by default for calls created automatically by the system during PM scheduling in Contract Maintenance or created with the PM work code in Call Maintenance, Call Quote Maintenance, or the Call Generator. A PM BOM and Routing are normally specified only if the Days Between PM field is not zero; otherwise, a warning is displayed.

The Installation BOM and Routing are used by default when an installation call is created for a newly sold item during invoice post or a call is created with the Install work code in Call Maintenance, Call Quote Maintenance, or the Call Generator. An Installation BOM and Routing are normally specified only if Installation Call is Yes; otherwise, a warning is displayed.

Different BOMs and Routings can be set up by site in Service Item Maintenance by Site, (11.3.9).

Updating the Installed Base

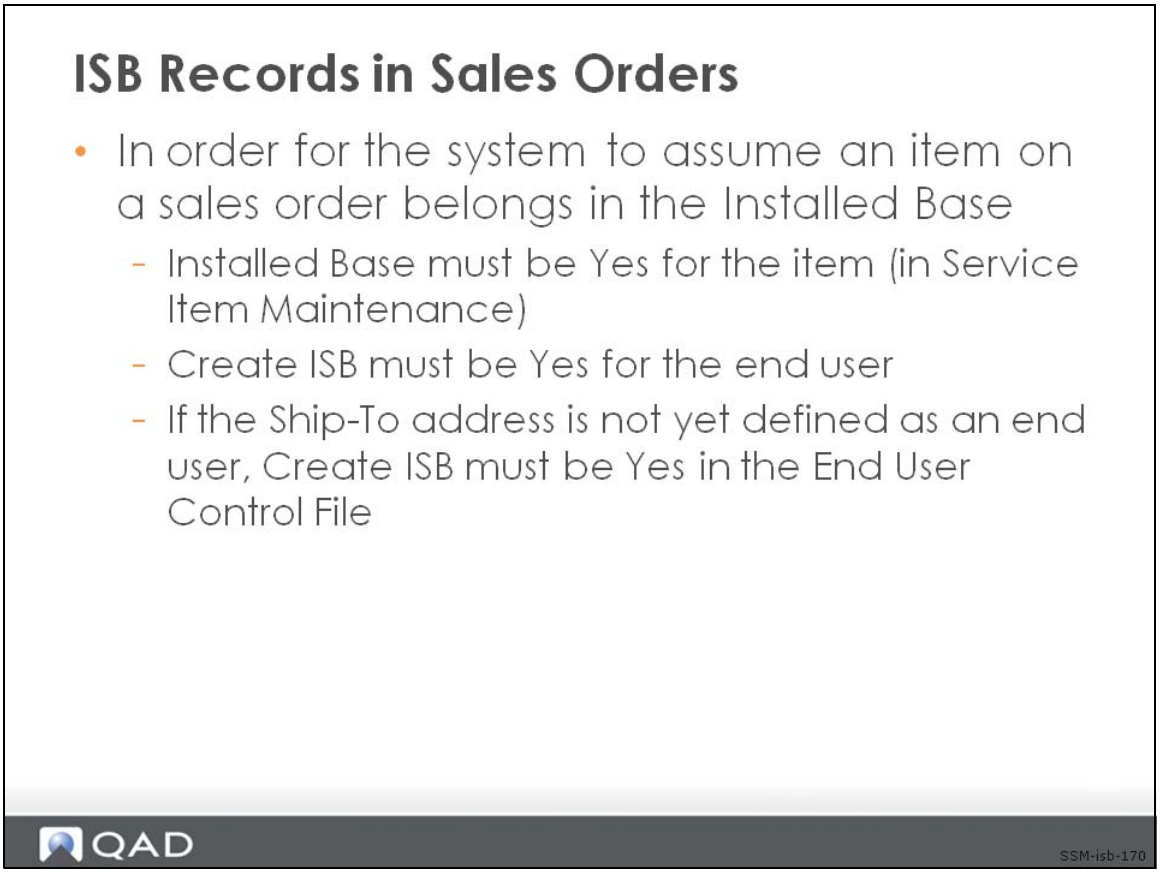


The installed base is made up of records tying items with the end users that use them. These records can be created in various ways. Basically, records are either created manually, or various features of the system can be used to ensure that records are updated automatically.

- Manually, with Installed Base Item Maintenance, (11.3.1) and Installed Configuration Maintenance (11.3.5).
- Automatically, when invoices are posted for sales or depot order shipments and RMA issues and receipts.

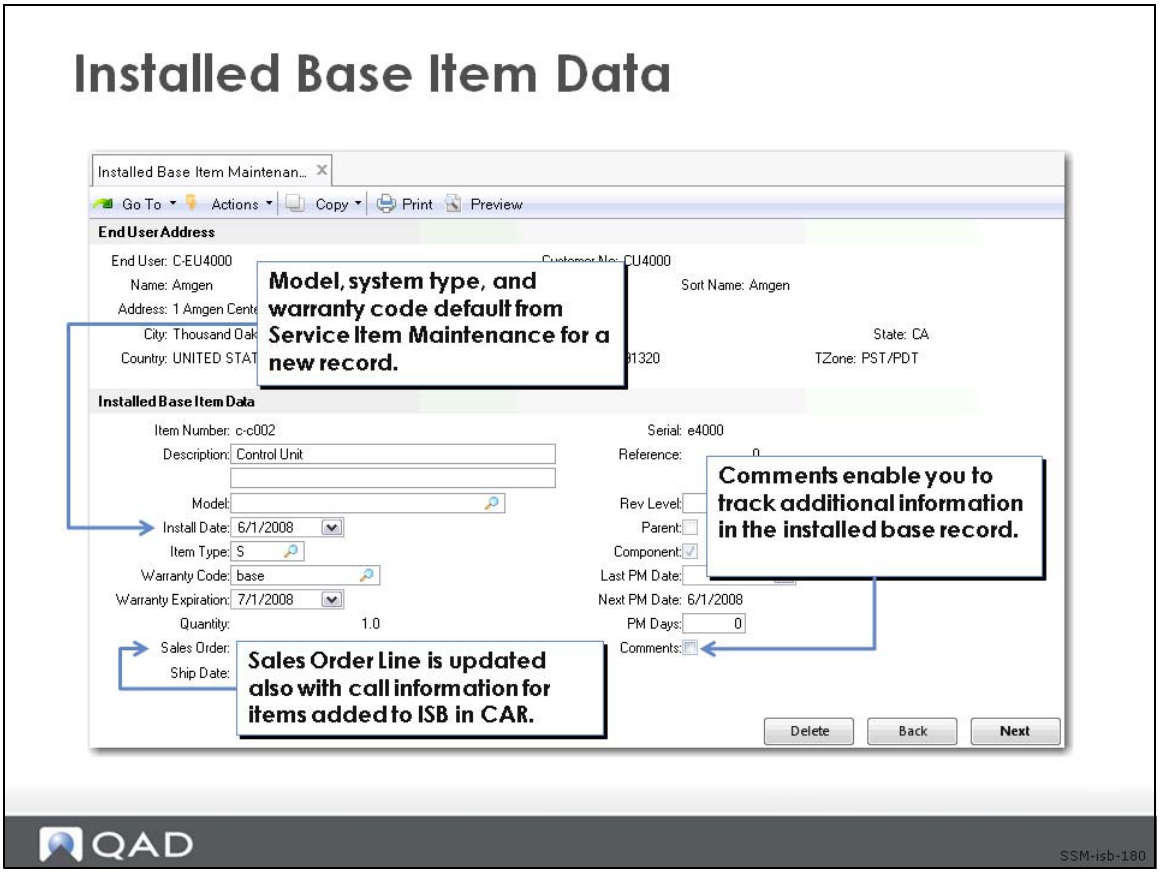
  Automatically, from call tracking functions. When a call is closed immediately in Call Maintenance, you can optionally update the installed base. Otherwise, the installed base can be updated in Call Activity Recording for the item on the call and for items issued to repair it.

ISB Records in Sales Orders



Several conditions must be met to have invoice post update the installed base.

Installed Base Item Data



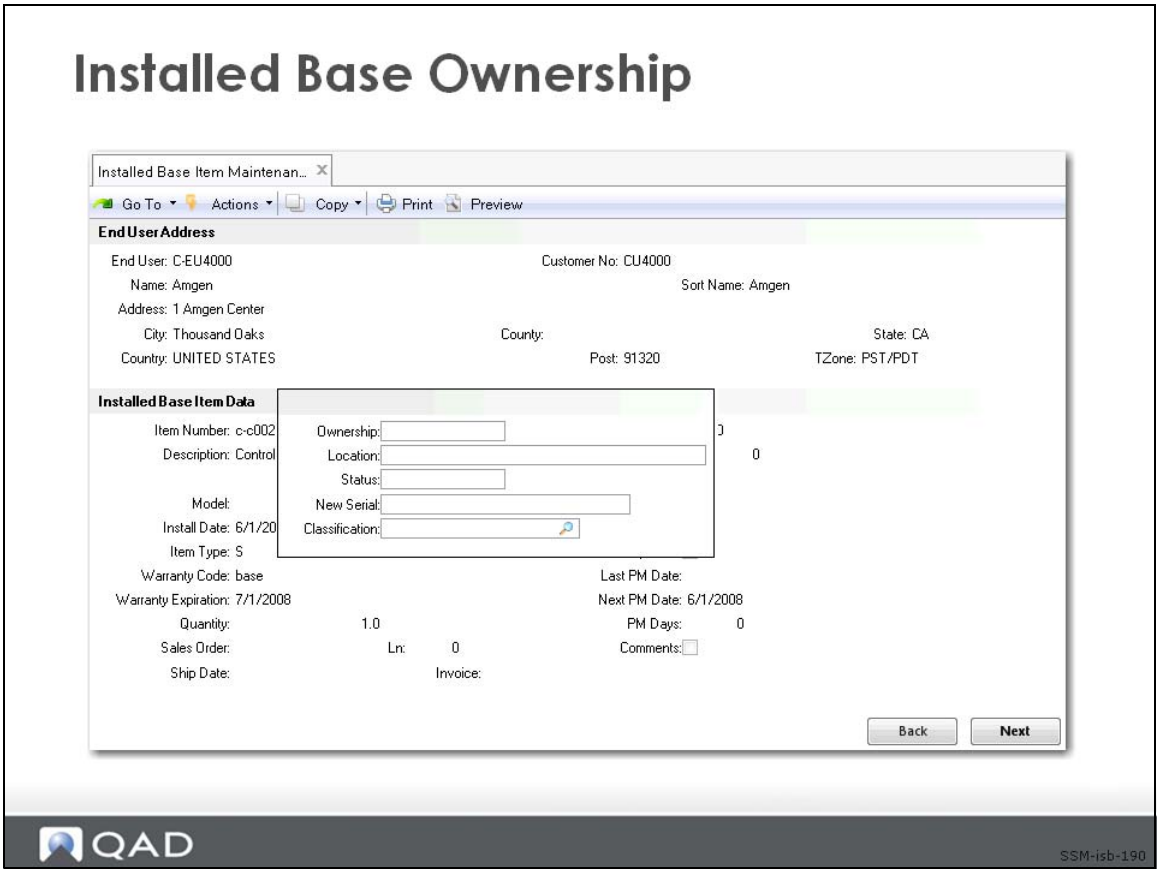
Installed Base Item Maintenance (11.3.1) is used to enter new items directly into the installed base. This function is particularly helpful for companies that must manually add items and configurations to the installed base.

Other typical uses for Installed Base Item Maintenance include:

- Extending the warranty expiration date
- Changing the revision level of the item
- Modifying component records
- Entering and updating preventive maintenance (PM) dates and setting the interval between last/next PM dates
- Deleting obsolete records

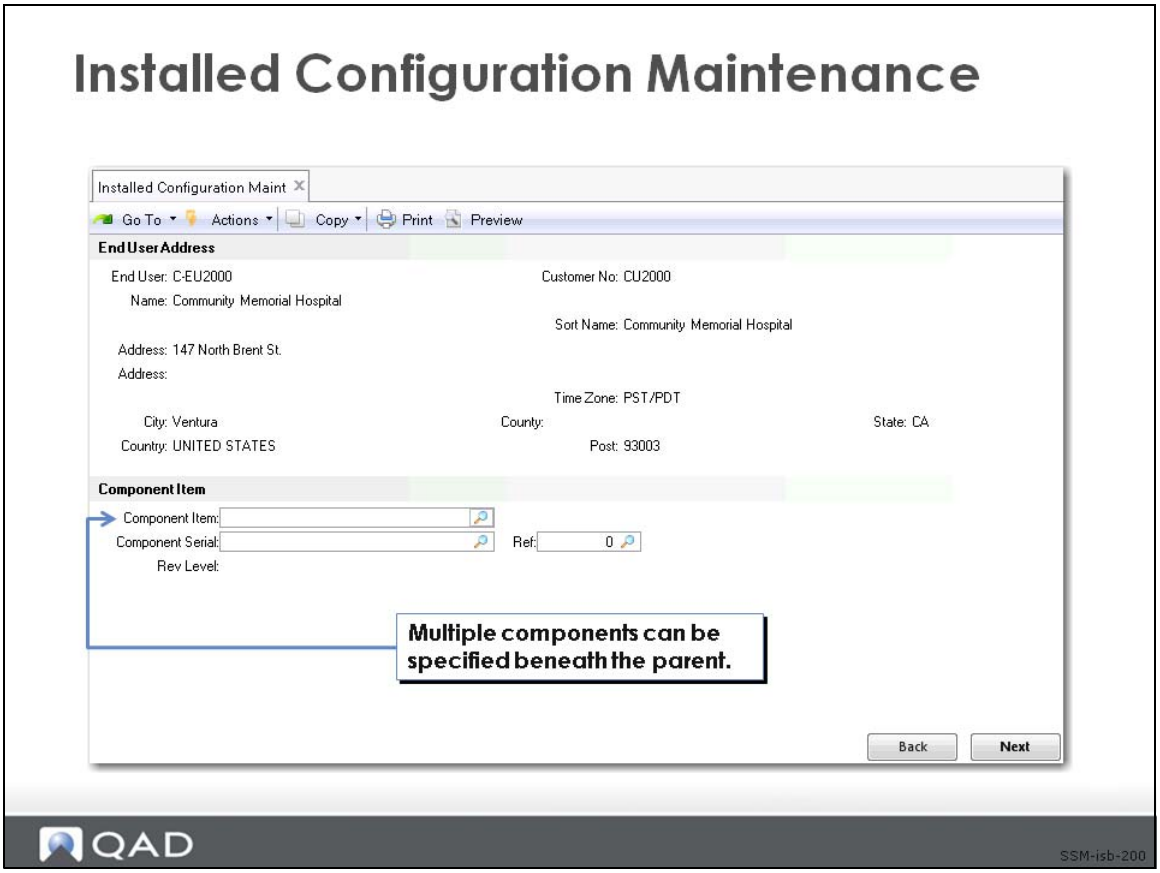
When a new item is added to the installed base, many of the fields default from values set up in Service Item Maintenance.

Installed Base Ownership



There are additional, optional fields to capture more information on who has the item at the end user location and where it is. Ownership, Location and Status are reference only and appear on selected inquiries and reports. The New Serial field is used to change the serial number for an existing installed base item.

Installed Configuration Maintenance

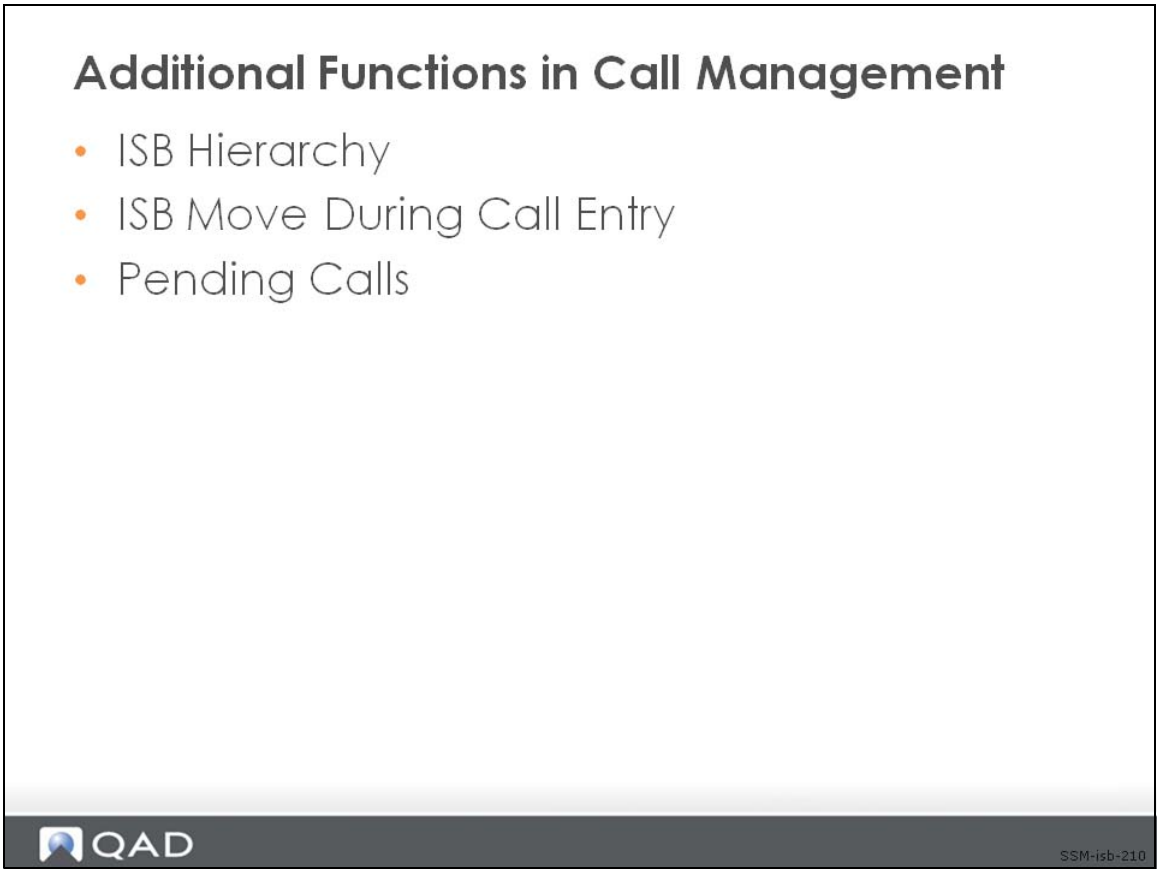


Installed Configuration Maintenance (11.3.5) can be used to create and maintain product structures in the installed base. Parent-component relationships can be created directly with this function, or modifications can be made to product structures created in other parts of the system.

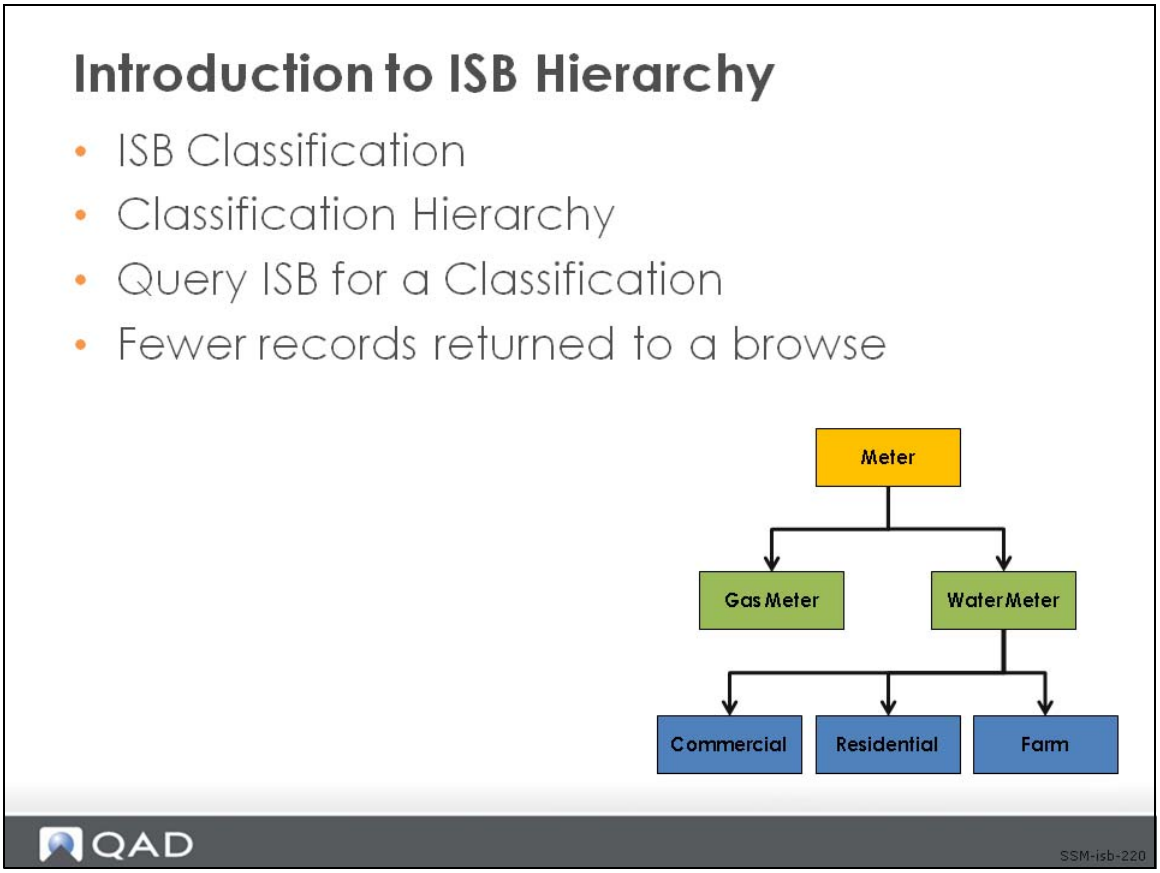
Each installed item within the configuration can have a contract or warranty established for it separately. There are several advantages to having the product configuration in the installed base:

- Customer service can determine exactly what is in the configuration.
- If the item is moved to a different end user, the entire configuration can be moved.
- If one or more components are replaced during a service activity, just those components can be updated in the installed base.

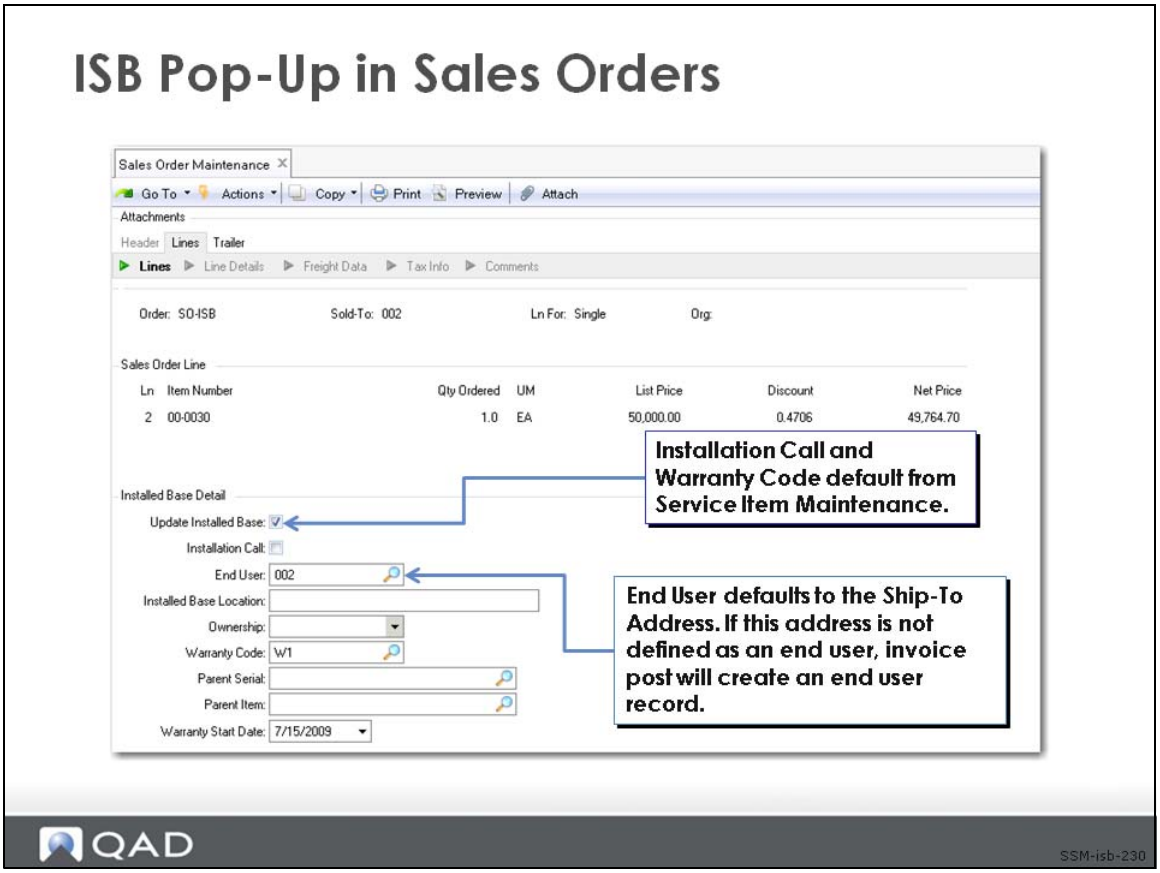
Additional Functions in Call Management



Introduction to ISB Hierarchy



ISB Pop-Up in Sales Orders

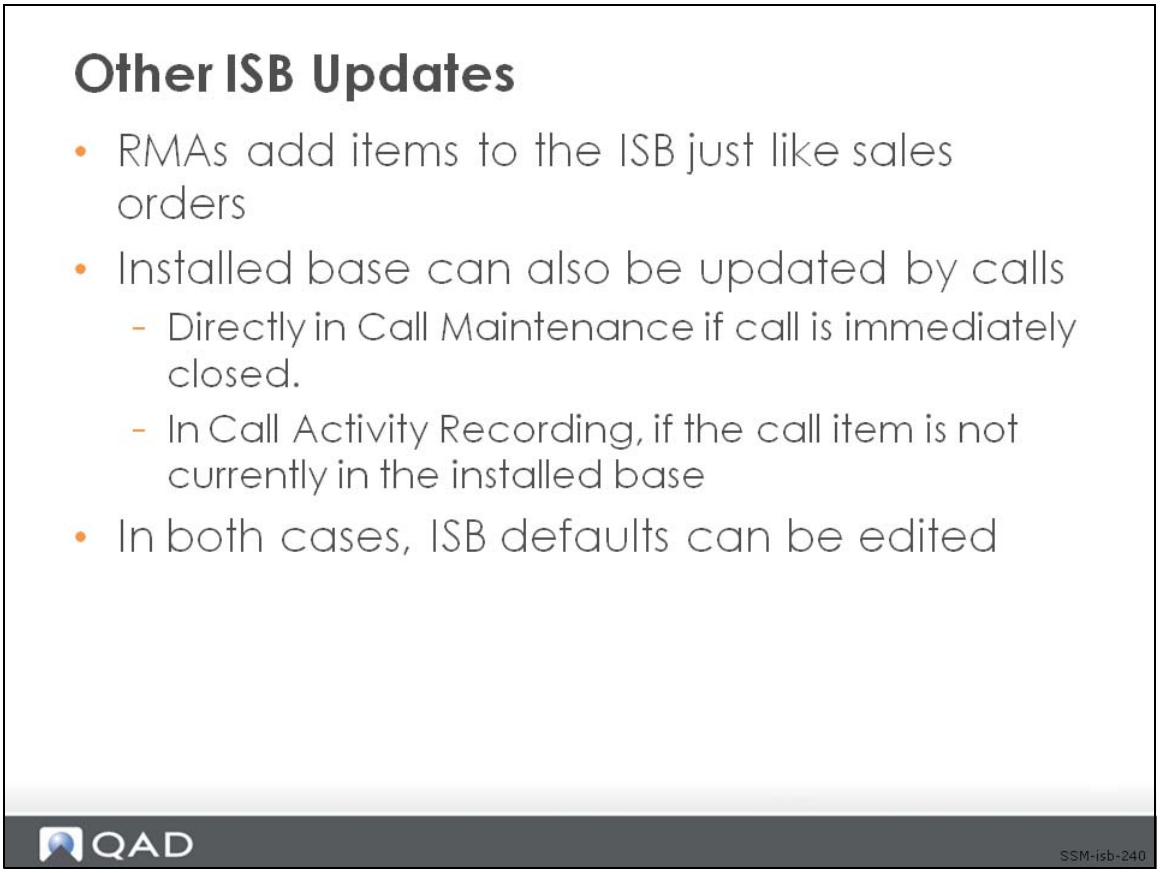


These values can be used behind the scenes to create the ISB record. However, if SO Edit ISB Defaults is set to Yes in the Sales Order Control, default values can be overridden during Sales Order Maintenance. In this case, a pop-up displays and fields can be modified as needed.

The Parent Serial and Parent Item fields are used only if the item being sold should be added to the installed base as a component of another installed base item.

The warranty start date defaults to blank. If the user does not explicitly specify a date, the system uses the sales order ship date as the warranty start date when the installed base record is created during invoice post.

Other ISB Updates

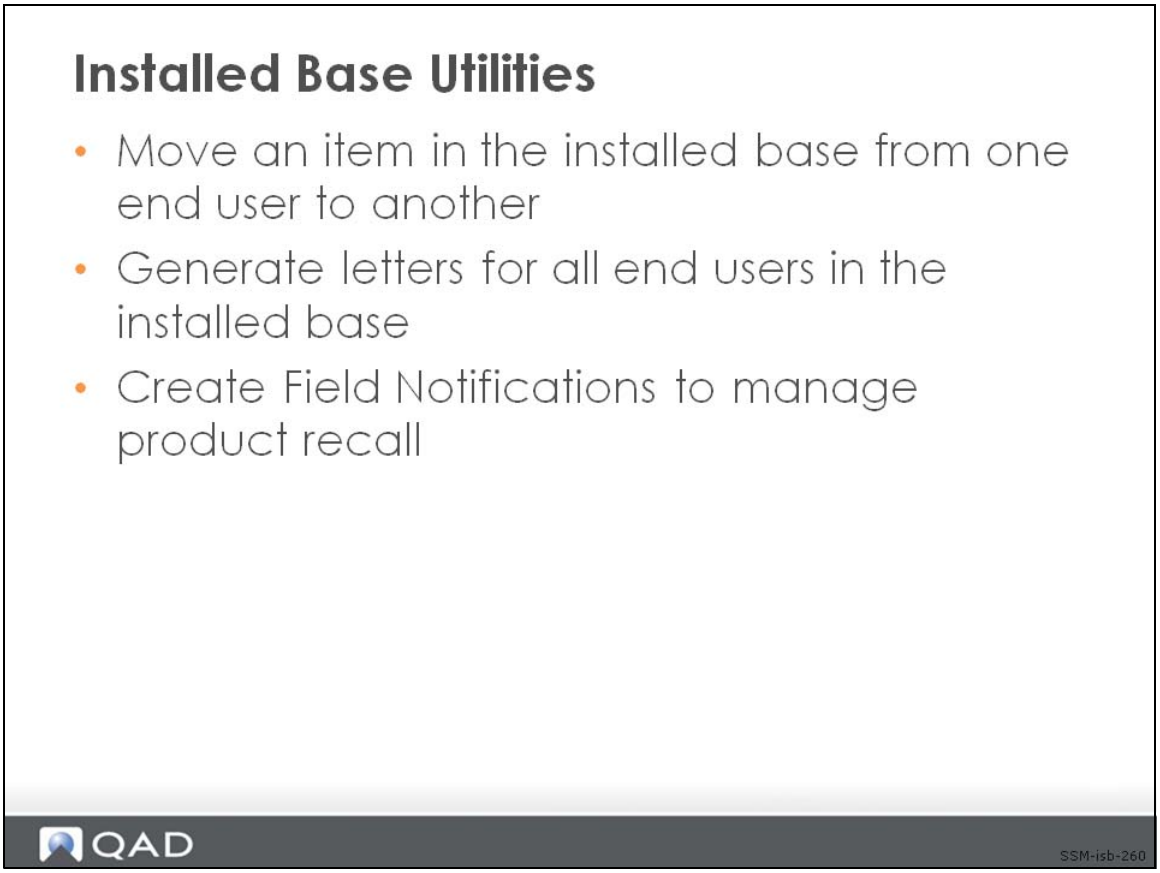


Default installed base information can be modified from within an RMA, just like a sales order.

Setting the Edit Installed Base flag to Yes in the RMA/RTS Control lets you edit installed base information within the RMA via a pop-up window.

Information defined in Call Maintenance sets up default values related to installed base update, but the updates themselves normally take place in Call Activity Recording. It is still possible, however, to close calls and update the installed base directly from Call Maintenance. In the normal life cycle of a call, some activity is recorded for each line in Call Activity Recording. Processing in CAR can update the installed base in three ways: the call line item, any items issued to repair it, or any items returned.

Installed Base Utilities

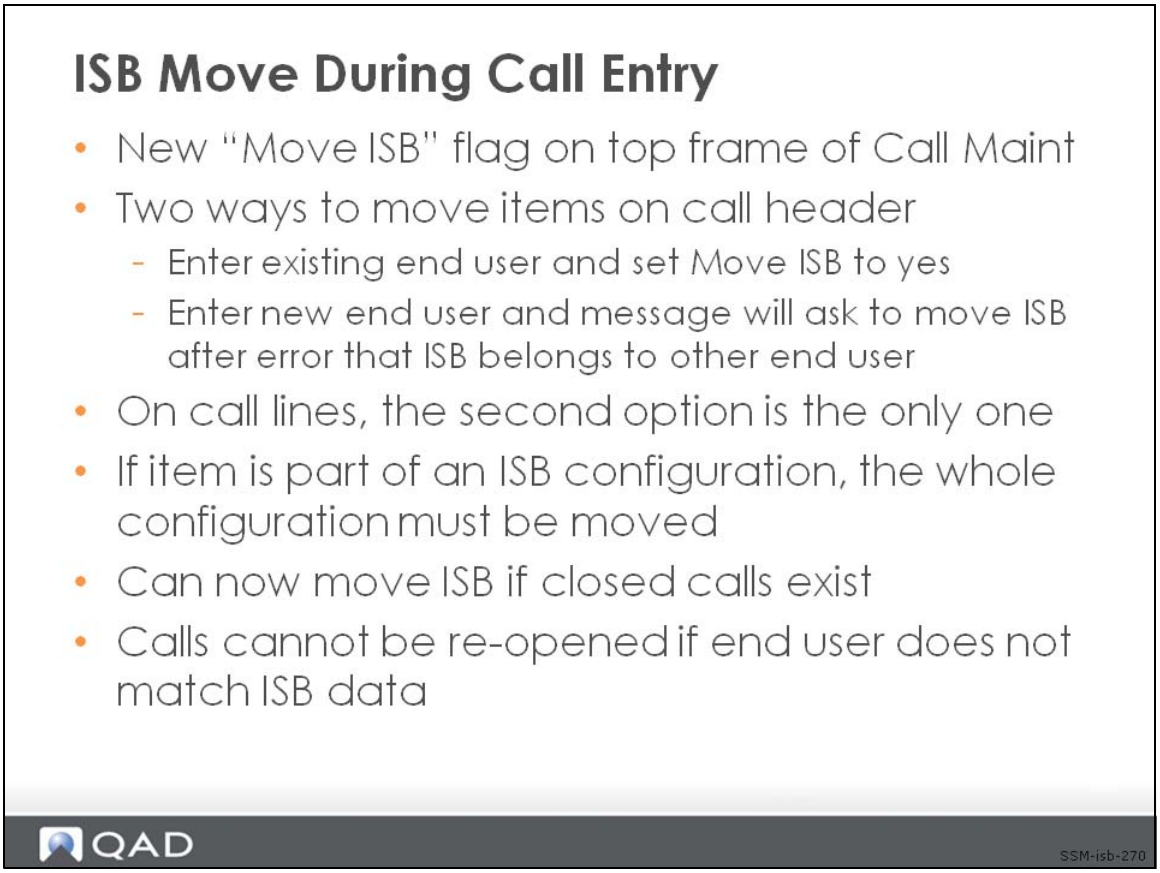


A number of utility functions are provided to meet specialized needs related to installed base items. These functions enable you to:

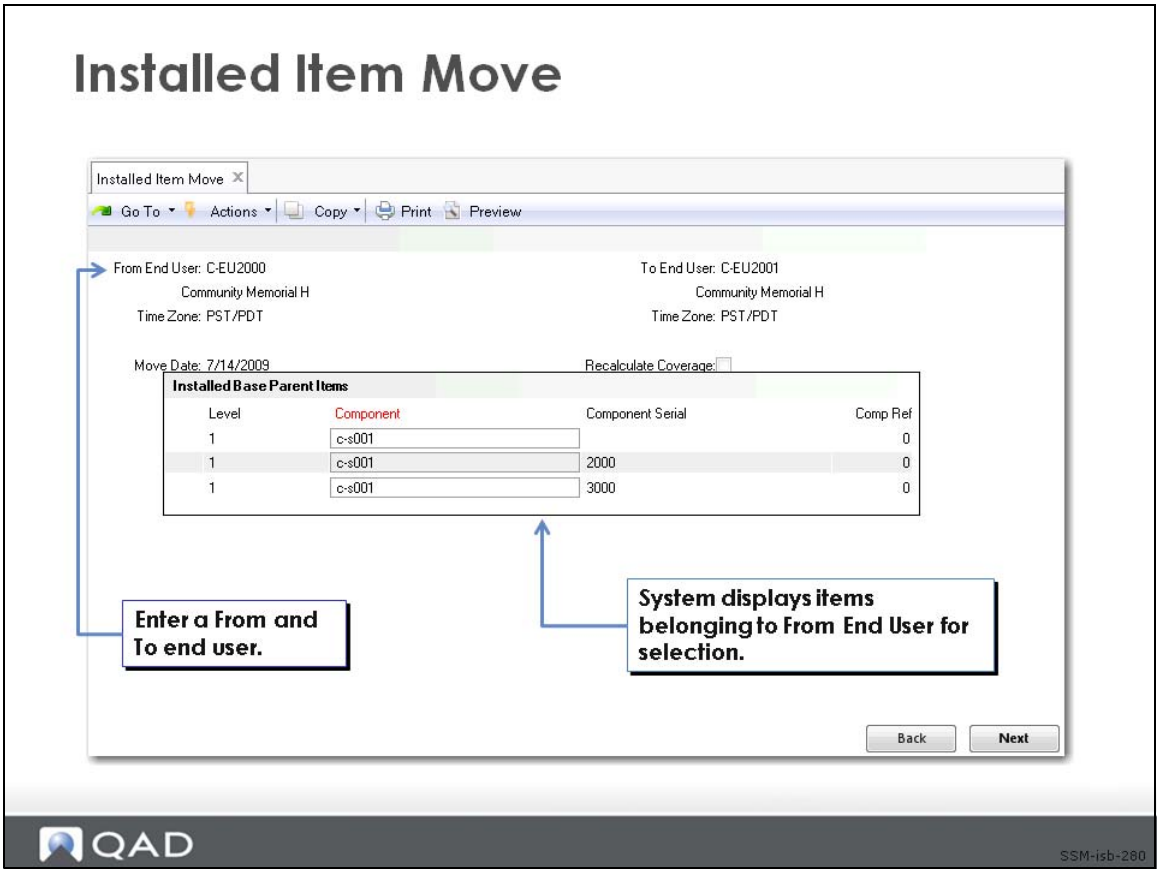
- Move installed base items from one end user to another
- Generate marketing letters for a range of installed base items
- Create Field Notifications to manage alerting end users to product recalls

The field notification process works in conjunction with the Call Generator. There may also be times when you need to generate calls for a range of installed base items or end user/item combinations apart from a controlled field notification. The Call Generator utility can be used to generate these calls in one simple execution. This will be discussed later in Call Management.

ISB Move During Call Entry



Installed Item Move



Installed Item Move (11.3.13) is used to update the location of installed base items from one end user to another. Normally, if the item being moved has a component structure in the installed base, all the items are moved with it. However, it is possible to move individual components of a configured item to a new site if needed.

Note An item cannot be moved if it (or any of its components, if it has a configuration beneath it) is currently associated with a call, contract, or RMA. These functions depend on installed base information that would be rendered invalid if the item was moved. Calls needs to be closed and moved to history. Contracts need to have end date(s) changed.

Note An item can be moved from one end user to another as part of Call Maintenance, as well as in Installed Item Maintenance (11.3.13).

ISB Item Tracking History

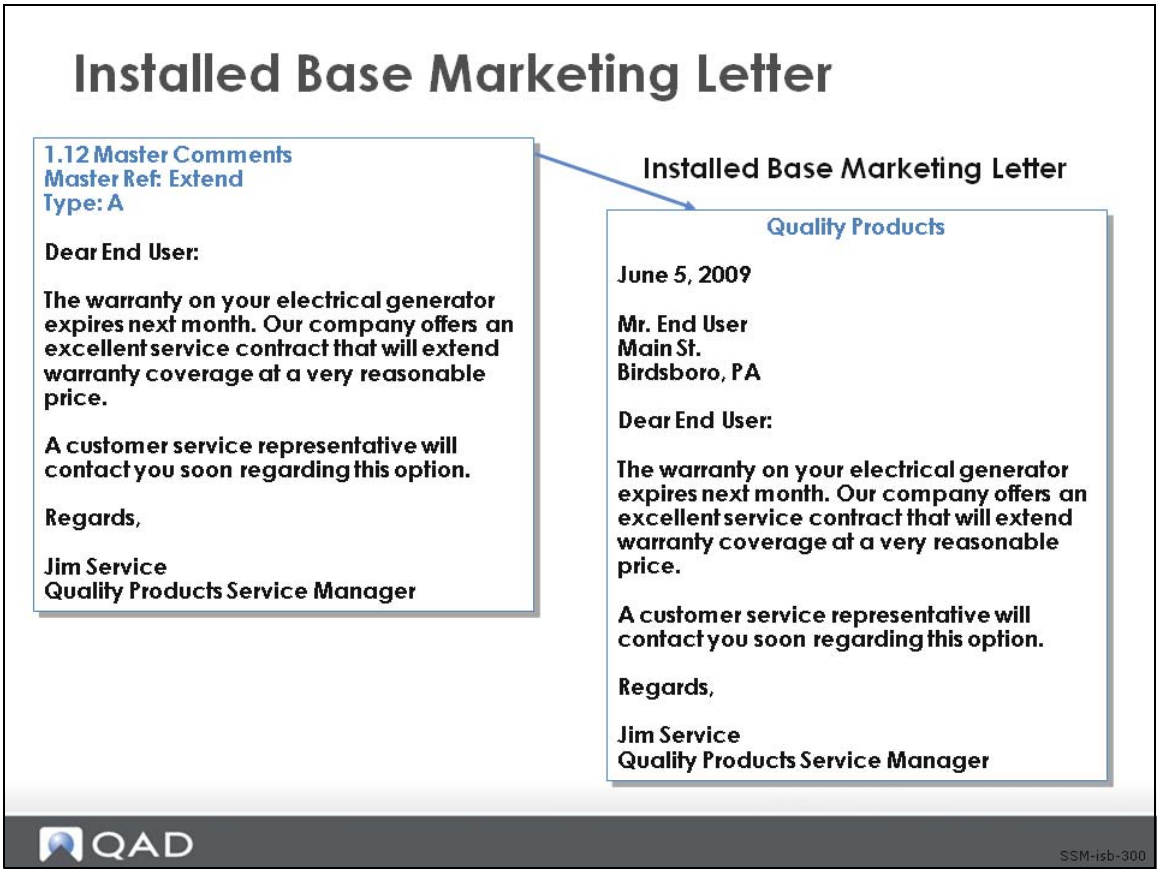
ISB Item Tracking History (11.3.22.5) is a report that provides the documented history of an Installed Base Item.

Data displayed relates only to a specific serial number or range of serial numbers.

The report includes the following document types and their relevant ID’s for each serial number:

- Sales Order Shipments
  - Shipper ID
  - Sales Order ID (that the shipper pertains to)
- Call Activity
  - Call ID
  - Call Report ID
- RMA Receipts
  - Receipt ID
  - RMA ID (that the receipt pertains to)
- RMA Shipments
  - Shipper ID
  - RMA ID (that the shipper pertains to)
- RTS Shipments
  - Shipper ID
  - RTS ID (that the shipper pertains to)
- RTS Receipts
  - Receipt ID
  - RTS ID (that the receipt pertains to)
- ISB End User Move
- ISB Added
- ISB Deleted

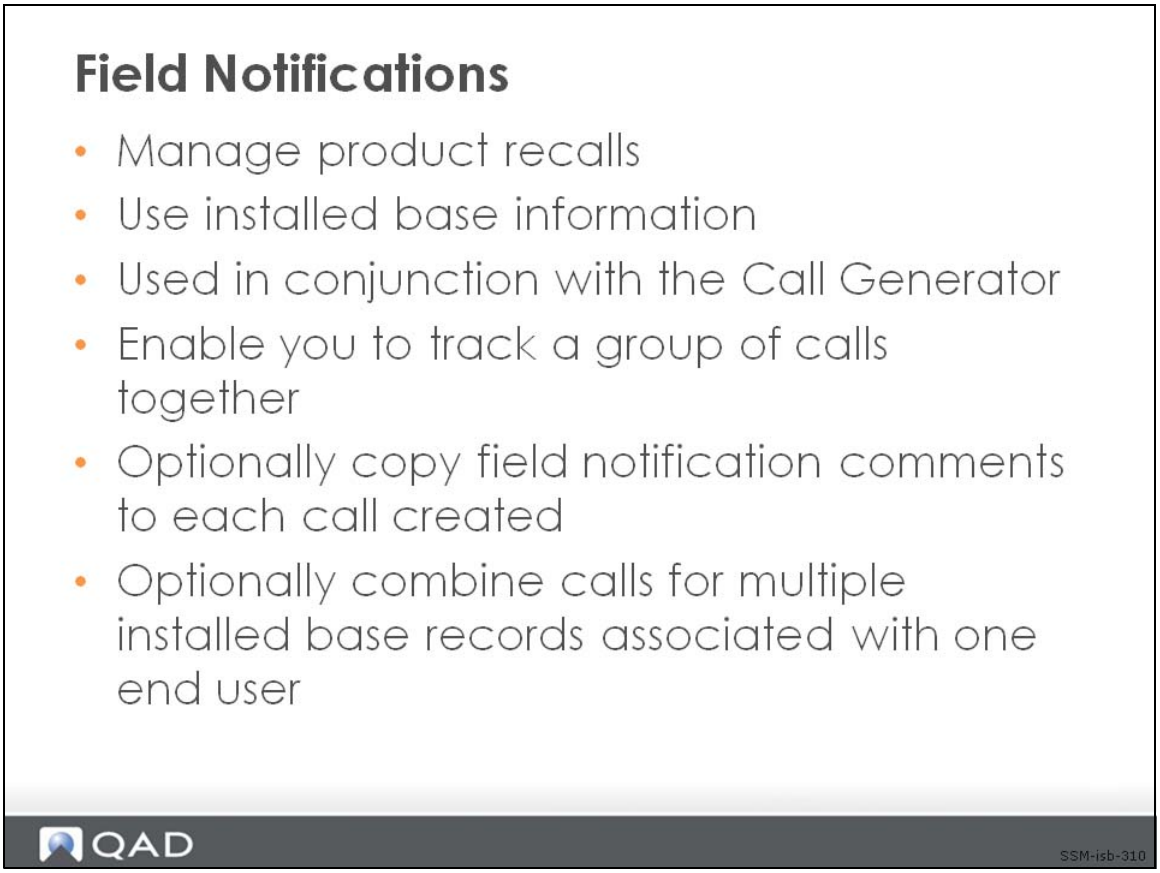
Installed Base Marketing Letter



Service usually involves direct communication with the end user. At times, it may even be necessary to contact a range or all end users in the installed base. This might be needed to alert users to a new product upgrade, or warn them of a product defect.

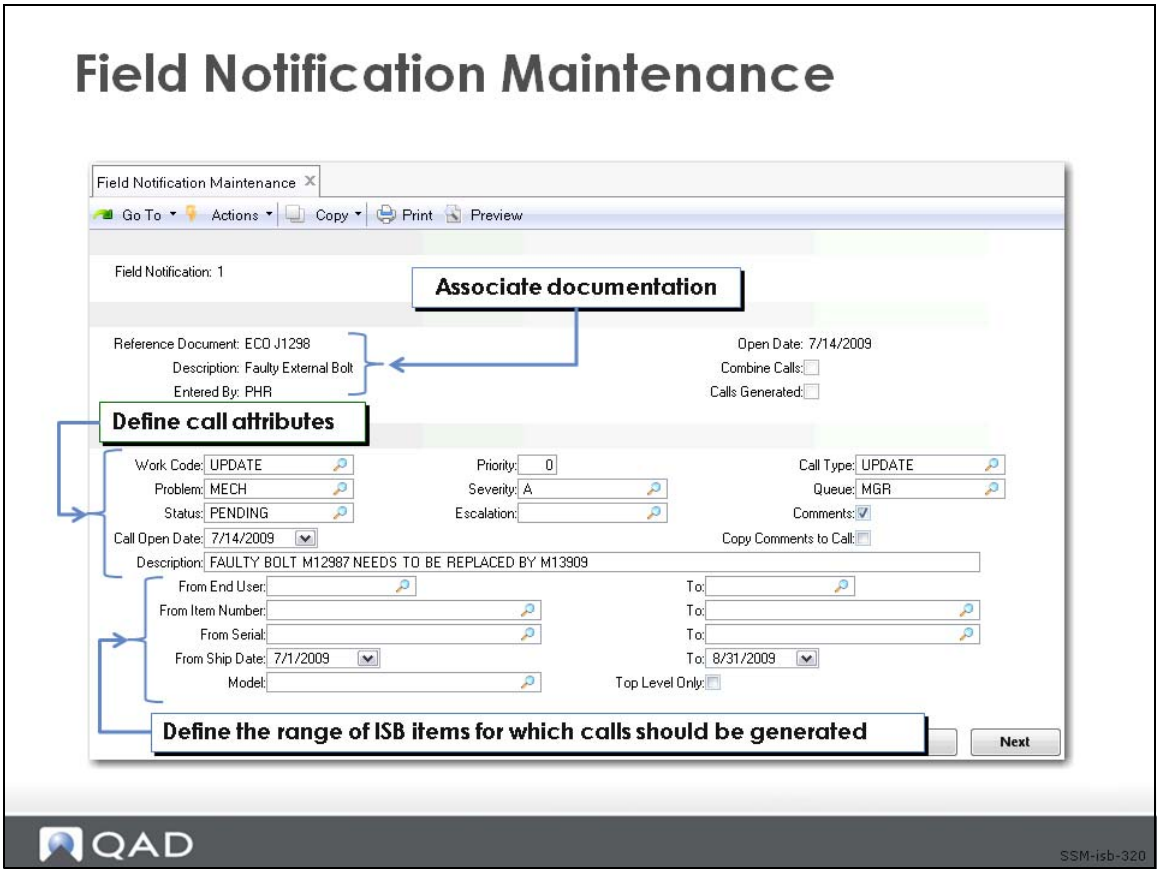
Installed Base Marketing Letter (11.3.21) enables you to create such a letter automatically. The letter can be based on comments created through the Master Comments (1.12) function. The system automatically selects comments in the language of the end user.

Field Notifications



Many organizations track information about the installed base because of the possibility of product recalls. This is a common concern, for example, for medical equipment manufacturers. Knowing who has a product provides a foundation for a product recall. However, recalls may be associated with documentation and auditing requirements from regulatory agencies so that additional history and control may be needed to manage the process.

Field Notification Maintenance (11.3.12.1)



Field notifications are created with Field Notification Maintenance (11.3.12.1). They may also be created directly from the Call Generator. In this case, a similar frame displays as part of the call generation process.

When you create a field notification, you can optionally specify a document associated with it. This may be an ECN, documenting the problem and product change required, or some kind of internal reference document. You can also optionally specify that all items for one end user be combined into one call.

The remainder of the maintenance fields enable you to specify attributes of the call to be created and selection criteria for the items in the installed base. A call or call line will be generated for each one of these items.

Exercise 1: Creating an End User

End users are created in End User Create and maintained in End User Modify and End User Data Maintenance. A new end user must be associated with an existing customer. In this exercise you first create a business relation, then a customer, and then create an end user to associate with this customer.

Create a Business Relation

1 Go to Business Relation Create (36.1.4.3.1).

2 Enter the following data in the fields identified. If a field is not mentioned, you may leave the default value.

Field	Value
Business Relation	Medical Distributors
Name	Medical Distributors, Inc.
Search Name	Medical Distributors, Inc.

3 Right Click on Address, below the Address Info Tab, select insert a new row, and Create an Address with type HEADOFFICE.

Field	Value
Address	Building One
Address	3205 Shelby Drive
Post	38118
City	Memphis
State	TN
Country	USA

4 Click on Contact Persons Tab, right click on Function, select Insert a New Row, and create a Contact.

Field	Value
Title	Supervisor
Name	Mary Jones
Primary Contact	Yes

5 Save the Business Relation.

6 Go to Customer Create (27.20.1.1)

7 Enter the following data in the fields identified. If a field is not mentioned, you may leave the default value

Field	Value
Customer Code	C-MDI
Business Relation	Medical Distributors

8 Click on the Accounting Tab and enter the following:

Field	Value
Control GL Profile (Invoice)	ARControl3rdparty
Control GL Profile (Credit Note)	ARControl3rdparty
Control GL Profile (Pre-Payment)	ARControl3rdparty
Sales Account GL Profile	Sales
Finance Charge Profile	FinCharge1
Sub-Account Profile	DefSubAct
Currency Code	USD
Customer Type	<blank>

9 Click on the Payment Tab and enter the following:

Field	Value
Credit Term Code	1M
Invoice Status Code	C-OK

10 Click Save.

Important Ignore unable to send email message throughout these activities.

11 Click Yes, then Close.

12 Go to Daybook Set by Site Maintenance (25.8.10).

13 Enter train in the Daybook field, and make the Daybook Active.

14 Click Next through the remaining frames until you return to the Daybook field.

15 Click Back.

16 Go to Customer Data Maintenance (2.1.1).

Enter the following data in the fields identified. If a field is not mentioned, leave the default value.

Field	Value
Customer	C-MDI
Site	C1
Daybook Set	train

17 Click Next until the header screen reappears, then click Back.

Create an End User

1 Go to End User Control (11.9.24).

2 Change Create ISB from No to Yes if necessary, and click Next.

This field provides the default for new end users. It is also used to determine if items being shipped on sales orders to ship-to addresses not yet defined as end users should normally be added to the installed base.

3 Set the Operating Schedule to Standard.

4 Save your changes.

5 Go to End User Create (27.20.3.1)

Enter in the following data in the fields identified. If a field is not mentioned, you may leave the default value.

Field	Value
Customer Code	C-MDI
End User Code	C-EUMDI1

6 Click the Create button and then in the Address Information frame. Complete the address information with your own address, including state, postal code, country code and phone number.

7 Select the Contacts button and add yourself as a Contact.

8 Save and Create the End User.

9 Go to End User Modify (27.20.3.2) and choose end user C-EUMDI1.

The field Link to End User Address is now ticked.

10 Go to End User Data Maintenance (11.9.1) and after entering Customer Code C-MDI and End User Code C-EUMDI1, enter the following data:

Field	Value
Operating Schedule	Standard
Engineer Code	JGB
Secondary Engineer	LKD
Engineer Group	<blank>
Service Area	USWEST
Escalation	<blank>
Travel Distance	<blank>
Travel Time	<blank>

11 In the next frame, make sure Create ISB is Yes, then click Next to accept the other defaults. Click Next to the Invoice Format frame, then click Back until End User Data Maintenance is closed.

12 Go to End User Create (27.20.3.1), enter Customer Code C-MDI.

13 Click the Link to Customer field.

Note that the End User Code and Address Information is filled in automatically.

14 Click on Save.

15 Return to End User Data Maintenance (11.9.1) and enter Customer Code: C-MDI, End User Code: C-MDI. Enter the same information from the table in Step 10.

16 Click Next to the Invoice Format Frame, then Back until closed.

17 Go to End User Browse (11.9.2), and verify the end user record you created.

18 Return to the menu.

Exercise 2: Defining Service Attributes

In one of the activities in this chapter you will add an item C-S001 to the installed base. In this exercise you review the attributes of the C-S001 and ensure that some of its components are added to the installed base as well.

1 Go to Item Master Maintenance (1.4.1) and select items C-S001, make sure that the Lot/Serial Control field is blank.

2 Repeat the operation for C-S002 and C-C001 thru C-C003, C-C005 and C-C006.

While we will assign serial numbers to these items, we won't require that specific serial numbers be used.

3 Click Next to save, then click back to enter the next item number above.

4 Go to Service Management Control (11.24) and verify the following settings.

Field	Value
Items in Installed Base	No
Installed Base History	Yes
Items Must Exist	Yes

5 Go to Service Item Maintenance (11.3.7).

6 Enter C-S001 in the Item Number field and click Next.

Notice that the system automatically fills in all the fields in the top frame based on information defined in Item Master Maintenance.

Field	Value
Warranty Code	<blank>
Installed Base	Yes
Installation Call	No
Days Between PM	180
System Type	S
Usage Code	P
Service Category	Items

7 Click Next to display the remaining frame and, after reviewing service structure data information, click Next again.

8 Place your cursor in the Item Number field, enter C-C001 and click Next. This item is a component of the C-S001. Then click Next twice. Return to the menu.

Field	Value
Warranty Code	<blank>
Installed Base	Yes
Installation Call	No
Days Between PM	360
System Type	S
Usage Code	P
Service Category	Items

9 Click Next twice, then Back to return to the menu.

10 Go to Service Management Control (11.24).

11 Set Service Data in Item Master to Yes.

Do you remember what effect this will have? If not, use the Help key to display field help. Close the help window if it is open.

12 Click Next to save your changes, then Back to return to the menu.

13 Go to Item Master Maintenance (1.4.1).

14 Enter C-S002 in the Item Number field. Then click Next to navigate through the various frames of Item Master Maintenance.

After the Current Cost Data frame displays, the Item Service Data frame should display. This frame contains the same data fields that you saw in Service Item Maintenance.

15 In the Item Service Data frame set:

Field	Value
Warranty Code	<blank>
Installed Base	Yes
Installation Call	No
Days Between PM	180
System Type	S
Usage Code	P
Service Category	Items

16 Click Next twice to complete Item Master Maintenance, then Back to return to the menu.

Exercise 3: Updating the Installed Base from a Sales Order

This exercise has a number of separate tasks:

- Verify appropriate control settings
- Create a sales order for a configured item
- Ship the item on the sales order
- Print and post the invoice
- Review the installed base record
- Review the end user data created during invoice post

Verify Control Settings

1 Go to Service Management Control (11.24).

2 Change the default settings, if necessary to the following:

Field	Value
Load Available Structure	Yes
Ship to Installed Base	Yes

Do you remember what effect these settings have? If not, read the help associated with these fields.

3 Click Next to save any changes, then Back to return to the menu.

4 Go to Sales Order Control (7.1.24).

5 When the first frame displays, click Next twice. In this frame, verify or change SO Edit ISB Defaults to Yes. Click Next, then Back to return to the menu.

Create a Sales Order

1 Go to Sales Order Maintenance (7.1.1).

2 Enter SO-ISB in the Order ID field and click Next.

3 Enter customer number C-MDI in the Sold-To field.

4 Click Next, accepting all defaults, until you get to the Sales Order Line screen.

5 Enter the following data in the appropriate fields.

Field	Value
Ln	1
Item Number	C-S001
Site	C1
Qty Ordered	1

6 Click Next until the Installed Base Detail frame displays.

(Remember, you can see this pop-up only because SO Edit ISB Defaults is Yes in the Sales Order Control.)

7 Enter C-MDI in the End User field.

Review the defaults in this pop-up. Update Installed Base defaults to Yes. Notice the message displayed at the bottom of the screen.

"End User C-MDI will be created by Invoice Post using the ship-to address."

The system will automatically set the start date to the sales order shipment date when the warranty start date is left blank.

8 At Sales Order Line 2, click end lines, click Trailer, click Next twice.

9 Click Back to return to the menu.

Ship the Sales Order

The item on this sales order is a configured product, so the shipment process has a few more steps than is normally required.

1 Go to Sales Order Shipments (7.9.15).

2 Enter SO-ISB in the Order field and click Next twice.

3 Your cursor should now be in the Line field. Enter the following data in the appropriate fields.

Field	Value
Line	1
Cancel B/O	No

Field	Value
Quantity	1
Lot/Serial	010

4 Click Next until pop up, *Display sales order lines being shipped?* is displayed. Click Yes.

Review the items to make sure all items have an issue quantity of 1.

5 Click Next, then click Yes to the question. *Is all information correct?*

6 Click Next twice through the trailer frames.

7 When shipment completes, click Back to return to the menu.

Print and Post the Invoice

1 Go to Invoice Post and Print (7.13.4).

2 When the Invoice Print screen displays, enter the following data in the appropriate fields.

Field	Value
Sales Order	SO-ISB
To	SO-ISB
Print Invoice	Yes
Click Next and select	
Print Lot/Serial Numbers Shipped	Yes

3 Click Next to specify a printer option.

In the Output field Enter Printer or Page to view on screen.

4 Click Next.

5 When the output window displays, review the content and write down the invoice number here for reference. (The invoice number appears at the top of the report.)

Invoice Number: _____

6 Click the small X in the Invoice Post and Print Tab at the top of the screen.

Review Installed Base Information

1 Go to Installed Base Browse (11.3.4).

2 Find the End User and verify that the item as added to their installed base as part of the invoice post process by right clicking on that end user and selecting Installed Base Inquiry.

3 Review the output for the item you just added to the installed base.

Exercise 4: Move an Item in the Installed Base

In this exercise you will move the item added to the installed base in Exercise 3: Update the Installed Base from a Sales Order on page 55 from end user C-MDI to the another end user C-EUMDI1

1 Go to Installed Item Move (11.3.13).

2 Enter the following:

Field	Value
From End User	C-MDI
To End User	C-EUMDI1
Click Next	
Component Item	C-S001
Component Serial	010

Click Next.

3 Click Yes to *Continue with the Installed Base rebuild?*

A list of items to be moved is displayed. View the items displayed. Note that the Moved field is now ticked.

4 Click Back twice until Output Printer field.

5 Click Next.

The report generated lists additional information about the items moved. This may be important to validate warranty information for the new end user.

6 Return to the menu and open Manage End User.

Find End User C-EUMDI1 and verify that the installed base for this end user has been updated.

Exercise 5: Create a Field Notification

In this exercise you create a field notification. We will use this field notification in conjunction with the Call Generator to actually create a group of calls in a later exercise.

Perform an Installed Base Report

1 Go to Installed Base Report (11.3.3).

2 Run the report using the default values (all From/To fields are blank).

You will create a field notification for all items that have an Install Date in the last 30 days.

3 Return to the menu.

Create a Field Notification

1 Go to Field Notification Maintenance (11.3.12.1).

2 Enter FN-CLASS in the Field Notification field and click Next.

Notice how the system automatically fills in your user ID and today's date in the appropriate fields.

3 Enter the following data in the listed fields. Make sure you save your changes by clicking Next at the end of your entry.

Field	Value
Reference Document	ECN23
Description	Product Failure
Entered By	<default>
Open Date	<default>
Combine Calls	No

4 In the next frame, continue to fill in the appropriate information as indicated:

Field	Value
Work Code	Recall
Problem	Elec
Status	<default>
Call Date	<default>
Priority	0
Severity	A
Escalation	<blank>
Call Type	PRODFAIL
Queue	EMER
Comments	Yes
Copy Comments	Yes
Description	This Call is generated for FN-CLASS

These fields specify the information needed to define the calls to be created. The next five fields specify selection criteria for determining which installed base items should be included on a call.

5 Leave all the selection criteria fields blank except for the From and To Item Number.

Field	Value
From Item Number	C-S002
To	C-S002

Click Next to display the field notification comments screen.

6 Click Next twice and then Enter to access an empty line for comments; then enter the following:

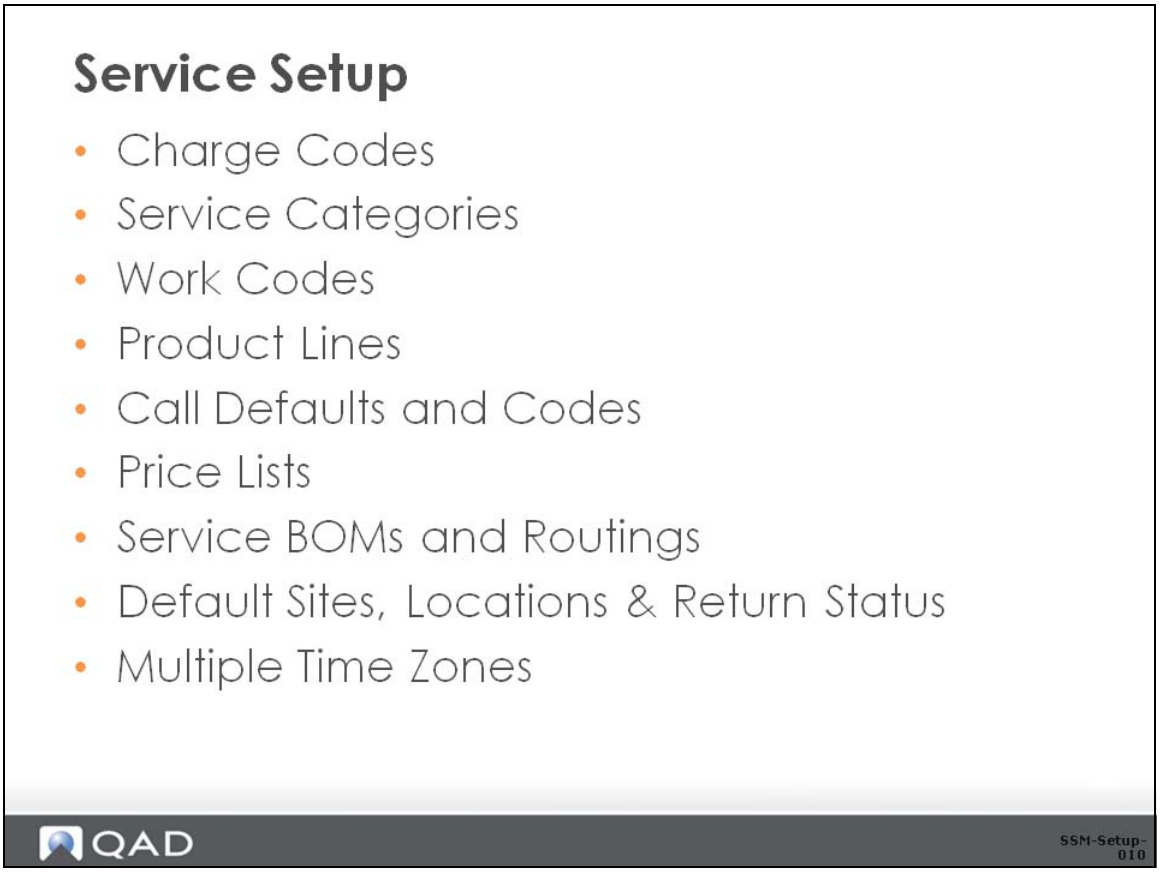
These comments will be included in each call generated for this field notification.

7 Click Next, then Back to return to the menu.

Chapter 3

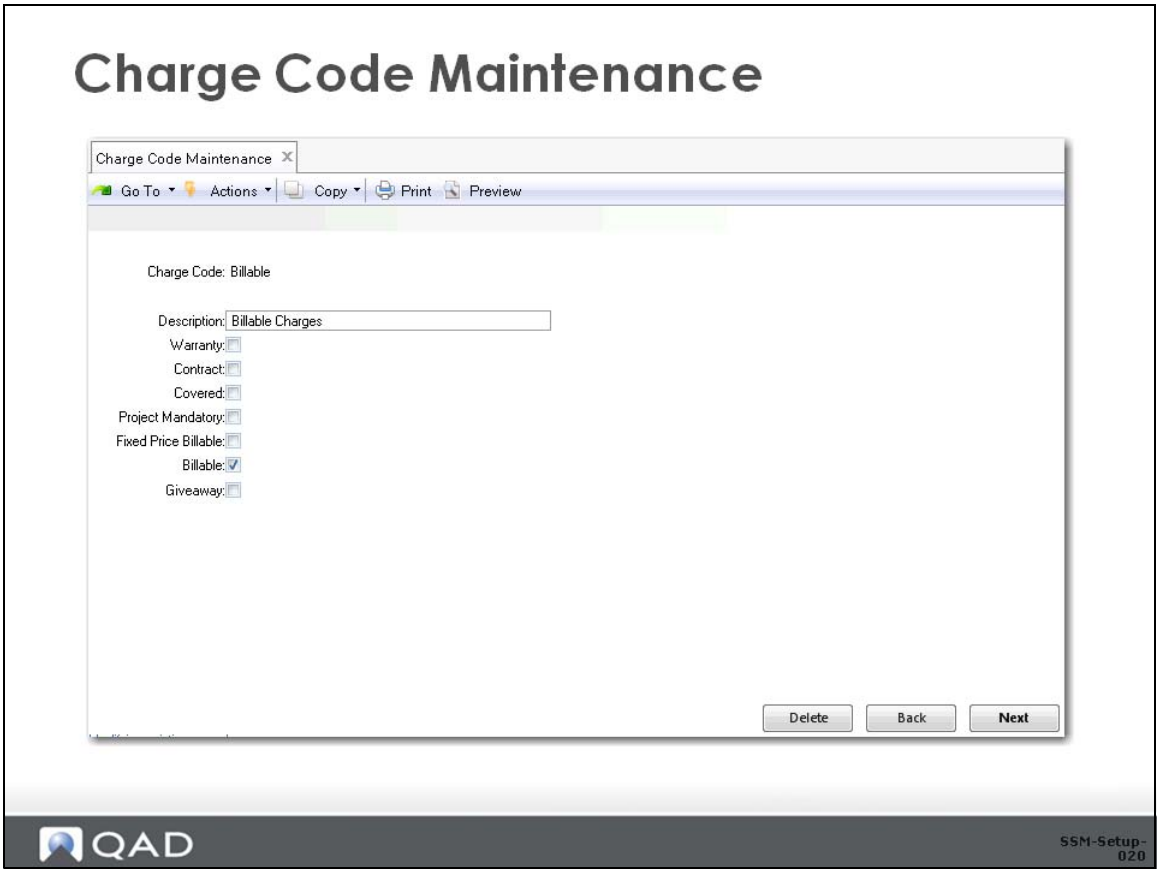
Service Setup

Overview



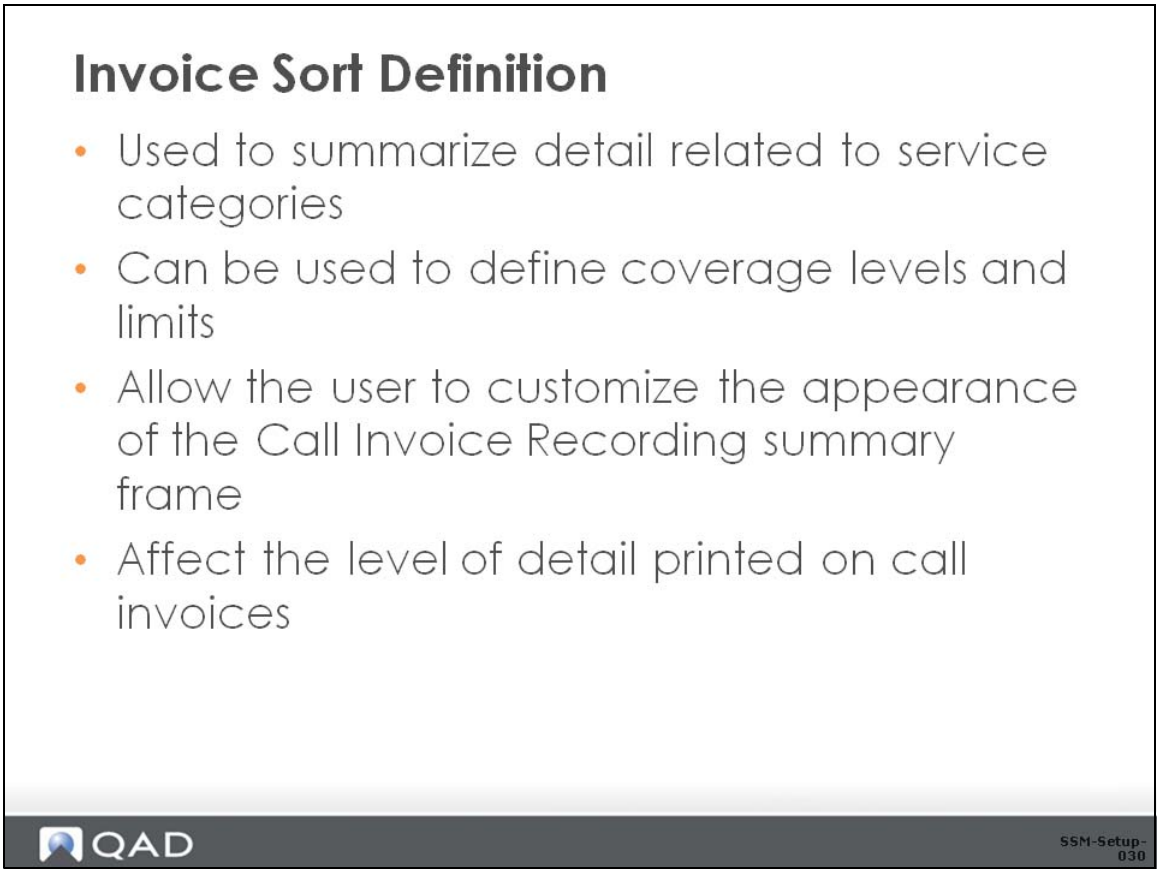
The SSM module provides robust functionality to manage the service functions. Implementation requires careful consideration in the setup function to structure the module to best meet business needs. Service activity uses various codes, product lines and other default information to direct and manage call activities and the flow of charges and credits.

Charge Code Maintenance



Charge codes are created in Charge Code Maintenance, (11.21.21.1) and define responsibility for service costs and provide grouping of cost responsibility in Call Activity Recording. They can designate a particular item as giveaway, yet keep normal billing for the rest of the service and items on a call.

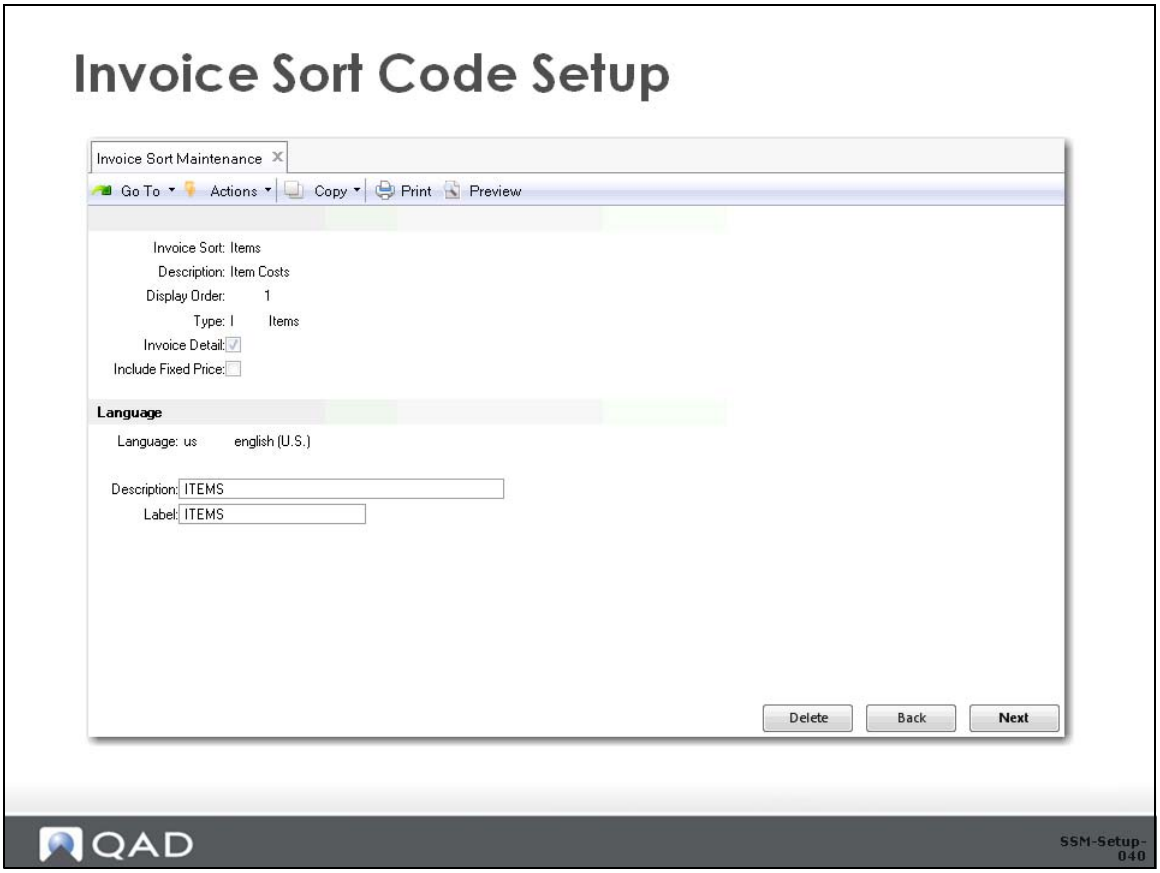
Invoice Sort Definition



Invoice sort codes are important for Call Activity Recording and Call Invoice Recording. They provide a high-level sorting tool for grouping service costs by items, labor, and expenses. Invoice sorts have four main applications in the system as shown in the figure.

Although you can define any number of invoice sorts, only six can be displayed in Call Invoice Recording. The three basic invoice sorts-labor, items, and expenses-cover most requirements. The particular names given to them are user defined.

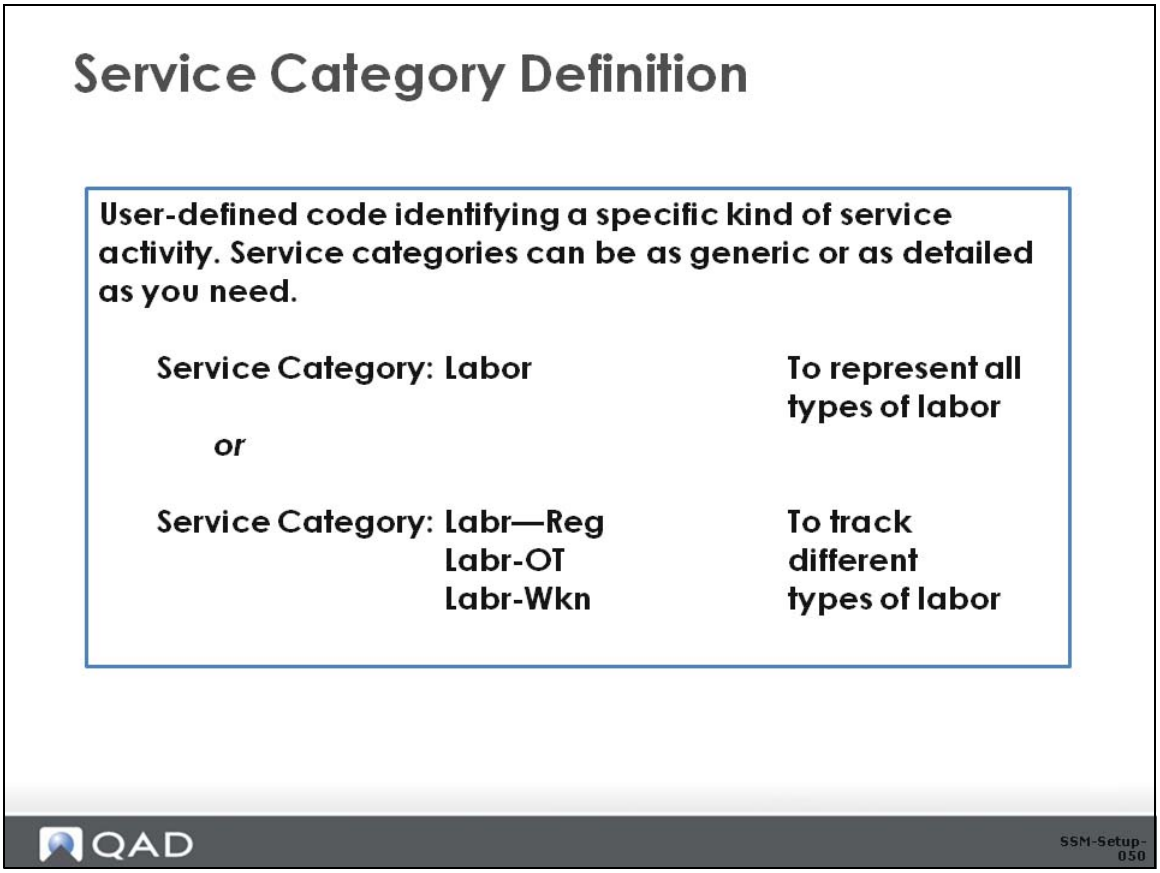
Invoice Sort Code Setup



Invoice sorts are defined and maintained in Invoice Sort Maintenance (11.21.5). In addition to the fields displayed here, you can also define labels in multiple languages, if needed.

As part of implementation, it is important to remember that invoice sort codes must be set up before service categories. This is because each service category must reference a valid invoice sort code.

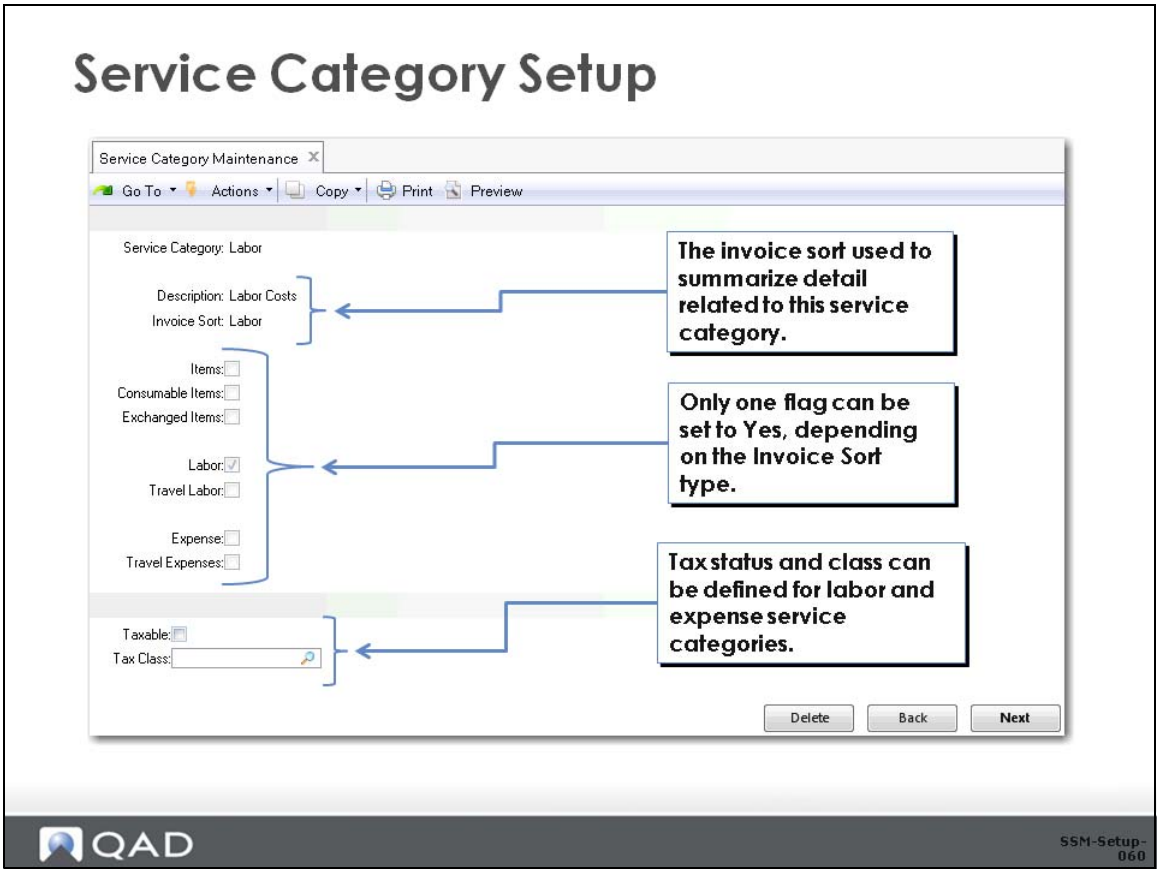
Service Category Definition



Service categories represent the lowest level definition of service activities.

They enable you to create more specific subsets of the labor, expense, and item invoice sort codes. Each service category must be tied to an existing invoice sort when it is defined. The invoice sort gives a high-level summary of the financial impact of all its related service categories.

Service Category Setup



Service categories are created and maintained in Service Category Maintenance (11.21.9).

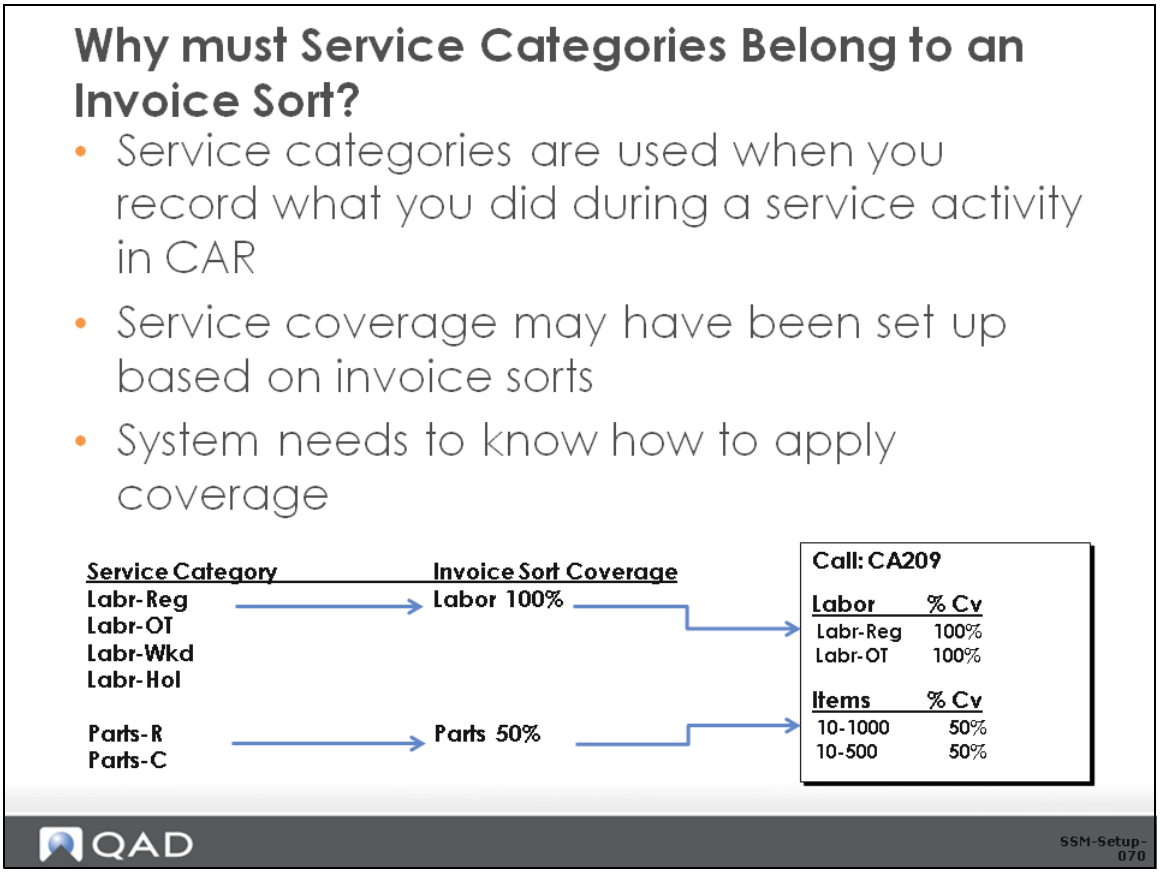
After specifying the code name and description, you must relate the category to an invoice sort. Only one of the remaining fields can be set to Yes, depending on the invoice sort specified. Items, Consumable Items, and Exchanged Items can be grouped under an item (type I) invoice sort. Labor and Travel Labor can be grouped under a labor (type L) invoice sort, and Expense and Travel Expense can be grouped under an expense (type E) invoice sort.

Like invoice sorts, service categories have several uses within the Service and Support module:

- Defining limits
- Defining price lists
- Providing defaults in Call Activity Recording
- A search key for product lines

A default taxable status and tax code can be assigned to labor and expense service categories in Service Category Maintenance and is used as the default for labor/expense usage records for taxable call lines in Call Invoice Recording. Item service categories are not defined in this way because this information is associated with items in Item Master Maintenance and provides defaults when this item is used on various orders in the system, including calls and RMAs.

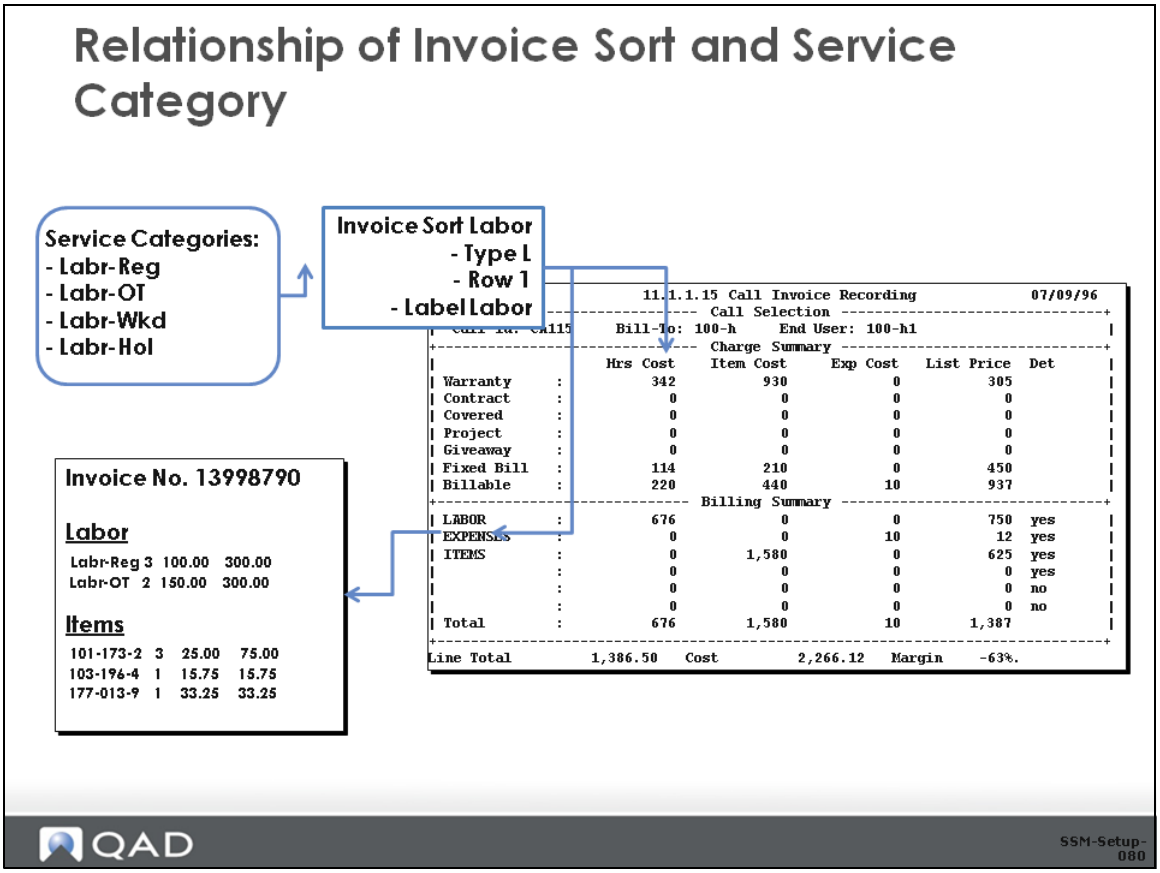
Why Must Service Categories Belong to an Invoice Sort?



Understanding the relationship between invoice sort codes and service categories is critical to using service coverage functions.

The service category is what you specify when you record details in Call Activity Recording. You may have a large number of service categories. Since service coverage may be set up at a generic level using invoice sort codes, there has to be some way for the system to know how to apply the coverage to the details as they are recorded in CAR. This is provided by the service category/invoice sort relationship.

Relationship of Invoice Sort and Service Category

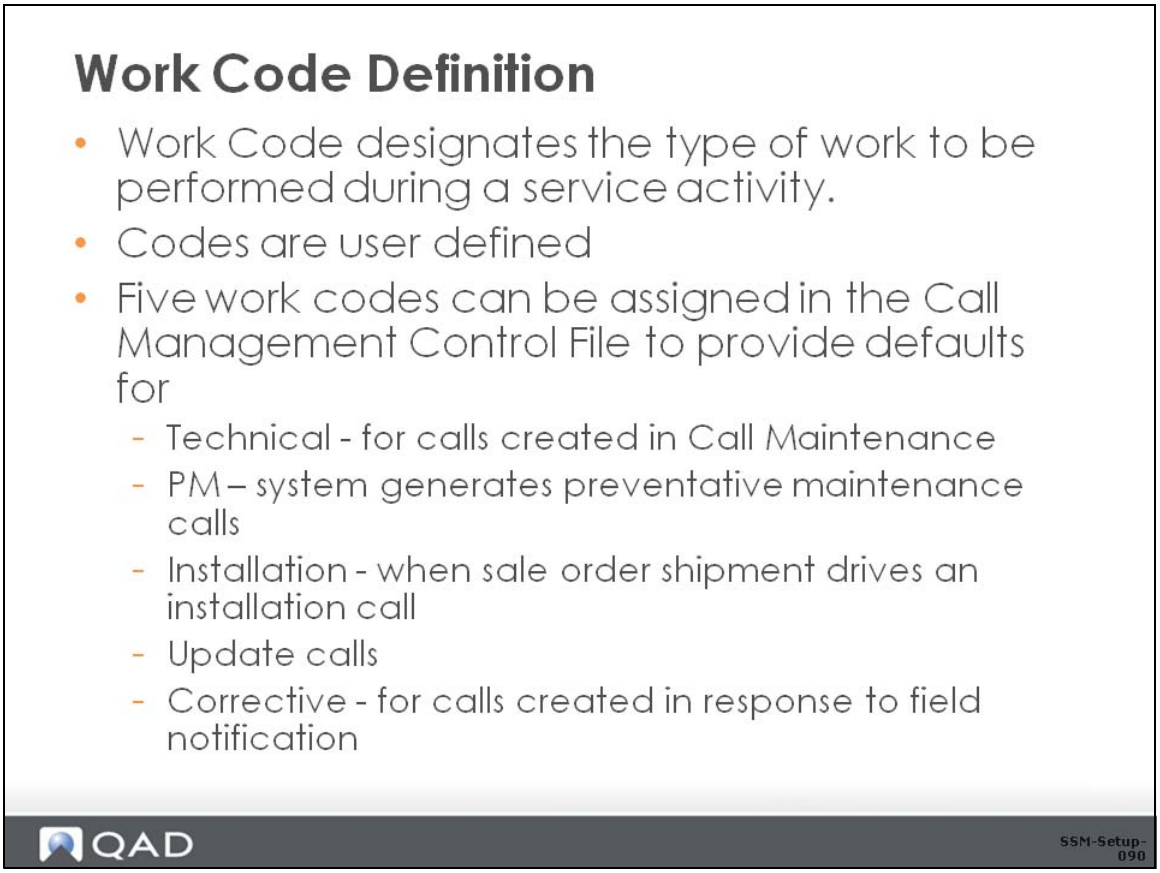


This slide illustrates the relationship between service categories and invoice sort codes and how information is displayed in Call Invoice Recording (we will look at call invoice recording in more detail later).

Costs for all of the service categories related to labor are summarized by the Labor invoice sort. Since it is a Type L sort code, its output displays in the Hrs Cost column of Call Invoice Recording (CIR). The value specified for Row when the sort code was defined determines its position in the Billing Summary frame. The value for label determines the string that displays in the Billing Summary when different languages are being used.

The effect of the invoice sort code is also seen in the printed invoice presentation. Detail is included because the Det(ail) flag is set to Yes.

Work Code Definition

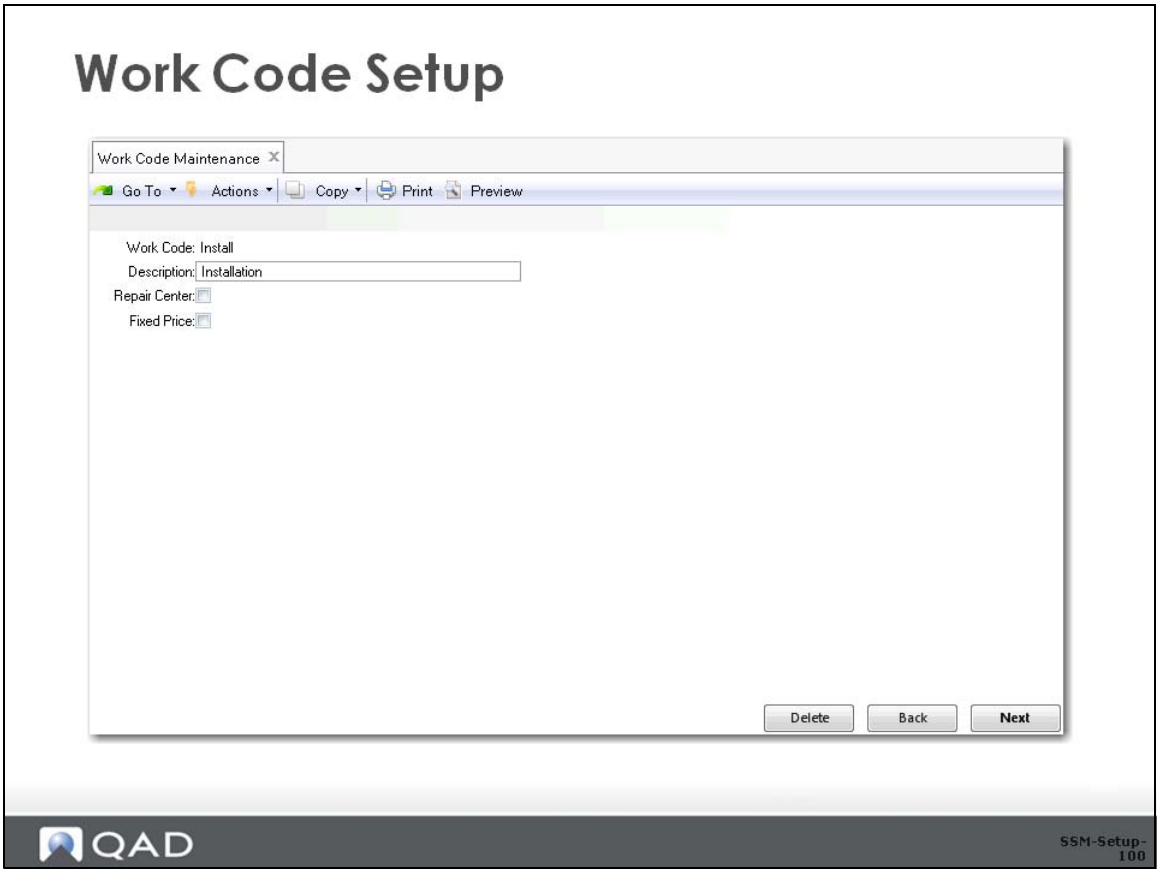


Work codes are generally broken down into broad areas of service that reflect how your service organization is structured. Work codes, in combination with other features, are used to control the flow of call activity into General Ledger accounts.

The work code definitions should correspond to how the service organization wants to bill for work. Work code definitions can become quite sophisticated, depending on an organization's business practices. Levels of skill specialization, time periods, departments, pay scales, and so on can all be used as criteria in defining and organizing work codes.

Note Work codes that have the check box Repair Center set to Yes indicate that an in-house or depot repair is pending.

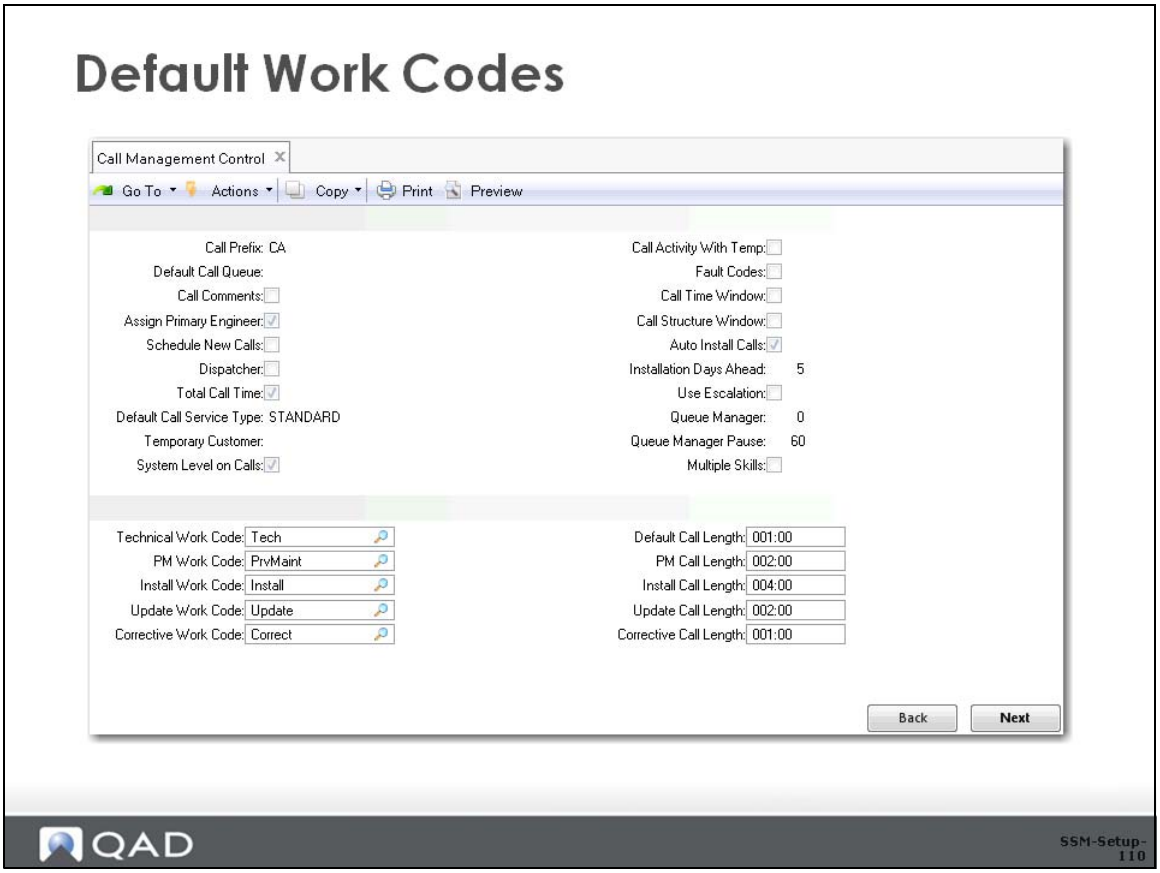
Work Code Setup



This figure illustrates the frame for defining work codes. In addition to the fixed price flag, which affects Call Activity Recording, work codes have these other applications in the system.

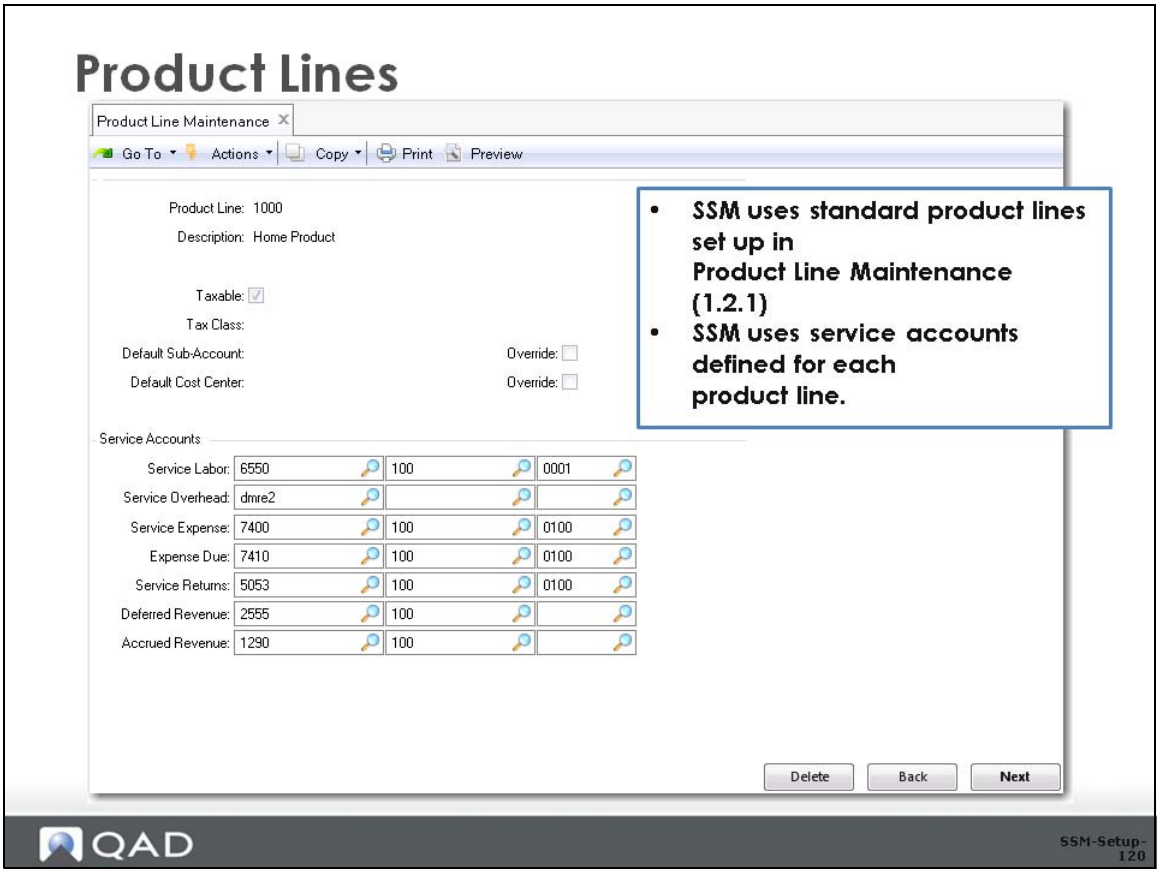
- Work code can be used in setting up coverage limits.
- Work code may be used as one of the keys in setting up call defaults.
- Work code may be used in setting up call escalations.
- Work code can be used in setting up pricing structures.
- Work code is one of the factors considered in site management for returned items.
- Work code is one of the factors considered in determining GL accounts for service costs and revenue.
- Work codes are used by the system in Call Activity Recording and Call Invoice Recording to determine the coverage in effect and determine the charge code to be used.

Default Work Codes



Five default codes are set up in the Call Management Control (11.1.24).

Product Lines



Product lines determine which general ledger accounts are used for various financial activities. Service accounts are used for GL transactions in Call Activity Recording and for expensed Material Orders.

Service Labor. When labor is consumed in CAR this account is credited, while the WIP account is debited.

Service Overhead. This account is used in conjunction with the service labor account to track labor burden for labor consumed in CAR. Just like the service labor account, it is credited while the WIP account is debited during consumption of labor in CAR.

Service Expense. The service expense account is used to track expenses recorded in CAR. During the transaction processing step in CAR, the service expense account of the charge product line is credited for expense amounts and WIP is debited. The cost of inventory issued on an expensed material order (MO) is also debited to this account. An expensed MO uses a charge code to find a charge product line. When the items on the MO are issued, the Service Expense account of the product line is debited and inventory is credited.

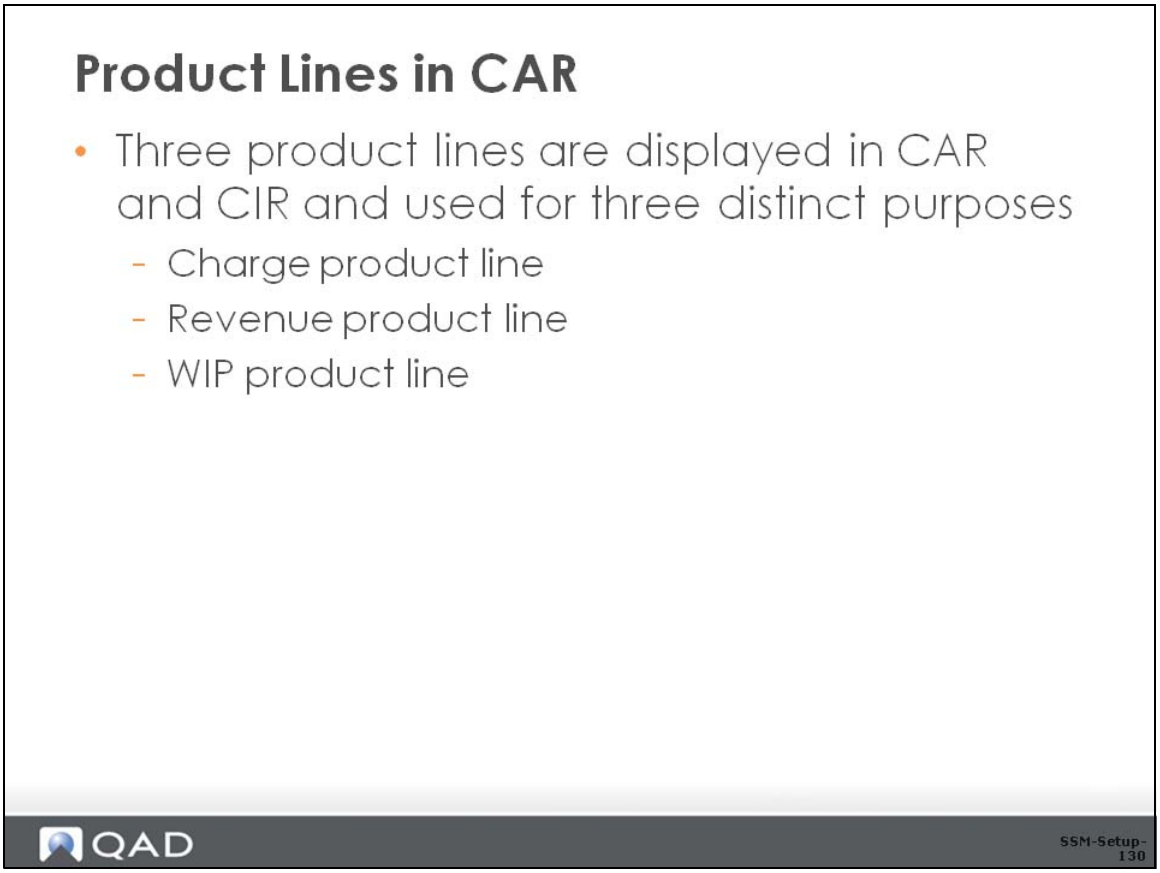
Expense Due. This account is used to track the amounts due to employees for expenses that occur in service activity related.When invoices for call activity are posted, this account is debited for the expense amounts recorded in Call Activity Recording and the WIP account is credited.

Service Returns. When items are returned in CAR, the returns account is credited and inventory debited.

Deferred Revenue. Account to track deferred revenue for service contracts referencing this product line. Collected revenue is held in a deferred account and is posted periodically over the contract duration.

Accrued Revenue. Used to track accrued revenue from service contracts that reference this product line. In accrual-basis accounting, revenue is recorded in the period in which it is earned, regardless of whether cash is received in that period.

Product Lines in CAR

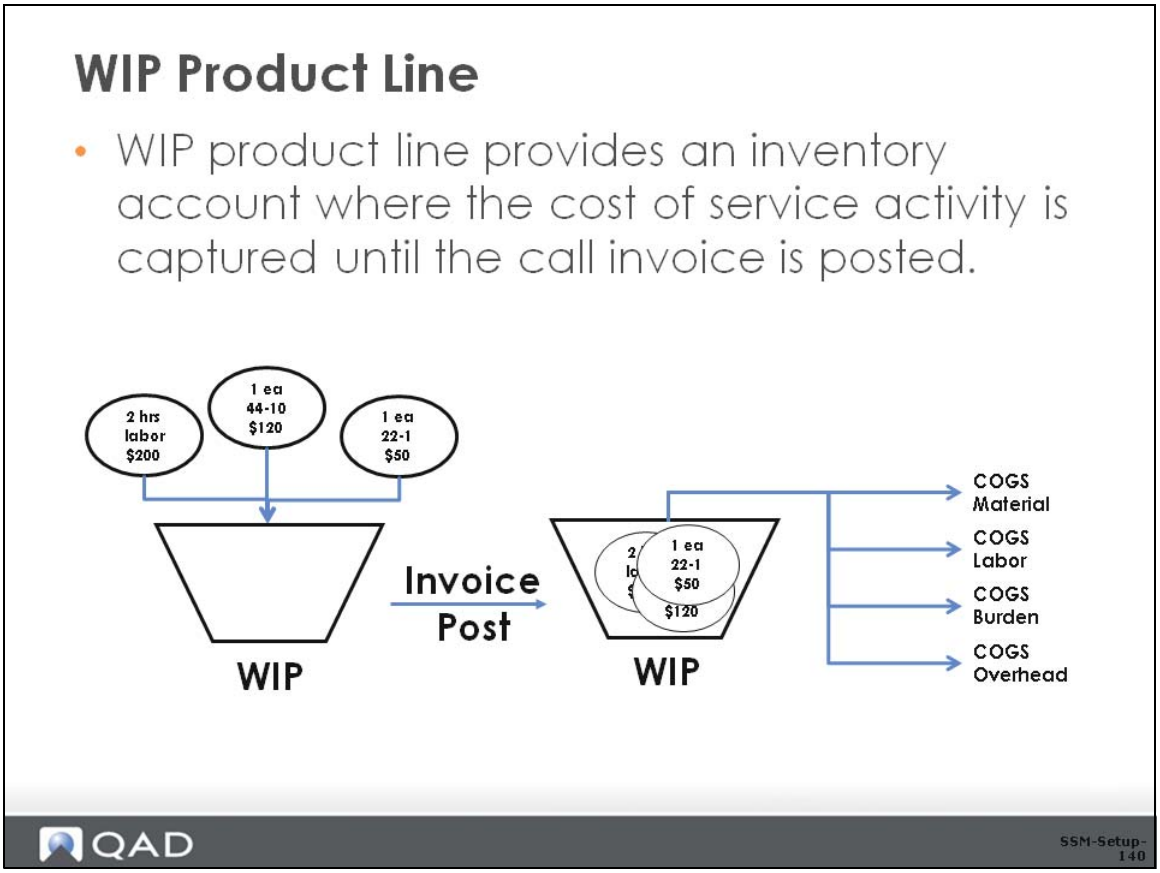


Service and Support Management provides two maintenance functions that enable service organizations to segregate service costs and revenue from the regular sales and COGS accounts:

- Charge Product Line Maintenance (11.21.21.5)
- Revenue Product Line Maintenance (11.21.21.9)

Note These product lines do not have to be different, although the functional distinction remains. You only need to use different product lines for charges, revenue, and WIP if you are segregating accounting for reporting and summarizing purposes.

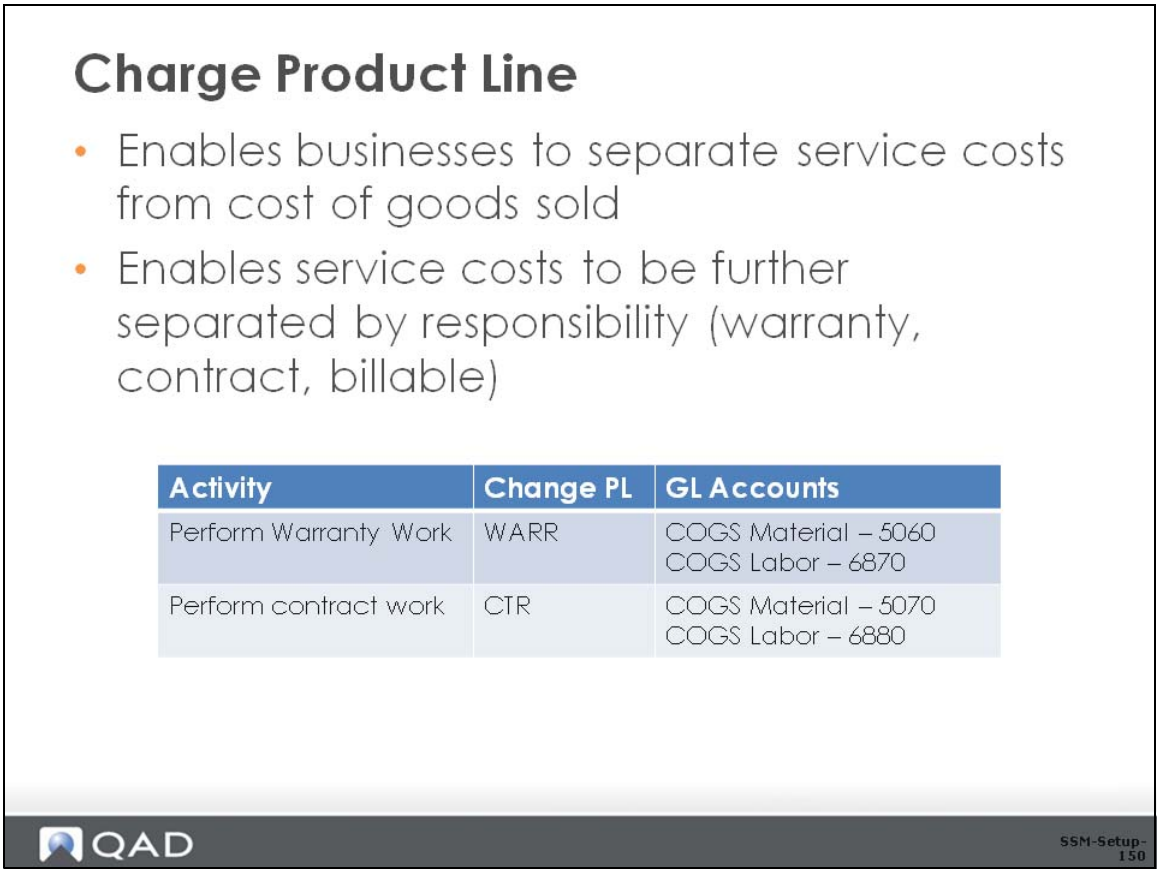
WIP Product Line



To simplify the accounting process, only one product line is associated with the item being repaired. The WIP account of this product line is used for all detail recorded for this call item. Costs are debited in this product line until the call invoice is posted. This credits WIP and debits the various COGS accounts.

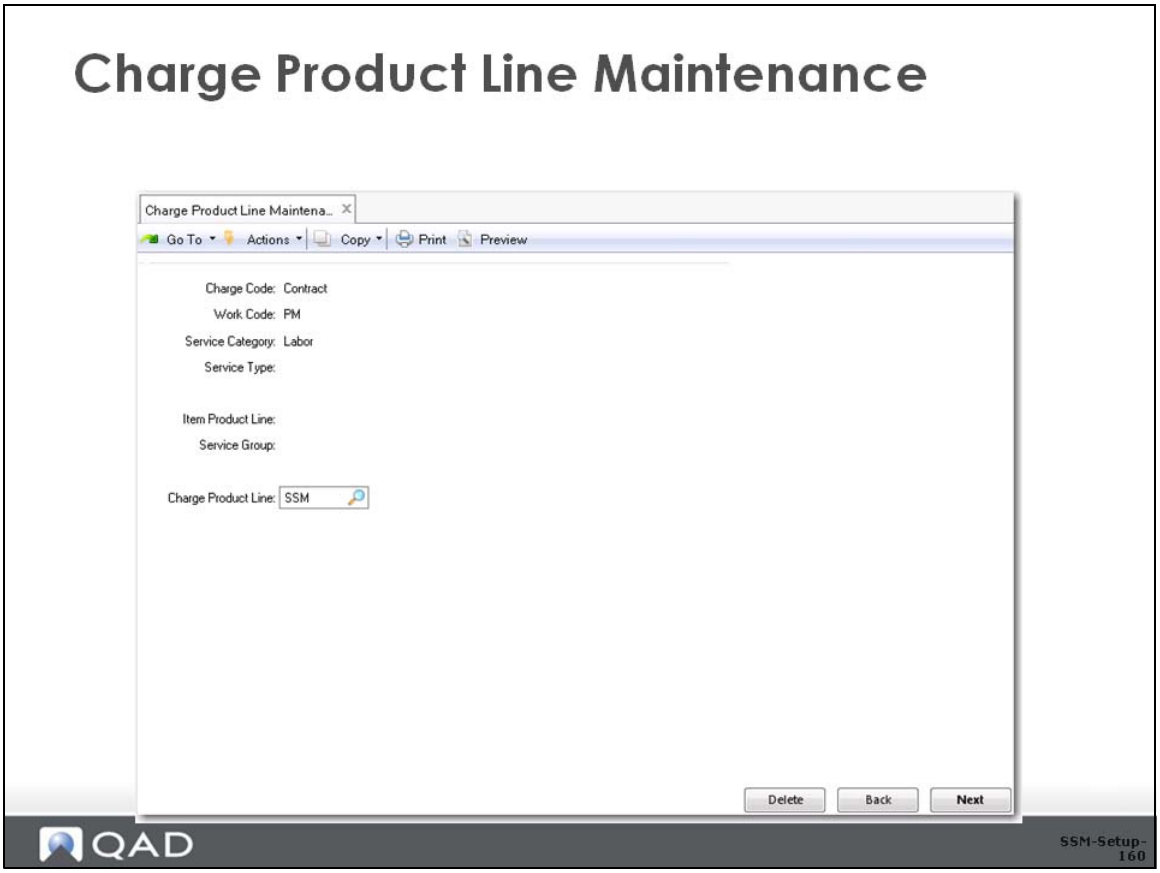
The product line used for the WIP account is determined by the setting of Use Item Prod Line in the Service Management Control. If set to Yes, the item's product line is used; otherwise, the service type's product line is used.

Charge Product Line



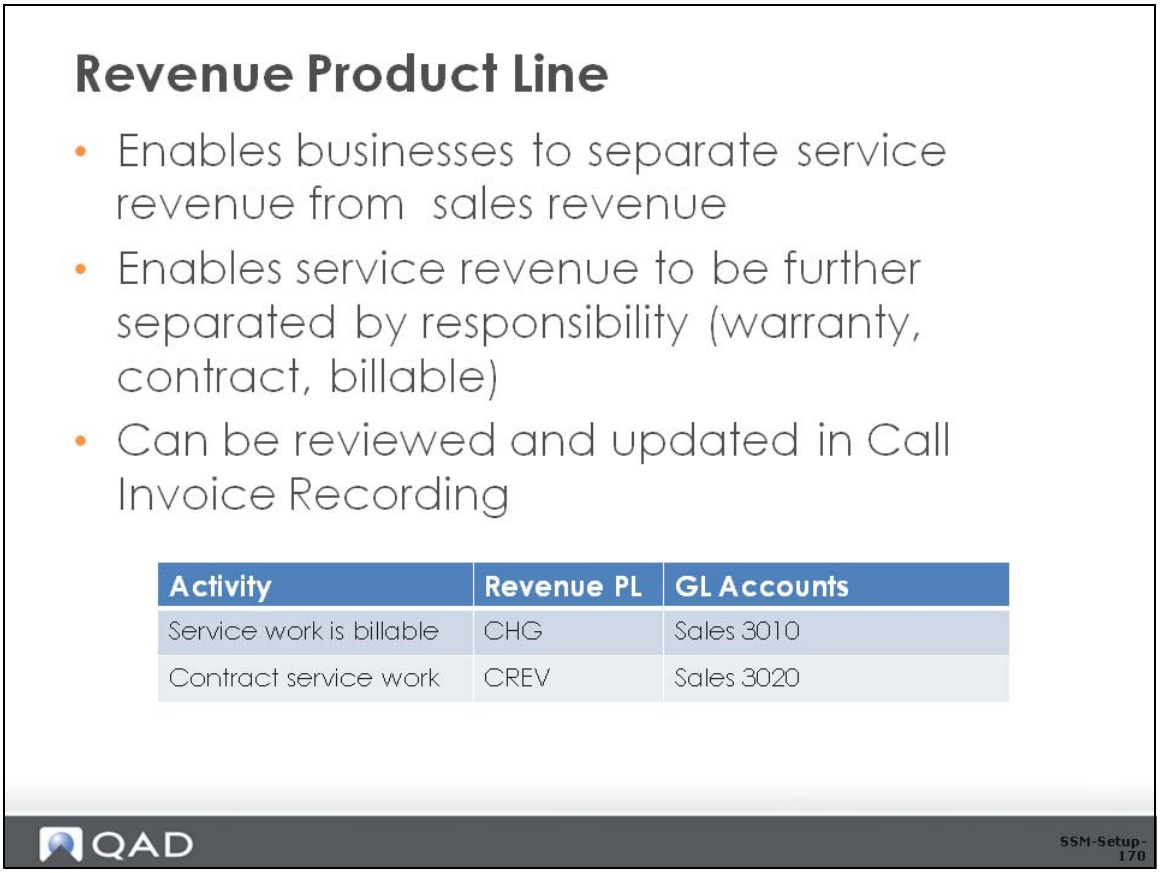
Managing costs with distinct accounts can greatly simplify the reporting process and provide valuable information to an organization on the profitability of their service activity. When charge codes are used in this way, the cost of each labor, expense, or item usage record can be directed to a different product line.

Charge Product Line Maintenance



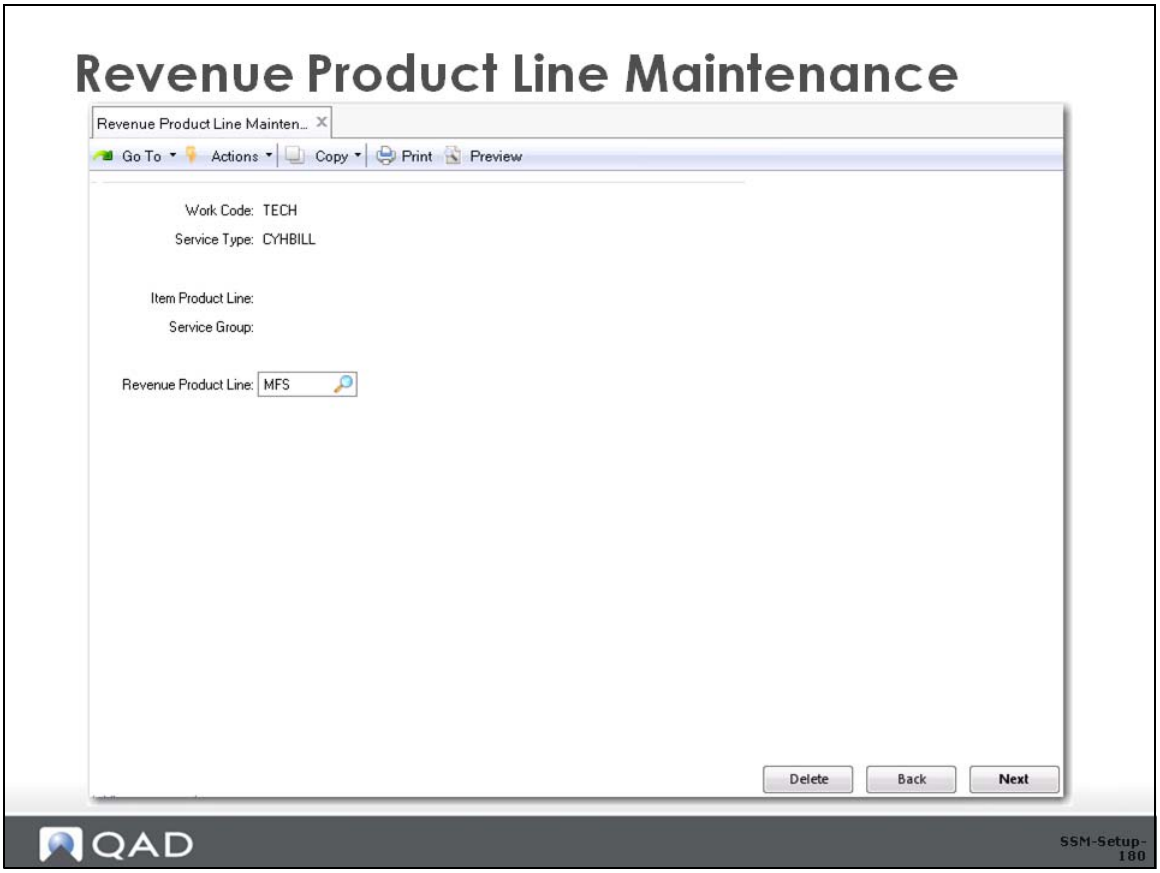
Charge Product Line Maintenance (11.21.21.5) allow you to drive financial activity to any set of accounts. You can also set up generic charge product lines by leaving all the key fields blank.When activity is recorded in CAR, the system searches for a charge product line using values associated with the call line and the usage detail record. Once a charge product line is found, the service accounts and cost of goods sold accounts defined for it in Product Line Maintenance are used for cost bookings.

Revenue Product Line



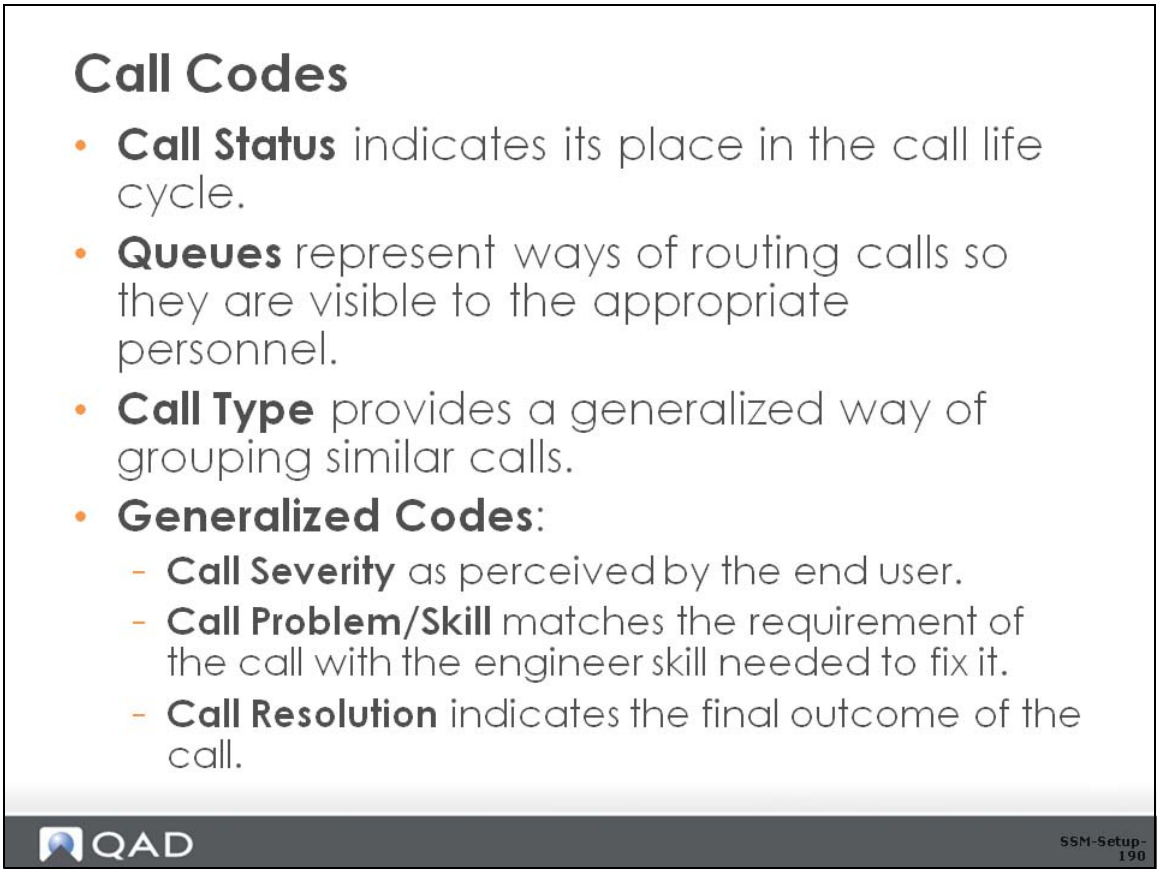
Revenue product lines are similar to charge product lines. However, in the case of revenue product lines, the financial impact represents the income from service activity rather than the cost. In addition, a more limited subset is allowed.

Revenue Product Line Maintenance



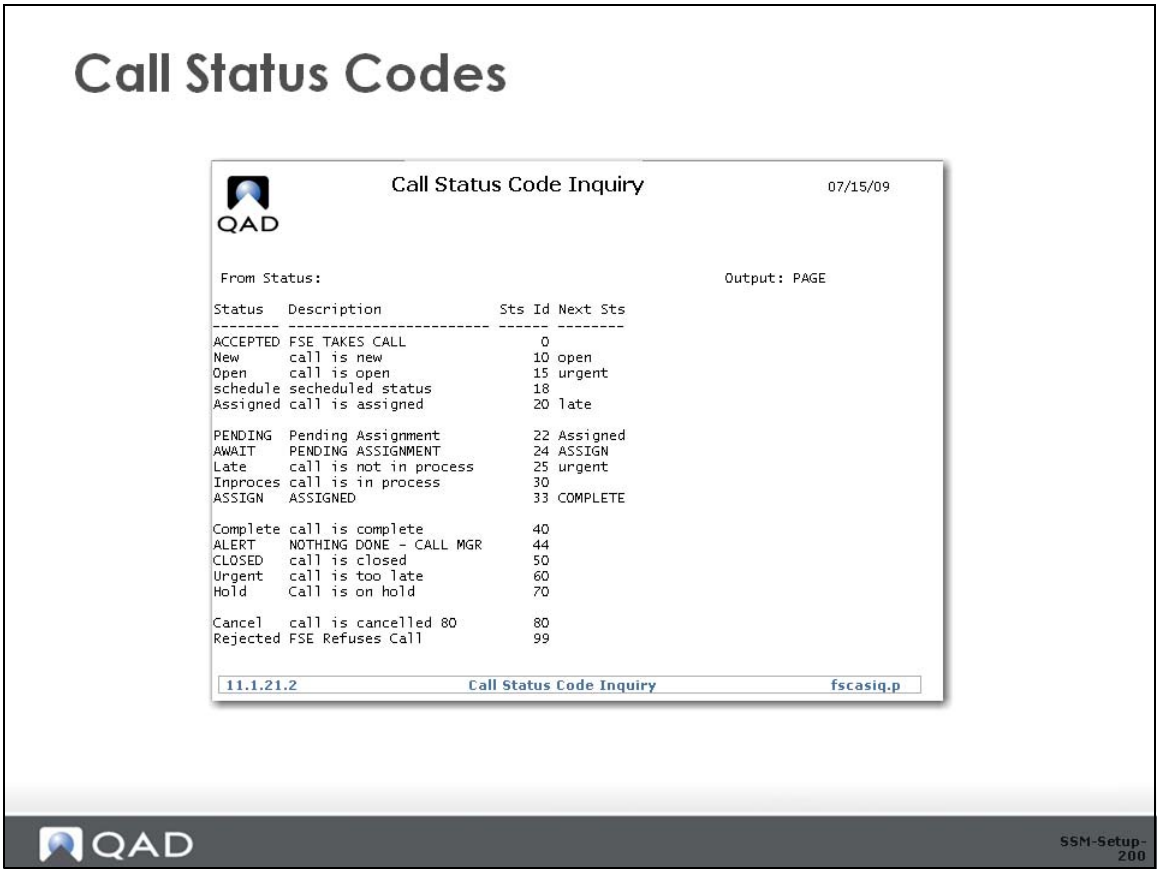
Another important difference is that charge product lines apply to the usage detail consumed in Call Activity Recording. Revenue product lines created in Revenue Product Line Maintenance (11.21.21.9) are applied at a higher level to the item being repaired. Charge product lines are used with each item consumed, each expense, and each hour of labor and can differ at a detailed level. The income from the service activity is only tracked against the item repaired.

Call Codes



Service calls are managed through user-defined codes. This figure lists the most important codes directly relating to calls.

Call Status Codes

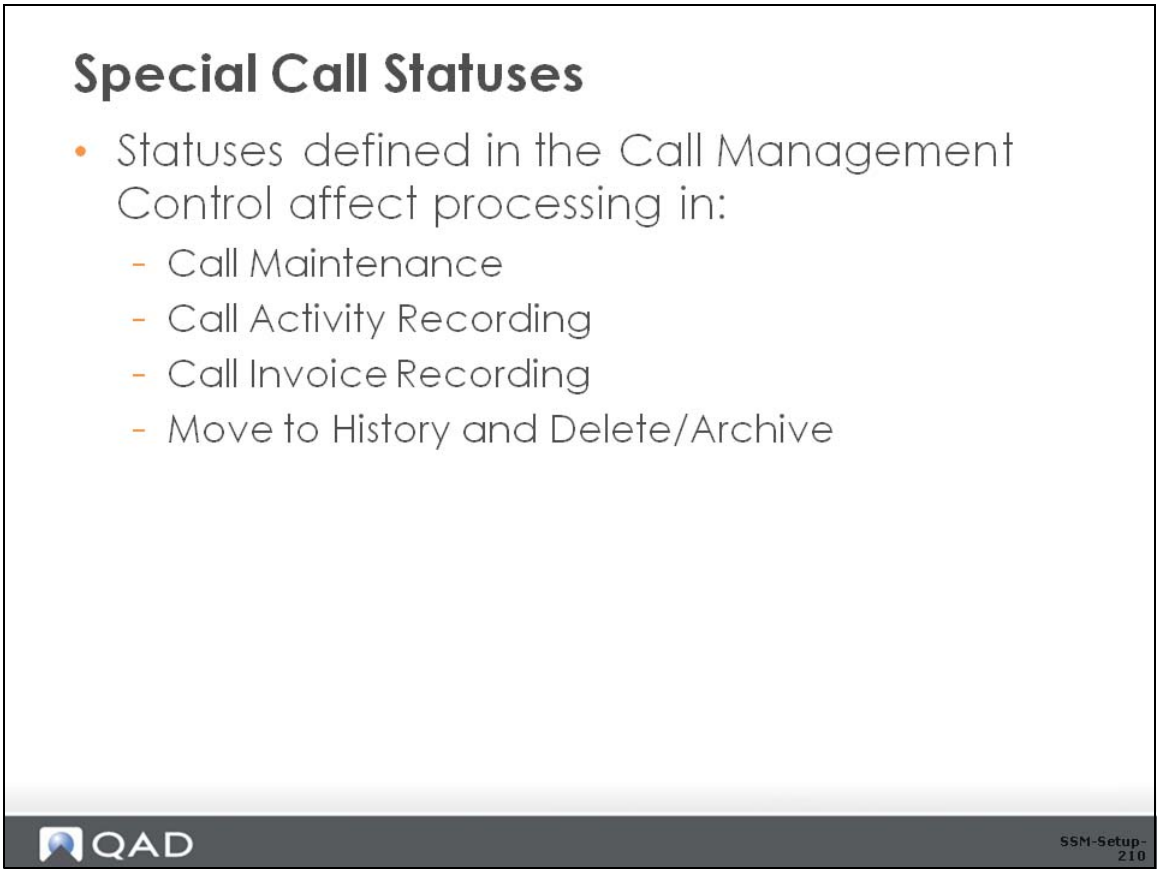


A call is managed according to its status, which relates to the call's position in its life cycle. The call can be active, pending, an emergency, or closed. Calls are moved from status to status either manually or automatically by the Call Escalation Monitor. Certain call status changes can also be made automatically in Call Activity Recording.

Status definitions are created in Call Status Code Maintenance (11.1.21.1). You can set up as few or as many status definitions as you need. Five can be set up in the Call Management Control and are applied automatically by the system. However, unless you are using call escalation other status changes must be applied manually. Therefore, you may want to keep the call life cycle as simple as possible.

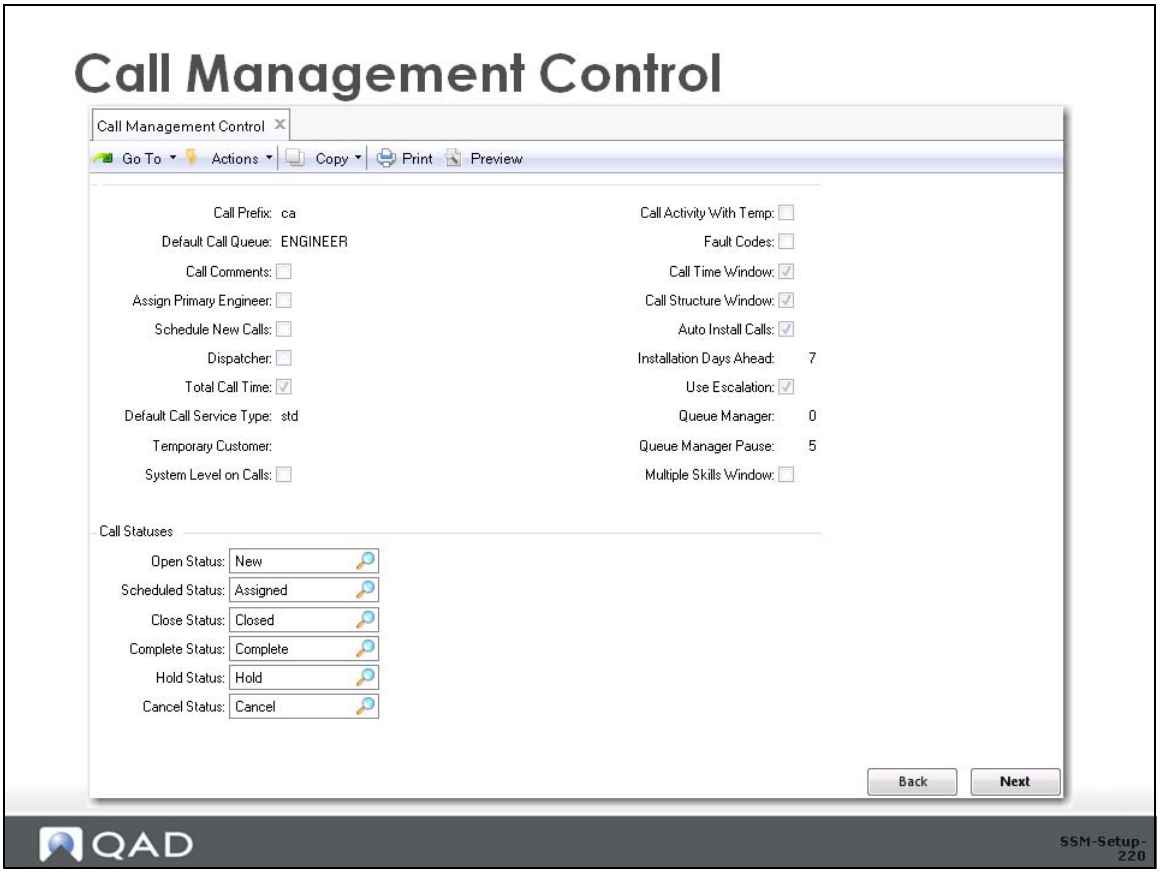
The call status is given a name and description. The status ID can be used to indicate the order in which statuses occur in the life cycle of a call. The scrolling window that displays call statuses displays them in numeric order as defined by the status ID, rather than alphabetically.

Special Call Statuses



Certain statuses have special meaning to the call management programs and are defined in the Call Status frame of the Call Management Control (11.1.24).

Call Management Control (11.1.24)



Open Status. This is the general status for an open call and the initial status for a new call, unless you are using escalations. An open call is dynamic; its item line and other data can change at any time.

Scheduled Status. Scheduled Status is set when the call is scheduled using Field Service Scheduler.

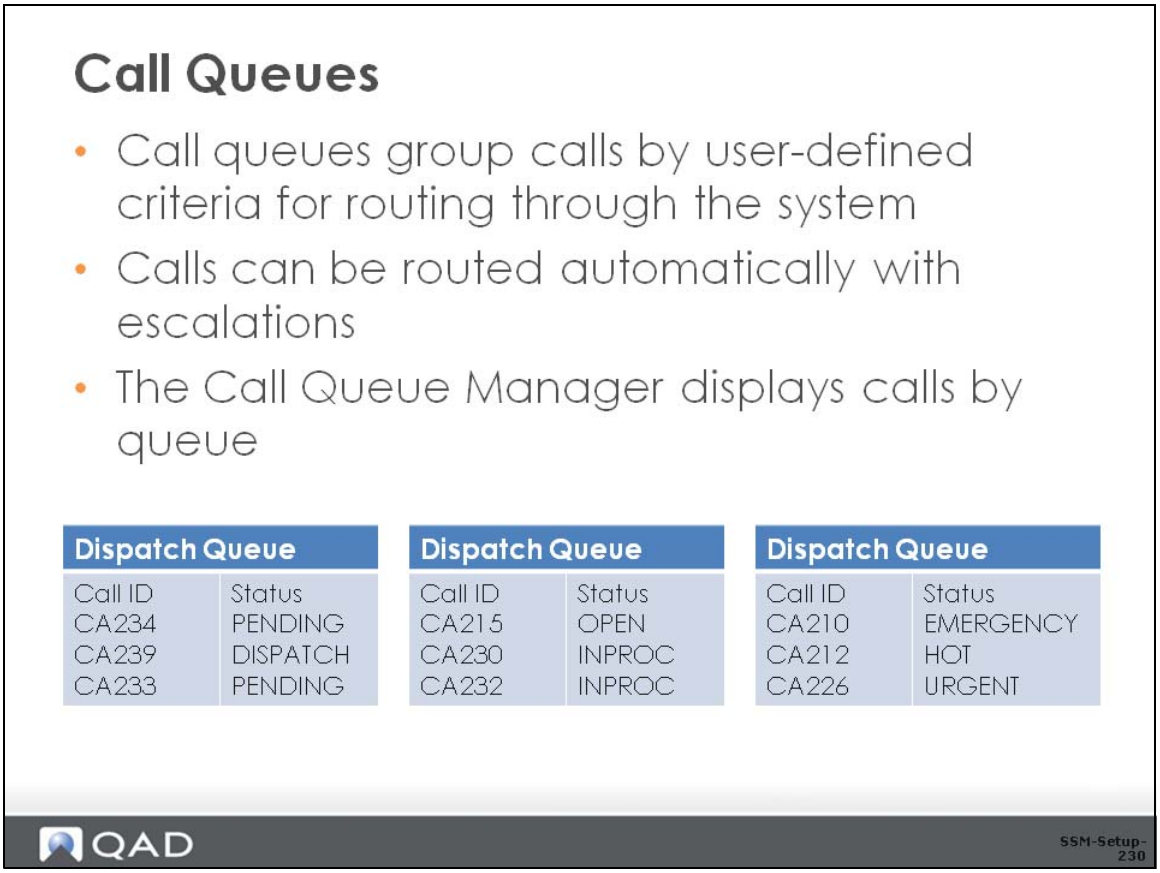
Hold Status . The hold status means the call or line item cannot be changed, but it is not processed for invoicing. For anything further to happen to the call, its status must be changed.

Complete Status. The complete status means the call is ready for invoicing. However, related data can still be modified, service items can be ordered for it, and new activity can be recorded against it.

Closed Status. The closed status is the final status of a call, indicating all service activity for this call is finished and ready for invoicing. Once a call is closed, no activity can be recorded unless its status is changed.

Cancel Status. The call or line item cannot be changed and no activity can be recorded against it. Canceling a call is similar to closing it, but only a call without activity recorded against it can be canceled.

Call Queues



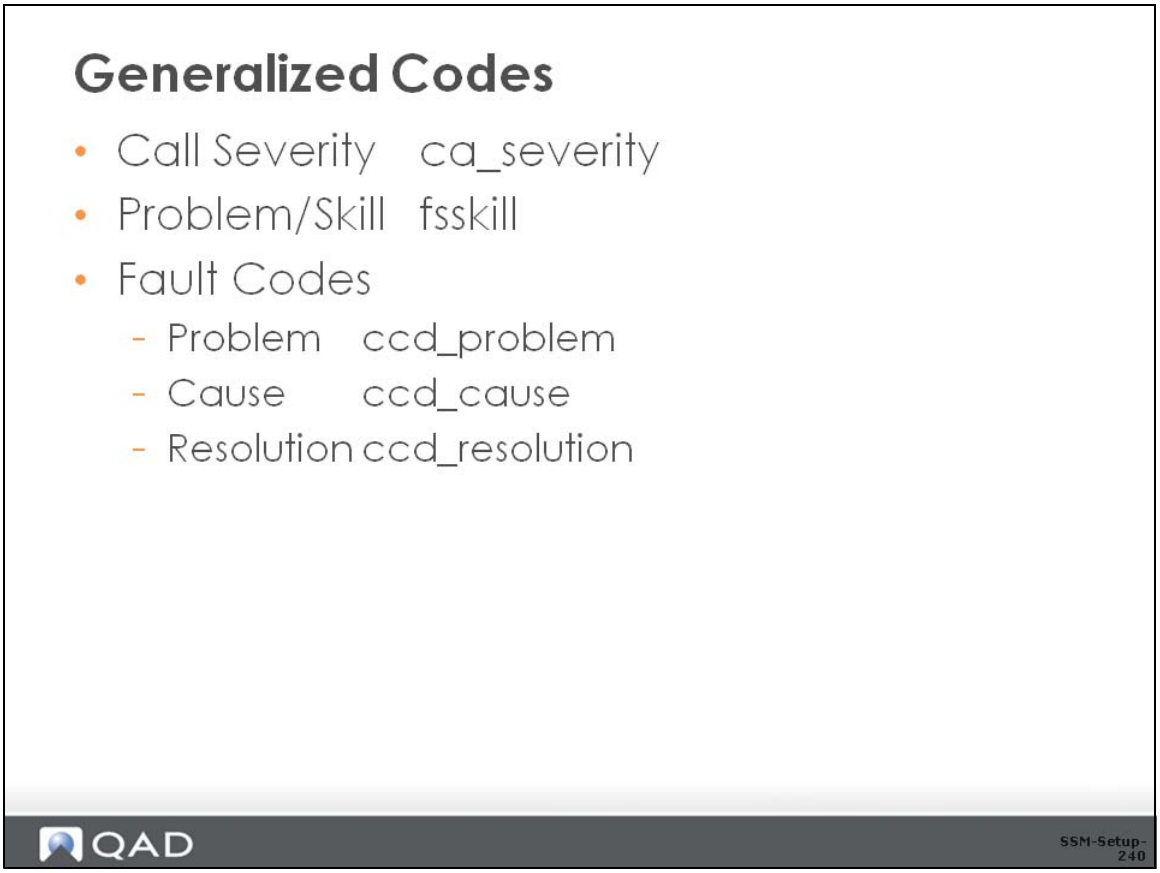
Each call can be placed in a call queue when it is created. The queue is a user-defined code created in Call Queue Maintenance (11.1.21.7).

Each queue is a unique place where calls are routed according to their problem, status, or other criterion. Queues are simply tools for locating and tracking calls. You define call queues to fit your service process.

The Call Queue Manager (11.1.6) is used to review and update calls according to queue. Queues are also used with escalation sequences to redirect incomplete calls automatically so that they obtain needed attention.

In this example, new, unassigned calls are placed in the dispatch queue, where they await assignment to an engineer. The engineer queue is used for calls that have been assigned to engineers and are in the process of being resolved. The supervisor queue is for calls that must, for one reason or another, be brought to the attention of a supervisor. Note that each call in this queue has a status reflecting its urgency.

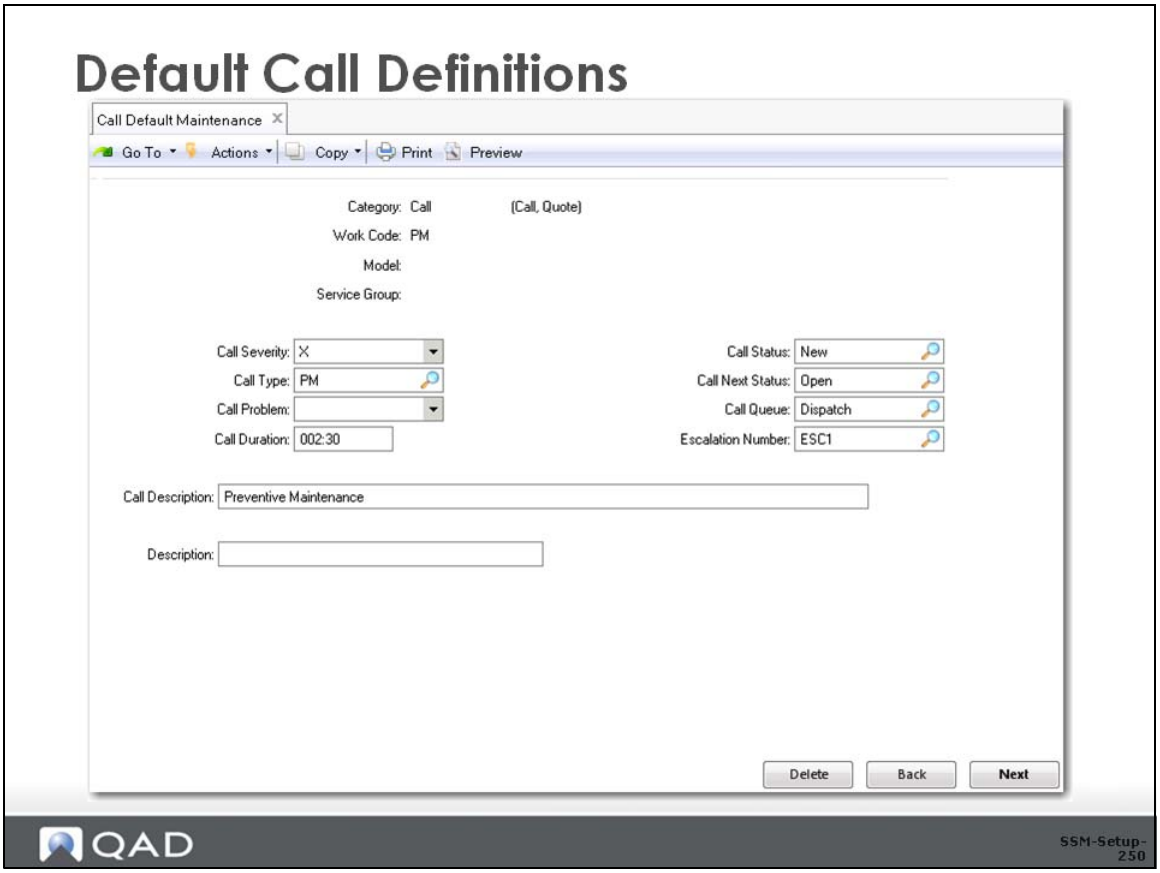
Generalized Codes



There are various fields/codes which are maintained in Generalized Code Maintenance (36.2.13). These allow the user to describe each call in ways to drive the assignment of the engineer:

- Influence the urgency of the call
- Capture quality information for subsequent analysis

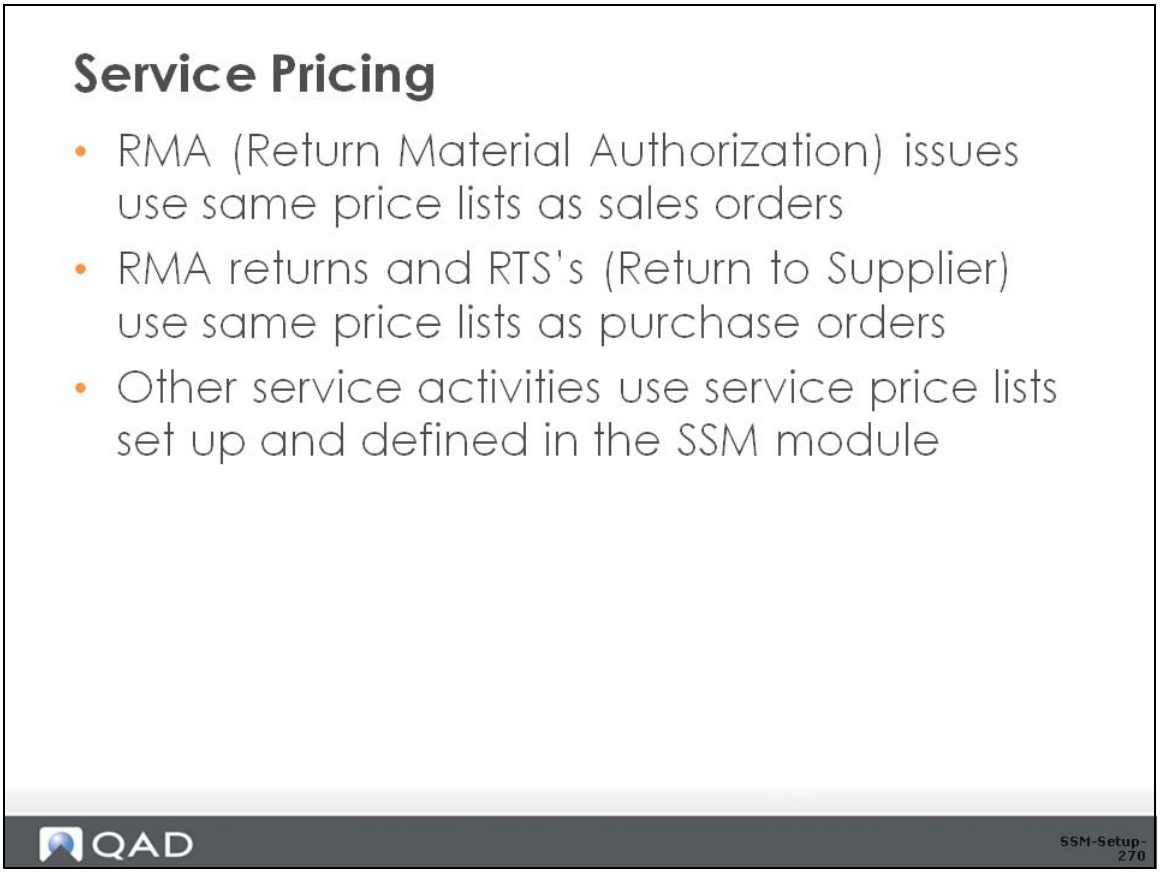
Default Call Definitions



The data entry required for recording call information can be greatly streamlined by setting up multiple sets of default call information in Call Default Maintenance (11.1.21.10). These sets of defaults are pulled into the Call Maintenance screen or used for calls automatically created by the system. Defaults for call quotes are also set up with the same maintenance function. Call types codes provide a way to categorize calls and are set up in Call Type Maintenance (11.1.21.4).

The call defaults serve as templates for the typical kinds of calls you take, and are often based on work code. Default values can be overridden for individual calls as needed. For example, you might need to assign a problem/skill other than the default. To prevent having to change the information for new calls, enter default information that is appropriate for as many calls as possible.

Service Pricing

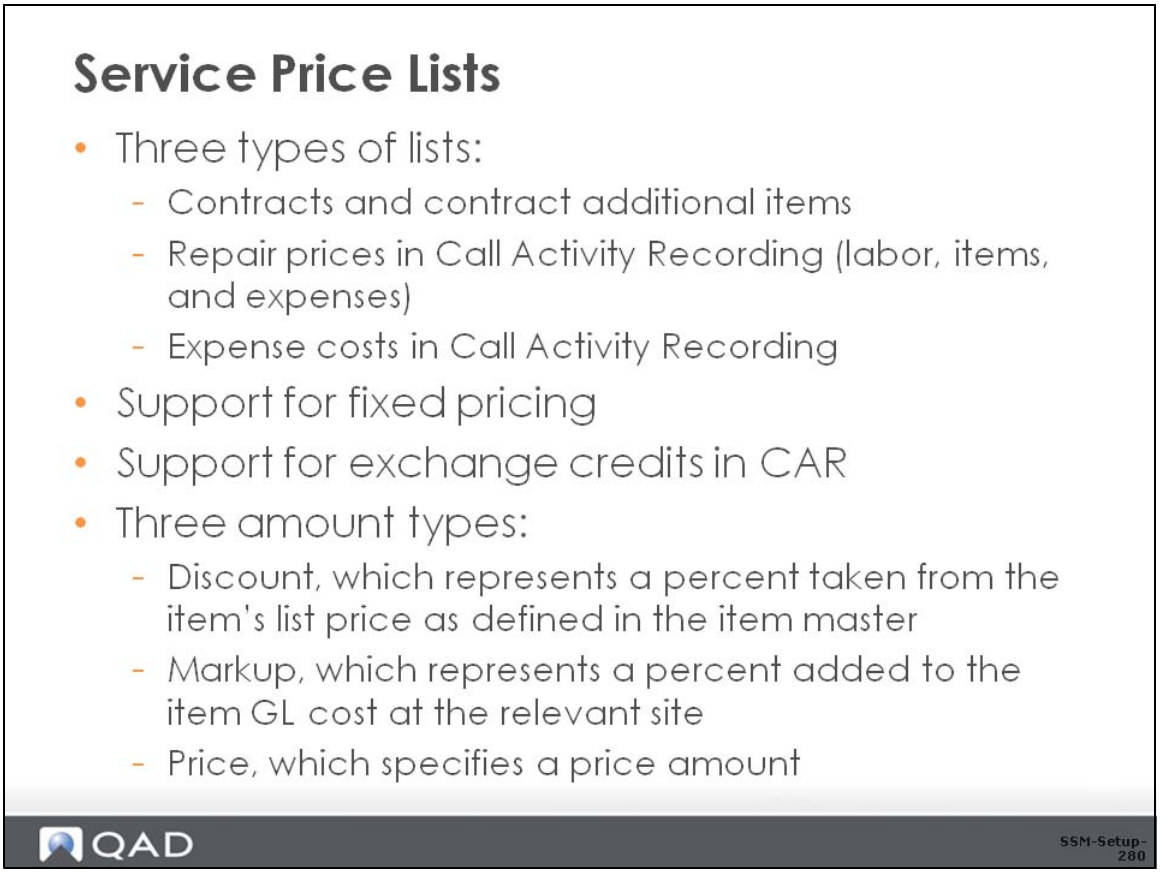


Service and Support Management has its own price list maintenance functions with features unique to service. Service price lists are used for contracts; for billable items, labor, and expenses recorded in Call Activity Recording (CAR); and for expense costs in CAR. Service price lists also provide support for fixed repair pricing and for credit offered customers for reusable components returned during a service activity.

More than one kind of price list can be defined in QAD EE. The price lists from SO/SQ/RMA Pricing Menu (1.10.1) are used for determining prices in sales quotes, sales orders and RMA issues. These price lists take advantage of a sophisticated coding schema that enables the system to determine best prices based on predefined rules. In the service arena, RMA issues provide functionality that is the same as sales orders.

Price lists from PO/RTS/Sched/RMA Rcpt Price Menu (1.10.2) are used for Purchase Orders, Return to Supplier (RTS), scheduled sales orders, and RMA returns.

Service Price Lists



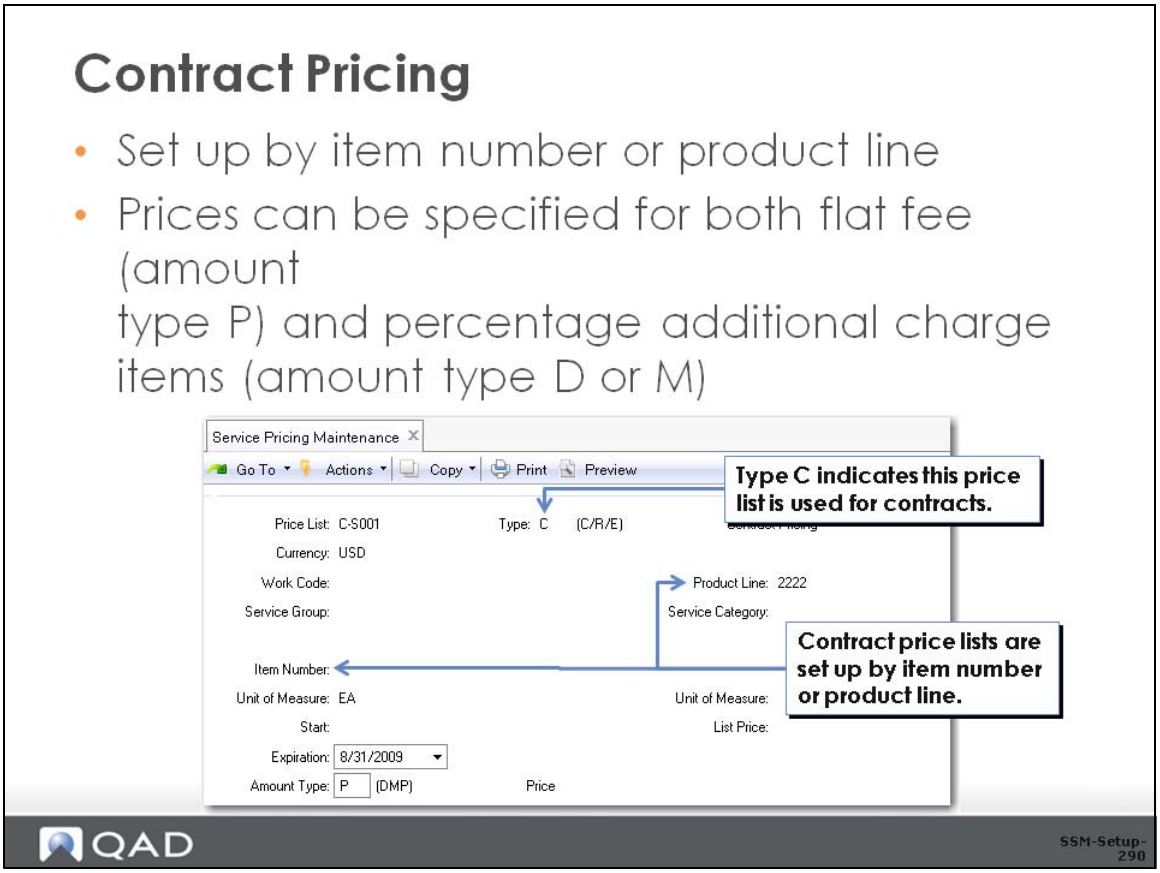
Service price lists are used to automate pricing for two critical service areas: contracts and Call Activity Recording. They are created in Service Pricing Maintenance (11.17.1).

Automated pricing through price lists is an important way for an organization to streamline and manage the financial side of service activity. Prices suggested by the system based on price lists can be changed if needed. However, price fields can be password protected so that arbitrary changes cannot be made.

Service price lists support three of the amount types used in other pricing structures. The amount type determines the way the price is calculated by the system.

Because of the way service price lists are used, not all amount types are valid on each type of list (repair, contract, and expense cost).

Contract Pricing

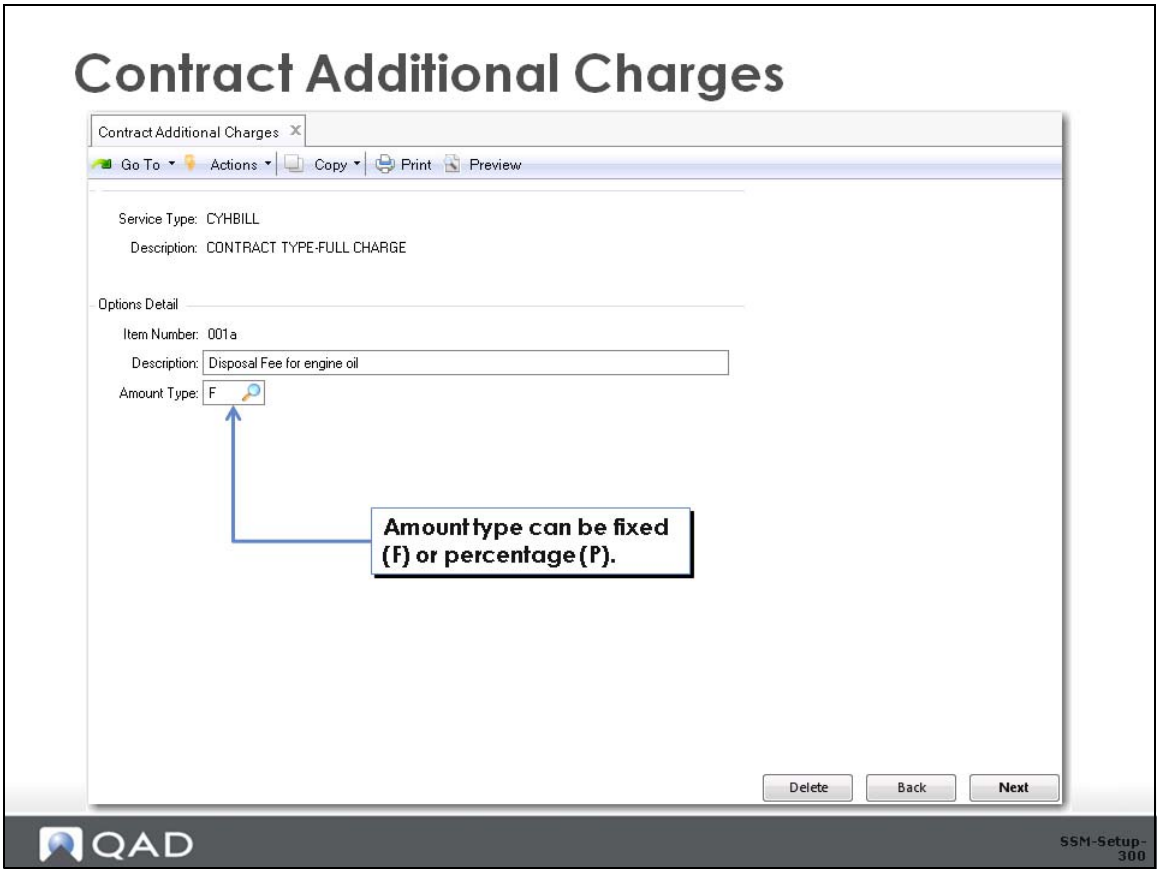


Contract price lists (type C) are defined with Service Pricing Maintenance (11.17.1). Prices for both items covered on a contract and additional charge items can be specified on this type of price list.

Contract price lists are associated with contract types in Contract Type Maintenance. The contract type establishes the default price list for individual contracts.

Contract pricing can be set up by item number or by product line. Every item defined in the item master must belong to a product line. Pricing by product line is especially useful with contract price lists if you offer coverage at the same rate for all products in a product line.

Contract Additional Charges



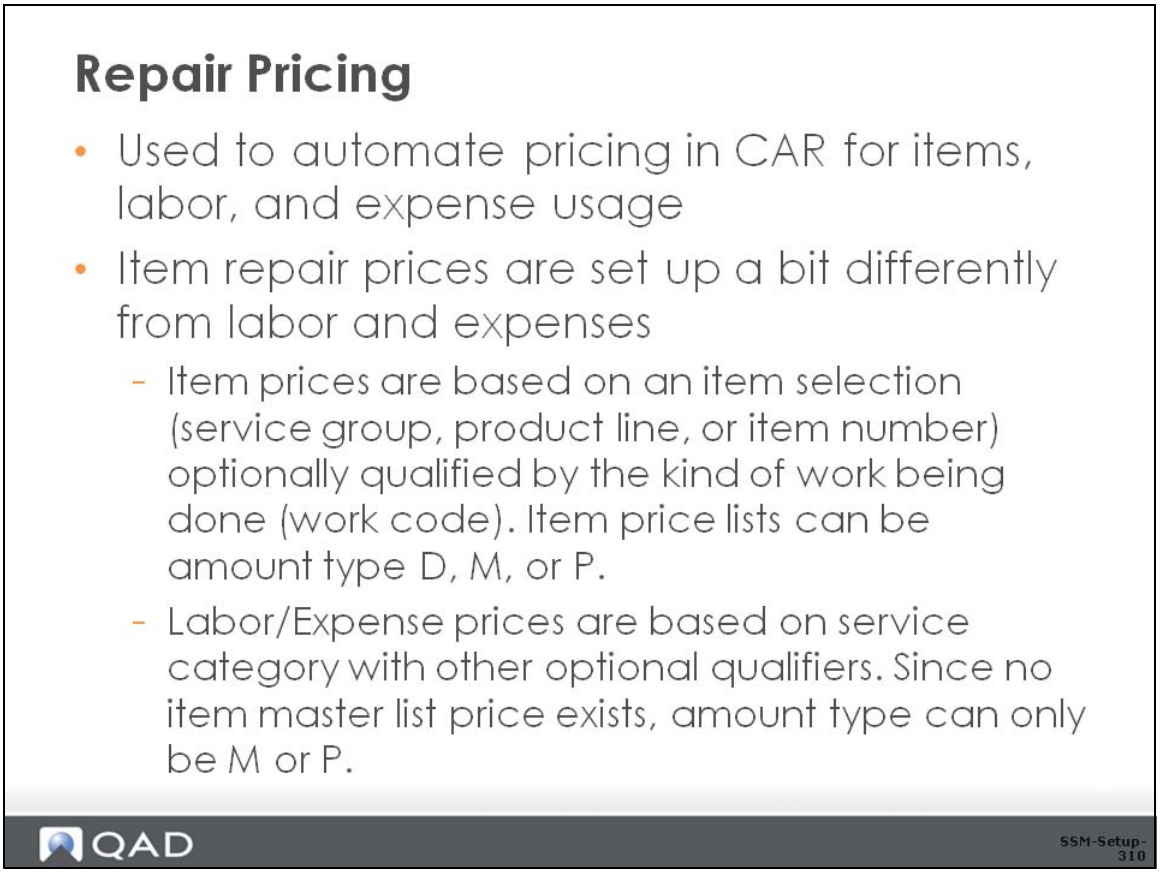
Some service organizations have items they include in contracts that either add to the price or create a discount. These are defined in Contract Additional Charges (11.5.7).

The Amount type can be fixed (F) or percentage (P).

If the additional charge is a fixed amount, the price list type must be P (price). In this case, the price is considered a fixed amount to be added to or subtracted from the price of the contract for each period. If the additional charge is a percentage, the amount type can be either D or M. This kind of price is interpreted as a percentage to be applied to the entire contract. The percent is negative for a discount price and positive for a markup.

They can be set up for a particular contract type by specifying a value in the Service Type field. If you leave the Service Type field blank, as in this example, the additional charges are available for use on contracts with any service type.

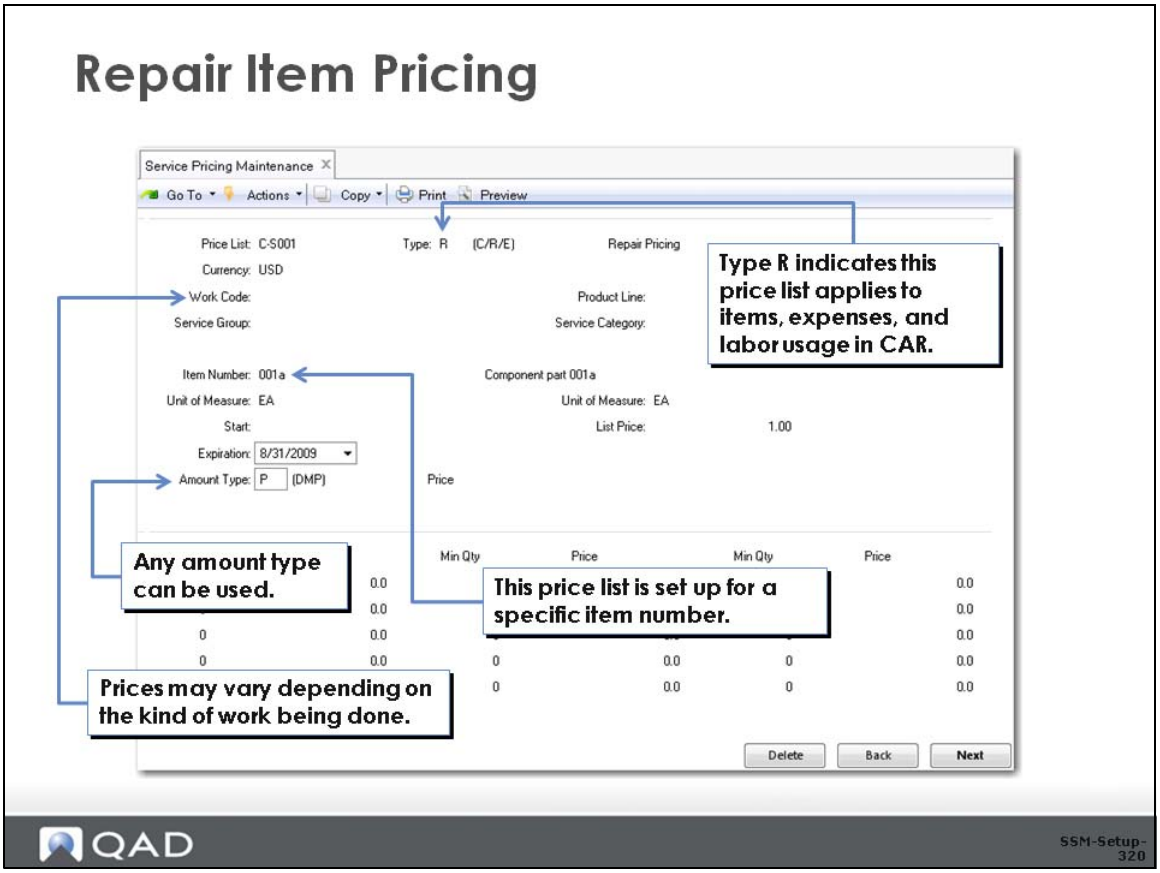
Repair Pricing



Repair price lists (type R) are defined with Service Pricing Maintenance. They can be associated with contract and warranty types in the Call Price List field. This price list from the service type determines the default price list for activity recorded in Call Quote Maintenance and Call Activity Recording.

Three different kinds of consumption can be recorded in CAR: labor, expenses, and items. Price lists for labor and expenses are set up somewhat differently than for items.

Repair Item Pricing



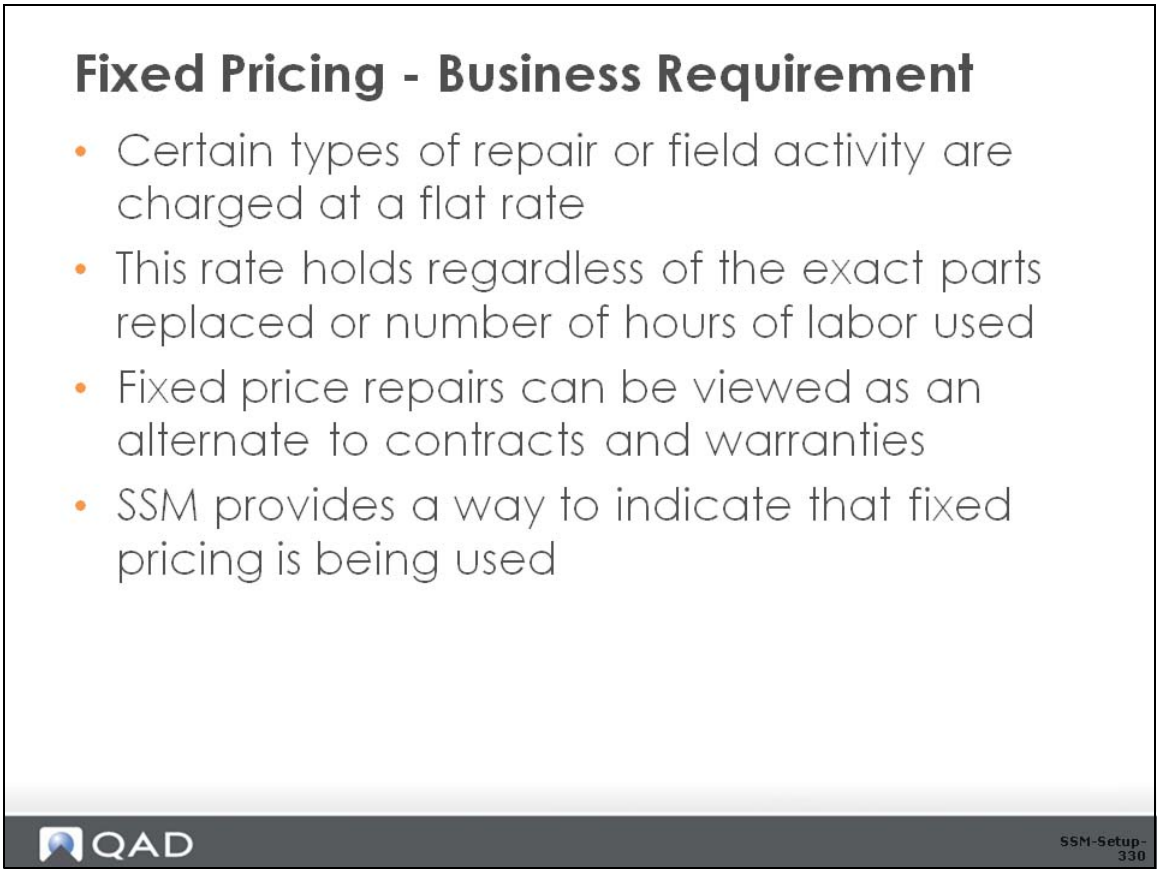
When items are consumed in CAR, the system searches the price list specified on the call header for each item's price. If no price is found for the item, it defaults to the item's list price as specified in the item master. If the item is not defined in the item master, price defaults to zero. There are two key factors in the price list search: the item or item group and the work code.

Price lists can be set up for individual item numbers or based on an item grouping. The product line and service group provide alternate ways of grouping items.

You may have different prices for the same item depending on the kind of work being done. For example, an item's price may vary depending on if it is used during an installation, a repair, or a preventive maintenance visit.

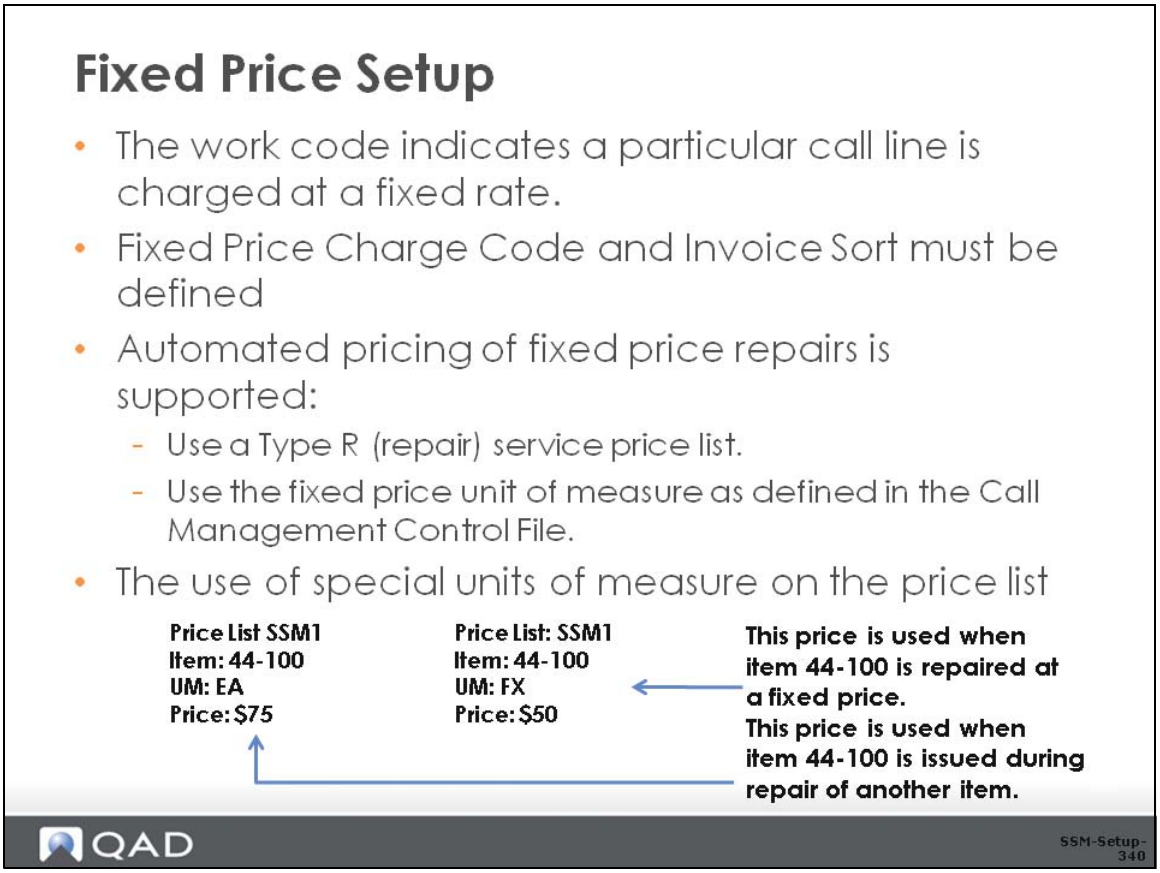
The work code provides an additional layer of differentiation above the item selection. In addition to a work code, you must still specify an item number or some kind of item grouping (service group or product line). Repair price lists for items can use any amount type.

Fixed Pricing - Business Requirement



Fixed pricing should be viewed as an alternative to contracts and warranties. When fixed pricing is used, none of the coverage details of any service type in effect are considered. When a fixed price repair is done, all the details of the service activity can still be recorded, enabling you to fully track service costs. The only difference is in the invoicing process, which looks at the fixed price rather than the actual costs or the normal prices associated with elements of the repair.

Fixed Price Setup

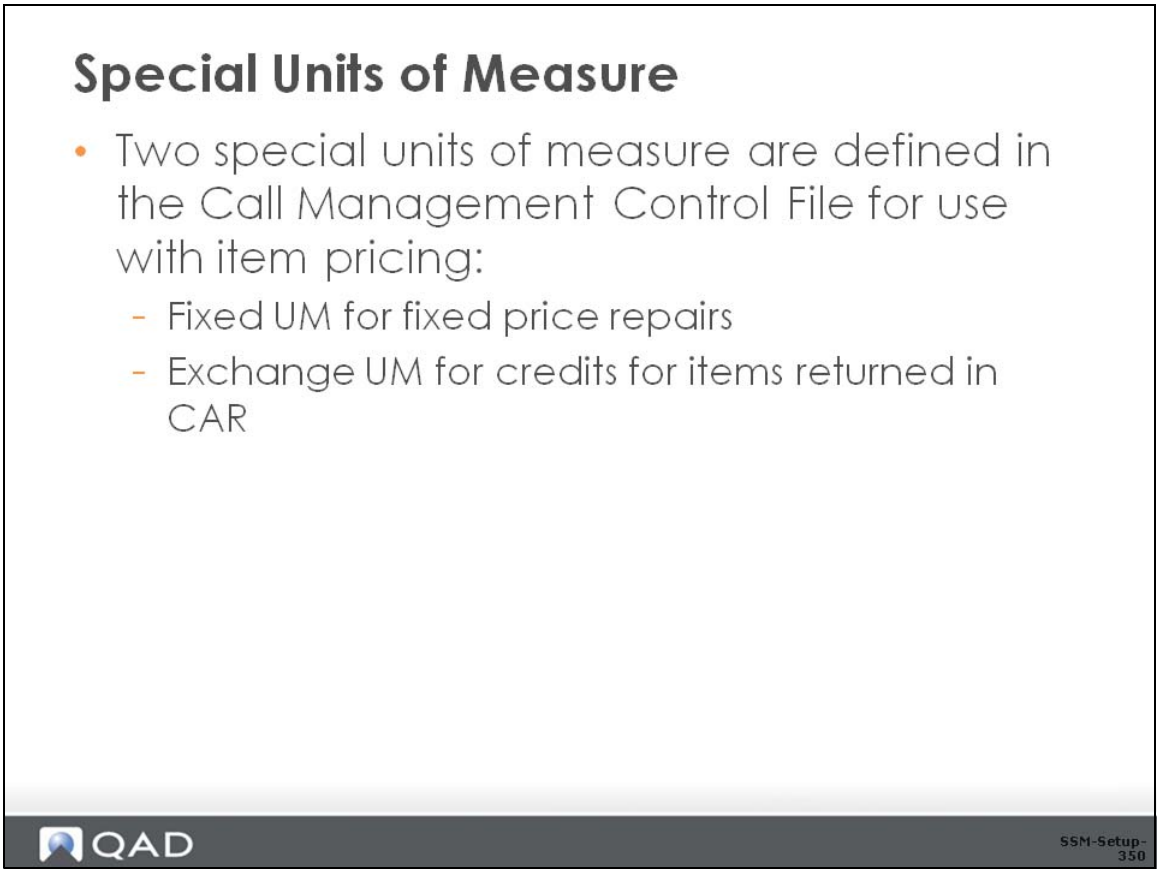


To use fixed pricing, the proper codes must be set up:

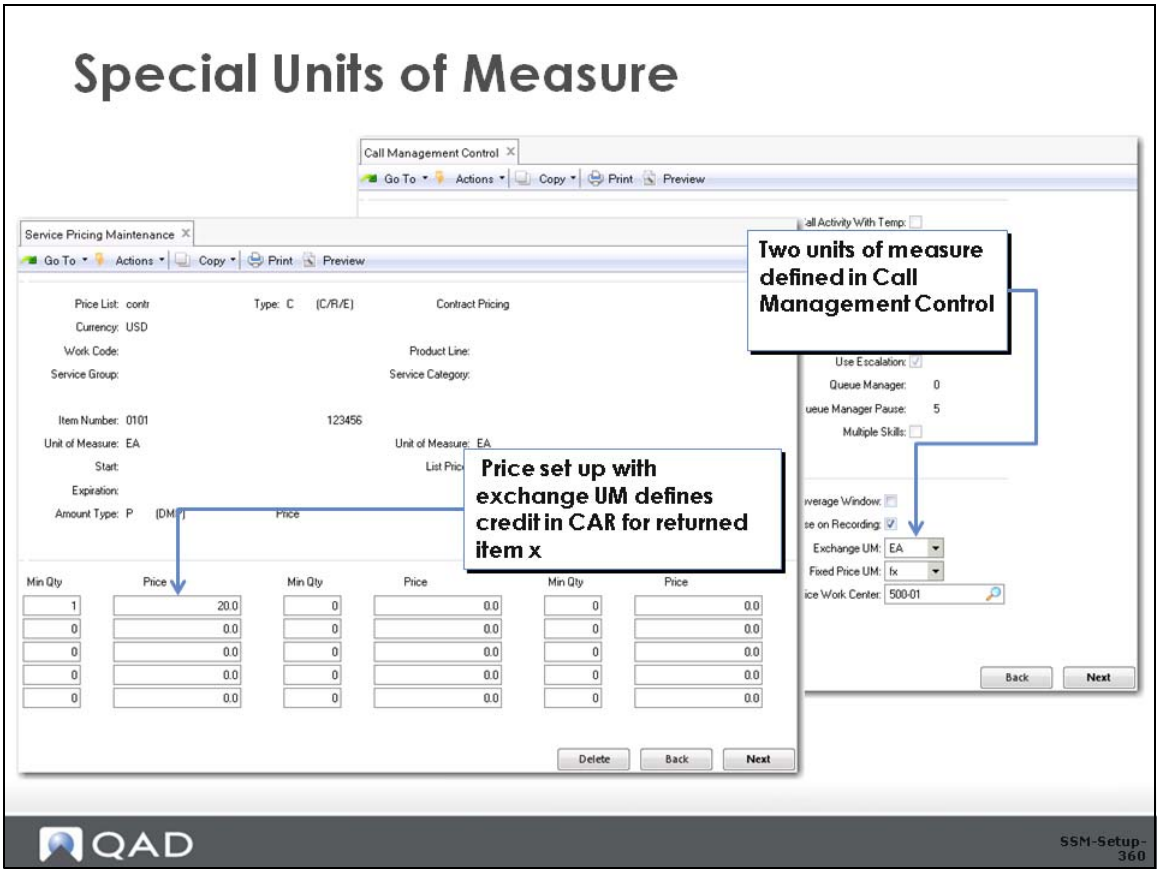
- A work code with Fixed Price set to Yes
- A charge code with Fixed Billable set to Yes
- An invoice sort with Include Fixed Prices set to Yes

To support the use of fixed pricing, service price lists can be set up using the Fixed Price UM (defined in the Call Management Control). If a work code that has Fixed Price set to Yes is used, the Fixed Price field in CAR also defaults to Yes. In this case, a fixed price charge code is also suggested by default, and the system looks for a price on the associated price list for the call line item with the fixed price UM. This price is used as the price for the repair. Fixed prices are defined on a Type R price list. This is the item being repaired, not an item used during repair. Fixed Price is automatically used for Depot Order Replacement lines.

Special Units of Measure



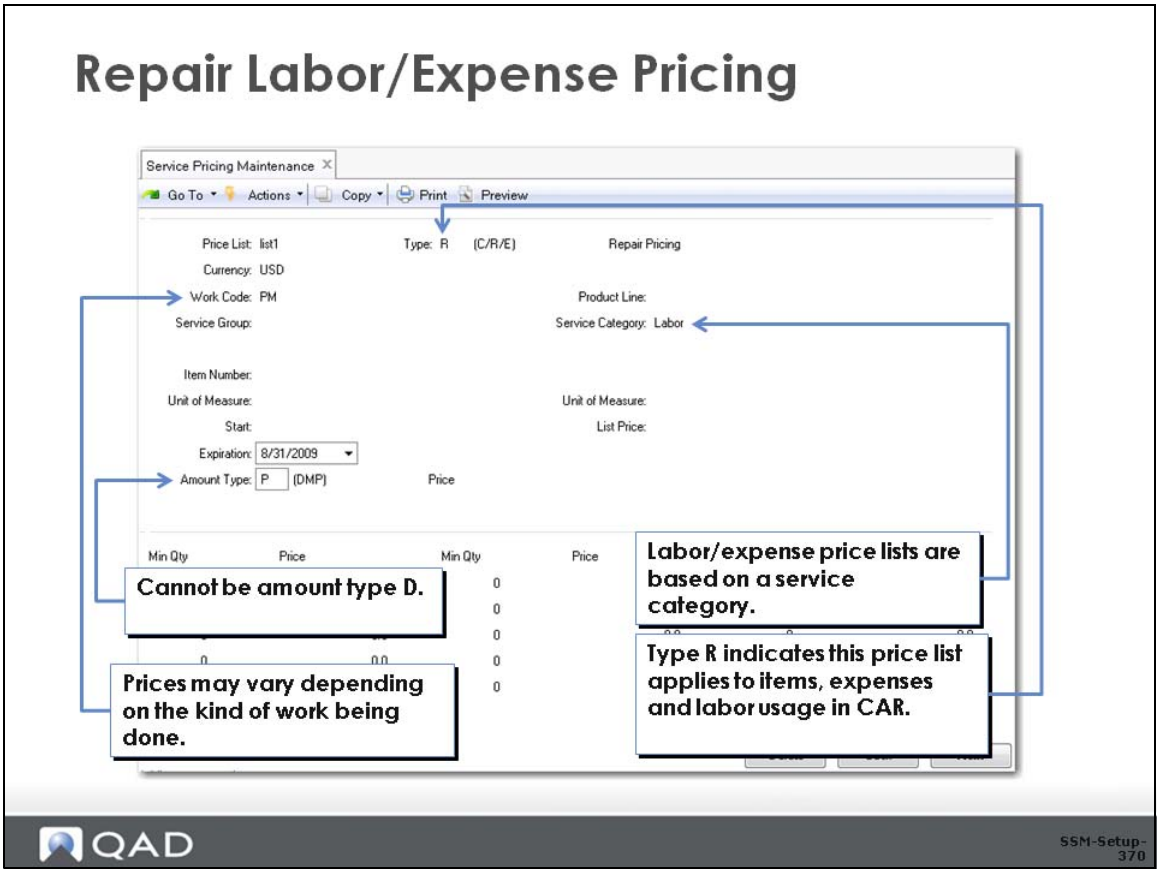
Special Units of Measure



In service activities, two units of measure have a special significance. These are defined in the Call Recording/Invoicing frame of the Call Management Control. They must first be set up in Generalized Codes Maintenance for pt_um.

- Exchange UM is used in the Call Activity Recording exchange process to determine the credit given for an exchanged item
  - When the return status specified indicates an exchange and the item being returned has no coverage, the system looks for an exchange price with the exchange unit of measure on the repair price list associated with the call.
  - This price displays as the default exchange price for the item
- Fixed Price UM defines the price for a fixed price repair
  - Fixed prices are specified for the item being repaired, not the parts used in the repair process.

Repair Labor/Expense Pricing



Price lists for labor and expenses consumed in CAR are set up based on service category. You can define as many service categories as you need, each representing a particular kind of labor or expense charge.

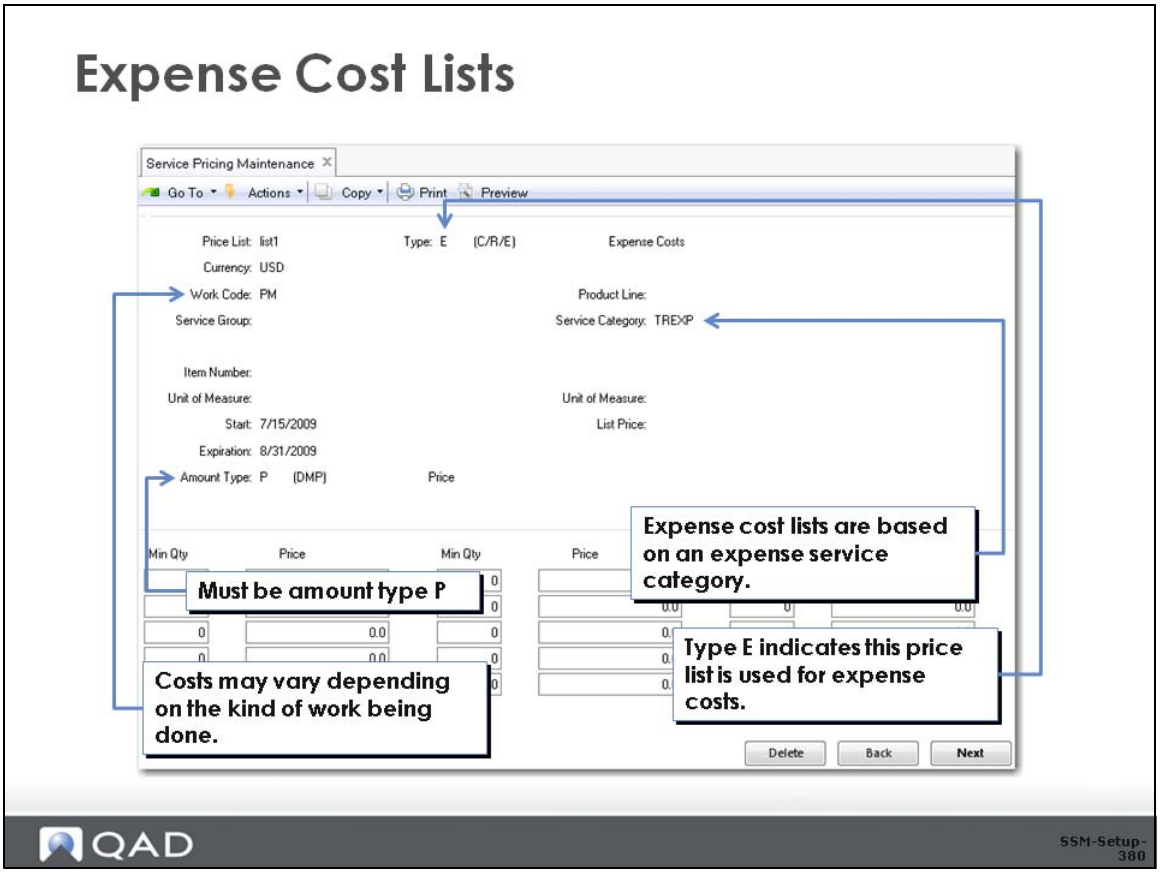
Other factors can be considered in the search for labor and expense prices:

- work code
- Service group
- Product line

For example, the price for installation labor may be different than repair labor. If service group and product line are included when prices are set up, they refer to the service group and product line of the item being repaired. This is different than for item price lists, where service group and product line refer to the item being consumed.

If no price is found for the labor or expense, it defaults to zero and must be specified manually. Amount type D cannot be used for labor/expense prices since they do not have a “list” price like items in the item master.

Expense Cost Lists



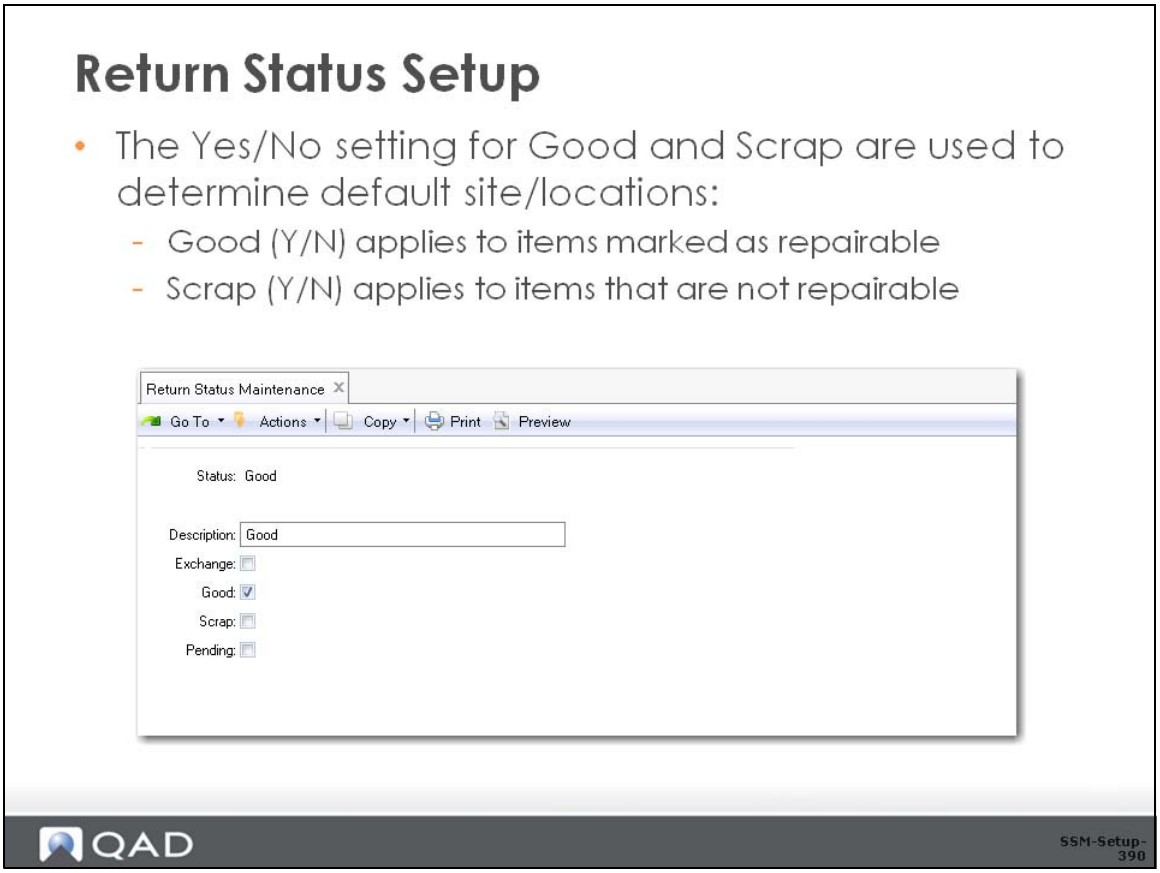
The cost list is used to determine the standard cost for expenses recorded in Call Quote

Maintenance and Call Activity Recording. The cost list must have the same price list code as the corresponding repair price list specified on the service type. If no cost is found, the standard cost for the expense defaults to zero and must be specified manually by the user.

Expense cost list are defined with Type of E; the Amount Type must be P (price).

Cost lists are set up just like expense price lists, using the service category as a base and optionally including work code, service group, and product line. The same search algorithm is used with the call currency and a blank unit of measure.

Return Status Setup



Return statuses are used to manage the return and exchange process in Call Activity Recording (CAR) and MO Direct/Pending Returns. They are not used for RMA receipts. The return status has no formal relationship to the statuses defined with Inventory Status Maintenance (1.1.1). However, these two statuses are normally used together to control return processing in the larger QAD EE environment.

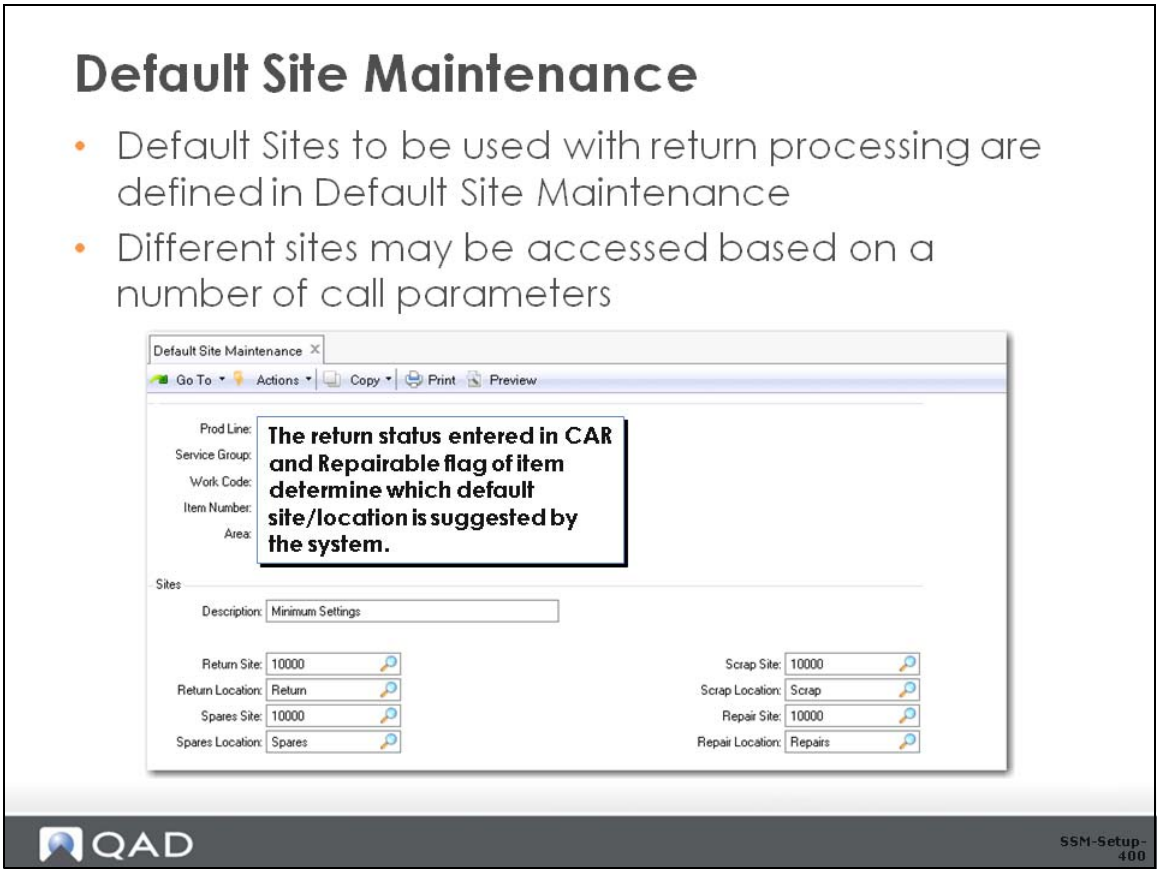
Status. The statuses are created in Return Status Maintenance (11.17.21). Each of the attributes of the return status controls a different aspect of the process.

Good and Scrap. Good and Scrap determine default locations for repairable (Good) and non-repairable (Scrap) items. Good and Scrap cannot both be Yes at the same time.

Exchange. Exchange determines if credit should be given for an item returned from the customer. Exchanges can only be done in CAR. Both Exchange and Pending cannot be Yes.

Pending. Pending is used for items ordered on an MO and returned in CAR. It determines if the inventory transactions take place in CAR or later in MO Direct/Pending Returns. A pending status requires that Exchange is No, Good is Yes, and Scrap is No.

Default Site Maintenance (11.21.13)



The sites set up with Default Site Maintenance (11.21.13) are accessed by various functions during service activity including returns and exchanges in Call Activity Recording, issues in CAR and MO Maintenance, and MO Direct/Pending Returns. Default sites for RMAs are set up in the RMA/RTS Control.

Default sites can be set up for various combinations of product line, service group, work code, item, and area. The values specified in the first frame of Default Site Maintenance serve as a key for locating site defaults. You can enter any number of specific combinations or create more generic defaults that apply to entire product lines or a particular area.

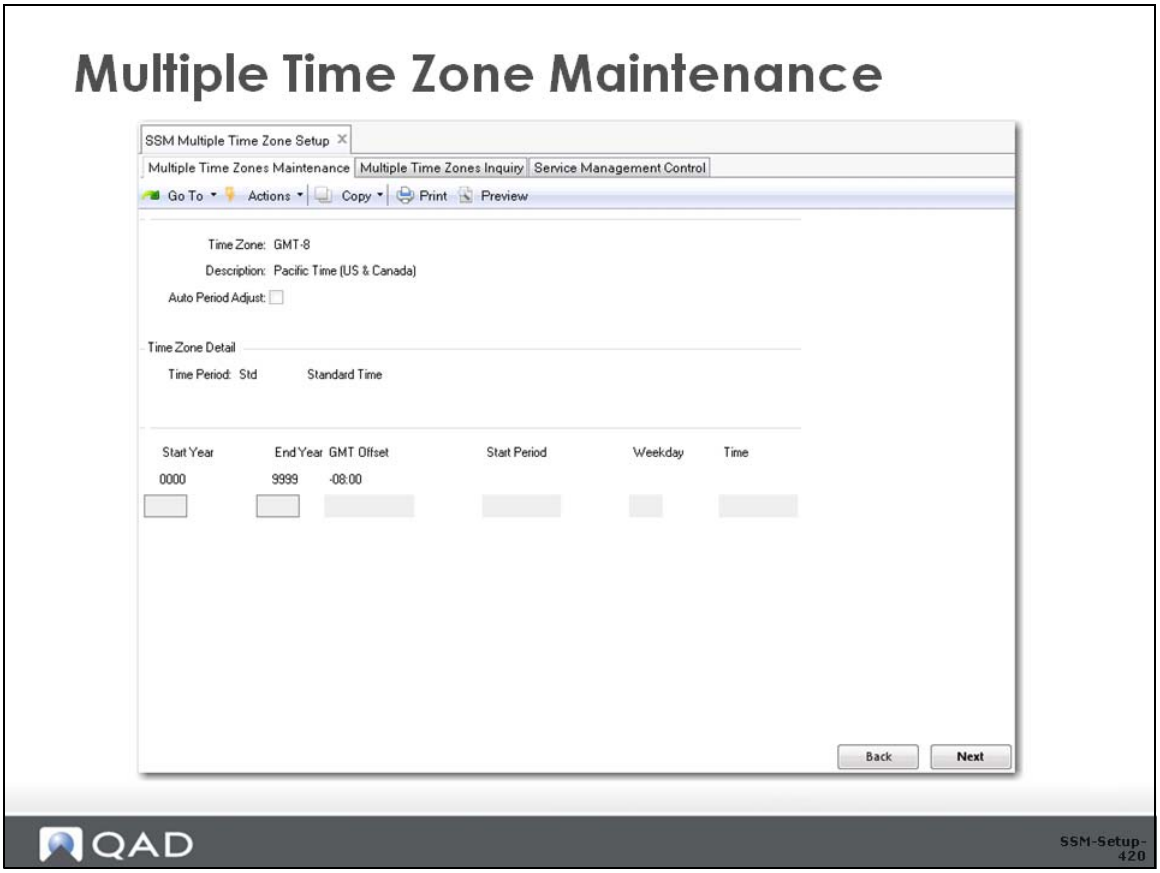
Multiple Time Zones

The Service and Support Management module provides many time-sensitive features such as the duration and number of hours per day for service coverage. Engineer scheduling uses this information to assign an engineer to a call.

When service providers and engineers are located in different time zones, understanding these dates and times can become extremely complex. Multiple Time Zone (MTZ) functionality helps manage these issues.

There are several steps needed to implement including running the End User Time Zone Utility (11.21.21.20) and Multiple Time Zone Startup Utility (11.21.21.24).

Multiple Time Zone Maintenance

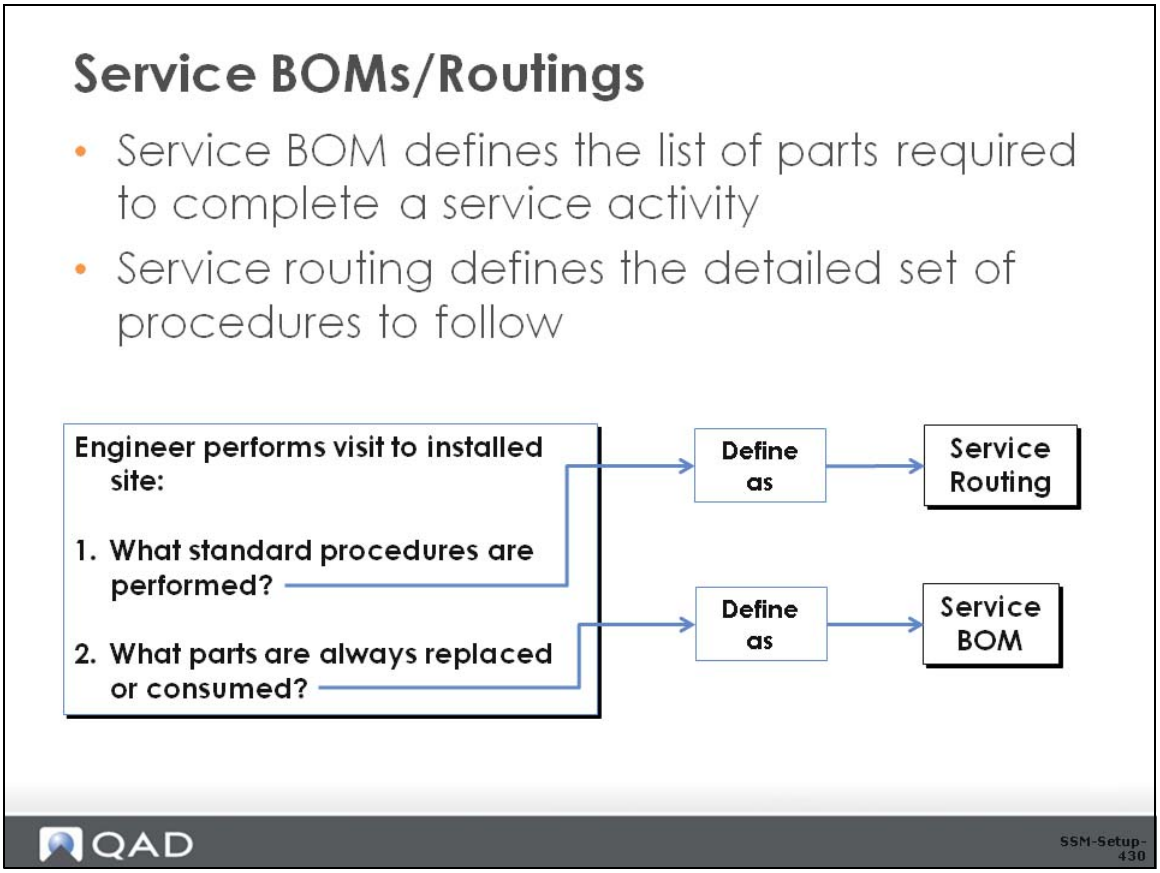


Time zones are set up in Multiple Time Zone Maintenance (11.21.21.1).

You have two ways to create:

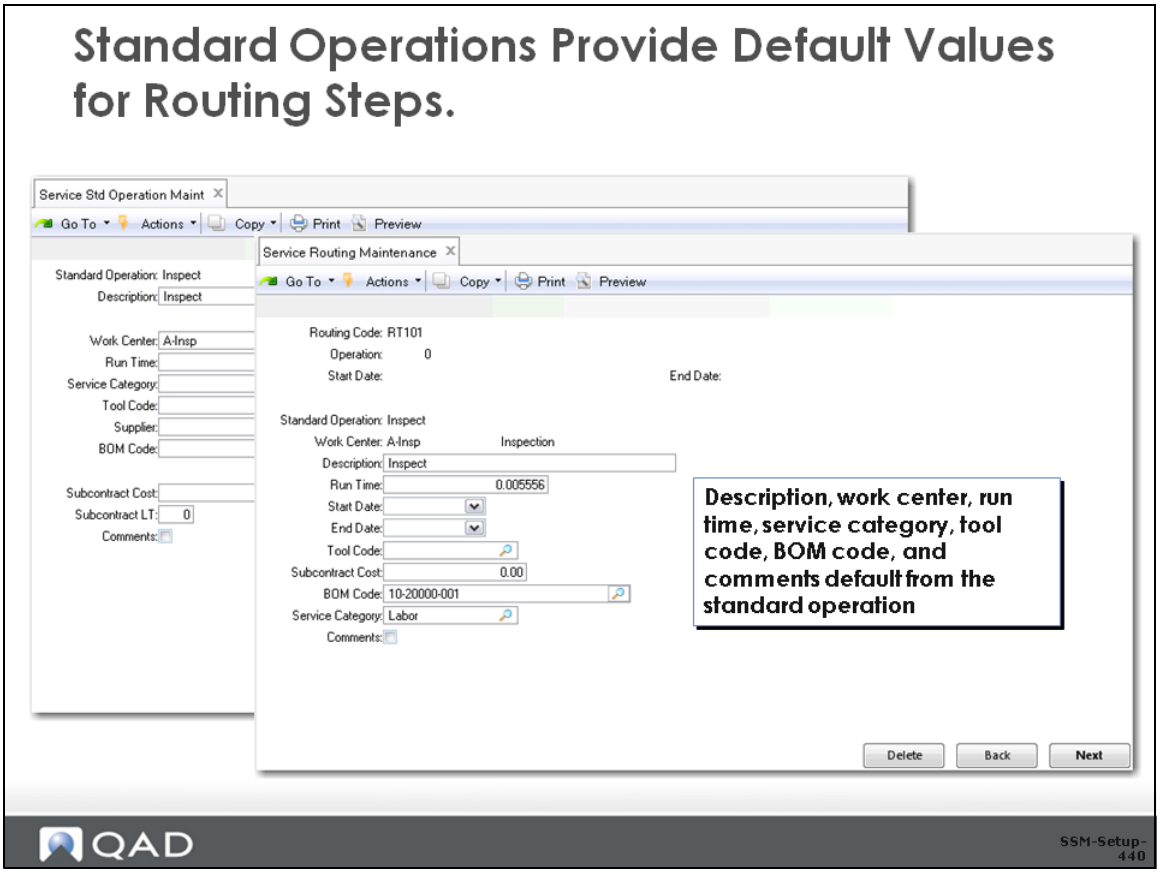
- Base time zone on offset from GMT
- Have system track daylight savings time adjustments from a user defined base line

Service BOMs/Routings

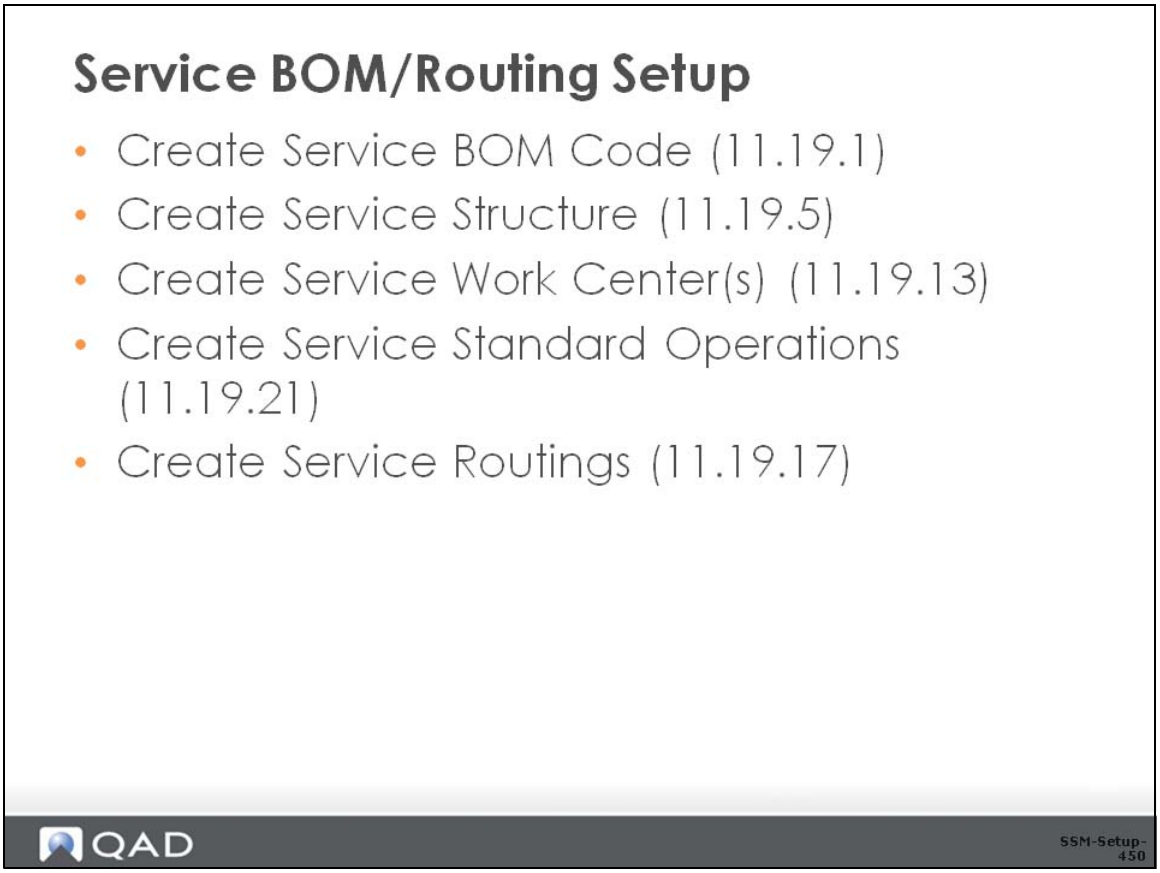


In Service and Support Management, BOMs and routings are used slightly differently than in a manufacturing environment, reflecting the unique requirements of the service environment. There may be more than one standard way of doing things. The Service BOMS may be linked to operation steps and require unique codes. They play an important role in Call Activity Recording, loading labor/expense and item usage.

Standard Operations Provide Default Values for Routing Steps



Service BOM/Routing Setup



This figure shows the steps to create Service BOMs and Routings.

A unique BOM code must be setup in Service BOM Code Maintenance (11.19.1), it cannot be the same as the inventory item number.

The components used on the BOM are entered in Service Structure Maintenance (11.19.5).

At least one Service Work Center must be set up in Service Work Center Maintenance (11.19.17) with labor and burden rates and entered in the Call Management Control as the default work center for service activities. Additional work centers can be setup and linked to routings in Service Routing Maintenance (11.19.17). Standard Operations can be created in Service Std Operation Maintenance (11.19.21).

As discussed in the previous chapter, the Service BOM/Routings can be attached as defaults in the Service Item Data (11.3.7). They can be added manually to Calls and Quotes.

Exercise 6: Set Up Values

In this exercise you set up different values required to perform service activities. They include:

- Work Codes
- Invoice Sort Codes
- Service Categories
- Call Defaults
- Exchange Return Status

Set Up Work Codes

Work Codes are created and maintained in Work Code Maintenance (11.21.1). Work codes are user defined, so you can create as many as necessary for your environment. Since a number of codes have already been set up in the database, you will create one more.

1 Go to Work Code Maintenance (11.21.1).

2 Enter the following data in the appropriate fields. Make sure you save your changes by clicking Next at the end of your entry.

Field	Value
Work Code	E-Call
Description	Emergency work code
Repair Center	No
Fixed Price	No

3 When the work code is created save it and then return to the menu by clicking Next then Back.

4 Go to Work Code Inquiry (11.21.2). Click Next twice to generate a report to the terminal.

5 Verify the work code you created, and review the others already in the database. Return to the menu.

Set Up Invoice Sort Codes

The Invoice Sort is a user-defined, high-level grouping tool used in service coverage, limits, and invoice presentation. The Invoice Sort codes created in this exercise will be used later in other activities.

Note Many of the fields in an Invoice Sort record are used to support other functions in Service and Support Management. The use of these fields will be clarified in other activities.

1 Go to Invoice Sort Maintenance (11.21.5).

2 Enter the following data in the appropriate fields to create two codes (or modify existing Invoice Sort Codes if available so that they are in line with data values below).

3 Click Next after entering the Invoice Sort value, the Include Fixed Price value, Language value and the Label value.

4 Click Back after the language and label information is entered and saved.

Field	Value	Value
Invoice Sort	EXPENSE	FIXED
Description	Repair Expenses	Fixed Repair Only
Display Order	3	4
Type	E	E
Invoice Detail	Yes	No
Include Fixed Price	No	Yes
Language	US	US
Description	Expenses	For Fixed Repairs
Label	Expense	Fixed

5 When both invoice sorts are created, return to the menu.

6 Go to Invoice Sort Inquiry (11.21.6). Leave the Invoice Sort field blank and specify Yes in the Sort by Order field.

7 Click Next twice to generate a report to the terminal. Verify the invoice sort codes you created, and review the others already in the database.

The order the Invoice Sorts display on the report is the same order they will display in Call Invoice Recording.

8 Return to the menu.

Set Up Service Categories

Service categories are created and maintained in Service Category Maintenance (11.21.9). Service categories are user definable, so you can create as many as necessary for your type of service business. Remember that service categories are intended to represent the actual detailed service that you are providing.

1 Go to Service Category Maintenance (11.21.9).

2 Enter the following data in the appropriate fields. Click Next after the entry of the Svc Category, the Invoice Sort, Travel Labor and Tax Class.

Field	Value	Value	Value	Value
Svc Category	LABR-REG	LABR-OT	MILEAGE	LUNCH
Description	Reg Hourly Labor	Overtime Labor	Mileage Charge	On-site meal
Invoice Sort	Labor	Labor	Expenses	Expenses
Items	No	No	No	No
Con Items	No	No	No	No
Exch Items	No	No	No	No
Labor	Yes	Yes	No	No
Travel Labor	No	No	No	No
Expense	No	No	No	Yes
Travel Expense	No	No	Yes	No
Taxable	No	No	No	No
Tax Class	<blank>	<blank>	<blank>	<blank>

Notice that only certain flags are editable depending on which invoice sort the service category is associated with.

3 When all the service categories are created, return to the menu.

4 Go to Service Category Inquiry (11.21.10). Click Next twice to generate a report to the terminal.

5 Verify the service categories you created, and review the others already in the database. Return to the menu.

Update the Call Management Control

Two service categories can be specified in the Call Management Control. These provide defaults when recording item and labor/expense usage in Call Activity Recording. The value of one of these settings is modified in this exercise.

1 Go to Call Management Control (11.1.24).

2 Verify that the Use Escalations field is set to No.

3 Click Next until the Call Recording/Invoicing frame displays. Enter LABR-REG in the Labor Svc Category field.

4 Click Next to save your change. Return to the menu by clicking Back twice.

Setting up Call Defaults

In this part of the exercise defaults are defined to be used when installation calls are created.

1 Go to Call Default Maintenance (11.1.21.10).

2 Enter the listed data in the specified fields; leave the default value in the remaining fields. Click Next to save your changes after the Service Group value and after Remarks.

Field	Value
Category	Call
Work Code	Install
Model	<blank>
Service Group	<blank>
Call Severity	A
Call Type	Service
Call Problem	Elec
Call Duration	003:00
Call Status	Open
Call Next Status	Assigned
Call Queue	Dispatch
Escalation	<blank>
Call Description	Normal Installation Call
Remarks	<blank>

3 Return to the menu.

Set Up an Exchange Return Status

In Call Activity Recording a return status is used to indicate that a credit should be given with the return of a part.

1 Go to Return Status Maintenance (11.21.17).

2 Enter the following values in the specified fields. If the status already exists, make the necessary field level modifications.

Field	Value
Status	EXCHANGE
Description	Use for item credits
Exchange	Yes
Good	No
Scrap	No
Pending	No

3 Click Next to save your changes, and then return to the menu by clicking Back.

Exercise 7: Creating Price Lists

In this exercise you create several price lists for use in service activities.

- Contract for pricing out items on a contract
- Repair for pricing out charges on service calls including labor, items and expenses and well as standard costs for expenses
- Credit for items returned on RMA's

Contract Pricing

In this task you modify a price list that establishes the amount to be charged to cover a specific item master part on a contract.

1 Go to Service Pricing Maintenance (11.17.1) and enter:

Field	Value
Price List	SSM1
Item Number	C-S001

2 Press Enter.

The system automatically displays the item description and default unit of measure as defined in Item Master Maintenance.

3 Click Back.

4 Tab to the Type field.

Notice that its default value is the letter C, indicating that the price list you are about to create supports Contract pricing. To the right of the Type field is a label: (C/R/E).

5 For demonstration purposes, change the value from C to R (for Repair Pricing) and press Enter.

Notice that the description to the far right changed from Contract Pricing to Repair Pricing. If you leave this as R, the system treats this price list as one used for repairs in Call Activity Recording.

6 For now, we want to use C, go back to the Type field and change the letter R back to the letter C; then press Enter.

7 Continue to press Enter, accepting any defaults, until you are in the field labeled Min Qty.

8 In the first Min Qty field, key in 1, and press Tab. Set the price for one unit to be equal to the list price of $5,000.00.

To set up a price for contract coverage for two or more C-S001, press Tab, enter 2 in the second Min Qty field, press Tab, and key in $4,9000.00 in the Price field.

9 Click Next to save your work.

We have now established prices for contract coverage for a single unit and two or more units of item C-S001.

10 Return to the menu by clicking Back.

Repair Pricing for Labor

In this task you create a price list that establishes the amount to be charged for the two kinds of labor you defined as service categories earlier. This price list will be used in Call Activity Recording (CAR) Activities in a later chapter.

1 Go to Service Pricing Maintenance (11.17.1) and enter the following:

Field	Value
Price List	SSM1
Type	R
Service Category	LABR-REG
Item Number	<blank>

Note Entering R means that the price list you are about to create supports pricing in Call Activity Reporting.

2 Press Enter until you are in the Min Qty field.

3 Leave the default 0 for Min Qty, and press Tab.

4 In the Price field, key in 125.00, and press Enter.

Using zero for the minimum quantity allows the system to calculate prices for fractional quantities. For example, .5 hour would be charged at $62.50.

5 To set up a price for overtime labor, Tab to the the Service Category field enter LABR-OT.

6 Press Enter until your cursor is in the Min Qty field.

7 Leave the default 0 for quantity, press Tab.

8 Key in 200.00 in the Price field.

9 Click Next to save your changes.

10 Enter Mileage in the Service Category field and press Enter until your cursor is in the Min Qty field.

11 Leave 0 for quantity, Tab and specify a price of $0.45.

12 Click Next to save your changes. Return to the menu.

Repair Pricing for Items

In this task you create a price to be used when an item is issued as part of a service activity in Call Activity Recording (CAR) Activities in a later chapter. You will also specify an exchange price for this item to be supplied when a used one is returned for credit in CAR.

1 Go to Call Management Control (11.1.24).

2 Click Next until the Call Recording/Invoicing frame displays.

Notice the value in the Exchange UM field (EX). This unit of measure is required for credit prices.

3 Return to the menu.

4 Go to Service Pricing Maintenance (11.17.1) and enter the following:

Field	Value
Price List	SSM1
Type	R
Item Number	C-C001
UM	EX

5 Press Enter until you are in the Min Qty field.

The unit of measure indicates to the system that the price is a credit to be used when this item is returned in CAR.

6 Key in the number 1 for Min Qty, and press Tab.

7 In the Price field, key in 30.00. Click Next to save your changes.

8 Leave C-C001 in the Item field, but this time specify EA for the unit of measure. Press Enter until you are in the Min Qty field.

9 Key in the number 1 for Min Qty, and Tab.

10 Enter 150.00 in the Price field. Click Next to save your changes. Return to the menu by clicking Back.

Expense Cost

In this task you create a cost list to be used for an expense recorded as part of a service activity in Call Activity Recording (CAR) Activities in a later chapter.

1 Go to Service Pricing Maintenance (11.17.1) and enter the following:

Field	Value
Price List	SSM1
Type	E
Service Category	MILEAGE

2 Press Enter until you are in the Min Qty field.

3 Key in the number 1 for Min Qty, and 0.43 in the Price field. Click Next to save your changes. Return to the menu by clicking Back.

Credit Pricing

In this task you set up a price list to give credit for items returned on RMA's.

1 Go to Cust Sched Price List Maintenance (1.10.3.1).

2 Enter the following data in the appropriate fields. Then click Next to save your entry.

Field	Value
Price List	RMA-CR
Currency	USD
Product Line	<blank>

Field	Value
Item Number	C-C001
UM	EA
Start Date	January 1st of current year
Expire Date	December 31st of next year
Amount Type	P
Min Qty	1
Price	$450.00

3 Click Next to save.

4 Return to the Price List field and create:

Field	Value
Price List	RMA-CR
Currency	USD
Product Line	<blank>
Item Number	C-C002
UM	EA
Start Date	January 1st of current year
Expire Date	December 31st of next year
Amount Type	P
Min Qty	1
Price	$450.00

5 Return to the menu.

Exercise 8: Creating Additional Contract Charges

In this exercise you create two contract additional charges and then set up prices for them on a contract price list.

Create Contract Additional Charge Items

1 Go to Contract Additional Charges (11.5.7).

2 Leave the Service Type field blank and click Next.

Notice how the system automatically supplies a description indicating that this additional charge can be used on all contracts.

3 Enter the following data in the appropriate fields. Then click Next to save your changes.

Field	Value	Value
Item Number	FedEx	Refurbs
Description	Surcharge for Special Delivery	Discount for Refurbished Items
Amount	F	P

4 Return to the menu.

Specify Prices for Additional Charge Items

1 Go to Service Pricing Maintenance (11.17.1) and enter the following:

Field	Value
Price List	SSM1
Type	C
Item Number	FedEx

2 Key in FedEx in the Item Number field and click Next.

Notice the message at the bottom of the screen. This is an informational message indicating that this is an additional charge item of type F. These items can only be specified on a contract price list.

Notice that the Amount Type field has defaulted to P. Since FedEx Delivery was defined as a fixed additional charge item, P is the only amount type you can use. To test the system validation, enter M in the Amount Type field and click Next.

The following message should display:

ERROR: AMOUNT TYPE P MUST BE USED WITH ADDITIONAL CHARGE OF TYPE F. Please re-enter.

3 Press Enter to exit the error message. Type a P and then click Next.

4 In the Min Qty field enter 1, press Tab and specify 20.00 for the price.

5 Click Next to save your changes.

6 Press Tab until you are in the Item Number field.

7 Type Refurbs in the Item Number field and click Next.

8 The message indicates that this is an additional charge item of type P.

Notice that the Amount Type field has defaulted to M, since P is an invalid value for a percentage additional charge. Enter P in the Amount Type field and click Next to see the error generated by the system.

The following message should display:

ERROR: AMOUNT TYPE P CANNOT BE USED WITH ADDITIONAL CHARGE OF TYPE P. Please re-enter.

9 Close the error message. Enter D in the Amount Amount Type field, and click Next. Notice how the Price label changes to Discount%.

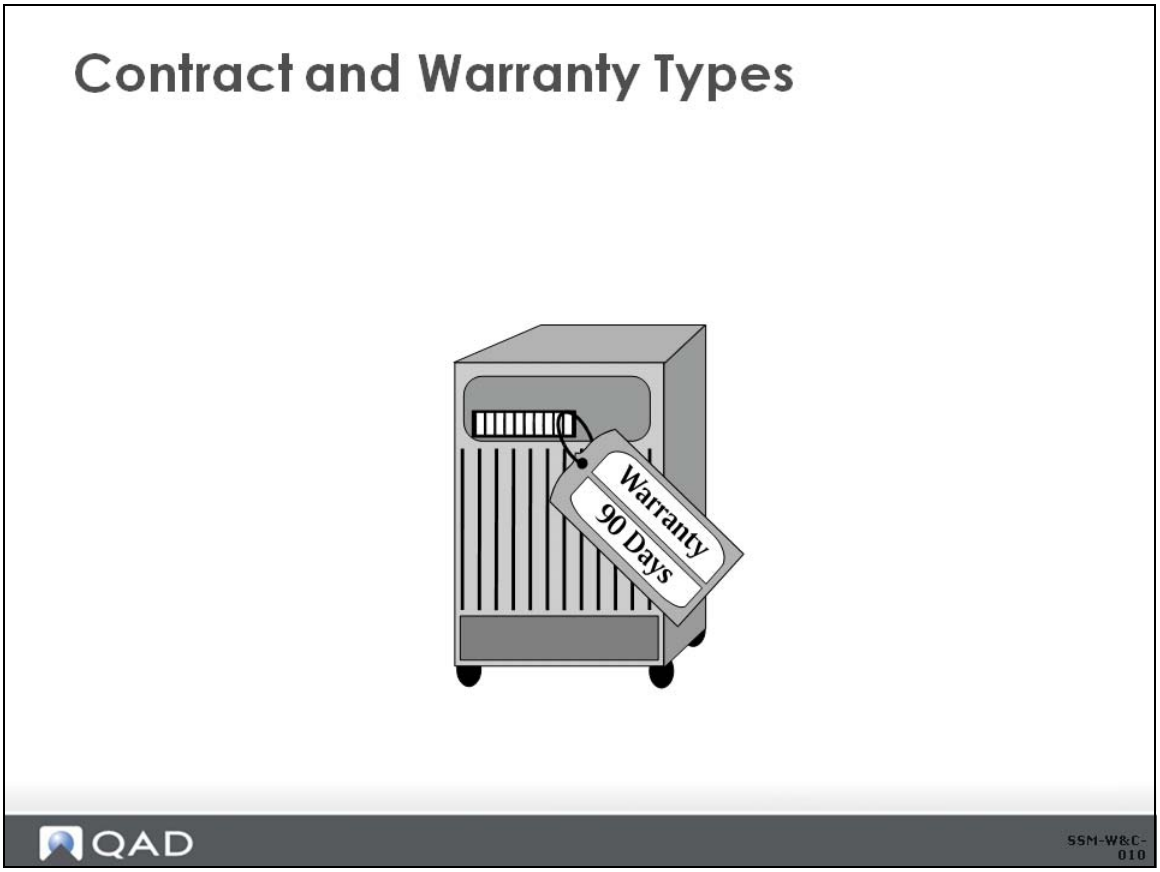
10 Enter 1 in the Min Qty (Minimum Quantity) field, press Tab, and specify 5 for the discount percent. Then click Next to save your changes.

11 Return to the menu.

Chapter 4

Contract and Warranty Types

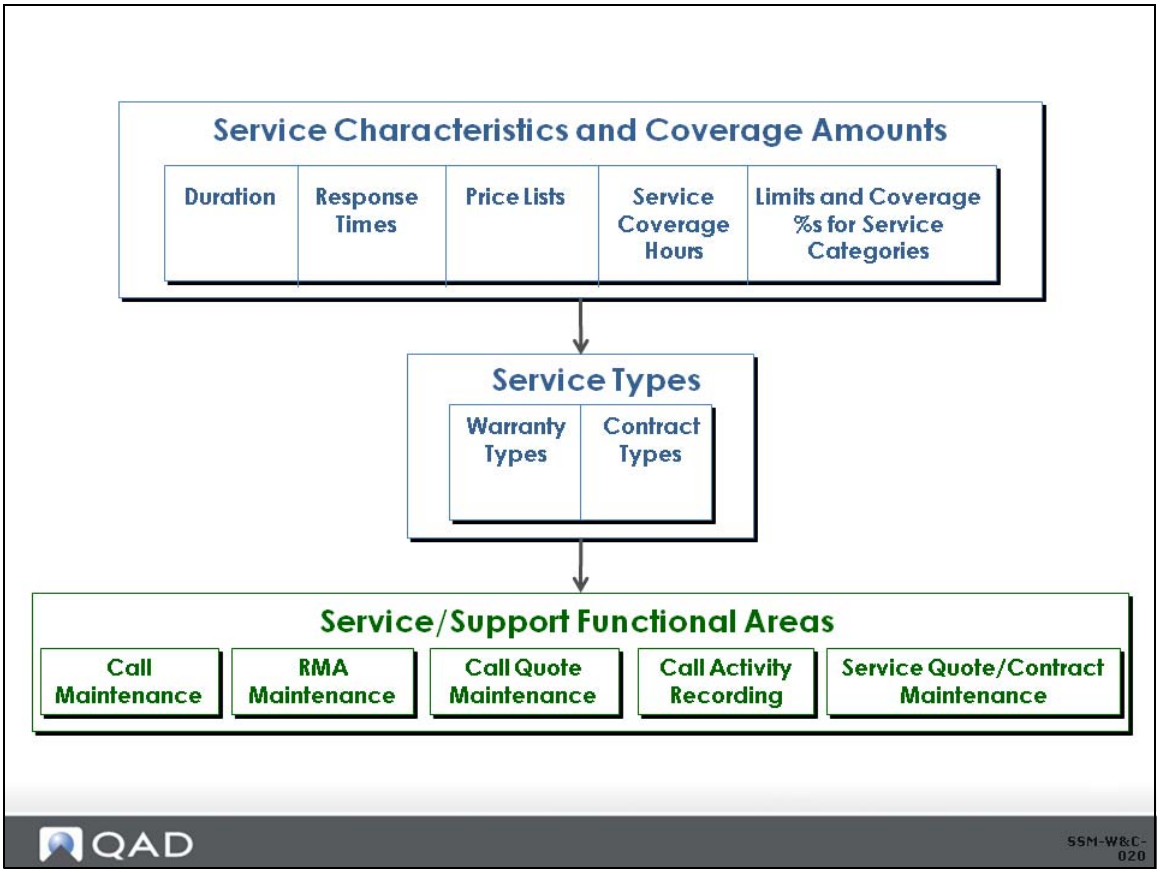
Overview



Decisions about service coverage are fundamental to the business implementation of a service organization. Critical questions must be answered. What level of service are you providing and for which situations? How much is an item covered for, and for how long? Does this coverage include replacement parts, labor, expenses for on-site visits, shipping? Do you provide this level of coverage no matter what happens, or are there explicit limits to the amount that can be registered?

Defining the limits and level of service lets you effectively manage the inclusion of extra charges, as well as billing for labor and costs not covered, or partially covered. The service limits help you distinguish between billing levels for different aspects of service, such as labor, parts replacement, and service expenses.

Service Types

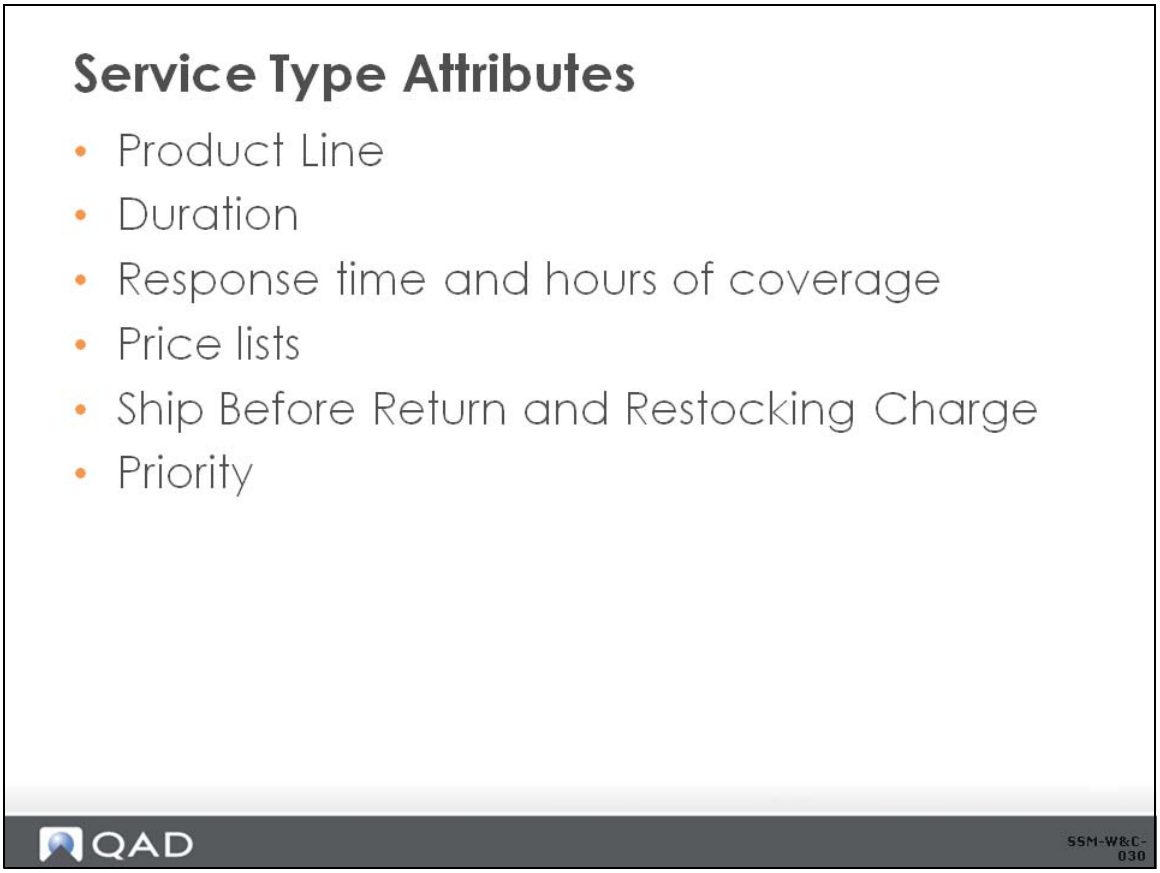


Service types define the underlying ground rules that determine what kind of service activities can take place for covered items, as well as who pays for them. There are two categories of service types:

- Warranty types are set up with Warranty Type Maintenance (11.3.15) and attached to items in the installed base.
- Contract types are set up with Contract Type Maintenance (11.5.10) and are used during the creation of contracts.

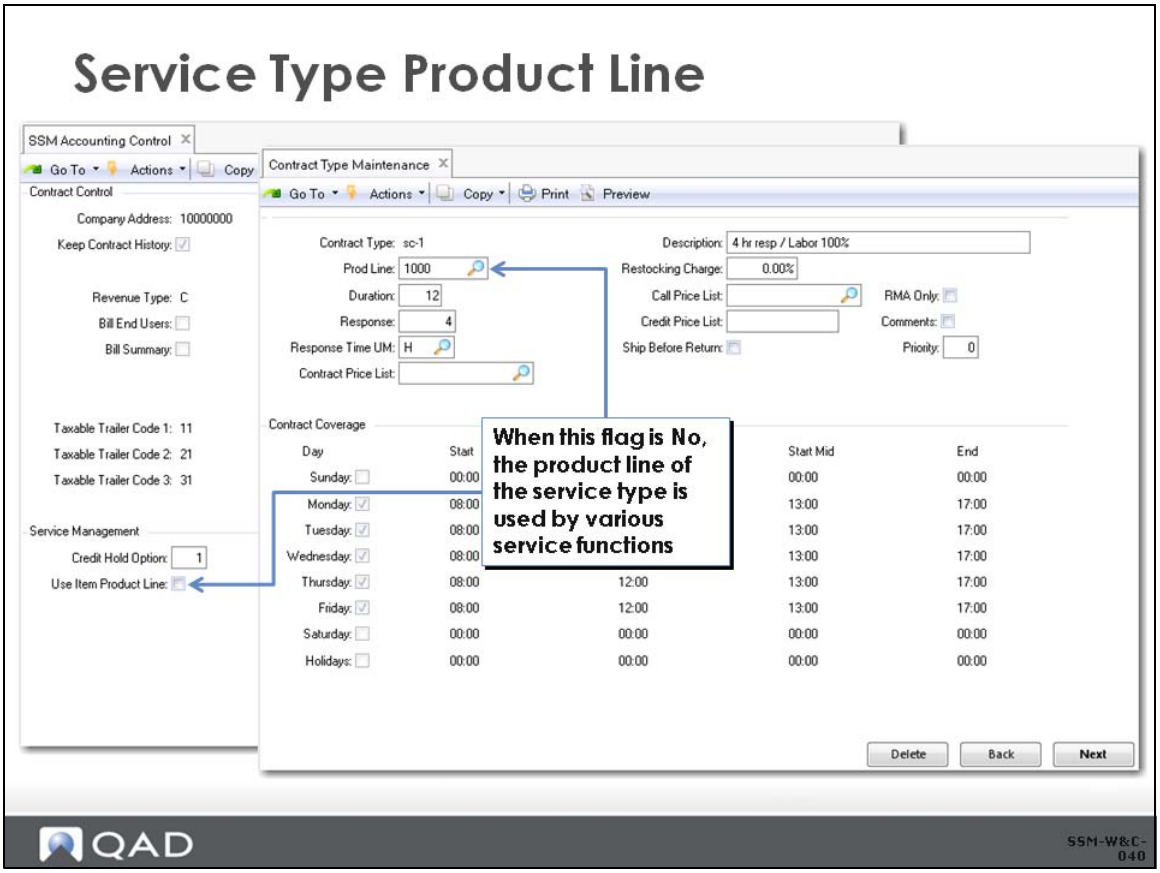
Typically, service organizations do not provide warranty or contract coverage for every item. For items not covered by either, a default billable coverage type is obtained from control settings (one for RMAs and one for calls).

Service Type Attributes



These attributes apply to both warranties and contract types. Some of the contract defaults can be changed in Contract Maintenance.

Service Type Product Line



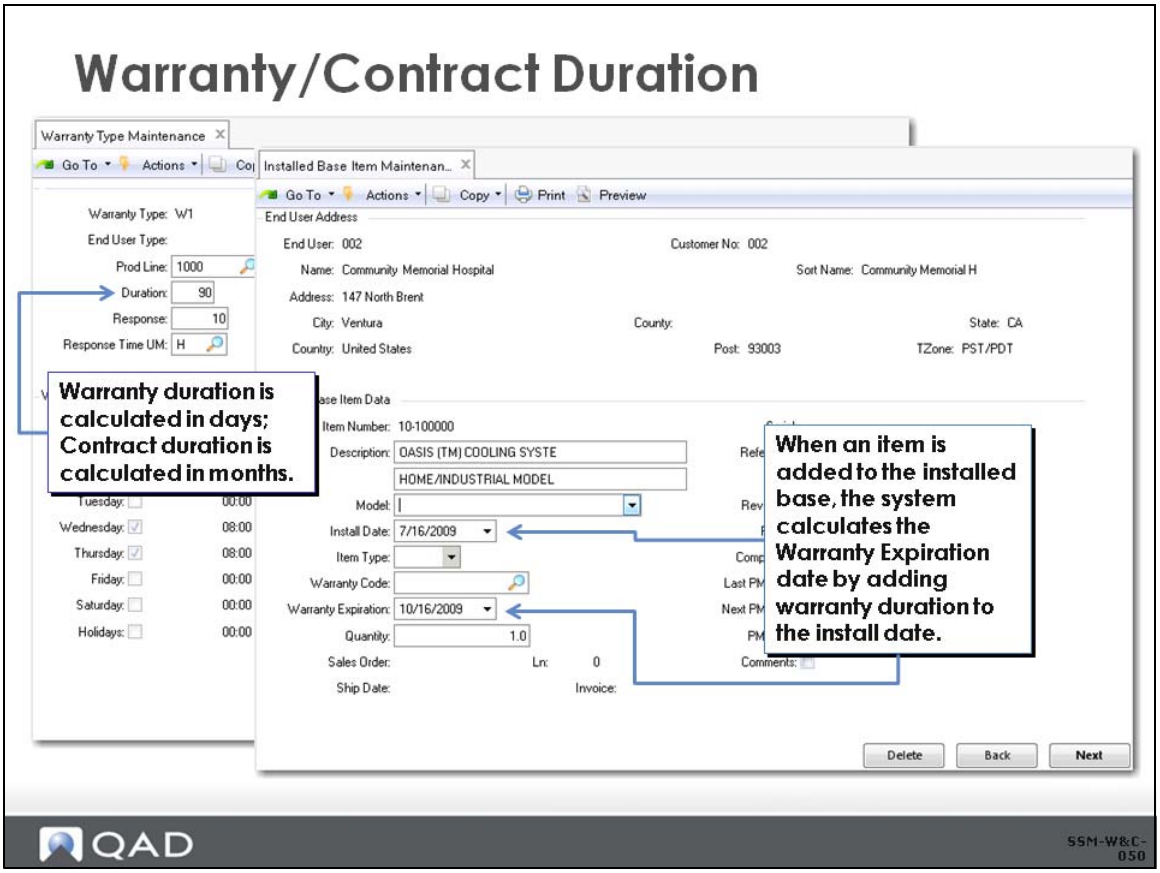
The product line ties the service type to a set of general ledger accounts. It is generally used to determine the accounts affected by the sales of contracts and by RMA issues and receipts. In Call Activity Recording, product lines are normally determined in other ways. The service type product line would only be referenced if you do not set up charge and revenue product lines.

Whether or not the product line of the service type is actually used depends on the value of Use Item Prod Line in the Service Management Control. If this is No, the product line of the service type in effect is used. Otherwise, the item product line is used.

The product line enables you to track separately the sale of contracts based on different contract types. For example, you might book the billing of annual contracts to a different general ledger account than semiannual contracts.

The product line sales account and sales discount account are credited when an invoice is posted on a contract billing. Accounts can be changed on a per line item basis on a contract, depending on the setting of the Modify Sales Accounts in SSM Accounting Control.

Warranty/Contract Duration



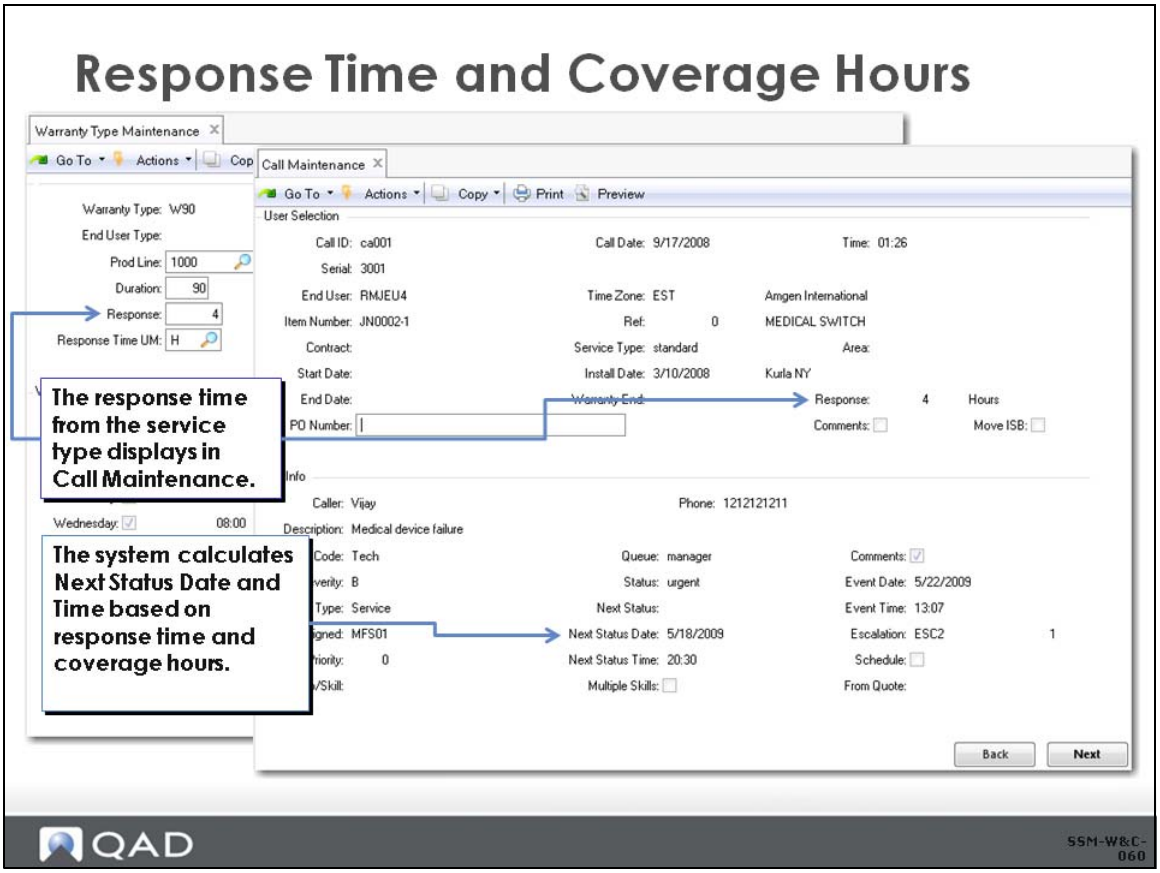
The duration defines the length of time service is normally available for items covered by a service type. For warranties, this is measured in days; for contracts, it is measured in months. The duration provides a default value for:

Warranty End Date. When an item with a warranty type is added to the installed base, the default warranty expiration date is calculated by adding the warranty duration to the install date.

Contract End Date. For a new contract, the start date always defaults to the first day of the month following the day the contract is being created.

- The default end date is calculated by adding the contract duration to the start date.
  - These defaults can be overridden as needed.

Response Time and Coverage Hours



The days and hours of coverage is used in conjunction with the response time by the Call.

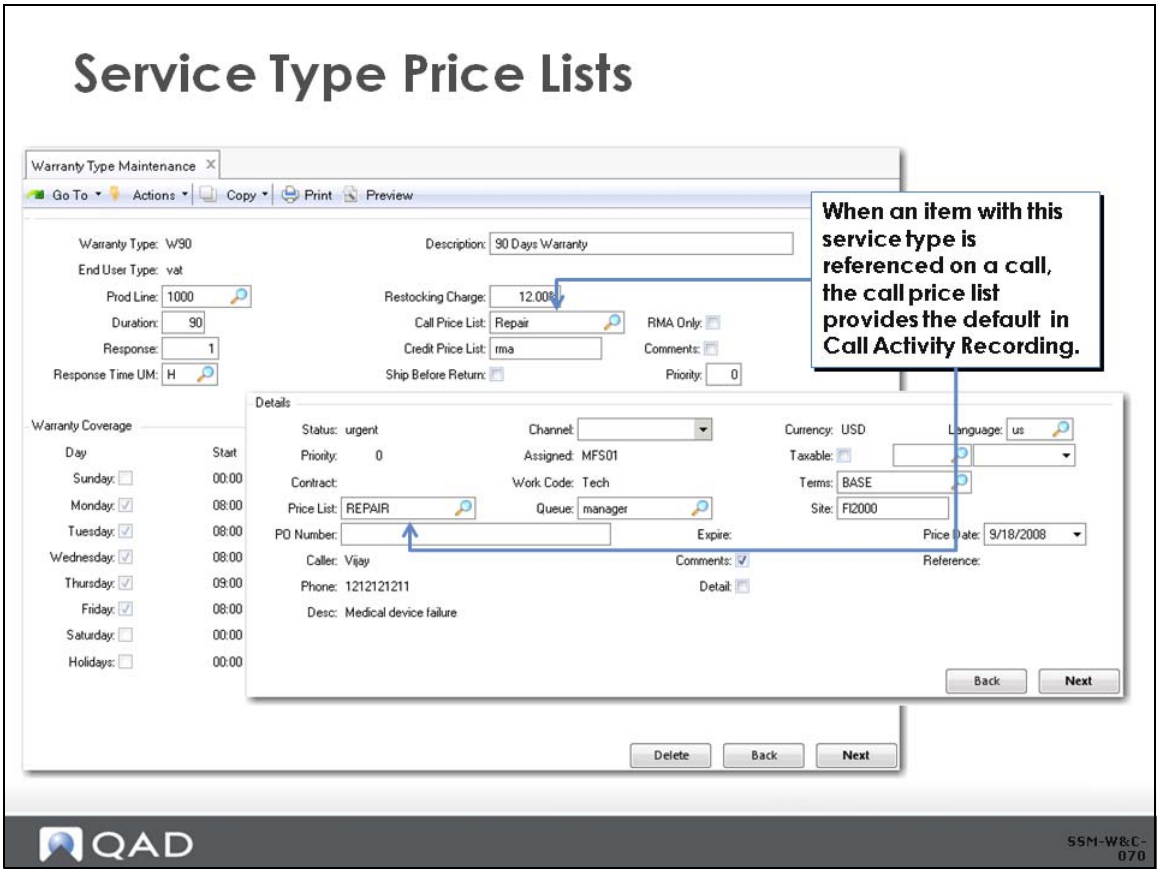
Maintenance function in scheduling a call's next status date and next status time. In this example, Warranty Type W-2 has a response time of 4 hours. Service coverage is provided Mon.-Fri., 08:00-18:00.

The call in the example was taken at 10:09 hours on 03/03/05 for an item covered by this warranty. The Next Status Date and Time was set to 14:09 by adding the four-hour response time.

A call taken four hours later would be handled differently. In this case, adding four hours to the time would result in a next status time of 18:09, when coverage is no longer available. Since the system knows that your service coverage hours only extend until 18:00, it schedules the next event 10 minutes into the next day that you are open for support business. As a result, the next status date on the call would be 03/04/05 and the next status time would be 08:09 hours.

Note The dates and times in the call info frame displayed are relative to the end user's time zone if MTZ is active.

Service Type Price Lists



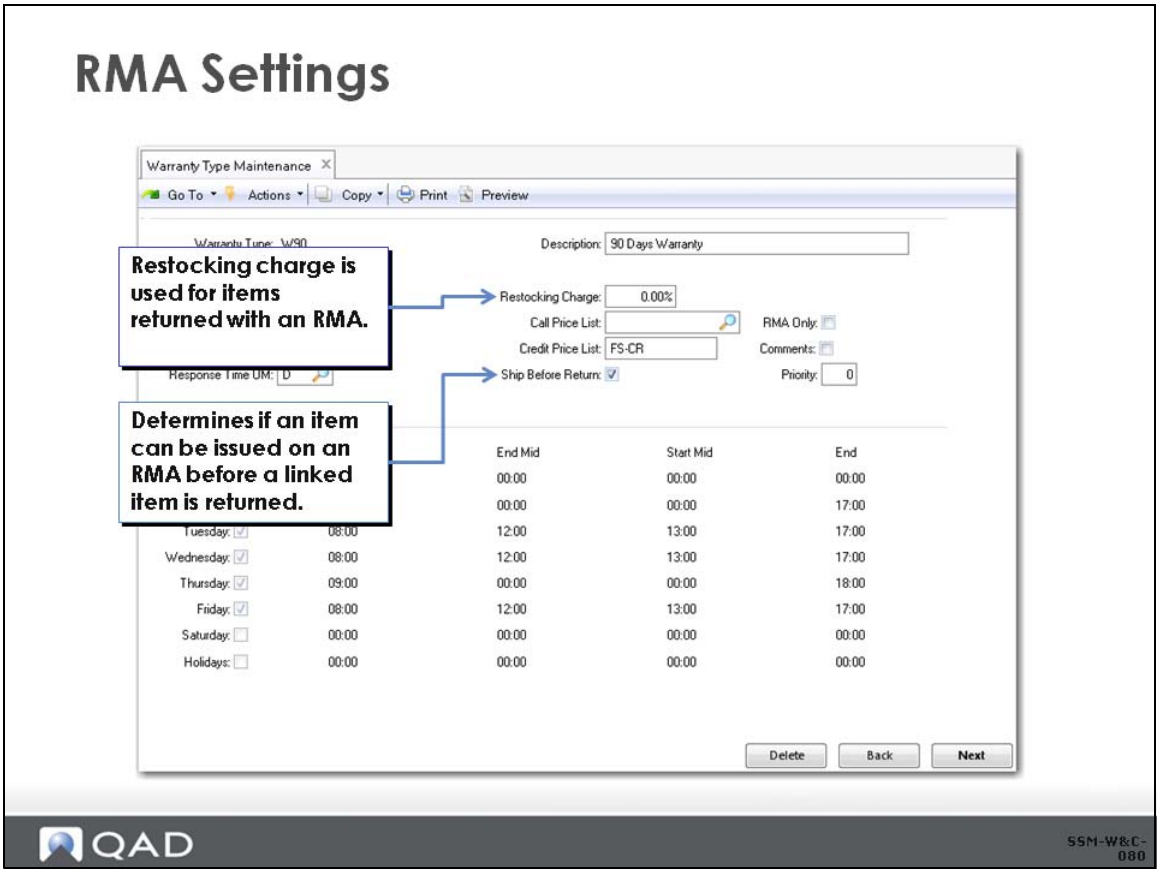
Automatic pricing for many service activities is implemented through the price lists associated with service types. On contract types, three price lists can be specified: contract, call, and RMA credit. On warranty types, the contract price list is not present. Each of these price lists has a different application when a service type is used.

Contract price lists are used to determine the amount the customer is charged for coverage of items on the contract. This determines the amount the customer is invoiced for the contract itself.

Call price lists are used in Call Activity Recording (CAR) to determine the price for labor, expenses, and items used in providing service on a call. The Call Price List is also used to determine credits for items exchanged in CAR and fixed prices.

RMA credit price lists are used during the return segment of RMA processing to determine the amount the customer is credited for an item returned.

RMA Settings

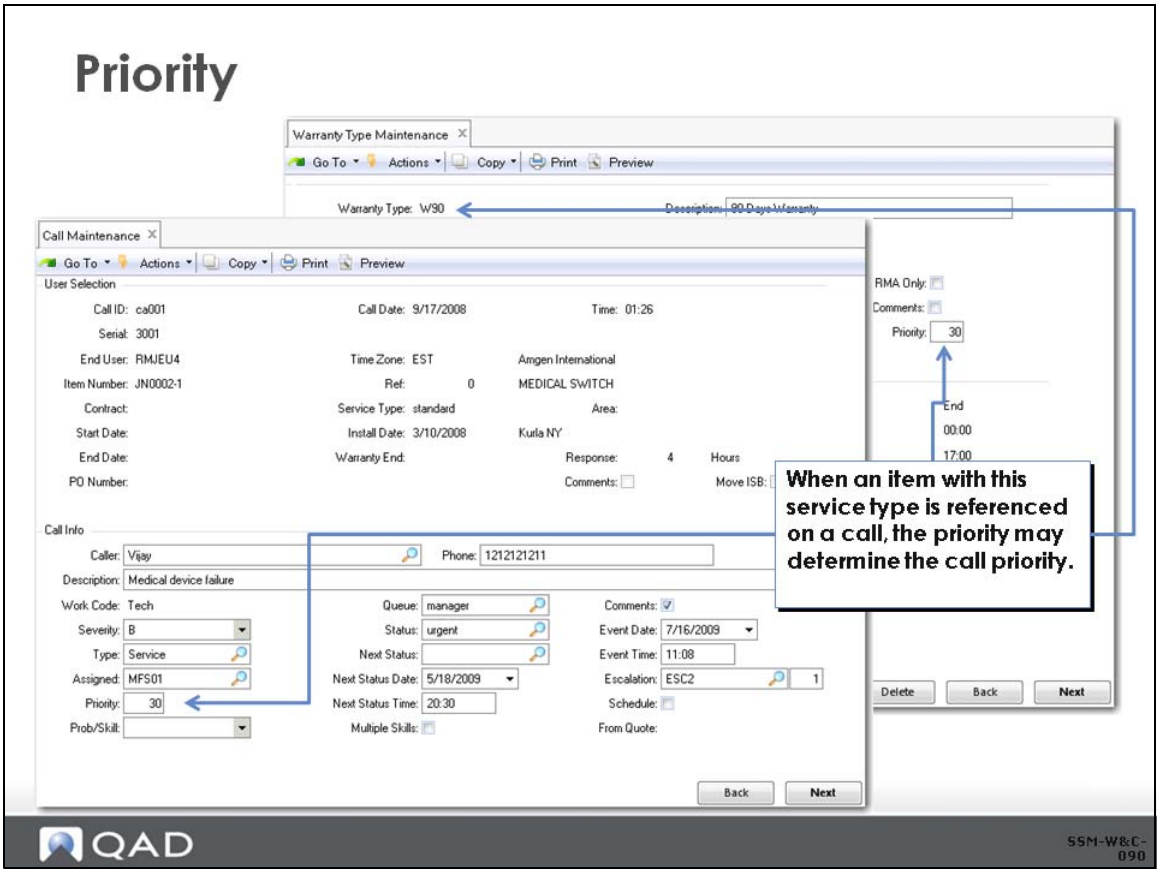


Two attributes of the service type only affect processing in RMAs:

- The restocking charge is applied to items returned for credit and indicates a portion of the credit price to be deducted to cover your handling expenses.
- The value of Ship Before Return determines if an item can be issued on an RMA before the defective one is received from the customer.

The Credit Price List is another attribute of the service type that is only referenced when items are returned on an RMA.

Priority

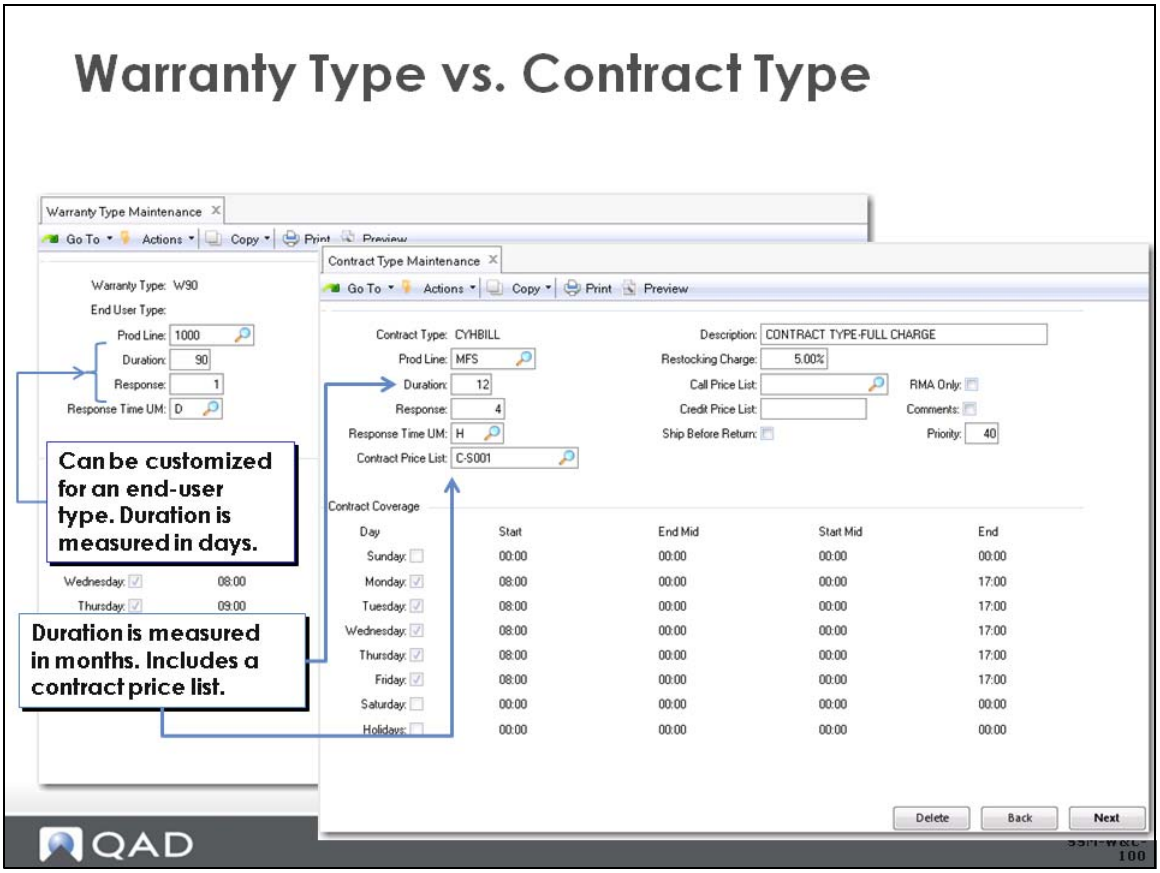


The value in the Priority field can be used to set the opening priority of a call in Call Maintenance. The lower the number, the higher the priority. For example, a call with a priority of 1 is always considered more urgent than a priority 50.

Priority can also be defined for an end user. Any nonzero call priority specified for an end user is used instead of the priority of the service type.

Call escalation is a feature of SSM discussed with call management. If you choose to use escalations, the priority of a call can be advanced if it is not addressed within a user-defined time frame.

Warranty Type vs. Contract Type



As this slide illustrates, the Warranty Type Maintenance function (11.3.15) is almost identical to Contract Type Maintenance, with a few minor differences:

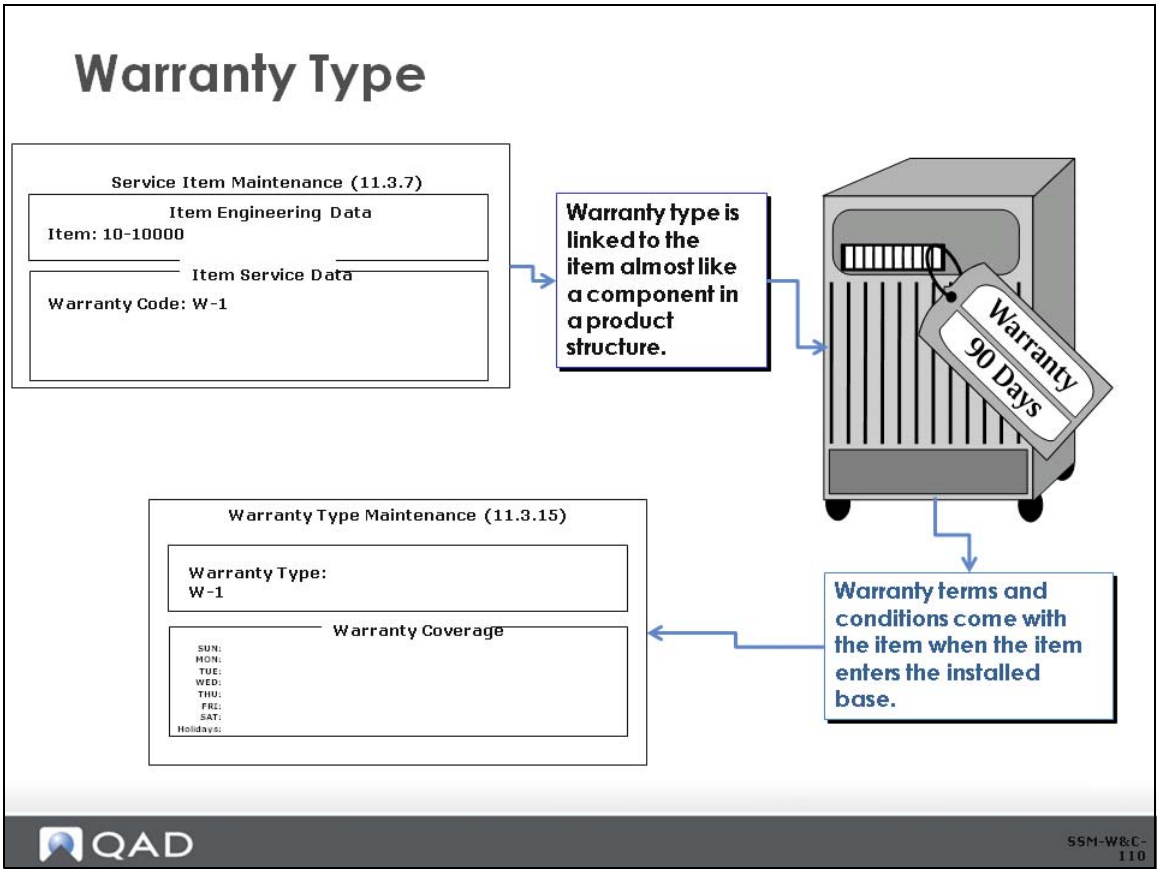
- Warranties can be defined per end user type
- Warranty duration is typically measured in days, while contracts are measured in months
- Contract types allow the specification of a default contract price list, which is not included on a warranty
- Limit amounts cannot be defined on warranties

Both a warranty and contract service type can be active at the same time, although it is more common for contracts to come into effect when the warranty expires.

Generally, warranty and service contracts provide coverage for transactions that could otherwise be billable, such as labor, repair items, or expenses. However, you may also receive requests for service on items with an expired warranty or without a current service contract. QAD EE requires a default service type for these cases. In SSM, you can define two default service types: one for calls and one for RMAs.

- For calls, the default service type is specified in the Default Call Service Type field, found in the Call Management Control (11.1.24)
- For RMAs, the default is specified in the Default RMA Contract field in the RMA/RTS Control (11.7.24)

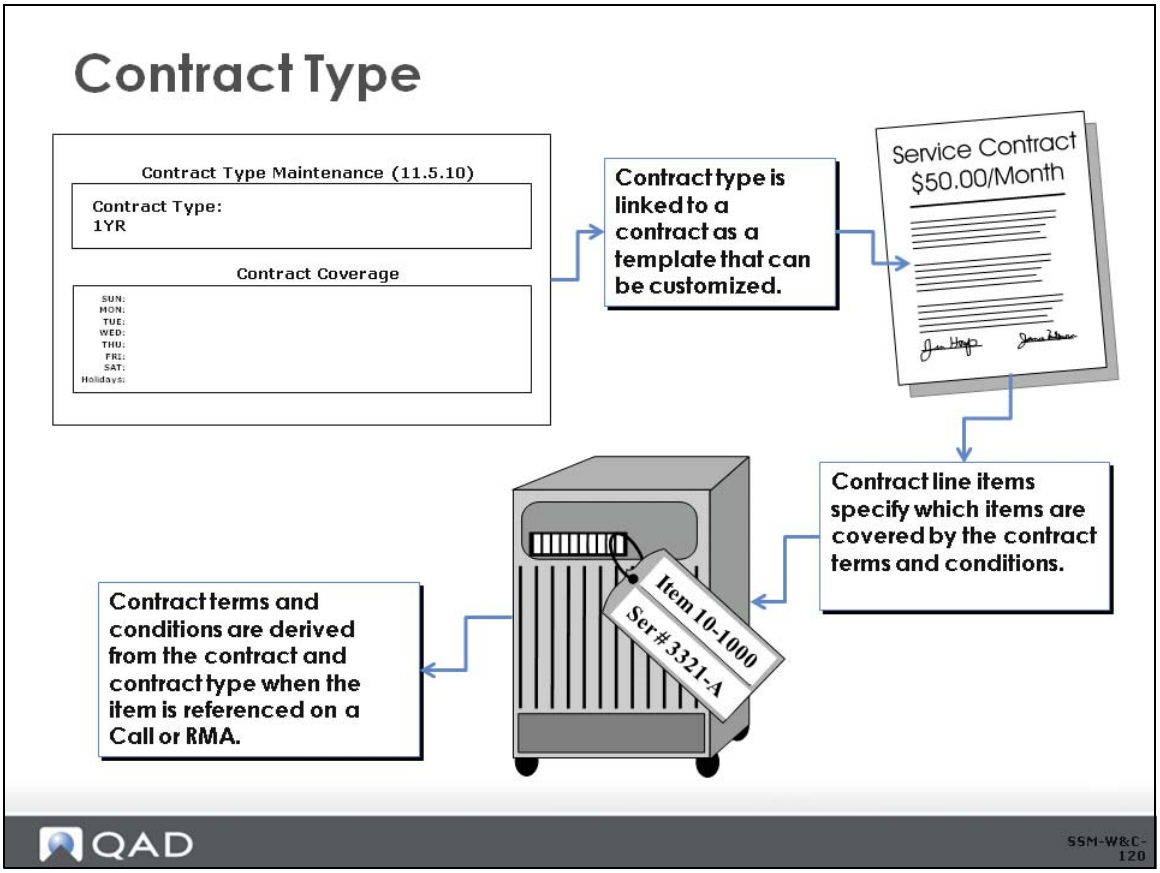
Warranty Type



In SSM, the warranty type is defined and then assigned to appropriate items in Service Item Maintenance (11.3.7). If you are using the interface between sales orders and service that supports automatic updates to the installed base, the item will be added to the installed base with warranty coverage beginning on the ship date. If you have SO Edit ISB set to Yes in the Sales Order Control (7.1.24), the warranty type can be modified.

When warranty coverage information is associated with installed base items, it is available to other service functions. The warranty is specific to an individual installed base record.

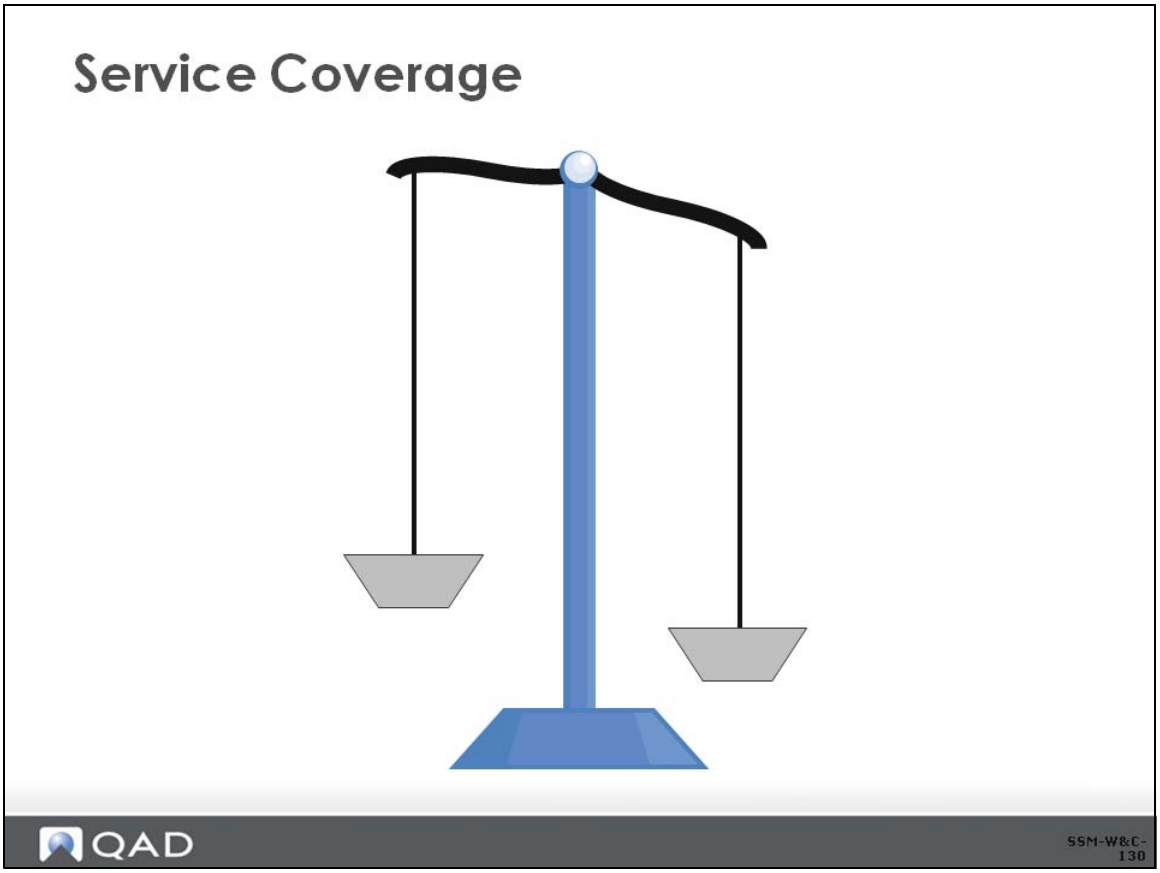
Contract Type



Service types basically define the rules governing your relationship with customers. For warranties, the attributes of the warranty type are used as defined. For contracts, some of the contract type attributes are also used directly. But others provide defaults that can be modified for individual contracts.

In this sense, the contract type is more of a template. Minor adjustments or more extensive changes can be made for each contract as it is created.

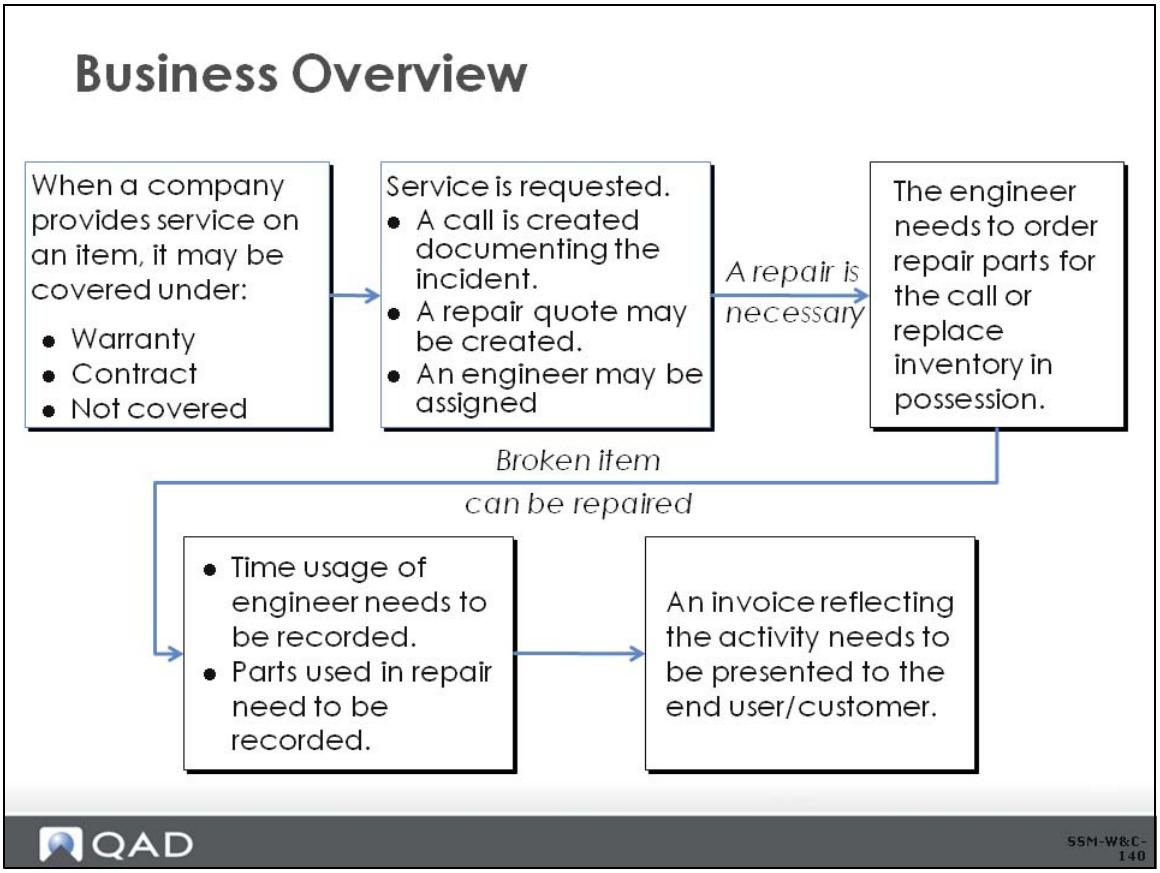
Service Coverage



The levels of service for the warranty, service contract or default service type carries through into the management of service activity from calls to returns. The level of service determines the percentage paid by the end user for the service.

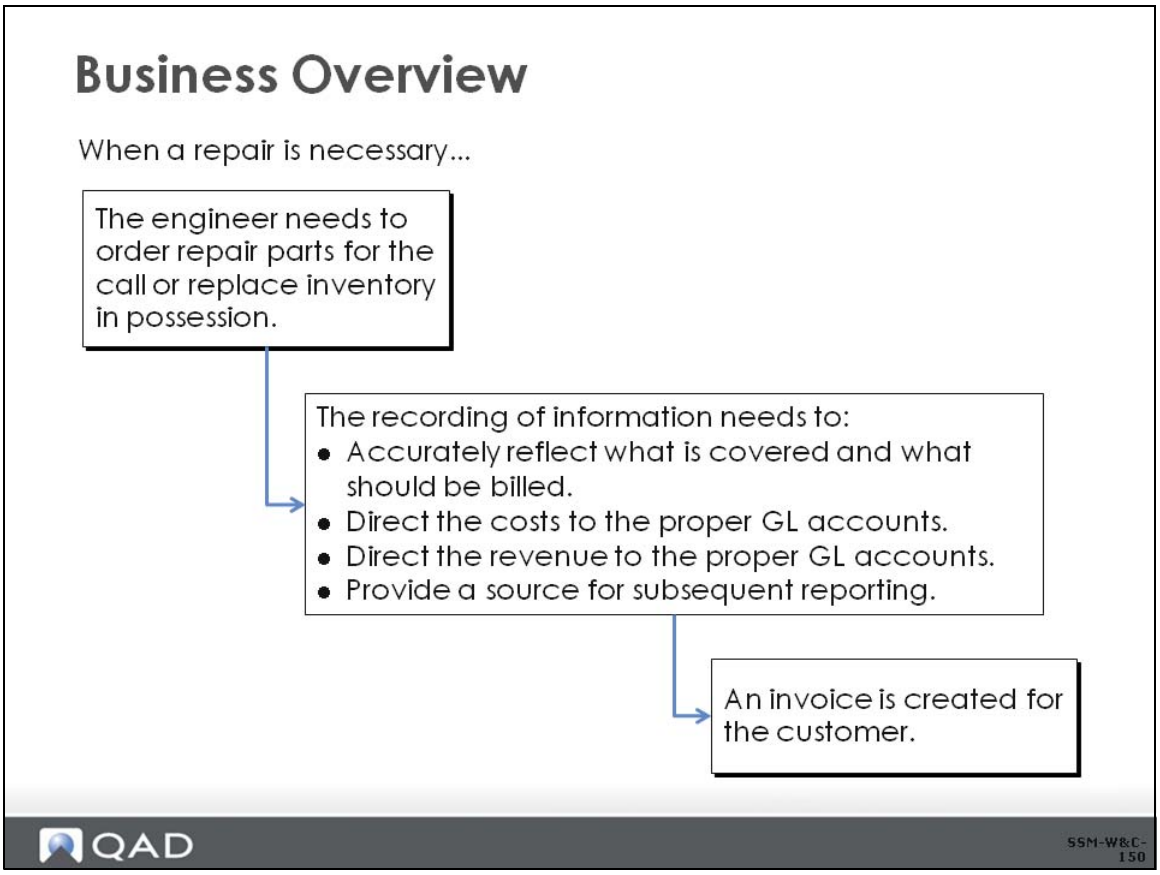
SSM provides flexibility in classifying and supporting service activity. You can define limits either at a high level with invoice sorts, or at a lower level with work codes and service categories. You can also define a total limit for all activity.

Business Overview



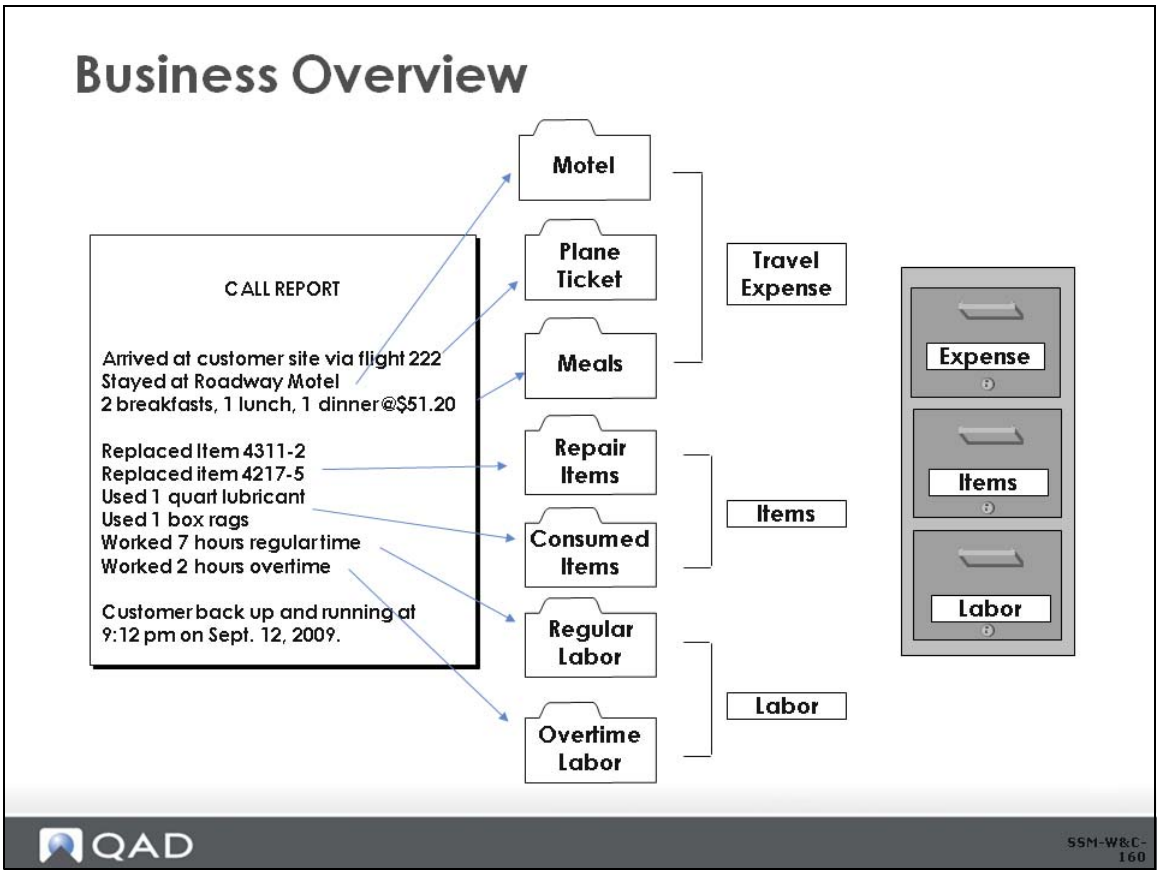
This figure illustrates a typical cycle of events that occurs in a service organization. Notice that the cycle begins and flows out of the contractual obligations defined in your warranties and contracts. These determine how a request for service will be handled.

The request from the end user is usually documented in a call or a call quote that will eventually become a call. An engineer is assigned and the repair is performed. The service activity results in an invoice detailing the costs and how the billing was affected by any service coverage available.



Looking at this process more carefully, we can see some of the business requirements that influence the recording of service activity.

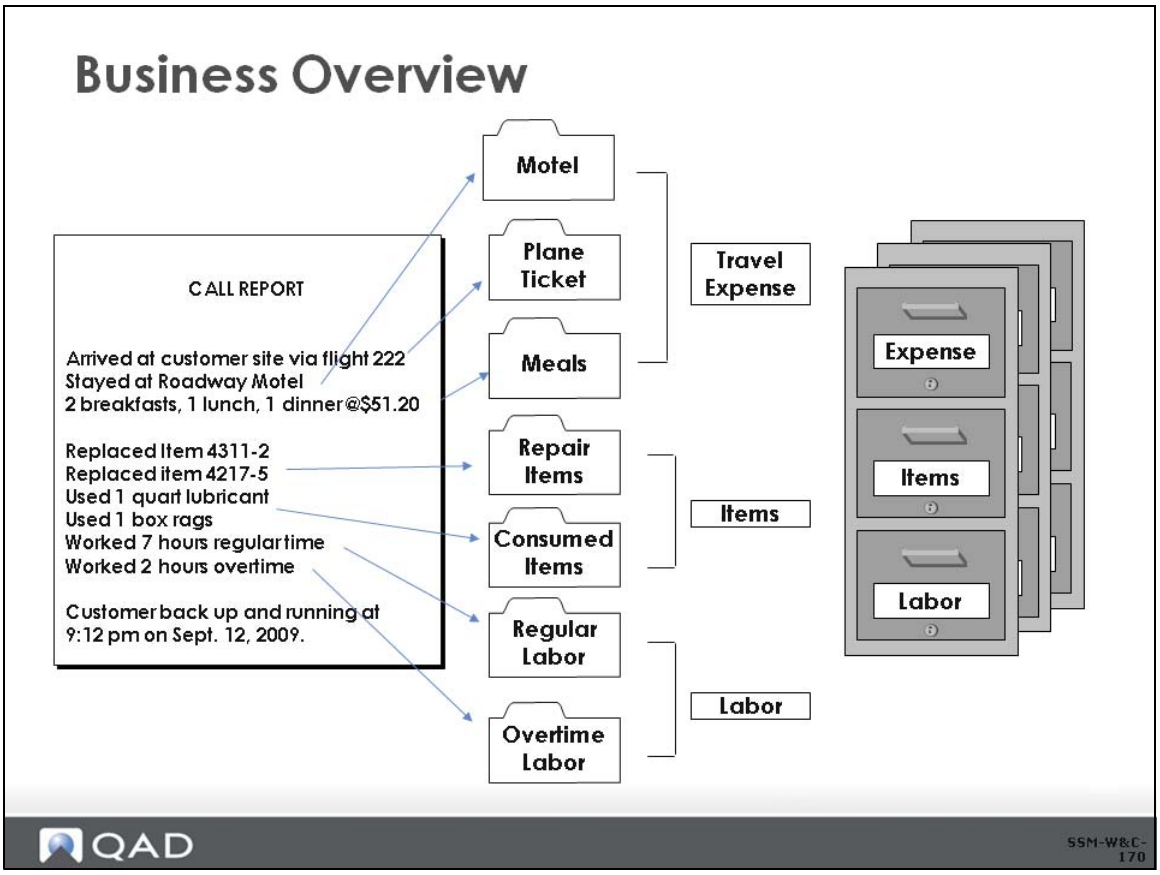
It is essential that service coverage is accurately reflected for each detail of activity recorded, from time, to expenses, to items used during the repair. To facilitate financial management and reporting, costs and revenue need to be directed to appropriate accounts.



Each engineer records vital information about services provided, expense incurred and parts used. This information is translated into user-defined codes to be used in Call Activity Recording.

This figure shows how the specific details related to activity for a call are sorted into appropriate categories. Each file folder represents a service category, which is one of the important foundational codes used in coverage processing. The service category is the lowest-level grouping call detail.

Normally three basic invoice sorts are used for expenses, items, and labor. The invoice sort provides a high-level grouping tool for presenting summary information. Invoice sort codes can also be used as the basis for defining coverage limits. When limits are defined at this level, they are applied very generically. For example, a limit can be defined for all expenses, no matter what kind. This kind of grouping is quite straightforward and easy to conceptualize.

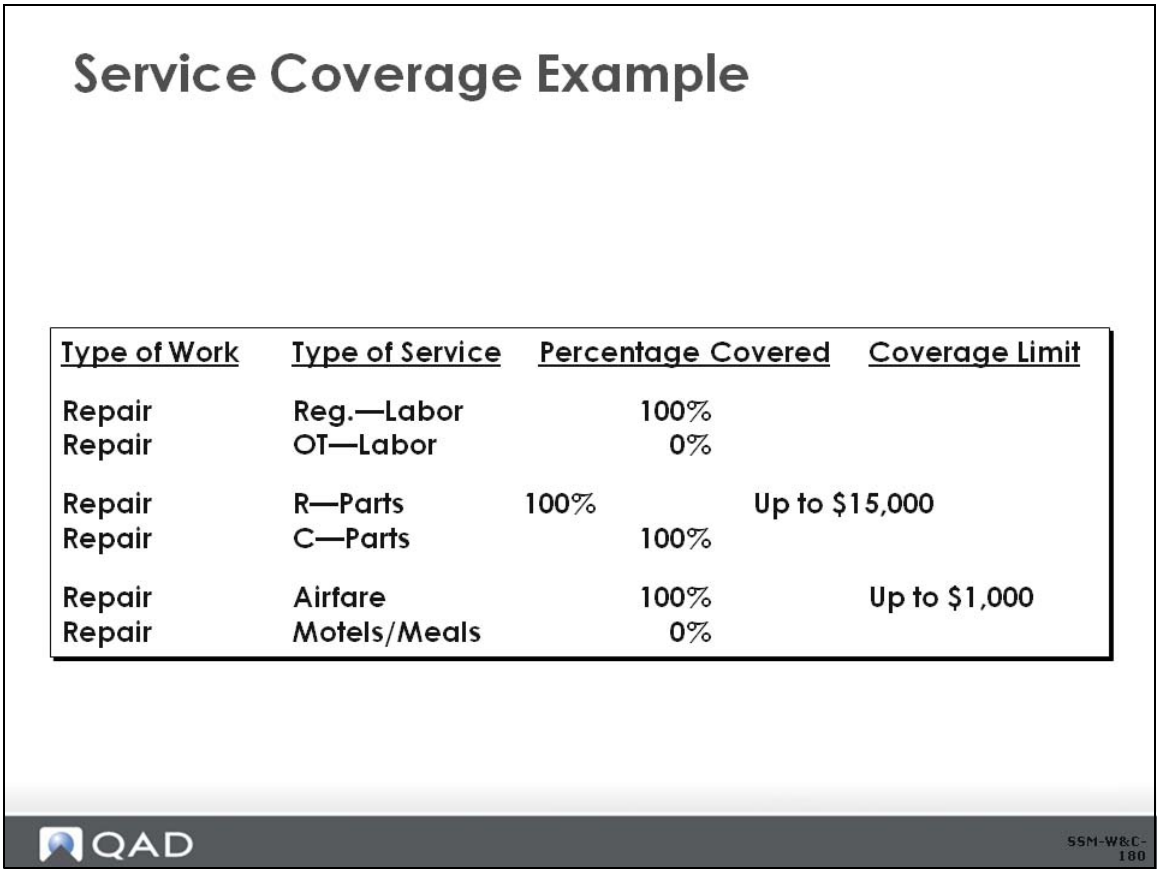


There is another factor that may be important in grouping call activity detail. This is the type of work being done. For example, some organizations need to differentiate between work done as part of scheduled maintenance and that done to repair a broken item.

In SSM, work codes provide another way of grouping the service detail recorded on a call, based on the type of work performed. This figure shows the result of adding three work codes: repair, install, and PM. Now the amount of sorting increases dramatically, requiring two additional file cabinets to organize the information.

The work code provides an alternate way to define service coverage limits in a more detailed way.

Service Coverage Example



Service limits basically define who is responsible for paying for service activity. To establish a limit, there are basically four essential factors that must be considered.

Type of Work

Coverage may apply regardless of the type of work. But many service organizations have different pricing structures for different kinds of work. These may reflect the level of skill involved in the work, or the likelihood of the work needing to be performed. For example, the cost for a routine preventive maintenance visit may be less than for a repair visit. A business organization may want to structure different levels of coverage for these two scenarios.

Type of Service

The type of service represents the details of the activity (represented by the service category). What kind of work was done? What kinds of parts were used? What expenses occurred?

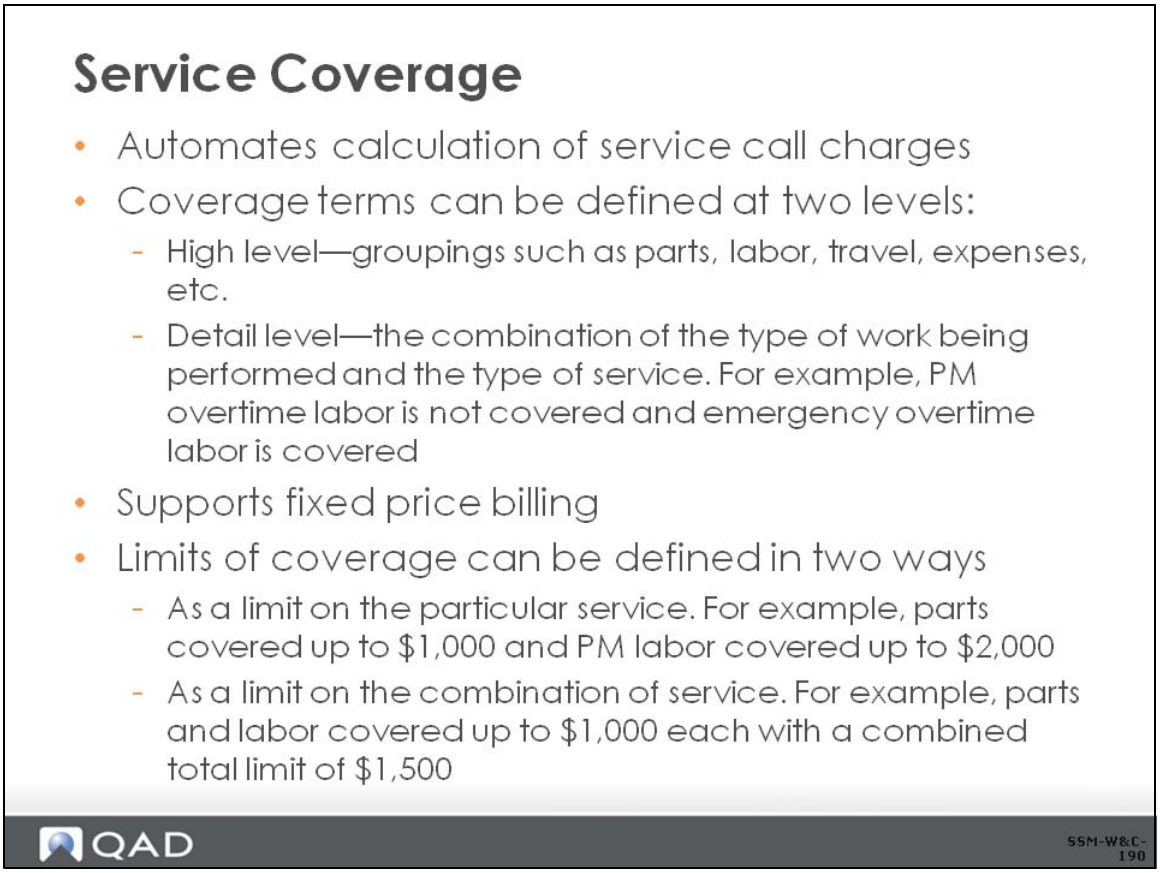
Level of Coverage

The level of coverage is usually expressed as a percentage.

Coverage Limits

Limits determine if there is any ceiling on the amount of service activity that can be provided.

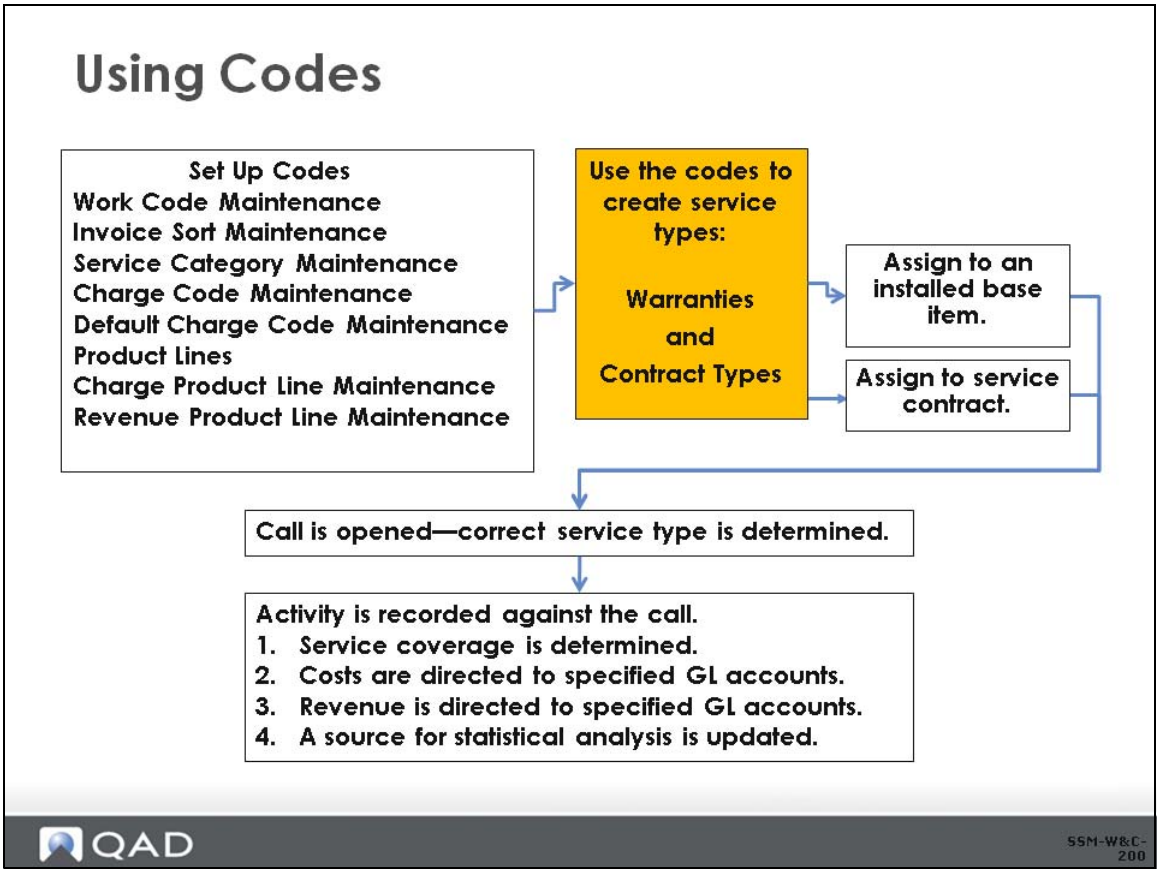
Service Coverage



This figure lists some of the benefits of service coverage levels as supported by SSM:

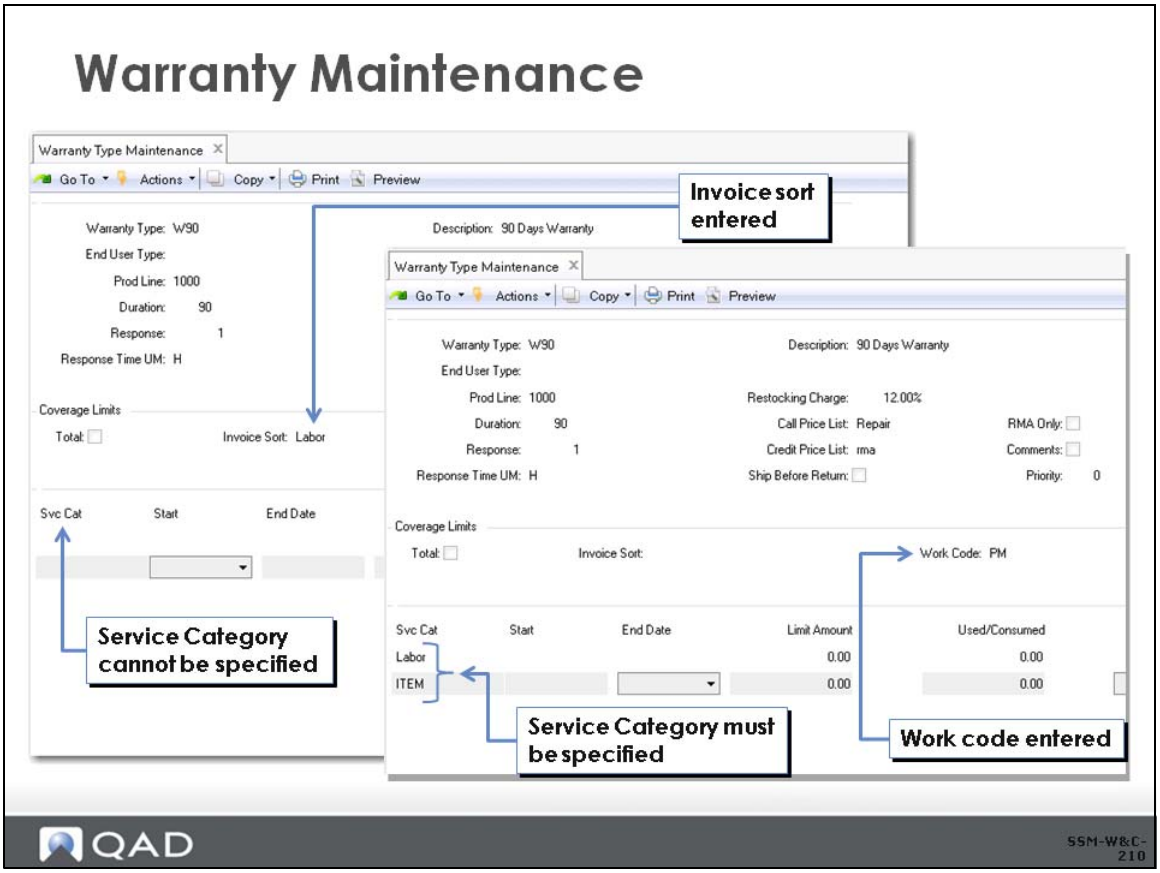
- Once coverage terms and conditions are defined coverage is automatically calculated when service activity is recorded.
- The system enables you to create very generic or detailed coverage terms depending on how your particular business operates.
- If you do fixed price repairs, features are provided to build this option into the system.
- Limits can be defined that apply both to a particular activity or to a combination of activities.

Using Codes



This figure shows the flow in SSM in creating and using the various codes which we set up in Chapter 3.

Warranty Maintenance

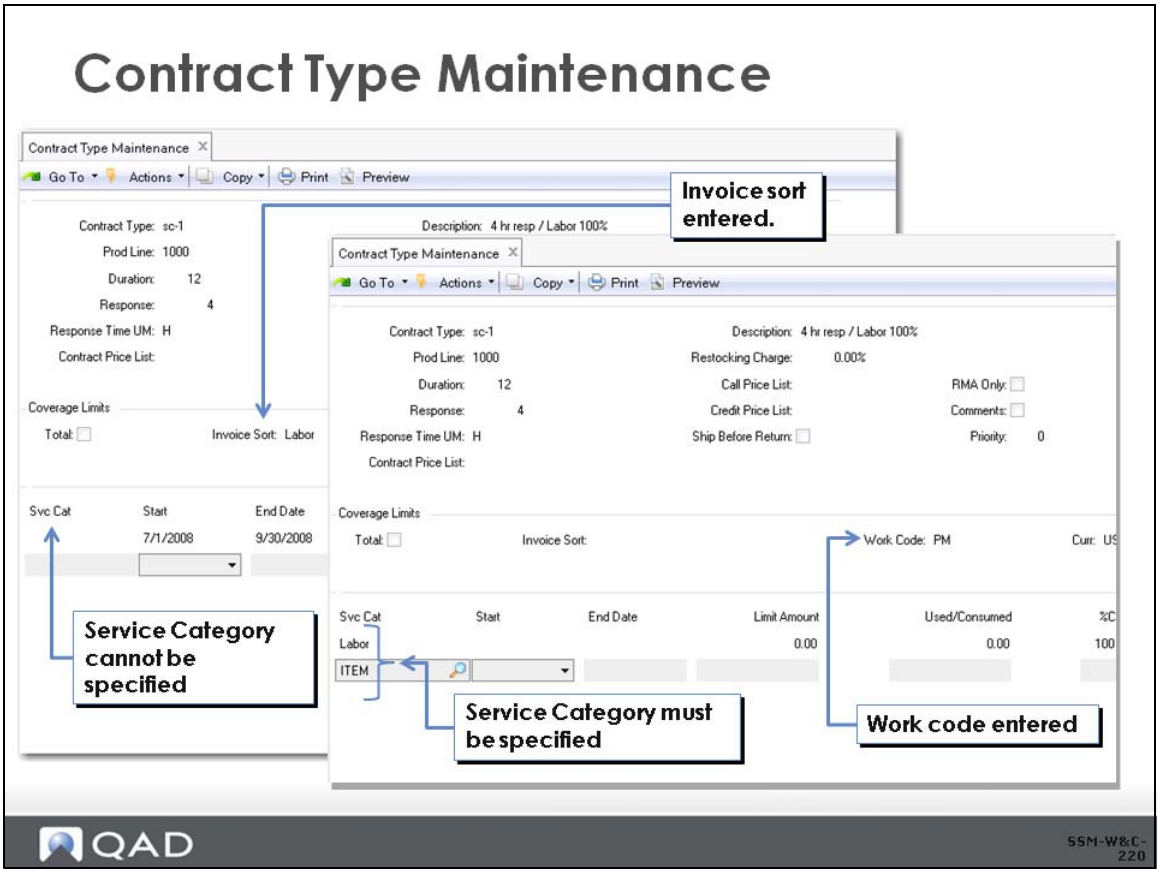


This figure shows two different ways of defining limits and levels of coverage: by invoice sort or by service category/work code.

To define limits by invoice sort, you enter an appropriate sort code. In this case, nothing can be entered for service category (Svc Cat). The coverage limit is set at a percentage (%Cv, for Percent Covered). In this example, the price of labor is covered (%Cv) at 100 percent with no limit. This means that the labor provided during service activity is covered, regardless of what kind of work is done or what kind of labor it is.

To define limits for a work code, Total must be set to No and the Invoice Sort field must be left blank. When you enter a Work Code, you must enter a service category to further qualify coverage limits. In this example, regular labor (Labr-Reg service category) is covered when performed as part of a technical repair.

Contract Type Maintenance



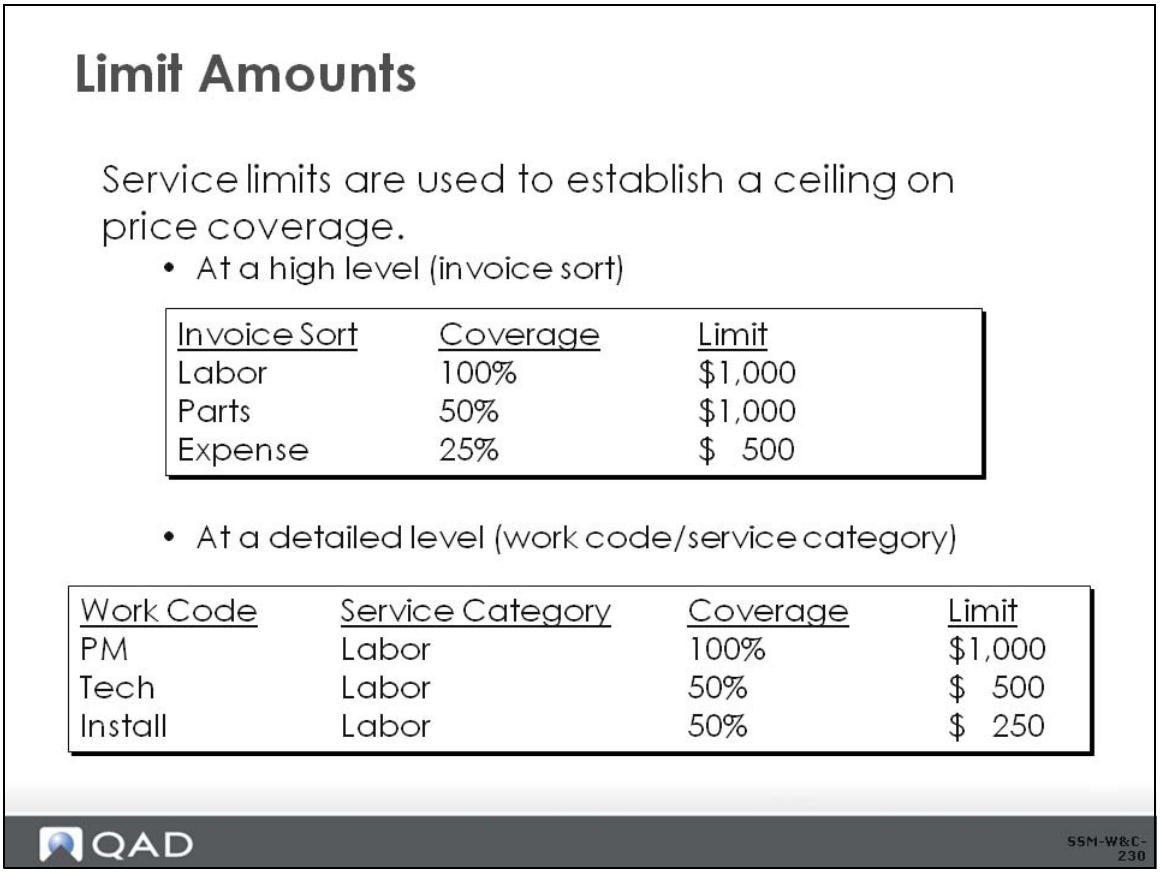
The options in Contract Type Maintenance are exactly the same as in Warranty Type Maintenance, except that for contracts, a limit amount can be specified. Limit amounts are only used when the limits are applied to a contract. In this case, the system tracks how much of the limit has been consumed by service activity recorded in Call Activity Recording. Once a limit is reached, any more activity is considered billable rather than covered.

Effective dates are another important element of service levels that you can define.

Open Ended Dates. If you leave start or end date blank, the system assumes coverage in effect from the beginning of time or to the end of time.

Overlapping Dates Restricted. When you copy limits into a contract, the system sets the earliest start date to the contract start date and the last effective date to the contract end date.

Limit Amounts

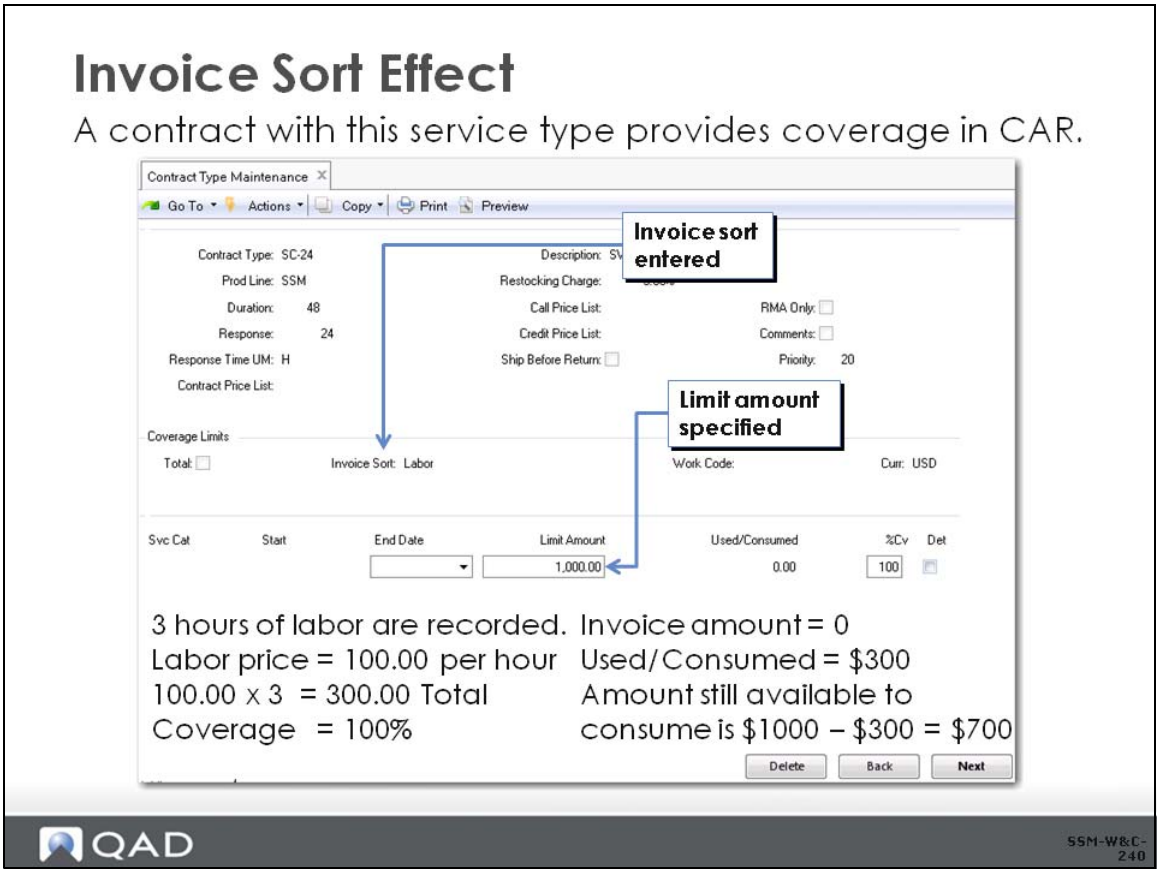


Limit amounts are used in conjunction with the coverage percentage. Once the limit amount has been recorded, service is considered billable, rather than covered.

Limit amount can be applied at both the high level (invoice sort) and the detailed level work code/service category combination.

Note Limit amounts only apply to contract types and are only effective when a contract is providing coverage.

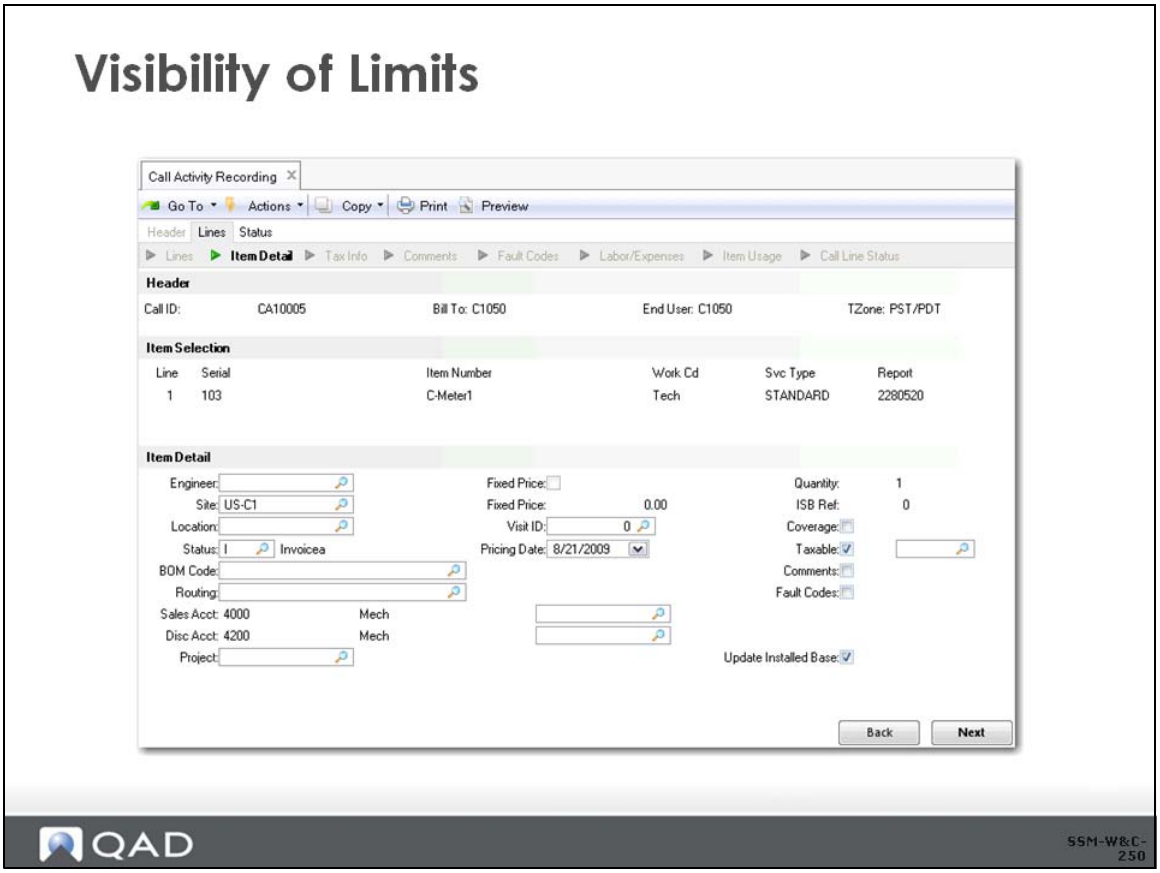
Invoice Sort Effect



Limit amounts are tracked when service is recorded in Call Activity Recording. This contract type defines a limit of $1,000 on labor.

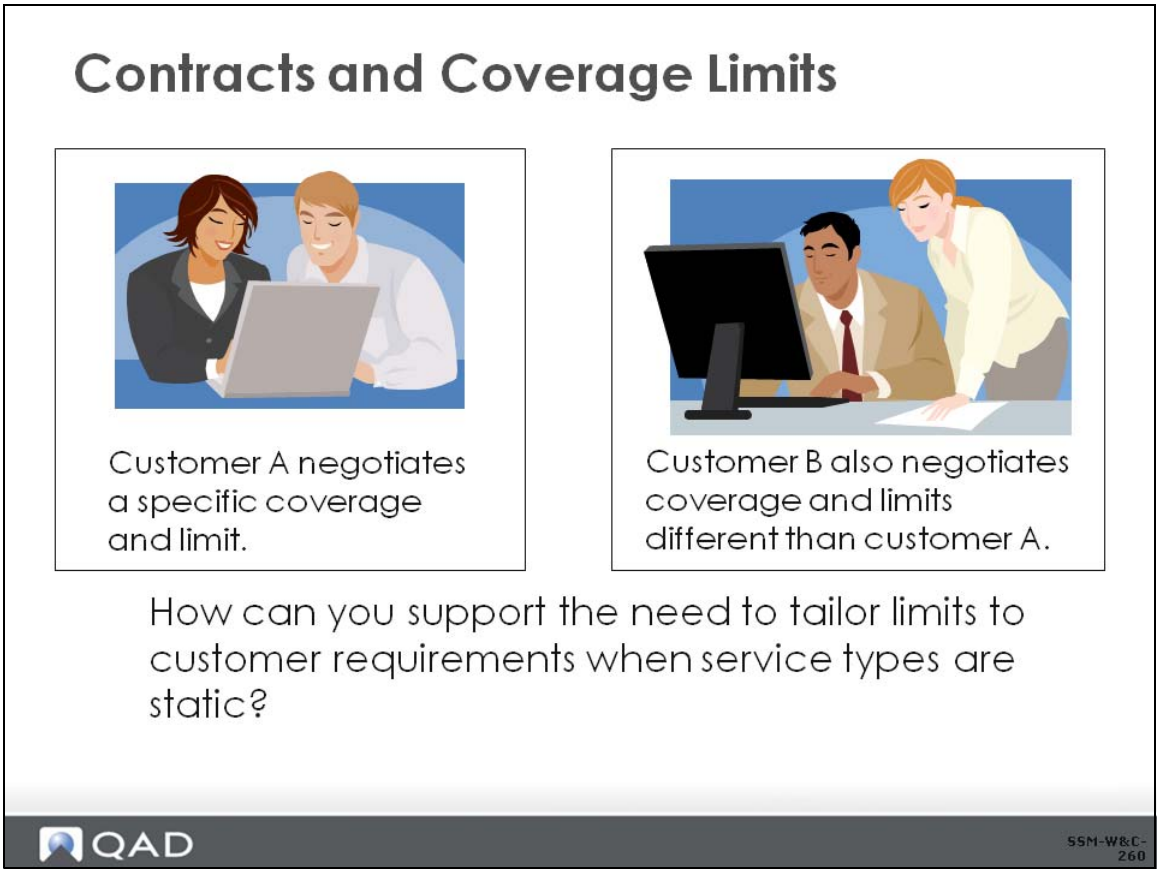
Now, an engineer records three hours of labor consumed. The price of labor is $100 per hour. The full $300 amount will be covered, but the amount that can be recorded against this limit is reduced so that only $700 of coverage is left.

Visibility of Limits



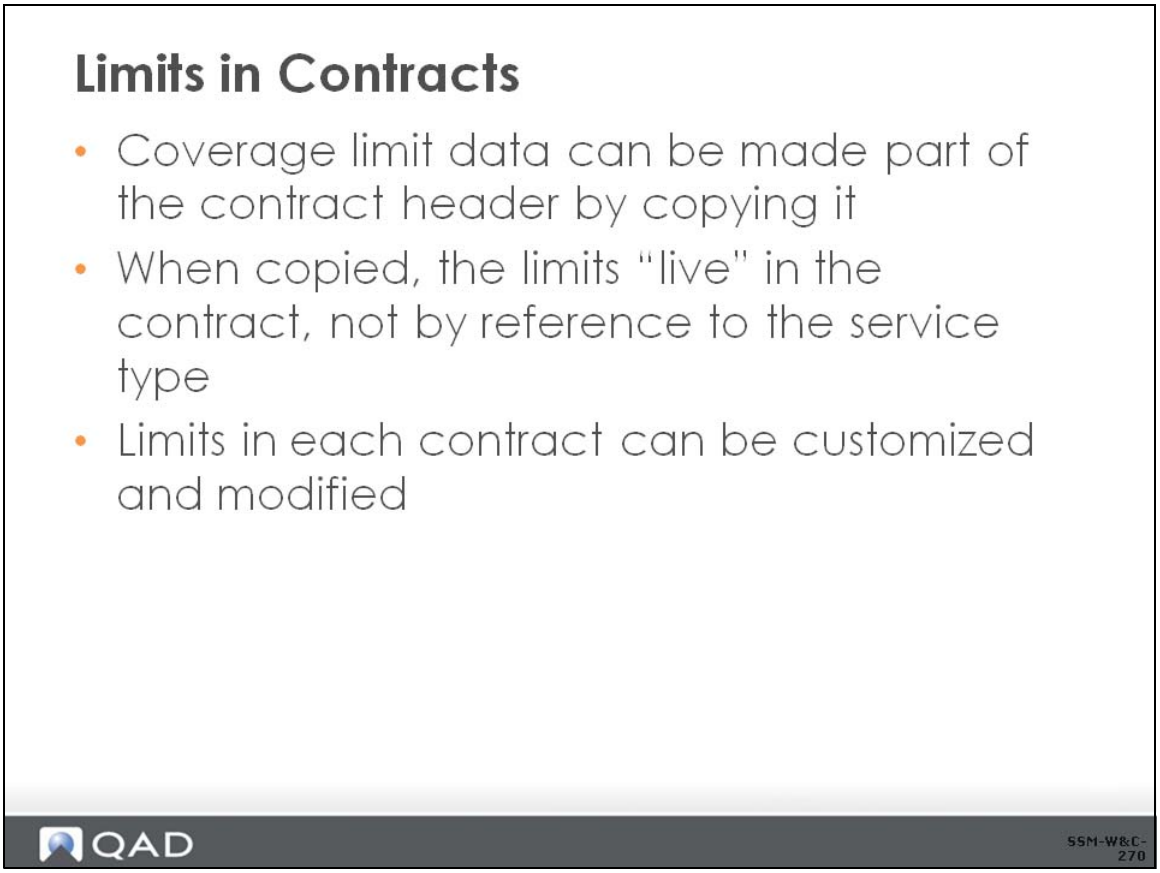
When a call is being created in Call Maintenance or activity is being recorded in Call Activity Recording, the coverage in effect may be viewed in a frame like this one. The system displays all the coverage data related to the call line, including the limits that are effective on the call open date.

Contracts and Coverage Limits



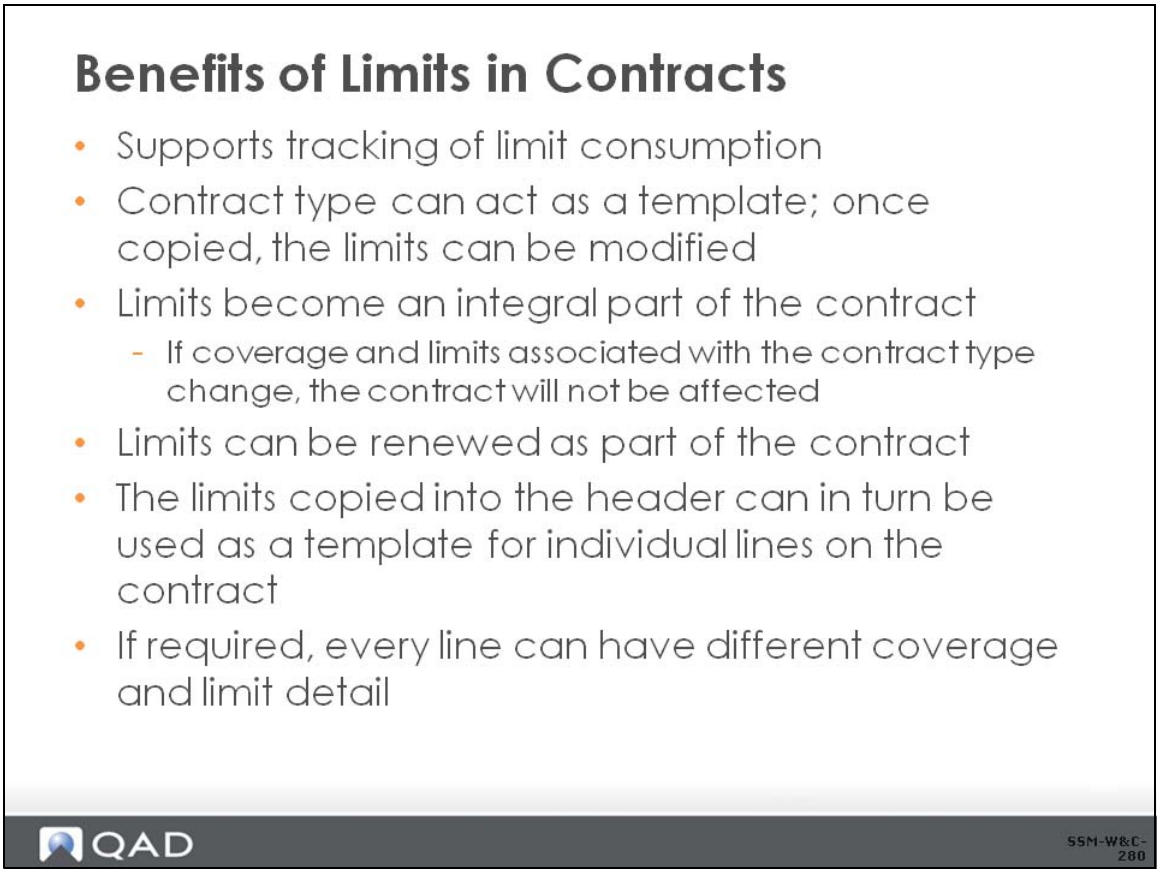
Setting up service limits in the contract type enables you to create a template for contracts based on that type. But you might not want every individual contract to use the standard terms and conditions.

Limits in Contracts



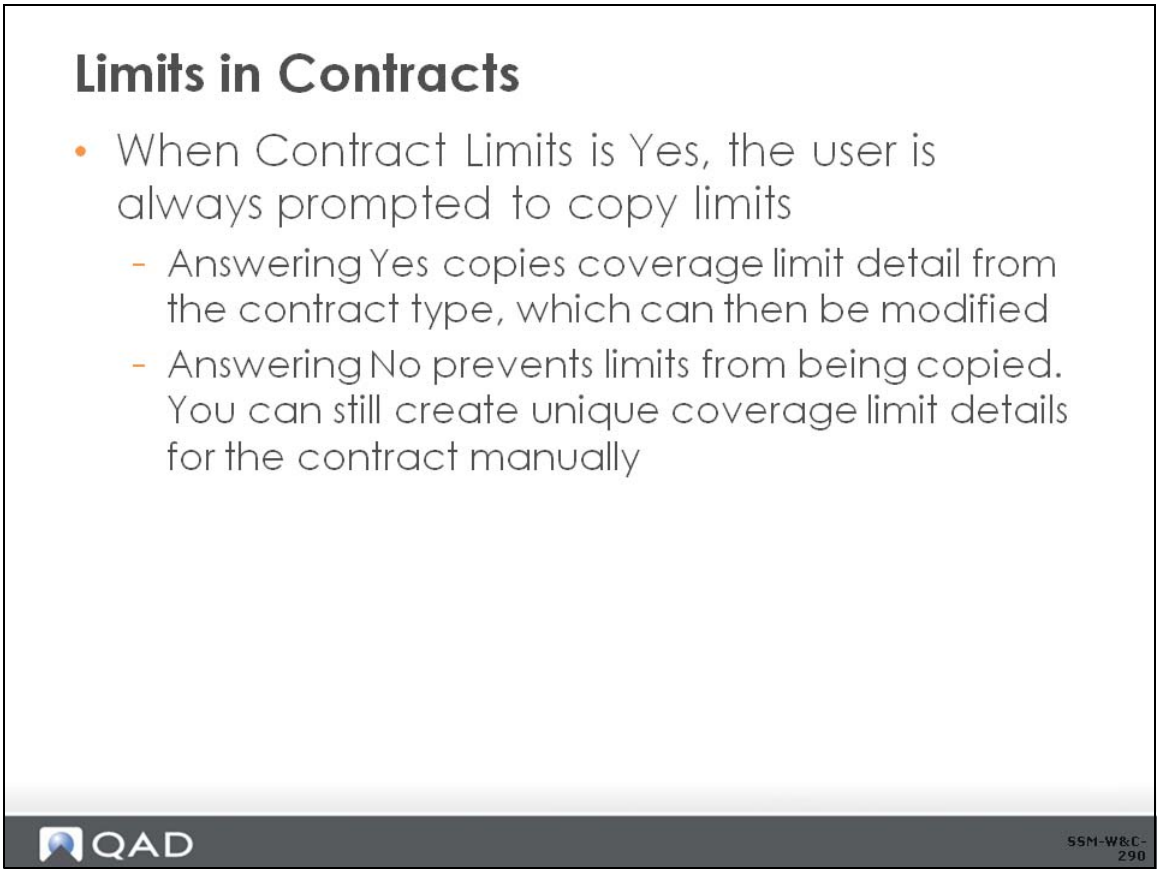
One of the useful features of limits and levels of coverage in SSM is that limit information can be made an actual part of the contract. When you create a contract, you are prompted to copy in the limits from the service type. If you respond with Yes to this prompt, the limits are actually made a part of the contract. They are now independent of the service type and can be modified as needed for the unique requirements of this service contract.

Benefits of Limits in Contracts



Copying limits into a contract has some important benefits, as outlined in this figure.

Limits in Contracts



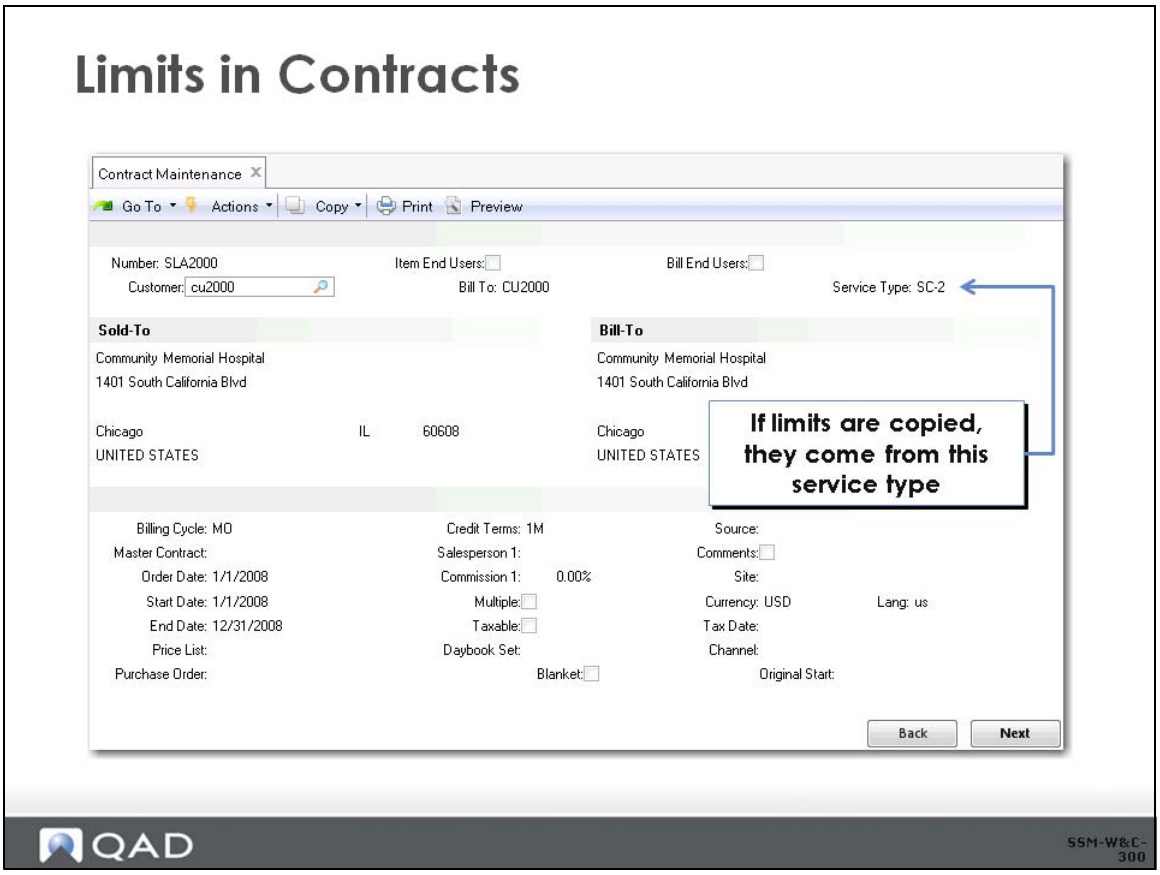
The Contract Limits flag in SSM Accounting Control (36.9.10) determines whether limit amounts can be defined in Contract Maintenance.

- If No, only the covered percent is used and limits cannot be copied into the contract.
- If Yes, limit amounts are enabled in Contract Type Maintenance and limits can be copied into contracts.
  - If Contract Limits is set to Yes, you are prompted with this question when you complete the contract header.

  Copy Service Type limits. If you respond with Yes, the limits as defined for the contract type being used are copied into the header. If you respond with No, they are not copied. In this case, you can define limits unique to this contract. It is usually best to respond Yes.

  Copying limits has an important affect on coverage processing. The calculation of the amount accumulated against a limit only occurs when limits are copied into a contract and become part of it. The accumulation of limits cannot take place against a contract type. If you respond with No to the copy limits prompt and do not define limits in Contract Maintenance, the levels of coverage defined for the contract type are applied by the system, without regard to any limit amounts.

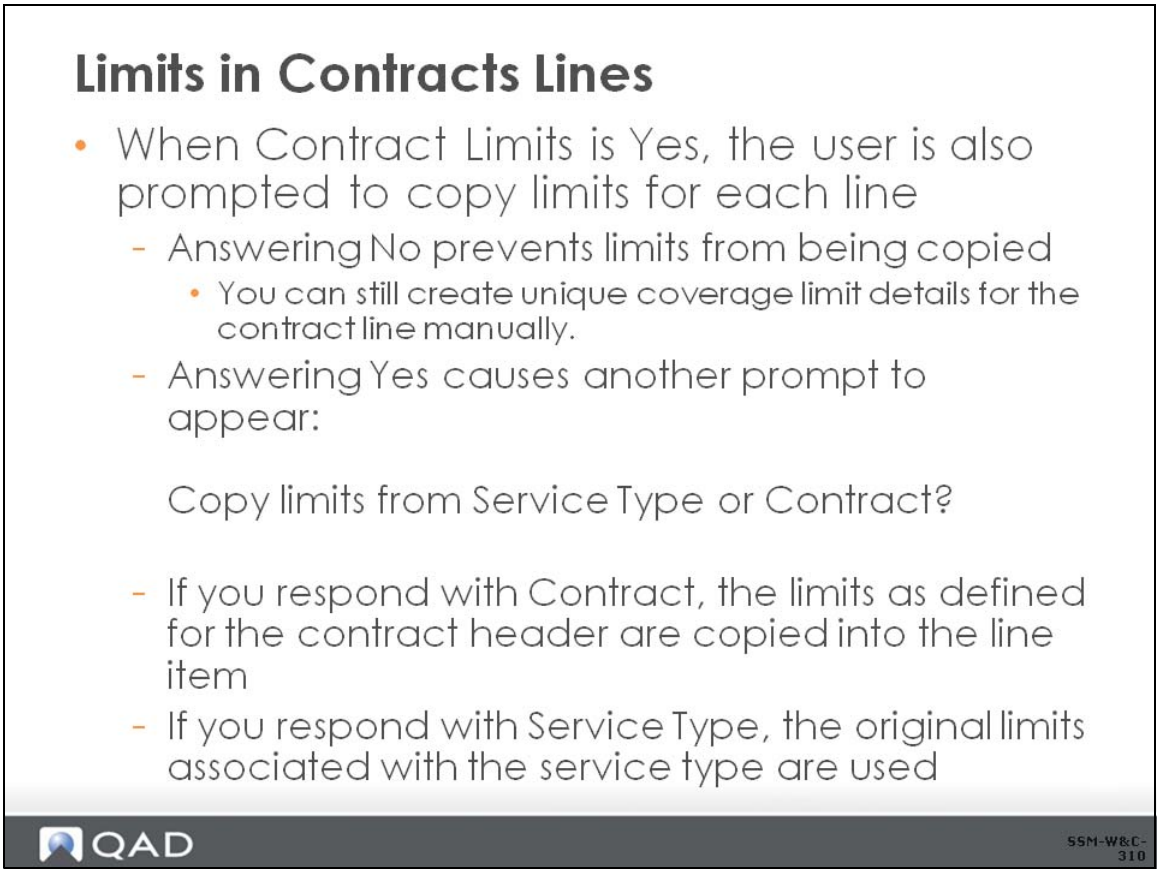
  If limit amounts or list price limits are defined, these amounts are converted to the contract currency when they are copied into the contract.



The limits of the service type specified for the contract are used as a template when you respond with Yes to the Copy Limits prompt. This frame is just like the frame that displays in Contract Type Maintenance. However, there are a few important differences:

- If limits on the contract type were defined with open-ended dates, they are copied into the contract with the same start and end date as the contract itself
- The limit amount field becomes active when the limits exist in a contract.
- As service activity is recorded in CAR, the amount used against this limit is accumulated and can be seen in the contract.
  - It can also be viewed using the Limit Consumption Report and Inquiry (11.5.13.21.5).

Limits in Contracts Lines



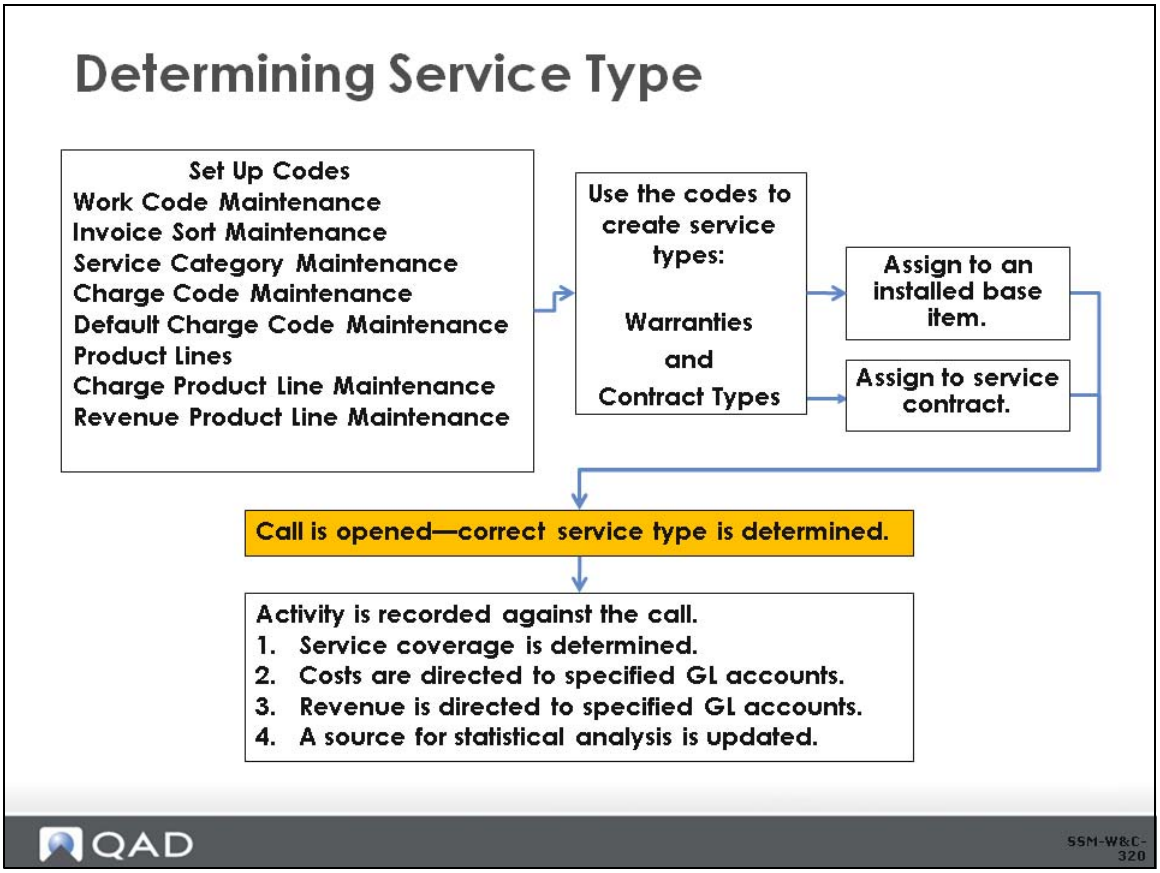
When you are using limits, you can optionally copy limits into each contract line as it is created. Whether limits exist at the contract header or contract line level has an important impact on how limit amounts are consumed.

Consider this example. A contract header limit is set up with a $1,000 limit amount for labor. This limit is now copied to each line added to the contract. This means that $1,000 of labor can be provided for each line item on the contract before the customer is billed.

In a second scenario, the limit amount is not copied but only resides at the header. This means that all lines will consume the same $1,000. If $999 of labor is expended on the first contract line item, only $1 is available for the next before labor becomes billable.

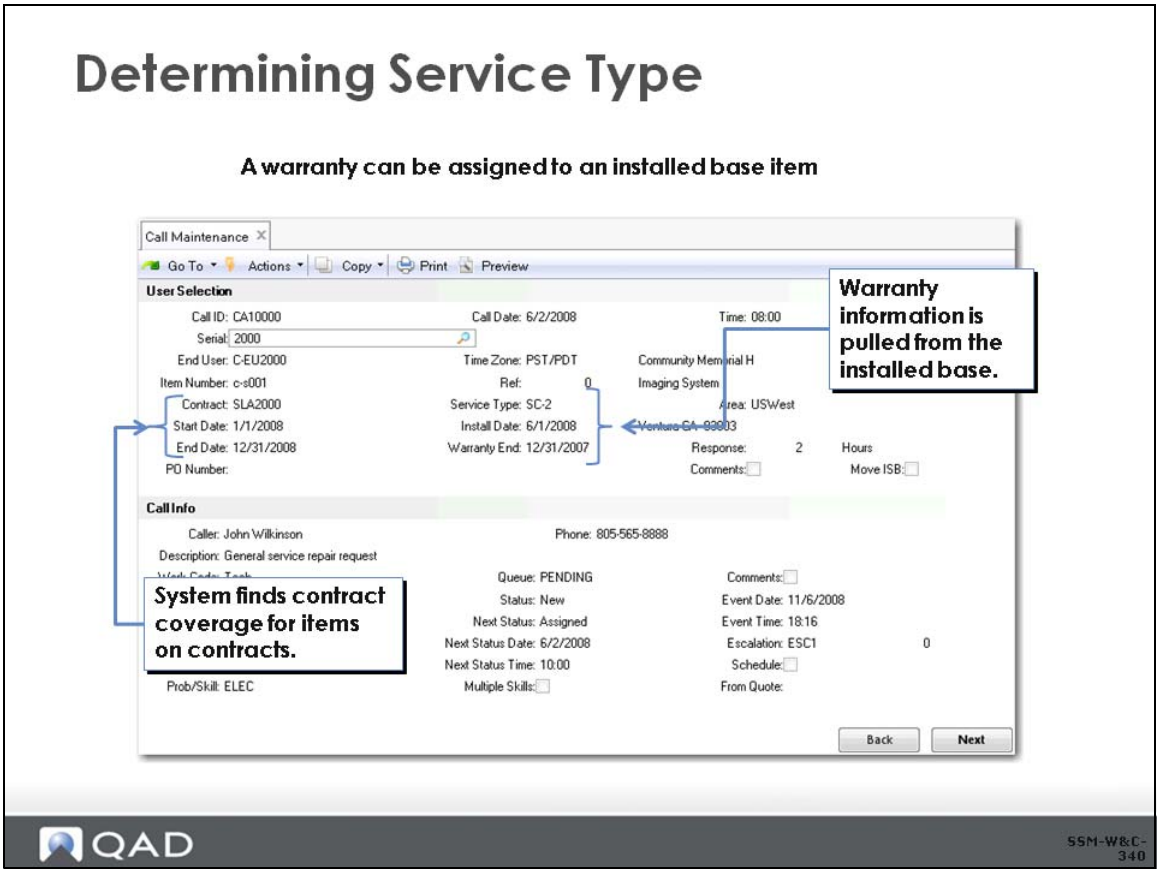
The system only uses limits at one level: line, contract header, or contract type. If all three exist, the lowest level one that applies is used.

Determining Service Type



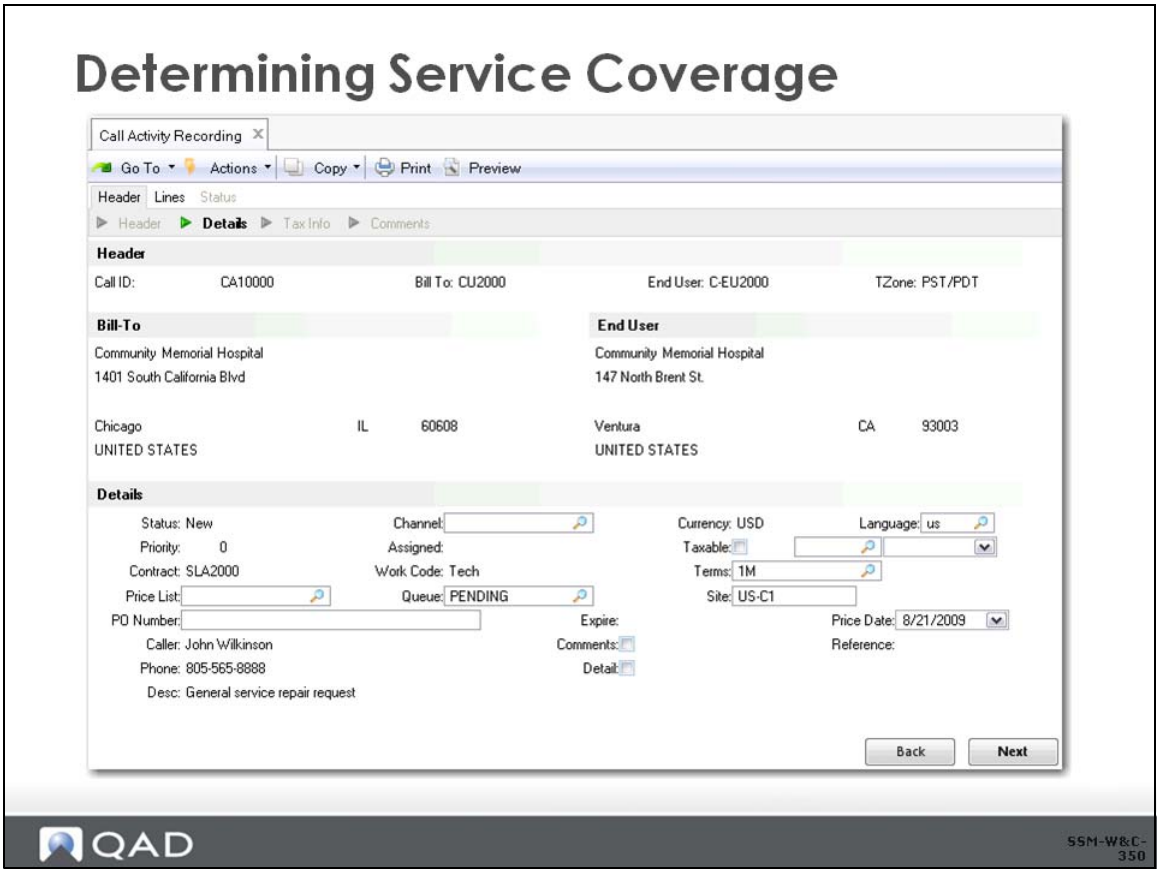
In the next step in the business overview, the system determines the correct service type to use in Call Maintenance.

Determining Service Type



Coverage is determined by the system based on the serial, item number, and reference entered in the first frame of Call Maintenance. Coverage information is immediately visible to service personnel creating the call as they navigate the Call Maintenance frames.

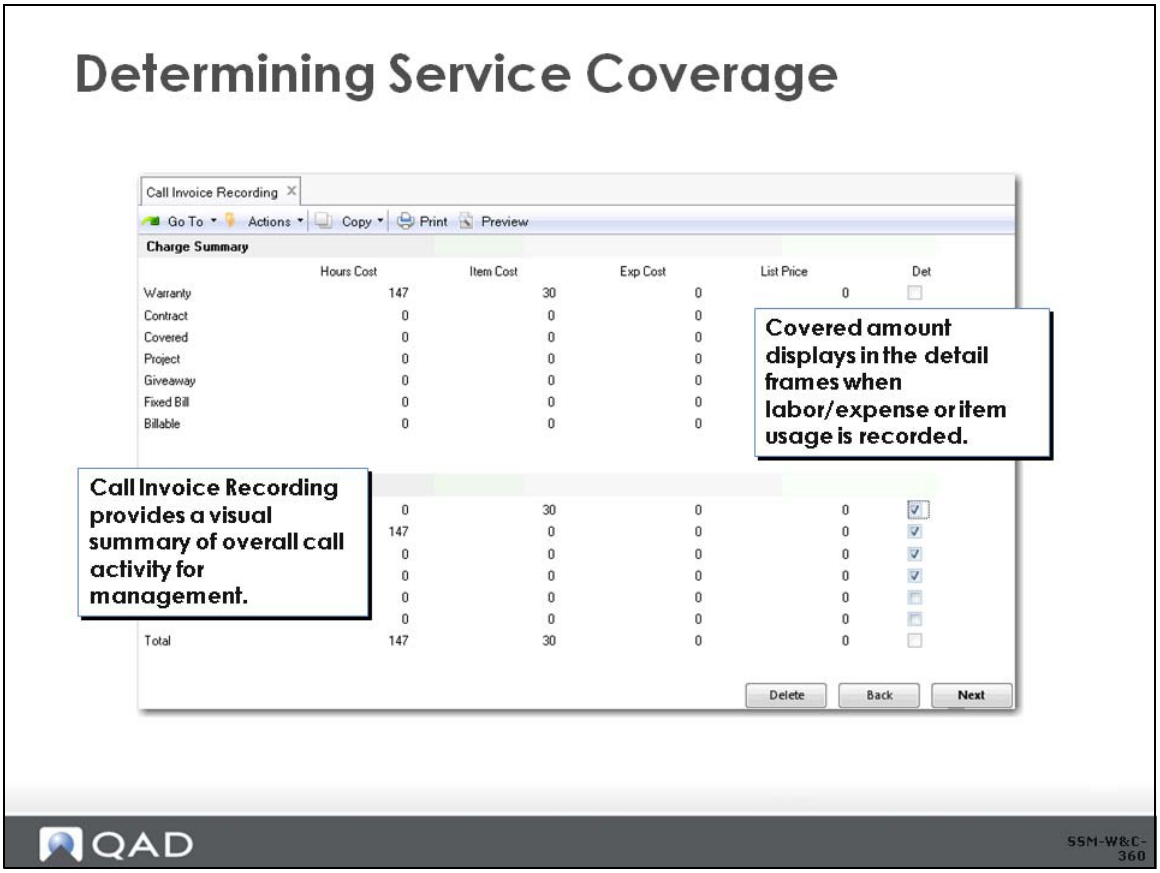
Determining Service Coverage



This figure shows the coverage information frame in Call Activity Recording in more detail. All coverage information is displayed by the system, not just the coverage type actually being used. The fact that there is a warranty in existence that expired last week may influence the way you handle this call. The system takes all this information into account when suggesting who is responsible for payment in CAR.

The term “limit qualifier” is used to refer to the way the limit record was defined. It can refer to an invoice sort code, a work code/service category combination, or a record set up only to define a total limit amount.

Determining Service Coverage



As activity is recorded in CAR, the system applies the coverage percent to the price for each line of detail recorded. This is used to calculate the covered amount for each detail record. Summary information related to the call can be reviewed in Call Invoice Recording.

Exercise 9: Contract Type Maintenance

In this exercise you will create a service type (or update an existing service type) with information regarding levels and limits of coverage. This contract type defines different levels of coverage for labor depending on whether the work is for scheduled preventive maintenance or emergency repair. Items and expenses used in service are covered at a certain level regardless of the kind of work.

1. Go to SSM Accounting Control (36.9.10), click Next, and verify that Contract Limits is set to Yes.
2. Click Next until back at the header, then click Back.
3. Go to Contract Type Maintenance (11.5.10) and enter the following:

Field	Value
Contract Type	SC-10
Prod Line	C
Response Time UM	H
Contract Price List	SSM1

4. Enter SSM1 (Type C For Item C-S001) as the Contract Price List field and if desired SSM1 (Type R For Item C-S001) as the Call Price List.
5. Click Next twice to display the Coverage Limits frame. You should be in the Tot field.
6. Tab to the field labeled Work Code. Use the look up to display the possible choices, select PM, and click Next.

   Notice that the cursor has entered the field labeled Svc Cat. When a work code is specified, a service category is also required.
7. Enter service category LABR-REG, which you created a previous exercise.
8. Press Tab to move through the fields labeled Start and End Date until you are in the field labeled Limit Amount.

   This field defines the limit of how much LABR-REG you plan to cover (or absorb) as part of this service type. The limit can be any amount or it can be zero, indicating there is no limit.
9. Set the limit to 750.00 and press Tab.

   If you do not understand what the 750.00 means, review the previous discussion on limits.
10. You should now be in the field labeled %Cv, which represents the percentage of LABR-REG sales price to be covered. Accept the default 100% and press Enter.

    What effect do you think this percentage will have on LABR-REG in call billing?
11. Leave the field labeled Det (Detail) set to the default No and press Enter.
12. You should be back at the field Svc Cat. Click Back and your cursor should be in the Tot field.
13. Repeat steps 6 through 11 for work code E-Call.

Field	Value
Work Code	E-Call
Service Category	LABR-REG

Field	Value
Limit Amount	$1000.00
%Cv	50%

14 Click Next, then Back.

After completing step 11, your cursor should once more be in the Tot field.

15 Tab to the Invoice Sort field, and enter:

Field	Value
Invoice Sort	Items
Work Code	<blank>
Limit Amount	$500.00
%Cv	75%

16 Click Next to modify this record.

This time, notice how your cursor has skipped the Svc Category field. When coverage limits are defined using invoice sorts, the system knows which service categories to include based on how they were defined.

17 Click Next to save your changes; return to the Tot field.

18 Tab over again to the Invoice Sort field and enter:

Field	Value
Invoice Sort	Expense
Work Code	<blank>
Limit Amount	$500.00
%Cv	50%

19 Click Next to save your changes and Back until Contract Type Maintenance closes.

20 Go to Contract Type Inquiry (11.5.11).

21 Enter SC-10 in the Contract Type field and set Detail to Yes.

22 Click Next twice to generate a report to the terminal.

Review the data you created as well as other information related to SC-10. There should be four limit records associated with this service type. When you are done, return to the menu.

Exercise 10: Using Service Types

In this exercise you create a service type to be used as the default call service type and then see how it defaults in a call. A default service type is used for items that are not covered by warranty or contract. It normally does not provide any level of coverage, but its attributes do affect how calls and RMAs are managed.

Planning

In this exercise, you need to decide what kind of coverage your company would provide to end users who do not have a contract or warranty.

1 How quickly should your company respond to a call for an item not covered under contract or warranty? (in Minutes, Hours or Days)

Response Time: _____

2 What should the initial call priority be for an item without coverage?

Call Priority: _____

Remember: 1 is highest priority, 100 is lowest.

3 What should the hours of coverage be for an item not covered under warranty or contract?

Sunday: _____

Monday: _____

Tuesday: _____

Wednesday: _____

Thursday: _____

Friday: _____

Saturday: _____

Defining a Service Type

1 Go to Contract Type Maintenance (11.5.10).

2 Enter the following data in the appropriate fields; leave defaults in the unlisted fields. Then click Next to save.

Field	Value
Contract Type	NoCover
Product Line	C
Duration	0
Response Time	Enter your value
UM	Enter Choice (M, H, or D)
Contract Price List	<blank>
Description	No Coverage Provided
Restocking Charge	5.00%
Call Price List	SSM1 (for item C-C001, Type R, UM is EA)
Credit Price List	RMA-CR

Field	Value
Ship Before Return	No
RMA Only	No
Comments	No
Priority	Enter you value

3 Enter the days and hours of coverage you decided upon. Check Yes or No for the days that you provide coverage. Hours are entered based on a 24-hour clock. For example, an 8-5 day is noted as 08:00 to 17:00. Then click Next to save.

4 Click Back when the Coverage Limits frame displays; return to the menu.

Updating Call Management Control

1 Go to Call Management Control (11.1.24).

2 Enter NO-COVER in the Default Call Service Type field. Click Next to save your change. Return to the menu.

Creating a Call

1 Go to Call Maintenance (11.1.1.1).

2 Enter the following data in the appropriate fields. Ignore any warning message that may display.

Field	Value
Call ID	<blank> Click Next
Serial	010
End User	Defaults in
Item Number	C-S001
Call Date	Default
Call Time	Default

3 Click Next until your cursor is in the Caller field in the lower frame, accepting any defaults that display.

4 Review the call data. The service type displayed in the upper frame should be NO-COVER; to the right should display the response time you specified. Is the call priority in the bottom frame the one you specified?

Review the call's next status date and time. Can you explain how they were calculated based on today's date and response time associated with the NO-COVER service type?

5 Exit the call and return to the menu. Other features of Call Maintenance will be discussed in more detail in later chapters.

Exercise 11: Copying Limits

Before we create a contract, we must first set up a default Charge Codes to use for Contract Type SC-10, all work codes.

1 Go to Default Charge Code Maintenance (11.21.21.13) and enter the following values:

Field	Value
Service Type	SC-10
Work Code	<blank>
Service Category	<blank>
End User Type	<blank>
Warranty Code	Warranty
Contract	Contract
Covered	Covered
Billable	Billable
Fixed Billable	Fixed

2 Click Next, and repeat step 1 changing Service Type to W90.

Field	Value
Service Type	W90
Work Code	<blank>
Service Category	<blank>
End User Type	<blank>
Warranty Code	Warranty
Contract	Contract
Covered	Covered
Billable	Billable
Fixed Billable	Fixed

3 Click Next, then Back to return to the menu.

Setting Up Limits on a Contract Header

In this part of the exercise you initiate a service contract, and using the service type you previously modified, copy in the limits and coverage so they become part of the contract itself. Having the limits recorded as part of the contract enables you to track consumption of these limits when call activity, like repair or preventive maintenance, is registered against this contract.

1 Go to Contract Maintenance (11.5.13.1).

2 Leave the Number field blank, and press Enter so the system can assign the next available number. Write that number in this space:

Contract Number: _____.

You will use this contract in both tasks in this exercise.

3 Click Next to accept the End User defaults.

You should now be in the field labeled Customer.

4 Enter C-MDI and click Next twice, accepting the default Bill To.

You should be in the field labeled Service Type.

5 Enter SC-10 via the lookup function, modified in Exercise 9: Contract Type Maintenance then click Next.

Your cursor should now be in the Billing Cycle field.

6 Press tab three times to reach the Start Date field.

Notice that the Start Date is the first day of next month. This is the default setting every time a contract is created.

7 Set the Start Date to the first of the current month.

This makes the contract available as of that date, instead of next month.

8 Once you have reset the Start Date, press tab to reach the End Date field.

9 Change the End Date to be one year from the Start Date.

As an example, if your Start Date is 04/01/10 (April 1, 2010) make your End Date 03/31/11 (March 31, 2011).

10 Press tab.

You should now be in the Price List field. This price list defaults from the contract type (SC-10) selected previously and is used to determine the prices you charge for contract line items. These were modified in Exercise 7.

11 Accept this and the other defaults, and click Next.

You should now be in the Tax Usage field. Ignore the warning about No tax environment found.

12 Click Next to accept the defaults.

Your cursor should now be in the Hold Contract field. This is the first field of the frame containing the balance of the contract header.

13 Click Next to accept the defaults.

You should now be at the Coverage Limits frame with a message displaying that prompts:

Copy Service Type limits?

Do you remember what this question is asking you to decide? For our purposes, we do want to copy limits.

14 Click Yes.

Another frame should appear just below the previous one like the frame we saw in Contract Type Maintenance. The cursor should be in the field labeled Tot.

15 Press tab to reach the Invoice Sort field.

16 Using Next/Previous, toggle through the values in the Invoice Sort field.

Notice the information displayed in the lower frame. Do you know where this information is created and why it got here? What do you think you would see if you had responded with No to the Copy Service Type limits prompt?

Because you have copied the limits from the service type into the contract, they are now actually part of the contract. Notice also that the Start and End Date fields in the frame have dates in them. Do you remember where these came from?

17 Clear any value in the Invoice Sort field and then press tab to reach the Work Code field.

18 Use Next/Previous in the Work Code field to display the information in the lower frame.

Notice that with Work Code selected, you can see Service Categories with limits and coverage in the lower frame. Start and End Date fields have been initialized for these fields just as they were for the invoice sort limit records.

To illustrate the difference at the line level between copying limits from the contract header and copying limits from the contract type, we will make a change to the contract header limits.

19 Enter INSTALL in the Work Code field and click Next.

Field	Value
Svc Cat	LABR-REG
Start Date	Date from step 7
End Date	Date from step 9
Limit Amount	$1,000.00
%Cv	65%

20 Click Next to save your changes.

21 The contract header limits now cover regular labor for PM, E-Call, and Install work codes.

Setting Up Limits for an End User

Contract limits can be defined at both the header and line level of a service contract. In this task, you continue with the contract you started in the previous task and explore how limits can be applied to an end user on a contract.

1 Click Back to leave the header, repeat until your cursor is in the End User field.

2 Enter C-EUMDI1 as the End User and click Next.

3 Click Next twice to accept the billing and tax defaults.

4 At the prompt to Copy service type limits, enter Yes.

5 At the prompt to copy limits from Contract or Service Type, select Contract.

The Coverage Limits frame looks the same as what we saw earlier. One could modify the limits in service type and/or work code from what is linked to the contract header. We will accept the defaults.

6 Click Back.

7 You should be at the beginning of the End User Item Detail frame. Accept the default line item number 1 by pressing Enter.

Notice that the value from the Service Type field on the contract header (SC-10) defaults into the line item Svc Type field. The service type can be changed for each line in Contract Maintenance.

8 Press Enter to accept it and move to the Supported Item field.

9 Key in the item number C-S001 and press Enter.

Ignore the warning message about the item not existing in the installed base.

10 Accept the default quantity of 1 and press Tab.

11 In the Serial field, key in a serial number made up of your initials. An example might be STL. Press Enter.

12 Override the $5,000.00 default for Net Price and enter $1,000.00, click Next.

13 Continue to click Next, accepting default values, until the Coverage Limits frame appears with the following prompt:

Copy Service Type limits?

14 Click Yes. You should receive another message prompt as follows:

Copy limits from End User Default or Service Type?

The default choice for this prompt is End User.

15 Select End User Default.

16 When the Coverage Limits frame displays, press Tab to reach the Invoice Sort field, and use Next/Previous to toggle through the values. There should be two records.

17 Clear any value in the Invoice Sort field, and then press Tab to reach the Work Code field. Again, use Next/Previous in the Work Code field to display the information in the lower frame. This time there should be three records.

18 Click Back until the end user item detail entry frame appears.

Add a second line to the contract and copy service limits from the service type, rather than the end user.

19 Accept the default line item number 2 by pressing Enter.

20 Press Enter to accept the default service type.

21 Key in the item number C-S001 and press Enter.

Accept the default quantity of 1 and press Tab.

22 Enter a serial number composed of your initials plus 1 (e.g., STL1).

23 Override the default price of $5,000.00 and enter $1,000.00.

24 Click Next several times, accepting any defaults again, until the Copy service type limits prompt displays.

25 Respond with Yes when you are prompted to service type limits.

26 Click Service Type at the second prompt.

When the Coverage Limits frame displays, use Next/Previous again to toggle through the values in the Invoice Sort and Work Code fields. This time there should be two records associated with each. Do you know why?

By indicating that you wanted to copy limits from the service type, you have created line limit records the way they were before you changed the contract header.

To illustrate how changes are made at the line level, you will adjust the limit amount for the Items invoice sort for this line item.

27 Clear the work code field, and then go back to the Invoice Sort field.

28 Enter Items in the Invoice Sort field, and click Next to reach the field labeled Start in the detail frame.

29 The current limit of invoice sort Items displays on the line above your cursor. Enter the same date range to edit this limit (You can down arrow once to access this record). Press Tab until you reach the Amount field.

30 Change the value in the Amount field from the default copied from the service type to 300.00, and click Next.

What condition of coverage and limit now apply to this item on this contract?

31 Click Back until you reach the trailer frame of Contract Maintenance. Then click Next twice to reach the Number field once again. Return to the menu.

Chapter 5

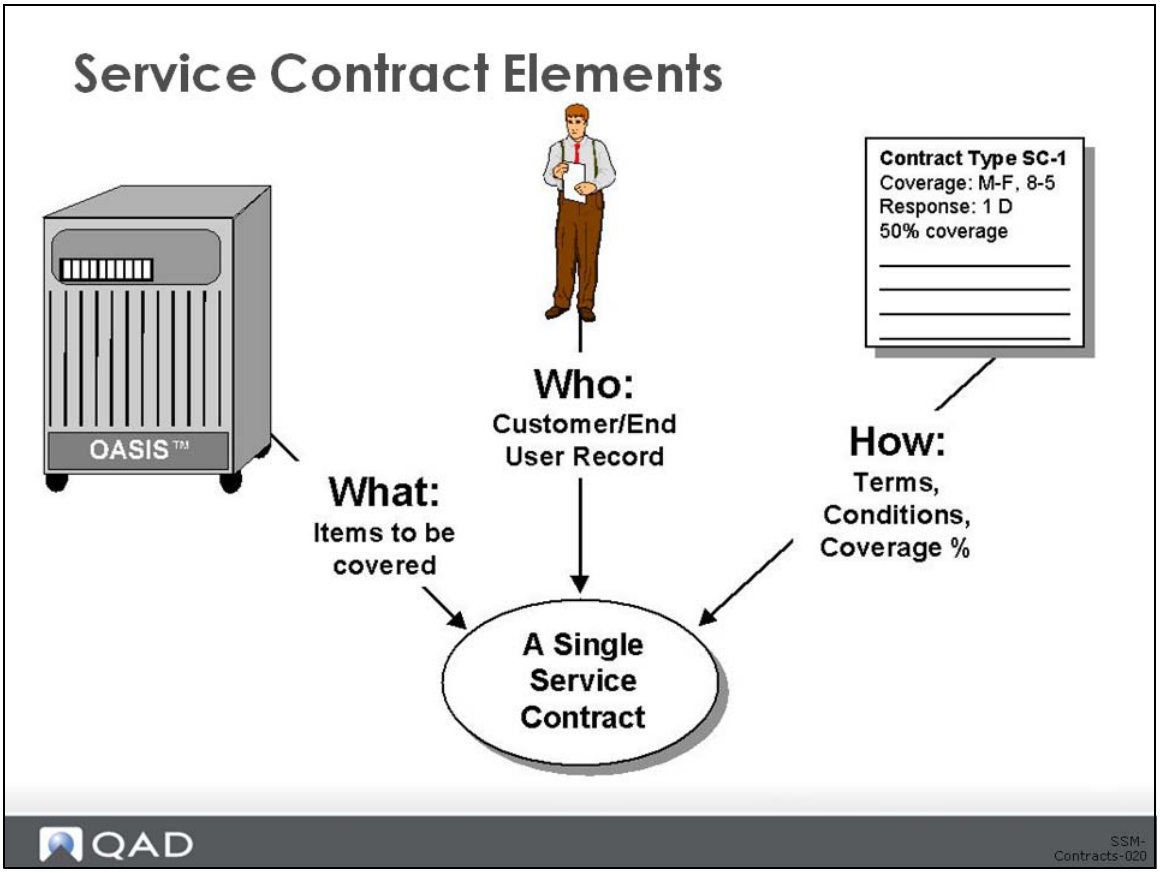
Service Contracts

Overview

Chapter 4 provided a foundational discussion of basic service coverage attributes and how they are used in the system. It also discussed service types and their coverage levels, limits, and how they are copied into contracts.

This chapter will discuss other aspects of contracts. It starts with an overview, and then provides details on additional charge items, contract design, blankets and contract renewal.

Service Contract Elements

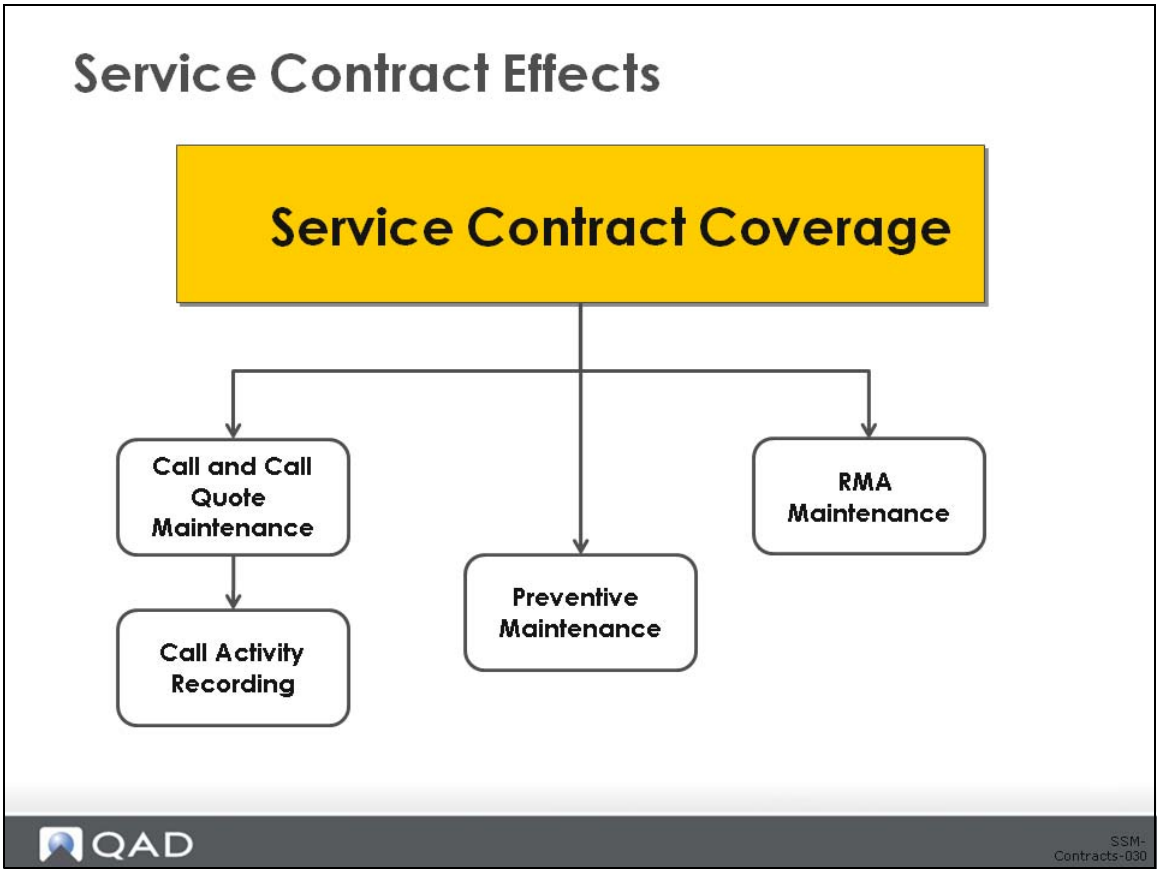


Service contracts, like warranties, define the contractual agreements for service with customers.

The contract type associated with a contract determines many of its service attributes, including price lists, coverage hours, and response time. From this viewpoint, a service contract is a unique document that ties together:

- Coverage information from the service type
- Customer/end user records
- Items to be supported

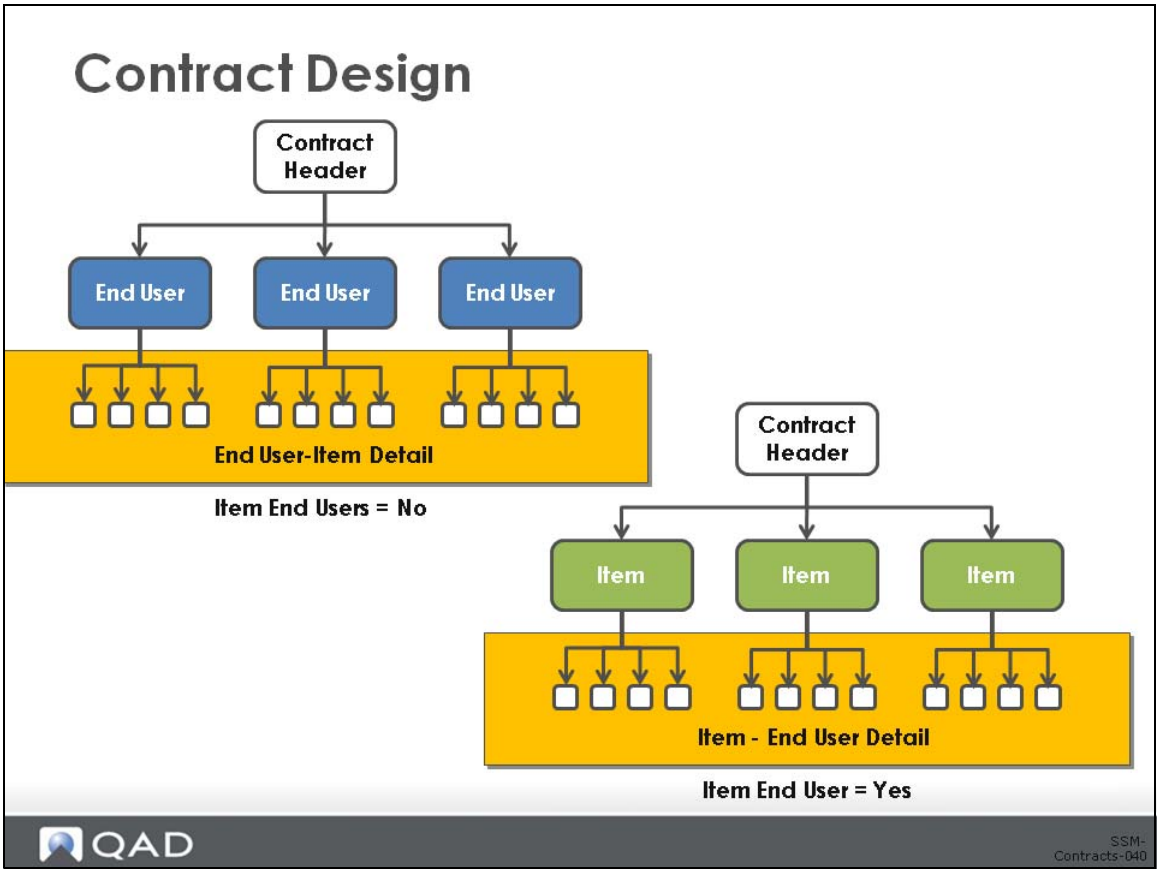
Service Contract Effects



The service contract is used to manage billing issues involving the repair, replacement, and support of an item. These issues arise in:

- Call and Call Quote Maintenance, where problems are registered with the support department.
- Call Activity Recording, where service activity in response to calls is recorded, including labor, expenses, and items consumed.
- Preventive Maintenance (PM), an optional routine in Contract Maintenance that schedules service calls in advance for items under contract.
- Return Material Authorization (RMA) Maintenance, a program that manages activity related to returned materials, including receiving returned items and issuing replacement parts.

Contract Design



Contracts can be viewed in two ways:

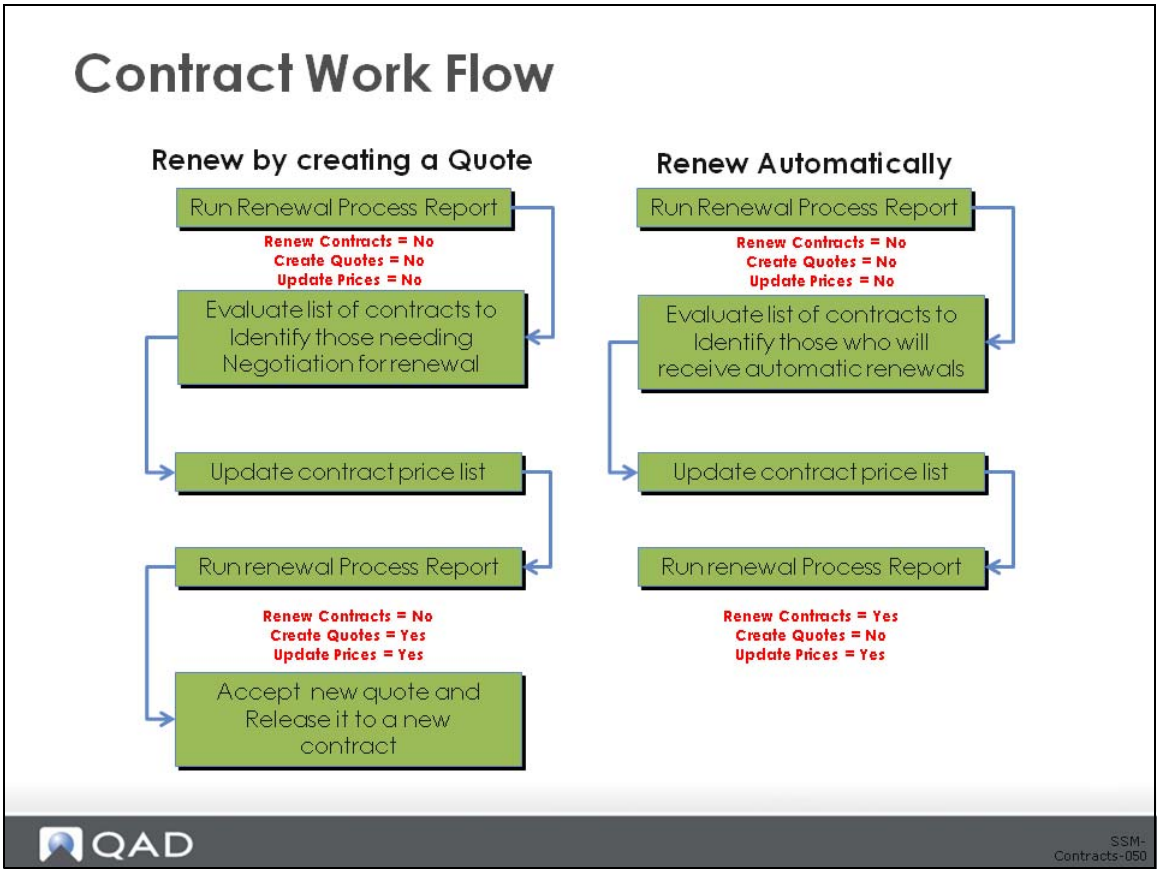
- A collection of end users with items requiring coverage
- A collection of items, each with one or more associated end users

You decide the design by choice of Yes or No for the Item End Users in contract header.

Your choice affects:

- How data defaults from one contract level to another
- Contract billing and how billing information displays on invoices
- How tax defaults for detail lines are found
- How PM schedules are created

Contract Work Flow



This diagram outlines the stages in the life cycle of a contract.

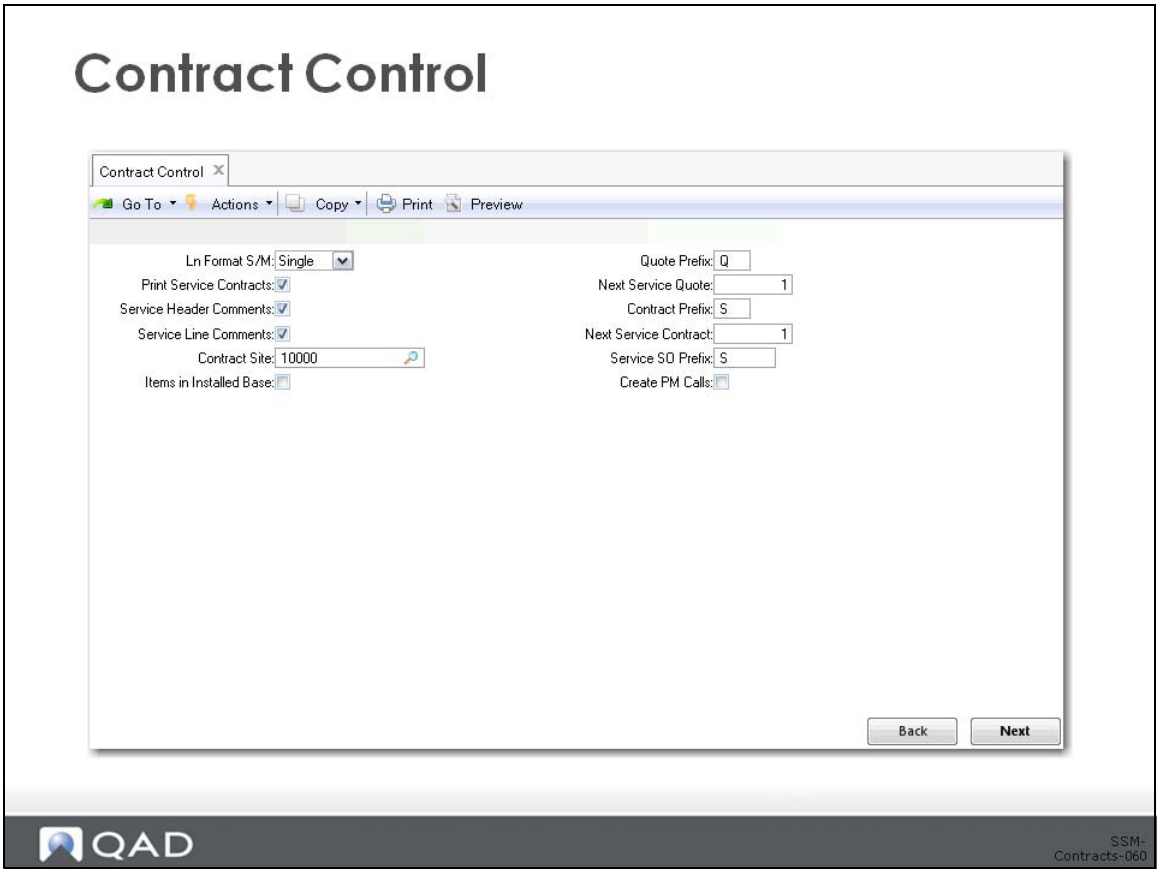
Using contracts requires initial setup of base service data, contract types and additional charges, if they are used. Many organizations go through a preview process before a contract becomes effective. In SSM, this is accomplished by creating a contract quote, which can be printed and sent to the customer. Once accepted, the quote can be released to a contract.

Contracts can also be created directly in Contract Maintenance, or copied from existing contacts.

Once a contract is created, it remains in effect until the end date on the contract. Contracts that have been fully invoiced can be renewed to extend their coverage for a specified period. This can be done contract-by-contract, or an auto-renew feature can be used to renew expired contracts as a group. Before contracts are renewed, you may choose to create quotes and then release those as renewed contracts.

Fully billed, expired contracts can also be archived and deleted from the system when they are no longer needed. The system checks to make sure that no active calls reference the contract before it is deleted. The delete/archive can also include quotes that have passed the expiration date.

Contract Control



Various settings in Contract Control influence how contracts are created, billed and managed. A few key settings include:

Start From Warranty . If yes, contracts begin after warranty expires.

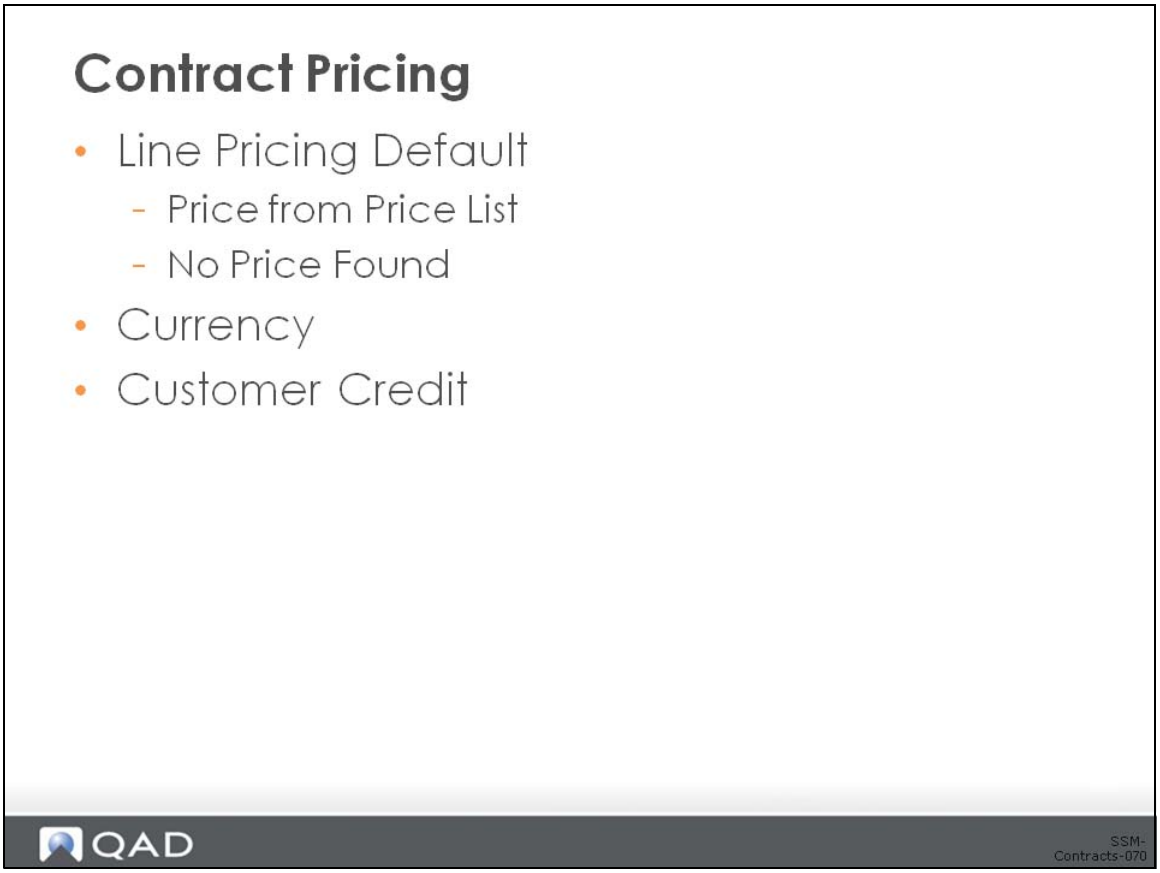
Items in Installed Base. If no, you can reference items on a contract even if not in the end user's installed base.

Renew Limits From. If C, system copies limits as defined on existing contract.

If S, system looks at limits associated with the service type.

End User or Contract Additional Charges . If no, the frame is not included in the sequence of frames in contract maintenance.

Contract Pricing



Pricing

When entering items on a contract line and the system cannot find a price for contract coverage, the net price defaults to zero. If you enter a Net price, this sets the List Price to this value.

Currency

The currency on a contract initially defaults from the customer bill-to associated with the contract. You can modify the currency when initially creating the contract.

How currency affects limits depends on the contract design. For a contract in the end user/item sequence:

- Limits at contract header are in the contract currency
- Limits at end user level are in the end user currency
- Limits at line detail are in the end user currency

For a contract in the item/end user sequence:

- Limits at contract header are in the contract currency
- Limits at end user level are in the contract currency
- Limits at line detail are in the end user currency

Credit

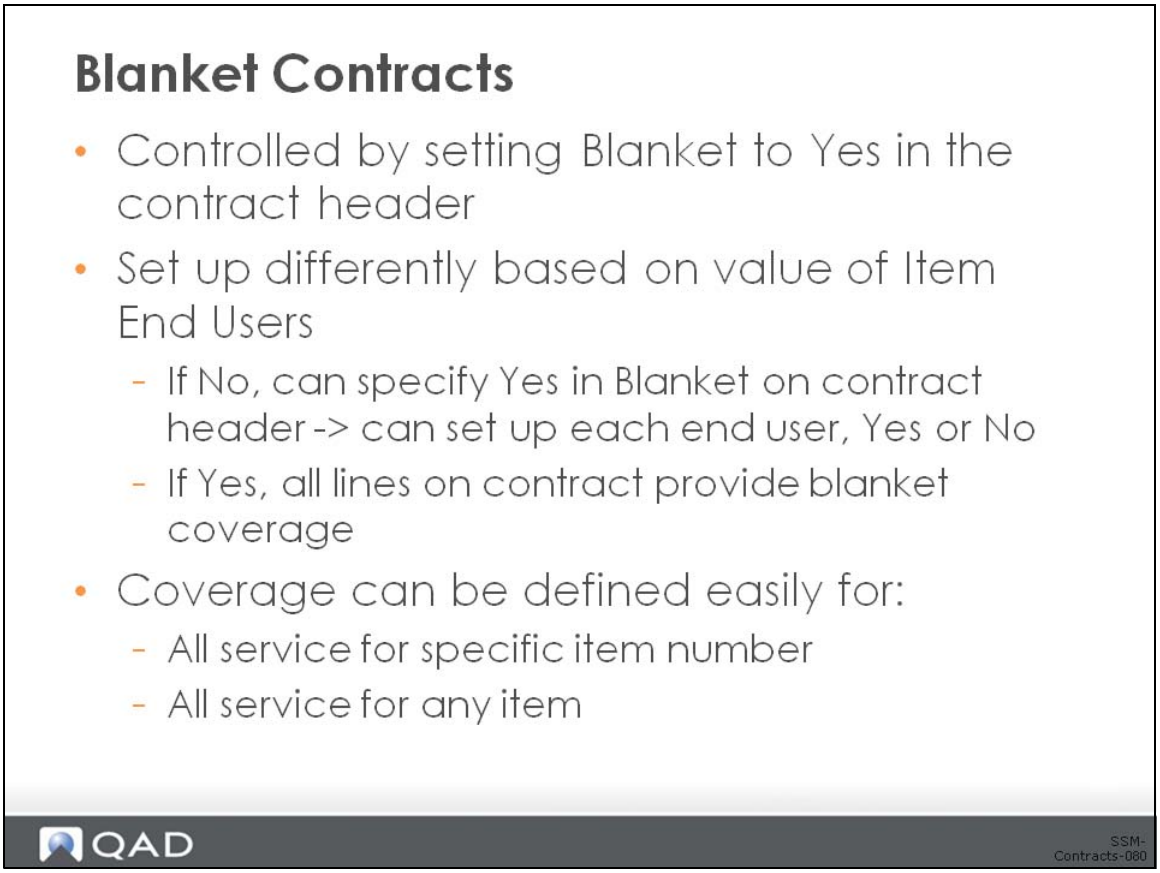
Contracts are a type of sales order and follow most of the billing rules for sales orders. If the customer bill-to on the contract header is on credit hold, the Credit Hold Option determines the processing. This field has one of three values:

(0) Contracts can be created regardless of the customer credit status

(1) Contracts can be created, but a warning message displays and the system sets the contract's action status to hold.

(2) Contracts cannot be created for customers who are on credit hold.

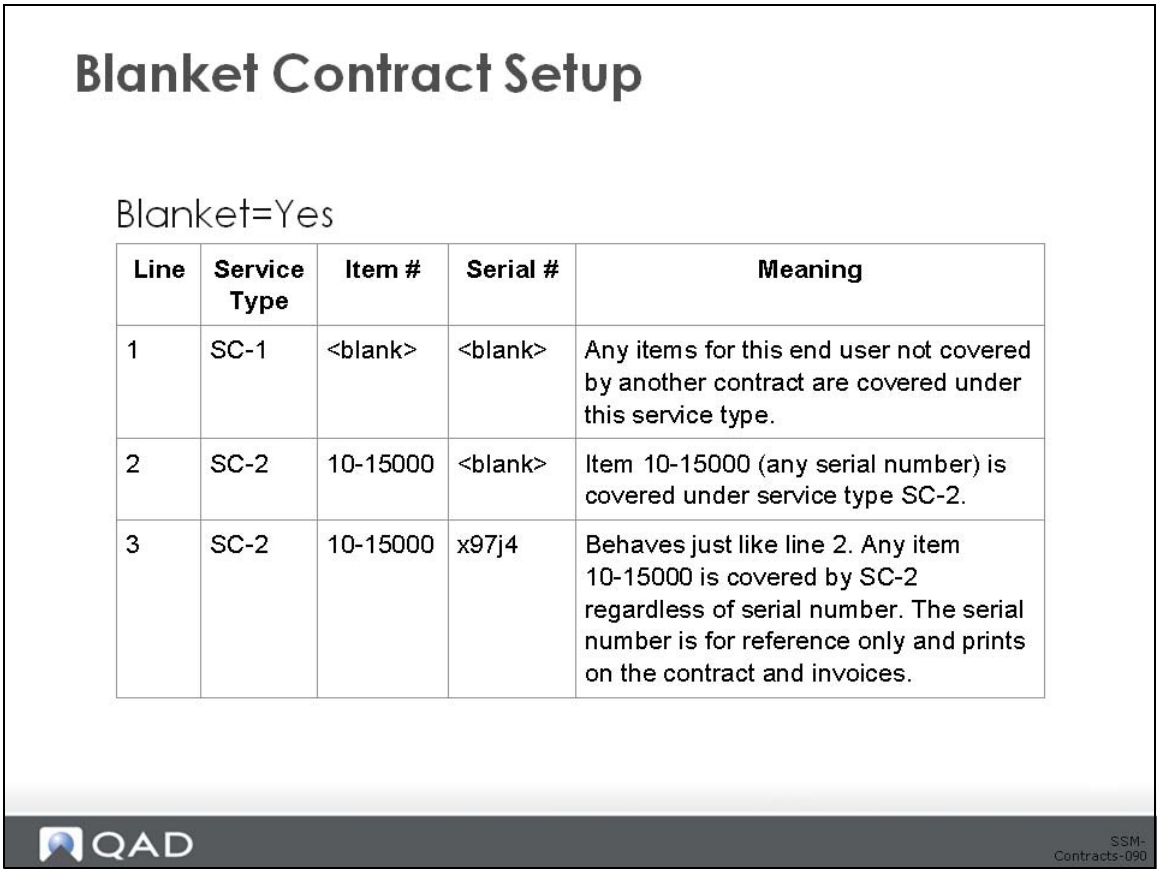
Blanket Contracts



In some business situations, an organization may provide a level of coverage to an end user that applies to all products of a certain type. Or, in an even more general case, coverage can be provided to an end user regardless of what product they are using. You can manage these business requirements through blanket contracts.

Blanket contracts are set up slightly differently depending on the value of Item End Users.

Blanket Contract Setup



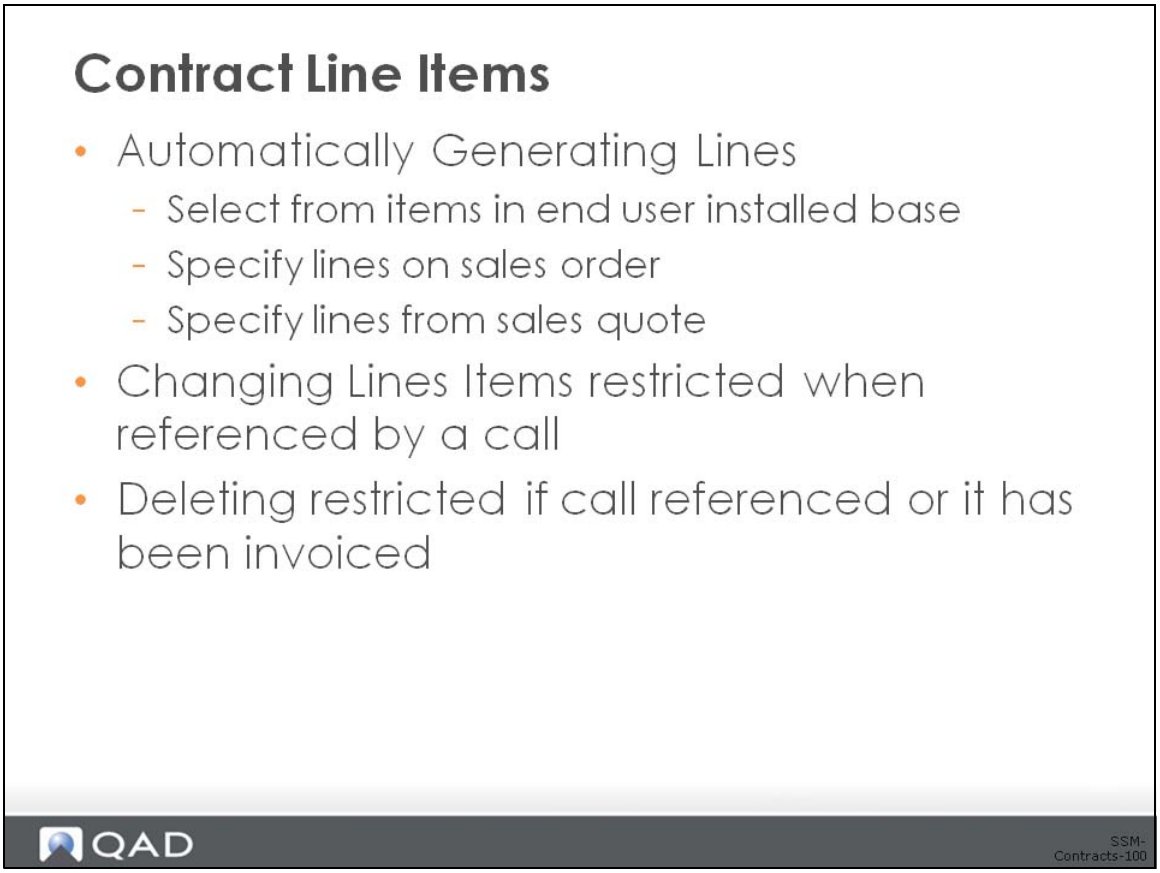
Blanket contract for the end user

To provide blanket coverage for an end user regardless of the item they possess, set Blanket to Yes and add a contract line with a blank item number. This kind of blanket contract is intended to provide general coverage for all items the user possesses. When a global blanket contract is defined, you cannot specify a serial or reference number, and the PM item field is set to No and cannot be changed.

Blanket contract covering a particular item number

To create this kind of blanket contract, you add line items to the contract detailing the item numbers that are covered. Normally, you would not specify a serial number, even if the item is serial number controlled. The system allows the Serial field to be blank only when Blanket is set to Yes on the contract header. Now, when this end user reports a problem with one of these items, the blanket coverage will be found, unless a different contract for a specific item is found.

Contract Line Items

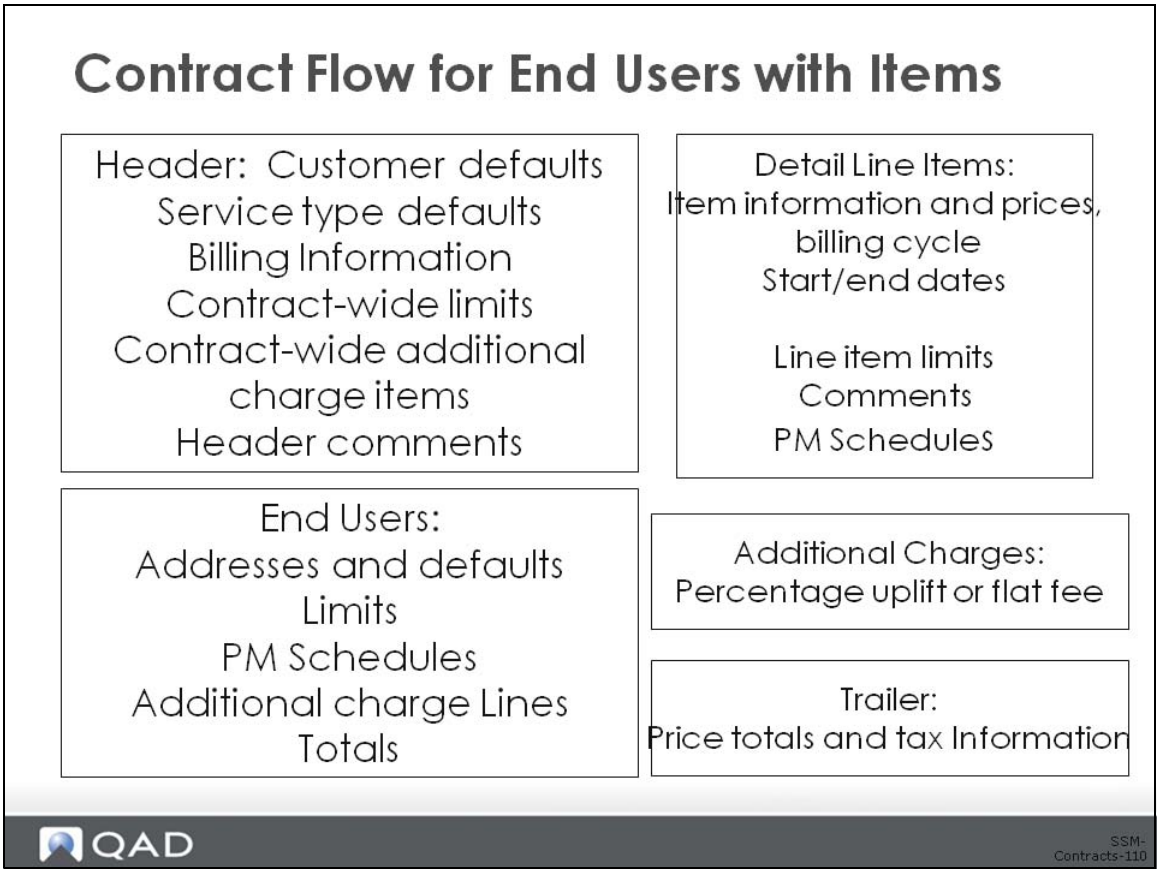


You can enter contract lines manually or you can have the system generate them based on one of three sources: Installed Base, Sales Orders or Sales Quotes.

When a call exists that references a contract, the system restricts changes to that line.

You can delete line items on a contract except when referenced by a call or it has been invoiced.

Contract Flow for End Users with Items



The basic flow for contracts when Item End Users is No is the following:

1. Enter the contract header.
2. If Contract Limits is Yes in Contract Control, optionally copy contract type limits to the contract header.
3. Enter header transaction comments.
4. Specify an end user on this contract and supply end user default information.
5. If Contract Limits is Yes in Contract Control, optionally copy contract type or contract header limits to the end user.
6. Create end user items and specify associated line-item detail.
7. If Contract Limits is Yes in Contract Control, optionally copy contract type, contract header, or end user limits to the line.
8. Enter line-item comments.
9. View and modify item PM schedule.

Repeat steps 6 through 9 for each line item associated with an end user.

10. If End User Additional Charges is Yes in Contract Control, specify end user additional charges and any associated comments.

11 View and modify the end user PM schedule.

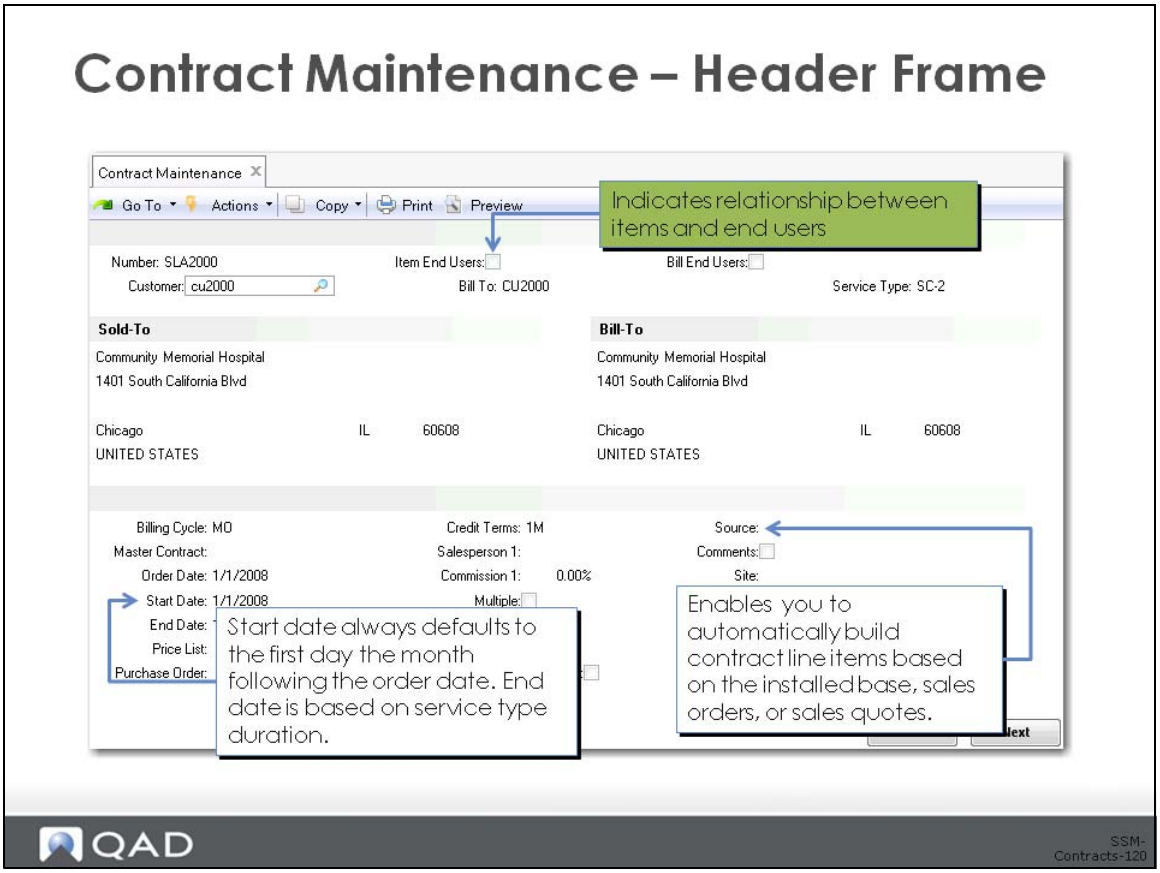
12 If End User Totals is Yes in Contract Control, view summary totals for this end user.

Repeat steps 4 through 12 for each end user on the contract.

13 If Contract Additional Charges is Yes in Contract Control, specify contract-wide additional charges and any associated comments.

14 View contract totals and modify contract trailer information.

Contract Maintenance - Header Frame



You create a contract in Contract Maintenance (11.5.13.1). Several of the key fields are determined as follows:

Number. Enter a number uniquely or let system assign from Contract Control.

Bill End Users. Indicate who should receive invoices.

Service Type . Determines default service type for each contract line.

Billing Cycle. Enter code indicating how often to bill lines on contract.

Master Contract. Can link contracts together for printing.

Order Date, Start Date, and End Date. The order date defaults from the system date when this contract is created and is a reference-only field. The start date always defaults to the first of the month following the order date and indicates when the terms and conditions become effective. The system calculates the end date by adding the duration of the service type being used to the start date. Although you can add new line items to existing contract, no end-of-coverage date can go beyond the contract header's end date.

Price List. Defaults from the Contract Price List specified for the service type in effect and provides prices for contract line items and any additional charges (such as zone charges or additional caller) needed. You can change price list at any time; however, new price list only affects new records added to the contract. Existing prices are not recalculated.

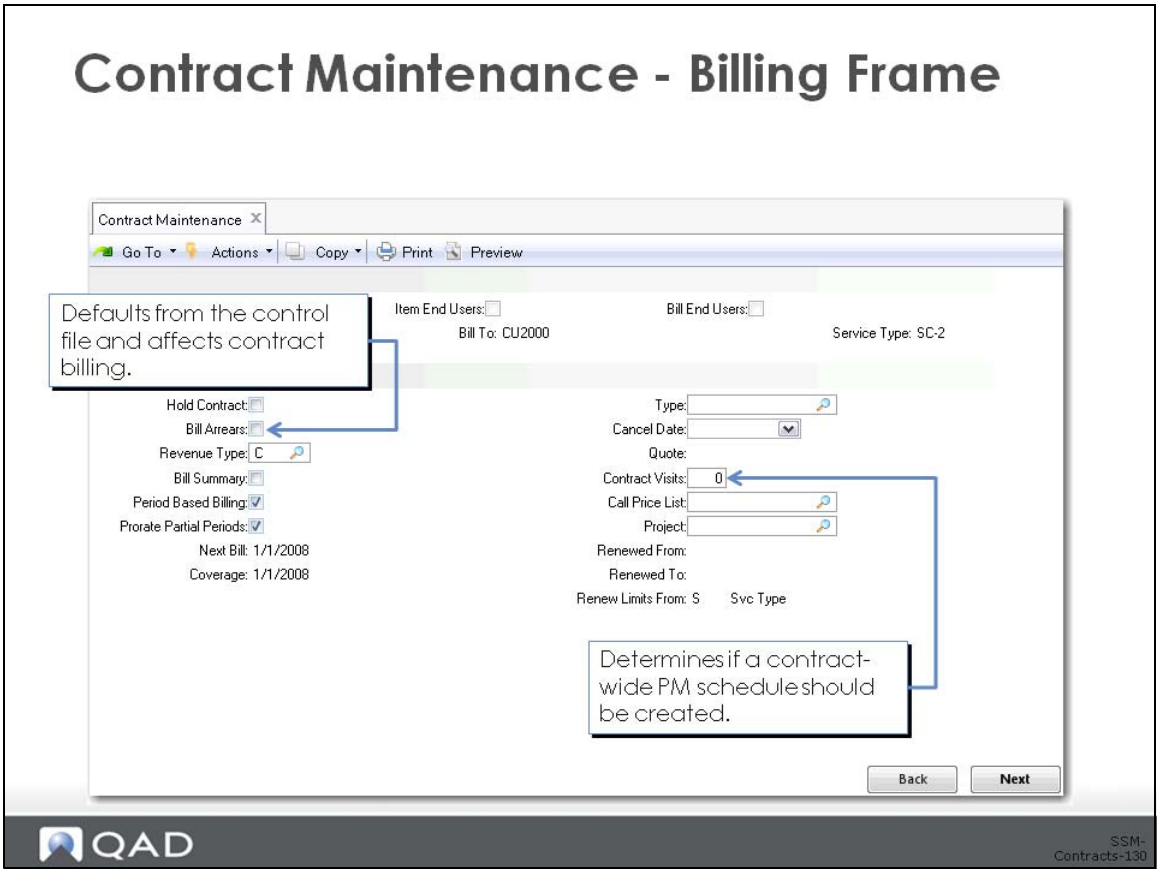
Source. Contract line items can be generated automatically by entering a value in the Source field (blank indicates manual entry):

I (Installed Base). Contract line items can be created by selecting from items in the installed base that belong to the current end user.

O (Sales Orders). Contract line items can be created by selecting from lines on a specified sales order.

Q (Sales Quotes). Contract line items can be created by selecting from lines on a specified sales quote.

Contract Maintenance - Billing Frame



Many of the fields in the second header frame default from SSM Accounting Control (36.9.10).

Hold Contract (Y/N). If Yes, this contract will not be released for billing. This is useful if the price for the contract is still in negotiation and is not finalized with the customer. However, the contract is still considered in force as far as providing coverage in other service activities.

Defaults from SSM Accounting Control (36.9.10).

Bill Arrears (Y/N). If No, the customer is billed in advance for contract coverage. If Yes, the customer is billed for periods that have already passed. This field defaults from the Bill Arrears field in the Contract Control.

Defaults from SSM Accounting Control (36.9.10).

Revenue Type. There are three types with default set in Accounting Control.

1. Cash Basis: to post revenue upon receipt, set to C. Revenue is recorded in the period it is actually received.
2. Accrued Revenue: to accrue revenue, set to A. Bill Arrears must be set to Yes. Revenue is recorded in the period which it is earned.
3. Deferred Revenue: to defer revenue, set to D. Bill Arrears must be set to No. Collected revenue is held in deferred account and posted periodically over the contract duration when you run Revenue Recognition.

   Defaults from SSM Accounting Control (36.9.10).

Period Based Billing. Indicates whether contract billing is synchronized with calendar months.

Yes: Invoicing begins on first day of the next calendar month, regardless of the contract start date.

No: Billing periods for contract invoices use actual start date of contract header and line.

Period Based Billing work in conjunction with Prorate Partial Periods.

Defaults from SSM Accounting Control (36.9.10).

Prorate Partial Periods. Indicates how the system should invoice for coverage periods that are less than a month.

Yes: Invoices are generated for partial periods based on the percentage of the month the partial period represents.

No: Partial periods are essentially given away free and no invoice is generated for them

Defaults from SSM Accounting Control (36.9.10).

Visits. Enter the number of PM visits to be scheduled for each end user on the contract.

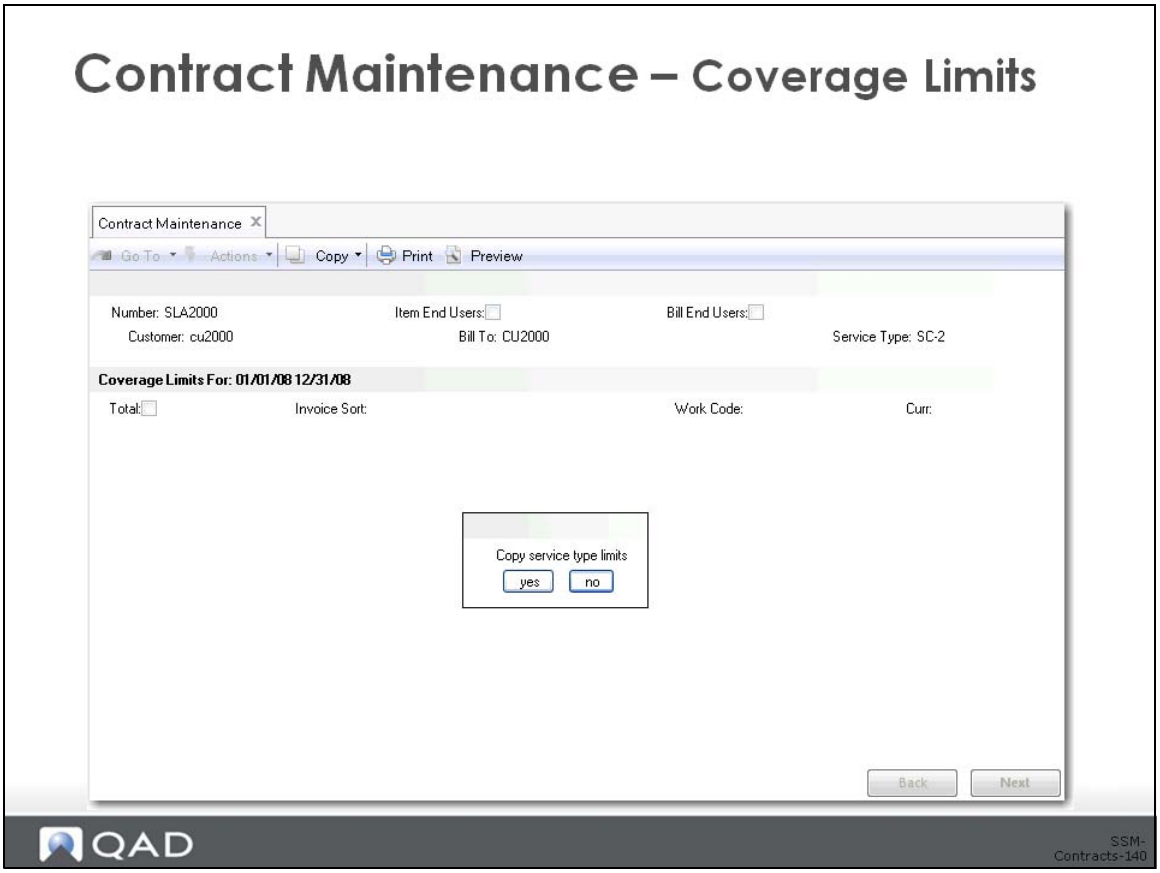
When Item End Users is Yes, you can set up PM schedules for individual items, but not for end users. PM schedules are discussed in more detail later.

Renew Limits From. C (contract) The system copies the current limits from the contract and modifies the effective dates to match the new contract's start and end dates.

S (service type) The system copies limits from the service type, applying limits effective on the new contract's start and end dates.

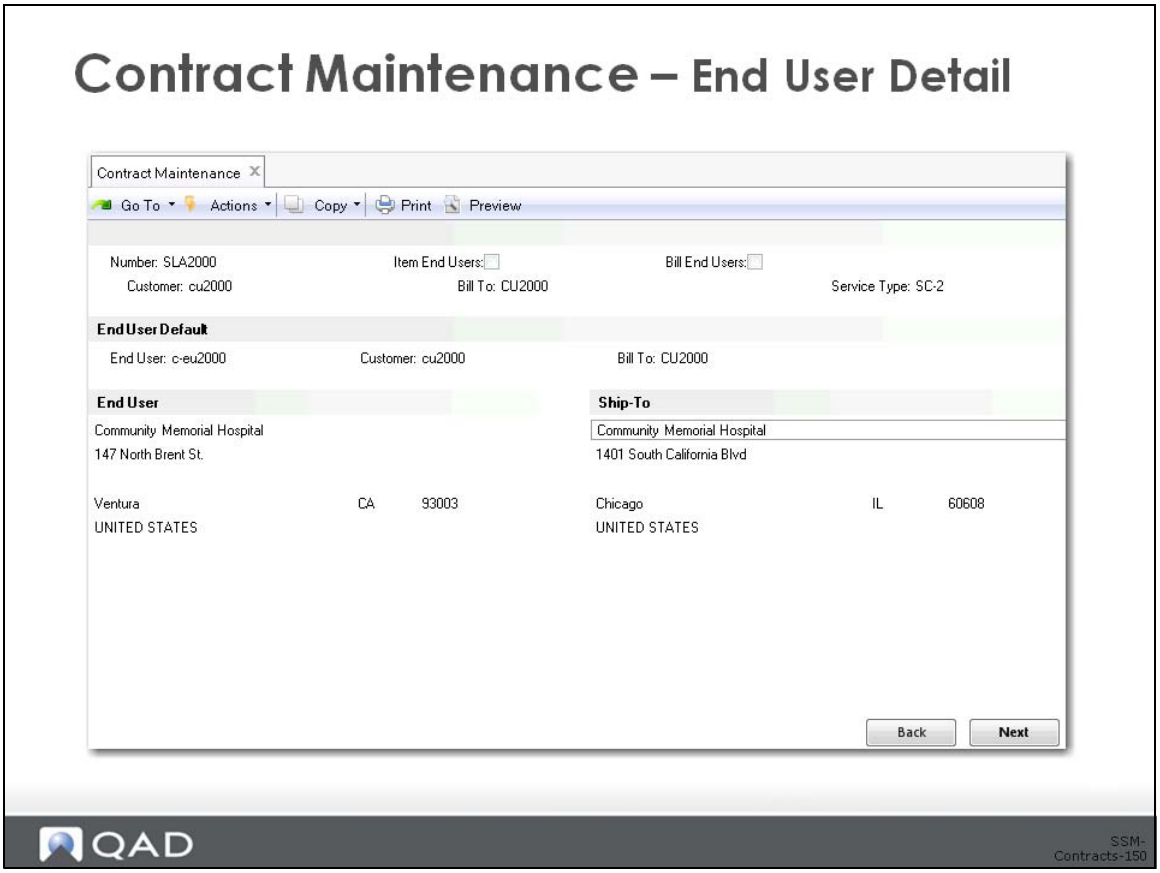
Defaults from SSM Accounting Control (36.9.10).

Contract Maintenance - Coverage Limits



If Contract Limits is Yes in Contract Control, you can modify limits associated with the contract service type.

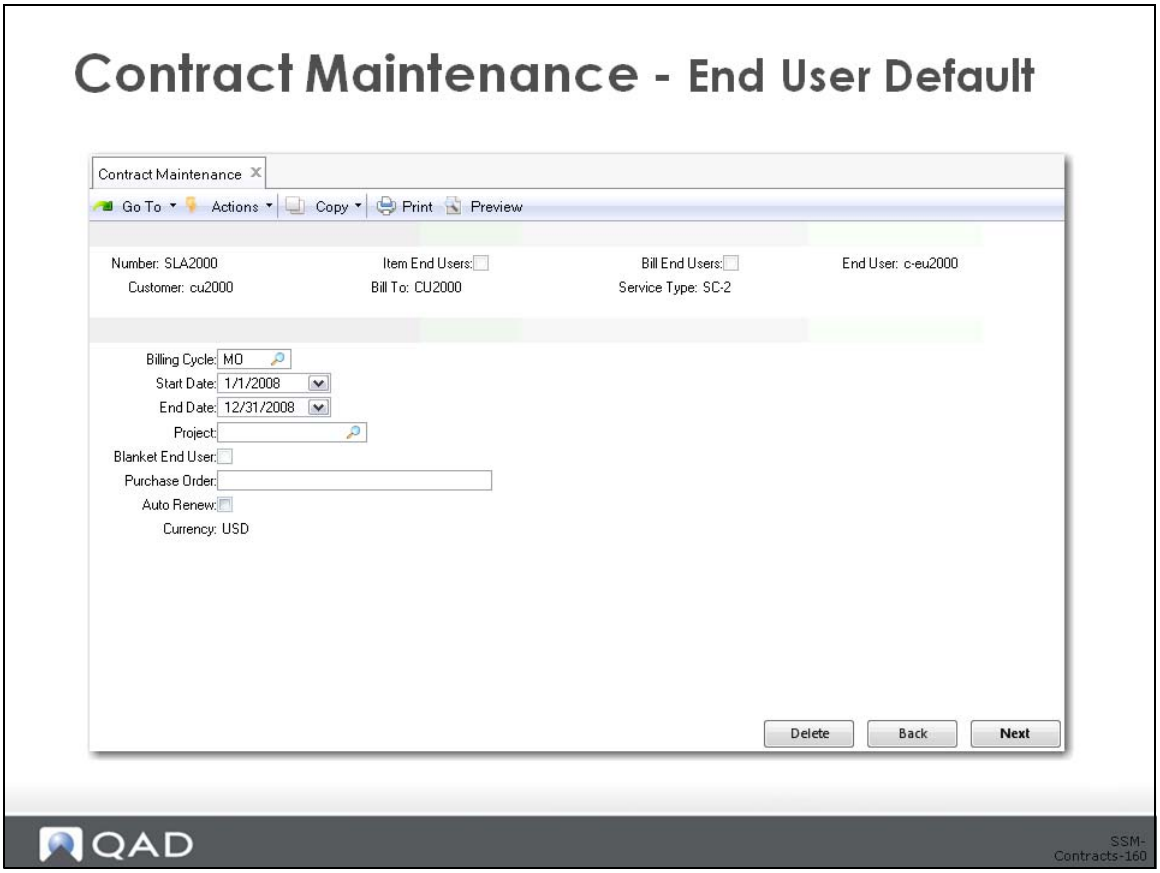
Contract Maintenance - End User Detail



Enter the address code of an end user with associated items. Validation depends on setting of Bill End Users

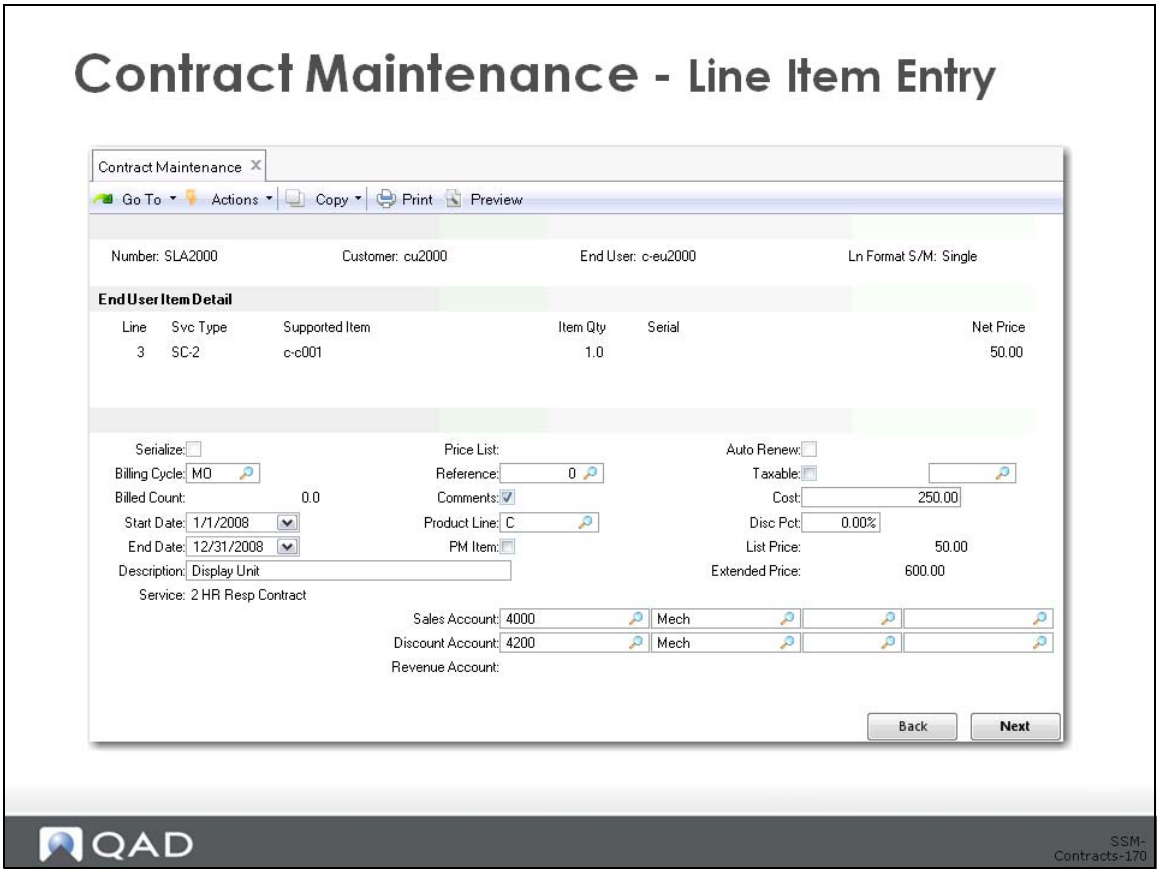
- When set to No, enter an existing or new end user address code
- When set to Yes, enter an address defined as a customer in Customer Maintenance
  - If the customer is not also defined as an end user, you are prompted to create the end user record.

Contract Maintenance - End User default



Use this frame to modify defaults associated with the end user.

Contract Maintenance - Line Item Entry



Each end user on a contract can have multiple items, each with a different service type.

Some of the line item values are as follows:

Service Type . Defaults from header but can be changed.

Supported Item . Enter the item to be covered by this contract. Items are validated according to the settings in the Service Management Control for Items Must Exist and Items in Installed Base. An item can be covered only by one contract at a time.

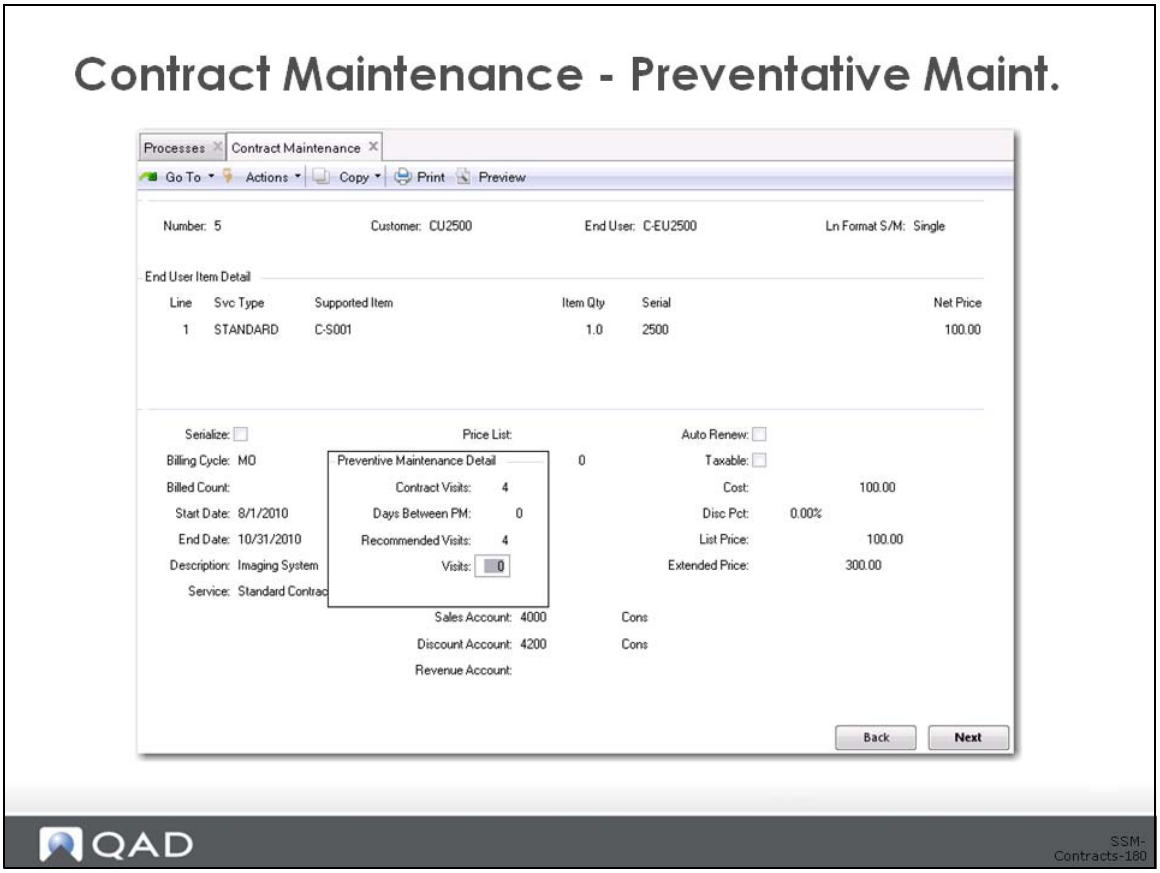
Item Qty . Serial A serial number must be specified if the item is defined in the item master as serial number controlled. For quantities greater than 1 and this is a serialized item, leave Serial blank and specify Yes to the Serialize field in the detail. You can then enter multiple serial numbers in a pop-up window.

Net Price . Defaults from the price list in effect; otherwise, it is zero. You can change the price. The net price indicates the price per unit for one month of coverage for this item. The extended price for an item is calculated by multiplying the item quantity by the Net Price per unit by the number of coverage months.

Line-item Detail. Each individual line item can have a unique start and end date for coverage, although they cannot be outside the range defined by the header dates.

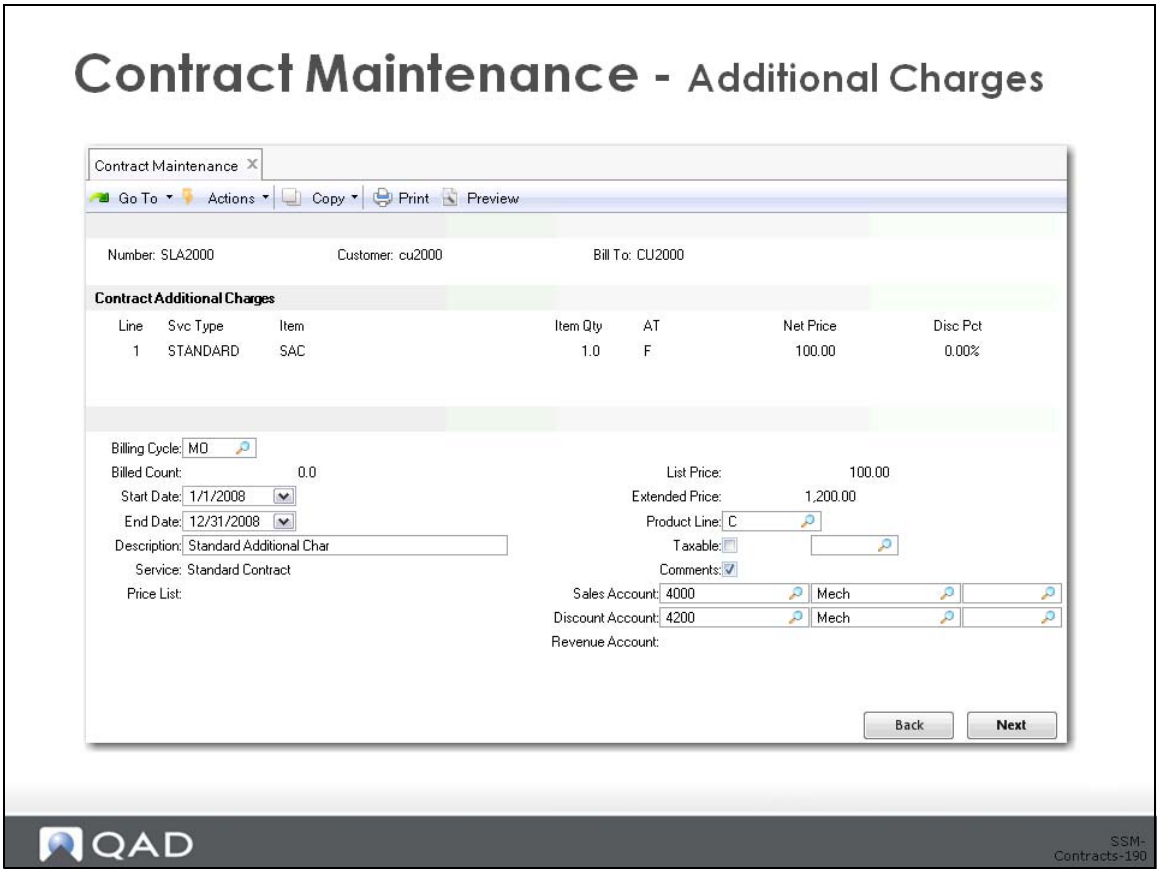
PM . Enter Yes to schedule preventive maintenance visits for this item.

Contract Maintenance - Preventative Maintenance



A Detail pop-up will display enabling you to specify the number of visits to be scheduled. When PM Item is No, this item is not included on the PM call generated for an end user PM schedule.

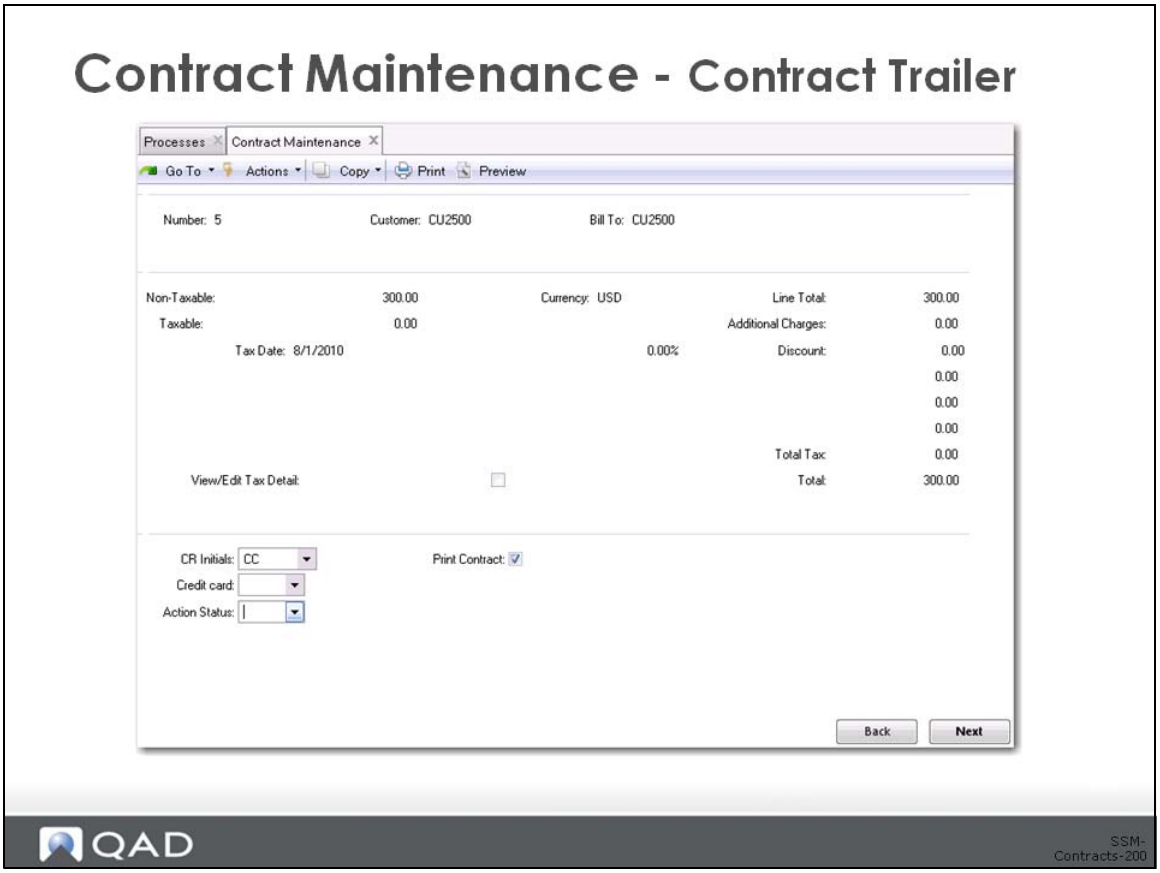
Contract Maintenance - Additional Charges



Additional charges are added as separate line items in Contract Maintenance. When specified, they apply to the value of the entire contract.

The line item entry is the same for an additional charge item as a contract line item, except for the AT field. The amount type (AT) for an additional charge can be F (Fixed fee) or P (Percentage). A fixed price additional charge is a flat fee added to the service contract trailer. A percentage additional charge is a markup applied to the total for all items covered on the contract. The additional charge displays in a separate line on the contract trailer and on the contract invoice.

Contract Maintenance - Contract Trailer

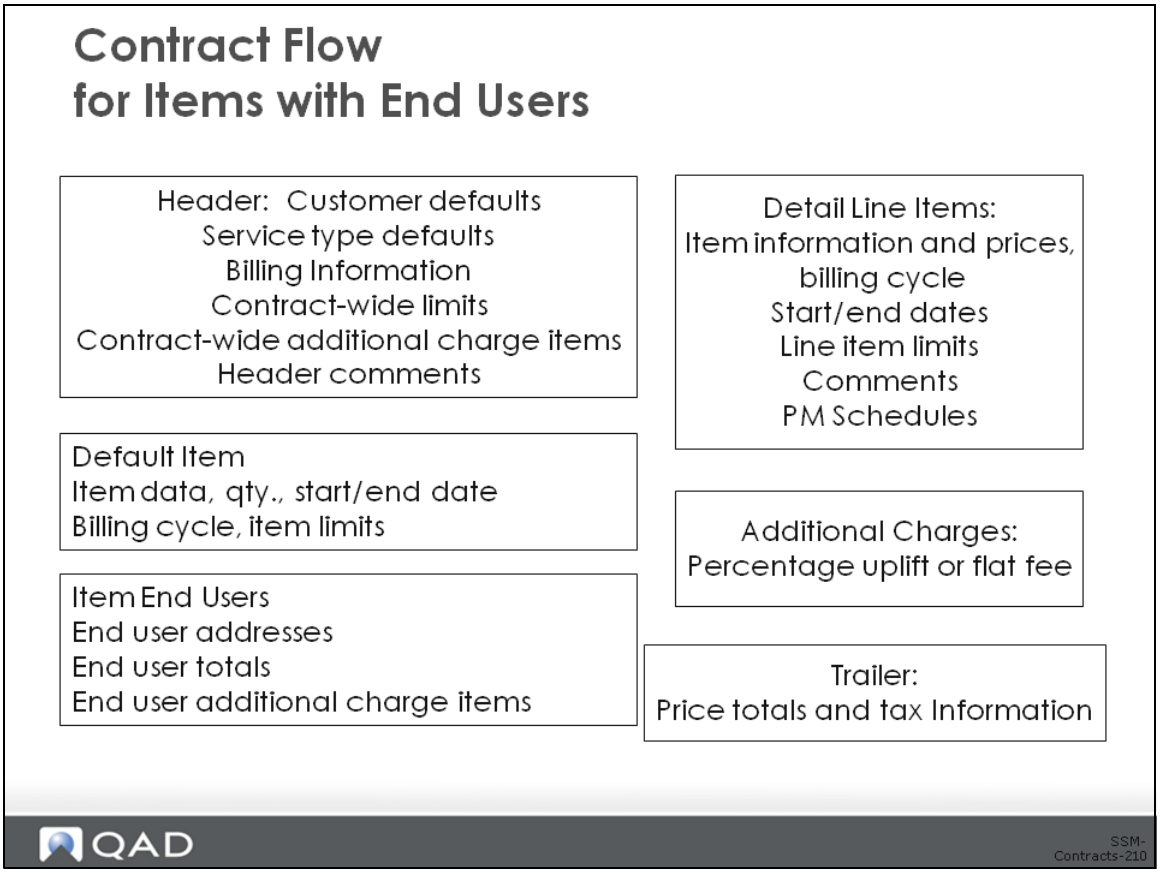


The trailer screen is similar to that of a standard sales order. The Line Total field is the sum of the extended prices for each line item. The Additional Charges field displays the total of either fixed or percentage uplift additional charges. An overall discount percentage can be added here for the entire order, along with miscellaneous charges.

Taxable and nontaxable trailer codes default from the Contract Control, if defined.

The Total field represents the amount billed to the customer. This may occur at one time, or the invoice amount may be divided, depending on the contract billing cycle (annually, quarterly, or monthly).

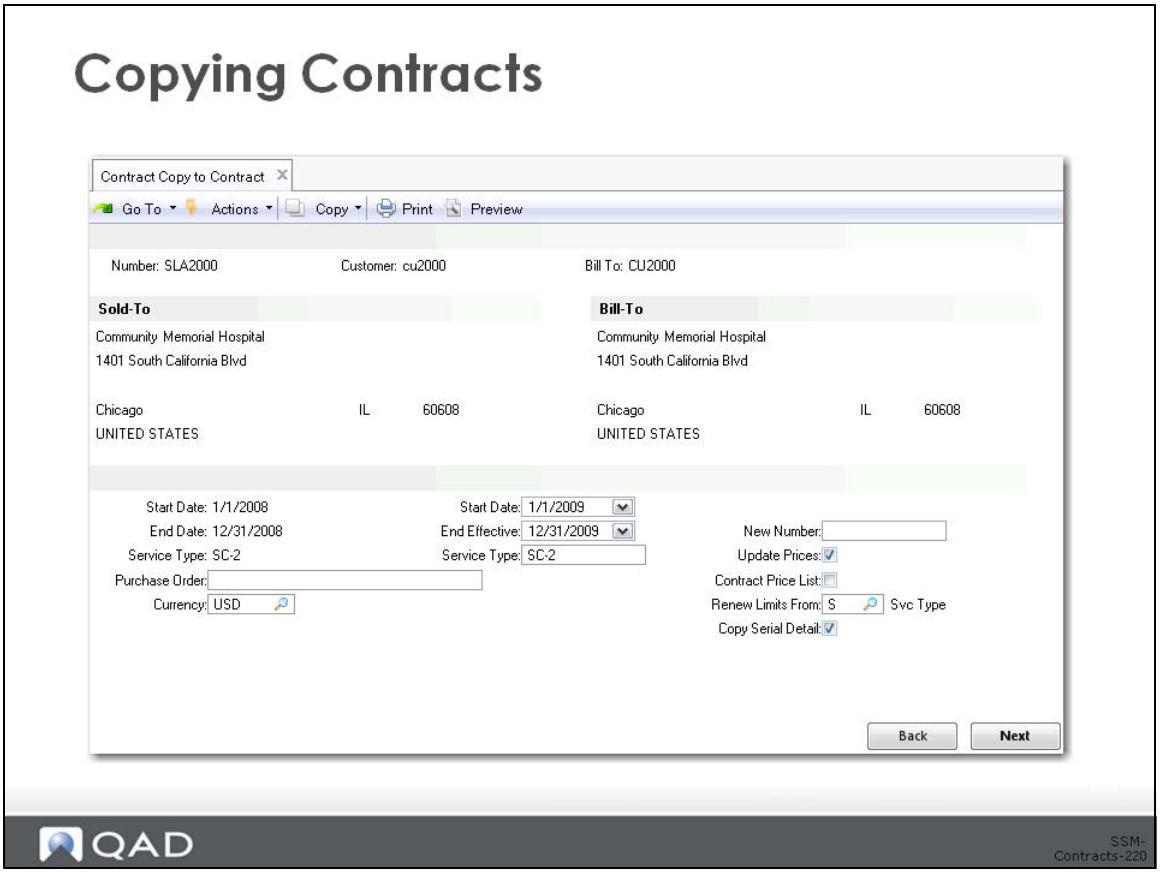
Contract Flow for Items with End Users



Rather than entering a contract manually in Contract Maintenance, you can create a contract by copying an existing one with Contract Copy to Contract (11.5.13.6).

This function is similar to Renew Single Contract (11.5.13.8). To be copied, a contract does not have to be fully billed.

Contract Renewal

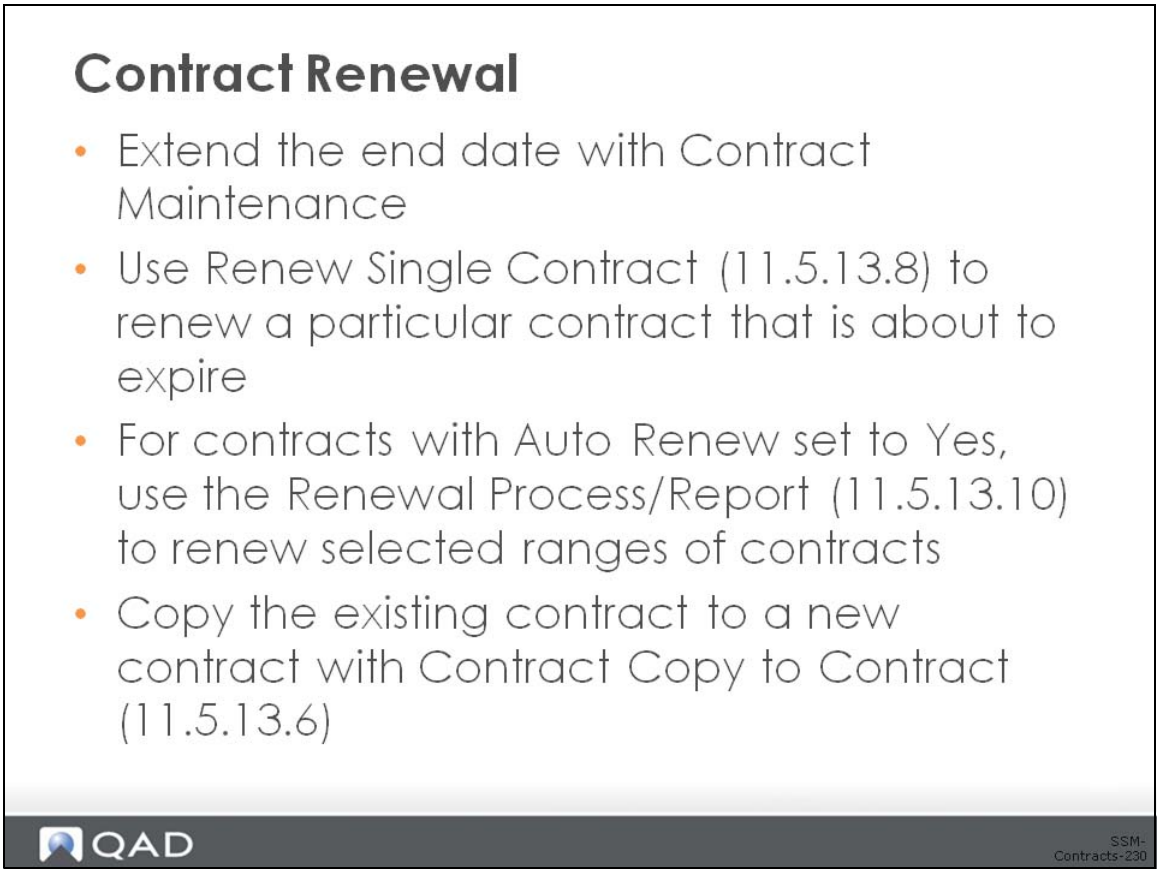


Contracts are always defined with a start and end date. To remain in effect, the contract must be renewed. There are several ways to accomplish this.

1. Use Contract Maintenance to extend the end date.
2. Use Renew Single Contract (11.5.13.8) to renew a particular contract that is about to expire.
3. For contracts with Auto Renew set to Yes, use the Renewal Process/Report (11.5.13.10) to renew selected ranges of contracts and end users.
4. Copy the existing contract to a new contract with Contract Copy to Contract (11.5.13.6).

When you use method 2 or 3, the system verifies that the contract has been fully billed before it can be renewed.

Contract Renewal Con't



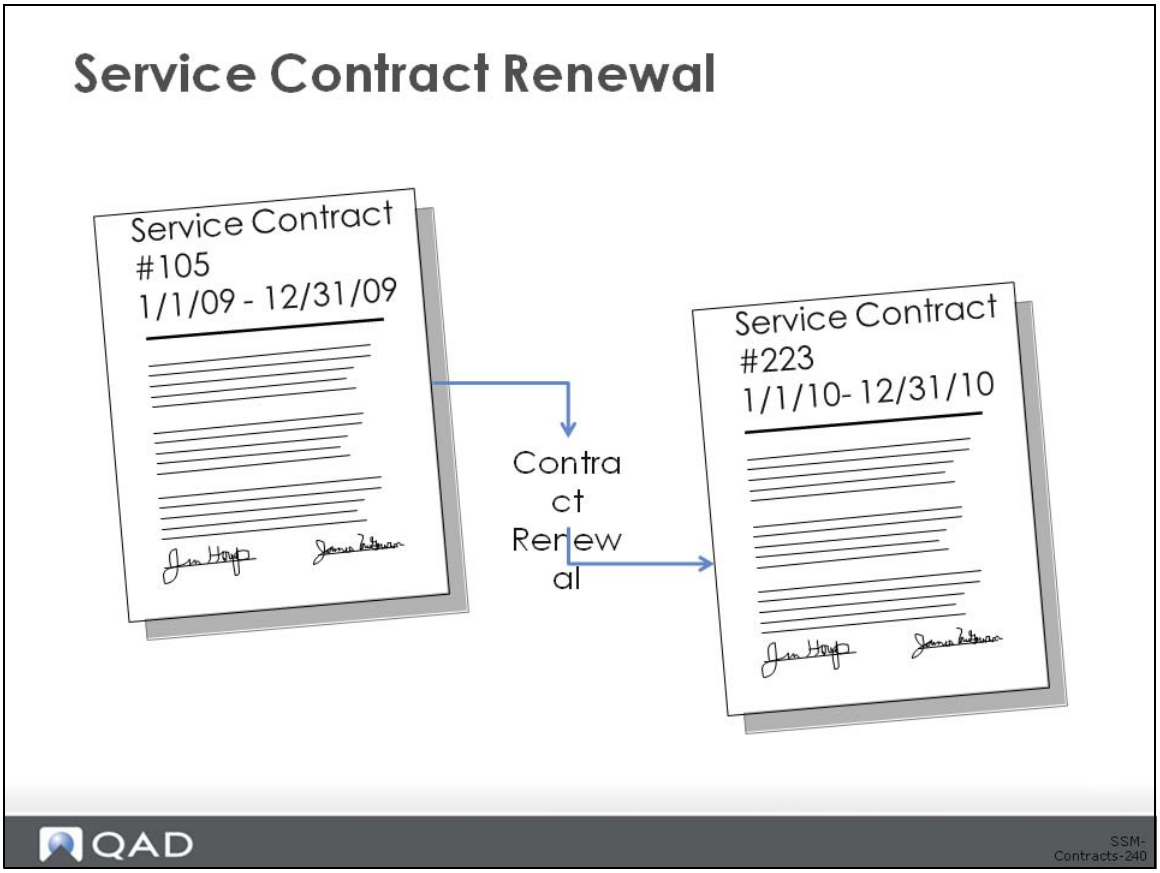
Contracts cannot be renewed to the same number. The system automatically retrieves the next available number from the Contract Control, except in cases where a new number may be supplied.

There are several good business reasons to not allow contracts to be renewed to the same number. Renewing to the same number essentially re initializes the existing contract. This could easily leave a lapse in coverage at the end of the year between the time the contract was renewed and the beginning of the next year.

Renewing to the same number also removes historical references to previous terms and agreements, which may be important in answering questions about contractual obligations.

Finally, renewing to the same number invalidates any calls that may currently reference the contract. A call taken on December 31 should be serviced under the old terms and conditions, not the ones in effect on January 1.

Service Contract Renewal

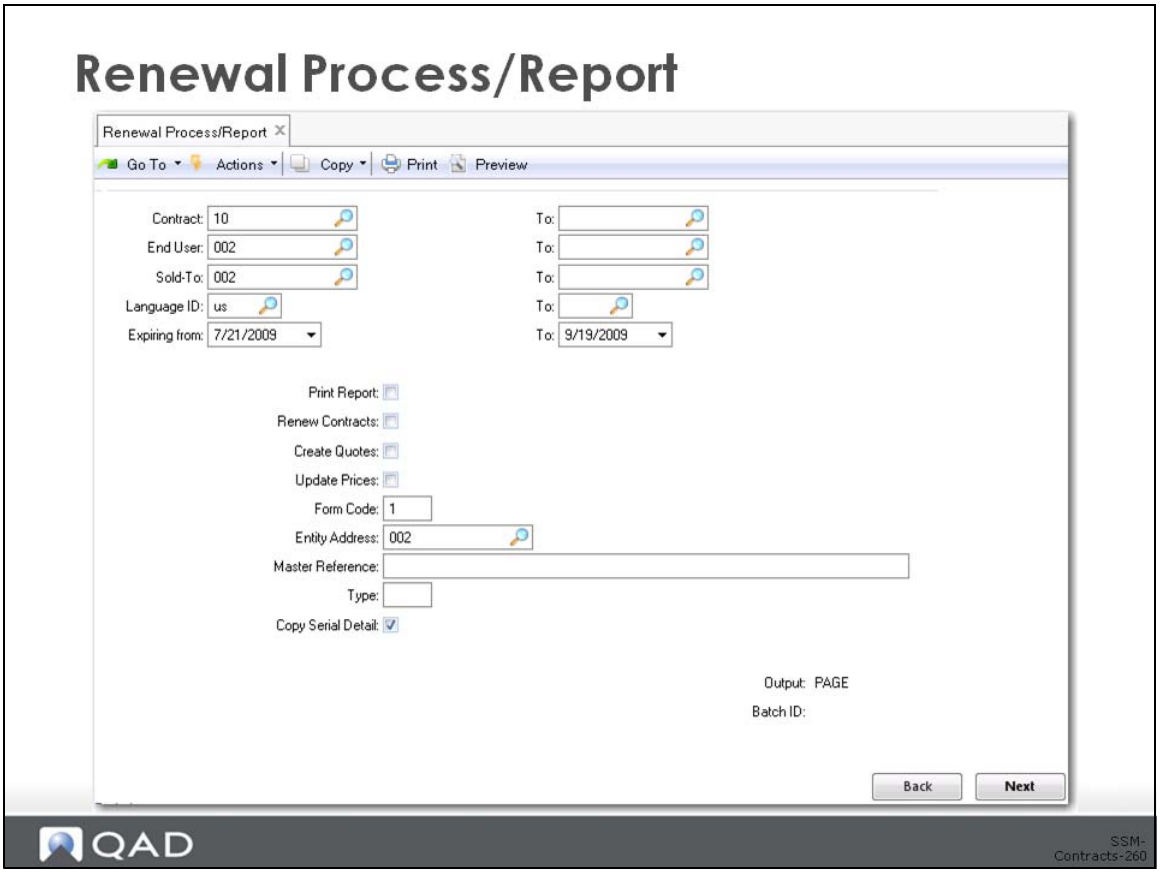


The system provides two options for managing limits when a contract is renewed. These options are controlled by the Renew Limits From flag in the Contract Control. This flag can be set to either C (contract) or S (service type).

C indicates that limits should be copied from the old contract to the new. In this case, the effective dates on the limits are changed to reflect the start and end dates of the renewed contract. This is the correct choice if you have created limits that are unique to a particular contract, or modified limits copied from the service type.

S indicates that limits should be copied from the contract type, just as when a new contract is created. This is useful for organizations that want to phase in changes by setting them up in the contract type using effective dates. During renewal, the limits that are currently effective for the contract start date are brought in.

Renewal Process/Report

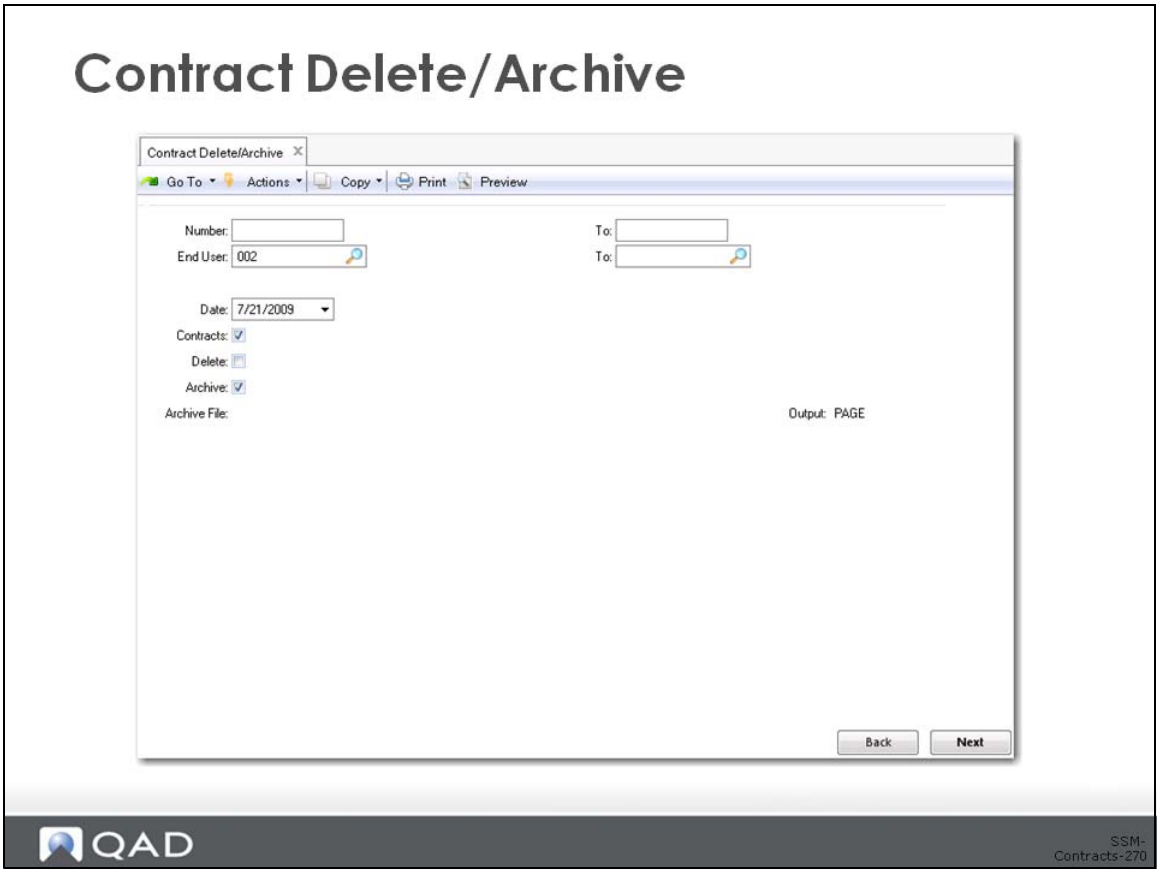


If the Auto Renew field is set to Yes in SSM Accounting Control (36.9.10), contracts can be automatically renewed using Renewal Process/Report (11.5.13.10). Based on date ranges or other selection criteria, you can perform multiple functions with this process:

- Print Reports showing the contracts that will expire within a range of dates
- Automatically create quotes based on existing contracts, optionally updating the service type and prices
  - The printed quotes can then be mailed to the customer/end user for approval

  Quotes are created with an Action Status of A and prevents it from being released to a contract before review.
  - Approved quotes can then be released to contract
  - You can include a renewal letter by setting one up in the master comments and specifying the master reference when quotes are generated.
- Contracts with auto renew set to Yes can be automatically renewed, optionally updating the service type and prices.

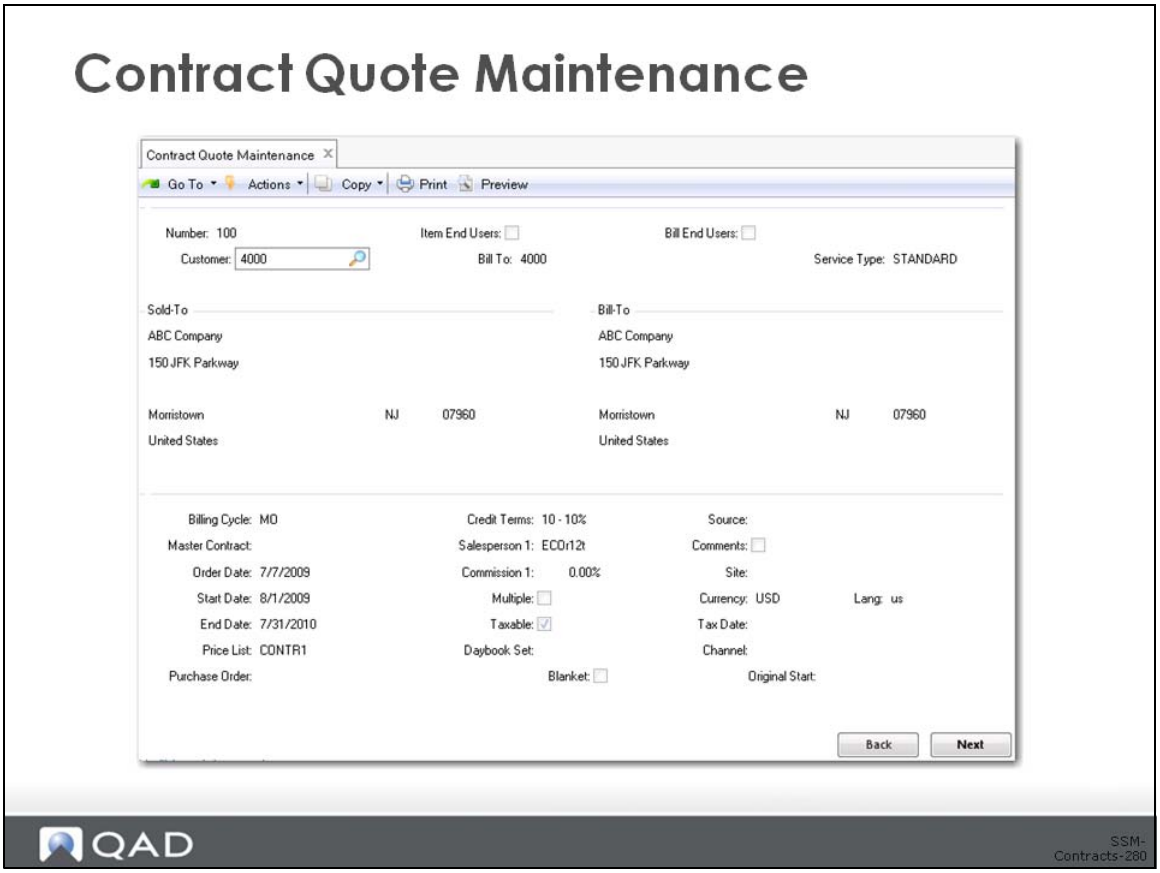
Contract Delete/Archive



Use Contract Delete/Archive (11.5.13.23), to delete and archive contract and contract quote records when online history is no longer needed. Before processing a record, the system checks the following:

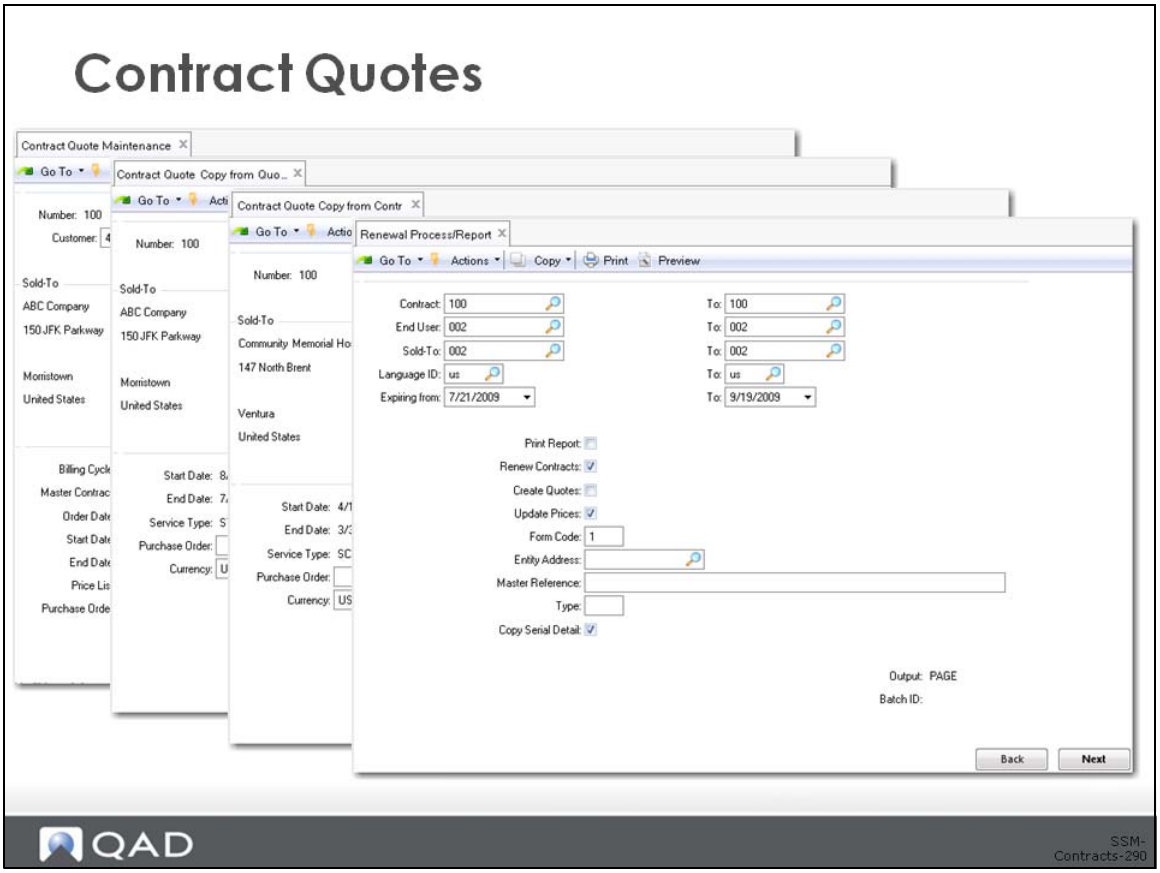
- Contracts must be fully billed (coverage date is the same or exceeds end date).
- All revenue must be recognized for contracts with deferred and accrued revenue types.

Releasing Quote to Contract



You can create contract quotes as a preliminary step in creating a contract. Quotes are the same as contracts except they are not yet effective. Create and maintain quotes in Contract Quote Maintenance (11.5.1.1). This functions exactly like Contract Maintenance with the exception of a pop-up window displaying Release to Contract field; this must be set to Yes to release to quote.

Contract Quotes



You can create quotes in:

- Contract Quote Maintenance (11.5.1.1)
- Contract Quote Copy from Quote (11.5.1.6)
- Contract Quote Copy from Contract (11.5.1.7)
- Renewal Process/Report (11.5.13.10)

Exercise 12: Releasing a Quote to a Contract

In this exercise you create a service quote for an annual billing with two end users and then release it to a contract. You will add additional charges to the contract which will be used later in another exercise.

Create a Contract Quote

1 Go to Contract Quote Maintenance (11.5.1.1).

2 Leave the Number field blank and press Enter. The system will supply the next number based on the Contract Control. Write down the quote number here.

Number: _____

3 Click Next to accept the End User Defaults.

4 Enter the customer you created in Exercise 1: Creating an End User C-MD1 on page 51 (C-MDI) and click Next. Accept the default Bill To and click Next.

5 Enter SC-10 for the Service Type, and click Next.

Notice that the contract start date has been set to the first day of the next month. The end date is 12 months later, since SC-10 has a 12 month duration.

6 To bill one time for the contract's value, change the Billing Cycle to YR.

7 Set the Start Date to the first of the current month.

This makes the contract available as of that date, instead of next month. Tab to the Start Date field and change. Once you have reset the Start Date, press Tab to reach the End Date.

8 Change the End Date to be one year from the Start Date.

As an example, if your Start Date is 04/01/10 (April 1, 2010) make your End Date 03/31/11 (March 31, 2011). Click Next. Make sure that the Site is set to C1.

9 Click Next, at the tax default frame, click Next.

The Release to Contract prompt displays.

10 Click the box so that it is checked Yes, then click Next.

This must be Yes before a quote can be released.

The cursor should be in the Hold Contract field.

11 Change the Bill Arrears to No and the Revenue Type from C to D.

Do you remember what this does? If not, check the field help.

12 Accept the other defaults by clicking Next.

The prompt concerning copying service type limits displays.

13 Press Enter to accept the default Yes. Click Back twice.

You should be in the End User field. Remember when we discussed creating end users from other service activities in Chapter 1 on the installed base? To see how this works, leave the End User field blank.

14 Click Next. A message asks you to confirm the creation of a new End User. Respond with Yes.

Two new frames will overlay Contract Quote Maintenance. Your cursor should be in the Customer field with information about C-MD1 displayed.

15 Click Next to access the End User frame.

16 Enter in an End User Code and Name; enter address information of your choice in the data fields.

Make sure you enter a valid State and Country code. Enter a name in the Attention field (any name is fine).

17 Click Next to save your changes.

18 Click Next to accept Tax information.

Ignore warnings about the tax environment. Ignore any error messages regarding the inability to send an email.

19 Click Back, then Next until the Copy Service Type Limits field appears.

20 Click Yes to the Copy service type limits question.

21 Click Contract to the message Copy limits from Contract or Service type.

22 Click Back Until the End User field appears.

23 You are now in the End User Item Detail frame. Enter the following information in the appropriate fields.

Notice how the net price defaulted to $5,000.00. Where did this come from?

Field	Value
Line	1
Svc Type	SC-10
Supported Item	C-S001
Item Qty	1
Serial	SER2
Net Price	$5,000.00

24 Override the default price and set it to $1,000.00.

25 In the lower detail frame, change PM Item to No.

26 Click Next until you are prompted to copy service type limits.

27 Press Enter to accept the Yes default.

28 Click End User Default in the next pop up.

29 Click Back until you reach the End User field of the End User Default frame. Repeat steps above 13 - 22 to create a new end user.

Enter the following information in the appropriate fields. Then click Next to save your changes.

Field	Value
Line	1
Svc Type	SC-10

Field	Value
Supported Item	C-S001
Item Qty	1
Serial	SER3
Net Price	$1,000.00

30 In the lower detail frame, change PM Item to No.

31 Click Next until you are prompted to Copy service type limits.

32 Click No to this prompt.

33 Click Back until the trailer frame displays. Then click Next twice to complete the trailer; return to the menu.

Release Quote to Contract

1 Go to Contract Quote Release to Contract (11.5.1.5).

2 Enter the number of the quote you created in the previous task in the Number and To fields. Accept all other defaults, and click Next.

3 In the Printer Options frame, direct the output to Printer, and then click Next to generate a contract. Review the output, and write down the number of the contract created.

Contract Number: _____

4 Return to the menu.

Add Additional Charge Items to Contract

1 Go to Contract Maintenance (11.5.13.1).

2 Enter the contract number you recorded in the previous task.

3 Click Next until the Tot field appears, then Back to Contract Additional Charges line item frame displays.

4 In the line item entry frame, enter the following information in the appropriate fields. Then click Next three times to save your changes.

Field	Value
Line	1
Svc Type	SC-10
Supported Item	FedEx
Item Qty	1
Net Price	Accept Default
Disc%	Accept Default

Notice how the price is filled in from the price list as specified on the service type of the contract.

5 Click Next three times, then Back.

6 Add a second additional charge as follows. Then click Next three times to save your changes.

Field	Value
Line	2
Svc Type	SC-10
Item	Refurbs
Net Price	Accept Default
Disc%	Accept Default

Notice this time how Disc displays next to the pricing fields, indicating that this is a percentage discount to be taken from the contract total. Notice also that the Item Qty field cannot be edited when a percentage additional charge is used.

7 Leave the Additional Charges line item entry frame by clicking Back.

8 Click Next when the trailer frame displays.

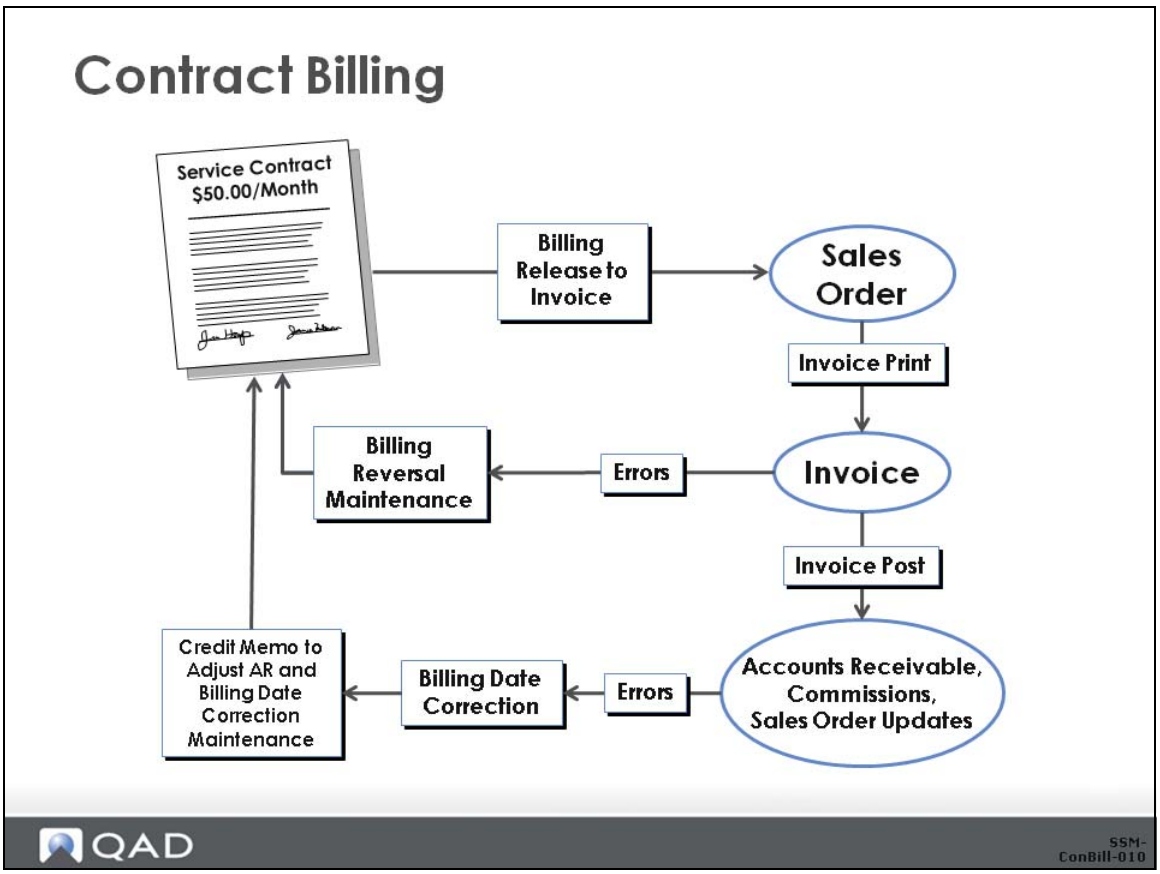
Notice how an amount is now filled in the Additional Charges field of the trailer.

9 Click Next again to complete the contract; return to the menu.

Chapter 6

Contract Billing

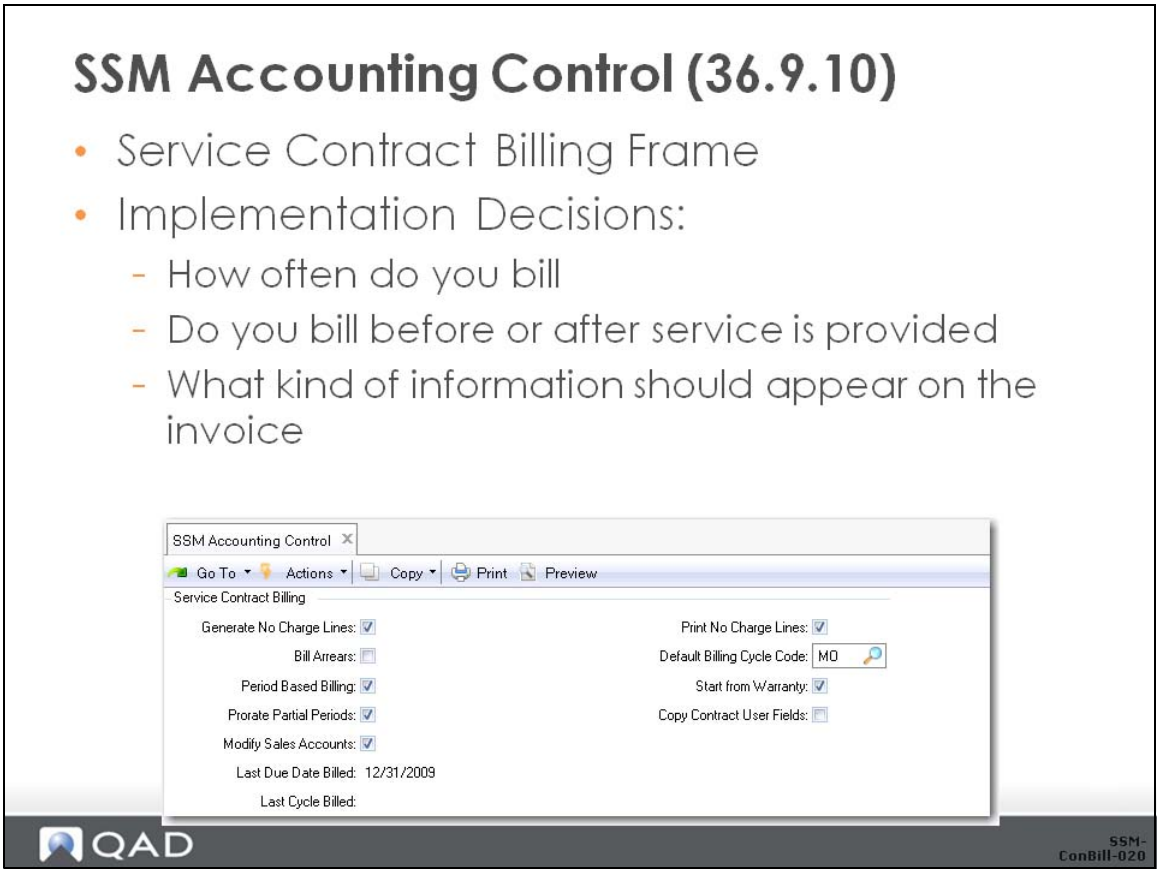
Overview



Contract billing does not actually take place inside the Service and Support Management module. Instead, a special billing release to invoice function turns billing and service contract cash flow over to QAD EE's standard sales order and general ledger functions. This means that contract sales only updates GL accounts during invoice post.

Service and Support does include a method for correcting service billings and specifying how you want to bill for service. It also provides specialized reports for contract billing information.

Contract Control



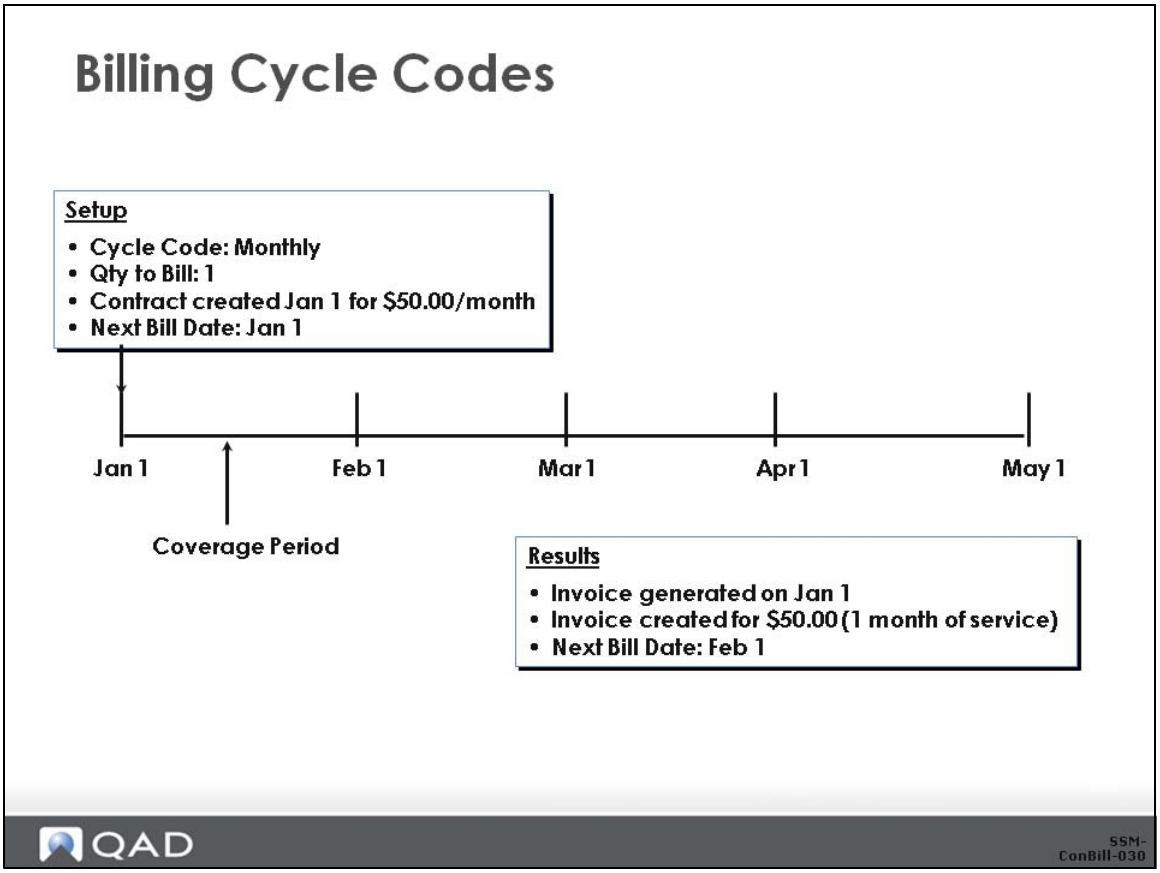
Like most other service functions, contract billing can be approached in more than one way. SSM Accounting Control (36.9.10) contains a number of settings that affect contract billing and enable you to tailor it to the needs of your own business organization.

How you bill for service depends on how you have designed your service contracts. Questions that must be considered are:

- How often do you need to bill your customers for service contracts? Do you bill quarterly? Monthly? Annually?
- Do you want to bill in advance of service or in arrears?

  The trend in aftermarket sales support is to pay in advance of service. This is true because companies typically like to receive revenue before committing to service. Often the sale of the service contract coincides with the sale of a product. However, customer relationships may dictate another approach where the bill is issued at the completion of the billing cycle, rather than at the beginning.

Billing Cycle Codes



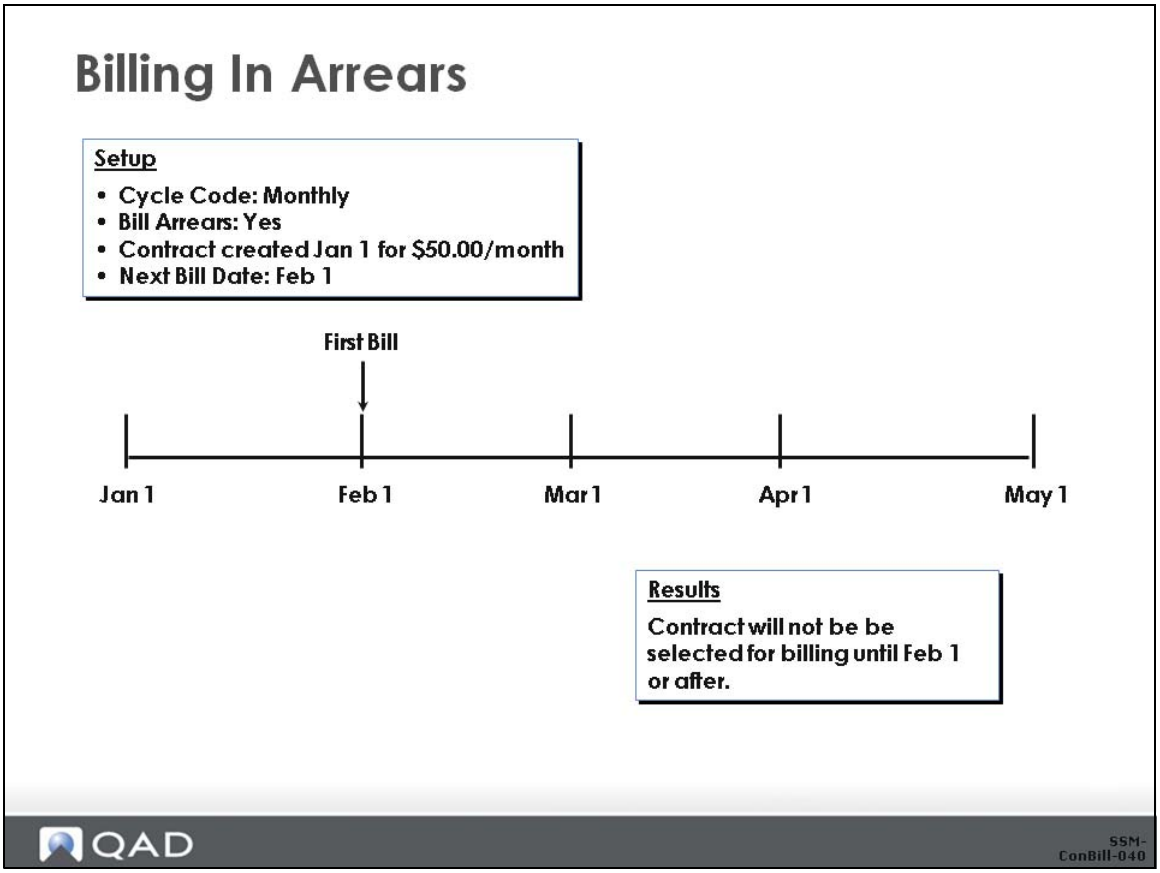
Some contracts may be billed monthly, some quarterly, and some annually. To identify different billing cycles, create and maintain codes in Billing Cycle Code Maintenance (11.5.18.1).

The Quantity to Bill value represents the number of months in the billing cycle. A default billing cycle can be specified in the SSM Accounting Control (36.9.10). When new contracts are created, this billing cycle is used by default. However, each service contract can be set up with a different billing cycle if needed.

When a contract is released to invoice with this billing cycle, the invoice amount is calculated by multiplying the unit price by the number of units covered, and then multiplying this amount by the number of service periods in this billing cycle (Qty to Bill).

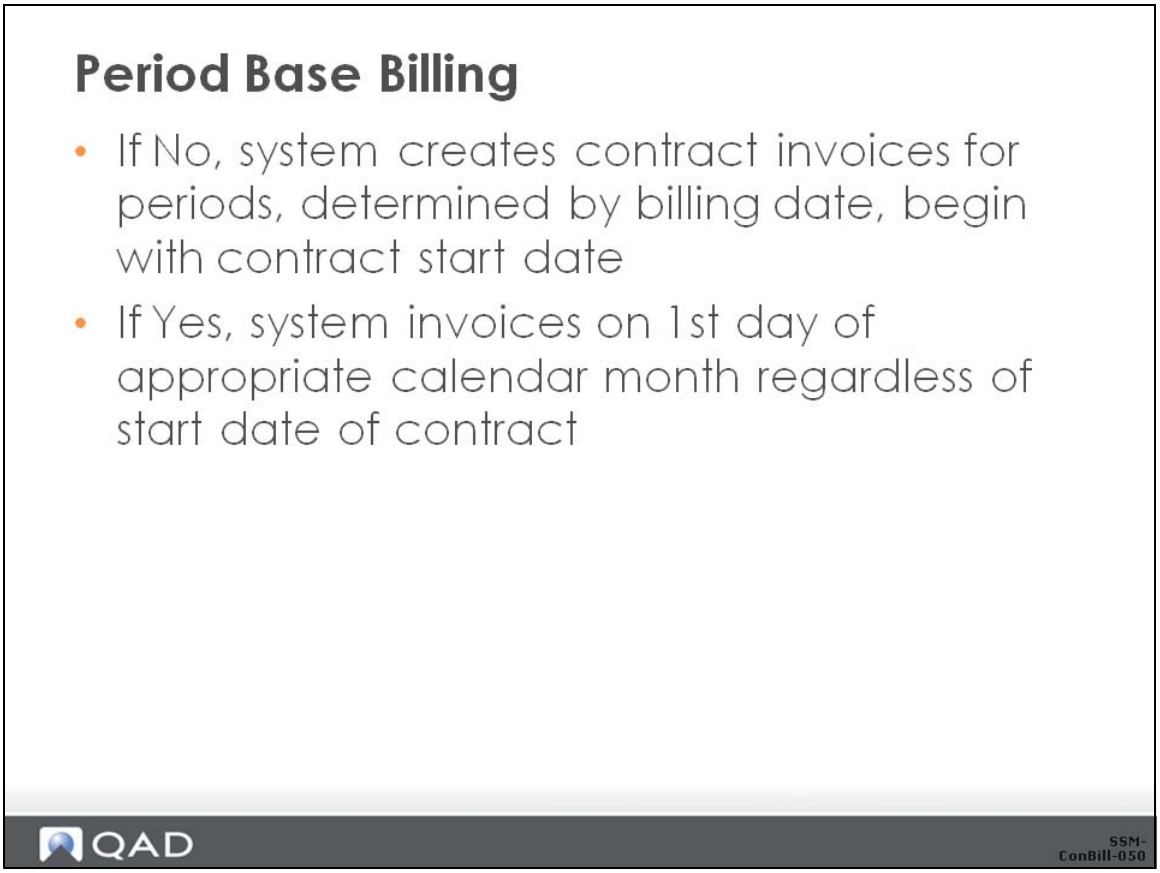
In this example, a monthly billing cycle code has been set up with Qty to Bill equal to 1, billing for service each month. When this contract is released to invoice, the next bill date is automatically set one month ahead.

Billing In Arrears



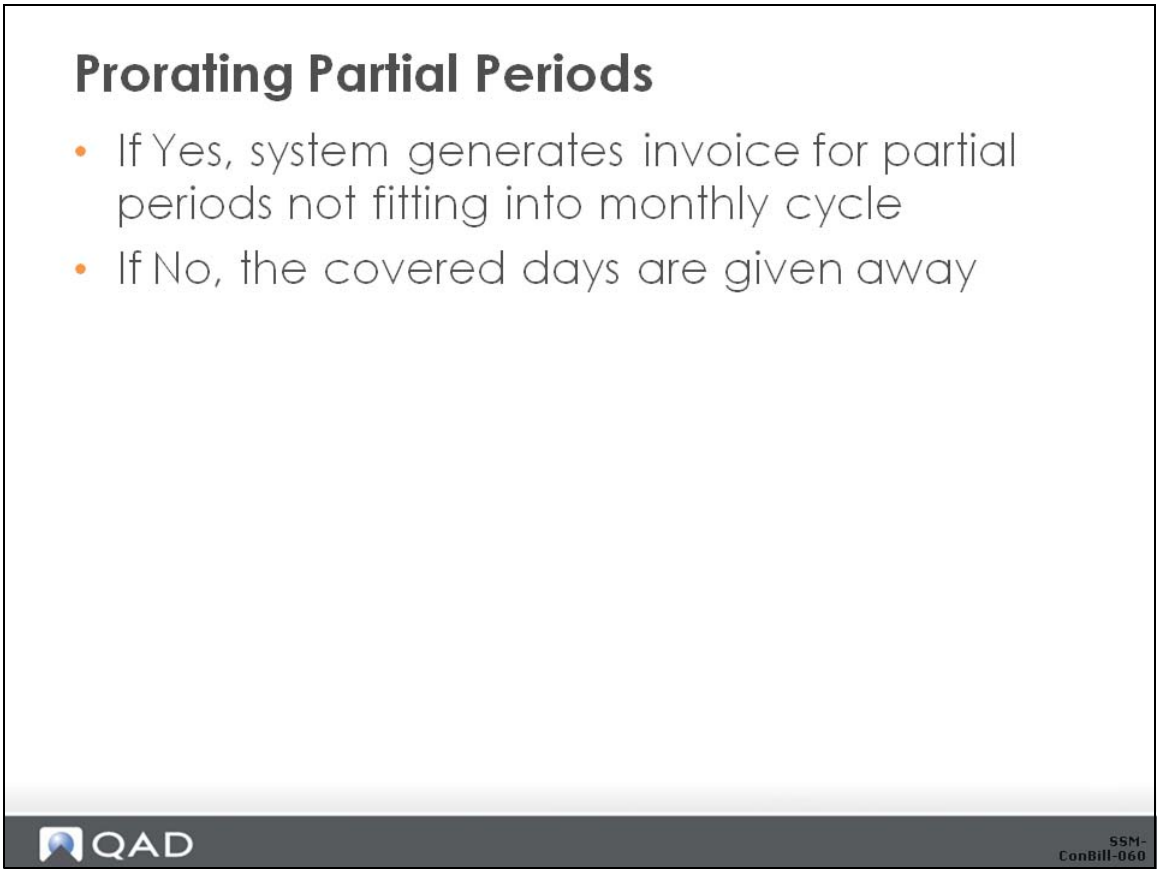
Contracts billed in arrears are billed at the end of each billing cycle. For example, if you have a contract that is billed in arrears on a monthly cycle and the first period is 1/1/XX to 1/31/XX, an invoice will not be generated until 2/1/XX at the end of the monthly billing cycle.

Period Base Billing



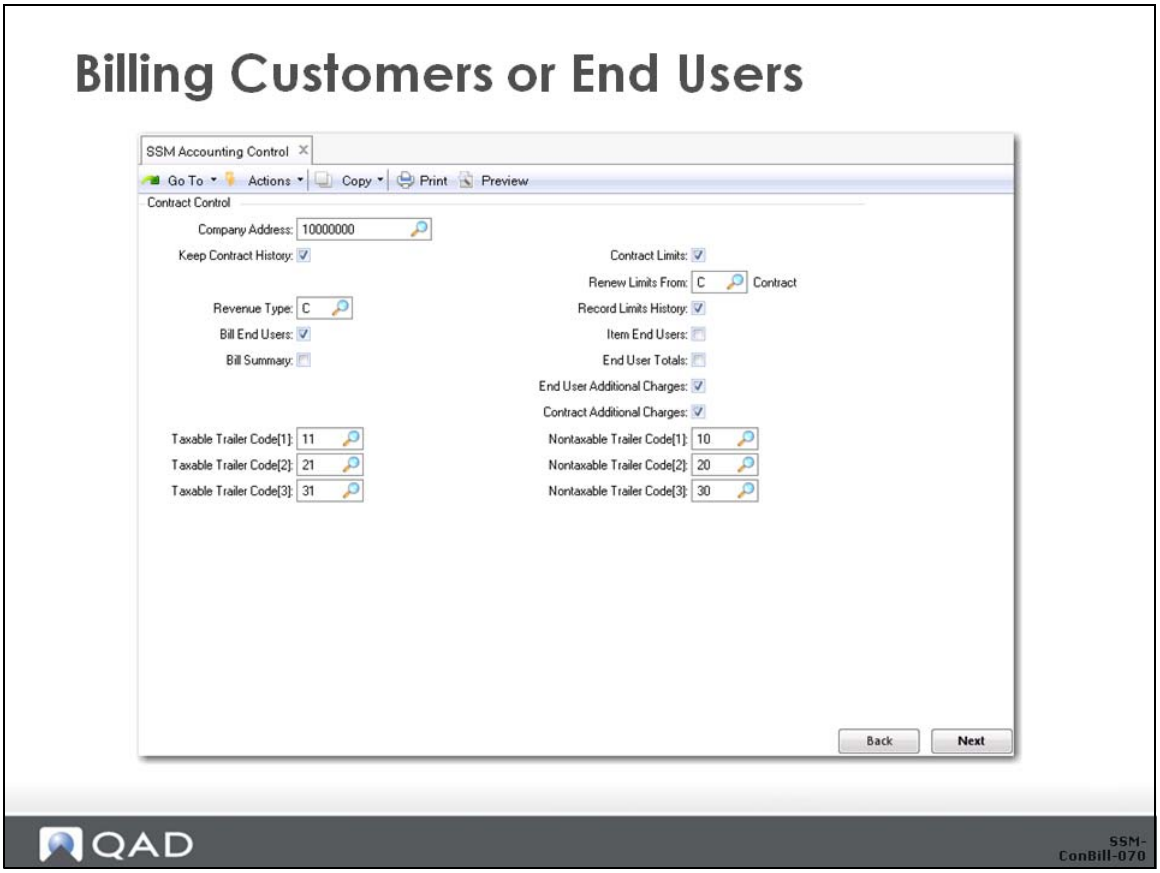
Periods Based Billing indicates whether contract billing is synchronized with calendar months.

Prorating Partial Periods



To determine the price for a number of days less than a month, the system uses the number of days in the month of the last coverage day. It divides the partial covered days by the month's days and multiplies by the unit price.

Billing Customers or End Users

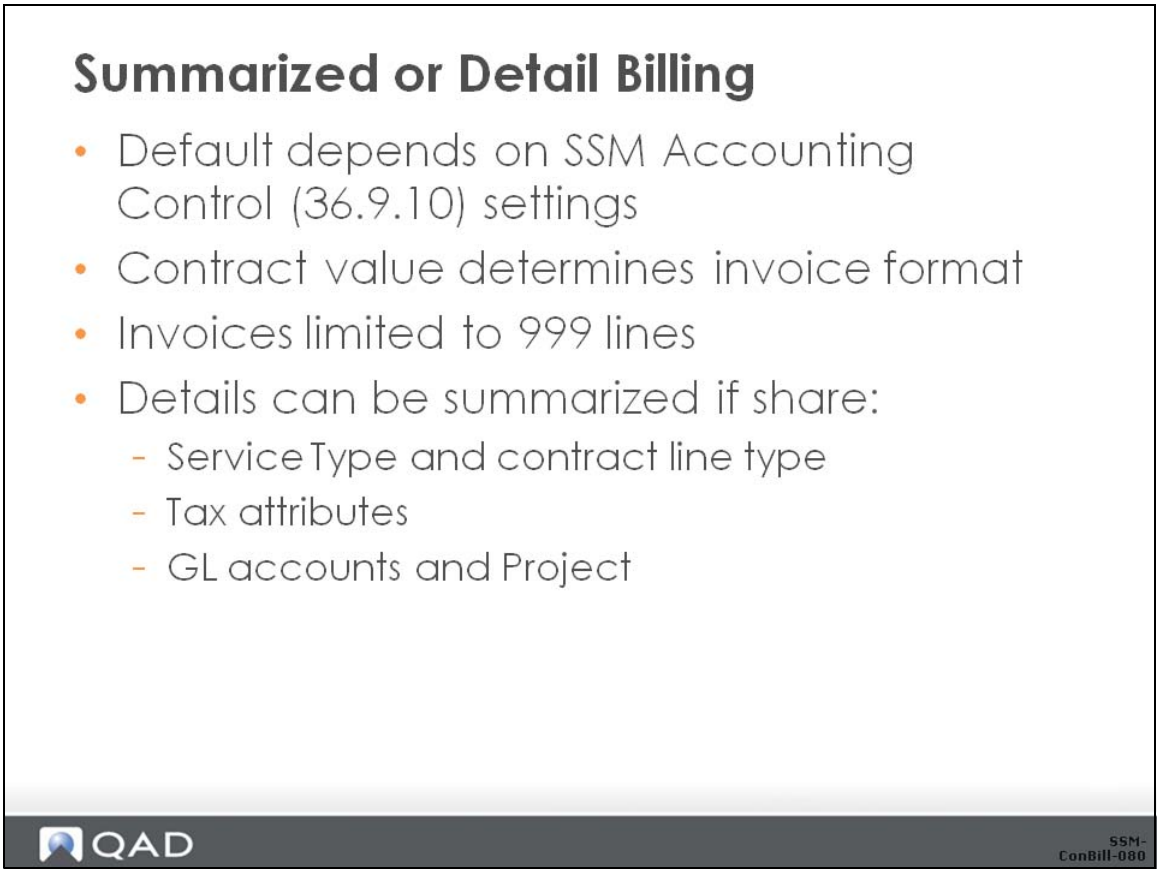


The Bill End Users field in SSM Accounting Control (36.9.10) indicates who normally receives invoices generated for contracts by Billing Release to Invoice.

No - Only one billing address, specified in contract header

Yes - Multiple billing addresses can be associated with the contract, one for each contract end user

Summarized or Detail Billing



The value for each contract determines the format of invoices generated by Billing Release to Invoice.

When Bill Summary is Yes for a contract, the details that are not printed on an invoice are stored in the database and can be viewed with Billing Detail Report (11.5.18.14).

Managing Deferred and Accrued Revenue

You can chose one of three ways to recognize revenue:

Cash Basis: revenue is recorded in the period it is actually received.

Accrued: revenue is recorded in accrued revenue account in the period in which it is earned. Bill Arrears must be set to Yes. When you invoice at the end of service coverage, this lets you post accrued amounts during the duration of the contract.

Deferred: collected revenue is held in a deferred account and is posted periodically over the contract duration. Bill Arrears must be set to No.

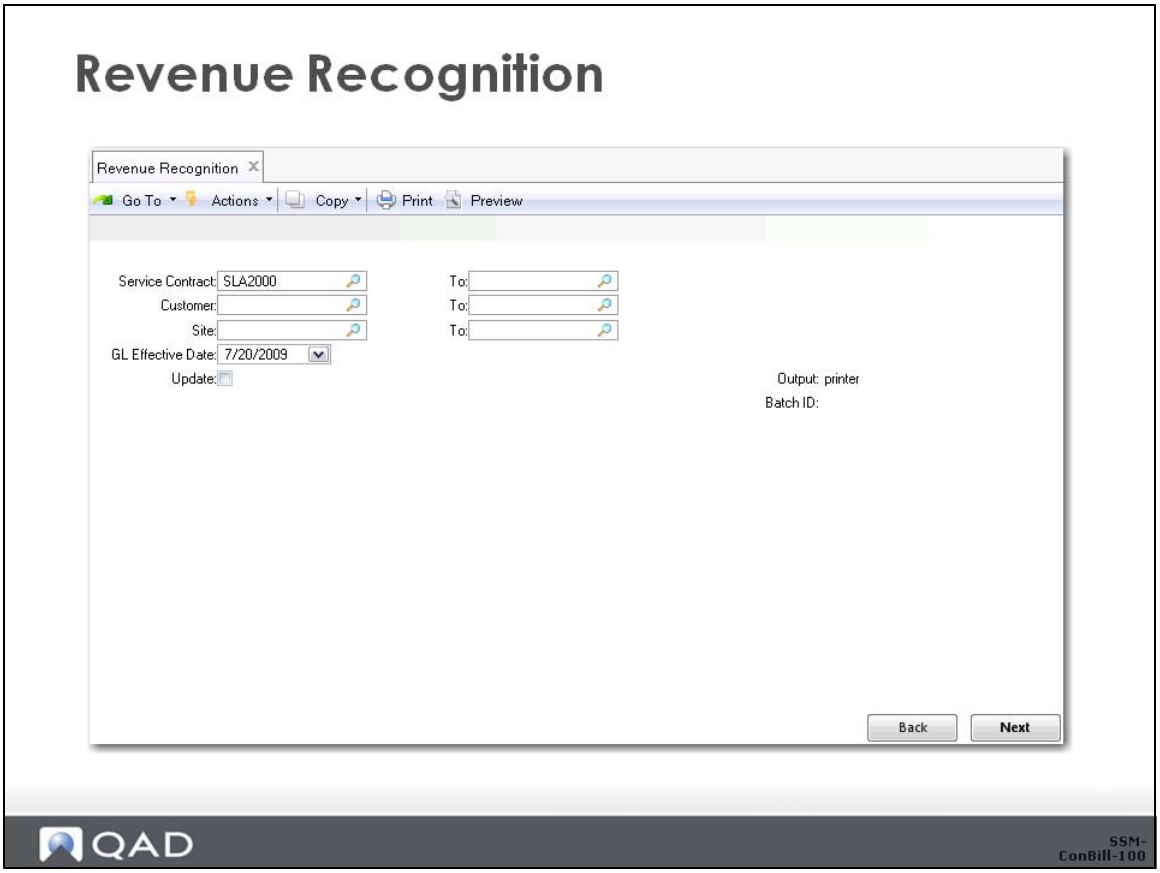
Deferred and Accrued Revenue accounts are set up at the system level, by product line, or for combinations of product line, channel, site and customer type.

To find deferred and accrued accounts, the system searches first for alternate sales accounts set up in Sales Account Maintenance (1.2.17) using:

- The product line of the service type in effect
- The channel specified on the contract header
- The contract site
- The customer type

If these do not exist, it uses accounts set up in Product Line Maintenance (1.2.1). If these do not exist, it uses accounts defined in Domain/Account Control (36.9.24).

Revenue Recognition

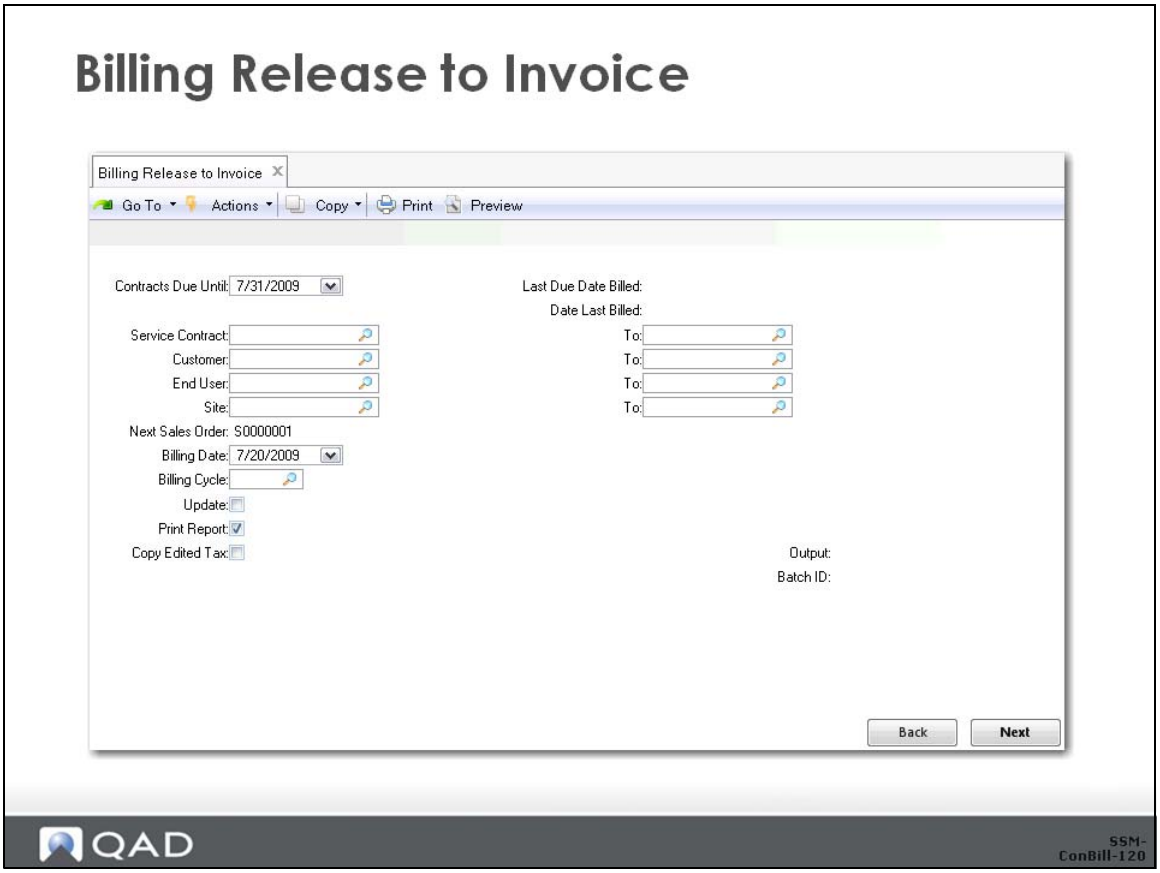


Run Revenue Recognition (11.5.18.21) each month for the system to recognize accrued and deferred revenues for billing cycles other than monthly.

Viewing Revenue Records

Run Deferred/Accrued Revenue report (11.5.18.22) to display records created and updated by Revenue Recognition.

Billing Release to Invoice



The Billing Release to Invoice function (11.5.18.13) is used to generate sales orders that serve as pending invoices for selected service contracts. Print and post these pending invoices with functions in the Sales Orders/Invoices menu. Billing cycle codes control when a given service contract generates a pending invoice.

The content of contract invoices is determined by the value of Bill Summary for the contract. The billing address is determined by the value of Bill End Users.

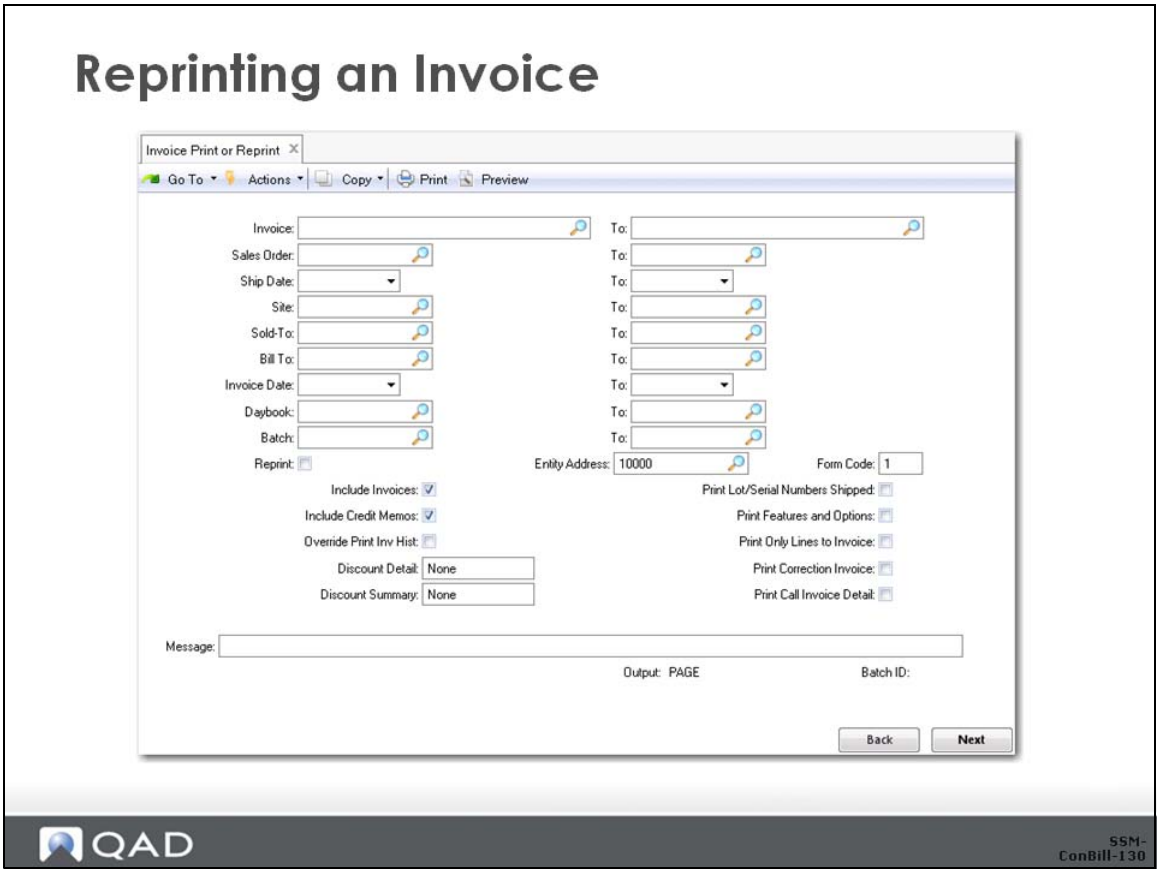
Each time a service contract is billed, SSM updates the Last Bill, Next Bill, and Coverage Dates for the contract and each line item. Transaction history is also maintained (ISS-SO). If Keep Contract History is Yes in the Contract Control, ORD-SO transactions are also maintained.

Before executing this function, you should always perform an audit run by setting Update to No and Print Report to Yes. This creates a report of contracts that would be selected without updating them. When you have verified the contracts and billing, you can re-execute the function to generate the pending invoices.

The amount to invoice is based on the price and billing cycle. Prices on the service contract line items are stated as the price of service coverage for one installed unit for one month. The amount to invoice is calculated by multiplying the line item price by the number of units covered, then multiplying this amount by the quantity to bill for this billing cycle.

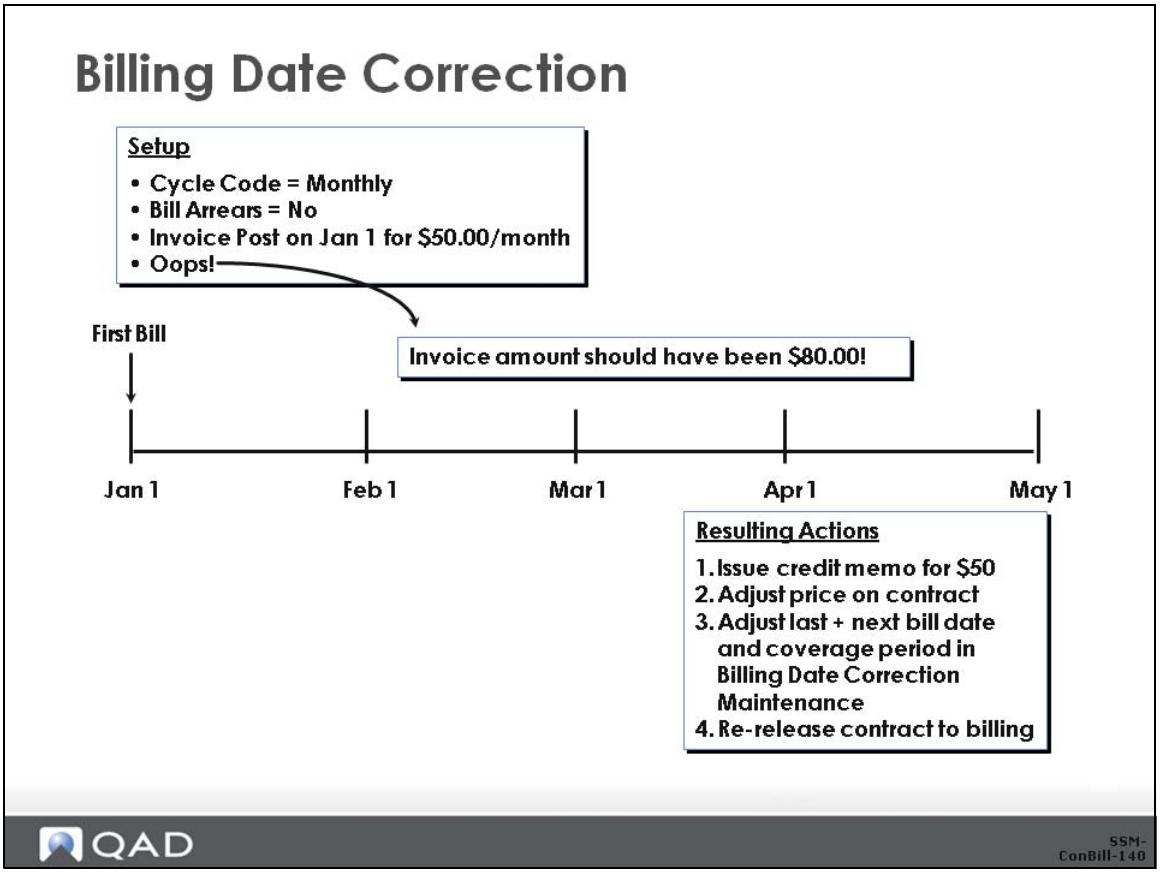
Billing Release to Invoice does not create any general ledger transactions. These are created by Invoice Post and Print (7.13.4) and Revenue Recognition (11.5.18.21).

Reprinting an Invoice



Run Invoice Print or Reprint (7.13.12) to generate an additional copy of an invoice that was printed previously. Only invoices that have been posted can be reprinted. If an invoice hasn't been posted, it may be printed using Preview Invoice Print (7.13.3).

Billing Date Correction

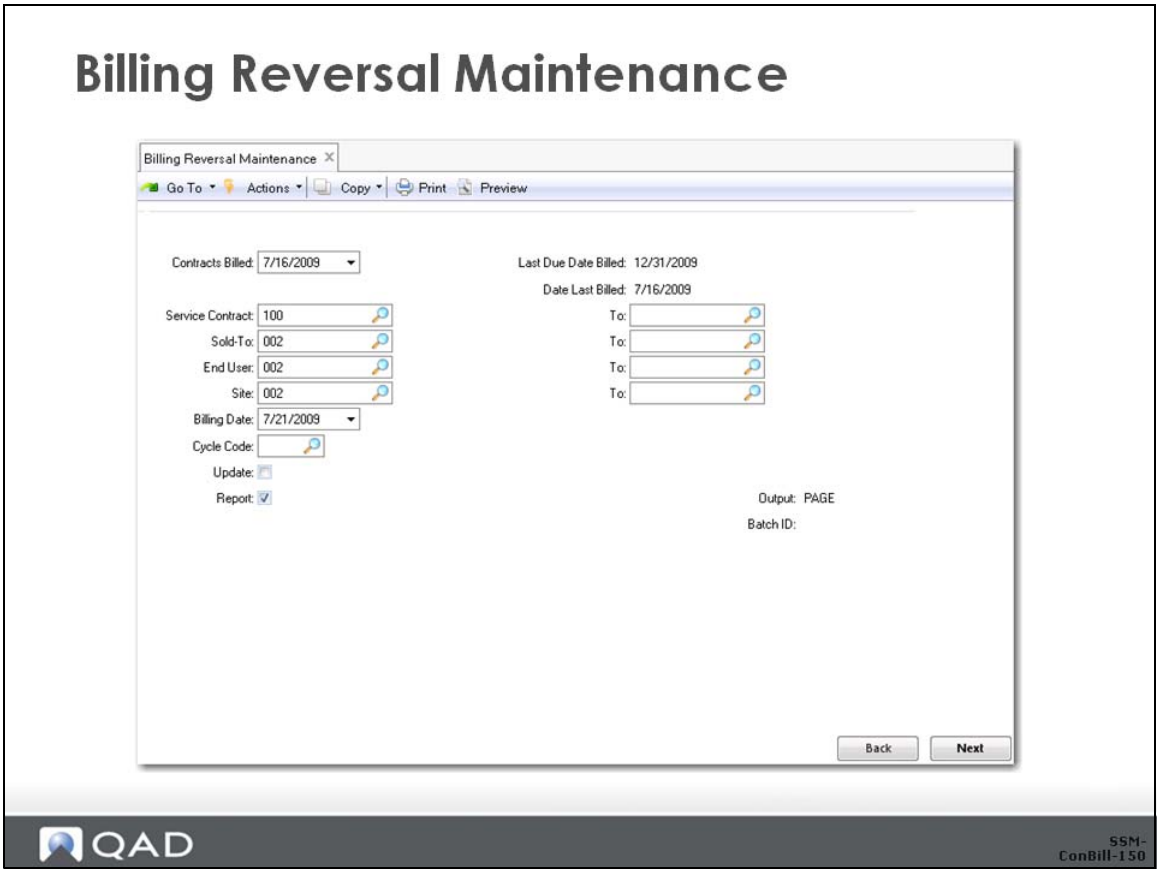


Invoices generated through contract billing cannot be corrected using standard Pending Invoice Maintenance (7.13.1). This is because an incorrect invoice reflects an incorrect contract, and the contract must be fixed within the Service and Support module. SSM offers two paths for correcting billing errors: one before contract invoices are posted to Accounts Receivable and one after.

- If the invoice has not been printed and posted, use Billing Reversal Maintenance (11.5.18.18) to delete it.
- If the invoice has already been posted, then a manual credit must be created and Billing Date Correction (11.5.18.19) must be used.

Each time a service contract is billed, SSM updates the Last Bill, Next Bill, and Coverage Dates for the contract and each line item. If a contract has been billed in error, these dates must be reset. The Billing Release to Invoice function looks at the Next Bill Date field to determine which contracts are eligible for billing. The Next Bill Date field for an incorrectly billed contract must be reversed so that it can be re-released to invoicing.

Billing Reversal Maintenance



To correct an unposted invoice, follow these steps:

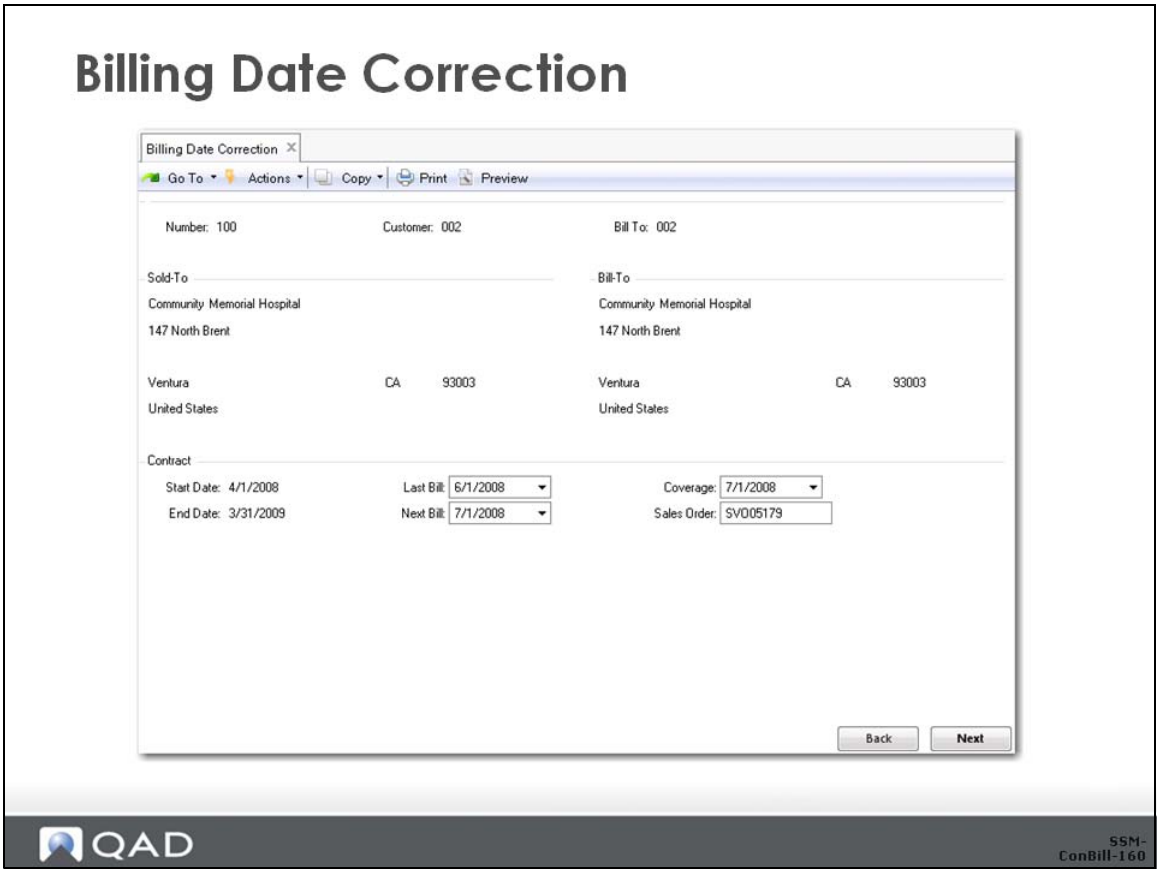
1 Use Billing Reversal Maintenance to delete the pending invoice and reset most billing dates.

2 Use Contract Maintenance to correct the elements of the contract that are in error, such as price, quantity, or billing cycle.

3 Use Billing Release to Invoice to re-release the contract to billing.

Execute this function first with Update set to No and Report set to Yes to review the potential impact of the reversal before you perform it.

Billing Date Correction



To correct a posted invoice, follow these steps:

1. Create a manual credit invoice using Pending Invoice Maintenance. Then use Invoice Print and Post to credit the mistakenly billed amount.
2. Use Billing Date Correction to reset billing dates that were updated by Billing Release to Invoice. You must reset the dates on each affected contract line.
3. Use Contract Maintenance to make the necessary changes to contract data.
4. Use Billing Release to Invoice to re-release the contract to billing.

Reviewing Contract Financial Data

Use the following reports to view financial information about contracts:

- Deferred/Accrued Revenue Report (11.5.18.22) to view records created and updated by Revenue Recognition (11.5.18.21)
- Contract Cash Flow Report (11.5.13.21.1) to see the incoming cash to expect from contract billings
- Contract Deferred Income Report (11.5.13.21.2) provides information about deferred and accrued income for invoiced contracts when you are not using Revenue Recognition
  - It is useful if you have contracts with a cash basis revenue type to see periodically how much revenue must be accrued and record, via a journal entry, as actual income
- Updates salesperson commission records, where appropriate
- Creates updated invoice history records

Exercise 13: Contract Billing

In this exercise you release a contract to invoicing. After the pending invoice is created, you discover a problem with the contract that affects the billing. You execute Billing Reversal Maintenance, then correct the contract, and release it to billing a second time. You will then recognize the revenue for the first month of the contract.

Release a Contract to Invoicing

1 Go to Contract Maintenance (11.5.13.1).

2 Enter the contract number you recorded in Exercise 12 on page 196.

3 Navigate through Contract Maintenance until your cursor is in the Hold Contract field. Record the Next Bill Date below.

Next Bill Date: _____

Notice that the Next Bill Date is the first day of the month because Bill Arrears is set to No.

4 Complete the contract and return to the menu.

5 Go to Billing Release to Invoice (11.5.18.13).

6 Enter the following data in the appropriate fields.

Field	Value
Contracts Due Until	Enter the Next Bill Date you wrote down in step 3.
Service Contract and To	Enter the contract you created earlier in Exercise 12.
Update	Yes
Print Report	Yes

7 Record the Next Sales Order number below. (It is in middle of screen) Then click Next.

Next Sales Order: _____

8 When the Printer Options frame displays, direct the output to Printer Window and press Enter. Review the output of the program.

Notice that four lines have been generated on the invoice, two for each item covered and two for the additional charge items.

9 Return to the menu.

Review Effect of Invoicing

1 Go to Contract Maintenance (11.5.13.1) and enter the number of the contract you just released.

2 To validate the change in billing dates, navigate again through Contract Maintenance until your cursor is in the Hold Contract field. the second header frame displays. Record the Next Bill Date below.

Next Bill Date: _____

Has it changed from the value recorded in step 3 of the previous task? It should show a date for next year.

3 Return to the menu.

4 Go to Transactions Detail Inquiry (3.21.1).

Review the last four entries by using the next/previous keys. Notice that there is both an ORD-SO and an ISS-SO transaction type generated for each sales order line on the contract invoice.

At this point, no GL transactions have been created, since the invoice has not been posted.

5 Return to menu

6 Go to Sales Order Maintenance (7.1.1).

7 Enter the contract sales order number in the Order field, and click Next.

The following error should display:

ERROR: This is a service contract. Use Contract Maint for updates. Please re-enter.

Contract invoices cannot be updated with sales order programs. The original contract must be modified and the invoice regenerated. Return to menu.

Reverse the Contract Billing

Let's consider that the billing you released did not include a special discount promised the customer, and as a result, was for the wrong amount. This task shows how to reverse the billing. In this example the invoice has not yet been printed or posted.

1 Go to Billing Reversal Maintenance (11.5.18.18).

2 Enter the following data in the appropriate fields and click Next.

Field	Value
Contracts Billed	Leave default of today's date.
Service Contract and To	Enter the contract you released earlier.
Update	Yes
Report	Yes
Output	Printer

3 Review the output for confirmation that the contract billing has been reversed and the sales order deleted. Return to the menu.

Correct the Billing Date

1 Go to Billing Date Correction (11.5.18.19) and enter the number of the contract you just reversed.

2 Click Next and verify that the date in Next Bill frame is set to one year earlier (so that it is reset to the original Next Bill Date) and click Next to save.

3 Click Back to return to the menu.

Modify and Re-Release the Contract

Make the change required on the contract and re-release it for billing.

1. Go to Contract Maintenance (11.5.13.1).
2. Enter the number of the contract you released to billing.
3. Click Next until your cursor is in the Hold Contract field.

   Notice that the Next Bill Date has been reset to its original value.
4. Click Next to reach the Coverage Limits frame.
5. Click Back to the End User field in the End User Default frame.
6. Using the drop down menu, select the first new end user you created entered on the contract.
7. Click Next until you reach the Coverage Limits frame.
8. Click Back.

   You should be at the End User Item Detail frame.
9. Enter 1 and click Next until you are in the Net Price field.
10. Change the $1,000.00 in the Net Price field to $900.00 and click Next.

    Notice how the system calculates and displays this as a 10% discount in the Disc Pct field. Click Next until you reach the Coverage Limits frame.
11. Continue on until you reach the trailer frame. Click Next. The contract total should reflect the adjustment in coverage price. Click Next again to complete the contract; return to the menu.
12. Go to Billing Release to Invoice (11.5.18.13).

    Enter the following data in the appropriate fields.

Field	Value
Contracts Due Until	Enter the Next Bill Date you wrote down in step 3.
Service Contract and To	Enter the contract you created earlier in Exercise 12.
Update	Yes
Print Report	Yes

    Record the Next Sales Order number below. (It is in middle of screen) Then click Next.

    Next Sales Order: _____

Print and Post the Invoice

1. Go to Invoice Post and Print (7.13.4).

   Enter the sales order number you recorded in step 12 of the previous task in the Sales Order and To fields. Leave the default values in all other fields; then click Next.
2. In the Printer Options frame, direct the output to the Printer. Press Enter to print the invoice. Review the output and write down the number of the invoice created here.

   Invoice Number: _____

Posting the Invoice.

- Creates updated AR records
- Creates updated GL unposted transaction records (a debit to AR and a credit to Sales, at a minimum)
- Updates salesperson commission records, where appropriate
- Creates updated invoice history records
- Deletes the sales order related records

3 Review the invoice; return to the menu.

Deferred Revenue and Revenue Recognition

You invoiced the customer for a year's contract coverage. You are not able to recognize all the revenue at this time. The first month's revenue was recognized; the remaining 11 months were deferred. In this task you will review the report showing this. You will then check what the second month's of revenue would be.

1 Go to Deferred/Accrued Revenue Report (11.5.18.22). Enter the contract number that you just invoiced in the Service Contract and To fields. Change Revenue Type to Deferred. Click Next and output to Printer.

Check what next month's revenue recognition would be.

2 Go to Revenue Recognition (11.5.18.21) and enter the contract number in the From and To fields.

3 Change the GL Effective Date to the first day of next month.

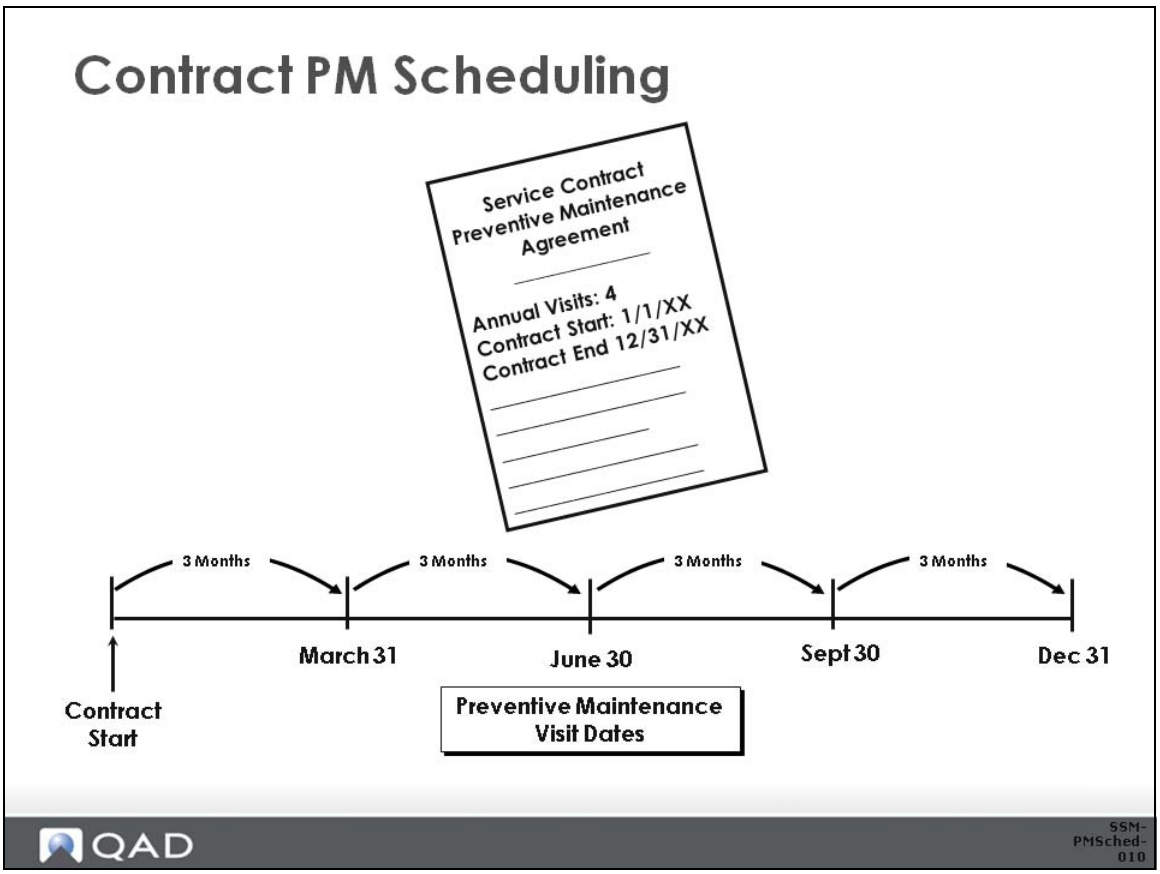
4 Leave Update to No and click Next twice.

Notice in the report the transactions which would occur to recognize another month's of revenue. Return to the menu.

Chapter 7

Preventive Maintenance Scheduling

Overview

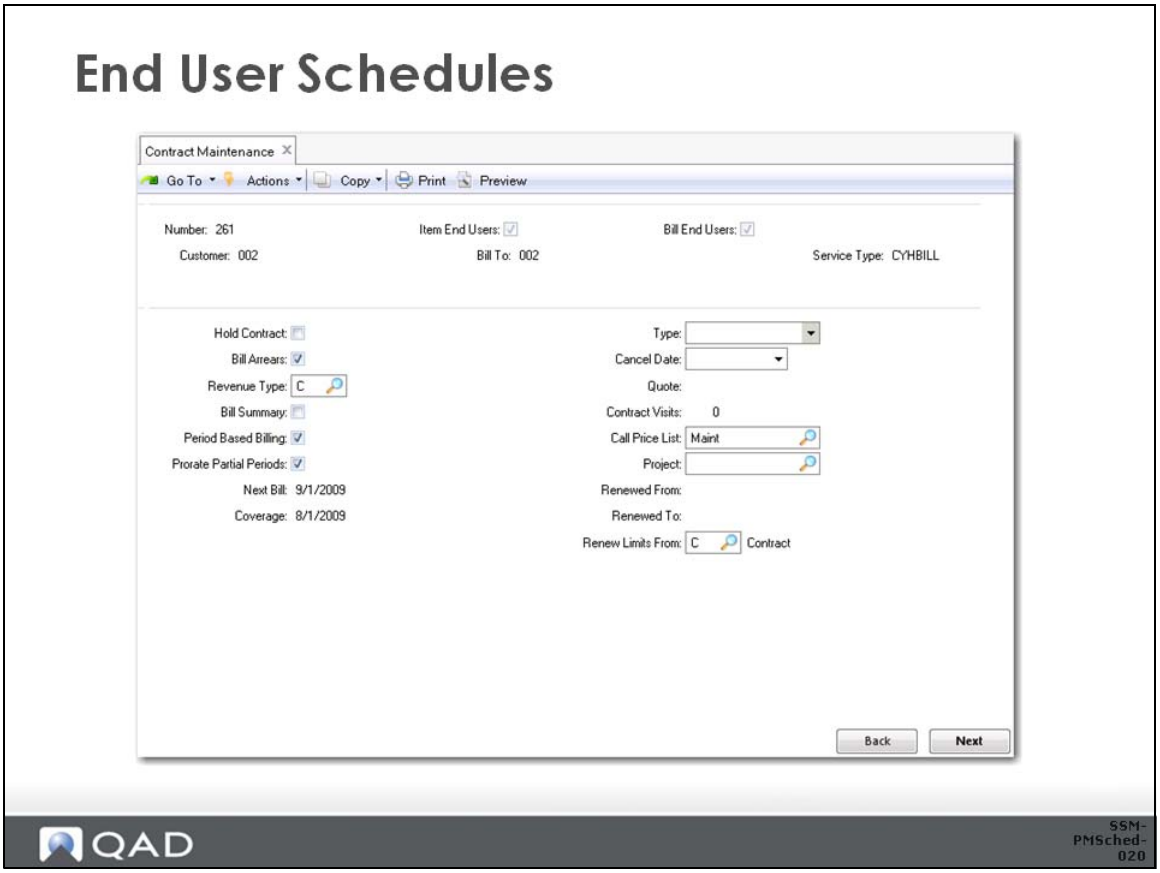


Preventive maintenance (PM) is a managed service that attempts to prevent breakdown or serious problems with an item. In preventive maintenance, calls are created according to a predetermined, regular schedule.

During the PM call, a service technician performs services on an item already in the installed base. These services typically involve cleaning, diagnostic checking, and replacement of consumable items (inks, lubricants, toner cartridges, high failure parts). Preventive maintenance is essential in some industries, such as aircraft maintenance, and has become standard in others, such as business copiers.

Without preventive maintenance, the traditional service contract is more or less an insurance policy, an agreement protecting the customer when something goes wrong with a product. With preventive maintenance, the service contract becomes a tool for managing an ongoing service relationship usually involving regular service engineer visits. Service contracts offer full preventive maintenance scheduling capabilities.

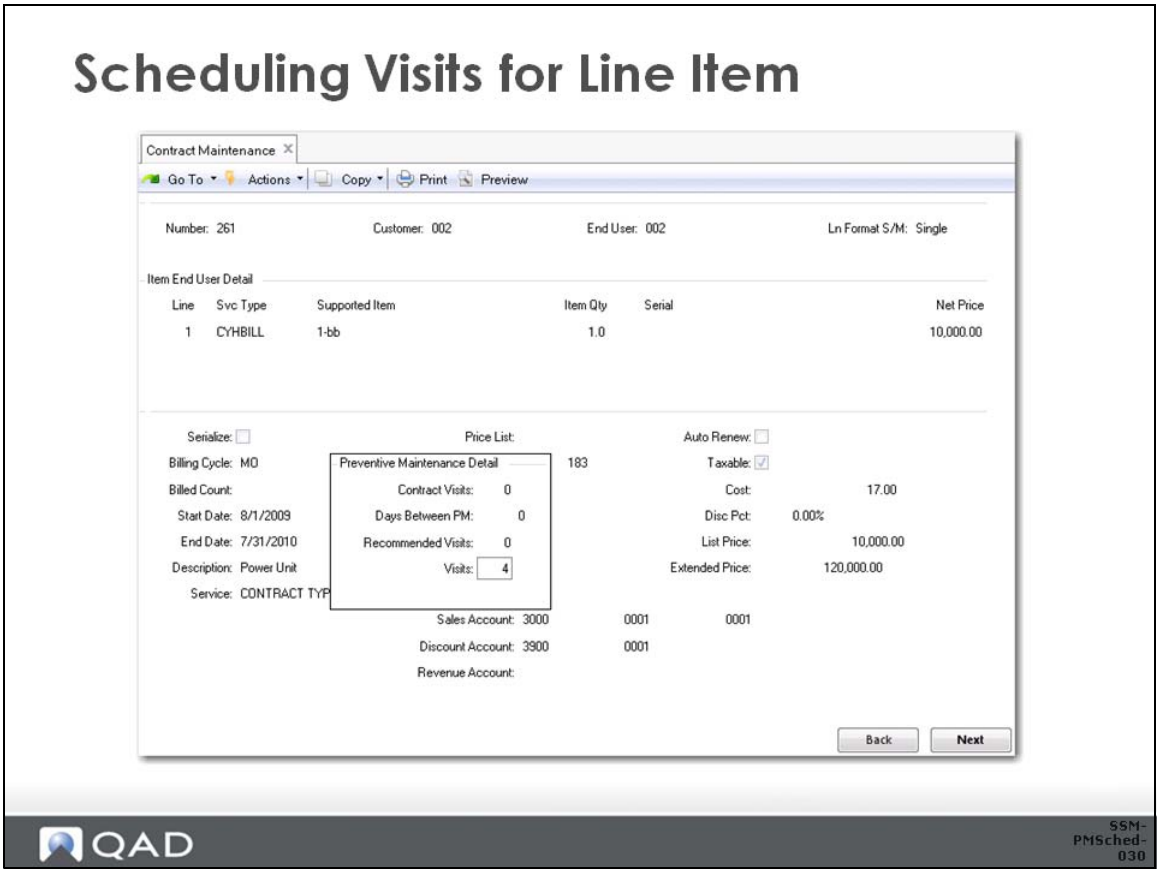
End User Schedules



Preventive maintenance scheduling is part of Contract Maintenance (11.5.13.1) and requires a new or existing service contract. How scheduling occurs depends on the value of Item End Users on the contract:

- When Item End Users is No you can create schedules for each end user on the contract.
  - for individual line items on the contract
  - for a combination of the two.
- When Item End Users is Yes only item schedules can be created.

Scheduling Visits for Line Item



To create a preventative maintenance schedule that applies to each end user:

1 Make sure Item End Users field is No.

2 Make sure the PM Item field is Yes in End User Item Detail.

3 Enter the number of visits in the Preventative Maintenance Detail pop up window.

4 After you complete the line-item entry, an End User PM Schedule window displays proposed dates for the PM visits. These can be modified, if needed.

Repeat steps 1-3 for additional items.

To create PM schedules for items:

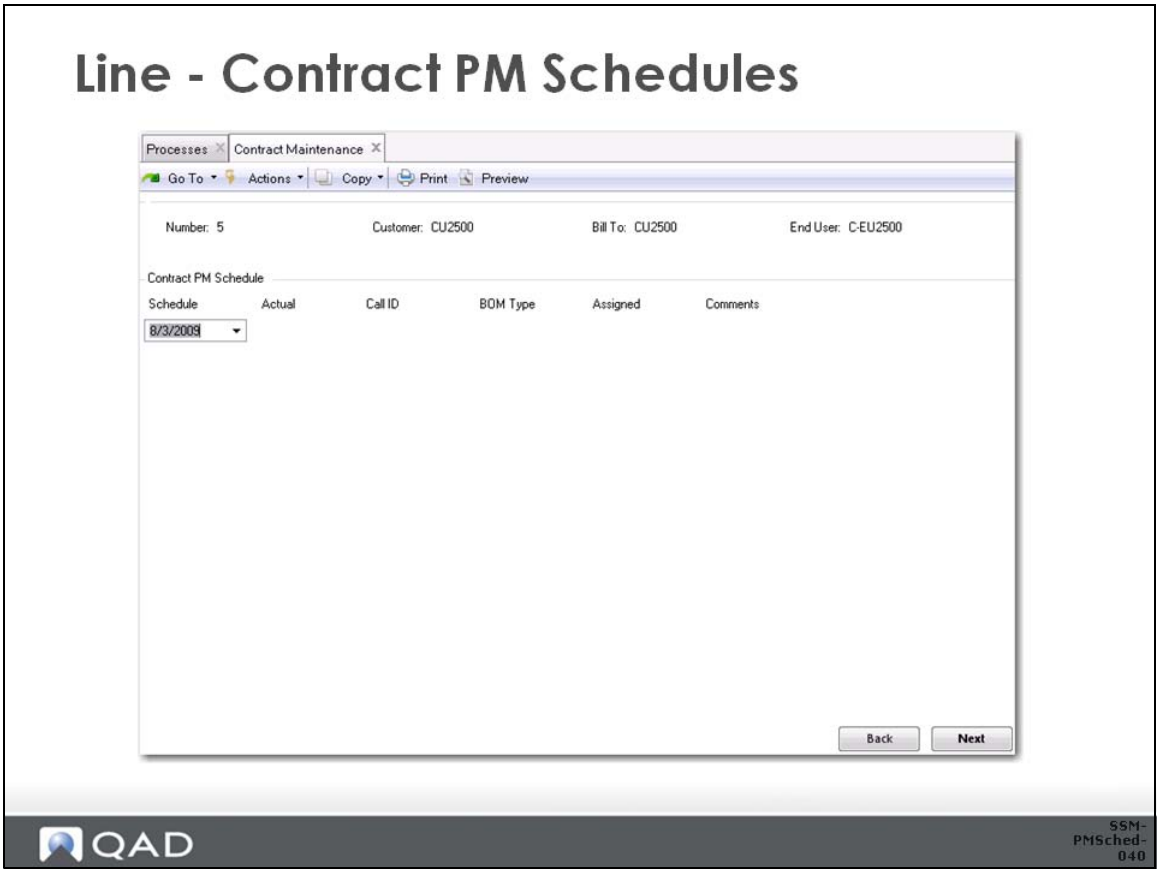
1 Make sure Item End Users field is No.

2 Make sure the PM Item field is Yes in Item End User Detail.

3 Enter the number of visits in the Preventative Maintenance Detail pop up window.

4 After you complete the line-item entry, a Line PM Schedule window displays proposed dates for the PM visits. These can be modified, if needed.

Line - Contract PM Schedules

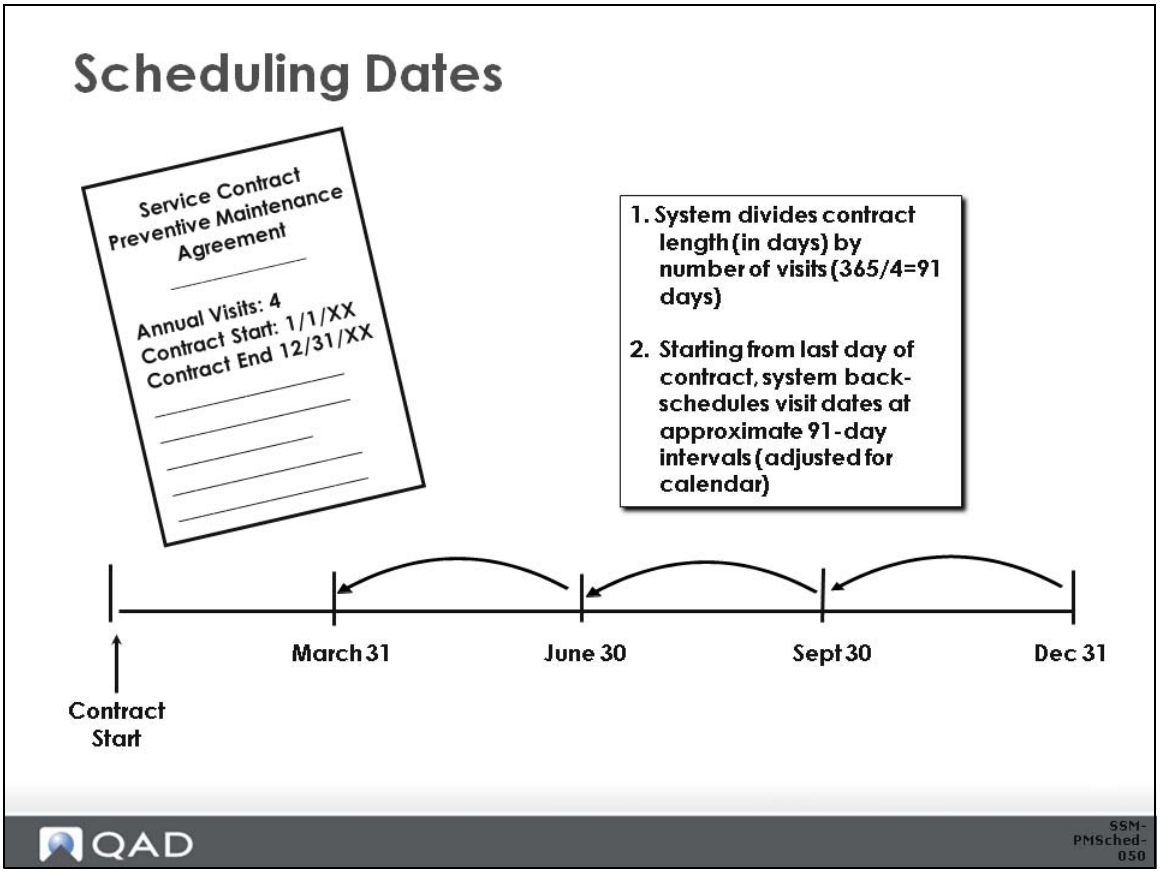


To create a preventive maintenance schedule that applies to the contract as a whole, you must do two things:

1. Specify a number of visits in the contract header Visits fields. This indicates the number of times during the service contract's duration that PM visits will be made to the end user site.
2. Set the PM Item field to Yes for the items on the contract requiring visits. This field defaults to Yes if Days between PM is set to any nonzero value for the item in the Service Item Maintenance (11.3.7). All of the items with PM Item set to Yes will be included on the call created for the PM schedule, unless they have individual schedules already.

After you complete the line-item entry, a Contract PM Schedule window displays proposed dates for the PM visits; these can be modified.

Scheduling PM Dates



Preventive maintenance visits are calculated by taking the length of the contract (in days) and dividing it by the number of PM visits requested for the covered item. The system then back-schedules the visits starting from the end date of the contract.

This figure illustrates a contract that starts on 1/1/XX and ends on 12/31/XX. Four PM visits are requested.

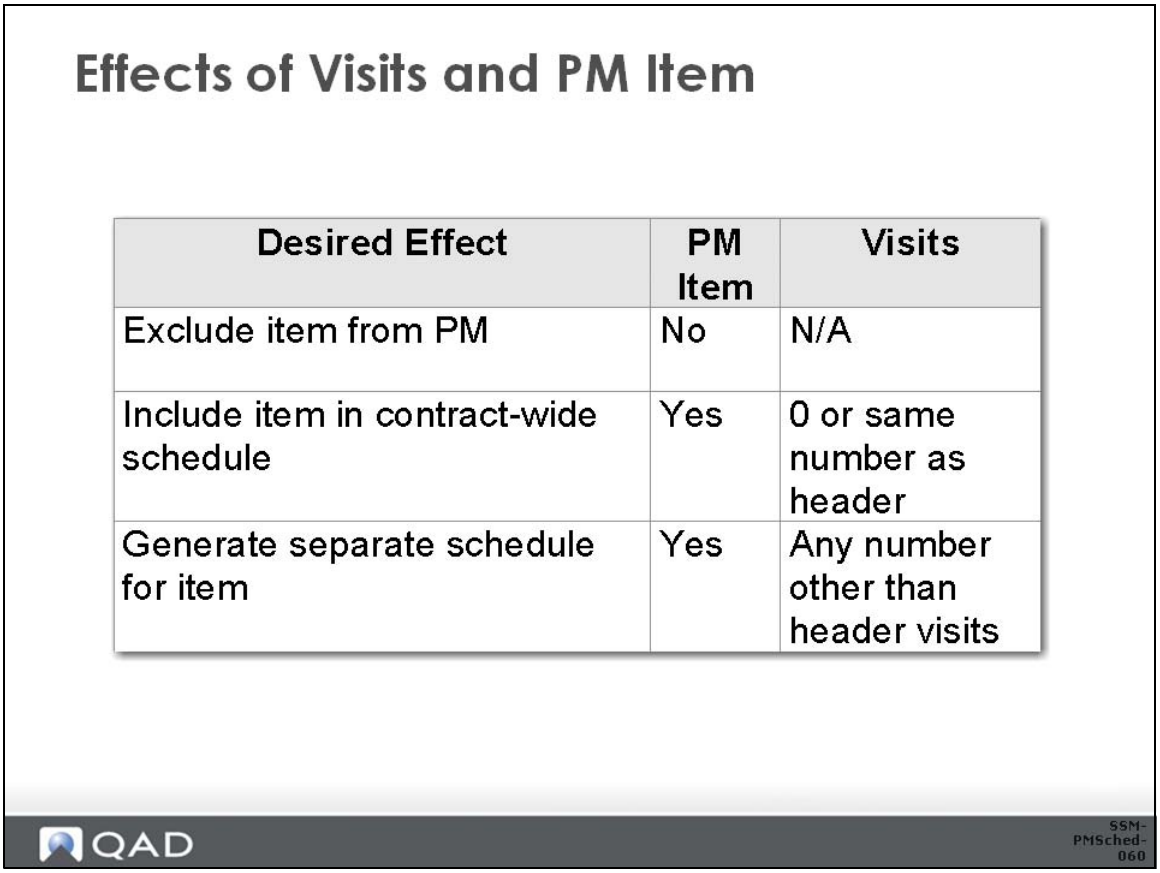
1 The system divides the contract length in days by number of visits.

  365/4 = 91

2 Then, starting from the last day of coverage, the system back- schedules visit dates at approximate 91-day intervals. This would result in calls scheduled for March 31, June 30, September 30, and December 31.

  If you leave the header Visits field blank, you can still create PM for individual contract line items.

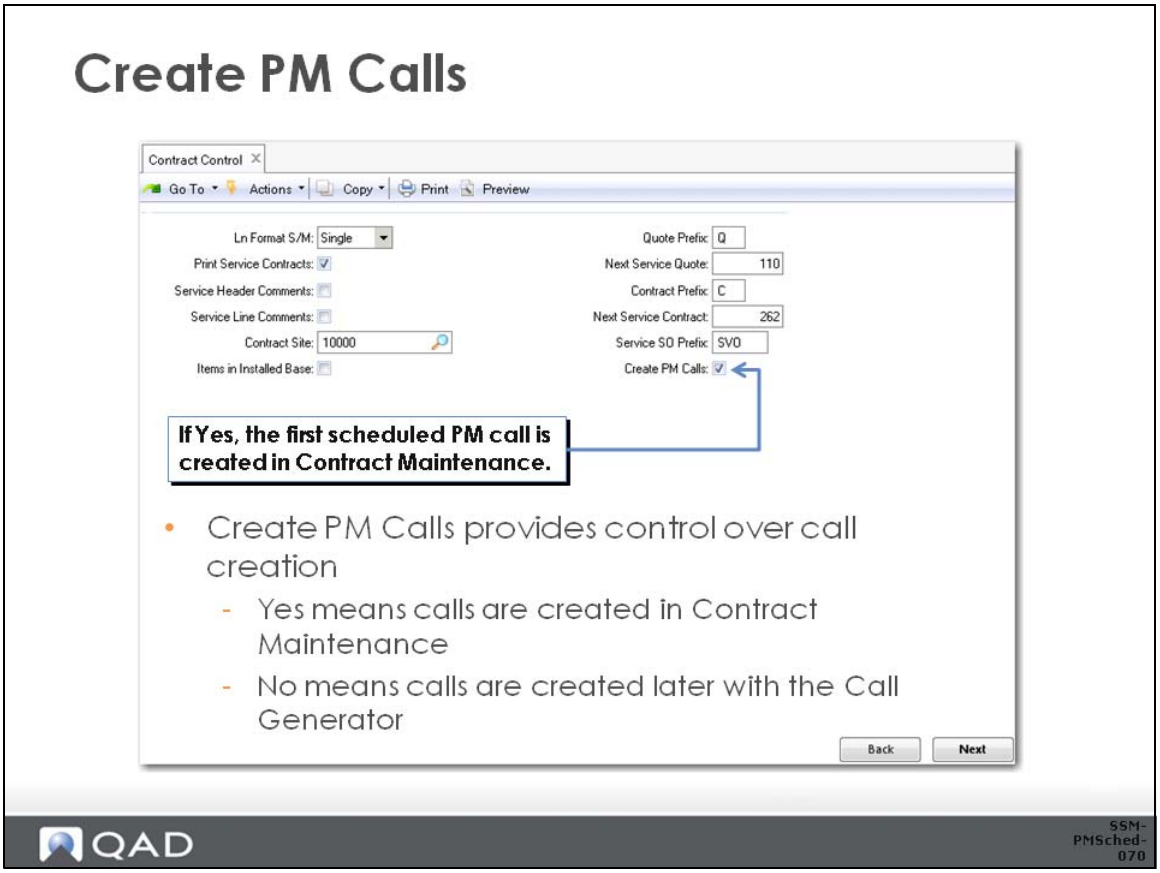
Effects of Visits and PM Item



This table summarizes the interaction of the settings for the PM Item and Visits fields:

- If you have a contract-wide schedule and want to exclude a particular item, set the PM Item field to No.
- If you have a contract-wide schedule and want to include a particular line item, set the PM Item field to Yes and do not change the line item Visits field.
- If you want to generate an individual PM schedule for an item, set PM item to Yes and specify a value for Visits that is different from the header Visits value.

Create PM Calls

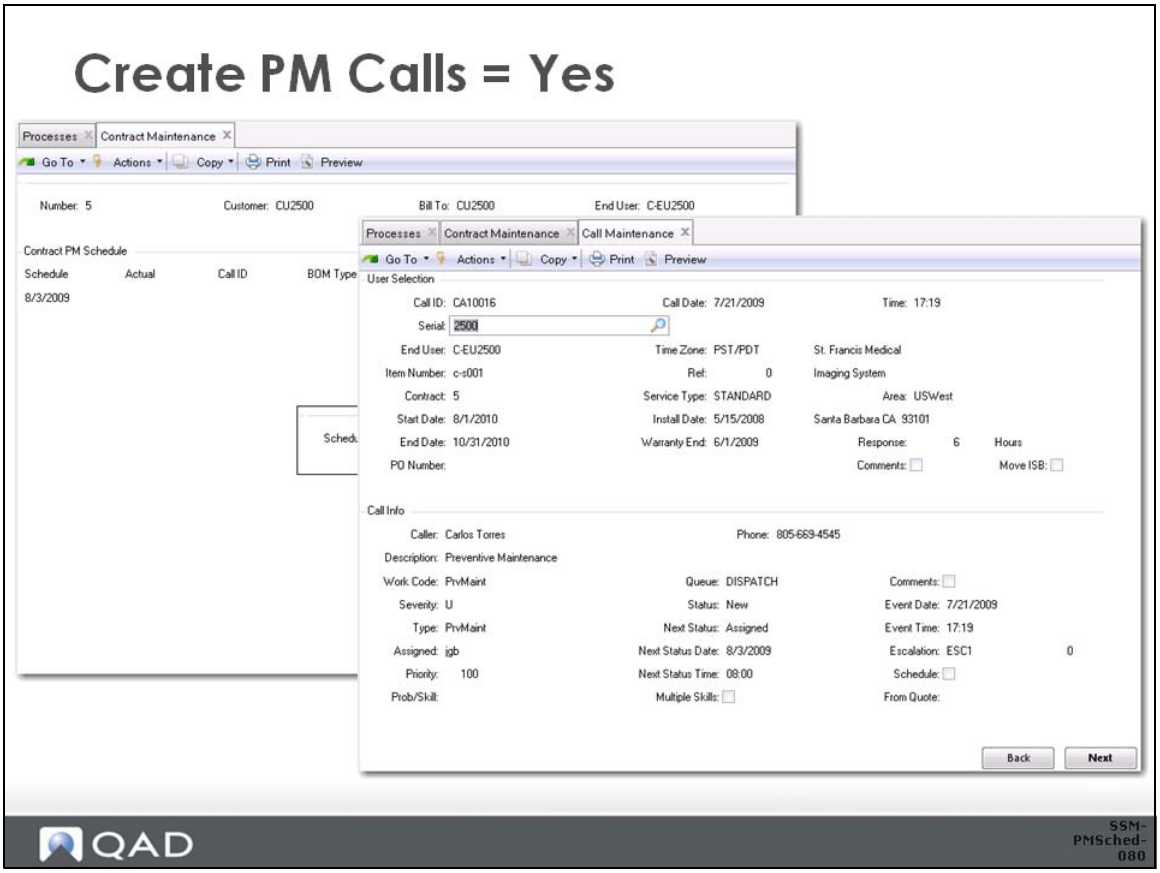


Once you have entered the proper information for a PM schedule, it will be created during Contract Maintenance. Whether or not the first call on the schedule is created depends on the setting of Create PM Calls in the Contract Control.

If Yes, when the Contract PM Schedule frame displays, a call number will display next to the first call date. When this call is closed, the system will automatically generate the next call on the schedule.

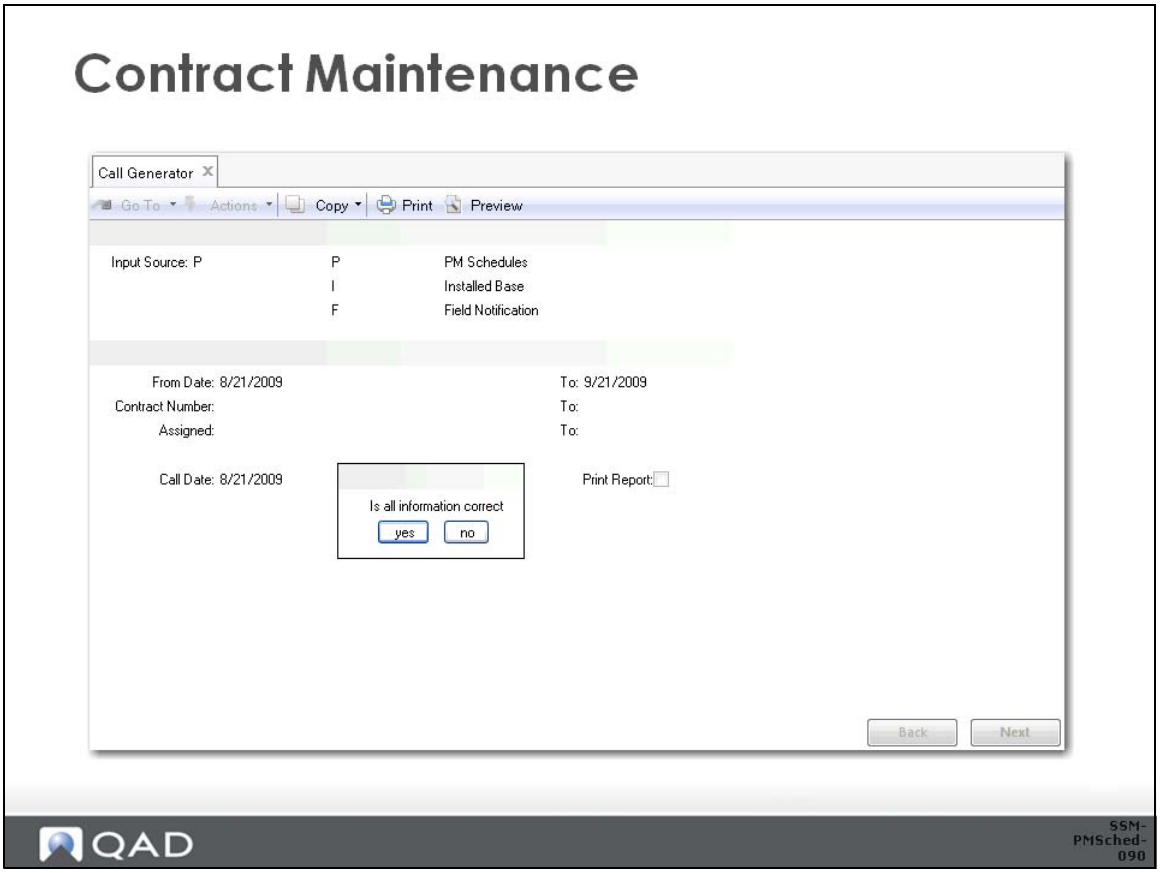
If No, the first call is not automatically generated and neither are subsequent calls. When Create PM Calls is No, the Call Generator (11.1.8) is normally used to create all scheduled calls within a range of dates.

Create PM Calls = Yes



This figure shows the PM Schedule frame in Contract Maintenance when Create PM Calls is Yes. This contract is for a year, and four visits have been specified. Although all preventive maintenance visit dates are set up in advance, only the initial PM call record is created.

Using the Call Generator



Use the Call Generator (11.1.8) to create PM calls for a range of dates and contracts at one time. This gives you more control over the calls open date.

When the system generates calls in Contract Maintenance, the call open date is the current system date. In the Call Generator, you can specify a call open date. This date is important because it determines effective limits and levels of coverage.

How frequently you generate calls can be affected by whether you are using engineer scheduling and how far in advance you want to schedule engineers.

Exercise 14: PM Scheduling

In this exercise, you create a contract with four line items. One will have its own PM schedule, two will be on a contract wide schedule, and one will not be on a schedule at all.

Verify Control Setting

1. Go to Contract Control (11.5.24).
2. Click Create PM Calls to Yes.
3. Click Next.
4. Press Help on the Create PM Calls field to see a detailed description of its effect.
5. Click Next twice to save any changes; return to the menu.

Create Contract Line Items

1. Go to Contract Maintenance (11.5.13.1).
2. Leave the Number field blank, and press Enter. Write down the contract number supplied by the system.

   Number: _____
3. Click Next to accept defaults on Item End Users and Bill End Users.
4. Enter C-MDI for Customer and Bill To.
5. Enter a Service Type of SC-10 and click Next until the cursor is in the Hold Contract field.
6. Go to the Contract Visits field and enter 6 to create a contract-wide PM schedule with six visits for each end user on the contract.
7. Click Next, the Copy service type limits message appears.
8. Click Yes to accept the default and then click Back at the Coverage Limits frame to accept the defaults.
9. Click Back until you are at the End User field in End User Default frame.
10. Enter C-EUMDI1 for the End User.
11. Click Next until reaching the Copy Service Types Limits, enter Yes to accept.
12. Enter Yes to accept the copy limits from Contract type.
13. Click Back to the End User Item Detail frame.
14. In the line item entry frame, enter the following information in the appropriate fields. Then click Next to save your changes.

Field	Value
Line	1
Svc Type	SC-10
Item	C-S001

Field	Value
Item Qty	1
Serial	SER4
Net Price	$1,000.00

15 In the lower detail frame, PM Item should default to Yes.

If it does not, make sure it is set to Yes.

16 Click Next until the Preventive Maintenance Detail pop-up displays.

In this pop-up, the system displays the number of visits entered on the header and the number of recommended visits based on the Days Between PM setting in Service Item Maintenance.

17 Enter 3 in the Visits field.

Since this is a value different than the contract-wide schedule of 6, an individual schedule will be created for this item.

18 Click Next to save.

19 Click Yes to Copy service type limits.

20 Click on Service Type for the copy limits message.

21 Click Back twice and the PM Schedule for Line: 1 frame displays.

Notice that the system has created a schedule with three visits, but only the first visit has a call associated with it. Write down the Call ID here.

Call ID: _____

22 Click Back to the End User Item Detail frame.

23 Enter another line item just like the first (Step 7 above), but this time enter SER5 for the Serial field.

24 Click Next to access the line item detail.

25 Verify that PM Item is set to Yes.

26 Click Next until the Preventive Maintenance Detail pop-up displays.

27 Do not change the value in the Visits field.

28 Click Next.

29 Enter Yes to Copy service type limits.

30 Click on Service Type.

31 Return to the End User Item Detail frame.

Notice that no schedule frame displays. The line item will be added to the contract-wide schedule, which only displays when line item entry is complete.

32 Repeat steps 23 to 31 for another item C-S001, but specify SER6 for the Serial field.

33 Repeat steps 23 to 31 for another C-S001 with serial number SER7.

34 Change the default Yes for PM Item to No.

For this item, the PM Detail pop-up should not display. You should be at the End User Item Detail frame with Line 5 ready for entry.

35 Click Back until you reach the Contract PM Schedule Frame.

Notice that the system has created a contract PM schedule with six visits, but only the first visit has a call associated with it. Write down the Call ID here.

Call ID: _____

36 You should now have four line items defined like the following.

Note The information won't display in the contract, it is for reference only.

Line	Item No.	Serial No.	PM Item	Schedule
1	C-S001	SER4	Y	Schedule
2	C-S001	SER5	Y	Individual
3	C-S001	SER6	Y	Contract-wide
4	C-S001	SER7	N	None

37 Click Back three times, and then click Next twice to complete the contract trailer; return to the menu.

Review PM Calls

1 Go to Call Print (11.1.1.4). Enter the first call you created in the Call ID field and the second call in the To field. Then click Next twice, accepting any defaults.

2 In the Printer Options frame, direct the output to Printer and click Next. Review the two calls, and verify that the first has only one line item (SER4) and the second has two (SER5 and SER6).

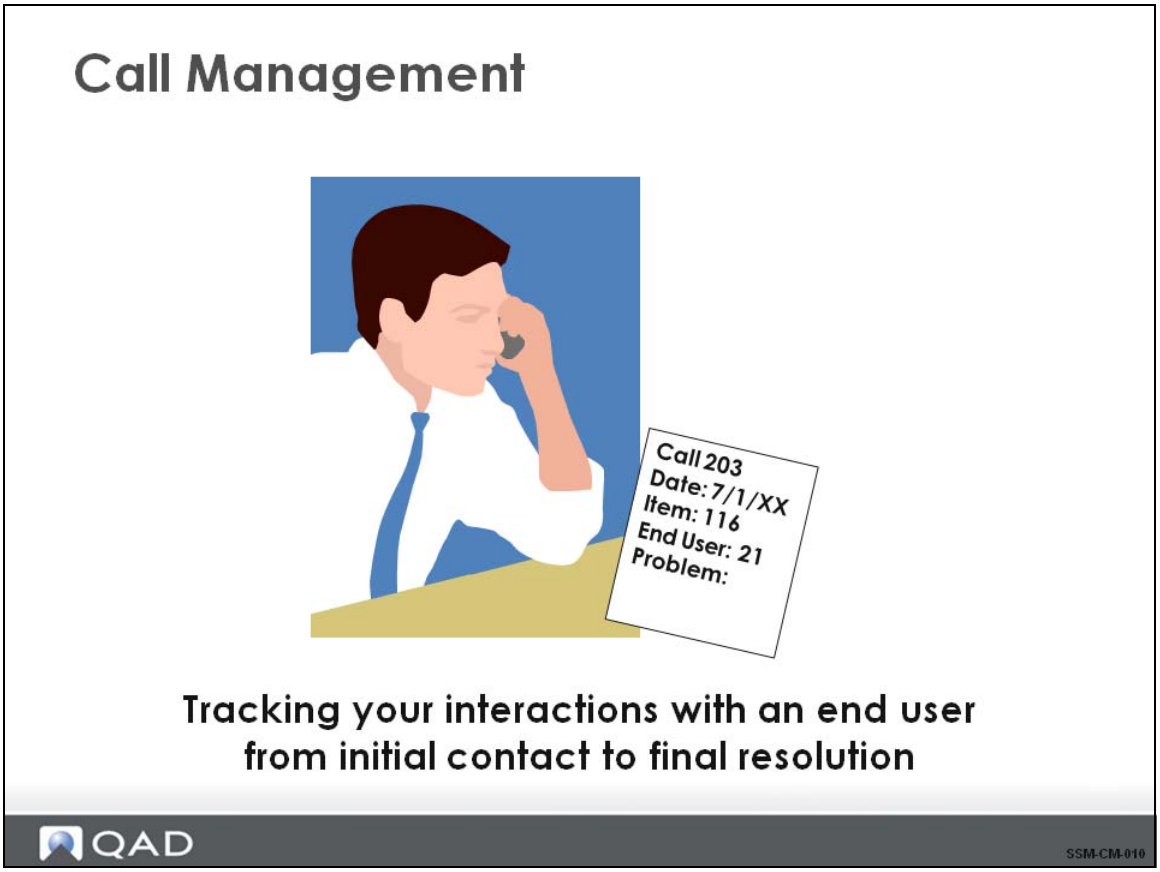
Notice the next status date and time on the calls. Are they in the future? Do you know why?

3 Return to the menu.

Chapter 8

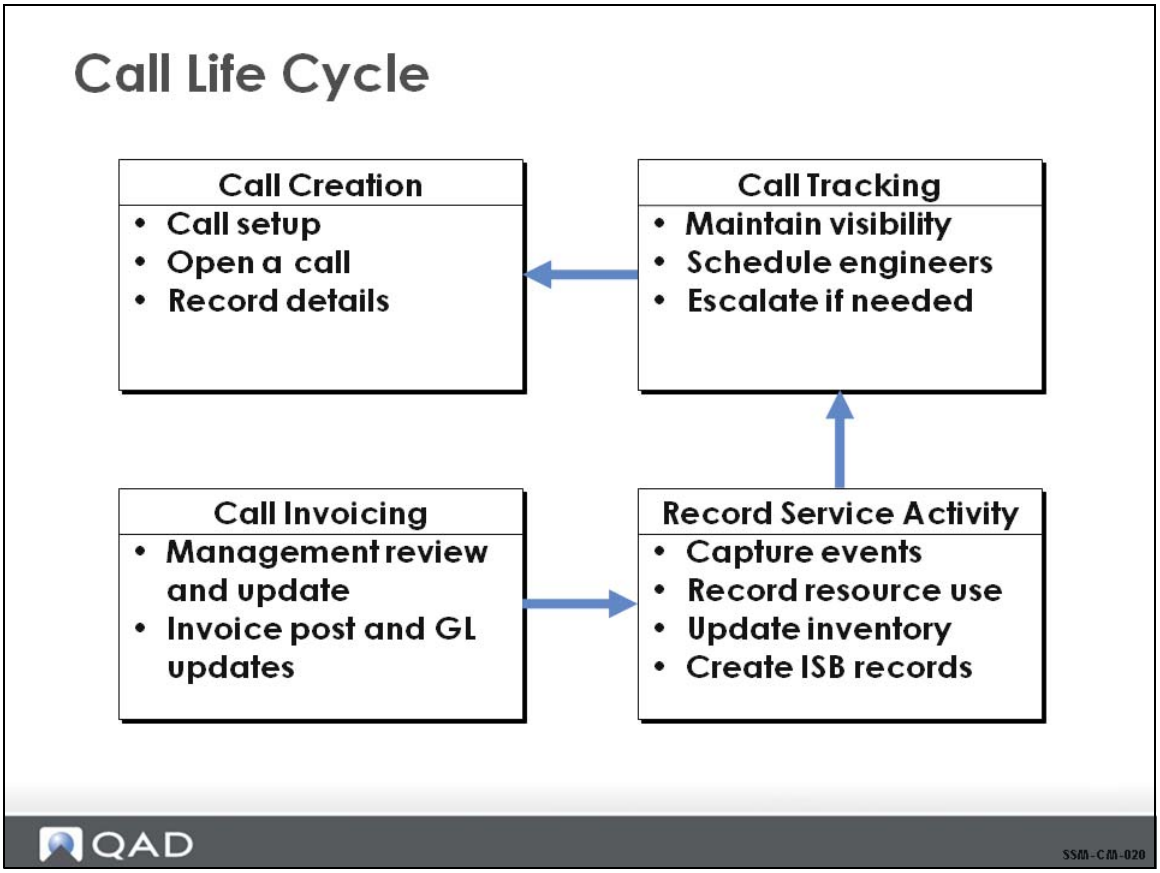
Call Management

Overview



Call management is one of the key features of the Service and Support module, because it enables you to track your ongoing relationships with end users.

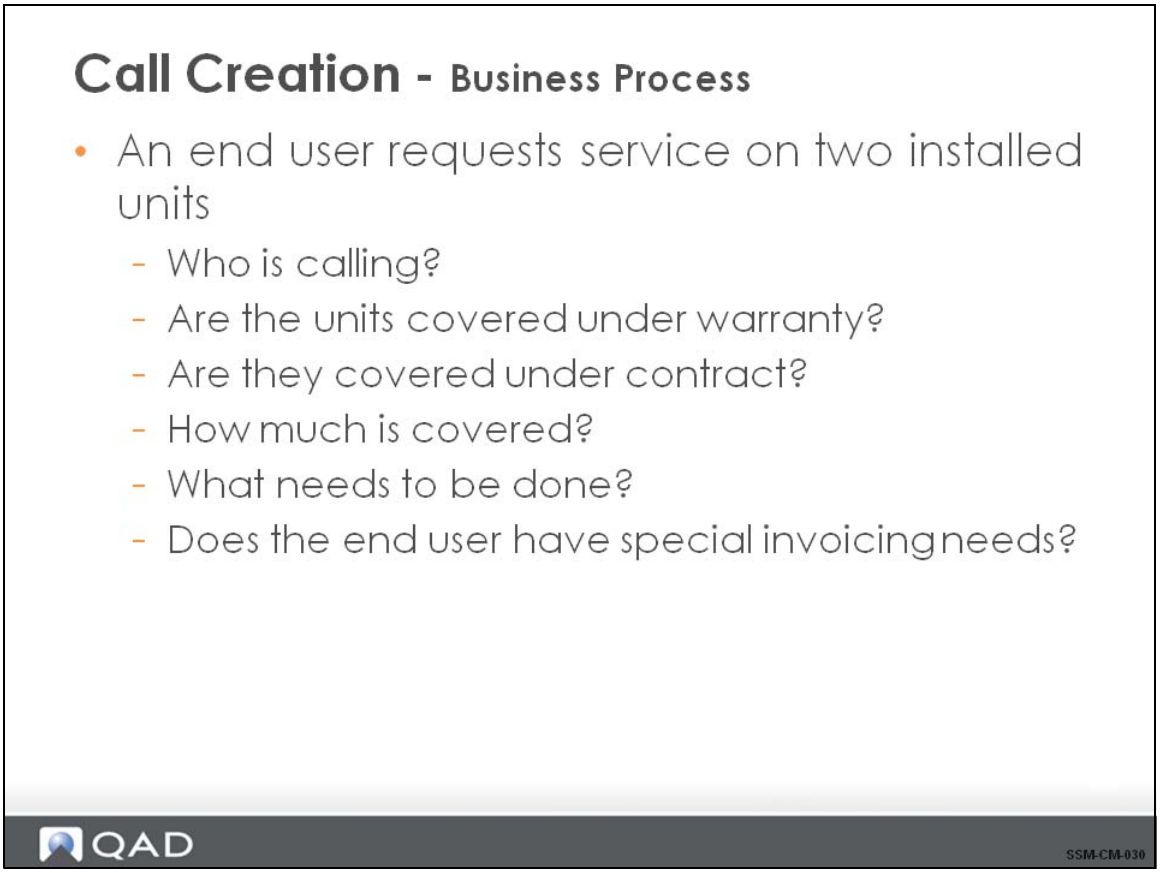
Call Life Cycle



SSM provides a number of complementary functions that work together to enable a service organization to take calls, keep visibility over their current status, automatically change call status based on user-defined criteria, select an appropriate engineer for the call, order items to service a call, record activity (items, labor, expenses) for a call, and create invoices for service activity.

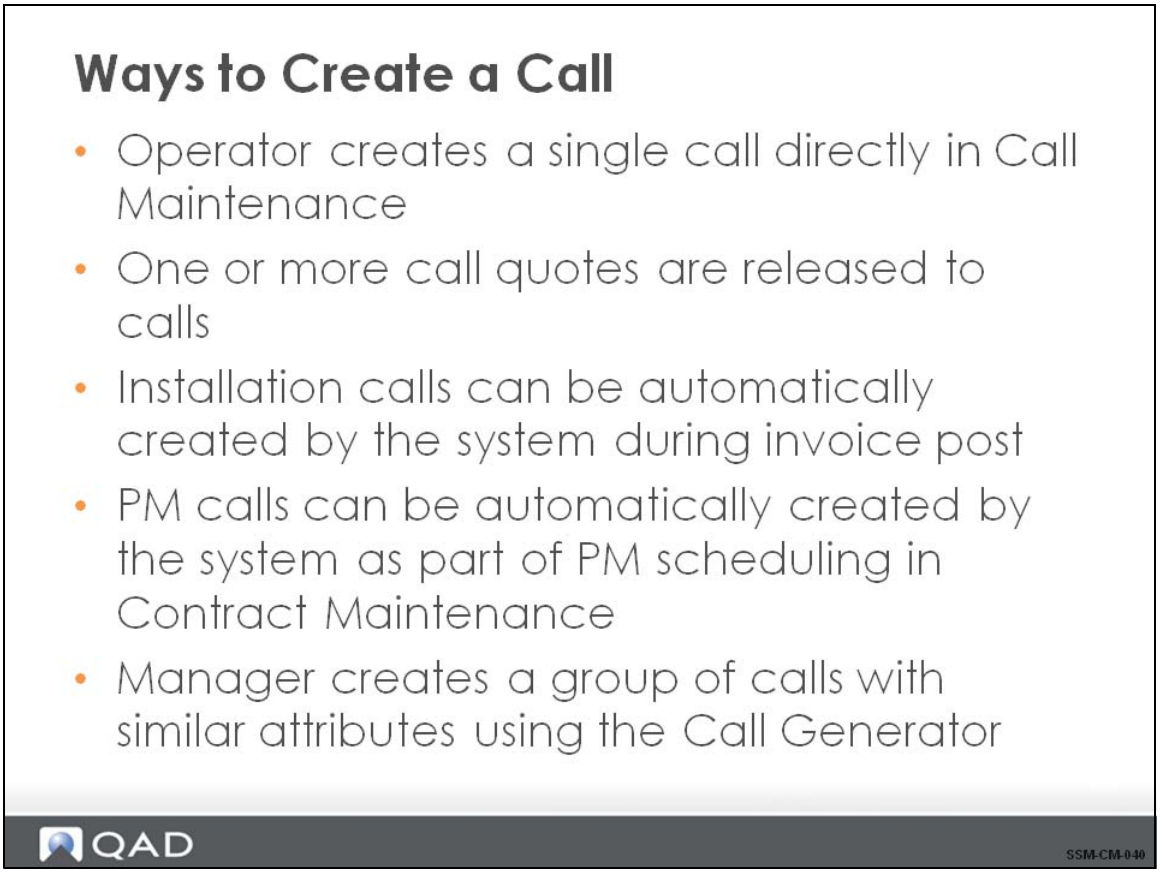
This chapter will concentrate on call creation and call tracking, which involves call setup, the actual opening of a call and features related to managing calls. Creating Call Quotes, recording service activity and call invoicing are discussed in subsequent chapters.

Call Creation - Business Process



A fundamental concern in service is the management of information flow between end users and your internal service operations. This means managing incoming calls. Calls record end user interaction and maintain visibility of open problems and support needs.

Ways to Create a Call

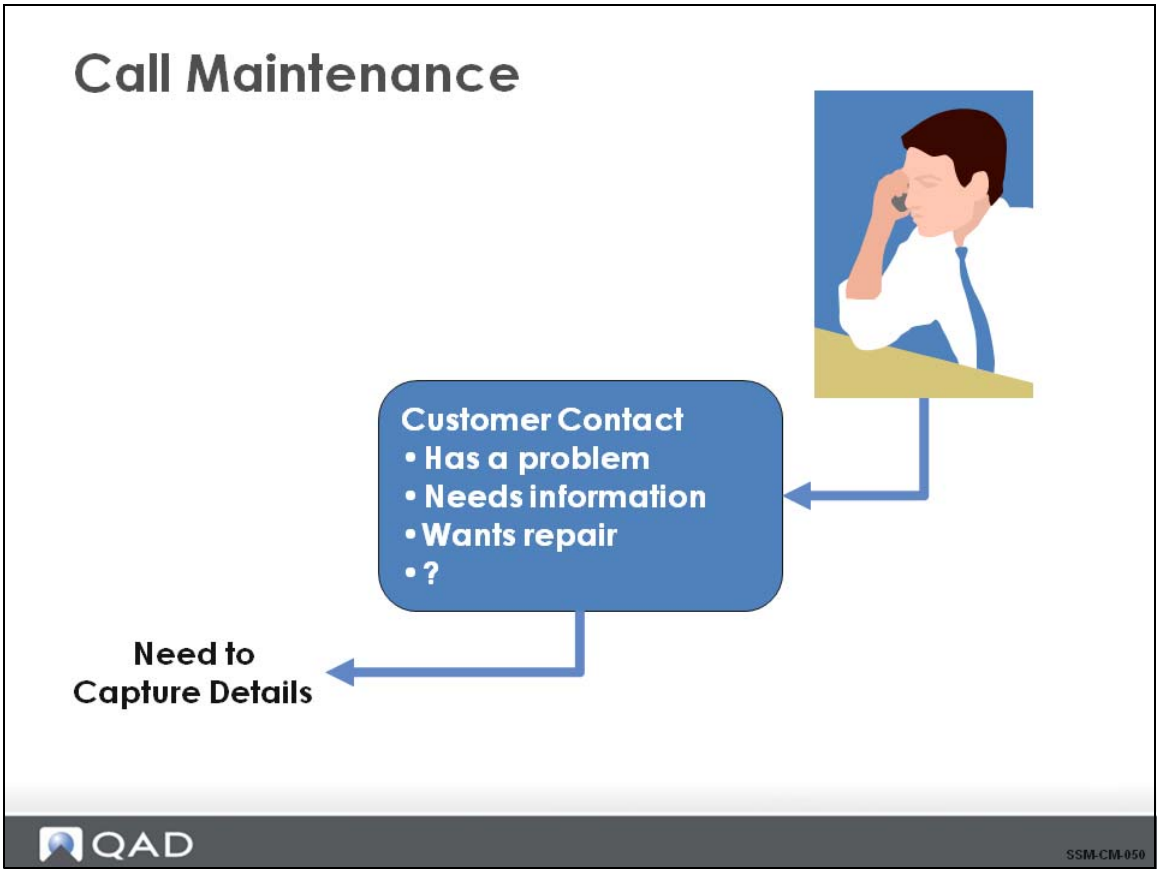


In the Service and Support module, calls can be created both directly and indirectly. Calls are created directly with Call Maintenance (11.1.1.1) or by creating a call quote with Call Quote Maintenance (11.1.1.7) and releasing it to a call. Multiple calls can be created using Call Generator (11.1.8).

Calls are created indirectly in two ways:

- PM calls are created as part of the scheduling associated with Contract Maintenance (11.5.13.1).
- Installation calls are created when a sales order or RMA invoice is posted and an item on the order is defined as requiring an installation call.

Call Maintenance

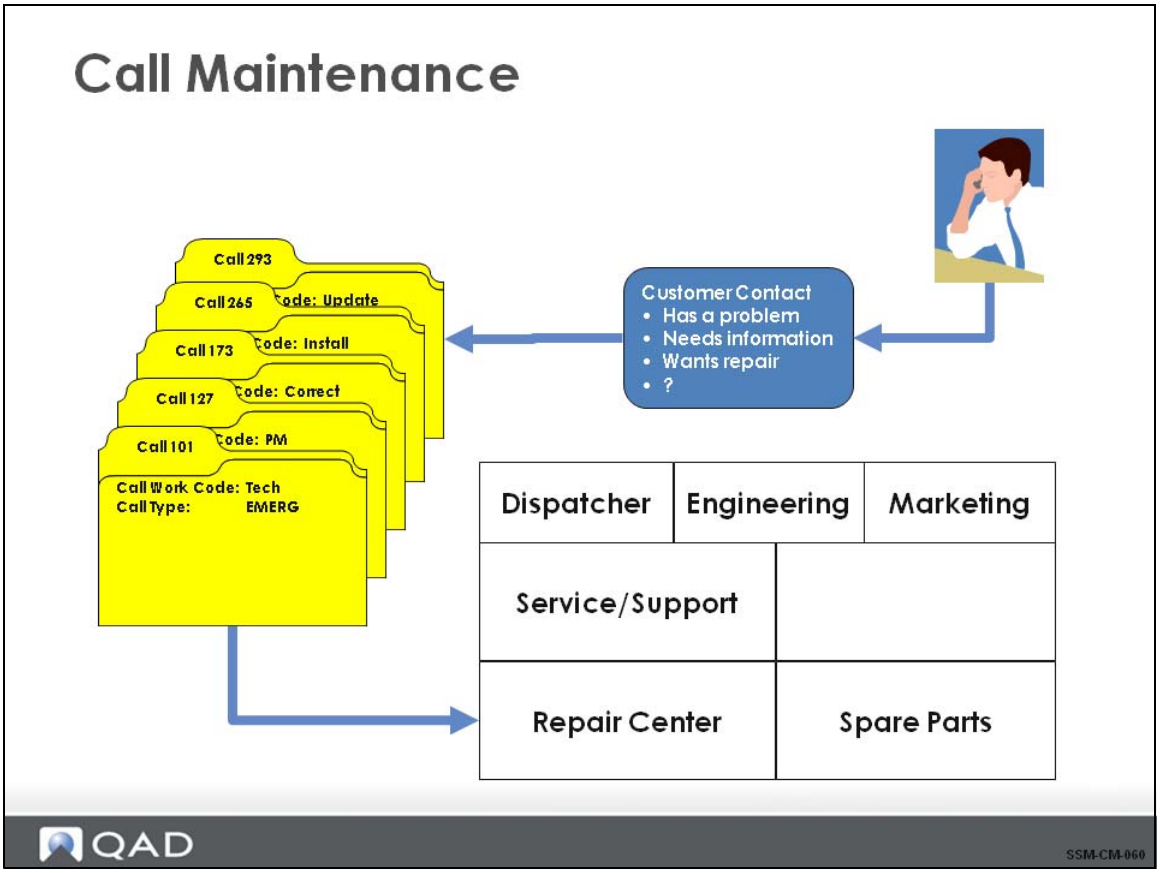


An end user may report a failed product. On your end, the call is entered as a record that identifies the caller, the system in question, the nature of the problem, and how the call is to be handled.

Calls can record all kinds of interactions, from questions about how a product works to sales inquiries to requests for scheduled maintenance.

Call Maintenance is designed to make it as easy as possible to enter a call, since it is often used in an on-line environment where information is entered directly on the screen as support personnel interact with end users. The primary program for managing calls is Call Maintenance (11.1.1.1).

Call Maintenance



Once a call record is created, various call management functions can be used to direct the call to the appropriate personnel or departments in your organization. The call record deals with many different related issues:

Call Information. Where is a call placed in your support organization (Queue)? How is it categorized (Problem, Type, Severity)? When should it be updated (Next Status Date/Time)? Where is the call in relation to the call life cycle (Status)?

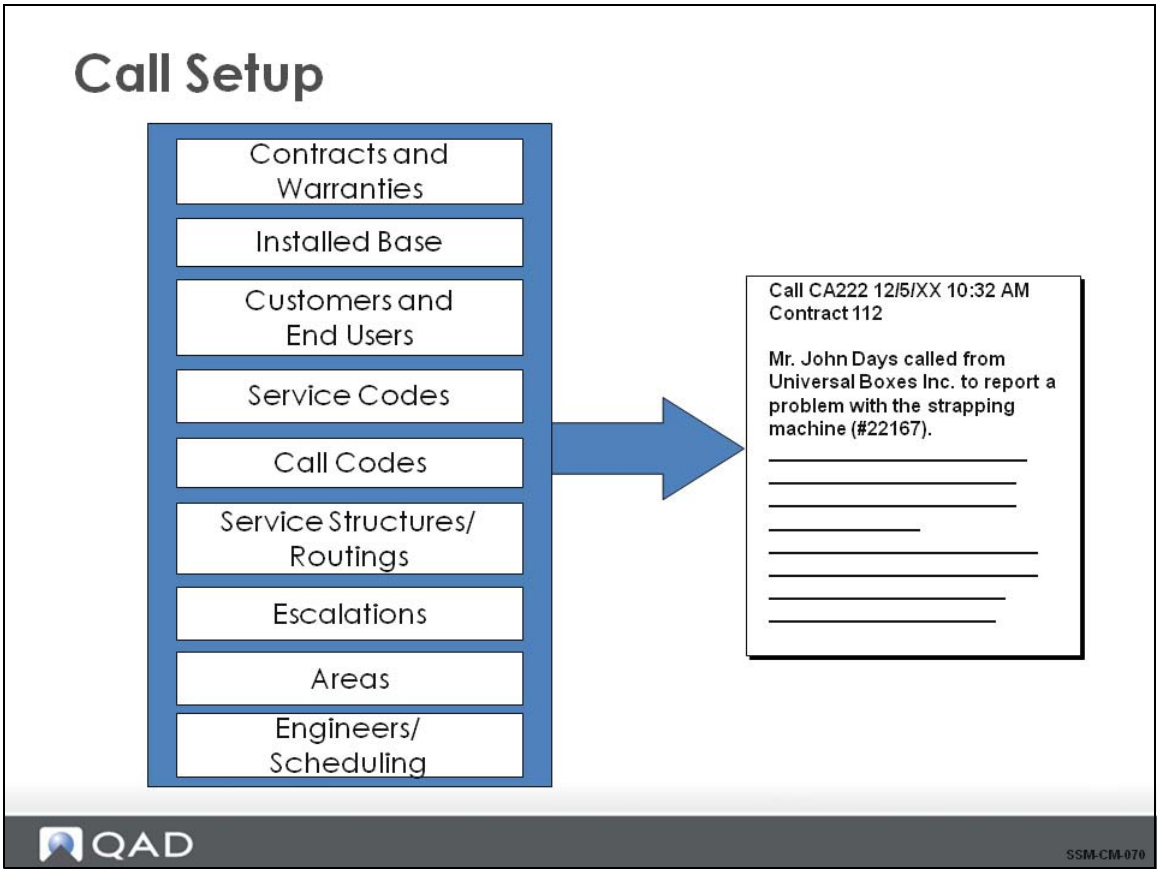
Management. How should the system manipulate the call to ensure that it is addressed in a timely fashion (escalations)?

Engineer Assignment. Which service engineer should be assigned to work on this call? Who is best equipped for the particular problem? Who is available to do the work?

Repair Information. What items and procedures should be used when servicing the call item(s)?

Service Summary Information. What problems were encountered on this call? How were they resolved?

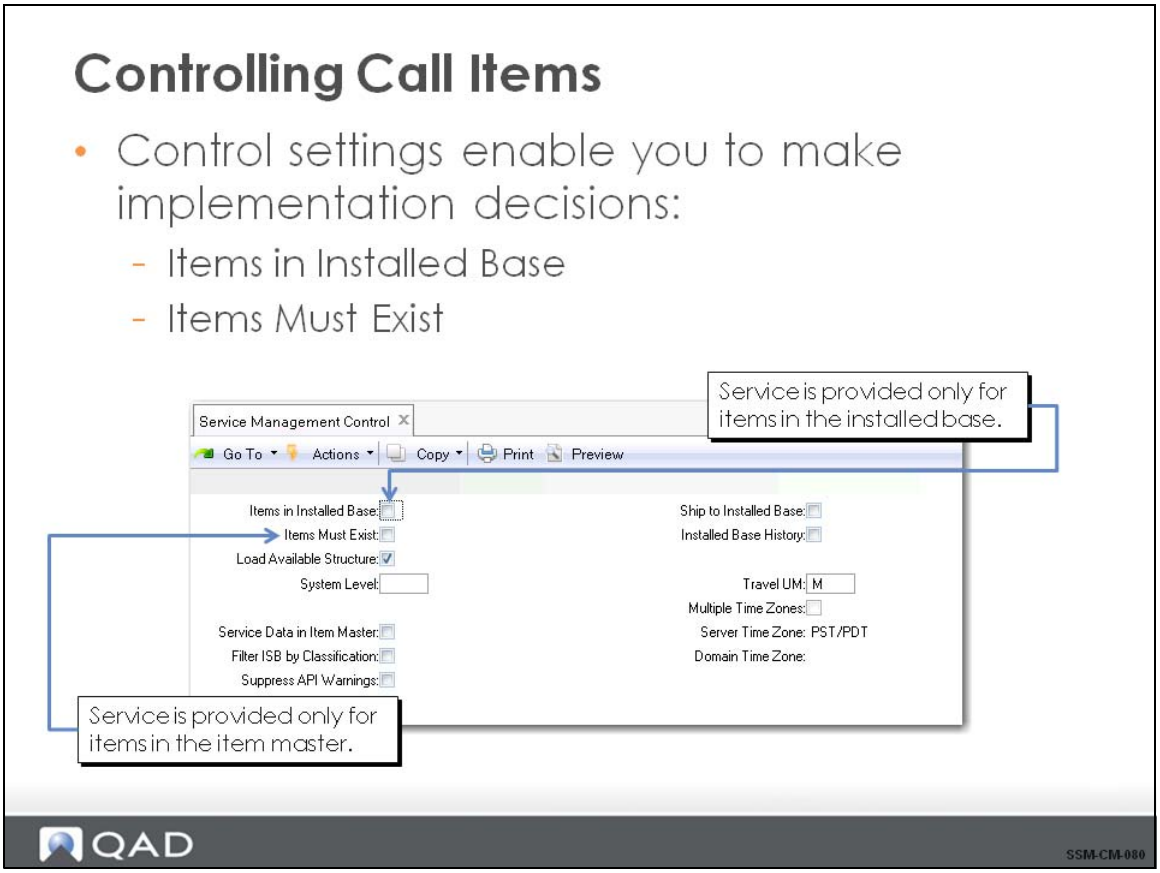
Call Setup



In previous chapters we discussed the creation of many of the codes and features related to Call Management. This section will cover the key Control settings and call types which influence how calls are managed.

As this figure indicates, the creation of a call draws on information related to many other service features. Some of these features, like escalation and engineer scheduling, are optional. The creation of a call becomes relatively more complex as you add more features of the system.

Controlling Call Items

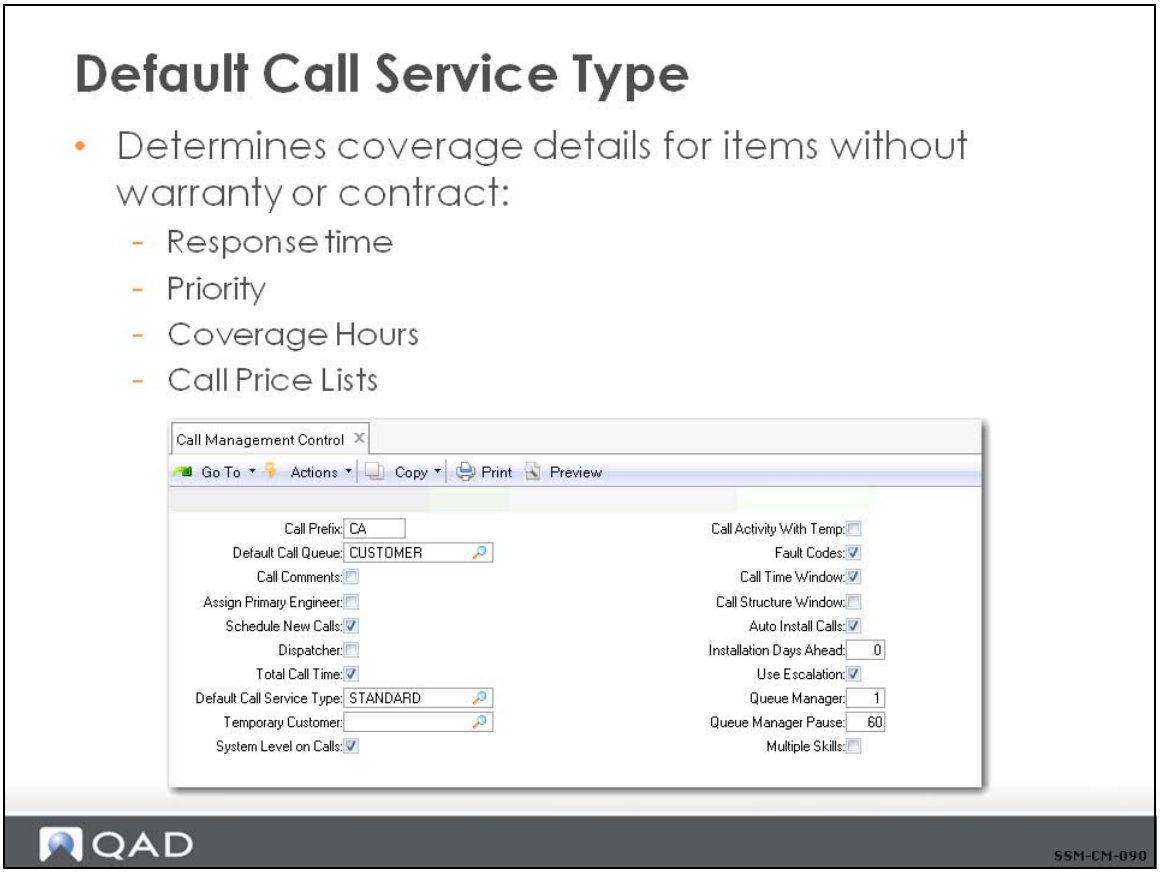


Settings in the Service Management Control (11.24) determine whether you can take calls only for items in the installed base, for any item defined in the item master file, or for any item at all. We looked at these settings earlier in the discussion on the installed base and how the installed base influences service policy.

Setting Items in Installed Base to Yes restricts the calls you take to items in the installed base. Setting this flag to No enables you to take calls for any item.

The setting of Items Must Exist determines whether you can only take calls for items that have previously been defined in your item master. This setting is generally used to restrict the provision of service to items you manufacture and sell.

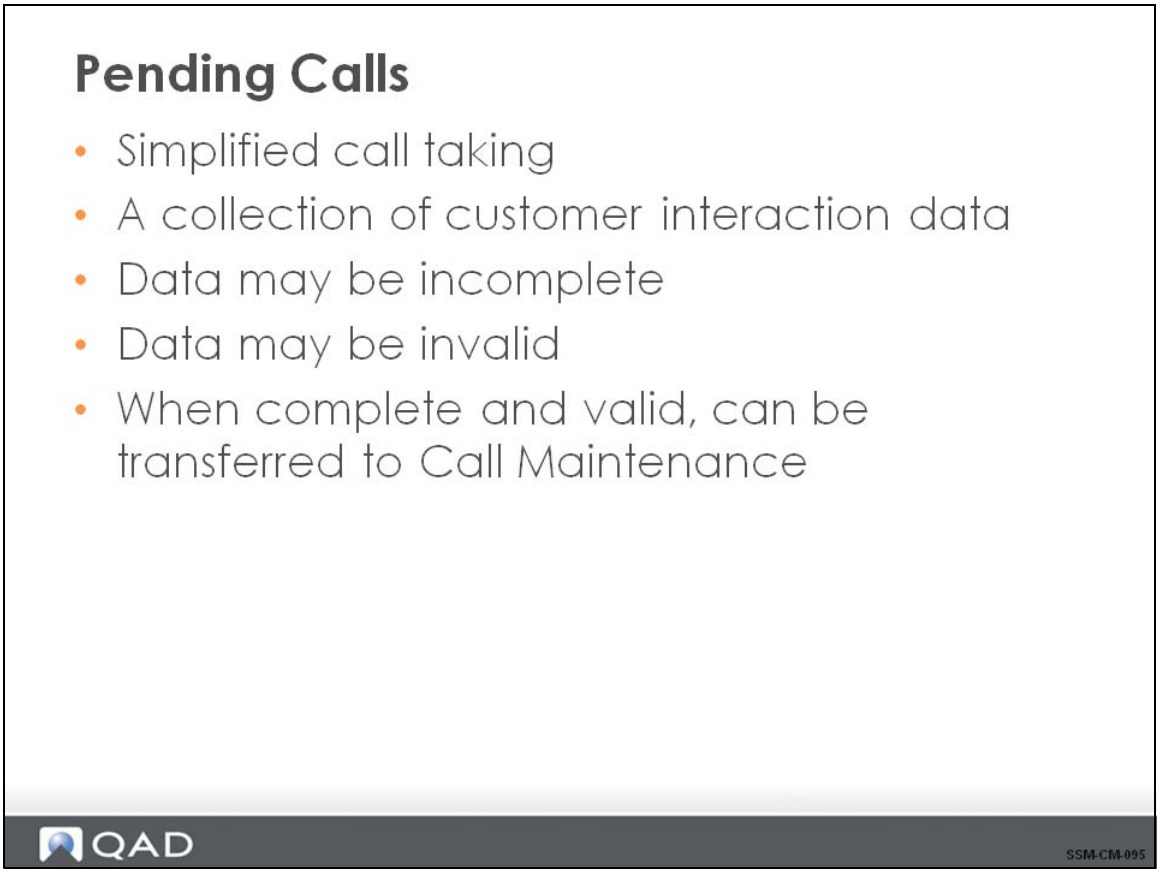
Default Call Service Type



A call record includes information about an end user and an item. From this information, the system determines an applicable service type, which defines the default coverage suggested for this call. Coverage is derived first from a warranty or contract if they exist.

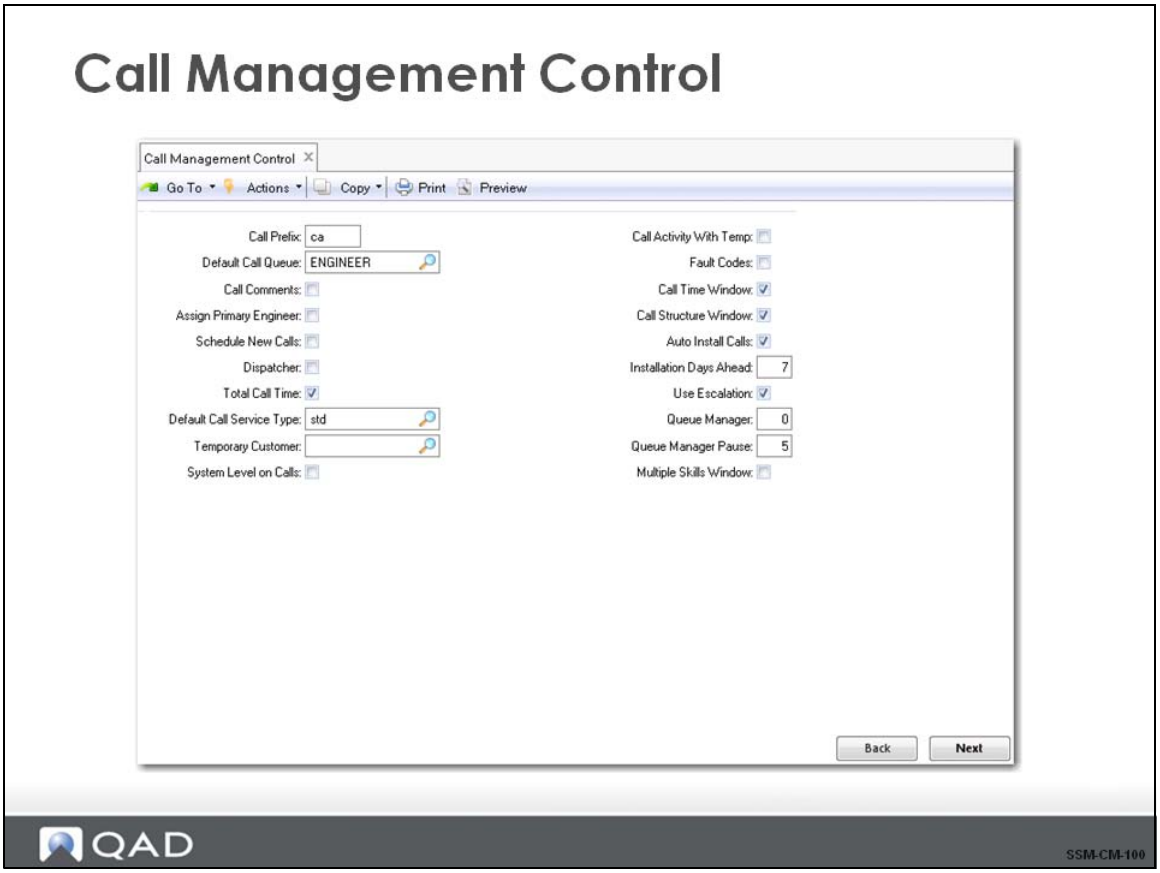
Otherwise, the default call service type specified in the Call Management Control (11.1.24) goes into effect. The default service type sets the response time, priority, and coverage hours for items that have no coverage. It also supplies a default price list for items and services recorded in Call Activity recording.

Pending Calls



A Pending Call is a collection of data fields, entered during conversation with the customer, or generated by defaulting logic or lookups of related data.
Fields may be left empty or have invalid values entered. Before the data can be transferred to Call Maintenance, it must pass a full validation process.

Assigning Responsibility



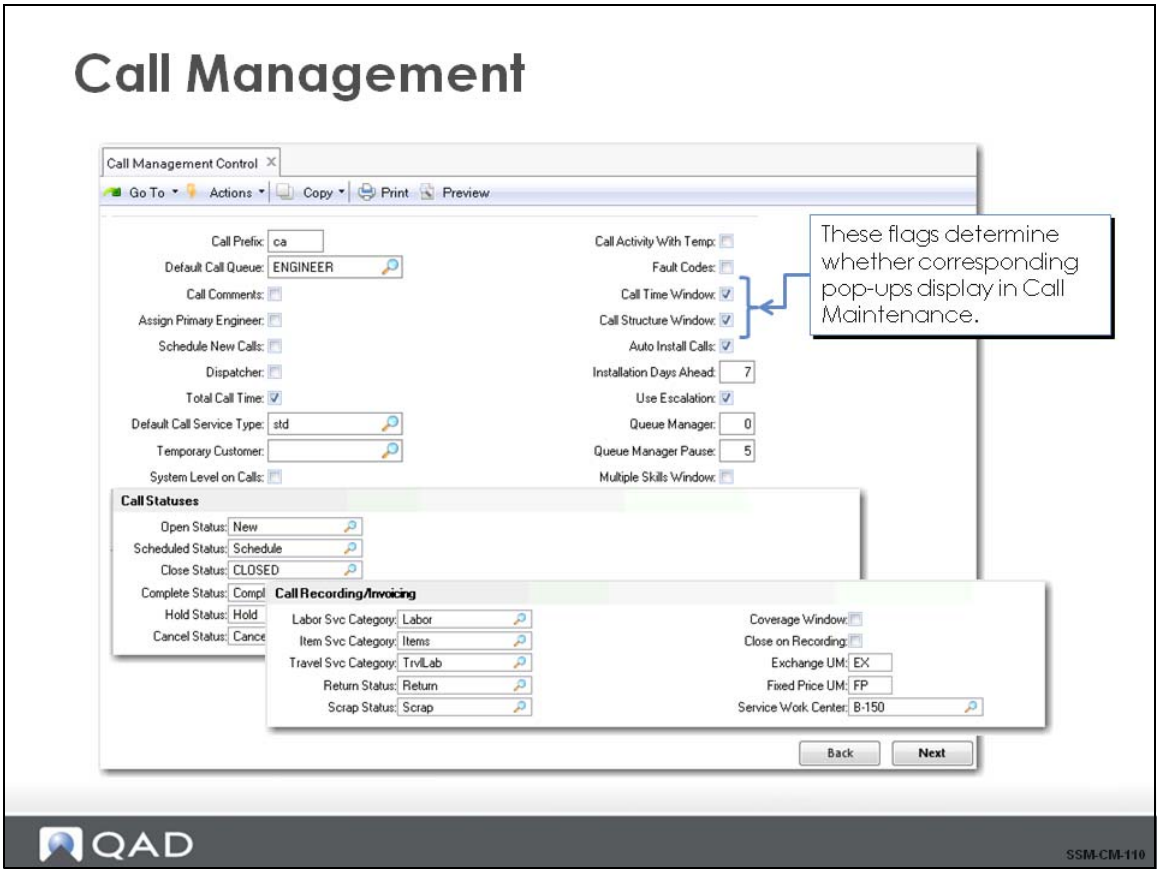
Two control file settings determine how engineers are typically assigned to a call.

Assign Primary Engineer. Determines whether the primary engineer associated with an end user is normally assigned when new calls for the end user are created. This field is typically used if scheduling is not being used.

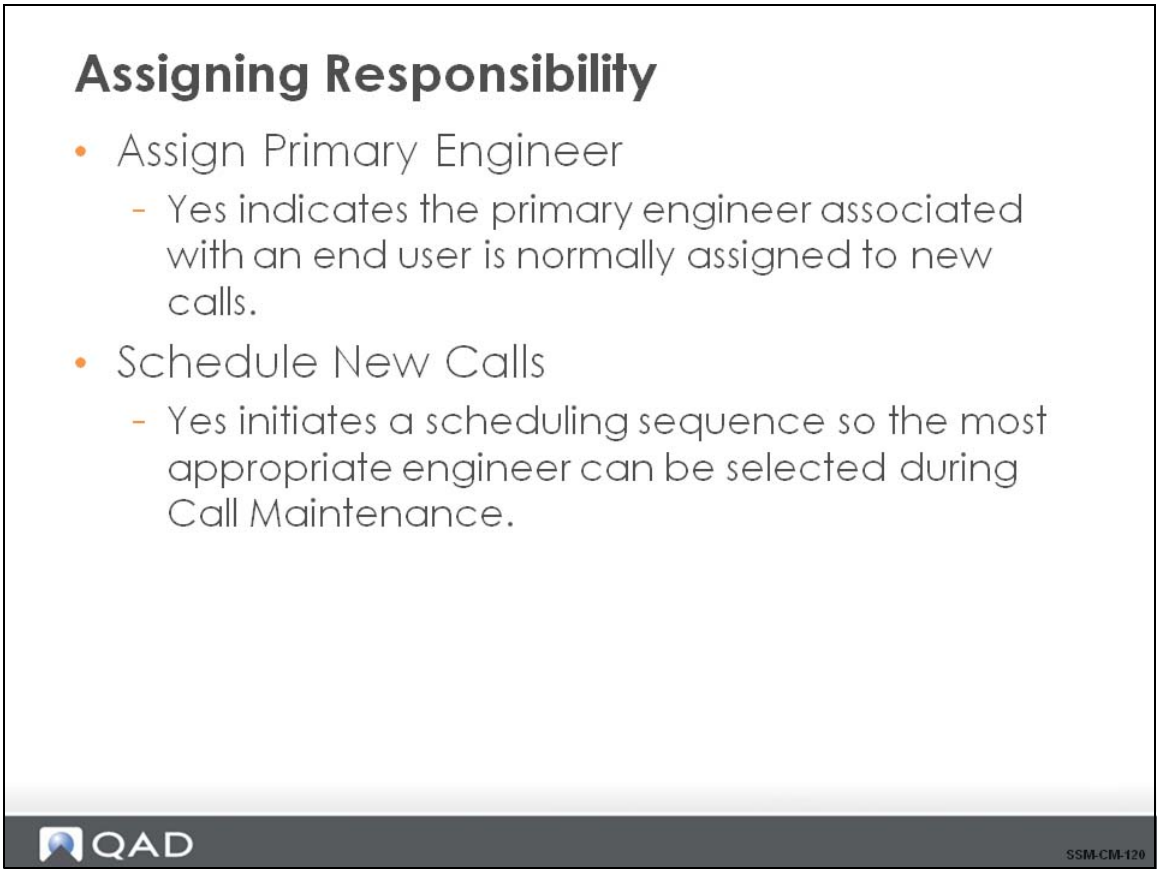
- (FSS) Field Service Scheduler (11.1.17.1) is another function that may be used to schedule engineers. FSS will be addressed separately.

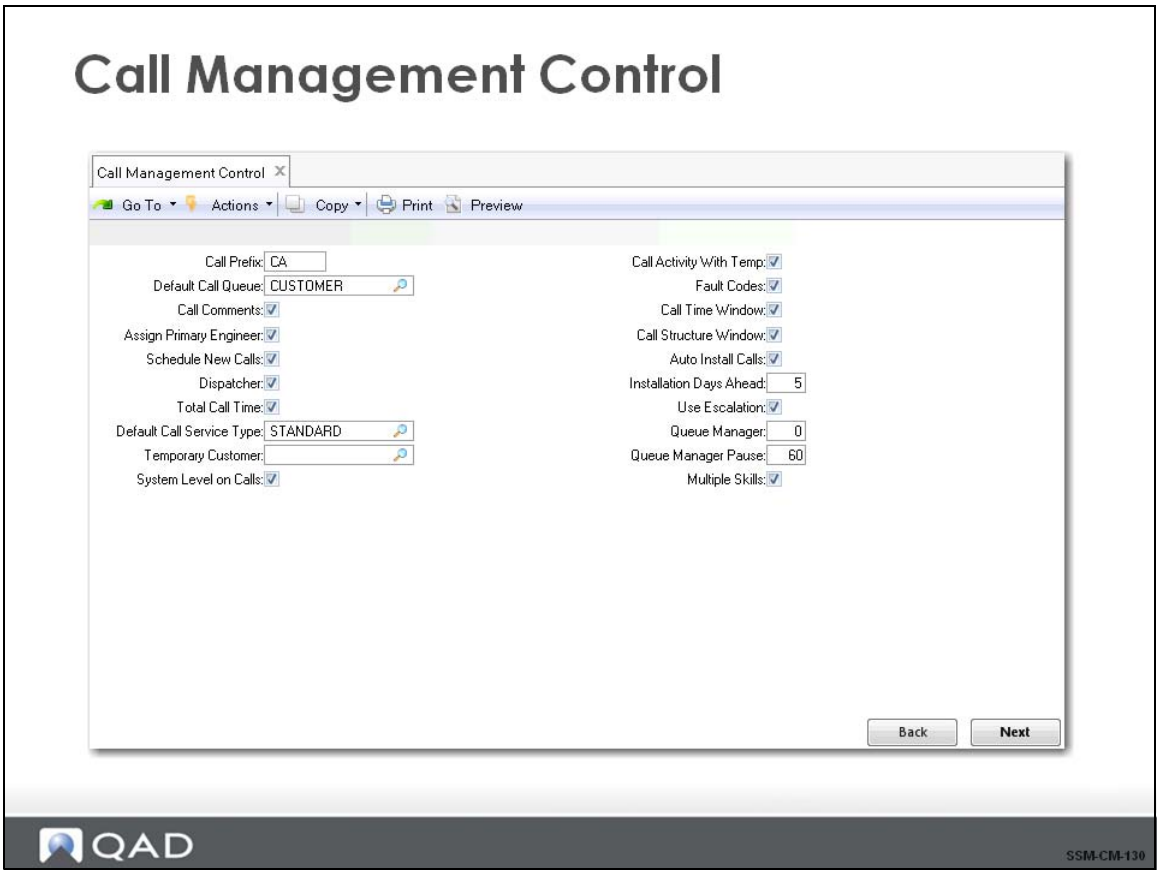
Schedule New Calls. Set to Yes if you want to initiate the engineer scheduling sequence as part of Call Maintenance.

Call Management



Assigning Responsibility





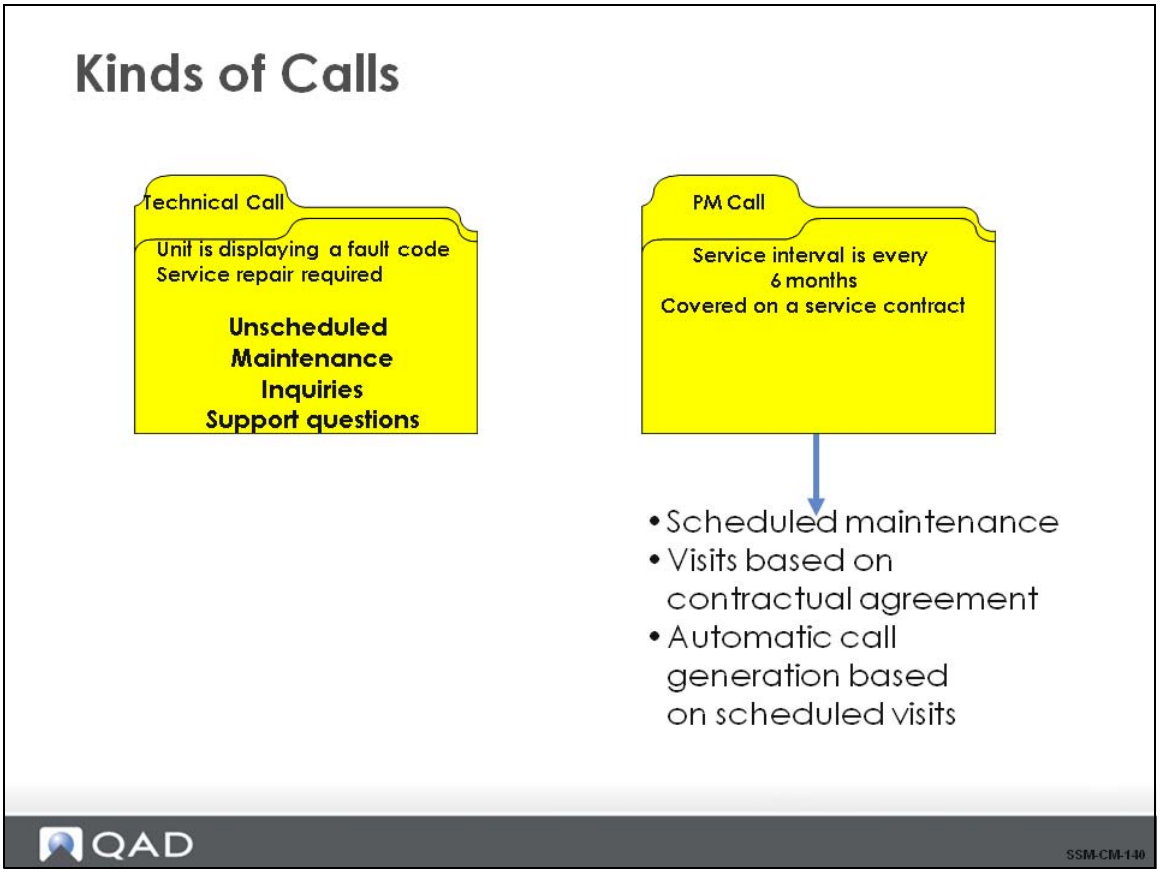
If you are using standard engineer scheduling, you will probably want to set Call Time Window to Yes in the Call Management Control. When this field is Yes, the Travel and Estimated Time window appears in Call Maintenance, enabling you to enter an estimated time for the engineer. If this window does not display, the default estimated times set up for the appropriate work code in the Call Management Control File are used.

The estimated call length is important, because it is used to calculate engineer availability during call scheduling if Display by Calls is No in the Engineer Schedule Control File. Scheduling is discussed in detail in the next chapter.

The appearance of the Item Service Structure Detail frame is also determined by the control file.

BOMs and routings can print on the engineer's call report as the list of items to be used and steps to be taken in a service activity. They can also be automatically loaded in Call Activity Recording as item usage. Service BOMs and routings are discussed in more detail in Chapter 10.

Kinds of Calls

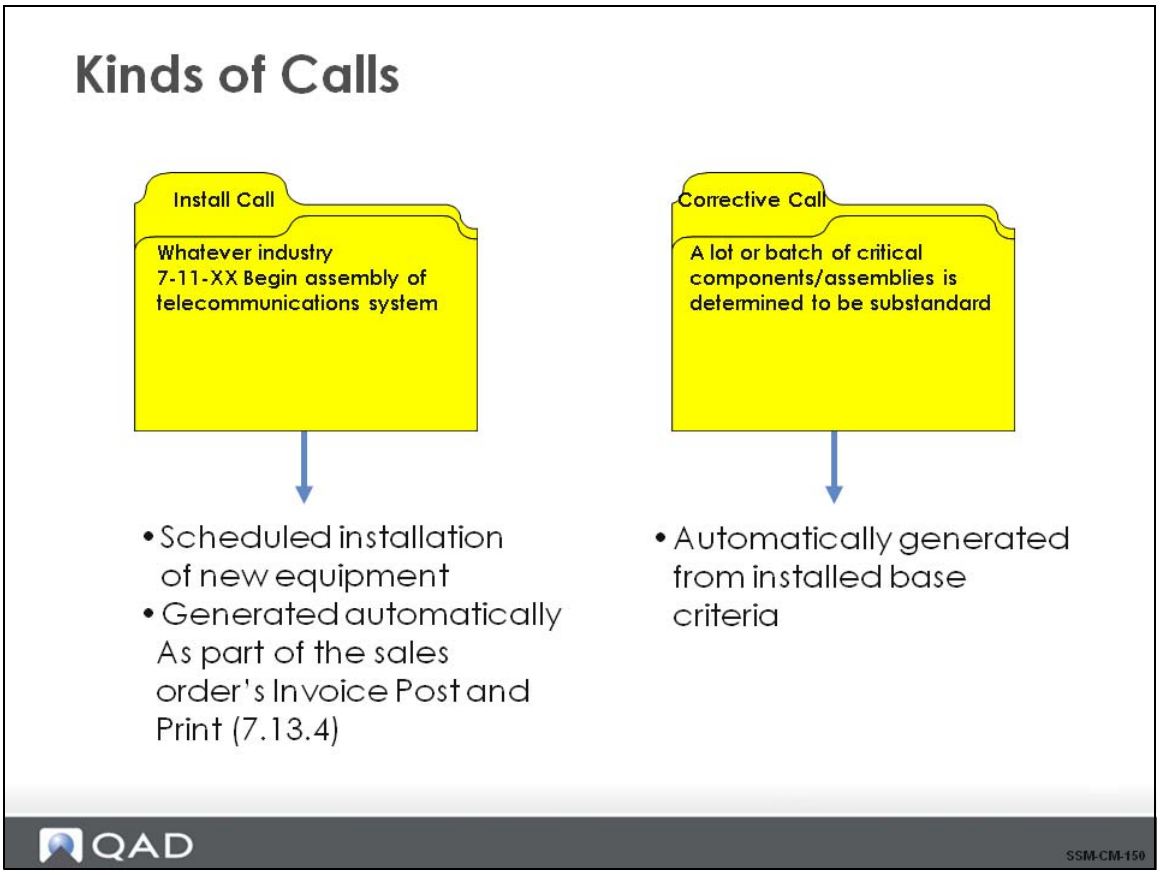


For most service organizations, calls generally fall into a small number of typical patterns. One of the most common ways of categorizing calls is by the kind of work involved. In SSM, this is determined by the work code.

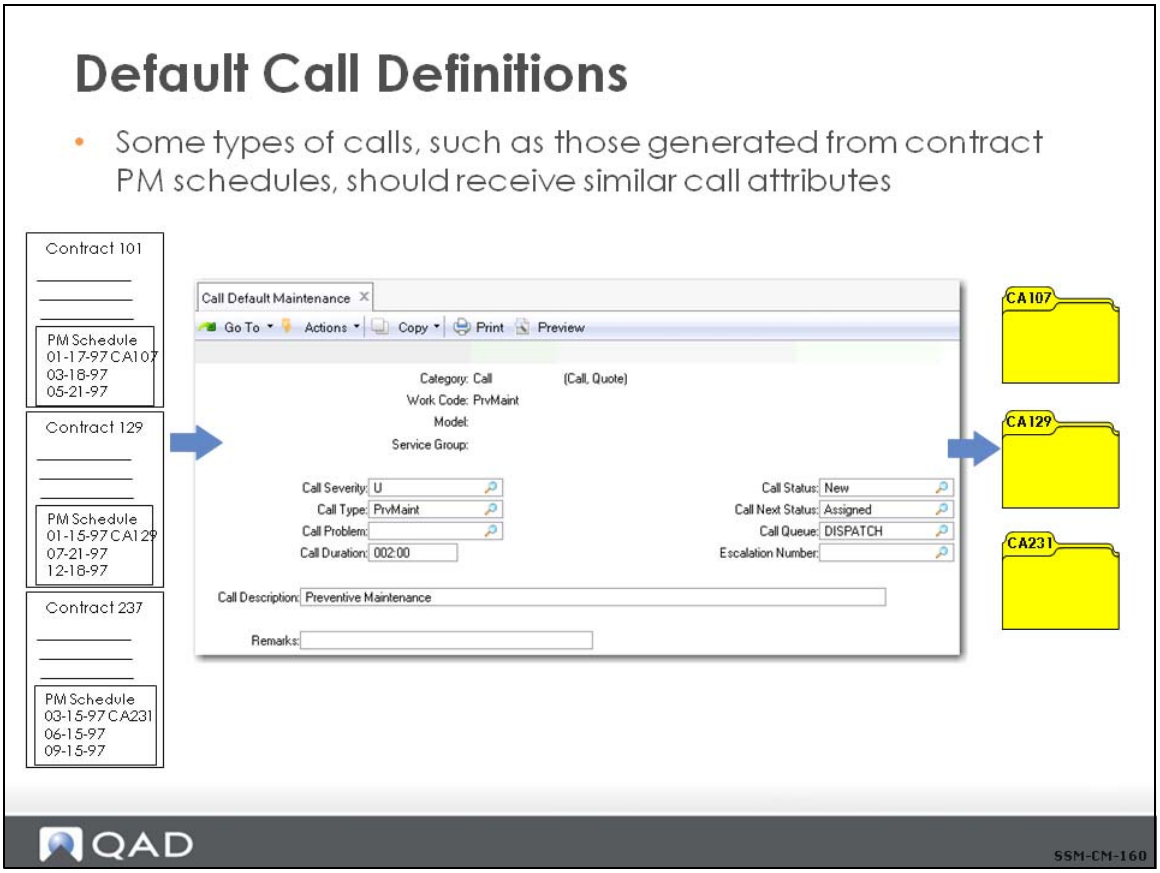
Five default work codes can be defined in the Call Management Control.

A default call length can be associated with each work code, and is used in Call Maintenance for calculating engineer load for each type of call.

Some companies may not require separate work codes for each of these call types, but can use one or more generic work codes. Other companies may need more than these five codes for managing more complex service types. For example, you might have a work code for testing or installation preparation. You can create as many or as few work codes as needed to meet your business requirements.

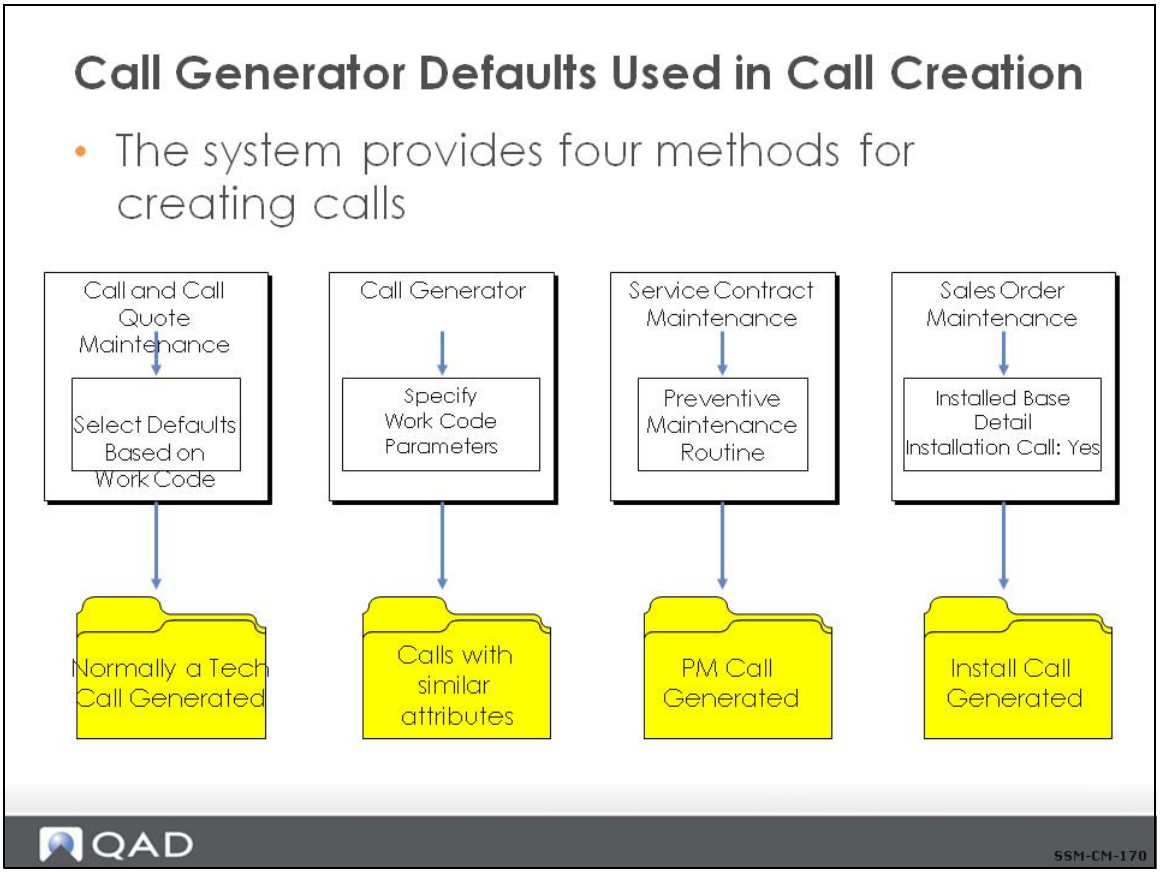

Kinds of Calls
Install Call
Whatever industry 7-11-XX Begin assembly of telecommunications system
• Scheduled installation of new equipment
• Generated automatically As part of the sales order's Invoice Post and Print (7.13.4)
Corrective Call
A lot or batch of critical components/assemblies is determined to be substandard
• Automatically generated from installed base criteria
QAD
SSM-CM-150

Default Call Definitions



The data entry for recording call information can be greatly streamlined by setting up multiple sets of default call information in Call Default Maintenance. These sets of defaults are pulled into the Call Maintenance screen or used for calls automatically created by the system. Default for call quotes are also set up with the same maintenance functions. These values can be overridden for individual calls as needed.

Call Generator Defaults Used in Call Creation

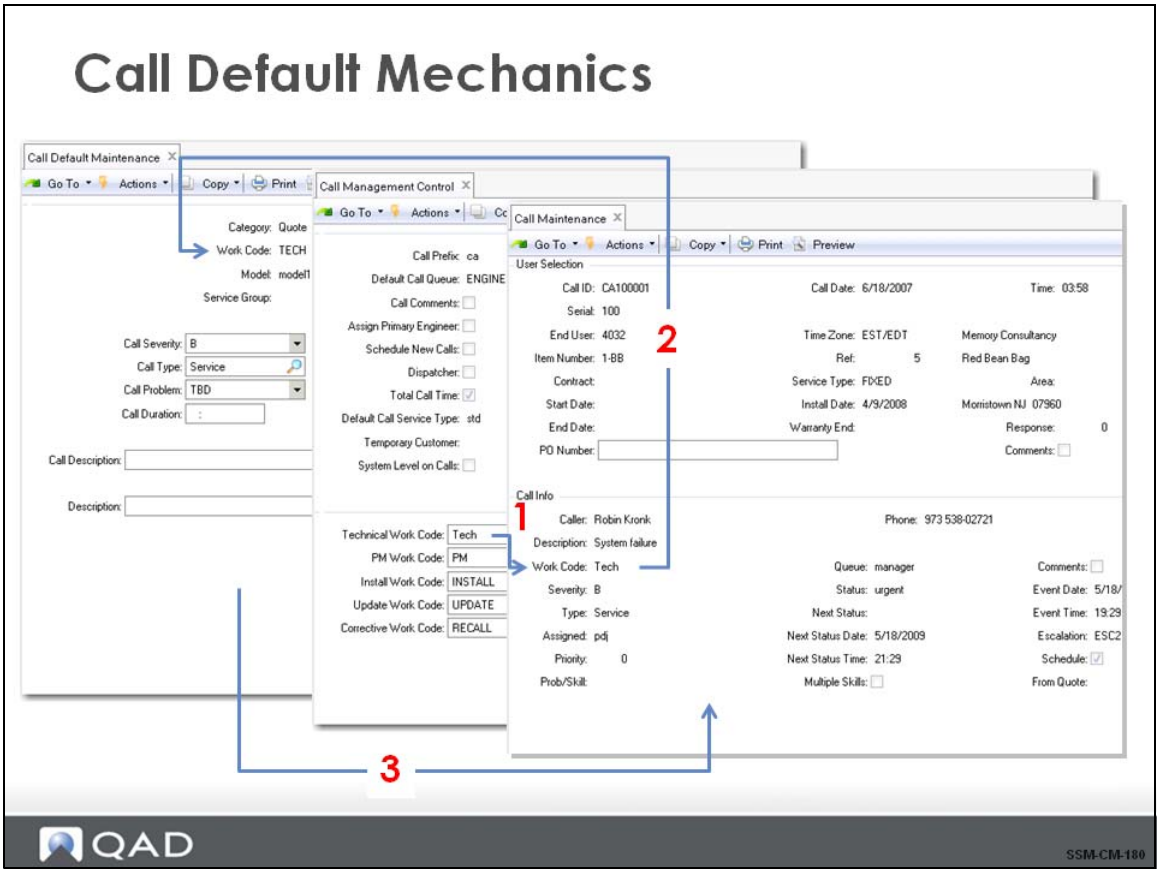


This figure illustrates that regardless of how a call is created, SSM searches for an appropriate set of defaults when it builds the call record. The technical work code is the default in Call Maintenance, and appropriate defaults are brought in. Defaults based on work code are used in a similar fashion in the Call Generator.

PM calls created as part of the scheduling associated with Contract Maintenance are always created with the PM work code (as defined with the Call Management Control) and any defaults set up for it in Call Default Maintenance.

Installation calls created during invoice post are always created with the Install work code and any defaults set up for it in Call Default Maintenance.

Call Default Mechanics



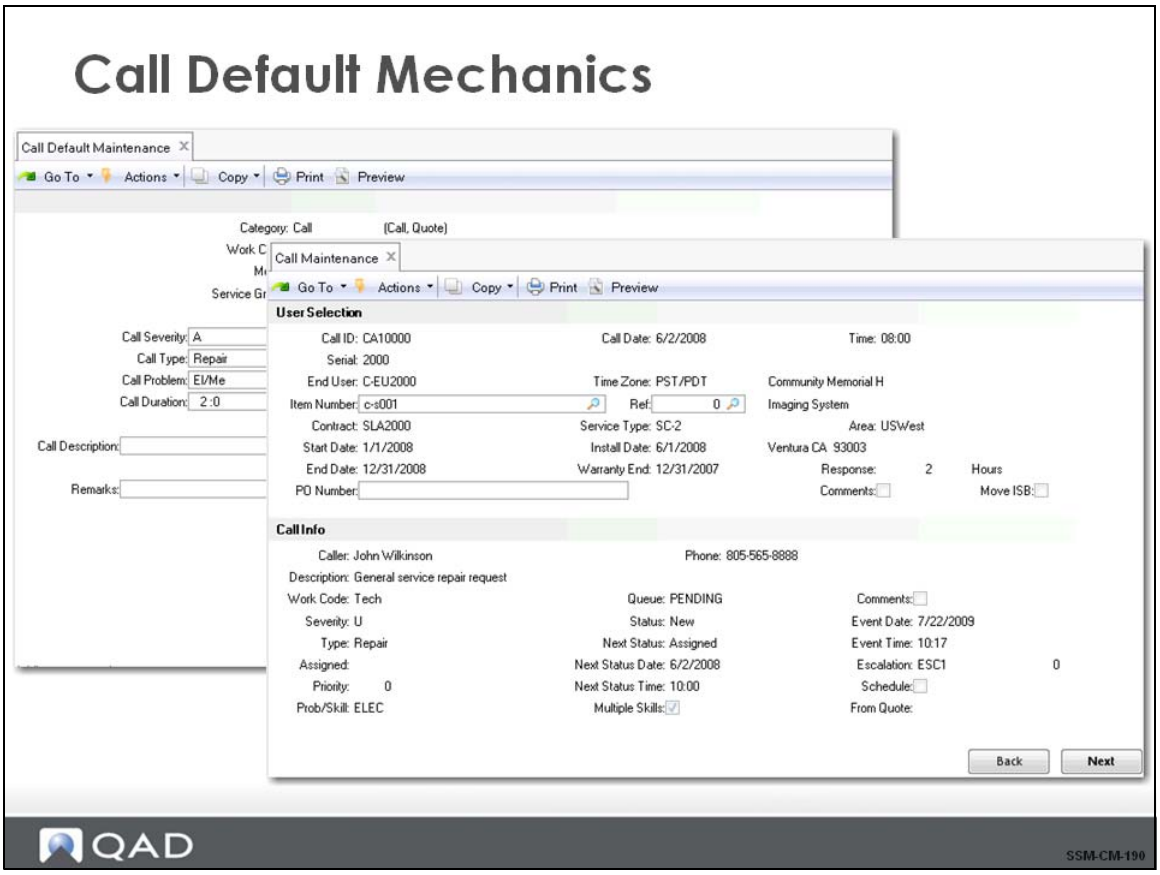
When a call is created in Call Maintenance, the system follows a number of steps to determine appropriate defaults.

1 First it checks the Call Management Control for the value of the Technical Work Code.

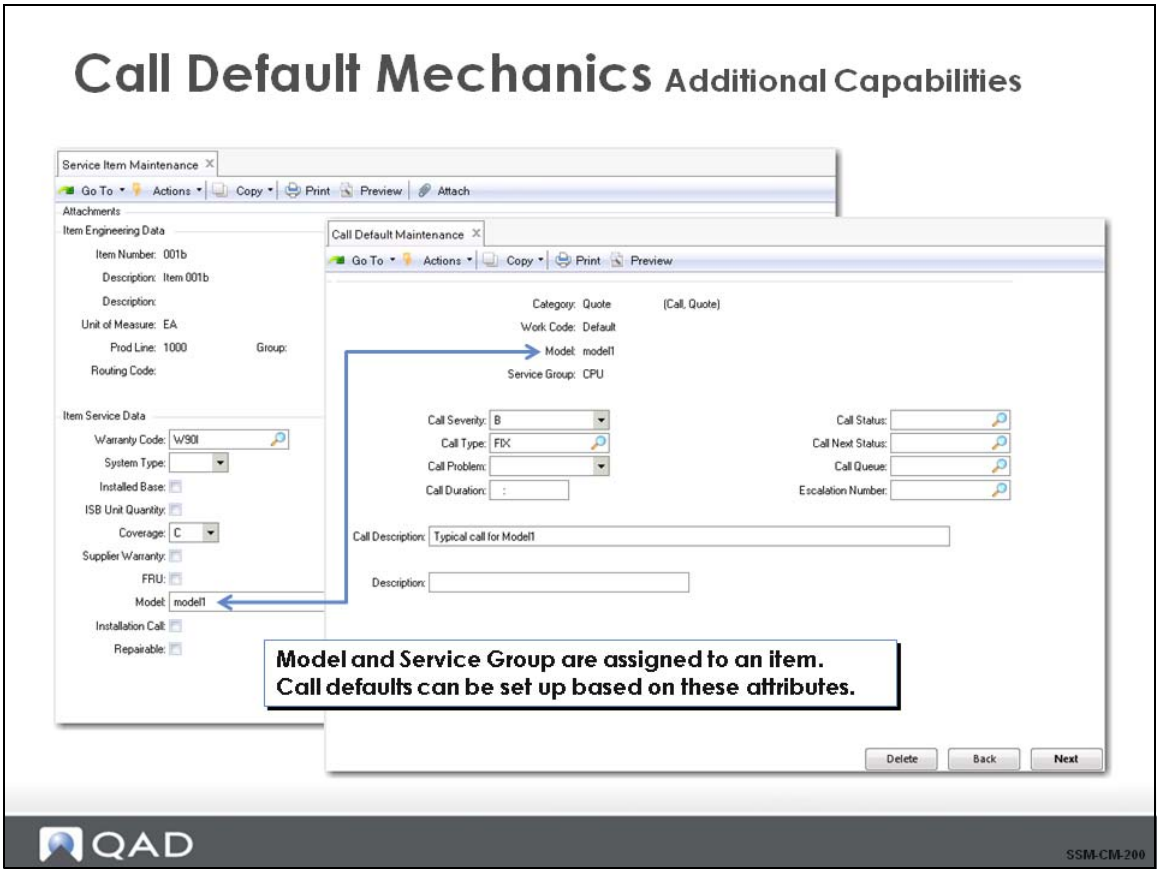
This value then displays by default in the Work Code field of the call defaults pop-up window, and can be changed if needed.

2 Using the work code specified in the pop-up, the system searches for defaults set up in Call Default Maintenance with a Category of Call and the specified work code.

3 If they are found, the values specified for call severity, type, problem, duration, status, next status, queue, escalation, and description are brought into the call record and display in the appropriate Call Maintenance fields.


Call Default Mechanics
Call Default Maintenance
Go To
Actions
Copy
Print
Preview
Category: Call
(Call, Quote)
Call Maintenance
Go To
Actions
Copy
Print
Preview
User Selection
Call ID: CA10000
Call Date: 6/2/2008
Time: 08:00
Serial: 2000
End User: C-EU2000
Time Zone: PST/PDT
Community Memorial H
Item Number: c-s001
Ref:
Imaging System
Contract: SLA2000
Service Type: SC-2
Area: USWest
Start Date: 1/1/2008
Install Date: 6/1/2008
Ventura CA 93003
End Date: 12/31/2008
Warranty End: 12/31/2007
Response: 2 Hours
PO Number:
Comments:
Move ISB:
Call Info
Caller: John Wilkinson
Phone: 805-565-8888
Description: General service repair request
Work Code: Tech
Queue: PENDING
Comments:
Severity: U
Status: New
Event Date: 7/22/2009
Type: Repair
Next Status: Assigned
Event Time: 10:17
Assigned:
Next Status Date: 6/2/2008
Escalation: ESC1 0
Priority: 0
Next Status Time: 10:00
Schedule:
Prob/Skill: ELEC
Multiple Skills:
From Quote:
Back
Next
Call Severity: A
Call Type: Repair
Call Problem: EI/Me
Call Duration: 2:0
Call Description:
Remarks:
QAD
SSM-CM-190

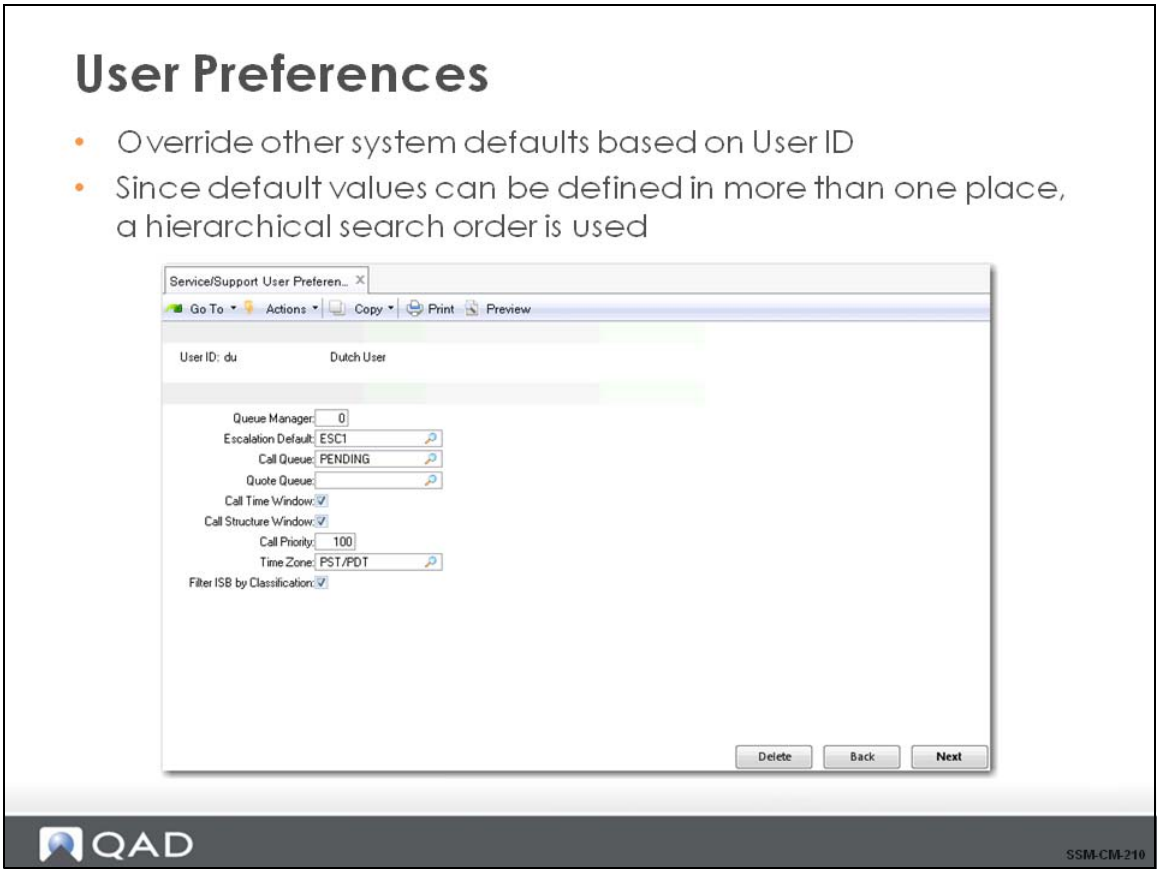
Call Default Mechanics Additional Capabilities



Model. The model number associated with this item. Many organizations service products by model. Associating a model number with a set of items enables you to create call defaults based on the model in Call Default Maintenance (11.1.21.10). This is useful if calls associated with various product models follow different paths.

Service Group. An optional code that can be set up in Generalized Codes Maintenance for field pt_svc_group to group types of service costs in any user-defined manner. Service group can be used as part of the key in setting up call defaults, as well as a number of other call-related codes like prices, sites, and product lines.

User Preferences



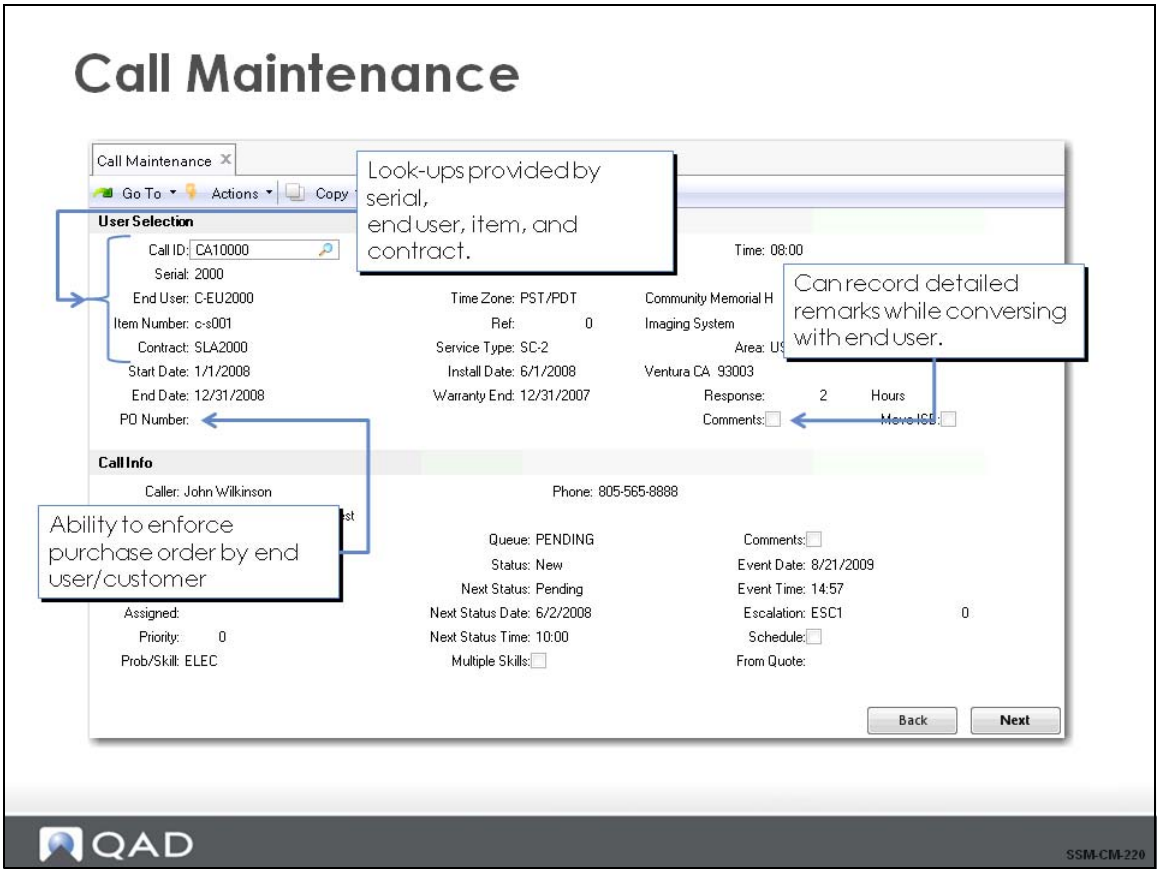
The call defaults defined with control settings or Call Default Maintenance are applied in a general manner by the system. In most cases, this provides a consistent business approach to managing the call.

There are, however, some call-related features that each user may want to tailor for their own use. Service and Support User Preferences (11.21.23) enables each user to set up preferences for certain processing defaults. A few options are:

Queue Manager. Controls the sort criteria for calls displayed in Call Queue Manager (11.1.6) and overrides the value in Call Management Control.

Call Queue. Sets the queue for calls created by this user.

Call Maintenance (11.1.1.1)

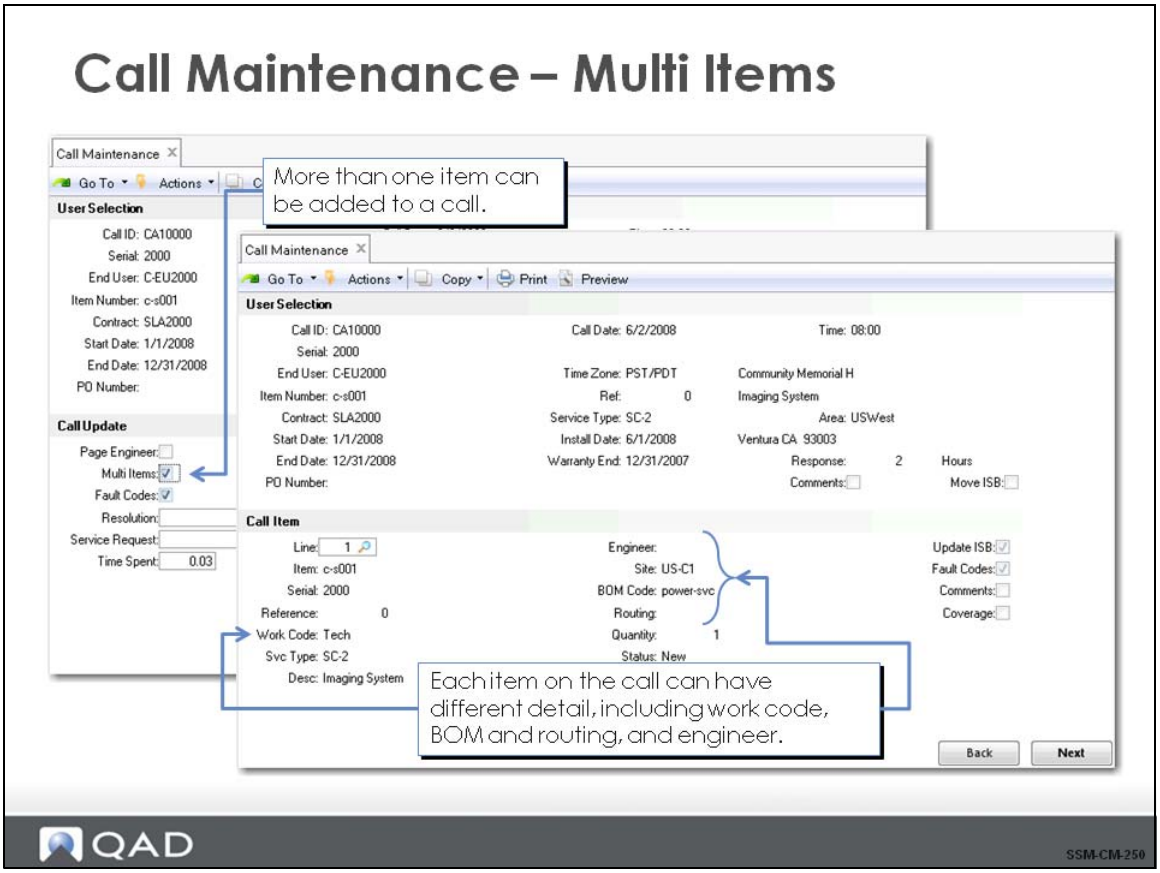


Call Maintenance (11.1.1.1) is designed to simplify call entry since it is often used in an on-line environment where information is entered on the screen directly as support personnel interact with end users. Some of the features that facilitate data entry include:

- Flexible lookups by:
  - Serial number
  - Items in the installed base
  - Contract number
  - End user

  The ability to create end users from this screen without having to take the time to add a detailed record in End User Address Maintenance.
- Coverage detail is retrieved from the item's warranty or the active service contract. Otherwise, the default service type defined in the Call Management Control is used.
- If the end user calling has been set up to require a purchase order for service, it can be entered on the first frame-preventing wasting time on calls that cannot be serviced.
- Call comments can be entered from the first frame, enabling service personnel to record details immediately, and then make decisions about other fields later.

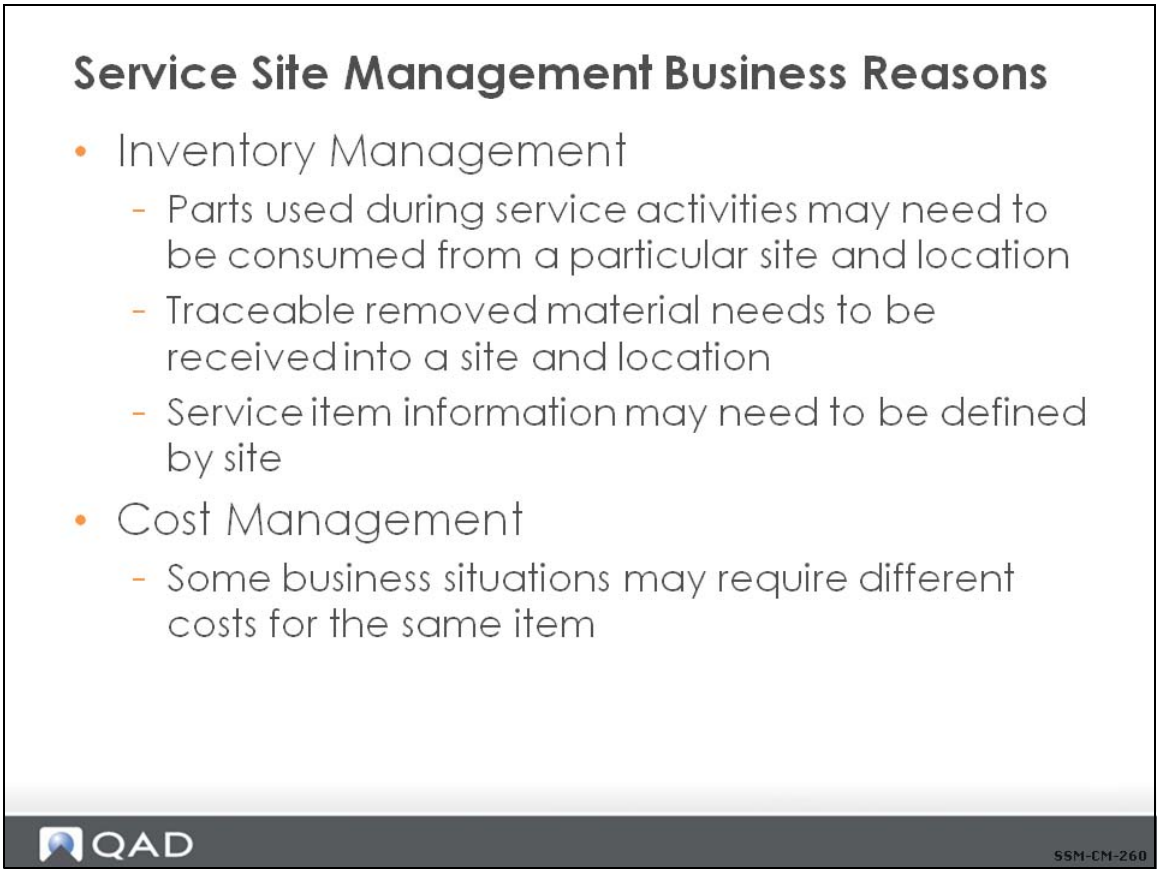
Call Maintenance - Multi Items



More than one item can be added to a call. To add more items or view details for the first item, set Multi Items to Yes in the Call Update frame. In this case, the Call Item frame displays.Distinct details for each item on a call may be recorded in the Call Item frame. Each item may have its own engineer, work code, BOM, and routing.

Note There will be only one set of key call tracking codes per call.

Service Site Management - Business Reasons



Sites play an important role in Call Management activities, for many of the same reasons they are important in a standard manufacturing environment: managing inventory and costs.

Tracking service inventory can pose special problems that differ from standard manufacturing inventory needs. This is because of the many different kinds of inventory used in a service environment ranging from tool kits to replacement parts to consumable items such as inks, fillers, reactants, and lubricants. Further complexity is added by many different kinds of locations that can be used for storing service inventory. These range from mobile field units like trucks and repair vans, repair centers, service supply depots, and work shops for refurbishing items.

In addition, the return of items must be managed carefully, ensuring that they are returned to the appropriate site and location for inspection or repair.

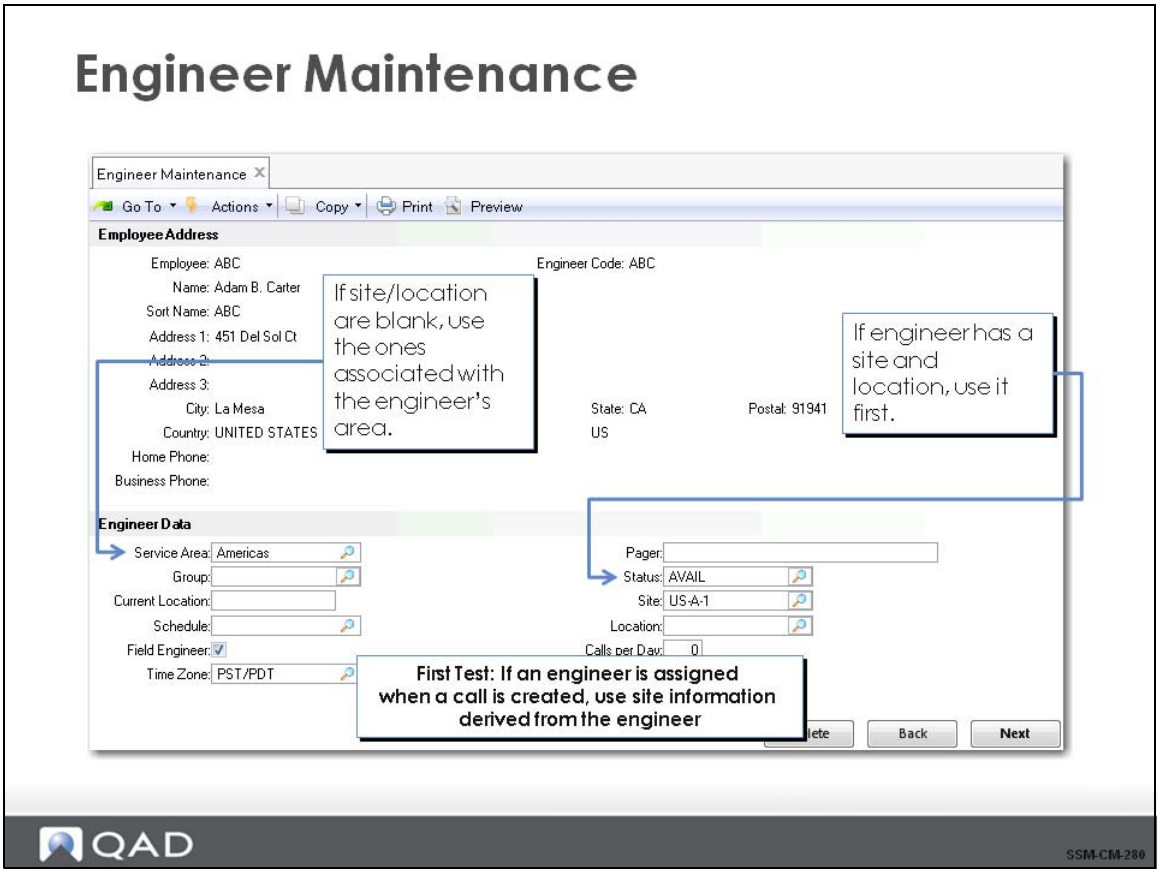
Service procedures and available parts may vary by site, as well as costs.

Service Item by Site Maintenance enables you to set up default BOMs and routings for an item that are used only when that item is serviced at the associated site. This feature enables you to accommodate the special procedures and item substitutions that may occur when service activities take place at multiple sites. The system suggests the appropriate BOM and routing based on the site in Call Maintenance and Call Activity Recording, Call Parts Recording, and Call Labor Recording.

When a BOM and routing are associated with an item, the parts on the BOM and the operations on the routing can be loaded directly into the item and labor/expense detail records for the item in CAR, CPR, and CLR. This greatly streamlines data entry for repetitive repair sequences.

An additional layer of service inventory management is provided by Parts List Maintenance and Material Orders (MOs). The Parts List allows the engine to identify all of the repair inventory needed and then automatically creates a material order for those items that are not currently on hand. The MO is similar to a sales order and enables engineers to order inventory required to service a particular call, to replenish their service supply, or as expensed stock.

Determining a Site/Location - First Test



Most of the attributes of an engineer are used in the engineer scheduling function. However, the engineer's site, location, and area play an important role in ordering items with Material Orders (MOs) and item consumption in Call Activity Recording and Call Parts Recording.

When a call is initially created in Call Maintenance, the system searches for a site to associate with the item specified on the call. This site is used to determine the appropriate BOM and routing to suggest.

The system always uses the site associated with an engineer first. If the engineer does not have a site, the site associated with the engineer's area is used.

If an engineer has not been assigned to the call, or the assigned engineer does not have a site or area with a site, the system looks for a default spares site set up with Default Site Maintenance. This function supports service inventory management.

Sites may be set up based on the key values in the first frame of this function: product line, service group, work code, item, and area. (Note: Not all combinations of these fields are valid.)

How you set up default sites has a lot to do with your own business practices and which service attributes are most important to inventory management. For example, if you separate inventory used for PM from inventory used in repairs, you can set up default sites based on work code. If the spare parts for a particular item or product line are all found in one site/location, you can use these values as part of the key.

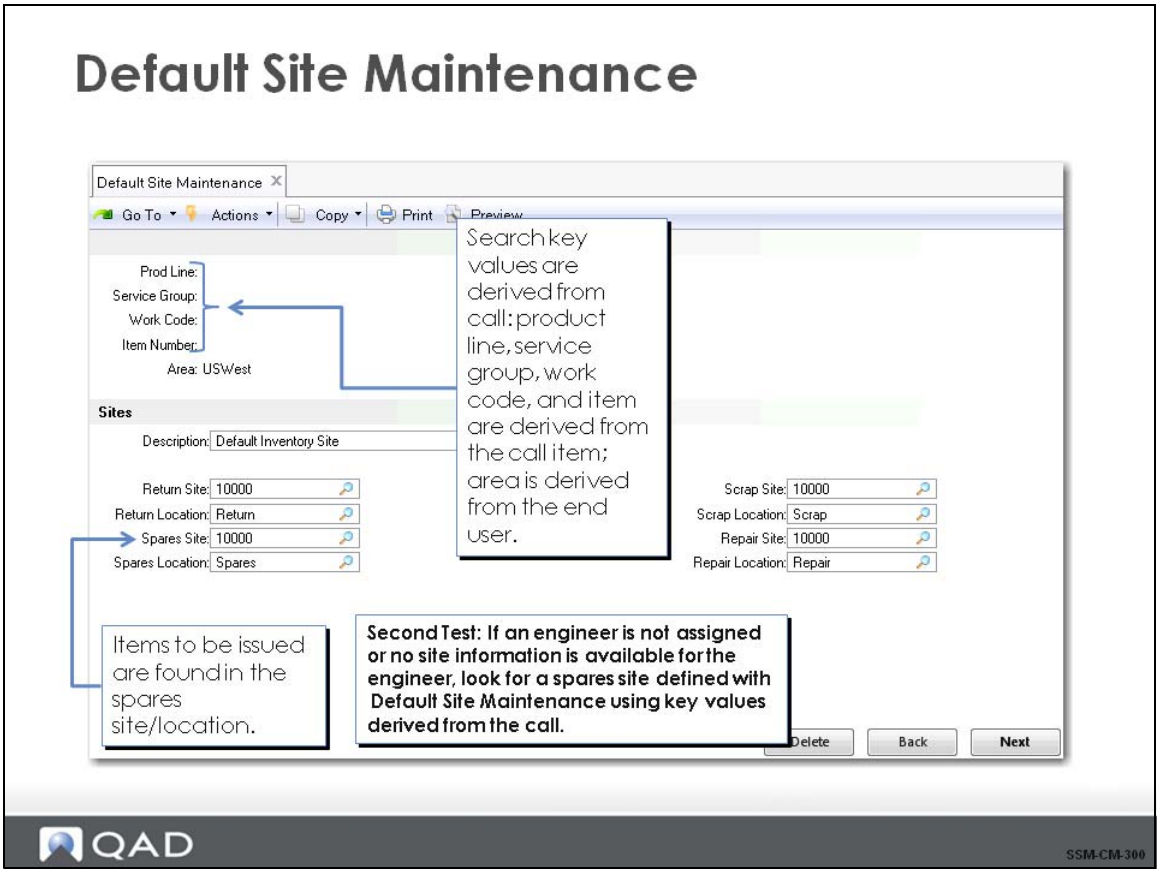
When the system looks for a default spares site in Call Maintenance, it uses the call area (derived from the end user); the work code specified on the call or line item; and the product line, service group, and item number of the item on the call.

When looking for a spares site, the system uses whatever values are available to it in Call

Maintenance. If the end user does not have a defined area, this value will be blank. It is also possible that the item does not belong to a service group. Product line may also be blank if the item being serviced is a non-inventory item. Item number is usually specified, although it could be blank. Work code always has a value.

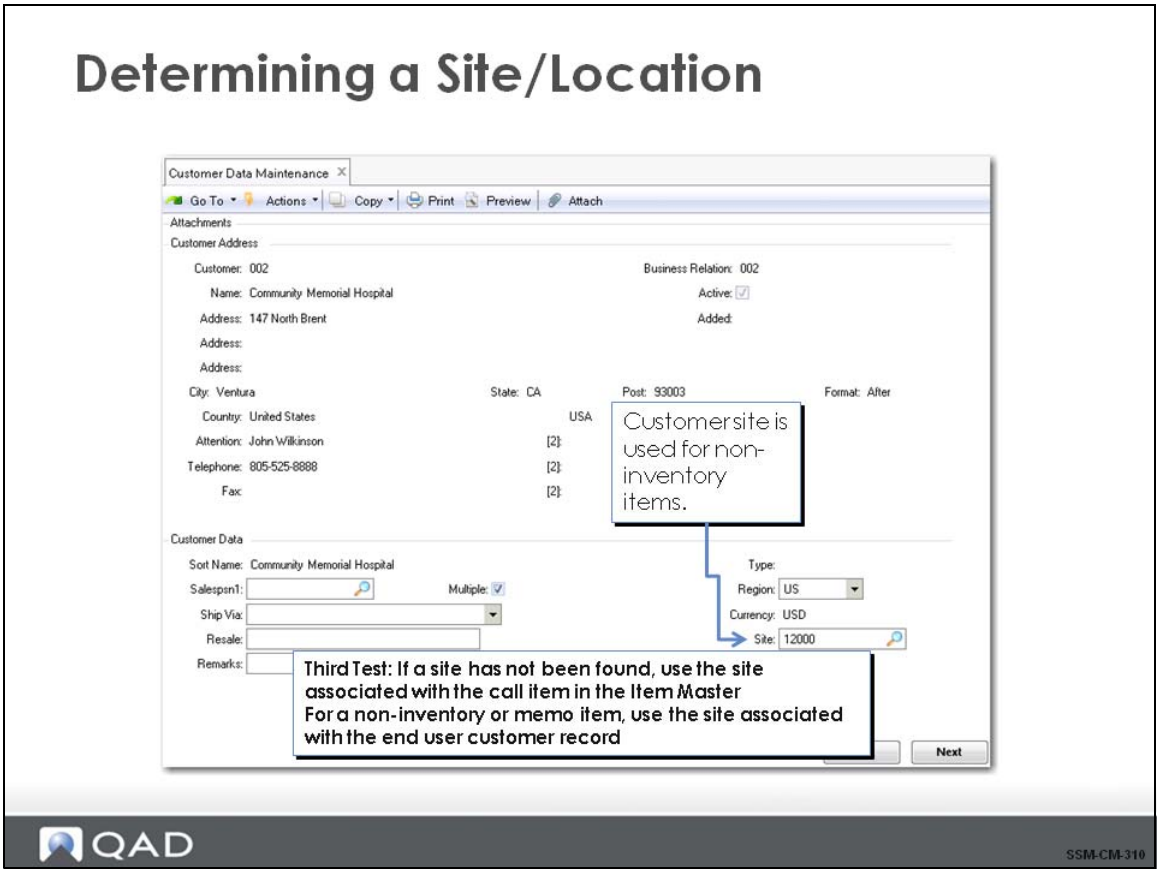
To ensure that a default spares site is found, you can set up sites with an all blank key. There are a number of different valid combinations that enable you to set up default sites suitable for many different business practices.

Determining A Site/Location - Second Test

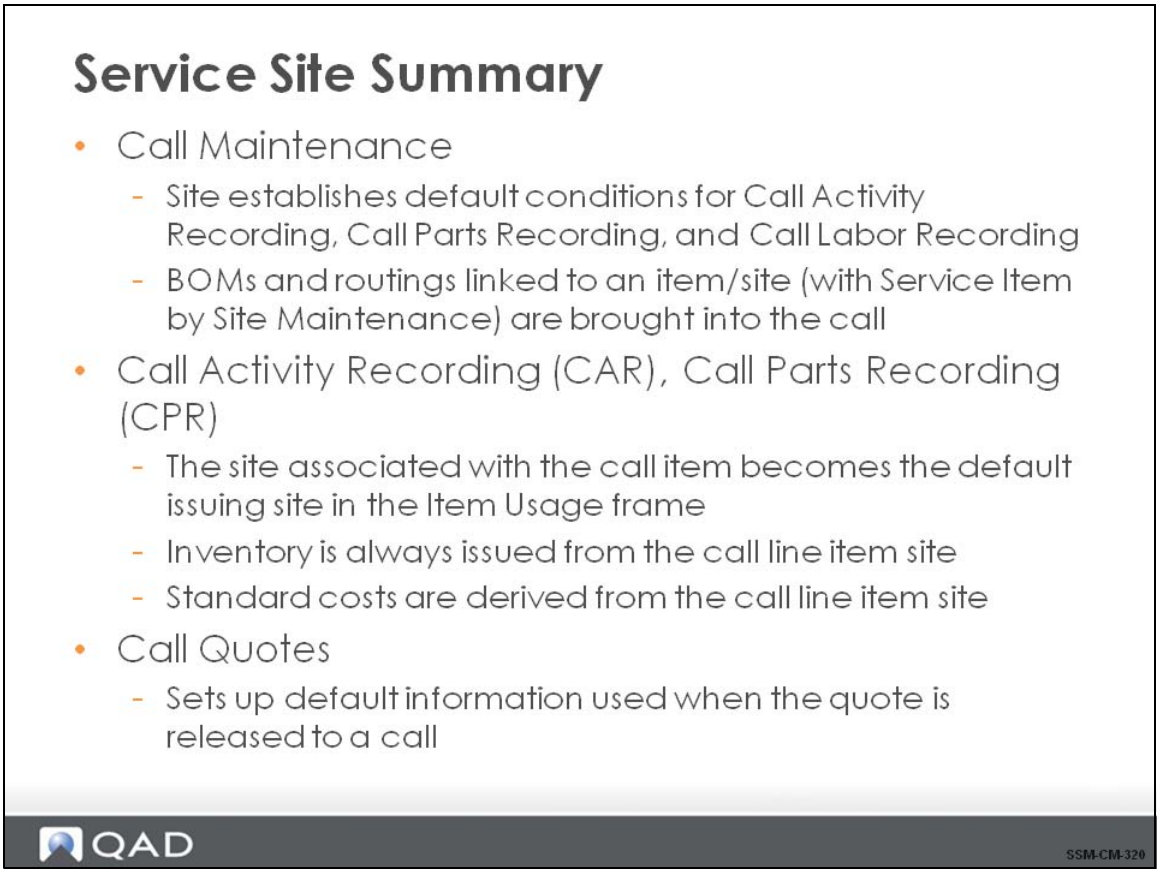


If an appropriate spares site is not found, the system looks in two other places for a default site. For items set up in the item master, the site associated in Item Master Maintenance is used. For other items, the site associated with the customer of the end user on the call is used. This site is defined in Customer Maintenance.

Determining a Site/Location - Third Test

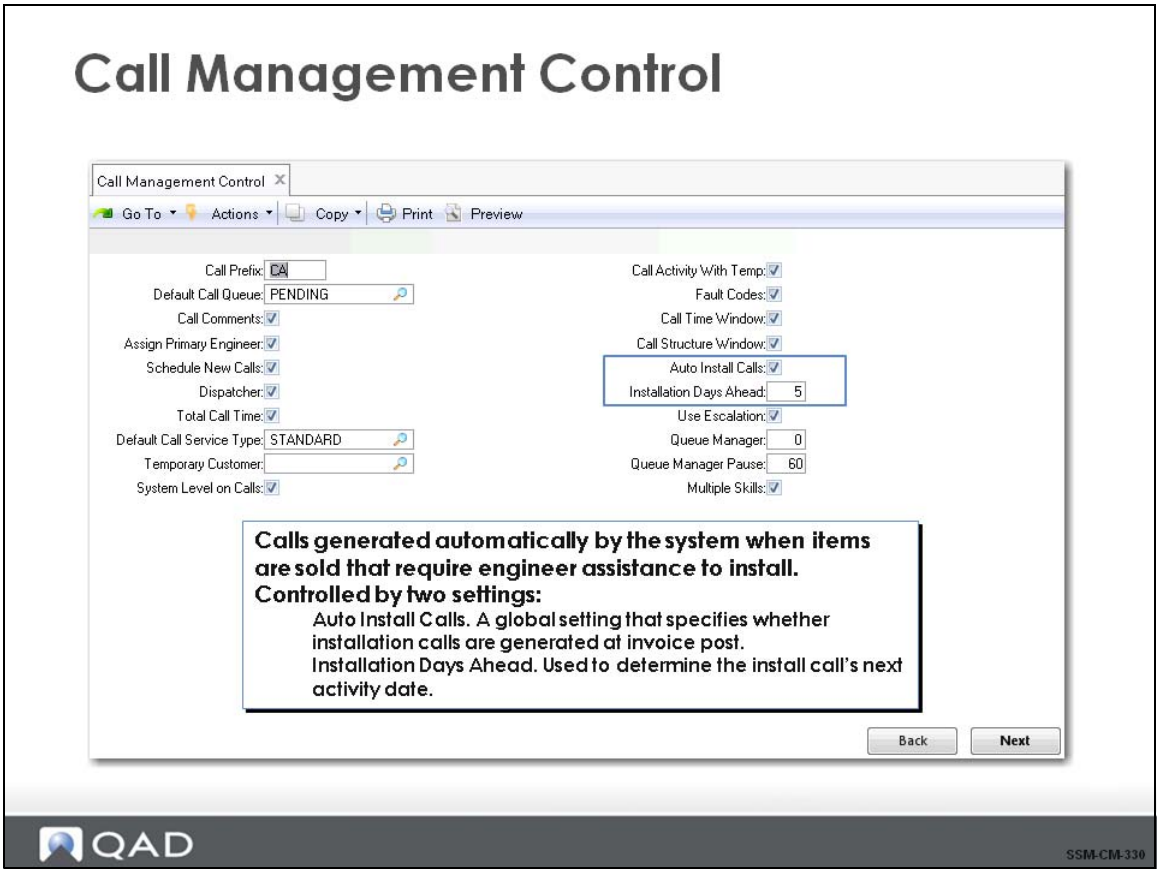


Service Site Summary



The site found by the system in Call Maintenance and Call Quote Maintenance sets up the defaults for actually recording service detail in Call Activity Recording, Call Parts Recording, and Call Labor Recording.

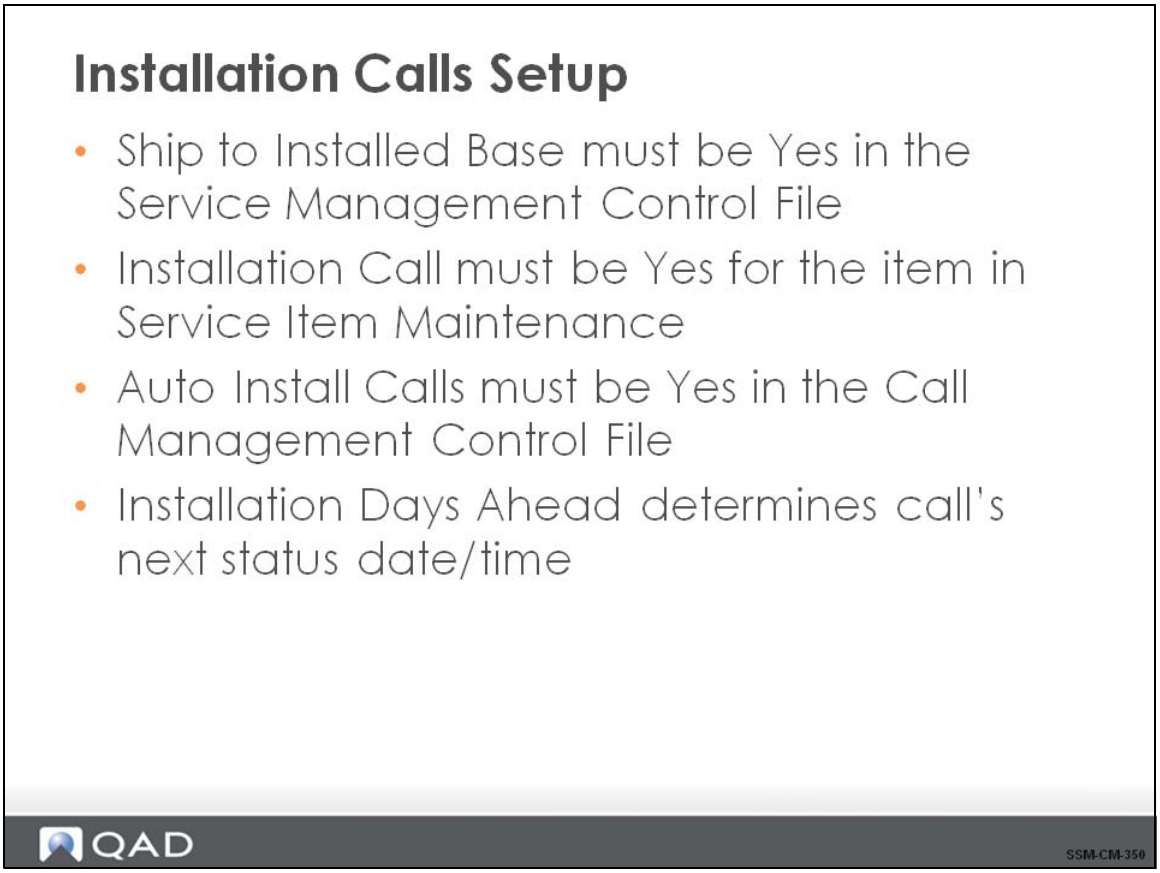
Installation Calls



Installation calls are one of the special types of calls in SSM that are created automatically in the background by the system when all the necessary setup is complete. Install calls are additional feature of the interface between sales orders and SSM that is controlled by the Ship to Installed Base flag in the Service Management Control.

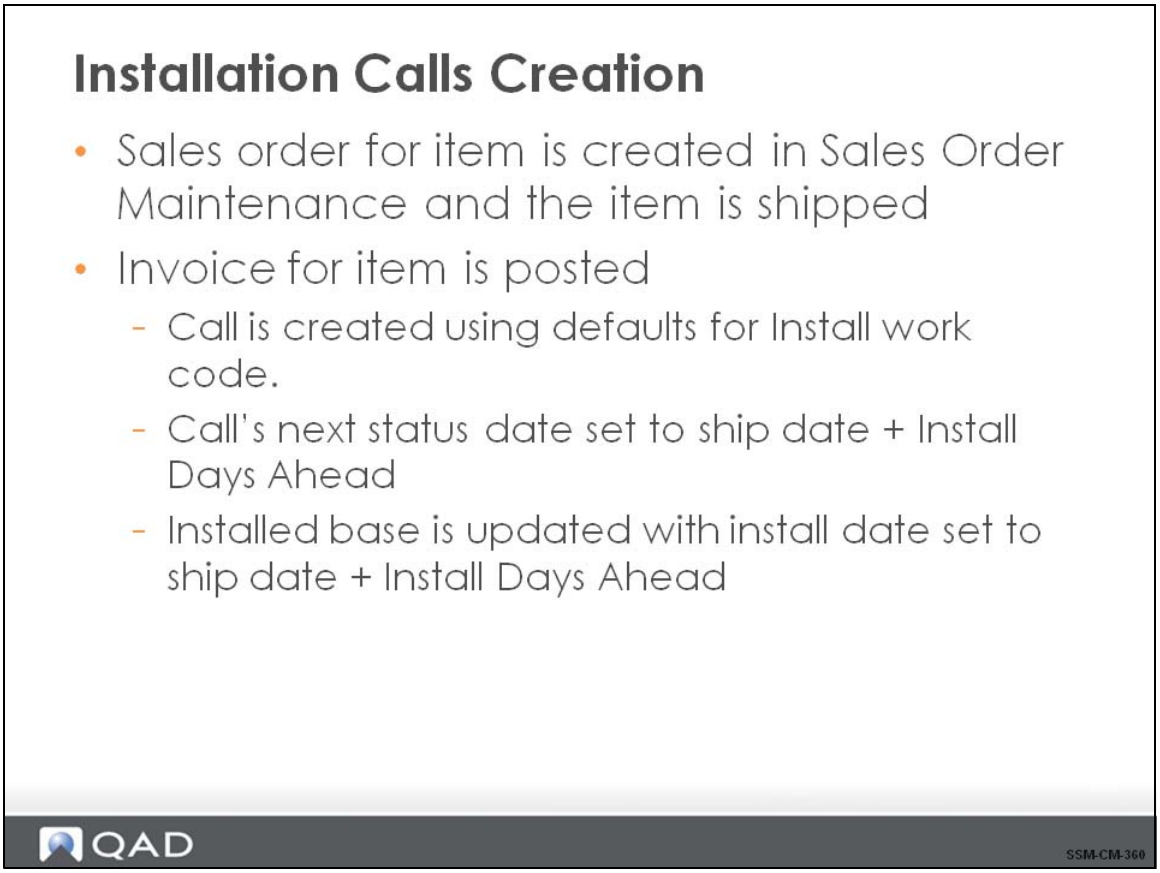
If this flag is Yes and the item being shipped on the sales order has been defined in Service Item Maintenance as requiring an installation call, the system examines two control file settings in the Call Management Control.

Installation Calls Setup



This figure summarizes the setup required in order for installation calls to be generated automatically by the system.

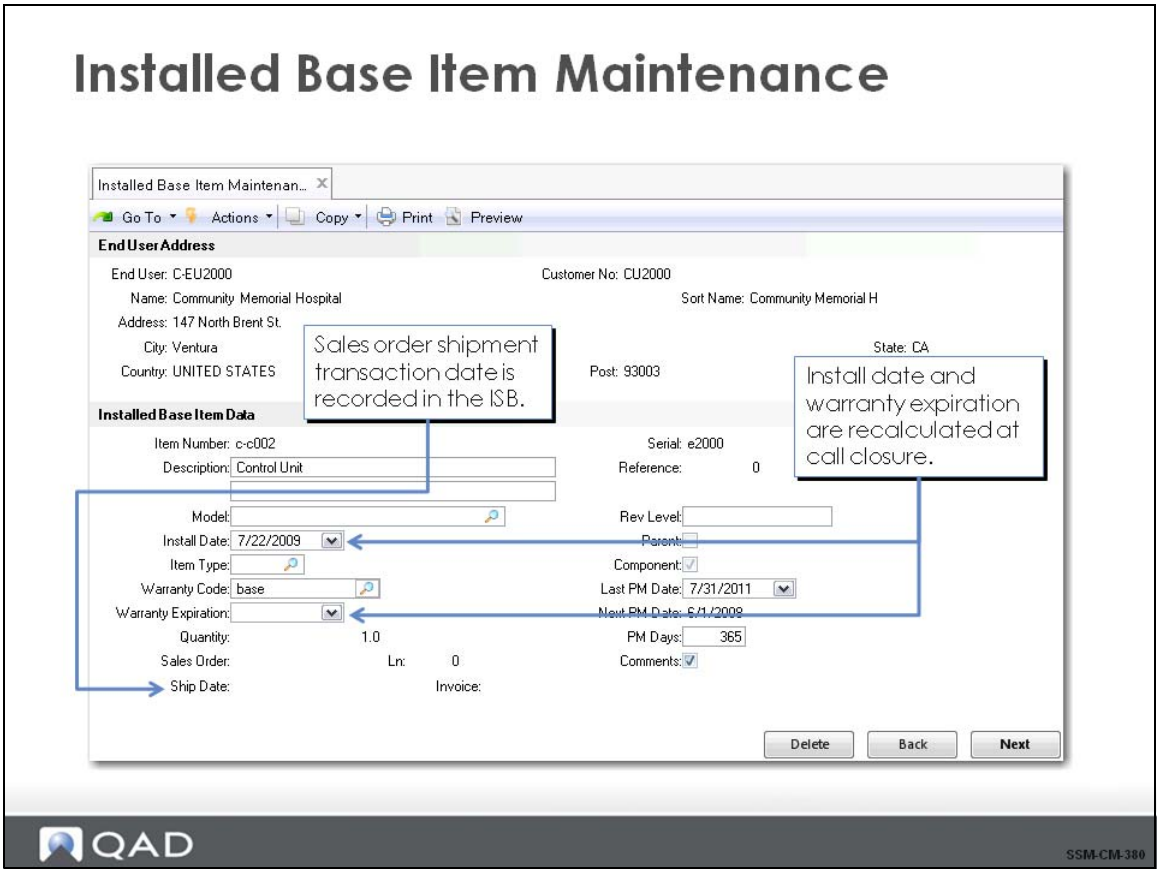
Installation Calls Creation



A sales order is created for an item requiring an installation call. If the SO Edit ISB flag is Yes in the Sales Order Control, a pop-up displays in Sales Order Maintenance, enabling you to edit defaults associated with the installed base update. Otherwise, the system simply uses the default values without giving you the opportunity to change them.

Installation Call will default to Yes in the ISB pop-up for an item requiring an install call. Once the item is shipped, the invoice can be printed and posted. During invoice post, the actual install call is created using any call defaults set up for the Install Work Code (as defined in the Call Management Control). The Next Status Date on the call is set to the ship date plus the value of Installation Days Ahead.

Installation Calls Management



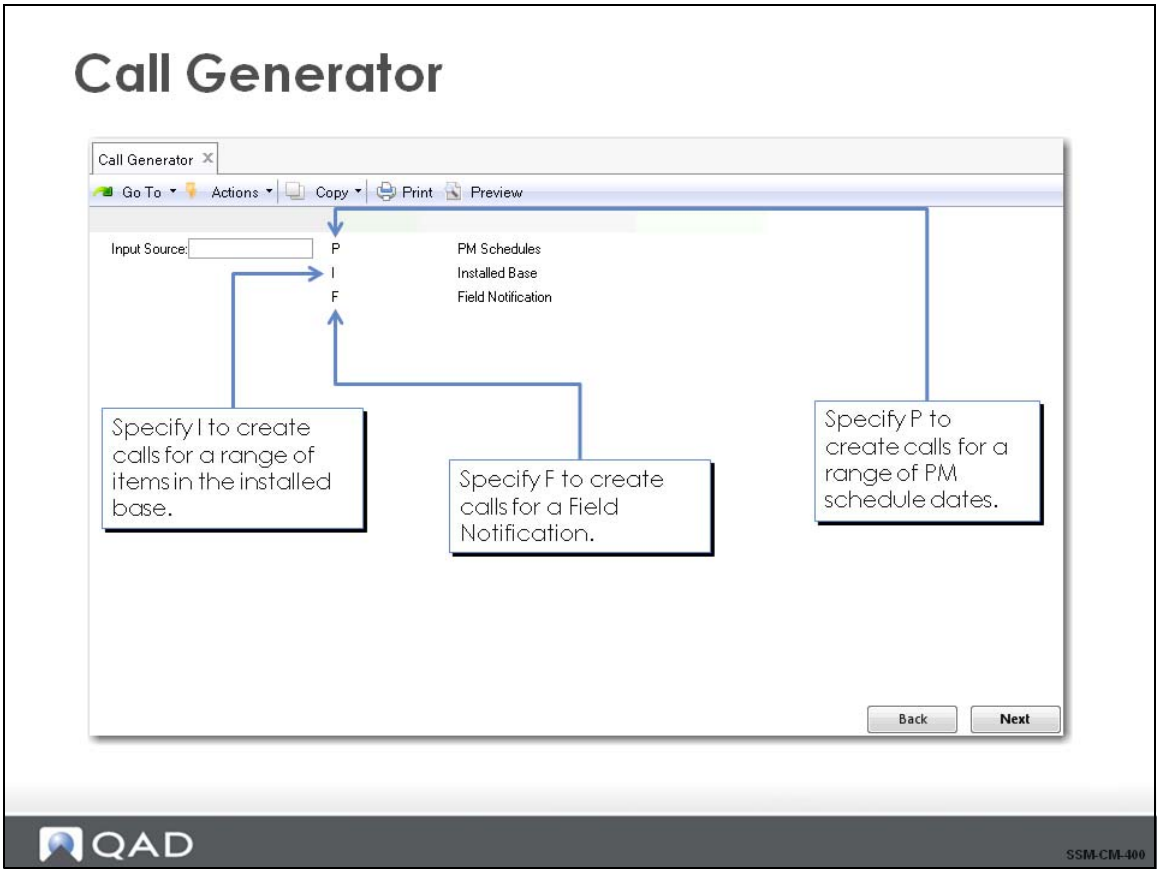
Managed like other calls with Call Maintenance and Call Activity Recording.

When a call is closed, install date and warranty end date in the ISB record is updated.

Installation calls can be managed by setting up defaults for the Install work code defined in the Call Management Control. Service events related to the call can be recorded in Call Activity Recording, just like any other call.

When the item has actually been installed and the call is closed, the installed base record is updated so that the install date reflects the call closure date. The warranty expiration is recalculated based on this new install date.

Call Generator



The Call Generator:

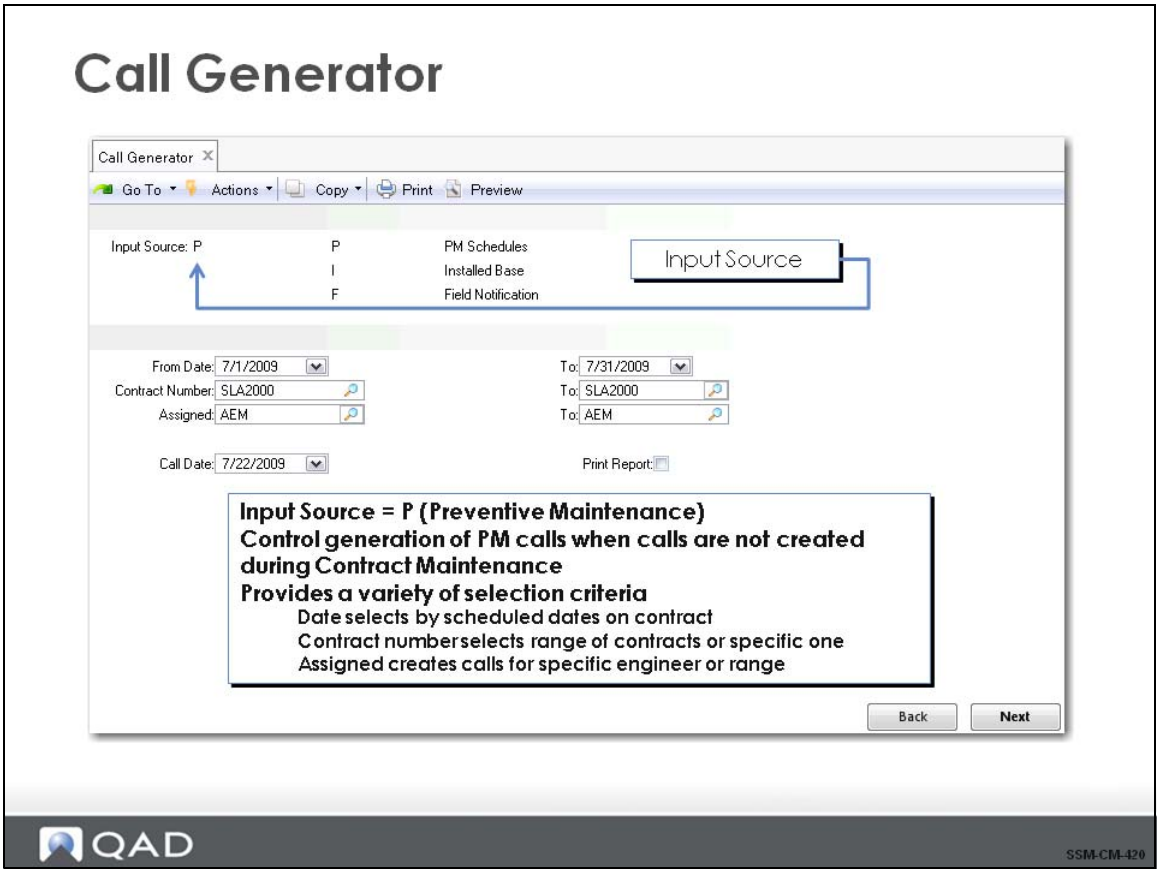
- Enables users to create a large volume of calls based on specific business situations
- Call can be created for contract schedules for items in the installed base or for a Field Notification

The Call Generator utility can be used to generate calls in three situations:

- The next scheduled call on contract preventive maintenance schedules
- Calls for a range of items in the installed base
- Calls related to field notifications

The kind of call generated depends on the selection for Input Source in the initial Call Generator frame.

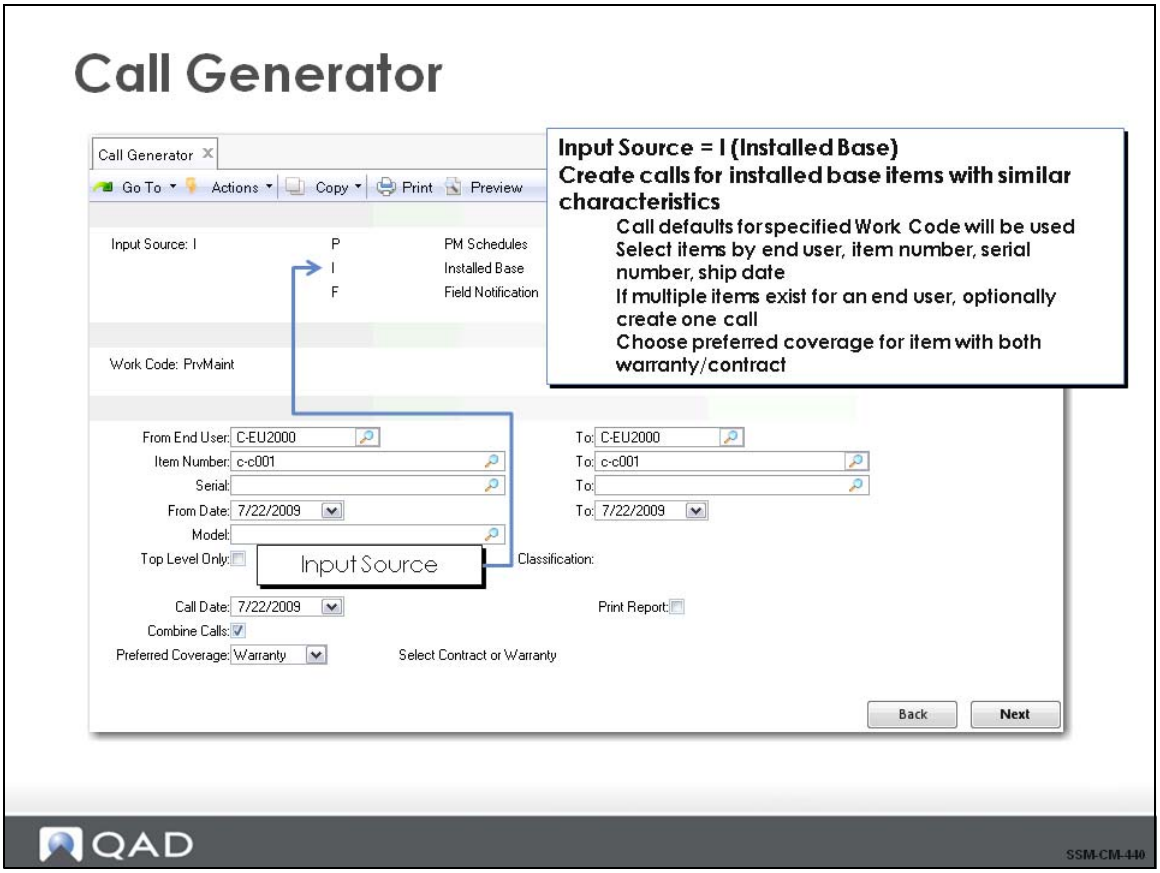
Call Generator - Input Source = P



If you set Create PM Calls to No in the Contract Control, preventive maintenance schedules are created, but no calls are actually generated. To avoid having to go through the Contract Maintenance sequence again, the calls can be generated using the Call Generator.

When PM calls are generated, one call is created for each selected contract with a scheduled date that falls within the range of dates specified. If you have assigned an engineer in Contract Maintenance, you can also create calls based on the engineer assignment.

Call Generator - Input Source = I



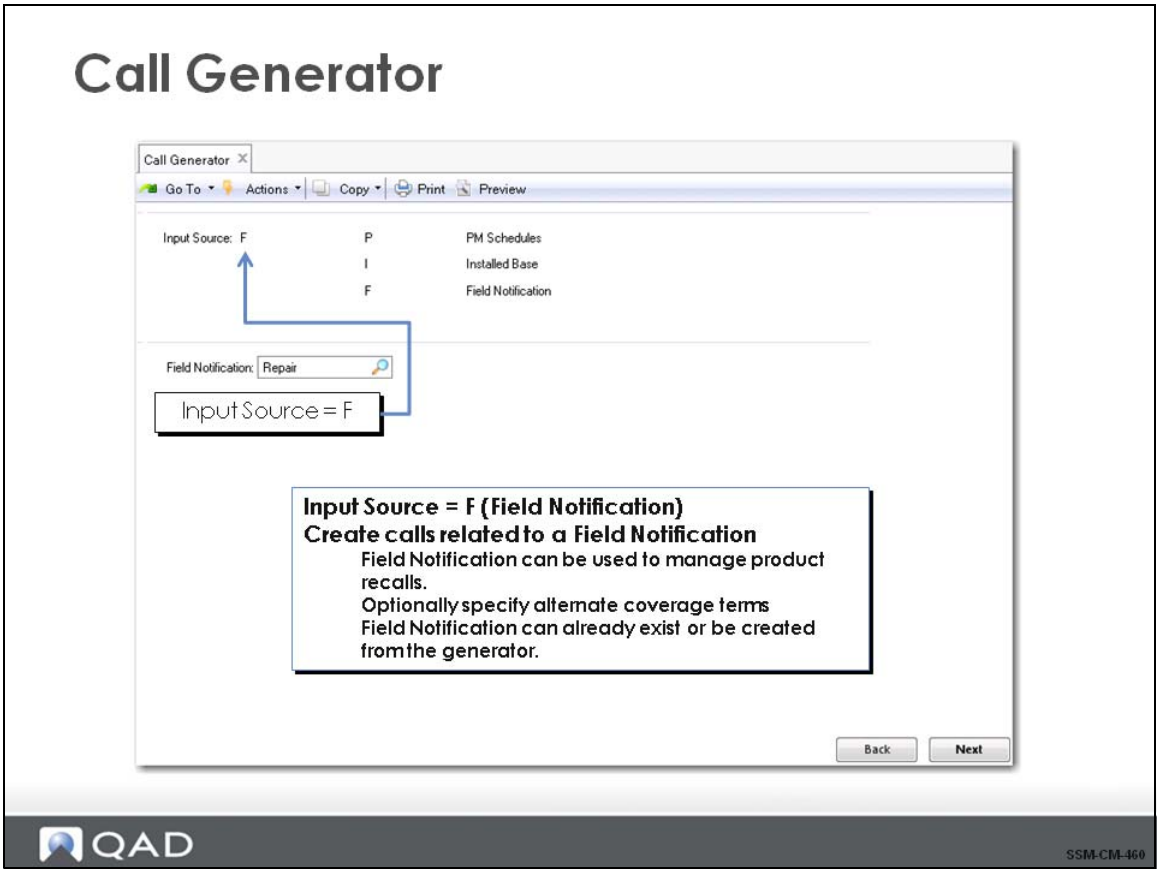
The Call Generator can also be used for items in the installed base. This feature can be used to meet many needs relative to installed base updates.

When I is specified for the Input Source, you can specify what work code to use for the generated calls. A number of selection criteria are available for choosing items: end user, item number, serial number, and ship date.

If the PM work code is specified, one field of the item selection criteria changes. Instead of selecting installed base items based on ship date, you can select items based on their last PM date. The screen labels change appropriately.

Calls for items in the installed base can also be optionally combined, so that all items for one end user are put on one call. The preferred coverage is only applied if an item is covered by both a contract and warranty.

Call Generator - Input Source = F



Many organizations track information about the installed base because of the possibility of product recalls. This is a common concern, for example, for medical equipment manufacturers. Knowing who has a product provides a foundation for a product recall. However, recalls may be associated with documentation and auditing requirements from regulatory agencies so that additional history and control may be needed to manage the process.

SSM provides a number of related field notification utilities that can be used to manage the recall process.

Field Notification Maintenance (11.3.12.1) enables you to create and maintain a field notification. The field notification serves as a way of defining, grouping and managing related calls, as well as maintaining history. The field notification is closed once all its associated calls are closed.

Call Generator (11.1.8) enables you to generate calls associated with an existing field notification, or optionally create a new field notification and generate calls for it.

Field Notification Inquiry (11.3.12.2) and Field Notification Report (11.3.12.3) display information associated with a field notification.

Exercise 15: Review Call Defaults and Create Call

In this exercise, you review the Call Management Control, the call defaults for the technical work code, and then create a call using these defaults.

Review Call Control

1. Go to Call Management Control (11.1.24).
2. Verify that Schedule New Calls is set to No.

   We will look at call scheduling more closely in another chapter.
3. Verify that Call Time Window and Call Structure Window are set to Yes.

   These fields control the appearance of two pop-up windows in the Call Maintenance sequence.
4. Click Next to display the next frame. Review the work codes defined in the Control.

   Call defaults for the work code specified as the Technical Work Code are used for calls created in Call Maintenance.
5. Verify that Technical Work Code is set to TECH.
6. Click Next and review the Call Statuses defined in the Control.

   Do you remember how each of these is used? If not, review the field help for the effect of each. Return to the menu.
7. Set the Coverage Window field to YES in the Call Recording/Invoicing frame.
8. Set the Return Status field is set to Good.
9. Return to the menu.

Review Service and Support User Preference

1. Go to Service and Support User Preference (11.21.23) and for your user ID (demo), make sure that both Call Time Window and Call Structure Window are set to YES and Escalation Default is blank.
2. Click Next to save, click Back to return to the menu.

Review Call Defaults

1. Go to Call Default Maintenance (11.1.21.10).
2. Enter the following data and click Next.

Field	Value
Category	Call
Work Code	Tech

3. Click Next, note the defaults for a Tech Work Code on a Call.
4. Return to the menu.

Create a Call in Call Maintenance

1 Go to Call Maintenance (11.1.1.1).

Leave the Call ID field blank so that the system will supply a number and click Next.

2 Enter 010 in the Serial field and click Next.

In this exercise, we are going to use the end user that you created in Exercise 1: Creating an End User on page 51. You probably do not remember the end user number the system supplied during that exercise. If necessary, do a lookup on the End User field and then utilize the preferred filtering criteria if desired.

3 Select item C-S001, and serial number 010.

The call defaults pop-up should now display. Notice how the work code is filled in with Tech. This is the value specified in the Call Management Control which is always used as a default for calls created directly in Call Maintenance.

4 Accept the pop-up as displayed, and click Next to continue.

Carefully review the information in the Call Info frame of Call Maintenance. Whose name appears in the Caller field? Do you notice a message at the bottom of the screen? These fields are derived from the end user record that you created. Notice how the call defaults were populated.

5 Click Next to display the Travel and Estimated Time window.

Estimated time defaults from the call default record; travel distance and time default from the end user record.

6 Click Next to accept the default values.

The Item Service Structure Detail window should display. In this frame, the service BOM and Routing default from the repair BOM and Routing specified in Service Item Maintenance.

7 Click Next to accept the default values.

Add Another Item to the Call and Review Coverage

More than one item can be added to a call. Each item can have unique attributes and unique coverage terms. In this task add another item to the call you just created.

Your cursor should be in the Page Engineer field of the Call Update frame.

8 Select the Multi Items field, change to Yes.

9 Click Next to display the Call Item frame and enter:

Field	Value
Call Line	2
Item	C-S001
Serial Number	012
Work Code	PM

Note Not all items on a call have to be for the same kind of work.

10 Click Next.

Notice how the system brings in a different default BOM and Routing based on the type of work to be done on this item.

The Svc Type field defaults to NO-COVER, just like the first item on the call. For this item, specify service type SC-10. This is the service type that you modified during the chapter on limits in Exercise 9: Contract Type Maintenance on page 154.

11 Tab over to the Coverage field (last field on the frame) and set Coverage to Yes.

Do you remember the discussion in Chapter 4 on the visibility of coverage information in Call Maintenance? This field determines whether or not the coverage details display.

12 Click Next.

Another window should overlay Call Maintenance. Notice the summary information in the top frame. In the lower frame, detailed information about the limit records appear. The level of coverage associated with these limits will be applied when activity for this item is recorded in Call Activity Recording.

Note The lower frame may display only once, if you change an existing Svc Type to another value, do not be concerned if this frame is not displayed again.

13 After reviewing the coverage details, press the space bar to dismiss the window; return to the menu.

Exercise 16: Call Generator

In this exercise you use the field notification that you created in Exercise 5: Create a Field Notification on page 59. Calls are created for the items that match the selection criteria of the field notification.

You simulate a scenario where it is necessary to create a number of calls at one time for a specific population of the installed base.

Generate Calls

1 Go to Call Generator (11.1.8). Enter F (field notification) for the Input Source field, and click Next.

2 Enter FN-Class in the Field Notification field, and click Next.

FN-CLASS was the ID of the notification you created.

3 You should be prompted to review the field notification. Respond with Yes to the prompt.

The field notification maintenance screen displays directly from the Call Generator.

4 Click Next to display the next frames.

Review the information for the field notification. Notice that Calls Generated is currently set to No because you have not yet created calls. Once calls have been created, it sets to Yes automatically.

5 When you have completed your review, click Next twice. Continue past the Comments screen and proceed to the next frame by clicking Back.

6 Enter the following information in the appropriate fields. Then click Next.

Field	Value
Override Service Type	Yes
Preferred Coverage	Warranty
Default Service Type	Standard
Print Report	Yes

7 Respond with Yes to the confirmation prompt. Set the output device to Printer, and click Next to generate the calls.

Note If you receive an error about an item not being in the installed base, execute the Installed Base Rebuild Utility (menu 11.3.26) with a start date of the 1st day of the current month and the end date set to today's date. Once the utility has run, re-execute this Generate Calls exercise.

8 Review the report, and write down the range of call numbers created here.

Call ID Range: _____

9 Return to the Call Generator. Return to the menu.

Review Automatically Generated Call

1 Go to Call Maintenance (11.1.1.1).

2 Enter one of the call IDs in the range created by the Call Generator.

3 Click Next twice to position your cursor in the second header frame. Review the content of the call. Do the fields compare with the values entered in the Field Notification?

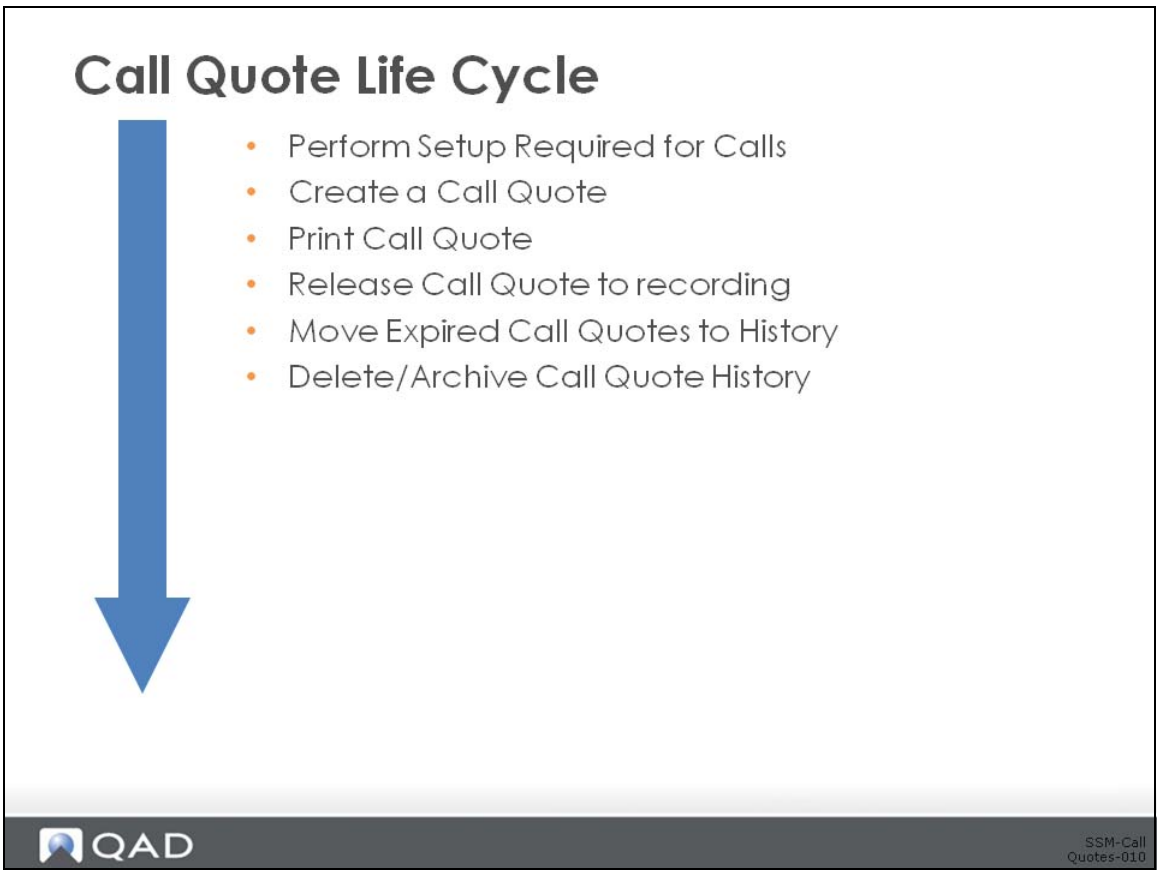
4 Click Next twice to display the call comments. These should be the comments you entered when FN-CLASS was created.

5 Return to the menu.

Chapter 9

Call Quotes

Overview



To sell services to prospective customers, many service organizations provide quotations, which outline the labor, expenses, and replacement items required for service or repair work. Quotations include the terms and conditions for the detailed services.

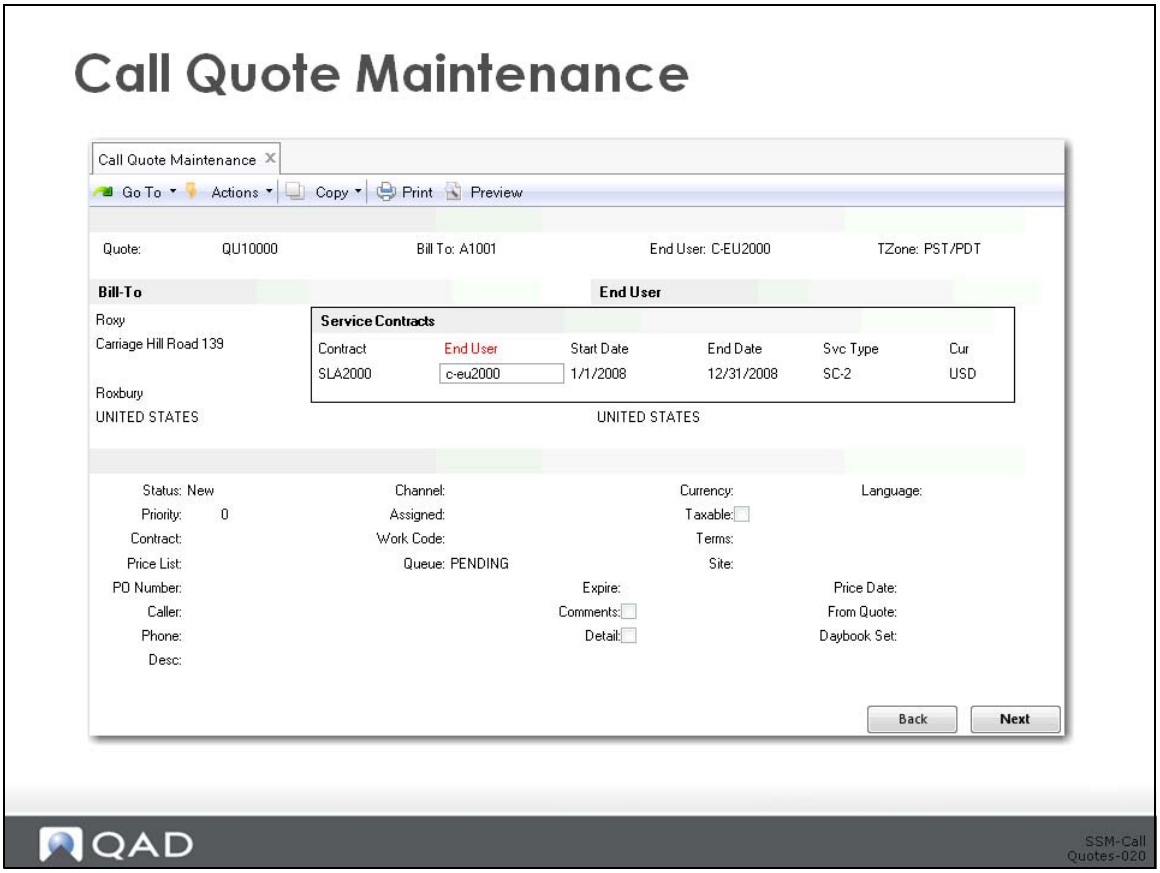
In Service and Support Management, call quotes are based on user-defined codes enabling a service organization to structure service proposals in the same way it invoices service activities. To maintain this structure, call quotes are similar to Call Activity Recording (CAR).

This figure illustrates the life cycle of a call quote.

Because a call quote can become a call, call quotes require the setup normally required for Call Maintenance: end user information, service BOMs and routings, engineers, status codes, queues, service types, charge codes and charge product lines.

To minimize data entry when creating quotes, create sets of call quote defaults in Call Default Maintenance (11.1.21.10).

Call Quote Maintenance (11.1.1.7)



Some service organizations let customers review the cost of repairs before they are made, especially for expensive items. The customer sends the item to the service center, or a field engineer reviews the item at the customer's site. The engineer estimates the labor, expenses, and parts required to repair the item.

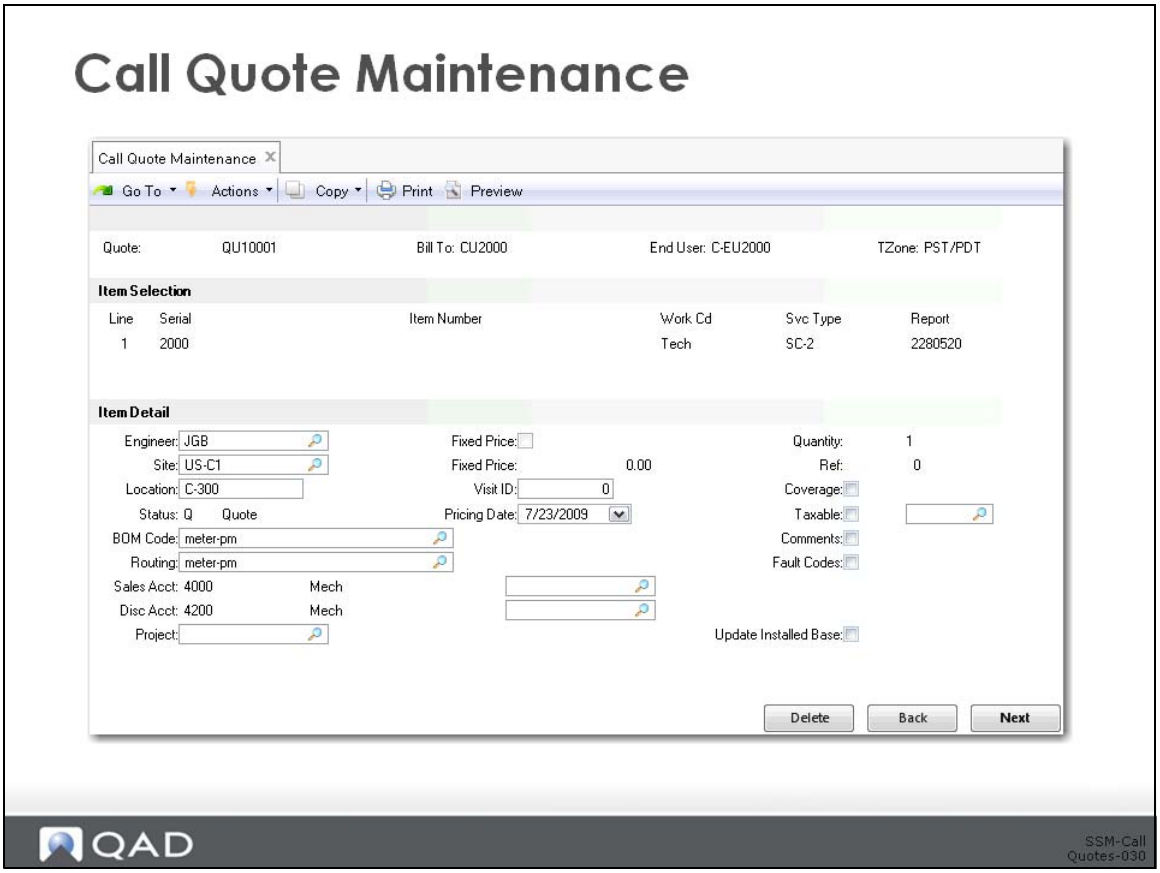
This detailed estimate is a call quote. Call Quote Maintenance (11.1.1.7) is an entry point to the same frames used in CAR.

When you create a quote for an item defined in Service Item Maintenance (11.3.7), you can use the repair, PM, and installation BOM and routing for labor and item details.

After you enter the details of a quote, Call Quote Maintenance displays a summary similar to the summary frame of Call Invoice Recording (CIR) of the pending invoice amounts. A simulated invoice is created.

Date entry is similar to Call Maintenance. If there are contracts in effect for the end user, a pop-up window displays them. When you select a contract, call price list from the contract defaults into the Price List field and the contract number into the Contract field.

Item Selection

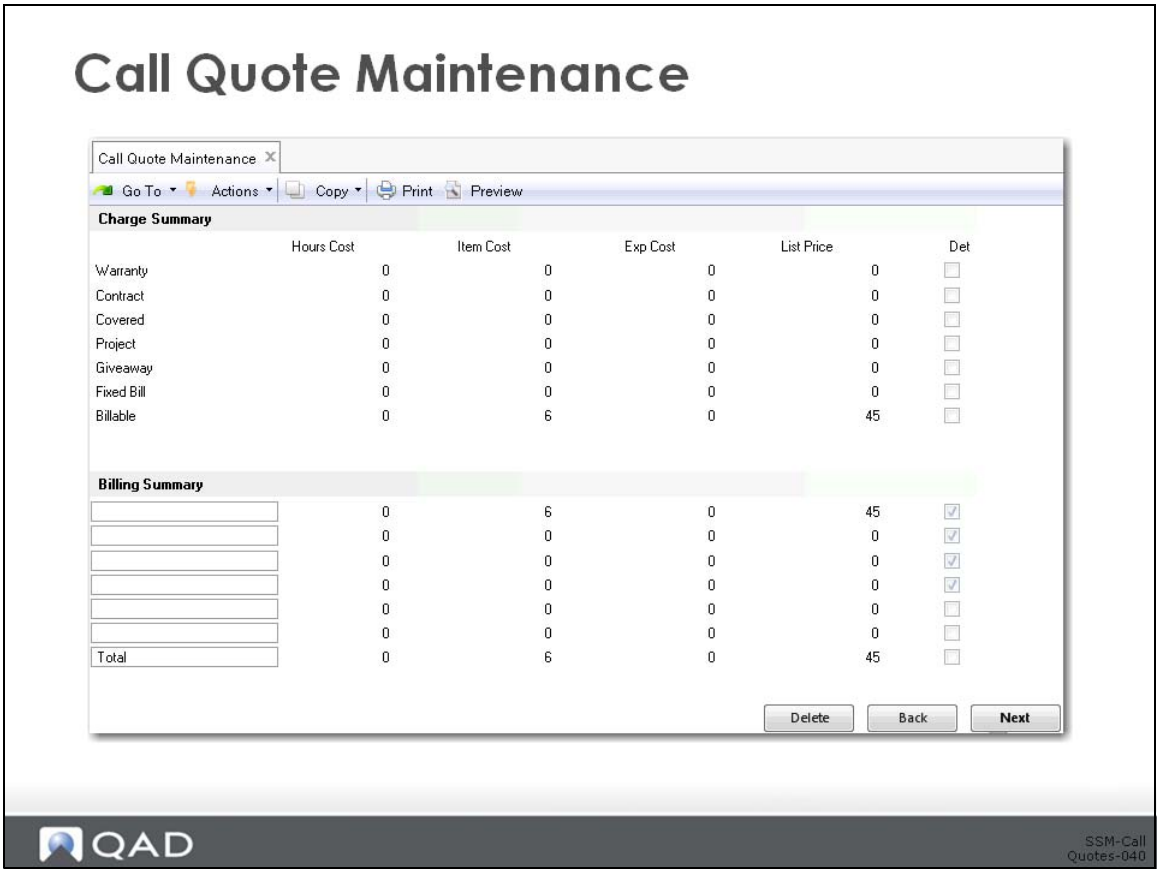


After entering an item requiring repair, the system fills in the item details which you can modify. Frames display for recording labor, expenses, and items to be consumed during the repair.

If there is a default repair BOM and routing, the items and operations load into the detail frames for this quote. You can modify the items and quantities.

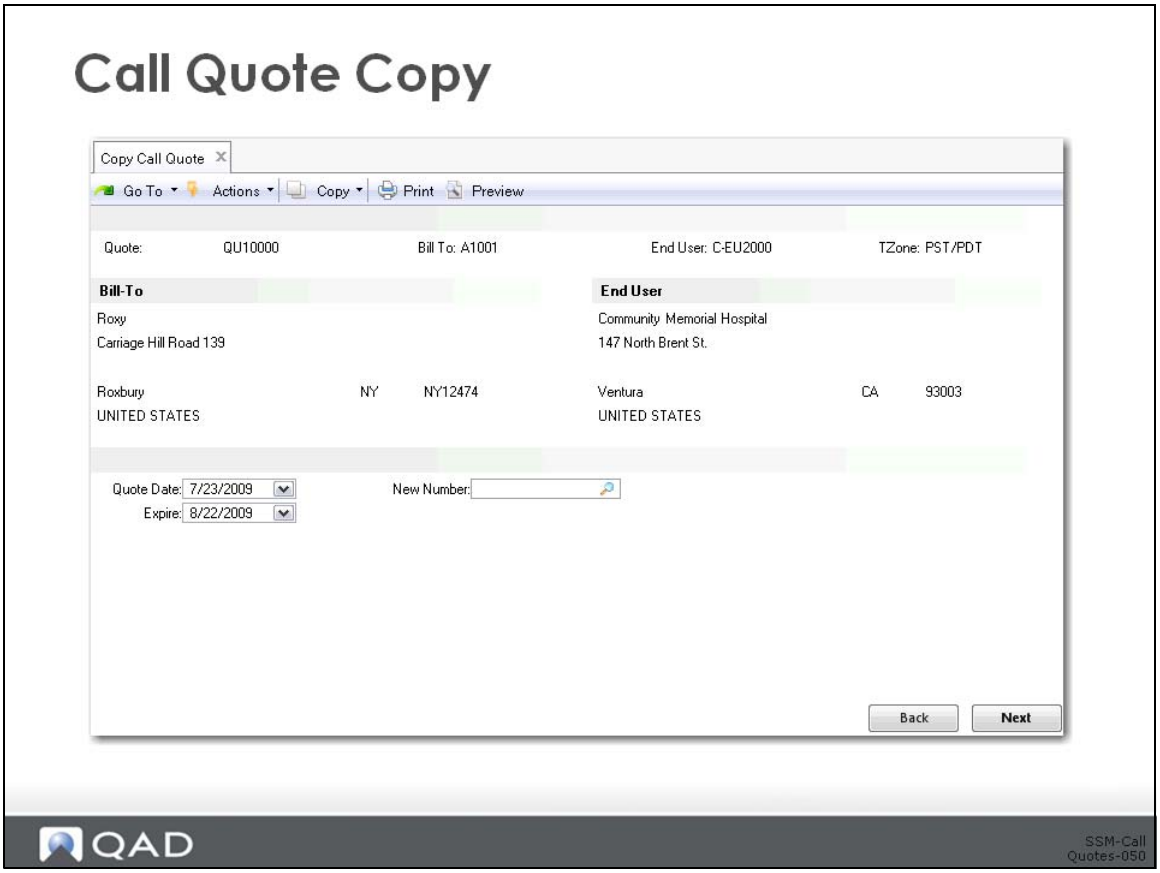
You can create general allocations if this quote is likely to become a call and inventory is limited. In the Item Usage Detail screen, you enter the amount in the quantity allocated field.

Charge Summary Frame



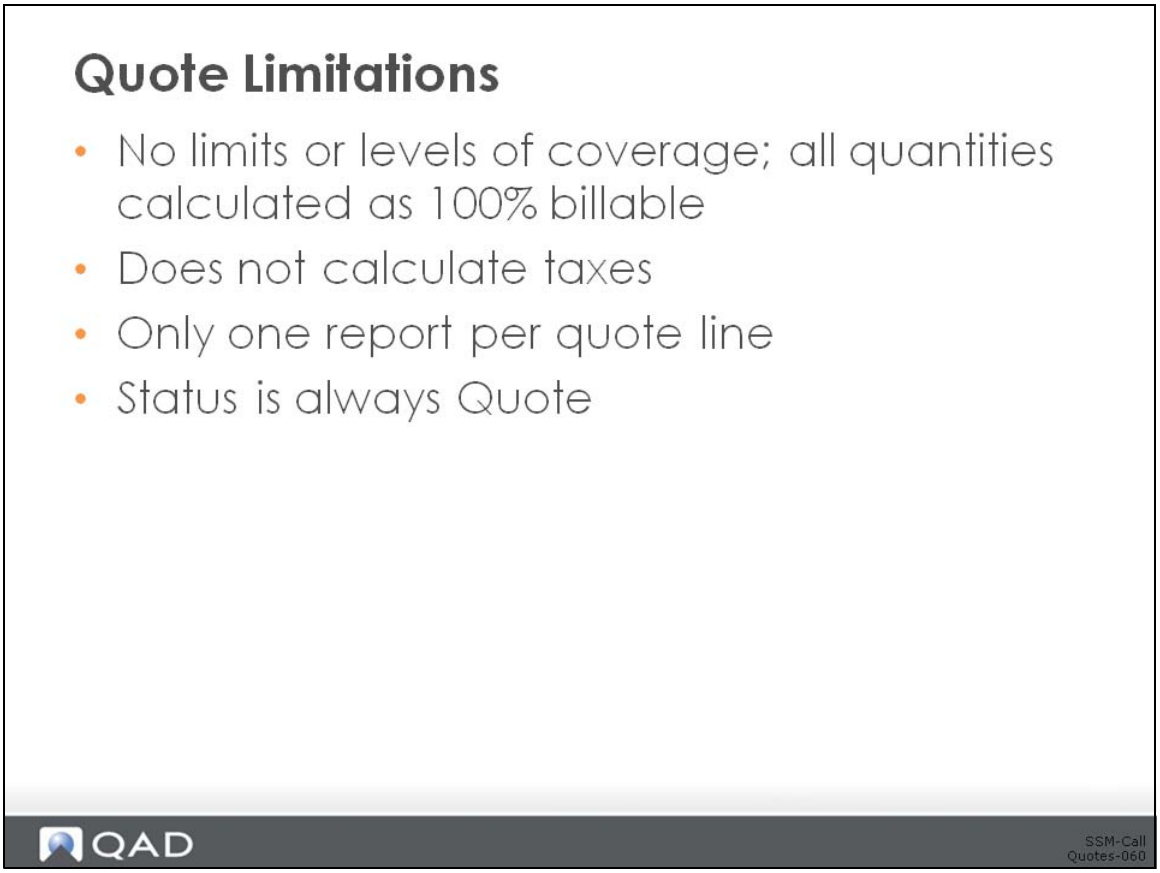
These frames summary the cost of the proposed service and the amount to bill to the customer.

Call Quote Copy (11.1.1.12)



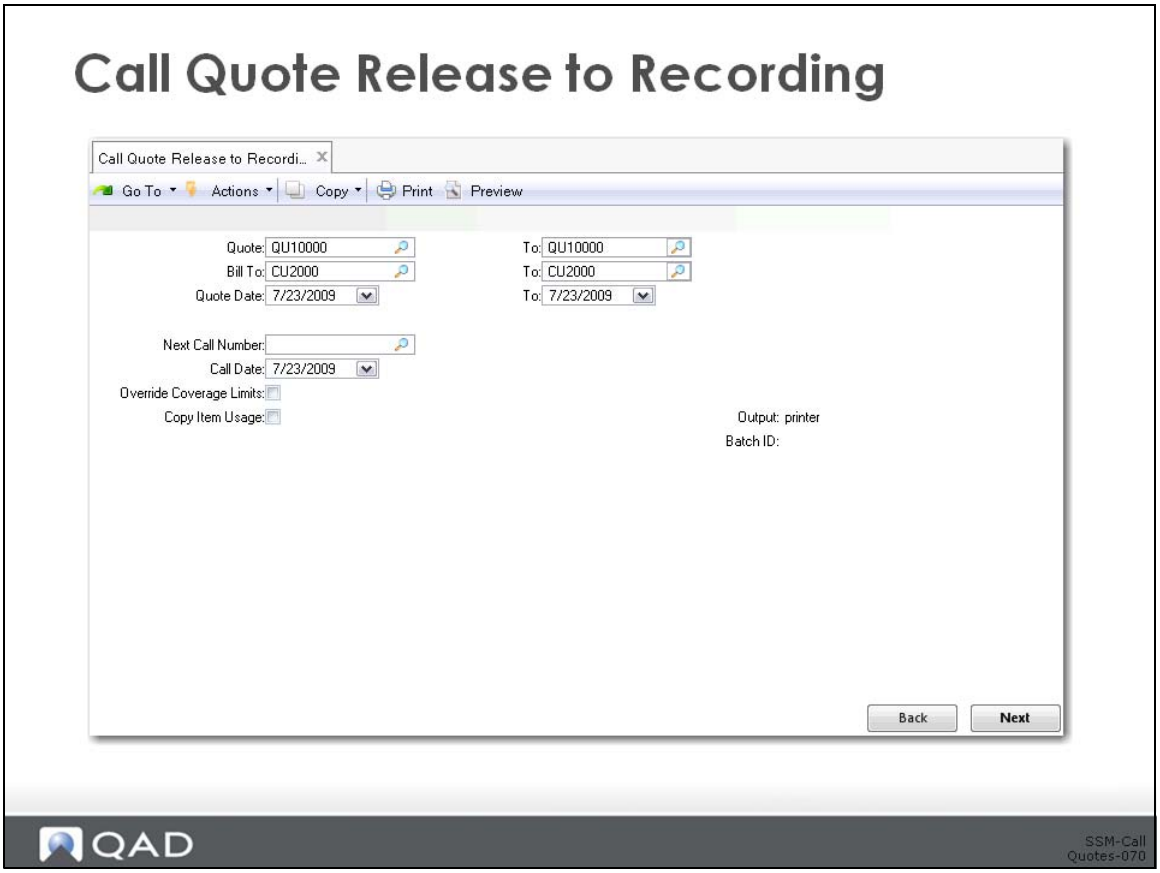
To simplify data entry for similar repair operations, copy existing quotes in Copy Call Quote (11.1.1.12).

Quote Limitations



This figure shows some of the limitations of call quotes.

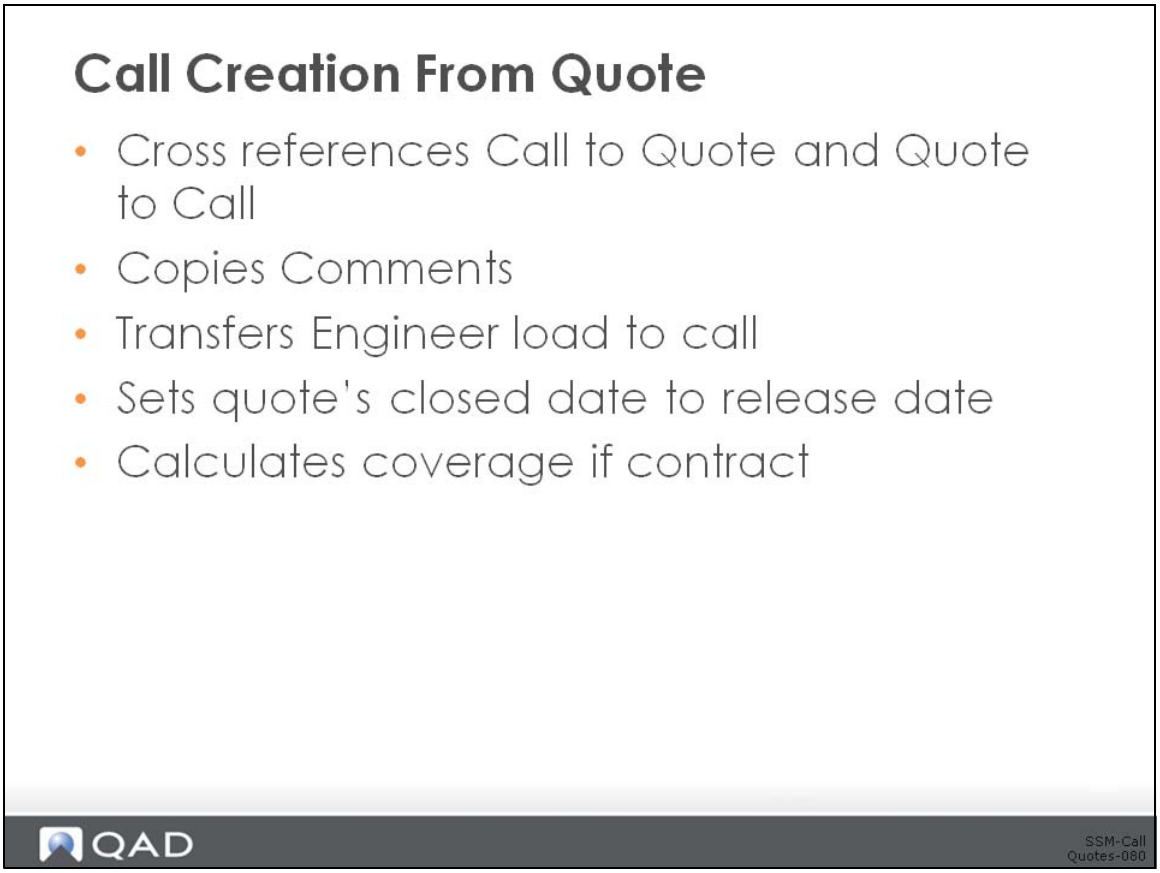
Call Quote Release to Recording (11.1.1.11)



Use Call Quote Release to Recording (11.1.1.11) to create calls from selected call quotes.

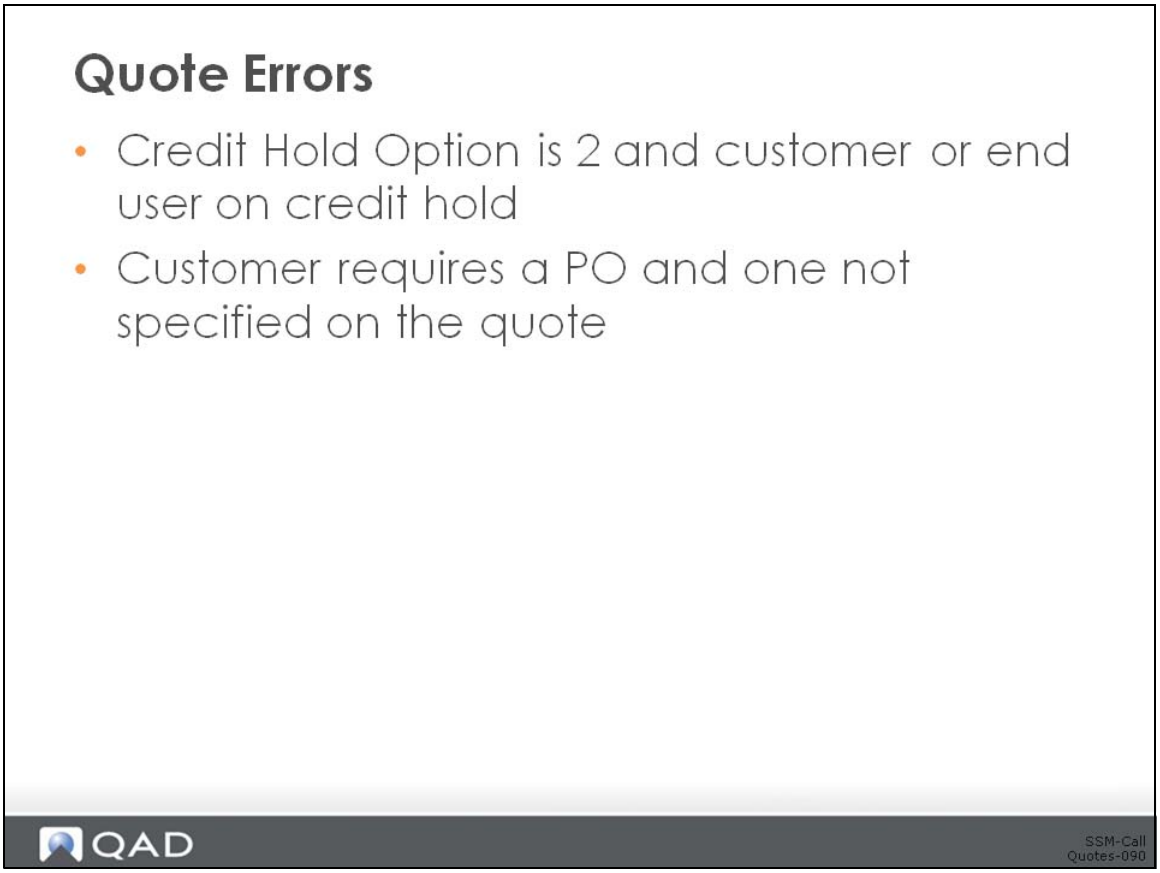
You can release a quote to a call only once. To be released the quote must have the open status defined in the Call Management Control.

Call Creation From Quote



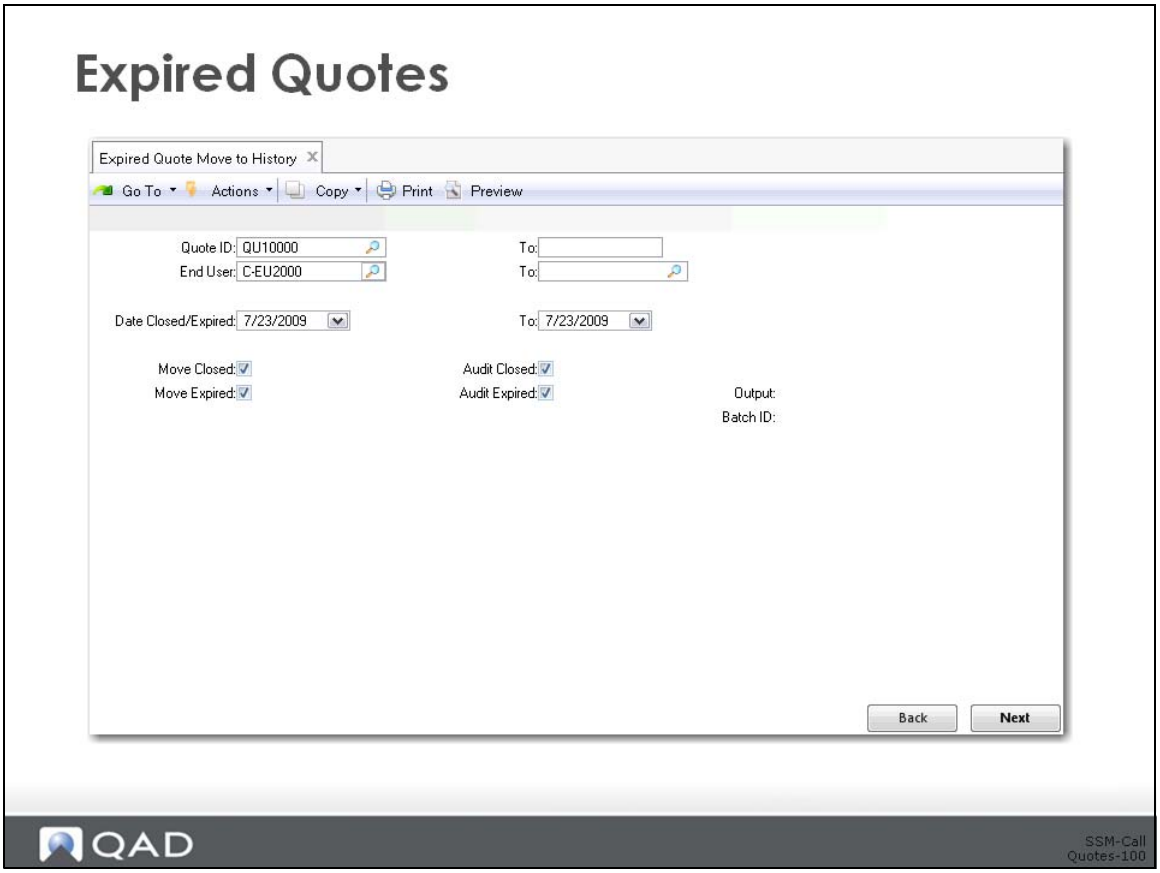
This figure shows several steps that happens when a Call Quote is released to recording. If a contract covers items on a quote, this calculates coverage based on the consumption of contract limits. Set Override Coverage Limits to Yes to apply coverage even to amounts over the limits. Set it to No to use the contract limits.

Quote Errors



This figure shows two errors that could be generated in Call Quote Release to Recording.

Expired Quotes



Quotes remain in effect for a period controlled by Days to Expire in Call Management Control. The system adds the value in Days to Expire to the quote creation date to determine the quote's expiration date.

If you access an expired quote in Call Quote Maintenance, you get a warning message.

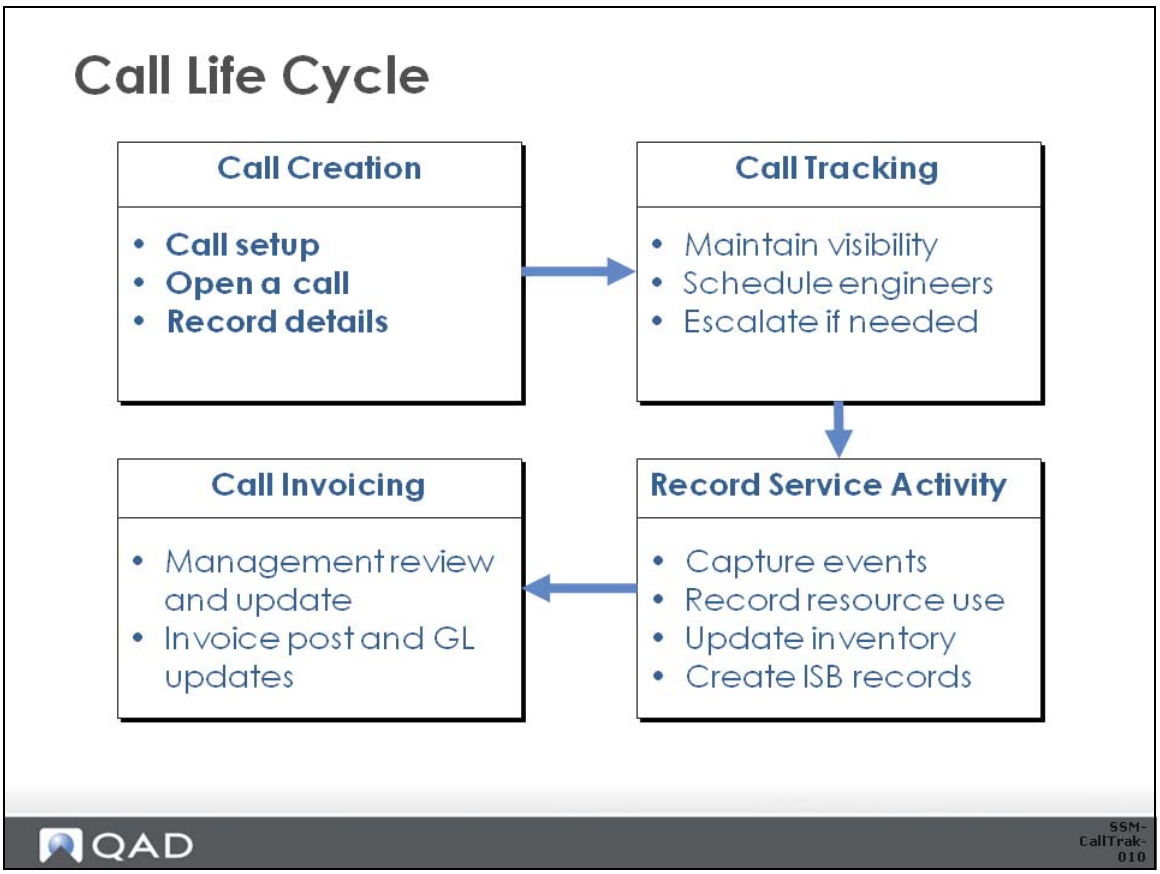
You cannot release an expired quote. Change the expiration date to reactivate the quote.

Move released or expired quotes to a history table with Expired Quote Move to History (11.1.1.22). Delete and archive quotes from the history table with Call/Quote History Delete/Archive (11.1.1.23).

Chapter 10

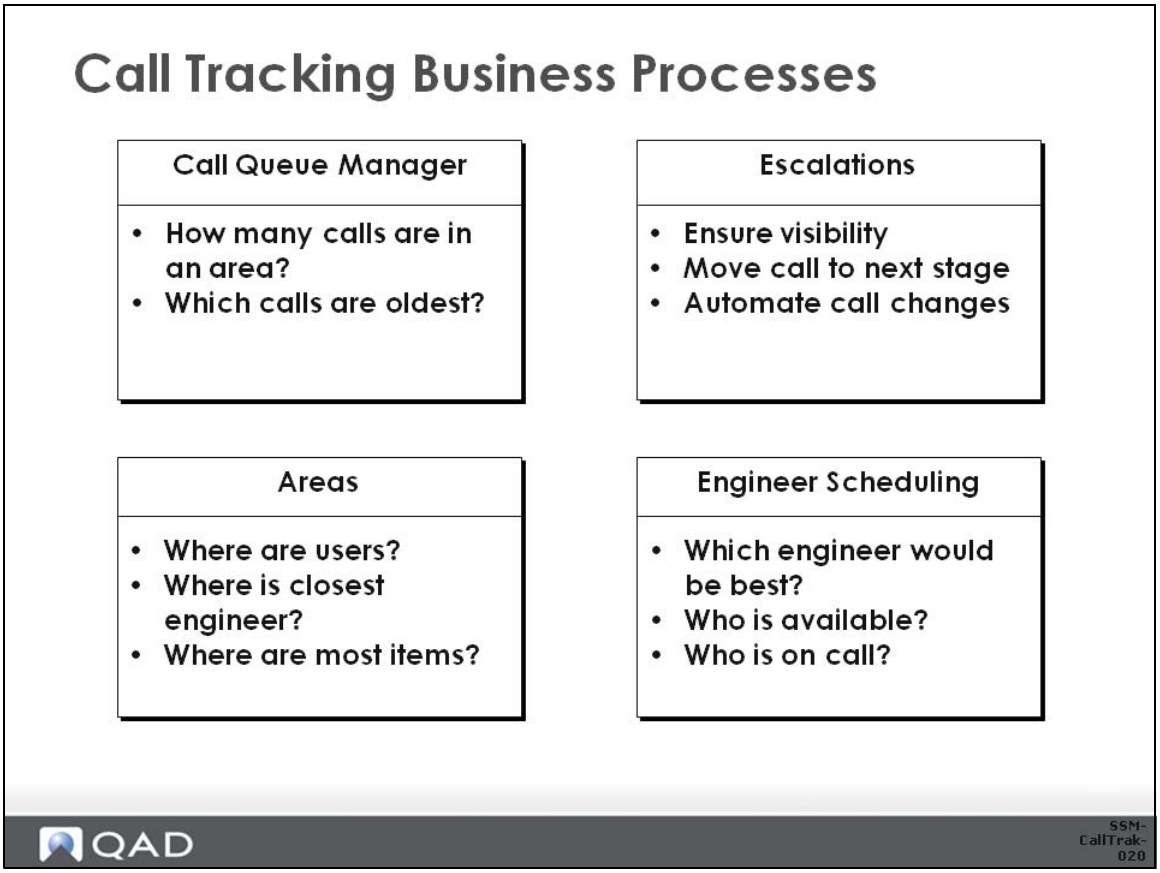
Call Tracking

Overview



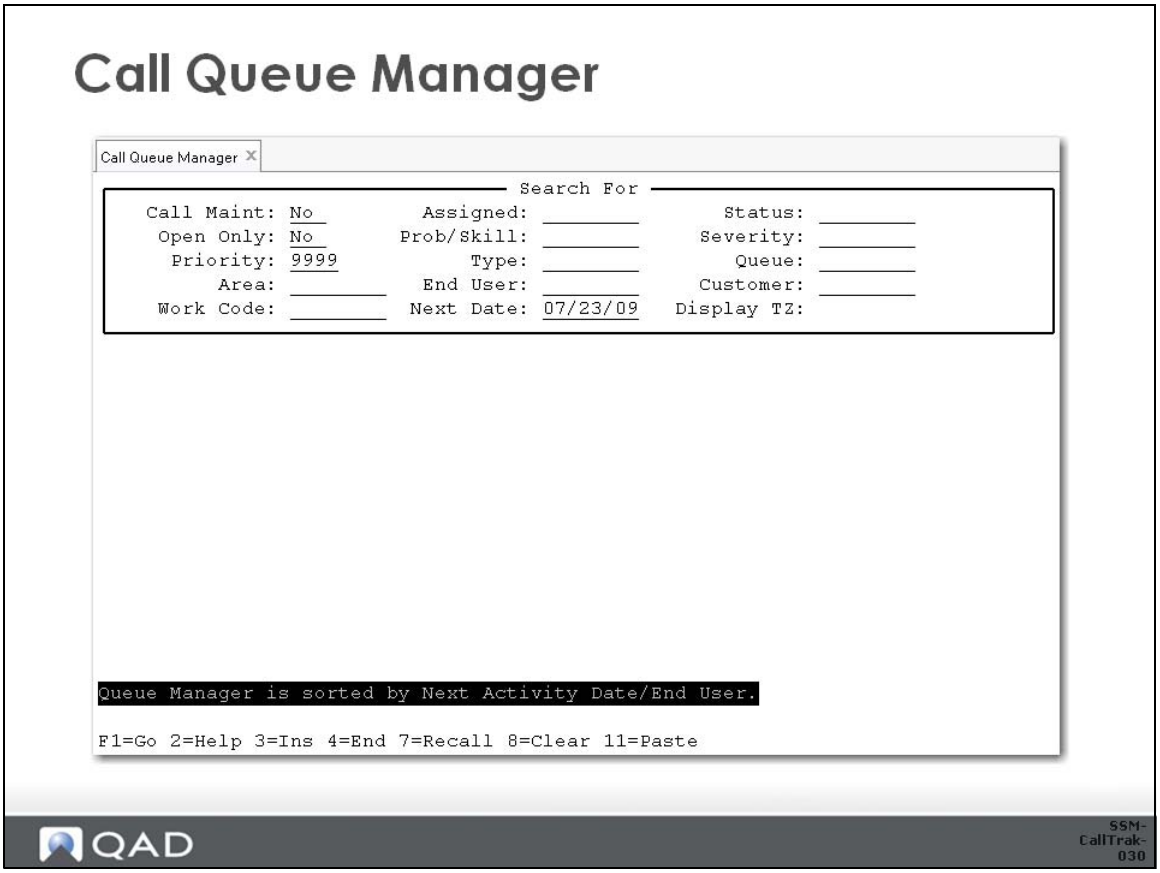
The previous chapter covered issues related to creating calls. This chapter will concentrate on the second part of the call life cycle. Call Management involves a number of loosely related tasks that facilitate the tracking and monitoring of calls. These include the Call Queue Manager, escalations, areas, engineer scheduling and Service Requests.

Business Processes



There are different tools and functions to schedule, manage and track calls.

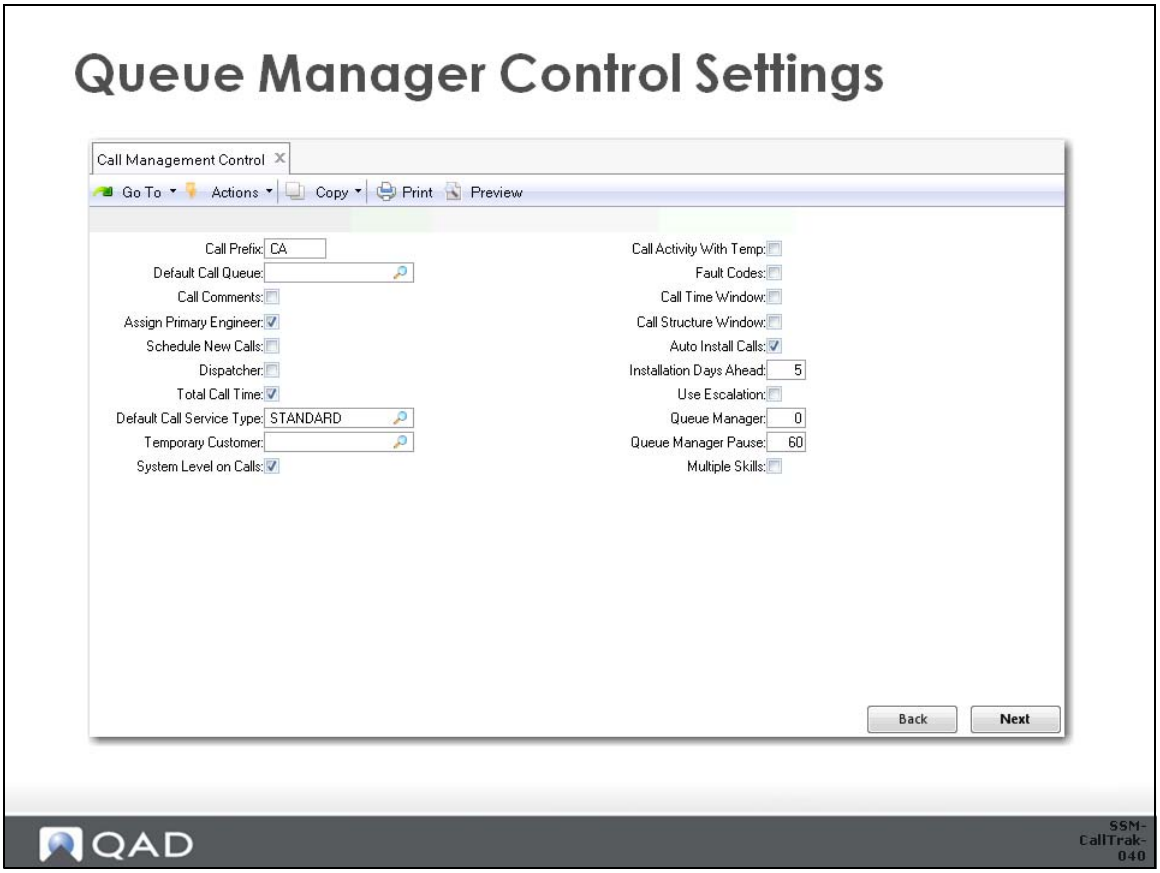
Call Queue Manager



The Call Queue Manager (11.1.6) is a multipurpose tool for sorting and manipulating call records. In busy support environments, you usually need to view and edit calls according to pre-selected criteria. For example, a supervisor may need to scan calls by status, or service engineer, or look at calls by priority.

Any number of search criteria can be specified for reviewing calls. In this example, calls for two different engineers are displayed. You can also review calls by queue, area, type, priority, problem, end user, as well as other selection criteria.

Queue Manager Control Settings



The Call Queue Manager updates its display automatically, using the time interval specified by the Queue Manager Pause field in the Call Management Control (11.1.24). The Queue Manager setting determines how calls are sorted and displayed. For an individual user, this value can be overridden by the value set in the Service and Support User Preferences.

0 Displays calls by Nxt Date and Nxt Time. Pressing Tab toggles the sort order by End User.

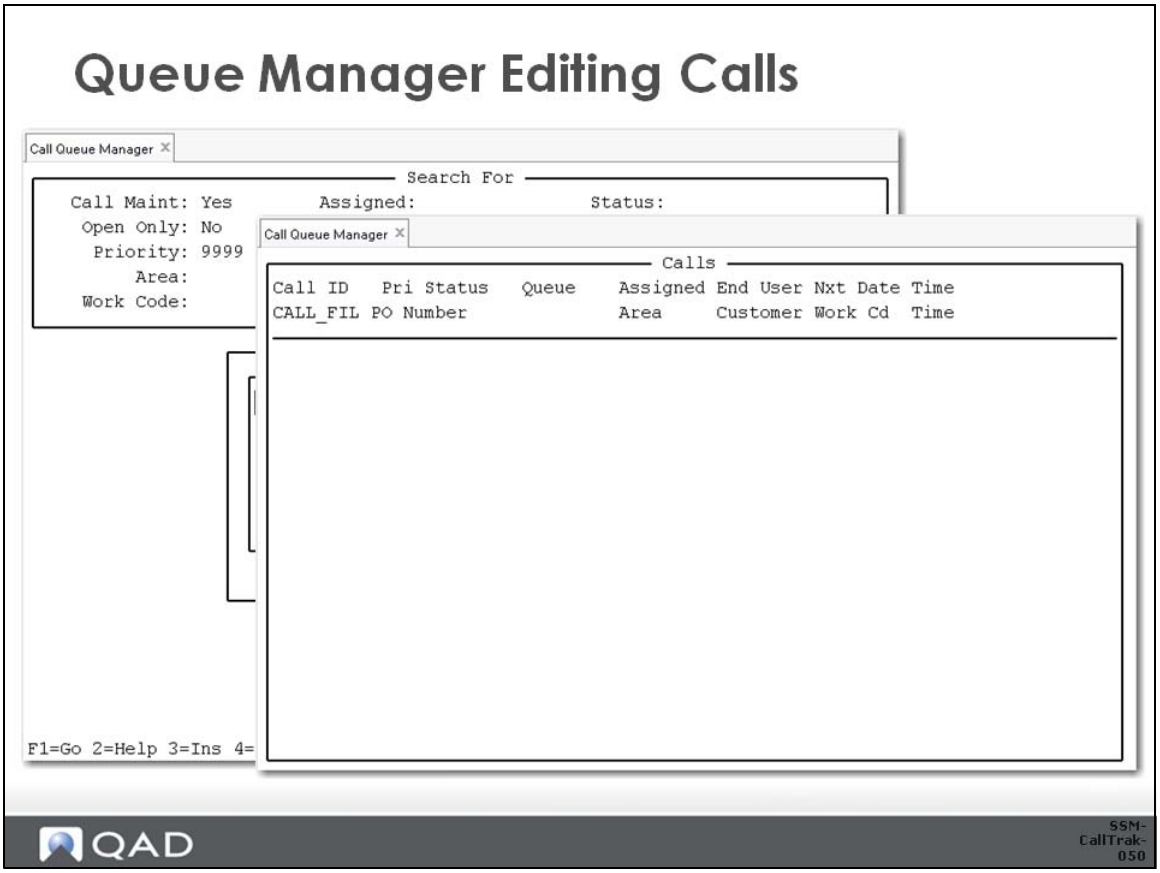
1 Groups calls by the Assigned (engineer) field, then response priority. Pressing Tab toggles the sort order by Queue.

2 Sorts by the Assigned (engineer) field. Pressing Tab toggles the sort order by End User.

3 Sorts by the Area field. Pressing tab toggles the sort order by Customer.

To display calls by next status date and time, set the Queue Manager value to 0. Then the call with the oldest next status date and time displays first. This way, you can view all overdue calls or calls about to become overdue. You can also view all the open calls for a particular engineer ordered by oldest open call first.

Editing Calls

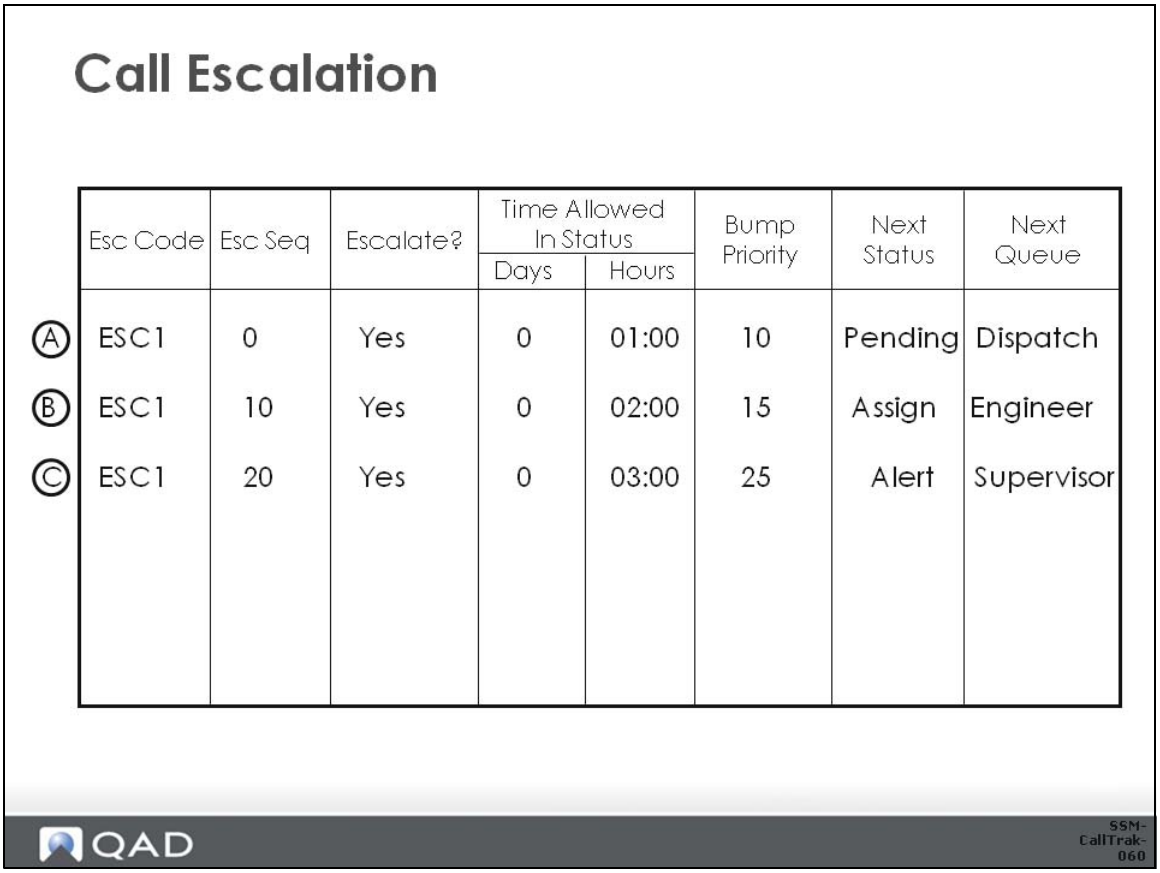


Call records can be edited directly from the call queue manager in two ways, depending on the setting of the Call Maint field. When Call Maint is set to No as in this example, you can scroll through the list of calls displayed on the window. If you press Enter while your cursor is positioned on a call, a call detail line displays.

From this frame, you can change the call priority, status, queue, assigned engineer, problem code, and next date and time. This is useful to a call dispatcher (someone in charge of monitoring the calls), enabling them to redirect the calls and assign them to appropriate engineers.

When Call Maint is Yes, pressing Enter on a call in the list takes you directly to Call Maintenance, providing full call editing functionality. This setting is best suited to service engineers who must perform detailed editing of their calls.

Call Escalation

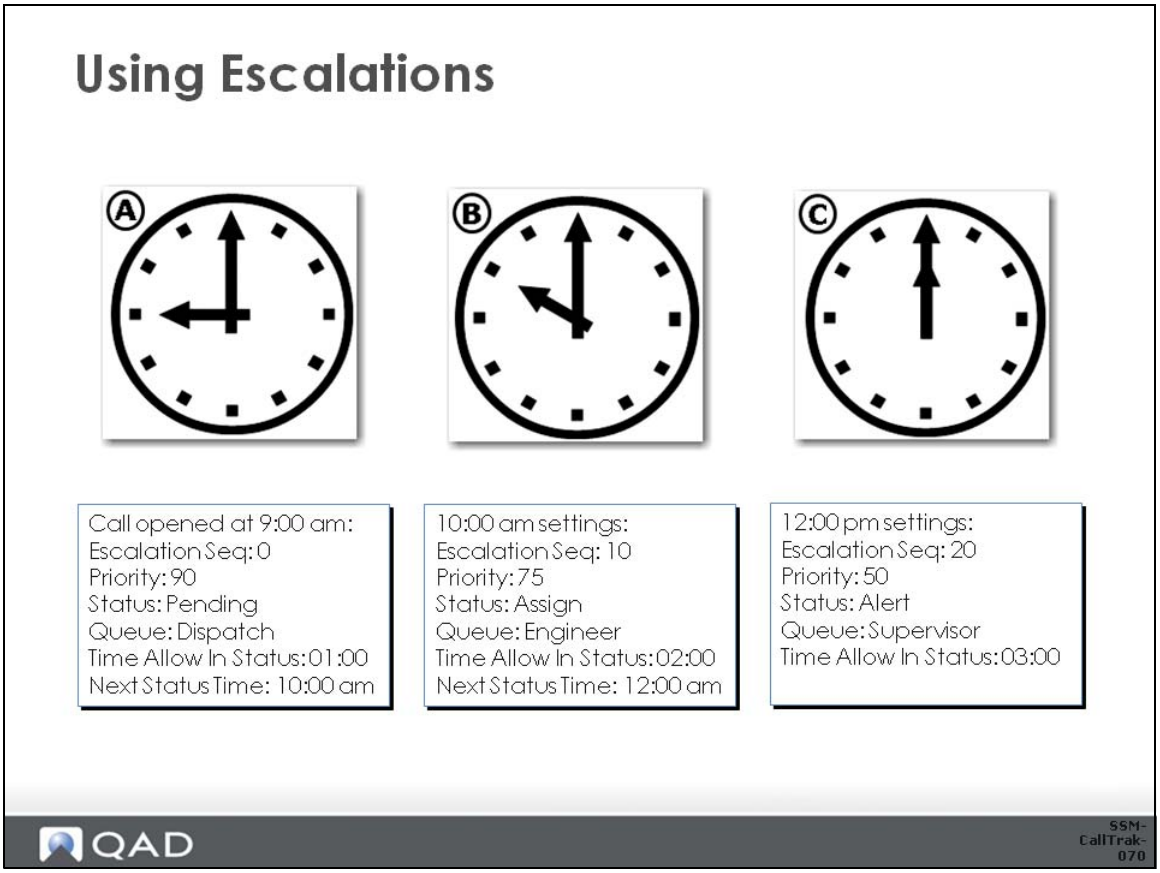


Call escalation controls the automatic progression of service on a call according to a predetermined schedule. It provides automated control of call response times and is designed to ensure that each call is serviced in time and by the appropriate personnel.

If properly designed, call escalation gives management the visibility to track and correct a call's progression within a service organization. If a call is not resolved within a certain time frame, it can automatically be given more urgent visibility.

You enable call escalations by setting Use Escalation to Yes in Call Management Control (11.1.24).

Using Escalations

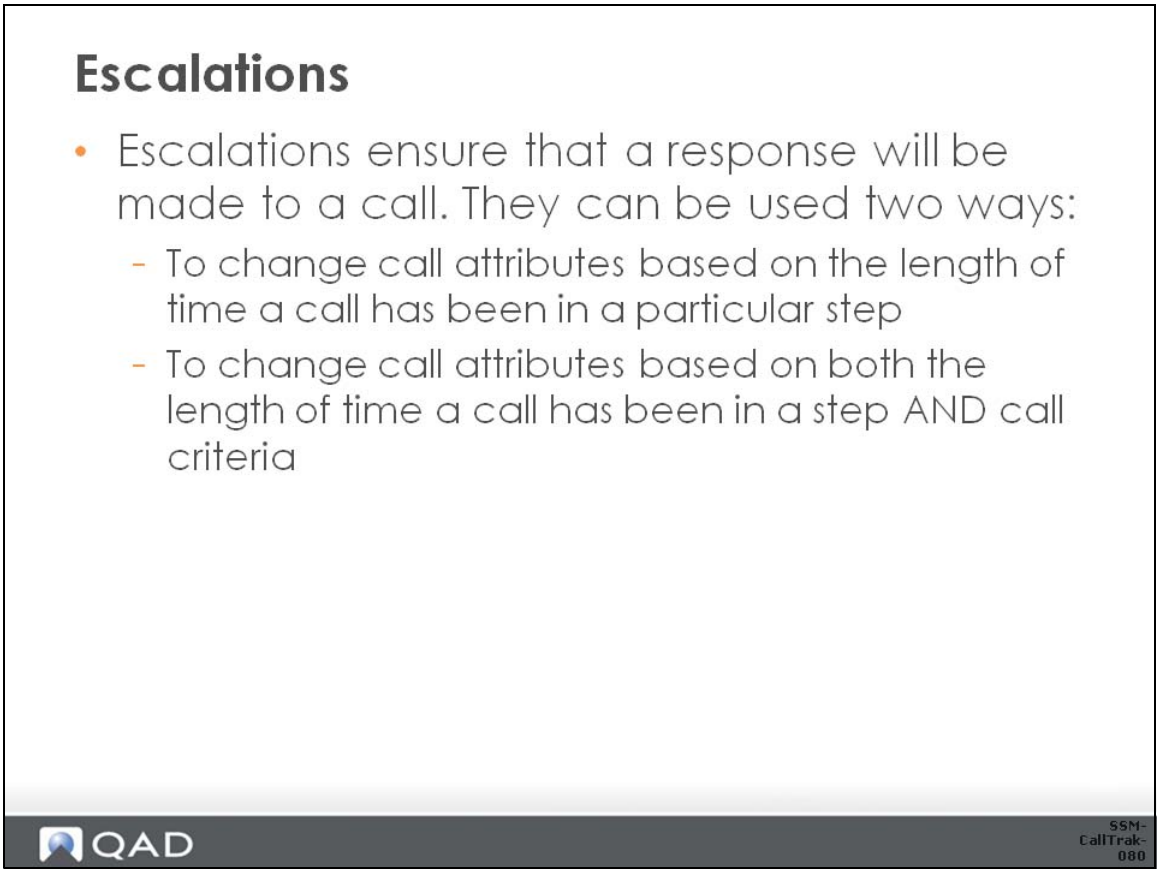


This figure illustrates how a call would be affected by the escalation sequences outlined in the previous figure. The clocks represent the passage of time. Clock A represents the default settings when the call is first opened.

Note Call escalation sequences must always begin with a step numbered 0. The defaults defined for the first step of the escalation override any other defaults when a call is created.

- The call's Next Status Date and Time are set based on the time allowed in status of the first escalation step-in this case, the call is allowed to remain in this status one hour.
- After an hour has passed (clock B), the Escalation Monitor applies the values of the next step in the escalation sequence.
  - Notice under clock B that the status and queue have been changed. Fifteen points have been subtracted from the call's priority, and the Next Status Time has been set to 12 noon.
  - At 12 noon (clock C), the values of the third step are applied.

Escalations



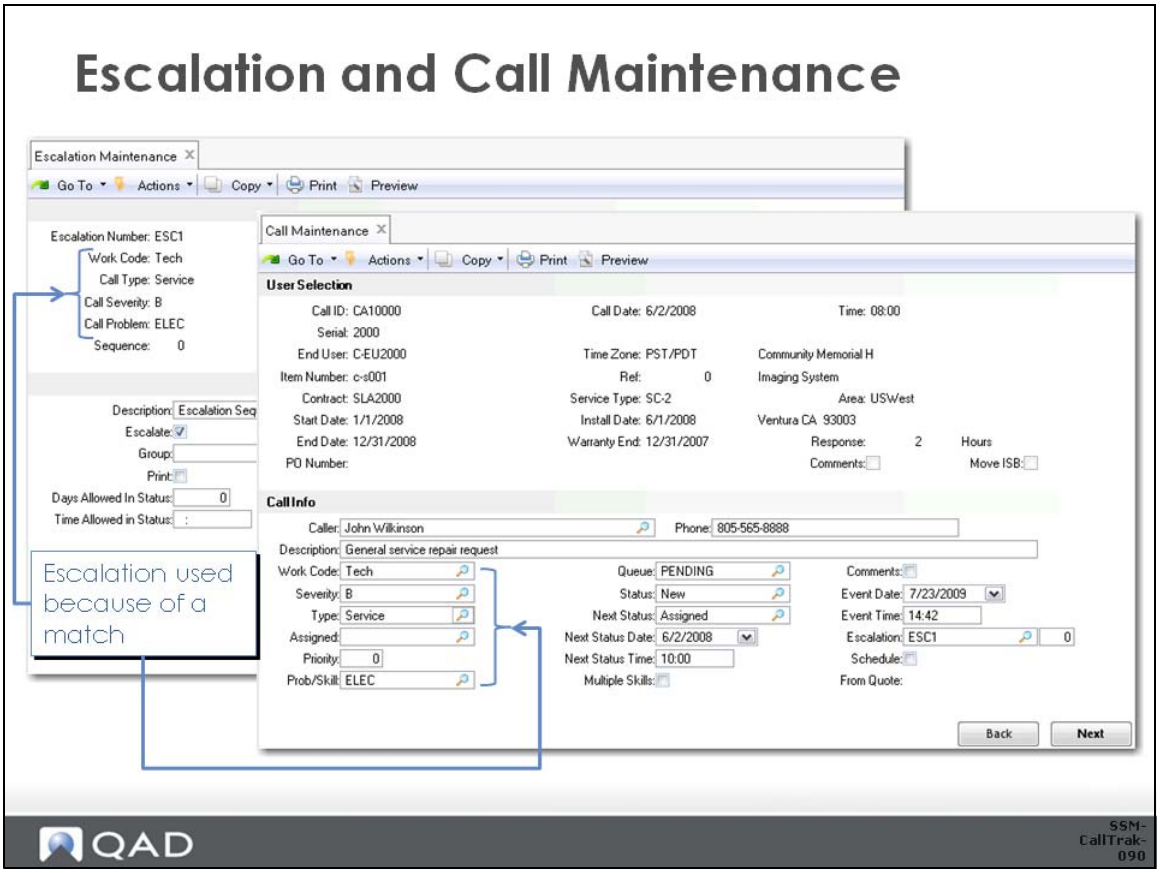
Use Escalation Maintenance (11.1.13.1) to create and update escalation sequences.

The work code, type, severity, and problem in the top frame of Escalation Maintenance define a unique key for this escalation. This escalation will be applied to calls with values that match the values specified in these fields. If you want to create generic escalations that apply based simply on the length of time a call has been in a certain state, you should leave the key values blank.

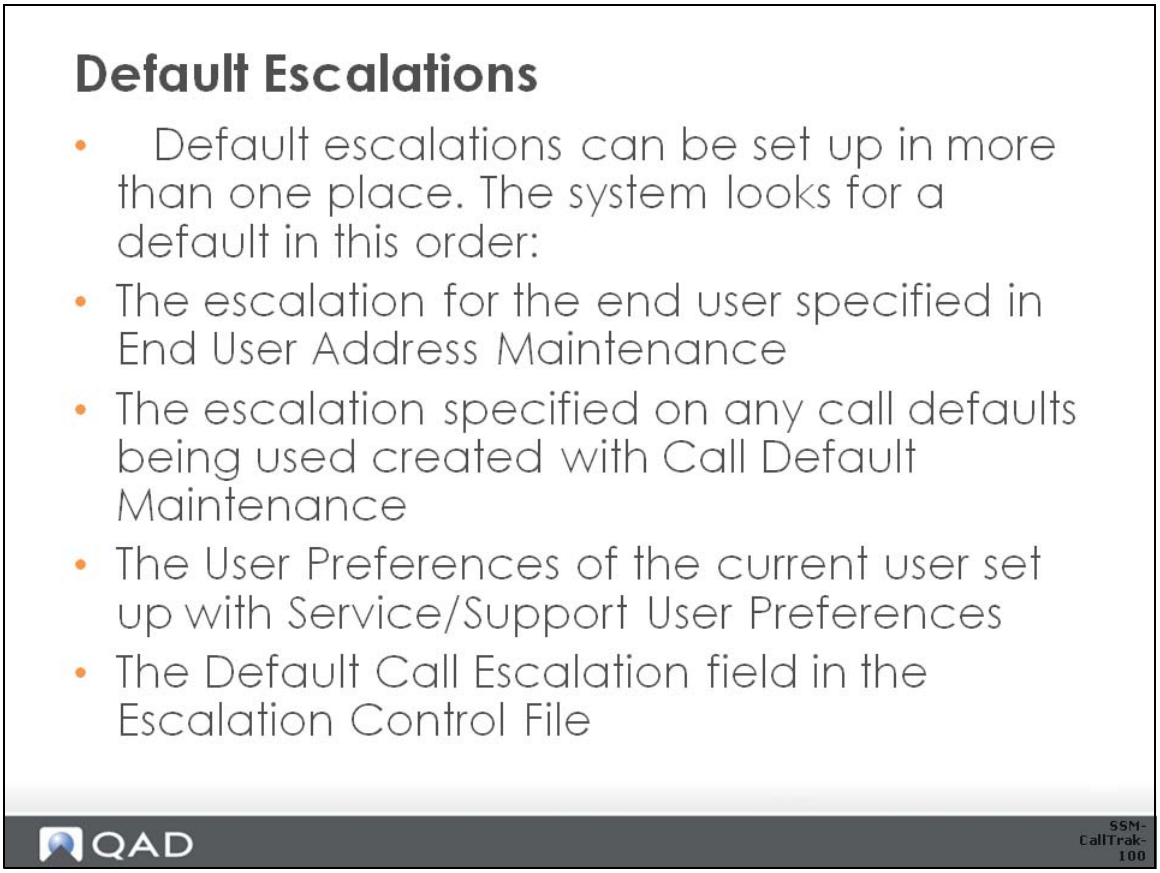
If you specify key values, they must be filled in from the top down. If you want the escalation to be applied based on call severity, you must also specify a work code and call type.

When the escalation manager searches for an escalation to apply, it looks first for the most specific match (all escalation key fields supplied). Then it keeps searching for a more generic escalation by blanking out one field at a time, starting from the bottom up until all key fields are blank.

Escalation and Call Maintenance



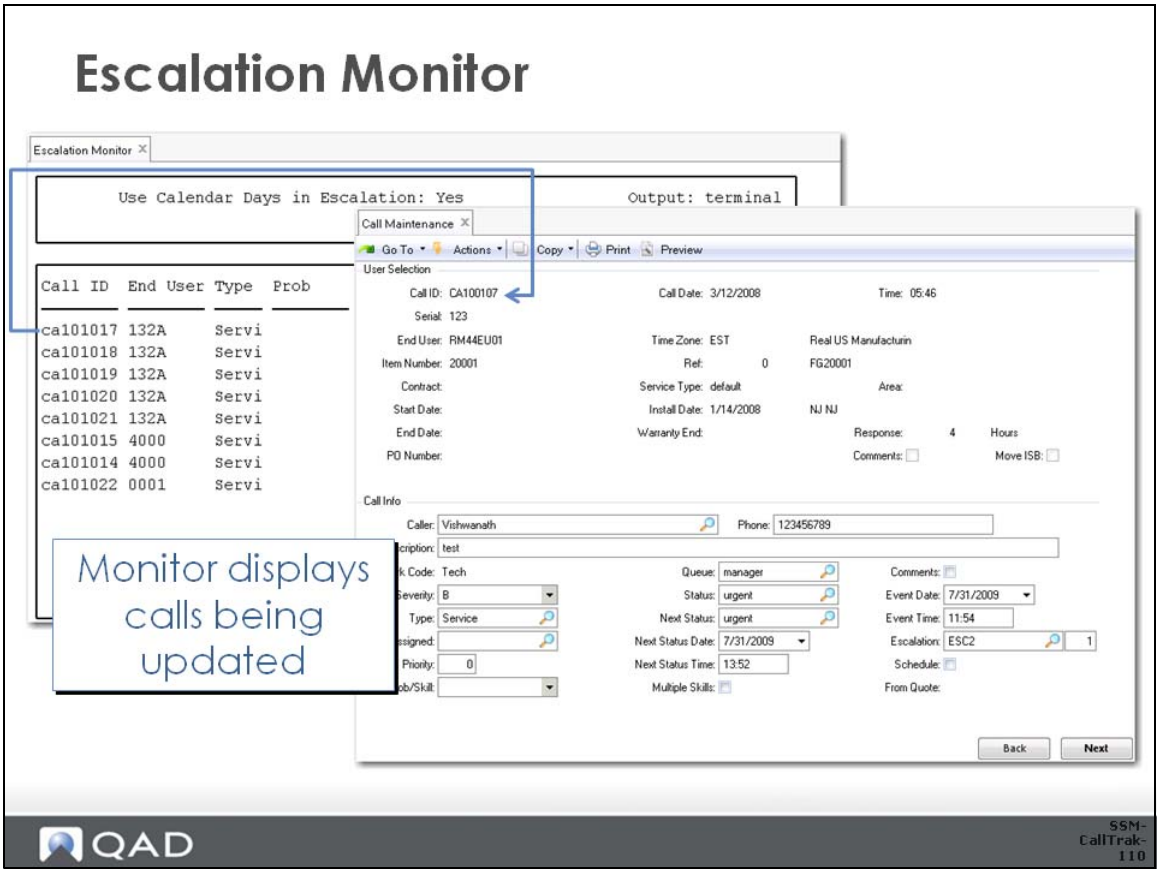
Default Escalations



In the Escalation Control File, you can specify a default escalation for all calls, which is used if no other default is available. When creating calls, you can still change the escalation on a call-by-call basis.

The figure shows what order the system looks for an escalation to use on a particular call.

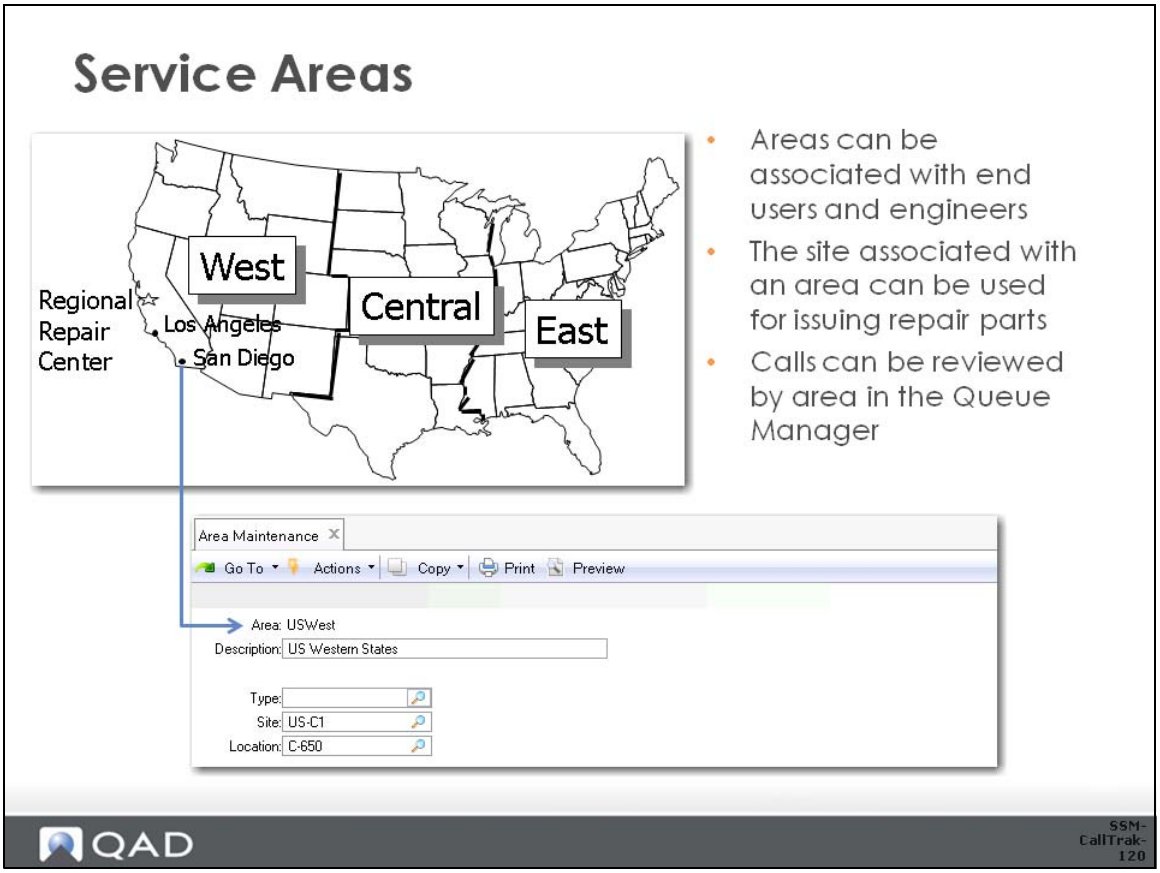
Escalation Monitor



For escalation steps to have any effect, the Escalation Monitor (11.1.13.13) must be executing. The monitor can be run as a full-time process. Normally, it is run on a dedicated terminal or in a window on an X Windows terminal. For correct escalation results, the monitor must run consistently.

When the Escalation Monitor runs, it examines each call's next event date and time. If these are earlier than or equal to the current date and time, it applies the changes as defined in the current escalation step by updating the call's priority, status, or queue. Then it changes the Next Status Date and Time to reflect the days and time allowed in the current escalation step. Only calls that are changed or updated are shown in the Escalation Monitor output. How frequently the Escalation Monitor cycles through calls looking for calls to escalate depends on the Escalation Manager Pause interval specified in the Escalation Control (11.1.13.24).

Service Areas

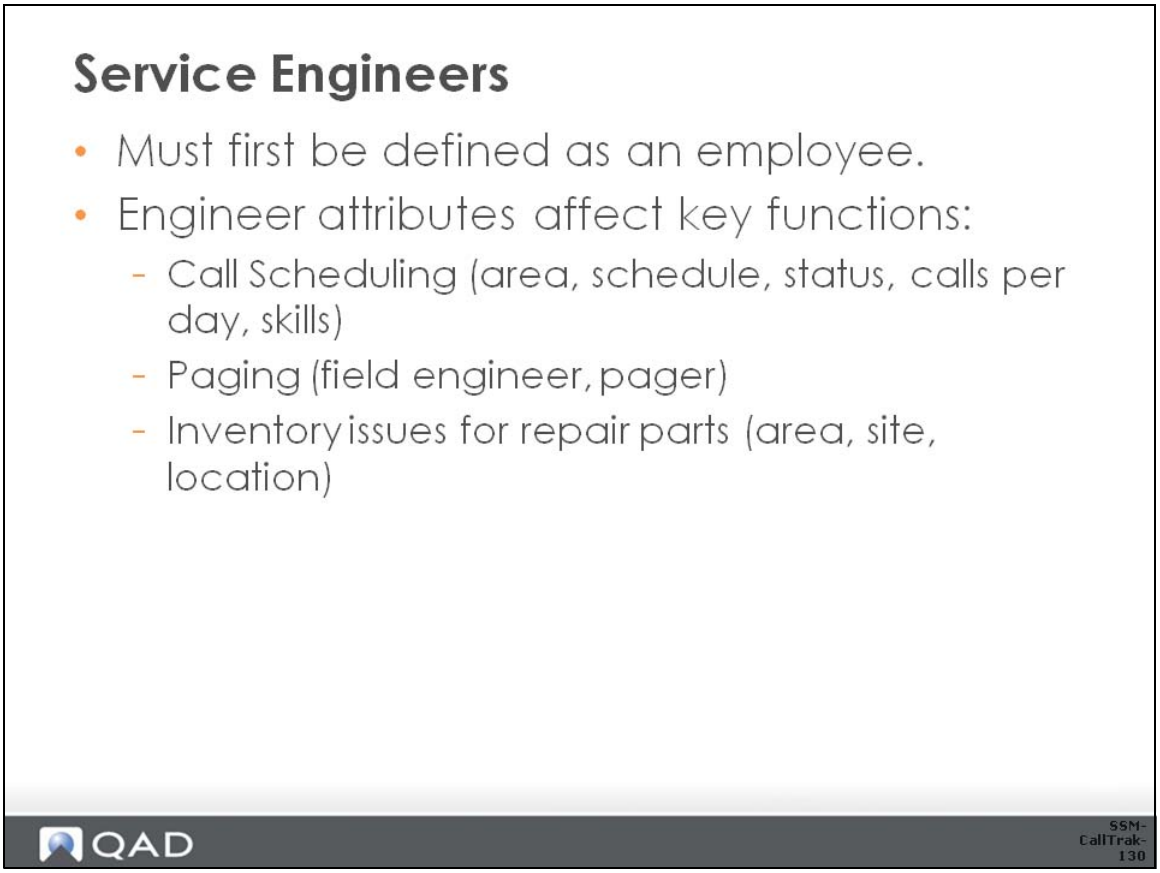


Service organizations are often split up by area: geographically (east, west), by product line or group, or by type of service (telephone or on-site). Within a geographical area, there may be one or more service facilities. Areas are defined in SSM with Area Maintenance (11.15.1).

Once defined, areas can be associated with service engineers and end users. These relationships are used by the engineer scheduling function to assign engineers to problems reported by end users in the appropriate area.

A site and location can also be associated with each area, representing the source of repair parts for calls serviced in the area. This site and location provide inventory issue defaults in Call Activity Recording and MO Maintenance if the engineer does not have a site and location defined.

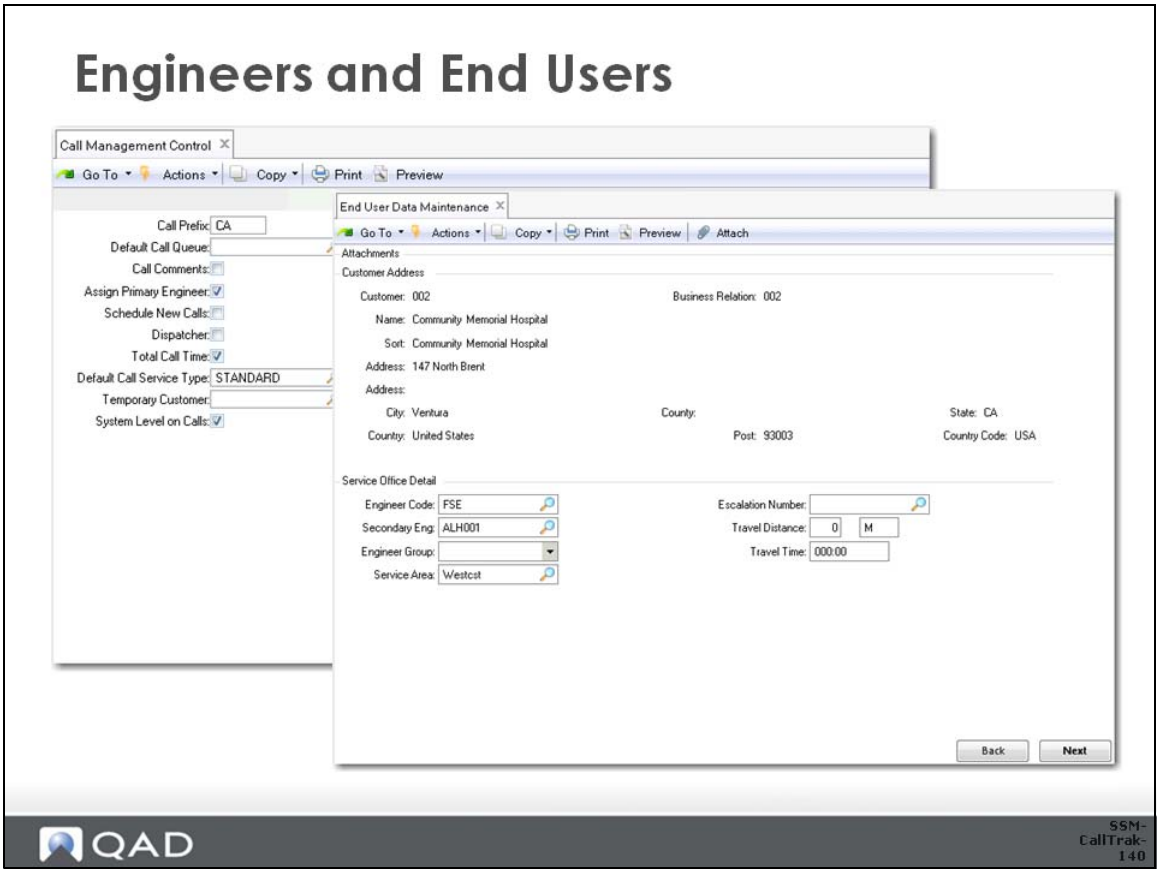
Service Engineers



Service engineers are the individuals responsible for responding to a call. Engineers must first be set up as employees using Employee Create (36.1.7.1). Then they are defined as engineers with Engineer Maintenance (11.13.1) and assigned skills with Engineer Skills Maintenance (11.13.5).

Engineer attributes are important in call scheduling and engineer paging. Both of these activities are optional. However, even if you do not plan to use scheduling, you need to have engineers defined before you can record service activity in Call Activity Recording.

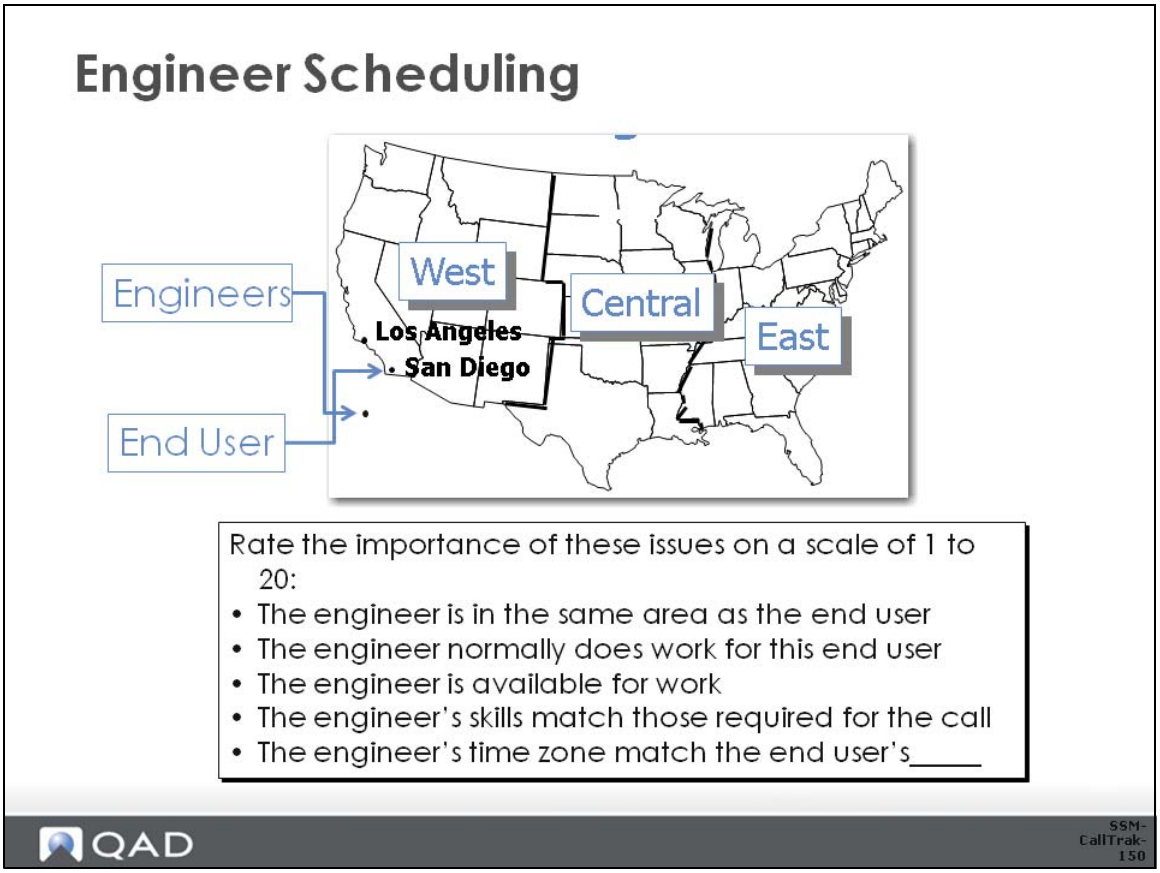
Engineers and End Users



Primary and secondary engineers can be associated with end users in End User Data Maintenance (11.9.1). If Assign Primary Engineer is Yes in the Call Management Control, the primary engineer can be automatically assigned when new calls for an end user are created.

If call scheduling is being used, the primary and secondary engineers can receive ranking points for being the individuals that normally work for an end user.

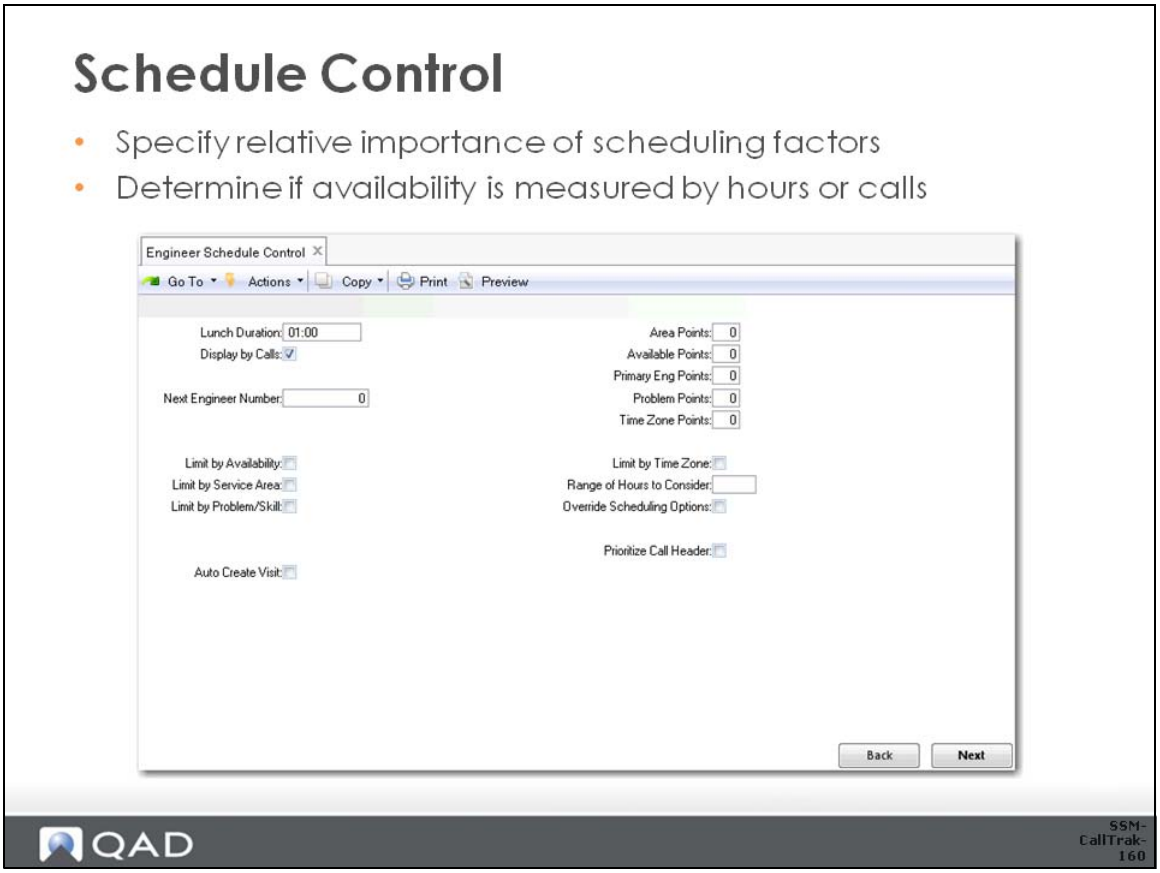
Engineer Scheduling



The engineer scheduling function executes as part of Call Maintenance. The system recommends an engineer to assign to each call based on predetermined criteria that you design in Engineer Schedule Control (11.13.15.24). It is up to service personnel to actually select an engineer according to their own business practices.

The primary factors considered by engineer scheduling are the ones shown in this figure.

Schedule Control



How engineers are ranked is dependent on the priorities expressed by the weighting values set up in control, letting you tailor this formula to your company's needs and goals. Changing these values can affect the engineer point calculation and result in different recommendations from the system. Points are assigned as follows:

Area Points. If the area assigned to the engineer with Engineer Maintenance (11.13.1) matches the area on the call (which defaults from the end user), these points are added to the calculation.

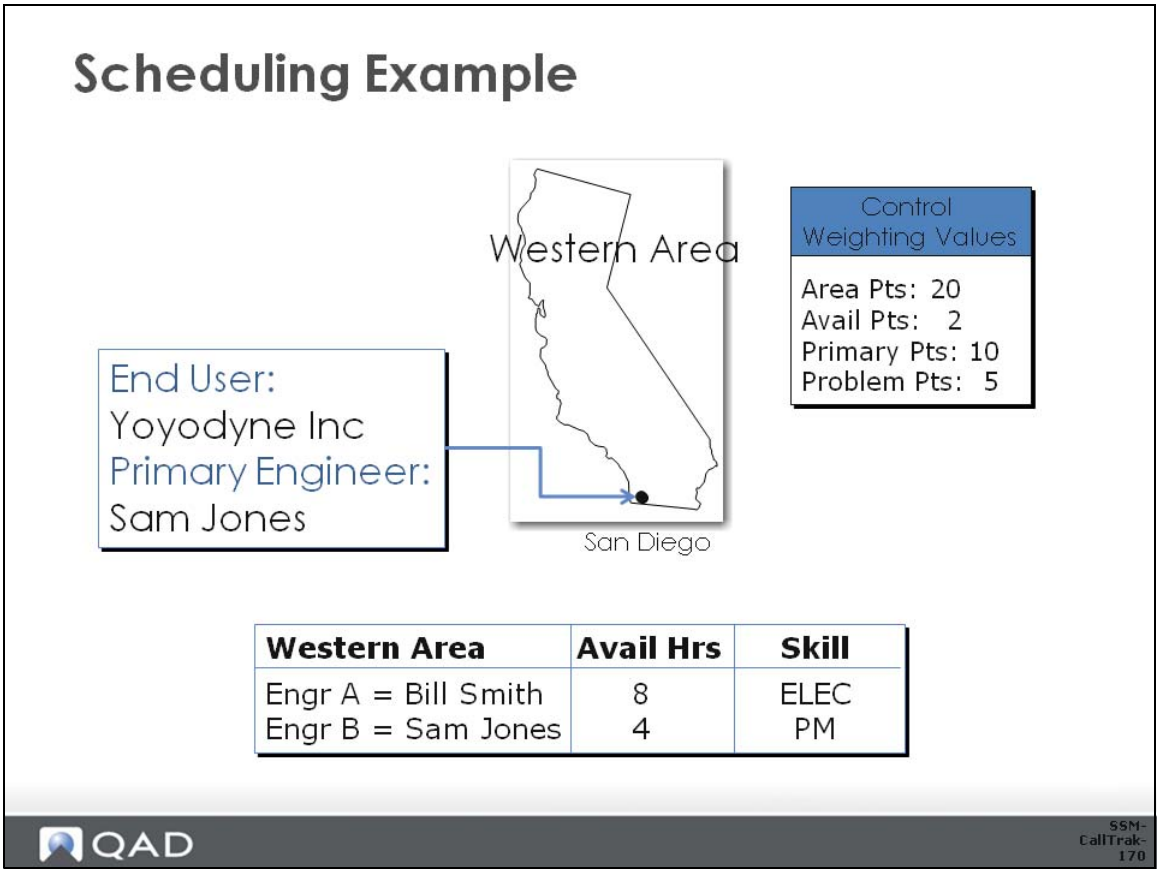
Available Points . Engineer availability is determined by the status assigned in Engineer Maintenance. If this status indicates availability, the availability points are multiplied by either the number of hours an engineer is available or the number of calls he can still take.

Primary Eng Points. If the engineer is the primary engineer for the end user initiating the call, these points are doubled and added to the calculation. The secondary engineer is given these points without doubling them.

Problem Points . If the code in the Prob/Skill field of Call Maintenance is found in the Engineer's skill table (set up with 11.13.5), these points are added to the calculation.

Time Zone Points. If the time zone of the engineer matches the time zone of the end user on the call, these points are added to the calculation. This is applicable only if Multiple Time Zones is Active.

Scheduling Example



In this example, there are two engineers in the western region: Bill Smith, who has electrical skills, and Sam Jones, whose skill is preventive maintenance. An engineer can have multiple skills, but in this example each engineer has only one. MTZ is not active.

Now an end user in this region calls in with an electrical problem. Sam is already committed for four hours that day. Bill has the entire eight-hour day free.

Remember the formula for calculating points:

Area + [(Availability x Hours) + Availability] + (2 x Primary) + Problem + Time Zone

How is this rule applied to engineers Bill Smith and Sam Jones?

Both engineers are in the same area as the end user, so they each receive 20 points.

Each engineer receives 2 points per available hour for that day. Bill Smith is available 8 hours, while Sam Jones is available 4. These hours are multiplied by 2 and added in, giving Bill 16 more points and Sam 8.

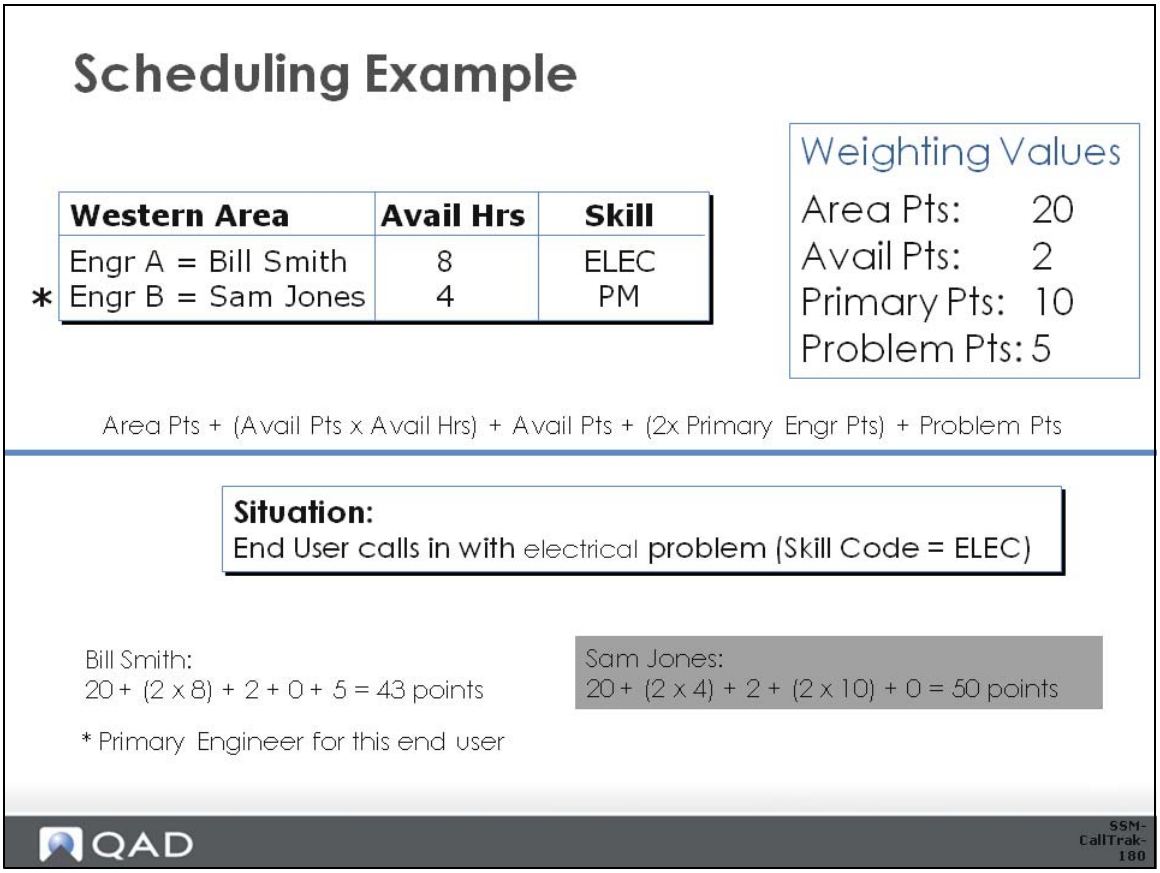
Sam Jones is the primary engineer for this end user, so he receives 10 points multiplied by 2, while Bill Smith receives none.

Bill Smith's skills match the call's problem so he receives 5 points, while Sam receives no points since his skills do not match the problem.

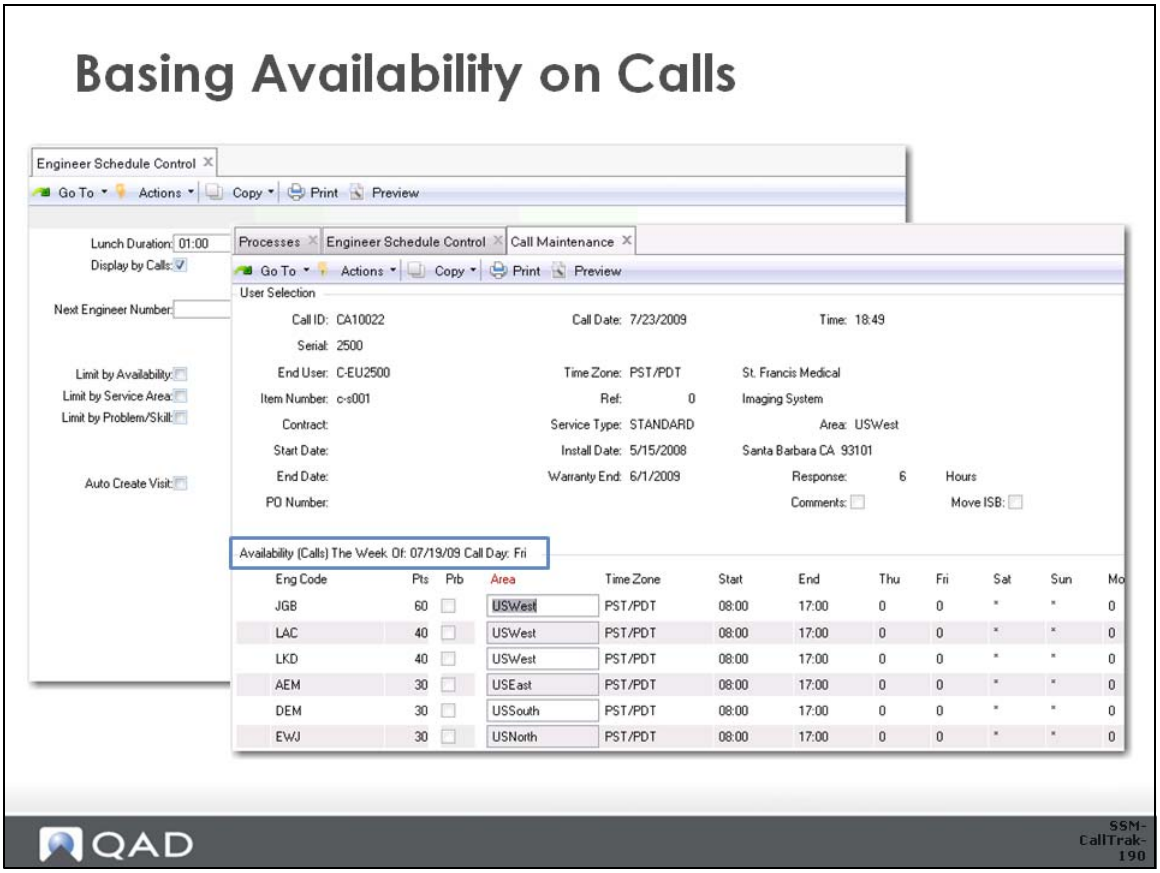
The system gives Sam Jones top priority for this call because he received 50 total points to Bill Smith's 43.

The engineer point calculation is completely dependent on the priorities expressed by the weighting values you set up, letting you tailor this formula to your company's needs and goals. Changing these values in the control file can affect the engineer point calculation and result in different recommendations from the system. In particular, the available hours are multiples of the weighted value, and changes to them can easily outweigh the impact of other criteria.

Scheduling Example Con't



Basing Availability on Calls

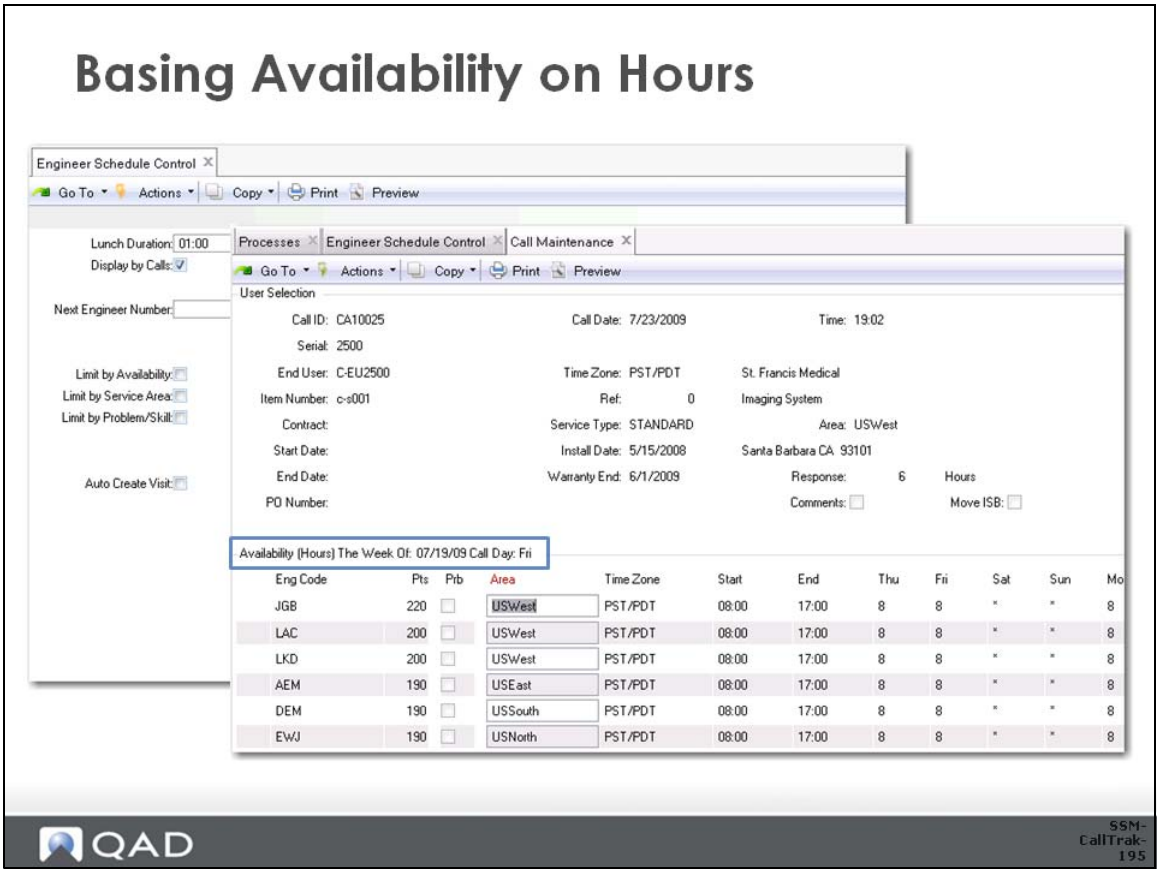


Display by Calls also has an important effect on how scheduling is done. When this flag is set to Yes, availability can be based on the number of calls that can still be assigned to an engineer during a day rather than the hours available or unconsumed. This is a reasonable alternative in environments where calls typically do not vary much in duration.

If you set Display by Calls to Yes, you also need to specify the number of calls per day that can be assigned to an engineer in Engineer Maintenance. Availability is then calculated by subtracting the number of calls already scheduled from the Calls per Day value defined for the engineer.

Depending on how the control is set up, the scheduling pop-up window in Call Maintenance shows the number of calls that can still be assigned to an engineer or the number of hours available.

Basing Availability on Hours



If Display by Calls is set to No, engineer availability is calculated in terms of hours. The call scheduling function then calculates an engineer's load by looking at the estimated hours specified for calls already assigned to him or her.

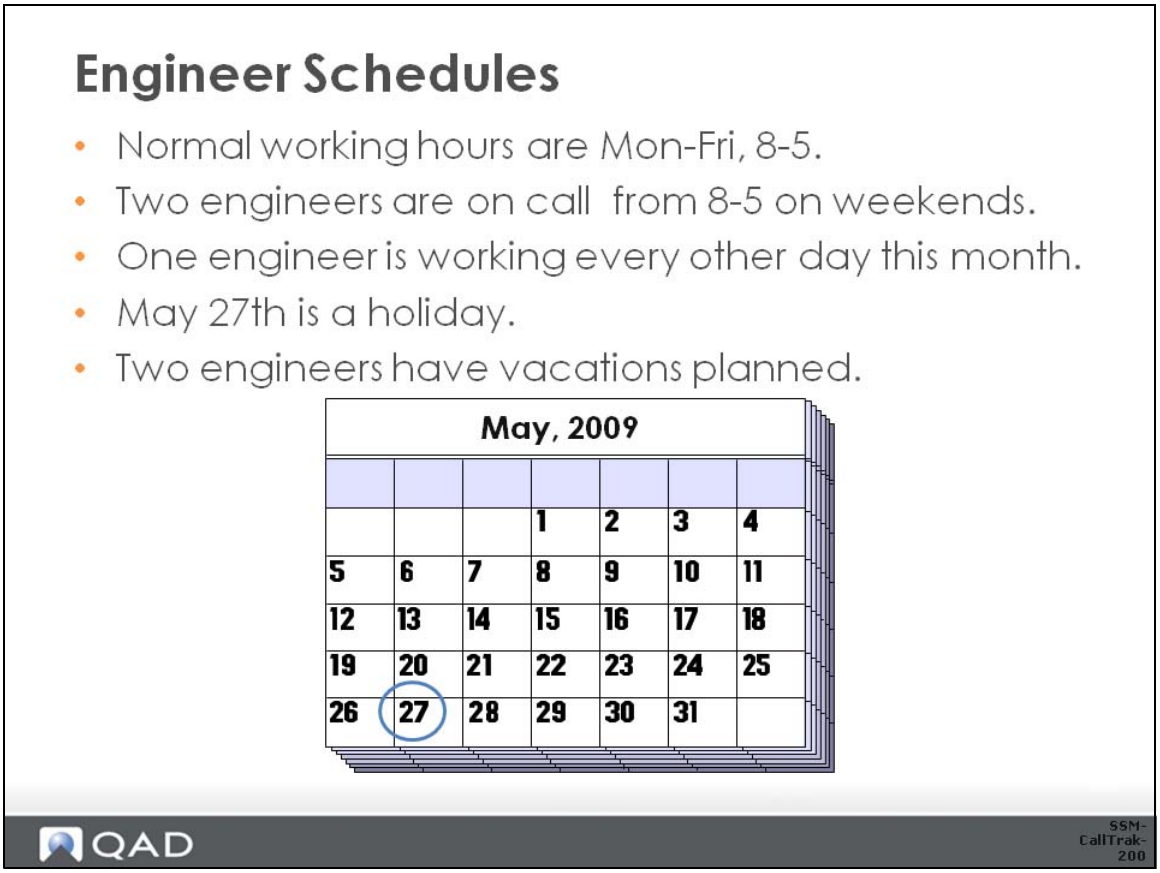
The estimated hours for an engineer are normally specified in the Call Engineer Schedule

Maintenance pop-up that displays in Call Maintenance when engineer scheduling is enabled. The estimated time initially defaults from the Travel and Estimated Time pop-up. These estimated times default either from Call Default Maintenance or the Call Management Control for the work code being used.

The engineer can also review the call and record an estimated time in Engineer Assignment Maintenance (11.13.15.8). This function is almost identical to the pop-up window in Call Maintenance.

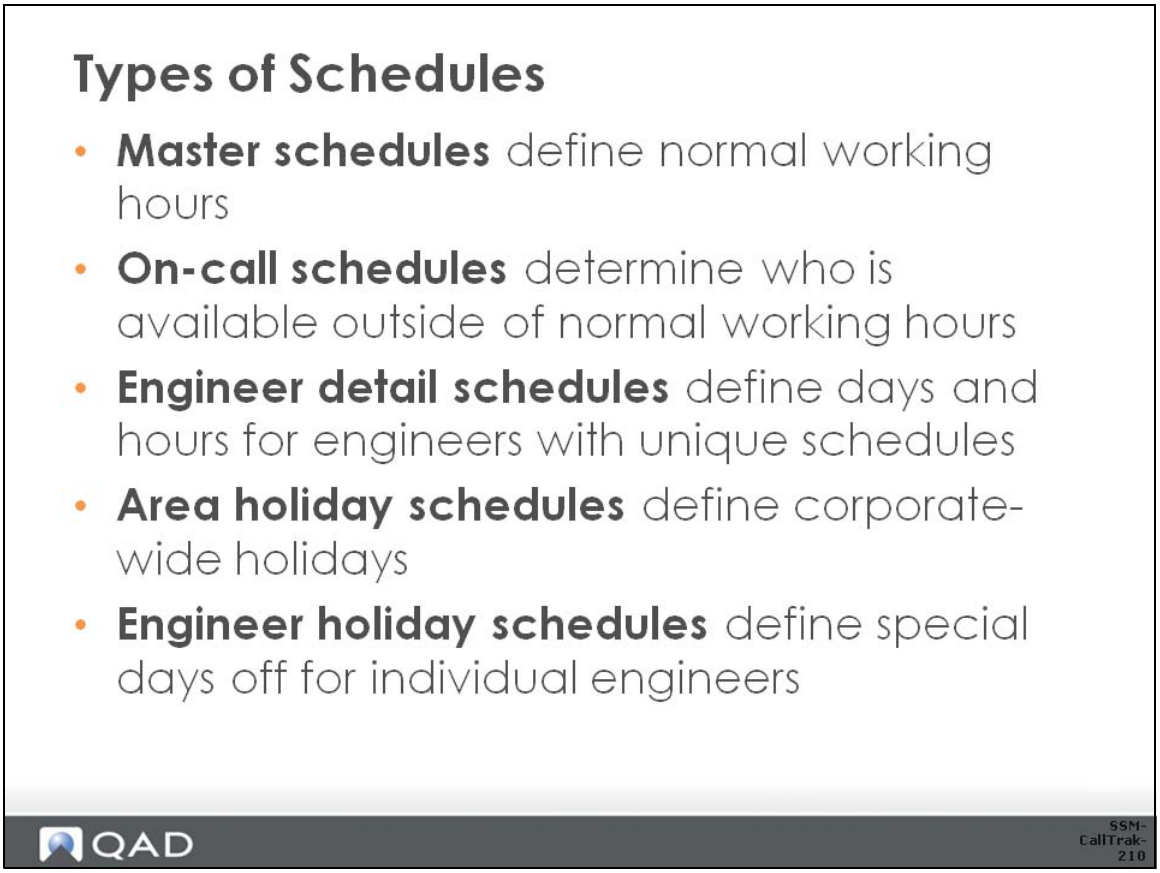
Based on the number of hours the engineer is scheduled to work, the system determines how many hours are remaining and can be scheduled.

Engineer Schedules



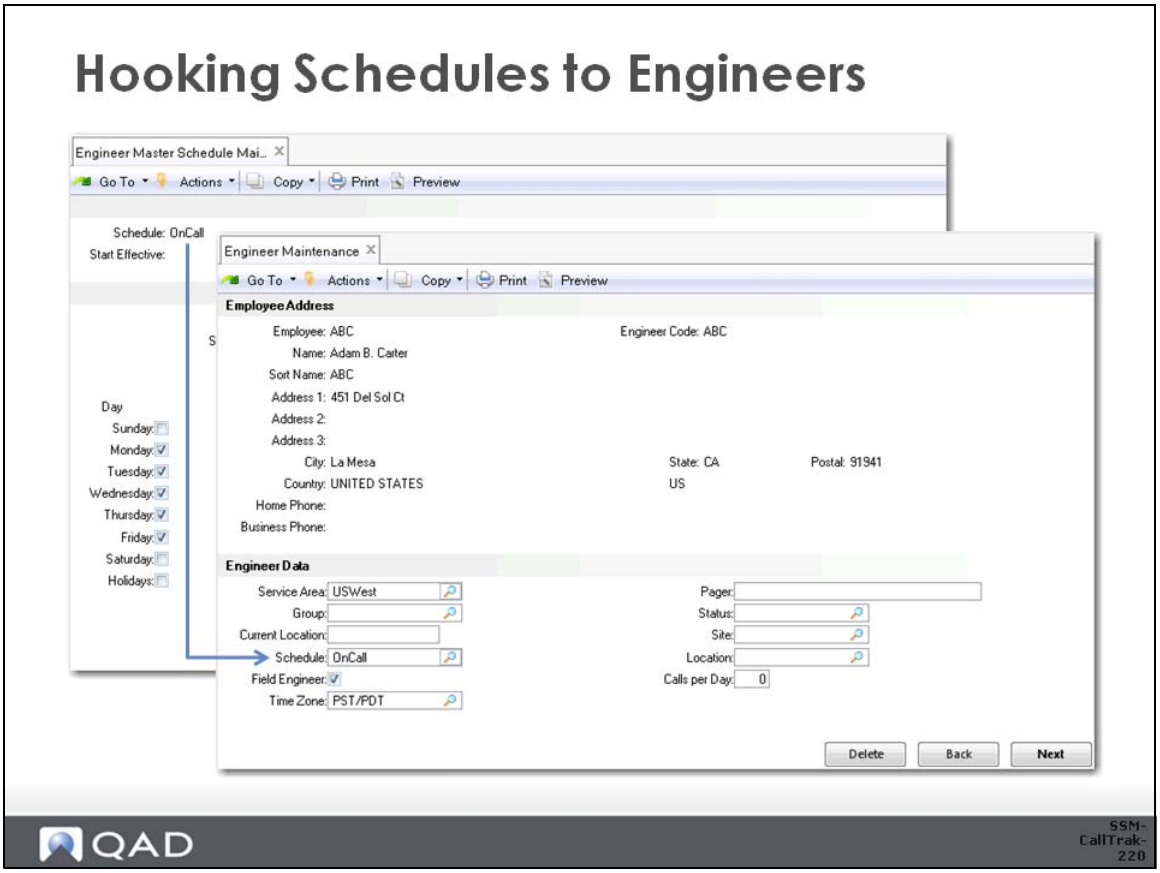
The system needs one more piece of information before it can calculate availability, based on hours or calls. In both cases, it needs to know which days an engineer is working. For availability by hours, it also needs to know how many hours in a day the engineer is scheduled to work. A broad range of factors like those listed in this figure may influence when an engineer is available to work.

Types of Schedules



Five kinds of schedules can be created in SSM to meet the various scheduling requirements as shown in the figure above.

Hooking Schedules to Engineers

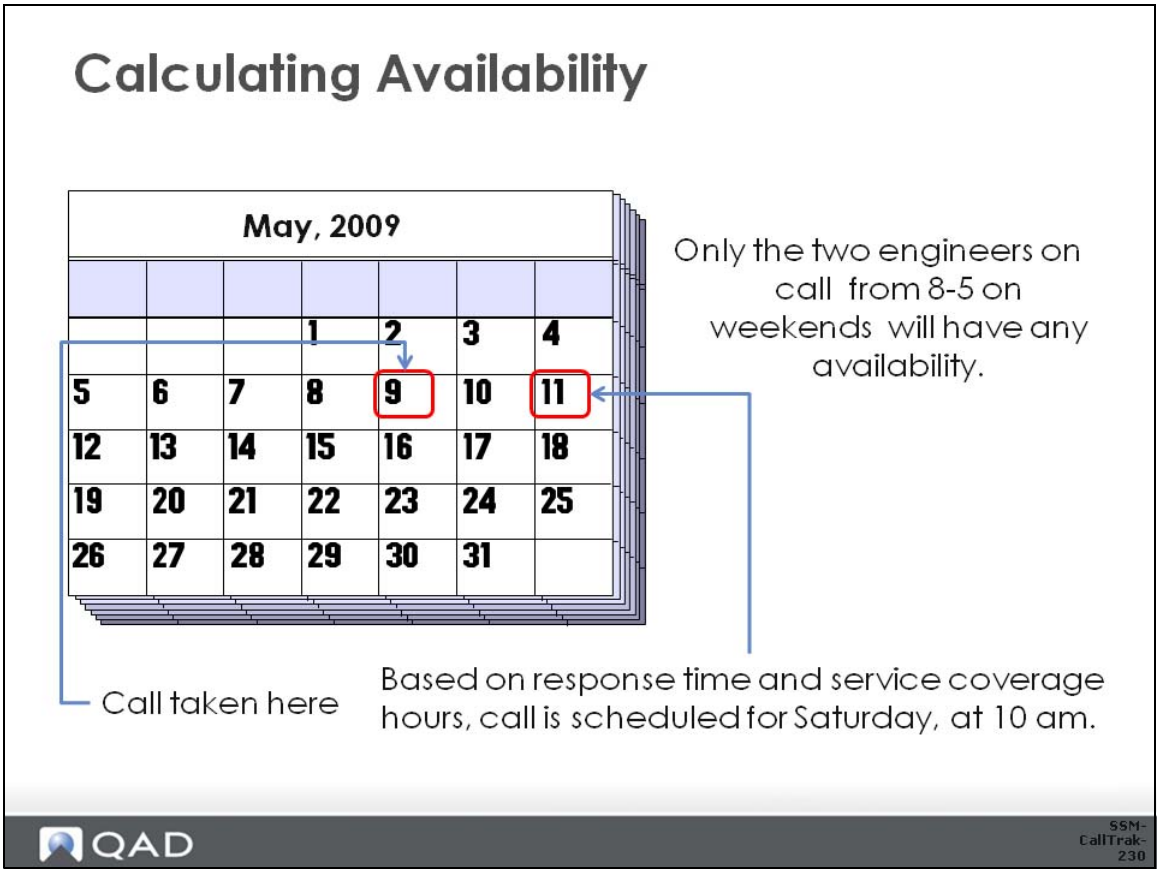


One schedule can be associated with each engineer in Engineer Maintenance. Engineer detail schedules are created specifically for an engineer, based on a master schedule.

You can also designate some engineers as being on call during various hours using On-Call Schedule Maintenance. On-call schedules are typically created for hours not covered by the normal schedule, such as nights and weekends.

Engineer Holiday Maintenance (11.13.15.17) can be used to specify holidays unique to engineers. Area Holiday Maintenance (11.15.9) is used to specify holidays for an entire region.

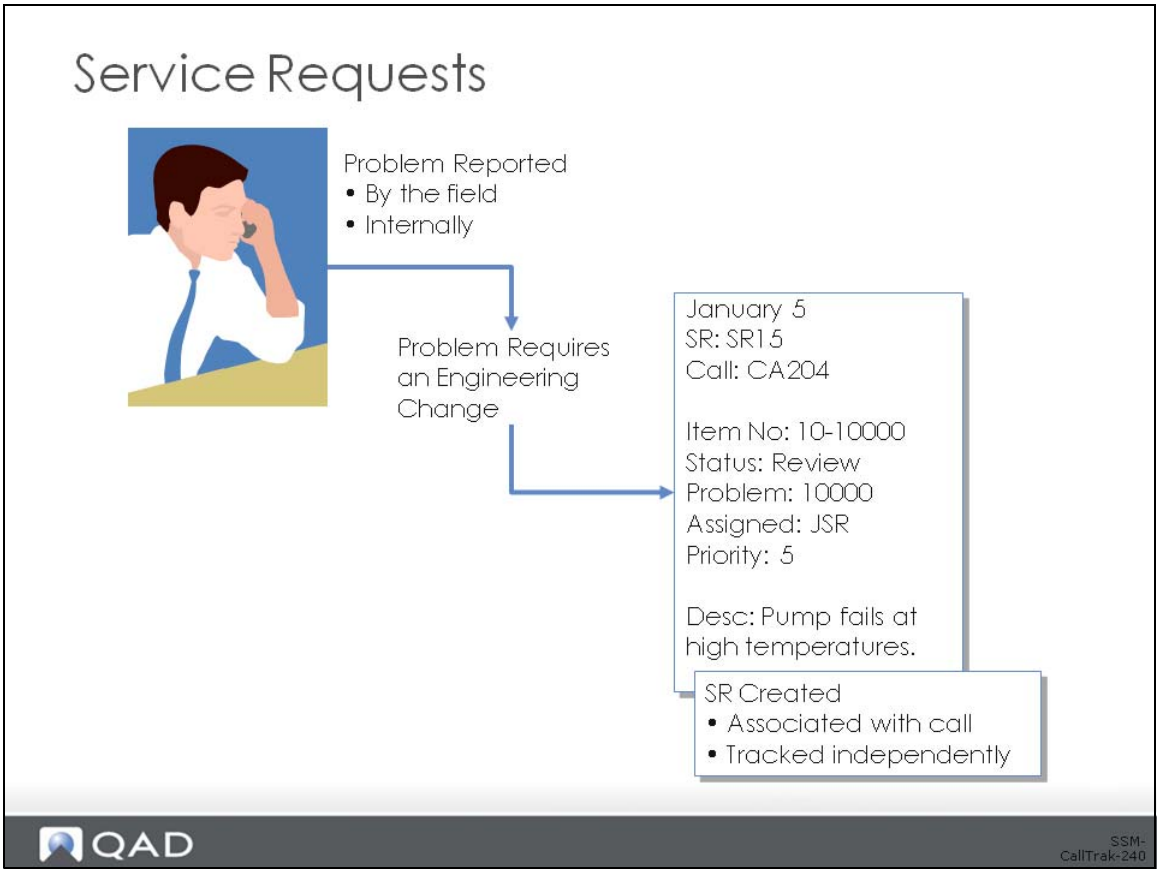
Calculating Availability



Once schedules have been created, the system considers all these factors in calculating availability. It uses the response time and the coverage days and hours of the service type providing coverage to determine the call's next status date and time. Using this date, it looks for engineers who are available to work.

Based on the business scenario we listed before, only the two engineers who are on call will have any availability. To make scheduling work, you must ensure that your schedules correspond to the coverage you provide. For example, if you specify holiday coverage on your service types and engineers do not normally work on holidays, you should ensure that you have on-call coverage for them.

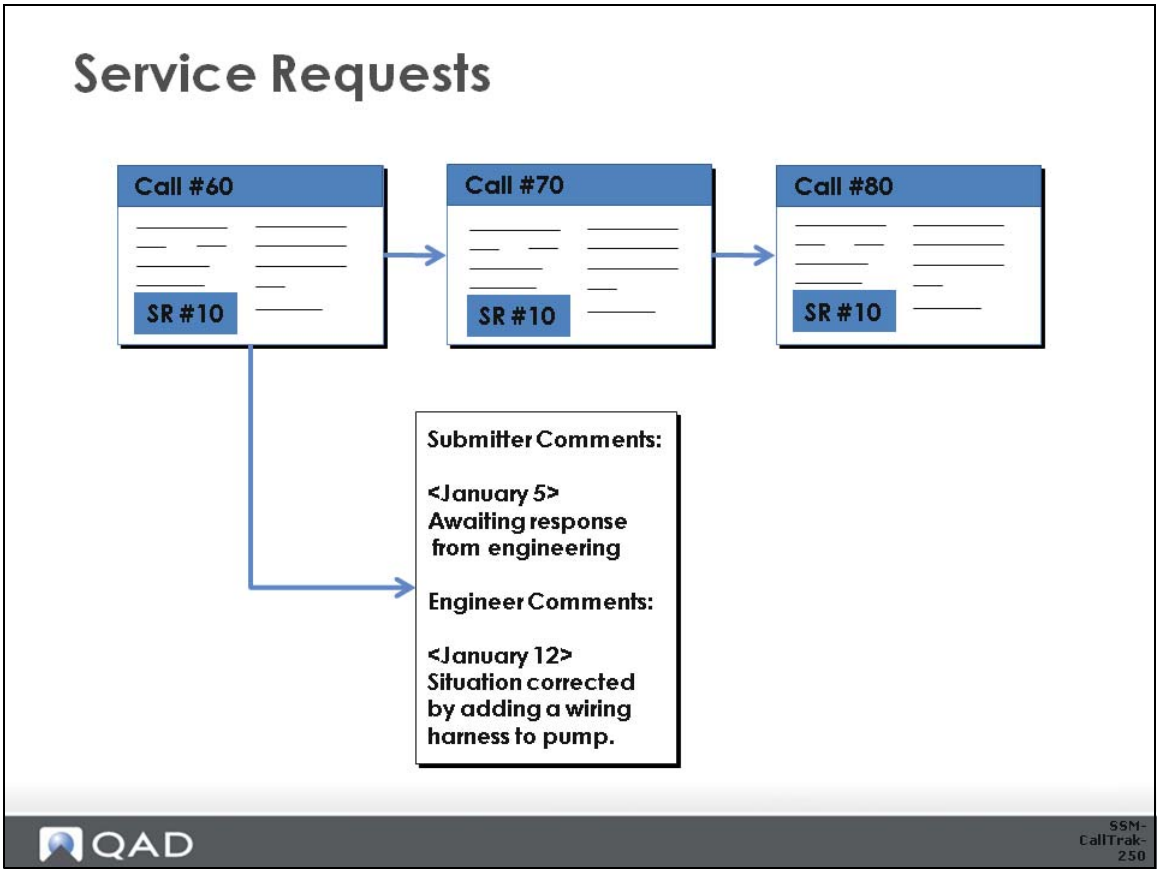
Service Requests



In day-to-day business operations, calls come in on a variety of topics, ranging from requests for marketing or sales material to questions regarding how your equipment works to complaints about breakdown and failure of your equipment. Service requests let you manage internal responses to problems relayed from field activities or calls.

Typically, repeated calls reporting the same failure of an item are consolidated into a single service request. If it turns out that a design or engineering change is necessary, you can create an Engineering Change Notice (ECN) to address the required changes. Proper management of service requests can help you get at the root of problems and prevent future support costs.

Service Requests



The relationship between calls and service requests is as follows: You can only link one call to a service request. However, you can assign a particular service request to many calls.

As new calls come in concerning the same problem, they can be linked to the same service request. Linking calls to the service request is an open-ended process and does not hamper work on the service request itself. Once created from the call it references, the service request can be acted on and does not need to be held up in any way by additional call activity.

This process works best when there is a one-to-one correspondence between service requests and problems. Many calls with the same problem reference the service request addressing this problem. However, each problem requiring engineering changes should have its own service request.

Exercise 17: Review Calls in the Call Queue Manager

In this exercise we will use the Call Queue Manager to review and edit calls.

1. Go to Call Queue Manager (11.1.6).

   First, you will look at the calls created by the Call Generator in Exercise 16. These calls all had a call type of PRODFAIL.

2. Enter PRODFAIL in the Type field to select all these calls for display; accept the other default selection criteria.

3. Press Enter to execute the Queue Manager. Accept No to not retain visibility of search, press Enter.

   The PRODFAIL calls display. Notice how the description of the call currently selected displays at the bottom of the screen.

4. Press Enter on one of the displayed calls. Write down the Call ID here:

   Call ID: _____

5. Press Enter.

   A new Update Call frame appears at the bottom of the screen. Change the queue of this call from EMER to CUSTOMER; then press Enter to save your changes.

6. Exit the Queue Manager display area. This time change Call Maint to Yes. Enter EMER in the Queue field and click Next to display matching calls. Enter No to visibility question. The call ID you wrote down in the previous step should no longer be included in the display.

7. Press Enter on the first call. The Call Maintenance frames display. Click Next through until you reach the comments and then return to the Call Queue Manager.

8. Return to the menu by pressing F4.

Exercise 18: Call Escalation

In this exercise, you set up an escalation sequence and update the Escalation Control. Then you will create a call and review how the system applies the escalation steps.

Create an Escalation Sequence

In this task you will set up an escalation sequence called SSMCLASS with four steps.

1 Go to Escalation Maintenance (11.1.13.1). Enter SSMCLASS in the Escalation Number field. We will not be using the other values in the escalation key (work code, call type, call severity, and call problem) so leave them blank.

To be able to view the changes on screen in real time, the time allowed in status is only 1 minute. Typically, this time would be measured in hours or days.

Enter the following data in the appropriate fields. Accept the other defaults. Remember to save your changes after each entry. Exit to menu when all entered and saved.

Field	Value	Value	Value	Value
Sequence	0	10	20	30
Description	Step 1	Step 2	Step 3	Step 4
Escalate	Yes	Yes	Yes	Yes
Time Allowed	00:01	00:01	00:01	00:01
Bump Priority	10	15	20	25
Next Status	Open	Pending	Pending	Alert
Next Queue	Customer	Dispatch	MGR-REV	EMER

Note The first sequence must be numbered 0 to be applied by the system when a call is created.

Set Up the Escalation Control

1 Go to Call Escalation Control (11.1.13.24).

A warning message displays because escalation has not been enabled in the Call Management Control.

2 Click Yes to enable escalations now.

3 Enter the following data in the appropriate fields.

Field	Value
Escalation Printer	Printer
Escalation Default	SSMCLASS
Escalation Program Pause	30
Use Calendar Days in Escalation	No

This will cause a new call to receive the escalation you have created. The Escalation Manager will cycle through calls every 30 seconds.

4 Click Next to save your changes; return to the menu. (ignore the field for Escalation Prefix)

Set Default Call Priority

1 Go to Contract Type Maintenance (11.5.10).

2 Enter NO-COVER as the contract type and click Next. Modify the Priority to be 100.

This will ensure that the Escalation Monitor will be able to apply the changes specified in the Bump Priority field.

3 Click Next to save your changes. Return to the menu.

4 Go to Call Default Maintenance (11.1.21.10). Enter the following:

Field	Value
Category	Call
Work Code	TECH
Escalation Number	SSMCLASS

5 Click Next to save your changes; return to the menu.

Create a Call with Escalation Applied

1 Go to Call Maintenance (11.1.1.1).

2 Click Next, leaving the Call ID field blank for a system supplied number.

3 Enter the following data in the appropriate fields and click Next to save.

Field	Value
Serial	ESC
End User	C-EUMDI1
Item Number	C-S001

4 Respond with No when prompted to display other calls for this end user.

5 Click Next to accept the Call Date and Time.

Accept the Tech Work Code in the call defaults pop-up.

6 Click Next.

Carefully review the data in the Call Info frame. The initial priority defaults from the NO-COVER service type.

Look at the escalation code and sequence associated with the call. It should be SSMCLASS and 10. The initial step (sequence 0) has already been applied to the call, so the priority has been increased by 10. The Queue and Status should also reflect the values of the first step: CUSTOMER and OPEN.

Review the call's Next Status Date and Next Status Time.

Note If you happen to execute this exercise after 5 pm, the system may move the next status date up forward one day (or more, if this is a Friday), based on the hours of coverage defined for the NO-COVER service type. In this case, the escalation sequence cannot be demonstrated.

7 Click Next through the remaining call frames to complete the call, accepting any defaults. Write down the call number here:

Call ID: _____

8 Return to the menu.

Start the Escalation Monitor and Review Call

1 Go to Escalation Monitor (11.1.13.13).

2 Press Enter twice to begin program execution.

The Monitor will cycle through all open calls every 30 seconds, as specified in the Escalation Control. When the system date and time is later than a call's next status date and time, the monitor will apply the values specified in the next escalation sequence.

When you see your call display with a Yes in the Act column (Acted On), you know it has been escalated.

3 Terminate the Escalation Monitor. Calls are only escalated when the monitor is running. Return to the menu by pressing F4 twice.

4 Go to Call Queue Manager (11.1.6), and press F1.

5 Accept No to not retain the search criteria, press F1.

6 Arrow down until your call displays. It should now have a status of Pending.

7 Press F4 to return to the Search For frame.

8 Enter PENDING in the Status field and press F1 to review the call.

Have the other values of the call been modified also? Return to the menu by pressing F4 twice.

Note This is not the way escalations would be used in a live situation. Typically, the Escalation Monitor is left running on a dedicated terminal and would simply monitor and apply changes to calls in the background.

Turn off Escalations

Warning To ensure that other activities are not affected by escalations, turn off their use in the Control.

1 Go to Call Management Control (11.1.24).

2 In the first frame, change Use Escalations to No. Click Next to save your changes and return to the menu.

Exercise 19: Standard QAD EE Engineer Scheduling

In this exercise, you complete a number of tasks:

- Create an engineer schedule
- Create an employee and an engineer
- Define settings in the Engineer Schedule Control
- Take a call with scheduling enabled

Set Up an Engineer Schedule

1. Go to Engineer Master Schedule Maintenance (11.13.15.1).
2. Enter WEEKDAY in the Schedule field, and click Next twice.
3. Set up a schedule from Monday to Friday, beginning at 8 AM and ending at 5 PM. Change the No to Yes for Monday to Friday and enter 08:00 as the Start Time and 17:00 as the End Time.
4. Click Next to save your changes and return to the menu.

Defining an Engineer

1. Go to Employee Create (36.1.7.1).
2. Enter DEM the Employee Code field.
3. Click on Business Relation, enter DEM.
4. In the Employee tab tick the User field and select the login initials (demo) from the lookup.
5. Click on Save and Create.
6. Go to Engineer Maintenance (11.13.1).
7. Enter DEM in the Employee field and click Next.

   The employee initials default into the Engineer field. Engineers can have codes distinct from their employee code if needed; but in this case its not necessary.
8. Click Next to use the same code for both.
9. In the Engineer Data frame, enter the following data in the appropriate fields.

Field	Value
Service Area	AMERICAS
Group	<blank>
Current Location	<blank>
Schedule	WEEKDAY
Field Engineer	Yes
Pager	<blank>
Status	AVAIL
Site	C1

Field	Value
Location	<blank>
Calls per Day	6

10 Click Next to save your changes. Ignore the warning about the non existent location. Return to the menu.

11 Go to Engineer Skills Maintenance (11.13.5).

12 Enter DEM in the Engineer Code field and click Next.

13 Click on the lookup to display the list of engineer skill codes.

These are the same codes used for call problems.

14 Select ELEC from the list and click Next.

15 Enter 1 in the Level field and today's date in the Cert field. Then click Next to save your changes; return to the menu.

Set Up Controls

1 Go to Engineer Schedule Control (11.13.15.24).

2 Review the current Control settings. Change Display by Calls to No. Notice the different point fields.

Remember the formula for calculating engineer points:

Area + [(Availability x Hours) + Availability] + (2 x Primary) + Problem

Based on these Control settings, which value do you think will have the most influence? Click Next to save your changes; return to the menu.

3 Go to Call Management Control (11.1.24).

4 In the first frame, change Assign Primary Engineer to No and Schedule New Calls to Yes. Click Next to save your changes; return to the menu.

Associate Engineer with End User

1 Go to End User Data Maintenance (11.9.1).

2 Enter customer number C-MDI, and click Next.

3 In the End User field, enter C-EUMDI1.

This end user record was created during invoice post in Exercise 3: Updating the Installed Base from a Sales Order, and currently has minimal information defined for it.

4 Click Next until the Service Office Detail Frame displays. Enter the following data in the appropriate fields; then click Next to save your changes.

Field	Value
Engineer Code	DEM
Secondary Eng	LKD
Engineer Group	<blank>

Field	Value
Service Area	AMERICAS
Escalation Number	<blank>
Travel Distance	30 M
Travel Time	001:00

5 Return to the menu.

Create a Call and Schedule an Engineer

1 Go to Call Maintenance (11.1.1.1).

2 Enter the following data in the appropriate fields. Ignore any warning message that may display. Click Next to save when done.

Field	Value
Call ID	<blank>
Serial	113
End User	C-EUMDI1
Item Number	C-S001

3 Respond with No when prompted to display other calls for this end user. Continue to click Next, accepting any defaults, until your cursor is in the Caller field in the lower frame. Since this call is created directly in Call Maintenance, defaults for the TECH work code are used.

Field	Value
Prob/Skill	ELEC

4 Write down the call ID and its next status date. This is the date that will be used when an engineer is scheduled.

Call ID: _____

Next Status Date: _____

Notice how the Assigned field is blank and Schedule is set to Yes as a result of the changes you made to the Call Management Control.

5 Click Next to display the Travel and Estimated Time frame.

The length of the call has been estimated as 3 hours, with an estimated travel time of 1 hour. (Call length defaulted from Call Default Maintenance and travel time from End User Address Maintenance.)

6 Accept these defaults and click Next.

You will notice a slight lag before the next frame displays. During this time, the system is calculating point values for available engineers. When the scheduling frame displays, examine it closely. The title indicates that availability is being displayed by hours. Notice how the engineers are ranked. The engineer with the initials DEM should appear at the top of the list with LKD next.

The following table shows how the point calculations are determined based on the weighting values expressed in the Control.

Engineer	Area 10	Availability 10	Primary 20	Problem 15	Total
DEM	10	(8*10)+10=90	40	15	155

7 Do not select an engineer. Return to the menu.

To see how availability is affected when Display by Calls is set to Yes:

8 Go to Engineer Schedule Control (11.13.15.24).

9 Change the value of Display by Calls from No to Yes.

10 Click Next to save your change and return to the menu.

11 Go to Call Maintenance (11.1.1.1). Using the same call as noted in step 4 above, click Next until the scheduling frame displays.

Notice how the order of engineers has changed. Do you know why? Notice the number of calls that each engineer can still take. DEM can only take 6, but the rest of the engineers can take 10 calls and as a result, their availability points have given some of them a higher ranking.

12 Position your cursor in the line with DEM and press Enter to select DEM as the engineer to assign. An asterisk should display next to your name, indicating that it is selected. Click Next.

The Call Engineer Schedule Maintenance frame displays. This frame enables you to modify the schedule transactions for this call. Based on your analysis of the call, you think 3 hours is inadequate.

13 Press Enter then Tab until your cursor is in the Visit Duration field and change it to 5. Click Next to save your changes.

14 Continue on until the call is complete, accepting any defaults. You should be at the Call ID number field. Return to the menu.

Review Engineer Availability

1 Go to Engineer Availability Inquiry (11.13.15.11).

The date displayed in the Display Availability For field defaults to the current day and determines which week of availability is displayed on the inquiry. If your call's next status date (which you wrote down in step 4 of the previous task) falls in another week, change the Display Availability For to a day that will include it.

2 Verify that Display by Hours is set to Yes; then click Next twice to generate the report to the terminal.

Review the information displayed. On the day in which the call assigned to DEM was scheduled, only 3 remaining hours are displayed.

3 Change the Display by Hours field to No and execute the report again.

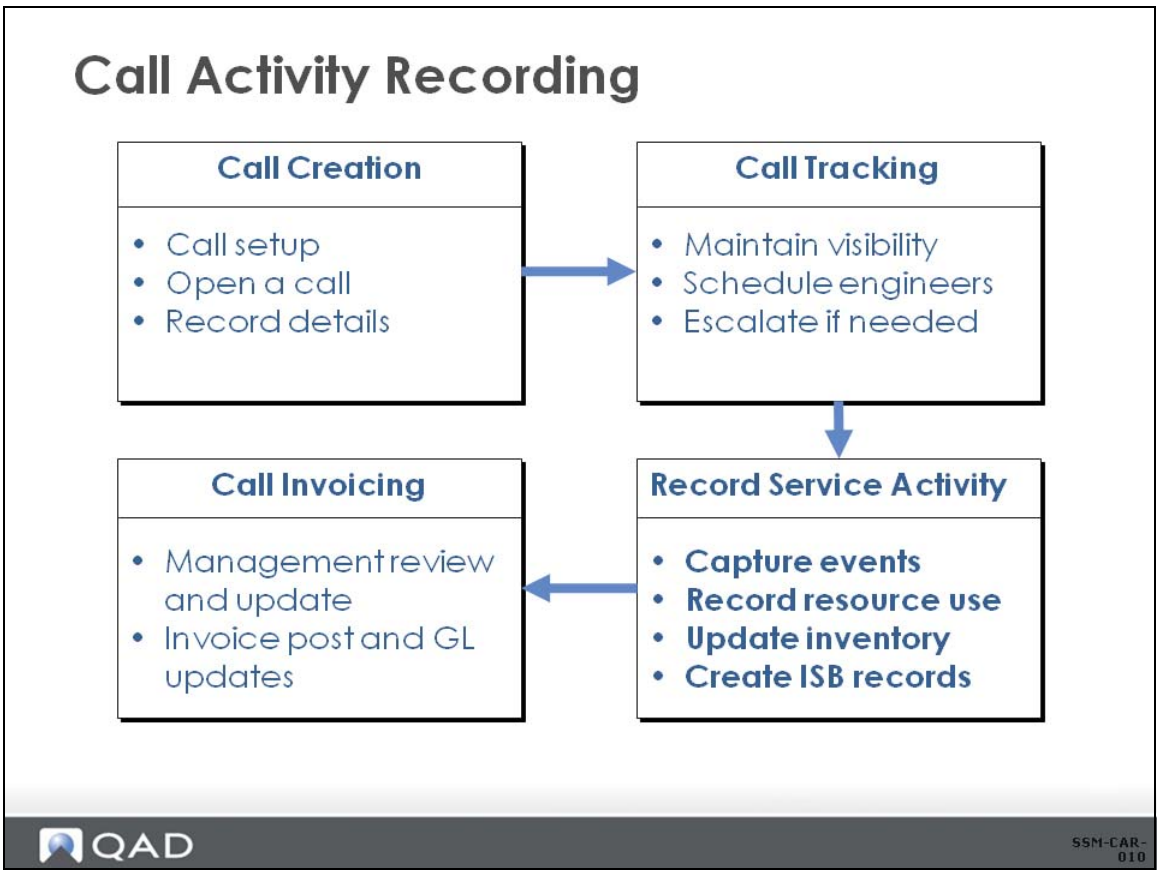
This time you should see 5 in the column for the day the call was scheduled. Do you know why? (Hint: What did you specify for Calls per Day when you defined yourself as an engineer?)

4 Return to the menu.

Chapter 11

Call Activity Recording

Overview

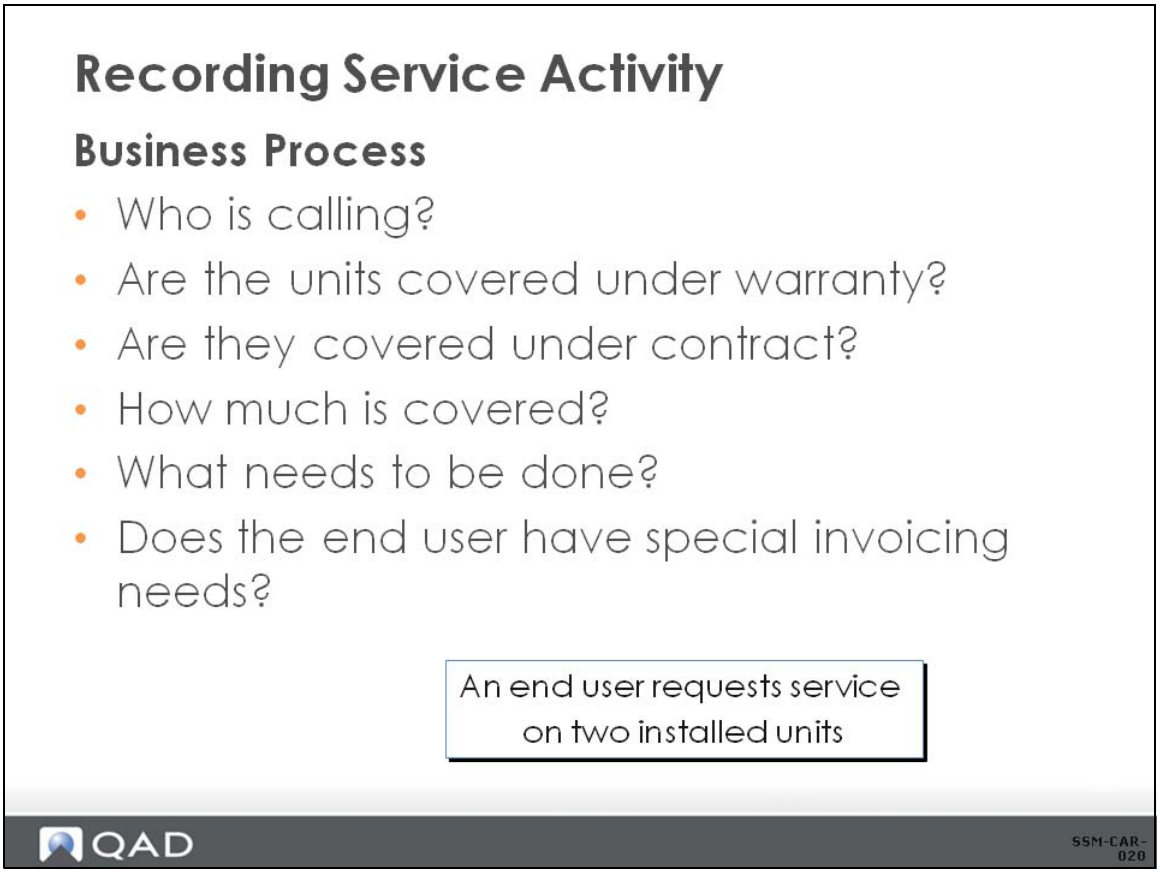


This lesson discusses in more detail the third stage in the call management life cycle: recording service activity. Call Activity Recording (CAR) is used for recording of the labor actually performed, the actual items consumed, and any expenses assumed while servicing the call. Item-by-item recording is possible. Charges can be indicated as warranty, contract, covered, billable, fixed billable, project, or giveaway.

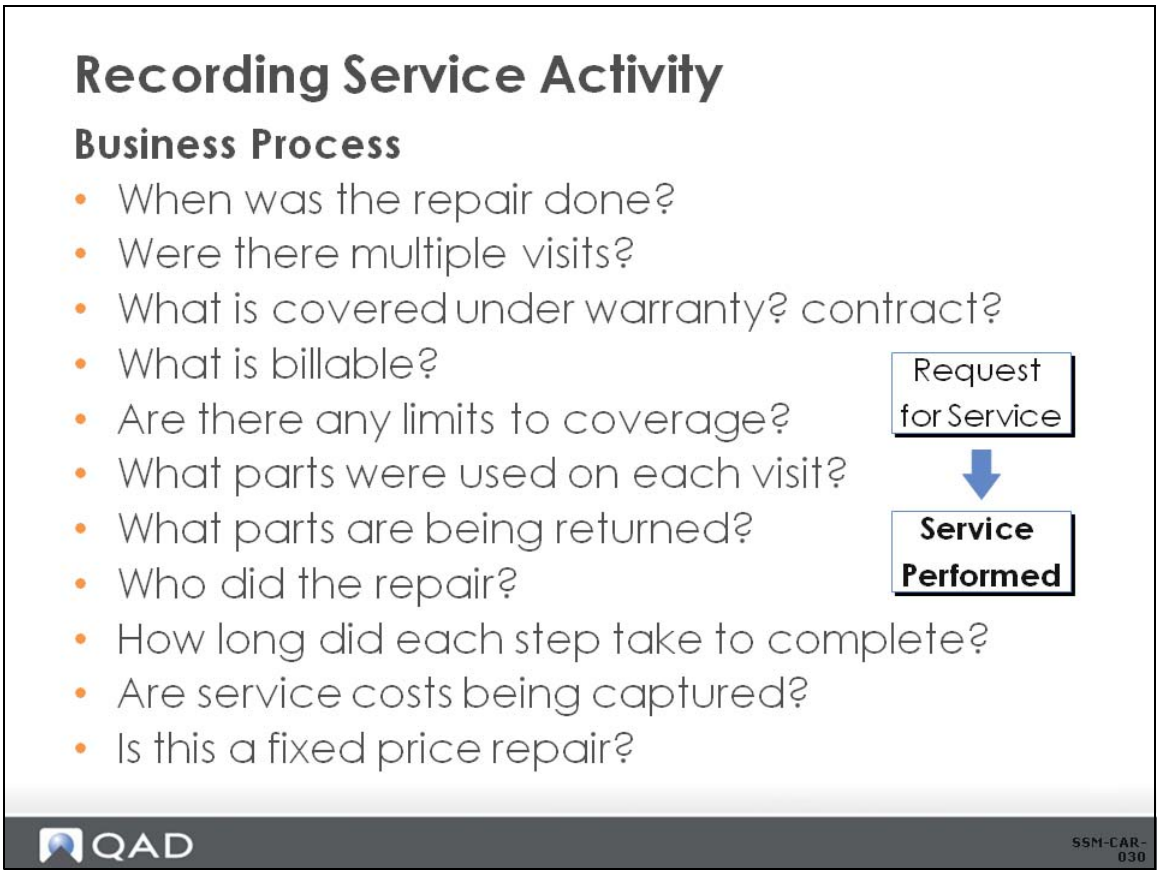
Call Activity Recording provides the means of creating call invoices, managed in Call Invoice Recording (CIR). Accurate call billing is crucial to any service operation, whether field or repair center based.

User-definable control codes are used in CAR to control the cost flow into the General Ledger. This allows recording of costs in specific service accounts and gives you full control over GL reporting activity.

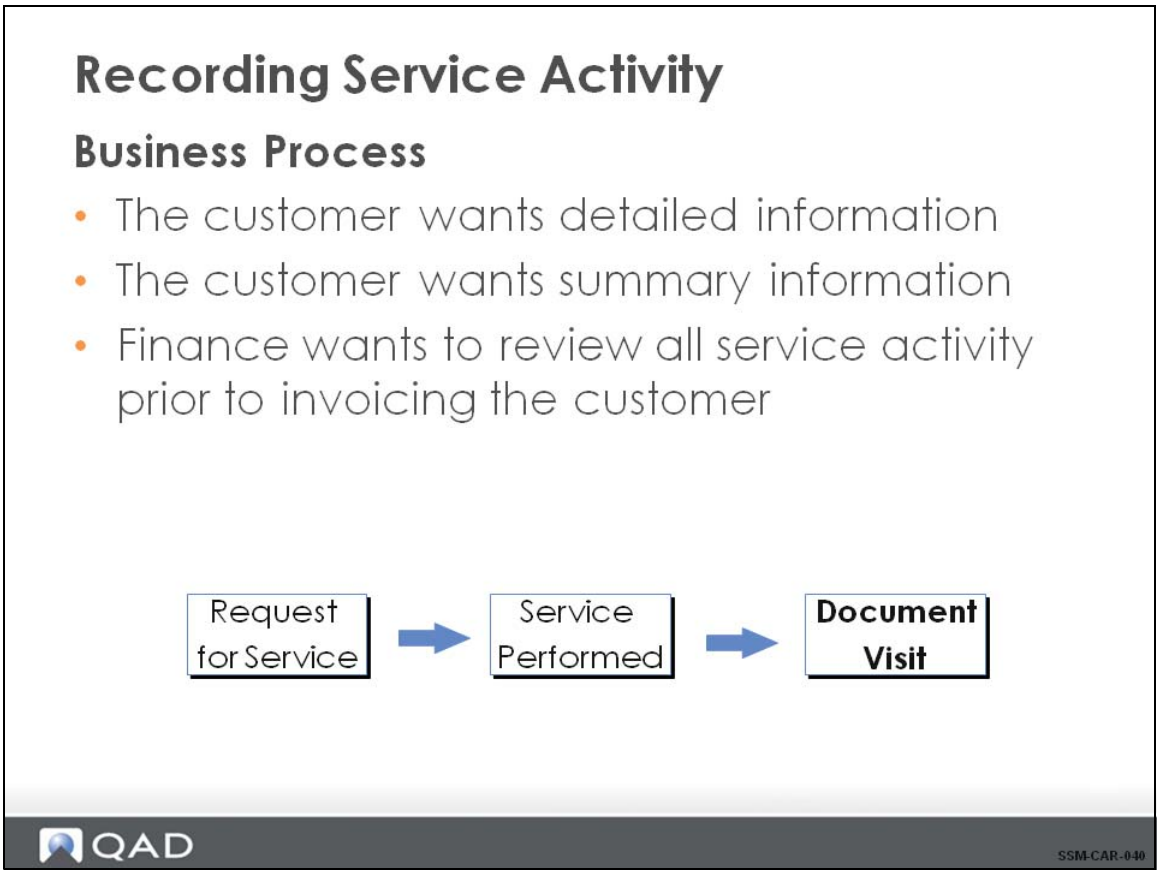
Recording Service Activity



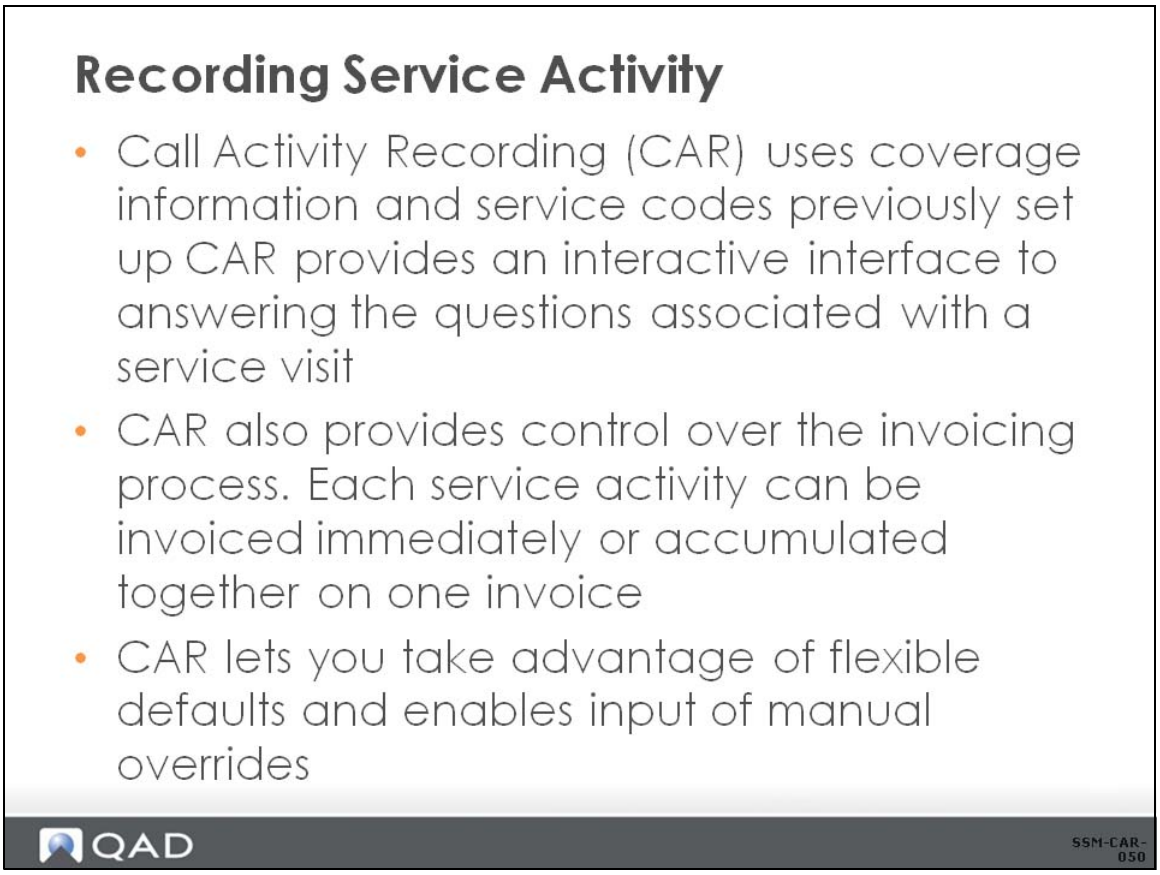
Many kinds of questions can arise whenever there is interaction with an end user concerning a product. Information about the initial need is recorded when a call is created. These were some of the topics covered in the lesson on Call Creation.



After the initial request for service is processed, data about the actual activities performed must be gathered. Accurate answers to the kinds of questions illustrated in the figure are essential to support call invoicing and to ensure that you are meeting the contractual obligations outlined in your service contracts and warranties.



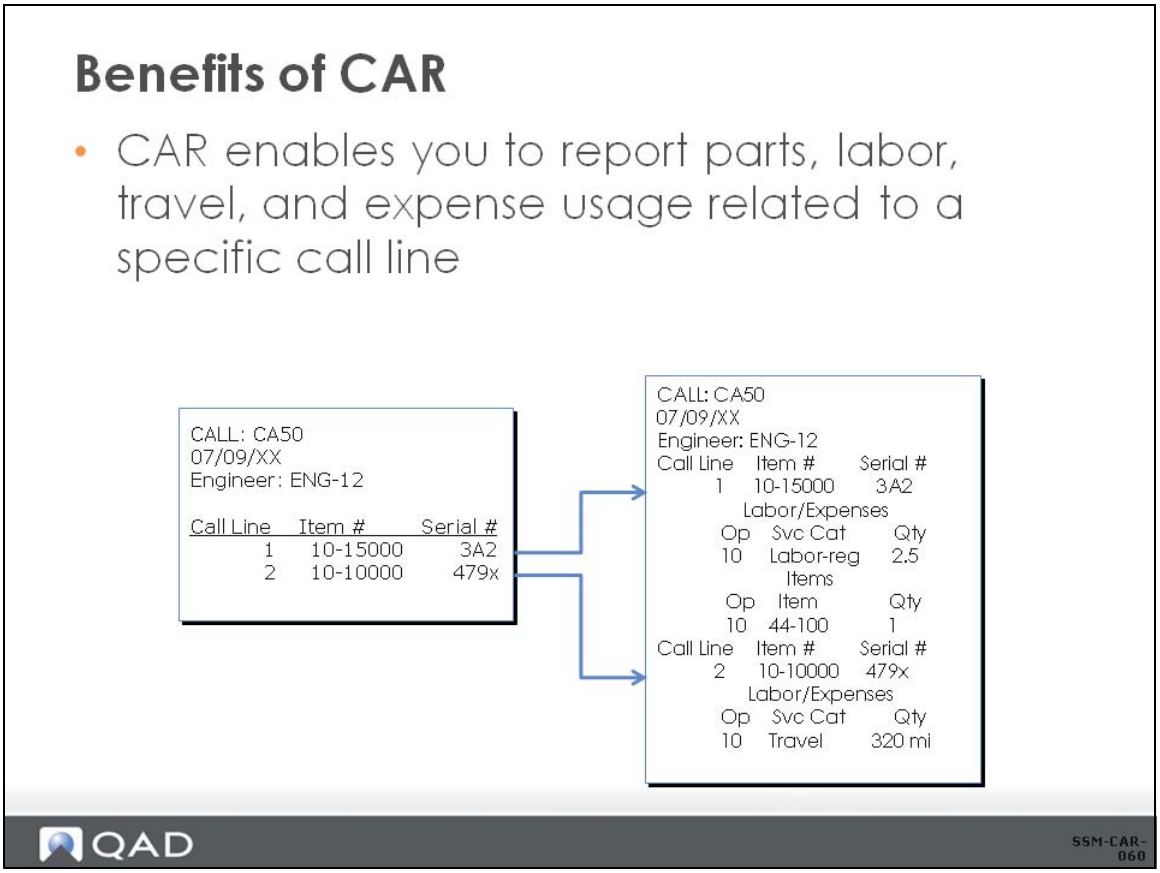
Once a service activity is complete, an organization may have further need to produce reports detailing what was done. A business organization must be able to present service information in both summary and detail formats, both for the customer and for their own internal needs.



Call Activity Recording (CAR) is designed for a wide variety of service contexts. It can be used by engineers in the field who provide preventive maintenance or some other service. It can be used in a repair depot environment or for telephone support.

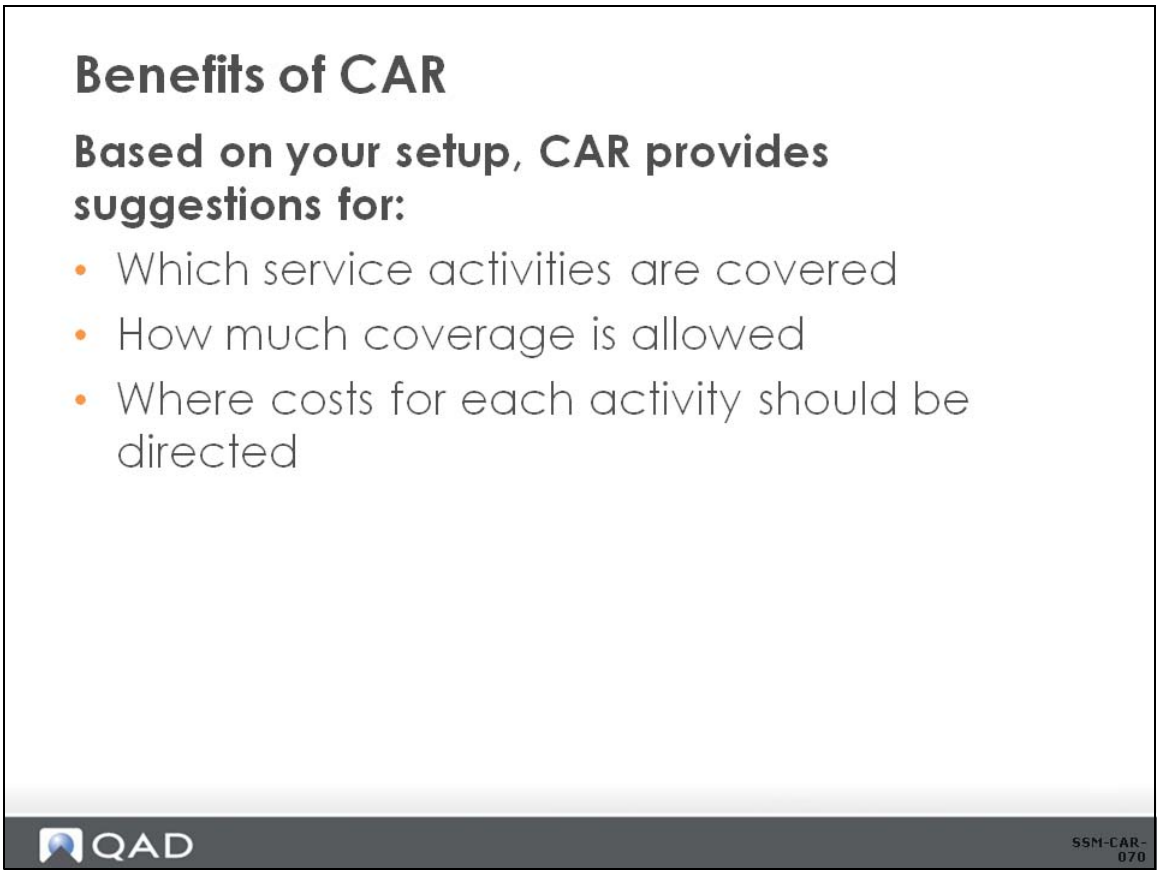
Flexibility in CAR is derived from the many different ways that work codes, charge codes, service categories, service types, and invoice sorts work together in different combinations to manage different business capabilities.

Benefits of CAR



As mentioned previously, one of the primary purposes of CAR is recording the details concerning a service activity. These details can be broken down to the call line level. For example, you can have several lines on a call. Even though the items all belong to one end user, the service activity may be performed at different times.

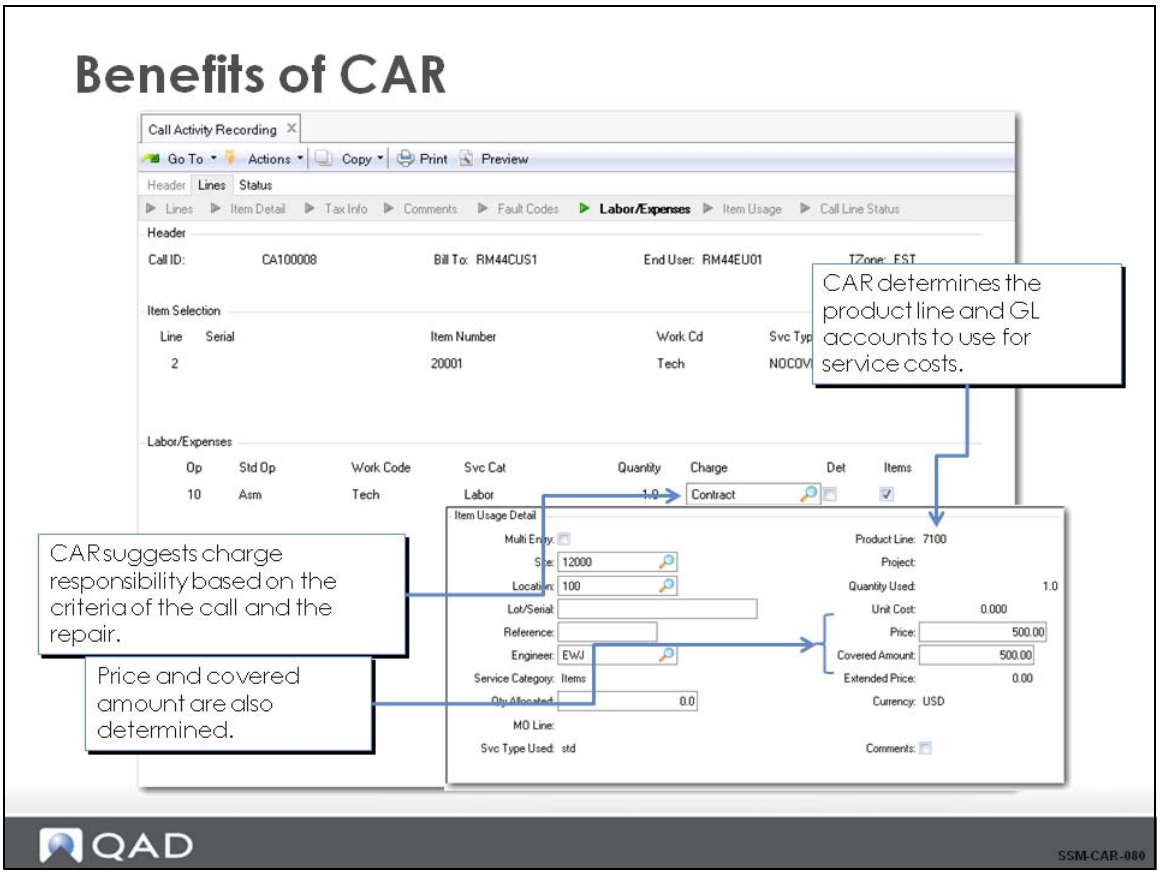
Call Activity Recording enables you to track details separately for each line.



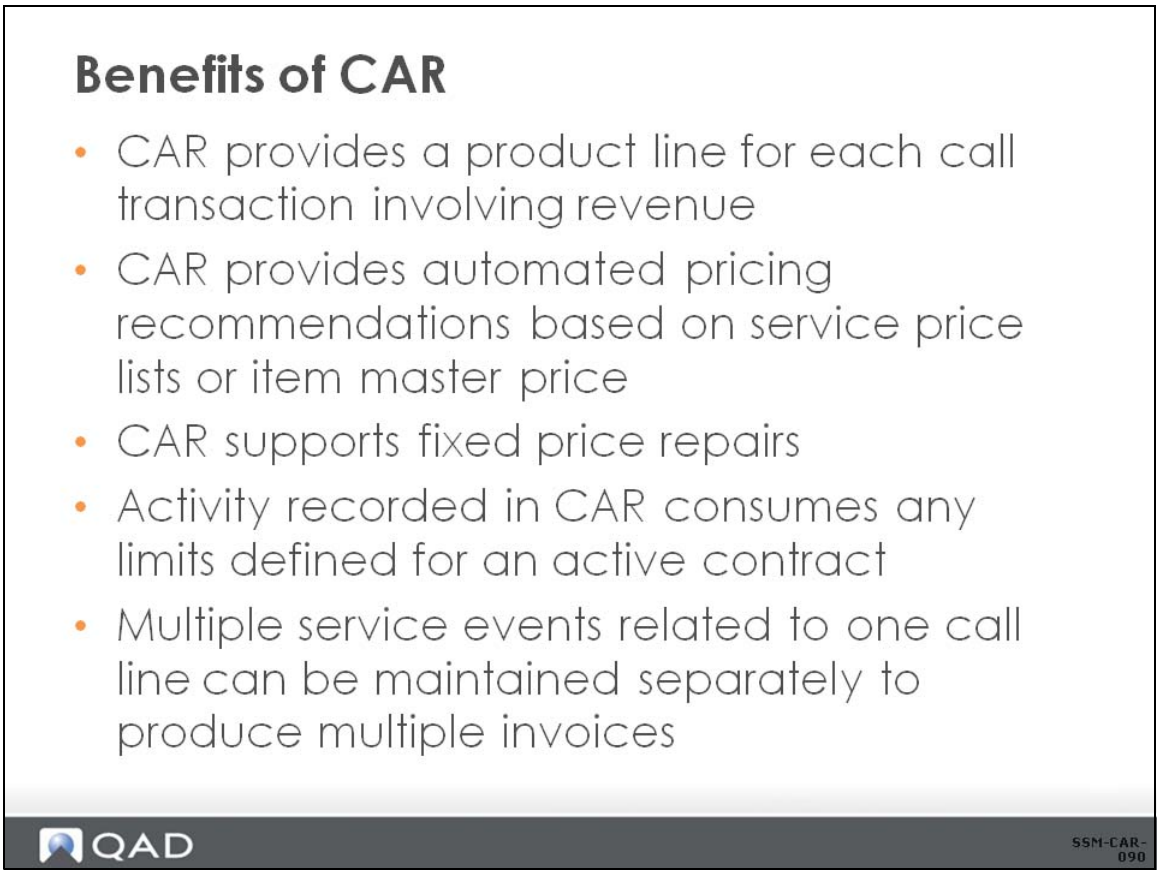
There are a number of related setup and supportive functions that can be performed prior to using Call Activity Recording. Not every business will require all the different kinds of processing defaults.

However, once the setup is complete, the system automatically suggests default values for most fields, so that data entry is minimized.

As this figure illustrates, the system analyzes the coverage for the call item and, based on this information, suggests an appropriate code for managing the financial impact of the service.



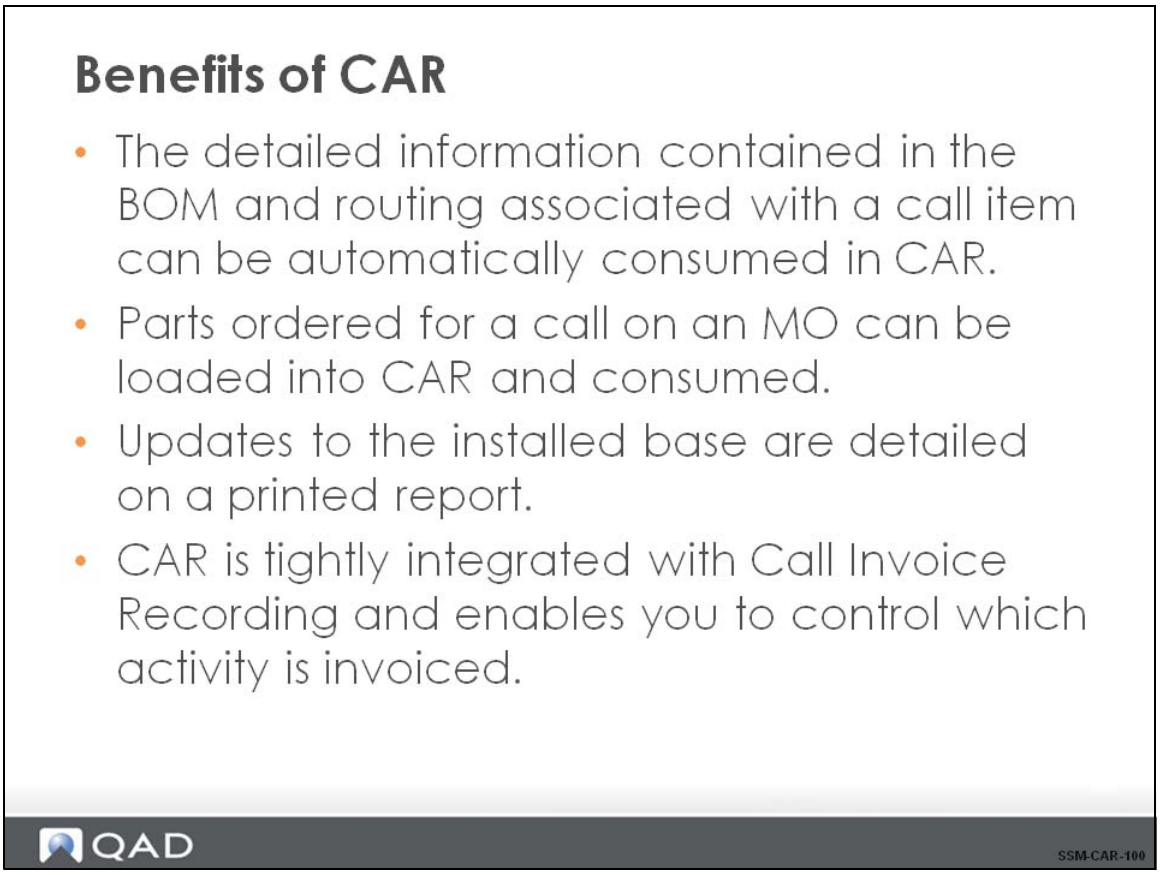
As shown in the above figure, Call Activity Recording provides many other features important in streamlining the process of recording service details and meeting special business requirements.



Other features of SSM are used in conjunction with Call Activity Recording to manage service inventory. For repetitive service functions, it is not necessary for the operator to manually key in the items used and operations performed. These can be defined in service BOMs and routings and automatically loaded into CAR as usage detail records.

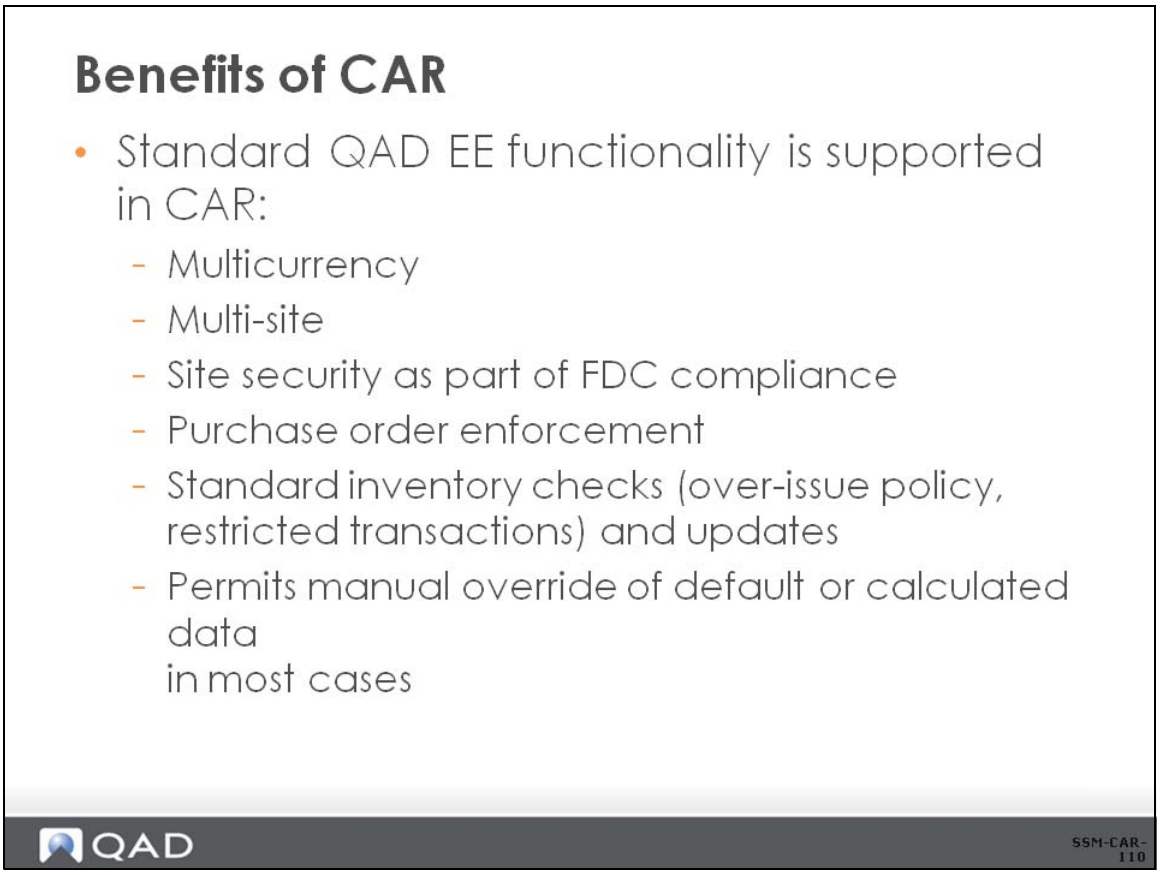
Material Orders are another important feature that facilitate the management of service inventory. Engineers can obtain the parts they need for service activities by ordering them with a Material Order (MO). The MO effectively transfers the required inventory to the engineer's site/location in preparation for its use on a call.

Processing in CAR can update the installed base in three ways: the call line item, any items issued to repair it, any items returned. All updates to the installed base in CAR depend on setting the Update ISB switch to Yes for the call line.

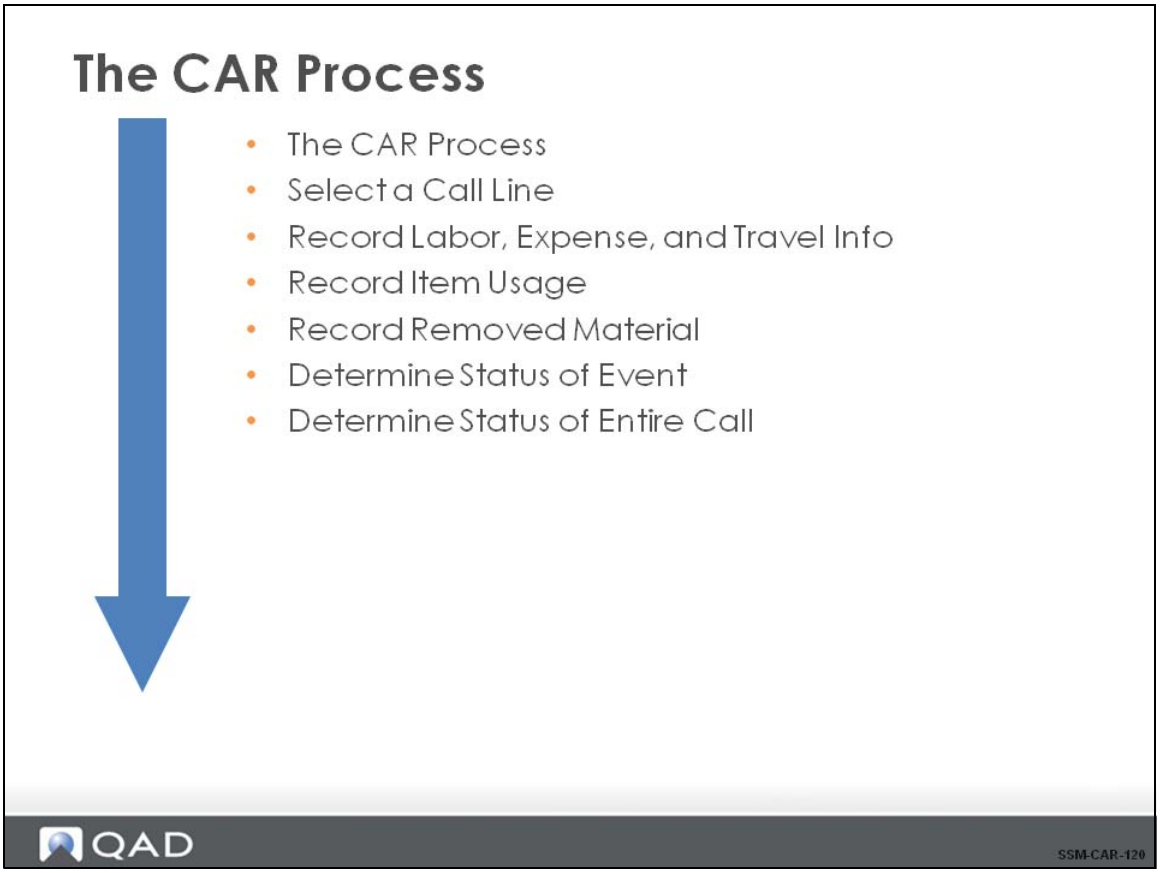


Call Activity Recording eventually produces a standard invoice, just as a sales order does. It builds on the processing logic of sales orders and work orders and provides the features that are familiar to users of other parts of the system.

Other standard features you will see in CAR are shown in the figure.

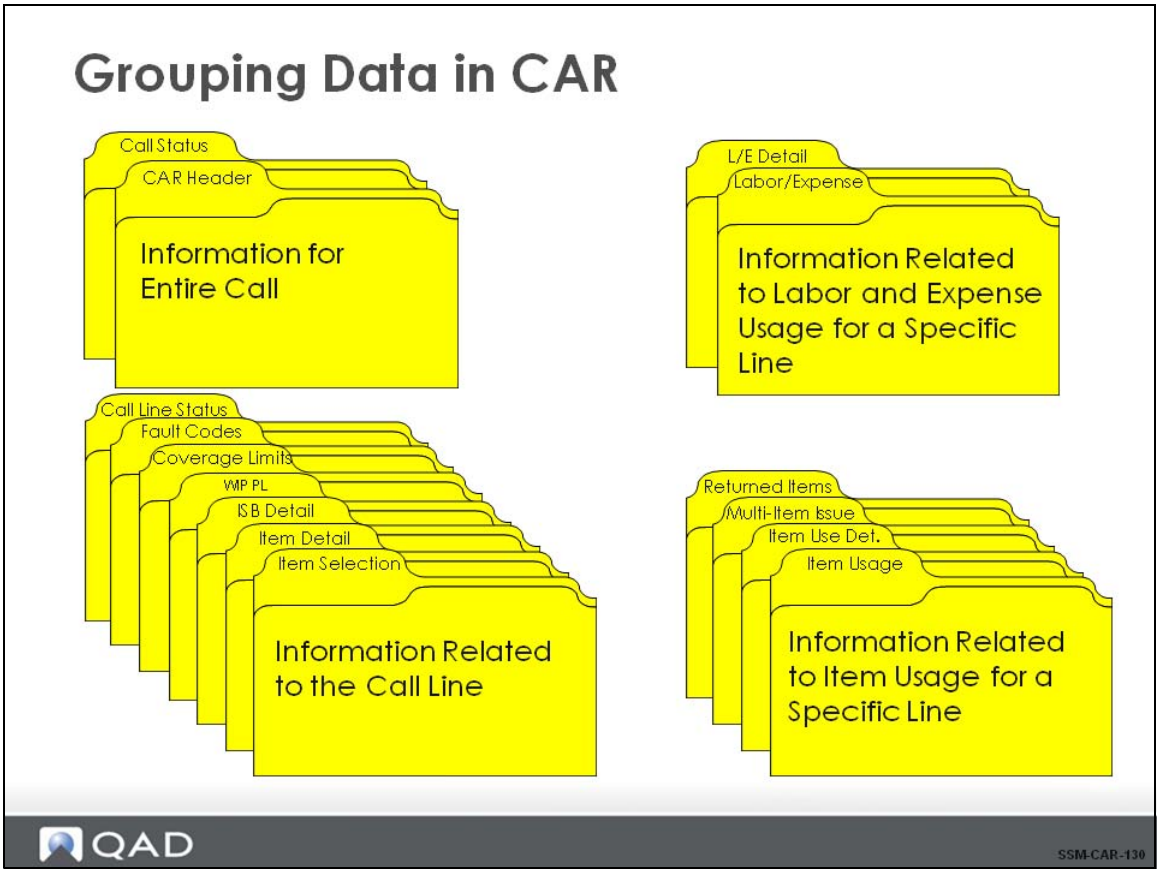

Benefits of CAR
• Standard QAD EE functionality is supported in CAR:
- Multicurrency
- Multi-site
- Site security as part of FDC compliance
- Purchase order enforcement
- Standard inventory checks (over-issue policy, restricted transactions) and updates
- Permits manual override of default or calculated data in most cases
QAD
SSM-CAR-110

The CAR Process



Since there are a number of related activities that occur during recording of call activity, the function is designed to sequence and organize the process. This makes it easier to use and to concentrate on one particular aspect at a time.

Grouping Data in CAR

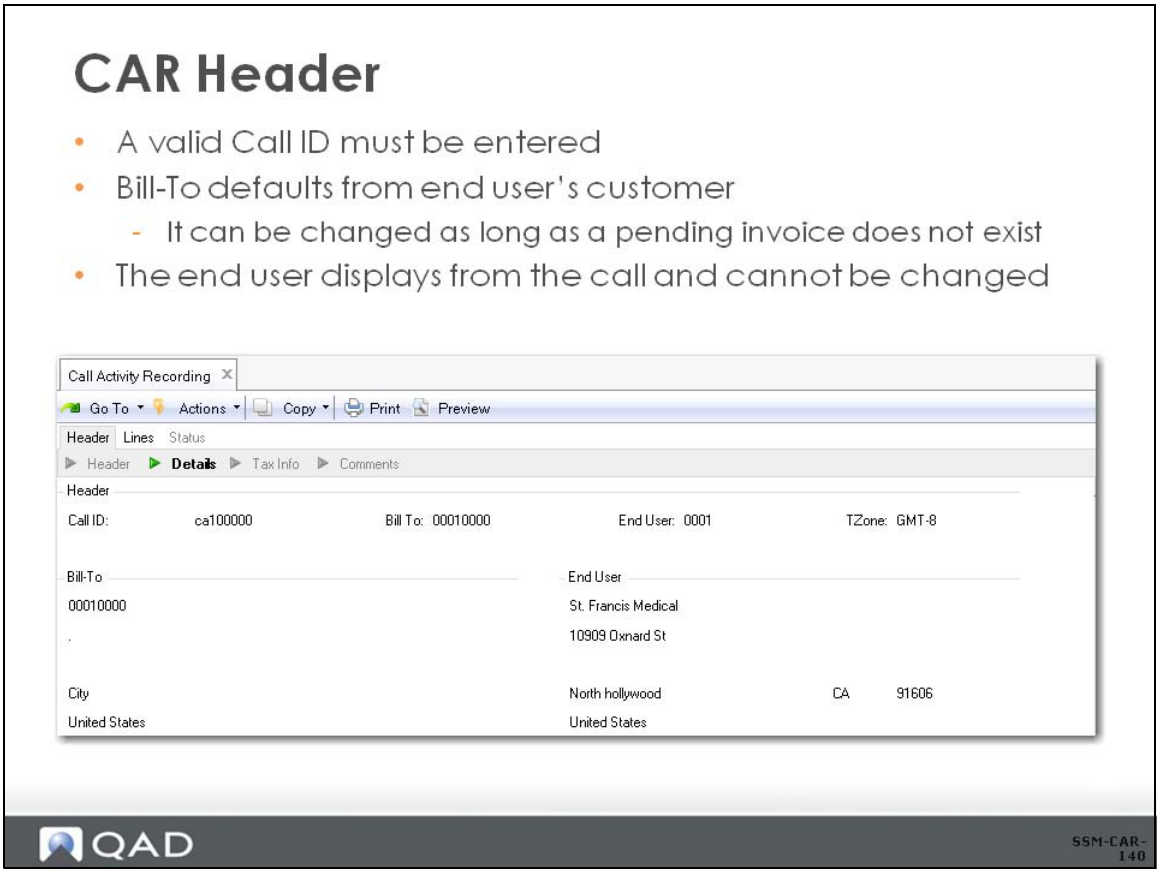


Call Activity Recording is a multifaceted program that enables you to do a number of different kinds of processing at the same time.

This figure shows how the data gathered in CAR is basically organized into four sections:

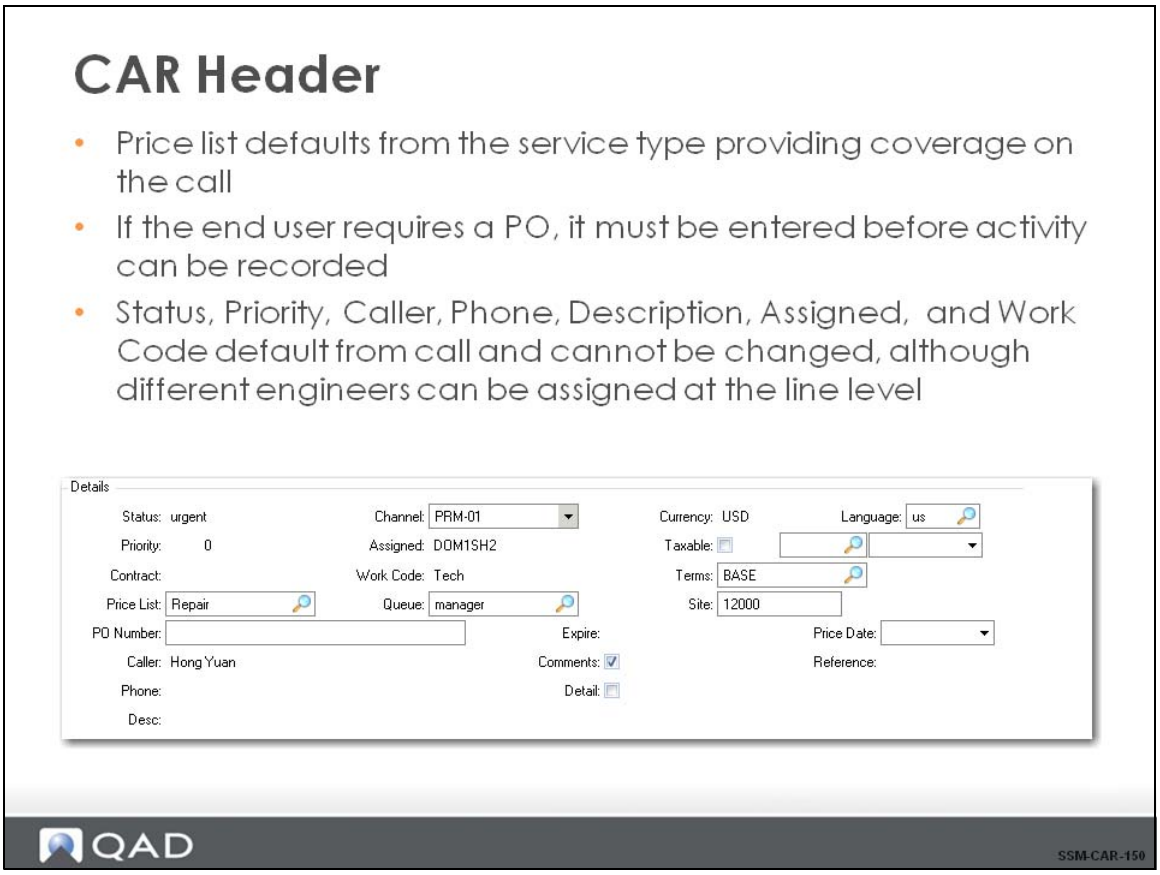
- Information related to the call as a whole
- Information related to a particular item on the call
- Information related to labor usage for a call line
- Information related to item usage for a call line

CAR Header



As shown above, the user must enter a valid Call ID to begin the CAR process. If the call specified has the complete status, a warning message displays. If the call has the closed or hold status, none of the activity recording frames display. The Call Line Status frame displays immediately, so that you can modify the status of the line to be changed. This is followed by the Call Status frame, so that the call status can be modified.

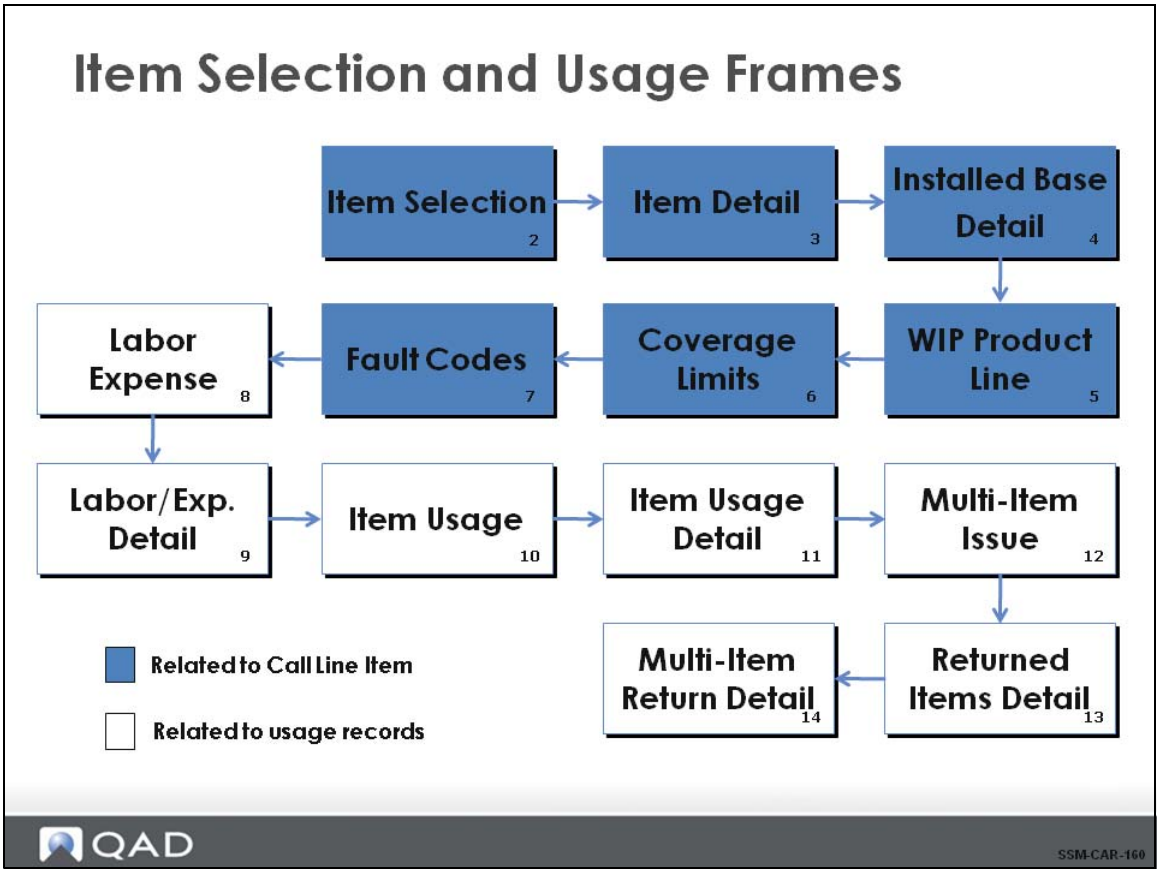
The Bill-To defaulted from the Bill-To associated with the call end user's customer; however, this can be initially modified. Once a pending invoice exists for the call, the Bill-To cannot be changed. If a call has been taken for a temporary customer (as defined in the Temporary Customer field of the Call Management Control) and the value of Call Activity with Temp is No, no activity can be recorded for the call until the end user is associated with a valid customer. The End User defaults from the call record and cannot be changed.



Notice that the lower header frame displays information that helps define the call, such as call priority, status, price list, a brief description, who has been assigned to the call, and the work code assigned to the first item on the call. Most of these fields default from the call and are display only, although some can be changed.

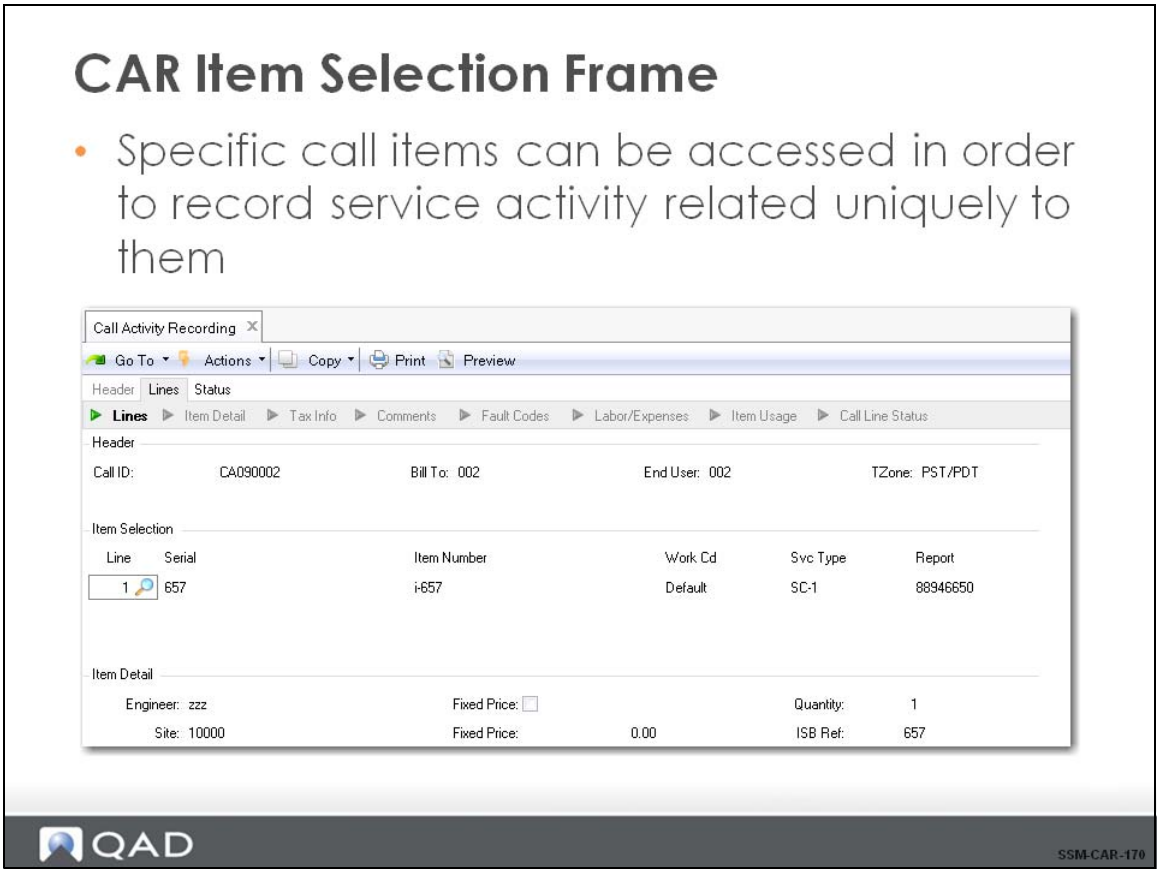
Other fields may require the input/modification of information not available in Call Maintenance, such as the taxable status, terms, site, and detail level.

Item Selection and Usage Frames



This figure illustrates how some frames in CAR gather information related to the call line item, and some gather detailed usage records related to a service activity or event.

CAR Item Selection Frame



As you leave the first set of frames, the system determines how many items exist in the call record's detail. The Line column always shows the last line on the call so that it is easy to see initially how many lines exist.

The call line information is automatically brought in from the call record and displays under the appropriate column heading: line number, serial number, item number, work code, and service type.

1 The lot/serial number, item number, quantity, and installed base reference number uniquely identify this line item. You can add more line items directly in CAR if you want. If you do, they are subject to validation against the control settings you have defined in the Service Management Control (Items in Installed Base and Items Must Exist).

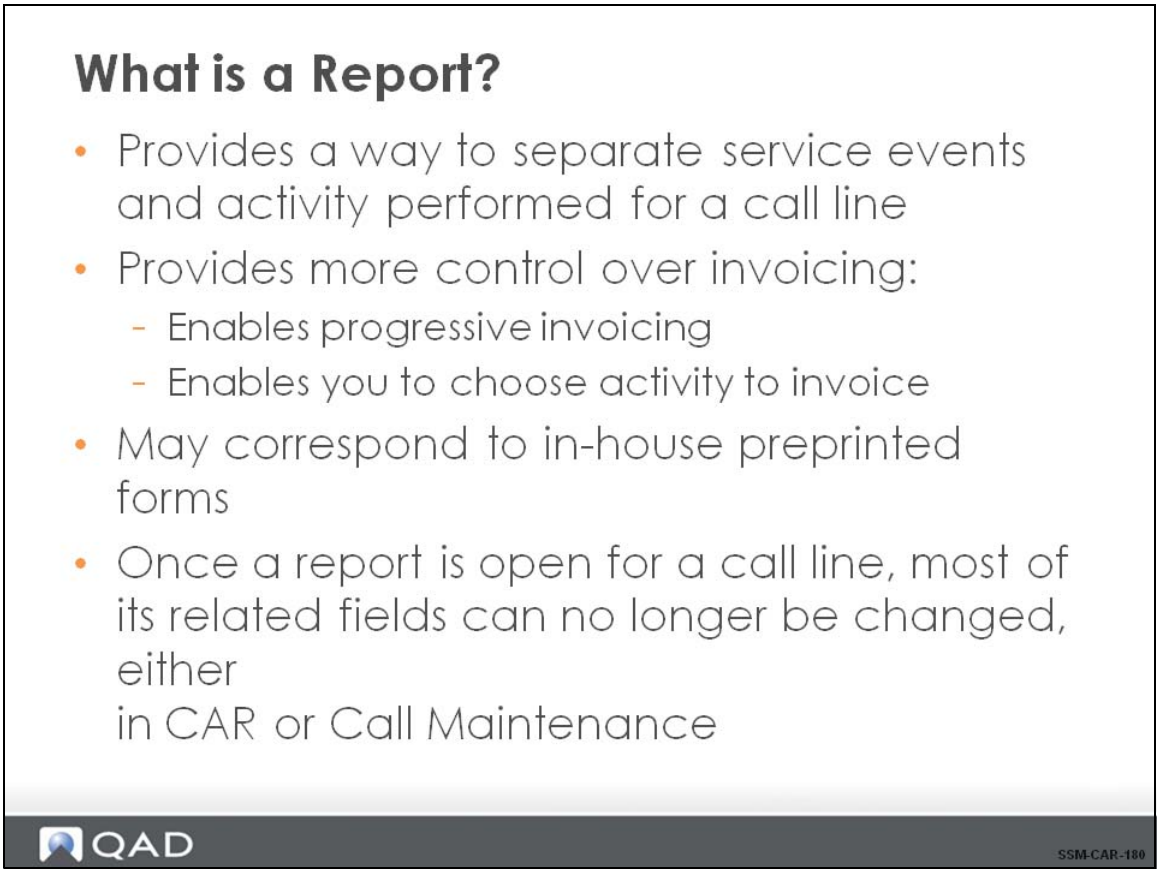
2 The Work Code defaults from the work code specified for this call line in Call Maintenance. For a new line, it defaults to the work code specified on the call header. The value specified here defaults into the Labor/Expenses and Item Usage frames, indicating the type of work performed for each labor operation, expense, and item consumed. If contract limits have been set up using work code/service category combinations, this work code is used to determine the applicable limit.

If the work code has been defined with Fixed Price set to Yes in Work Code Maintenance, the Fixed Price field in Call Activity Recording defaults to Yes, and cannot be changed. This means that the service price is calculated at the fixed rate regardless of the actual cost of service. The system looks on the call price list for a price with the fixed price unit of measure (as specified in the Call Management Control).

3 Service Type defaults from the service type specified in Call Maintenance for this line. For a new line, defaults first from a warranty or a contract covering this particular item. If the item is not covered, defaults from the Default Call Service Type specified in the Call Management Control. This field cannot be updated once a report for the item has been opened.

4 Report is an important field in CAR. The report is the logical entity that organizes detailed usage records. This field can be manually assigned or automatically generated by the system. To create a new report, enter the new number or clear the existing one for the system to supply one. You can use the up and down arrow to scroll through any reports that exist for this line item. The automatic number defaults from the Next ID field (work order lot ID) in the Work Order Control (16.24).

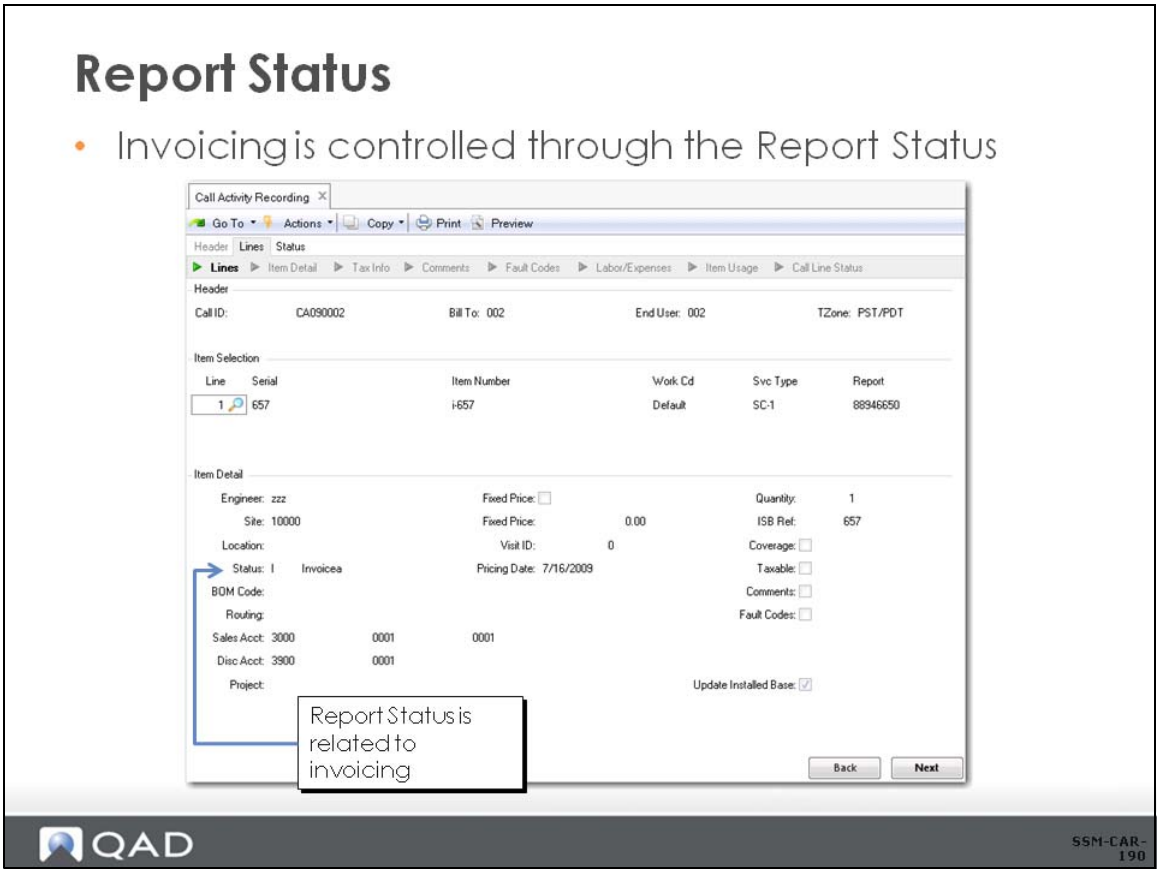
What is a Report?



Most service organizations currently have some method in place for engineers to record the items, labor, and expenses associated with servicing an item. This is typically done with a numbered paper report. Frequently, pre-numbered forms are used to ensure unique report IDs. Engineers may turn in these reports as a job is completed; or for lengthy jobs, reports may be turned in daily or weekly. All activity can be recorded on one report, or multiple reports can be opened for one line item.

More than one invoice can be generated for activity recorded against a call or a call line item. This is important if the call activity is going to cover several days or weeks, as might be the case in a complex installation. The engineer can record expenses at the end of each day or week by creating multiple reports for a single line item.

Report Status



Each report opened for a line item has a status, indicating its position in the recording life cycle. Four statuses are currently used:

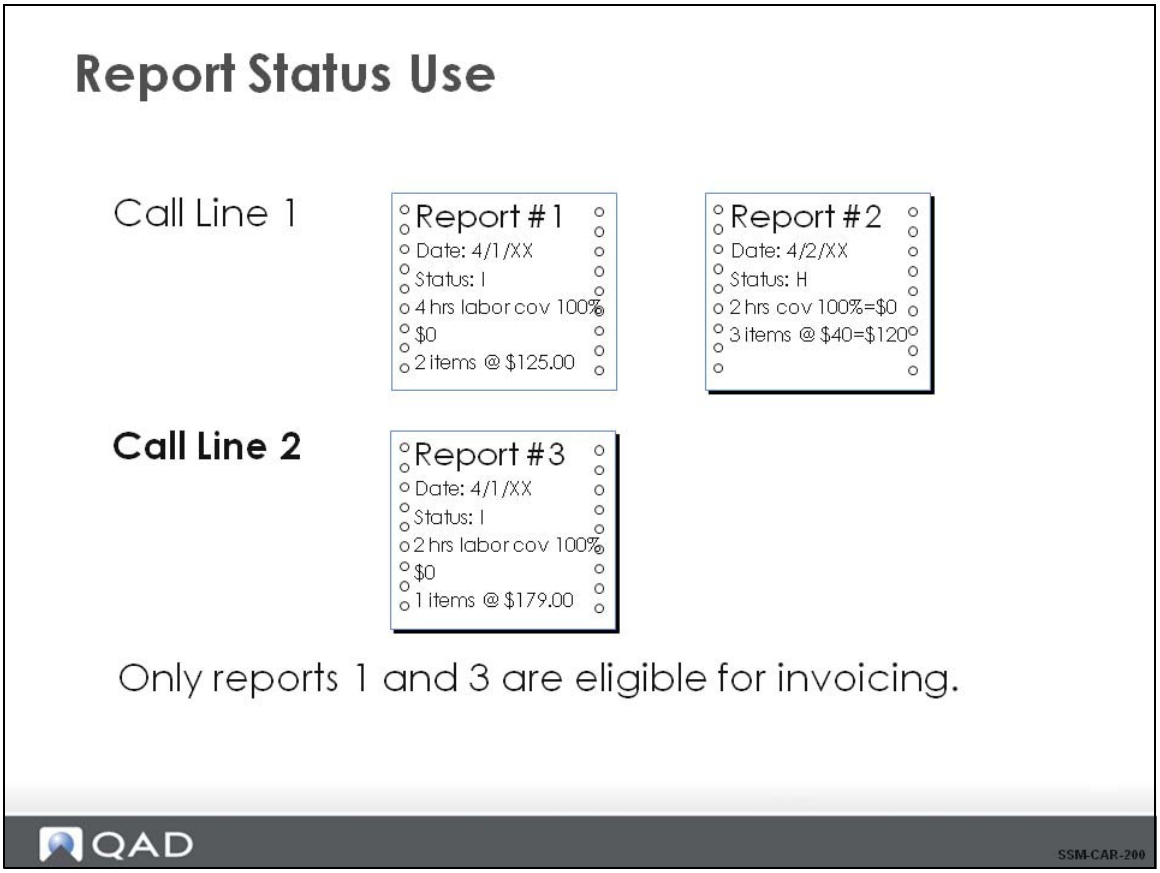
Quote (Q). A report opened in Call Quote Maintenance to record the activity that would be needed to service a line item is given a status of Q.

Invoiceable (I). The initial status of a new report opened in Call Activity Recording is invoiceable, indicating that this report is ready to be invoiced.

Hold (H). This status can be used in Call Activity Recording to indicate that a report should not be invoiced. Reports are automatically set to Hold by the system if an error occurs during the transaction processing step. This status can also be specified manually if you want to delay invoicing for some reason.

Closed (C). When an invoice is posted, the status of the report is automatically set to C. You can manually close a report with no detail if it was opened by mistake. Once closed, a report cannot be reopened. A closed report cannot be modified, with the exception of fault codes and comments.

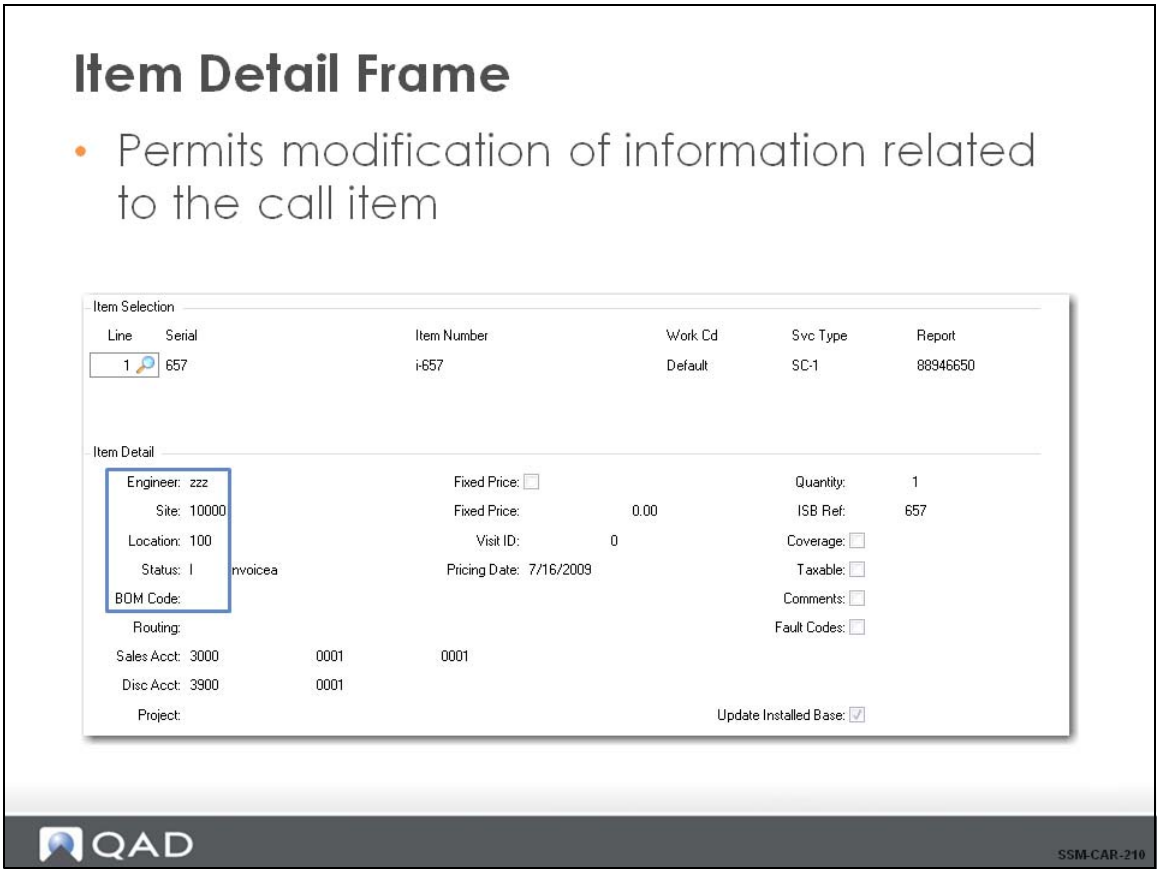
Report Status Use



The status associated with a report can be used to include or exclude it from invoicing. For example, if you have entered a report but not yet invoiced for it, you can enter a second report and put it on hold status. When the call invoice is generated, only the invoiceable report (status=I) will be included, not the report on hold. If you do not do this, the invoice accumulates all open quantities for the line item.

An existing report can be modified as long as it has not been posted. Once posted, the report information can be viewed, but not updated.

Item Detail Frame



Engineer. Engineer defaults from the engineer assigned to this item on this call. For a new line, it defaults from the engineer assigned to the call. This engineer provides the default for each line of detail on reports opened for this call line. When the first report for a call line is created, information associated with the engineer is used to determine the line item site, which may also affect the BOM and routing suggested by the system.

Site and Location. The site code and location identify the facility from which items used to service this call line will be issued. It is used as the default for all item usage records. The same logic is used in CAR for determining a site.

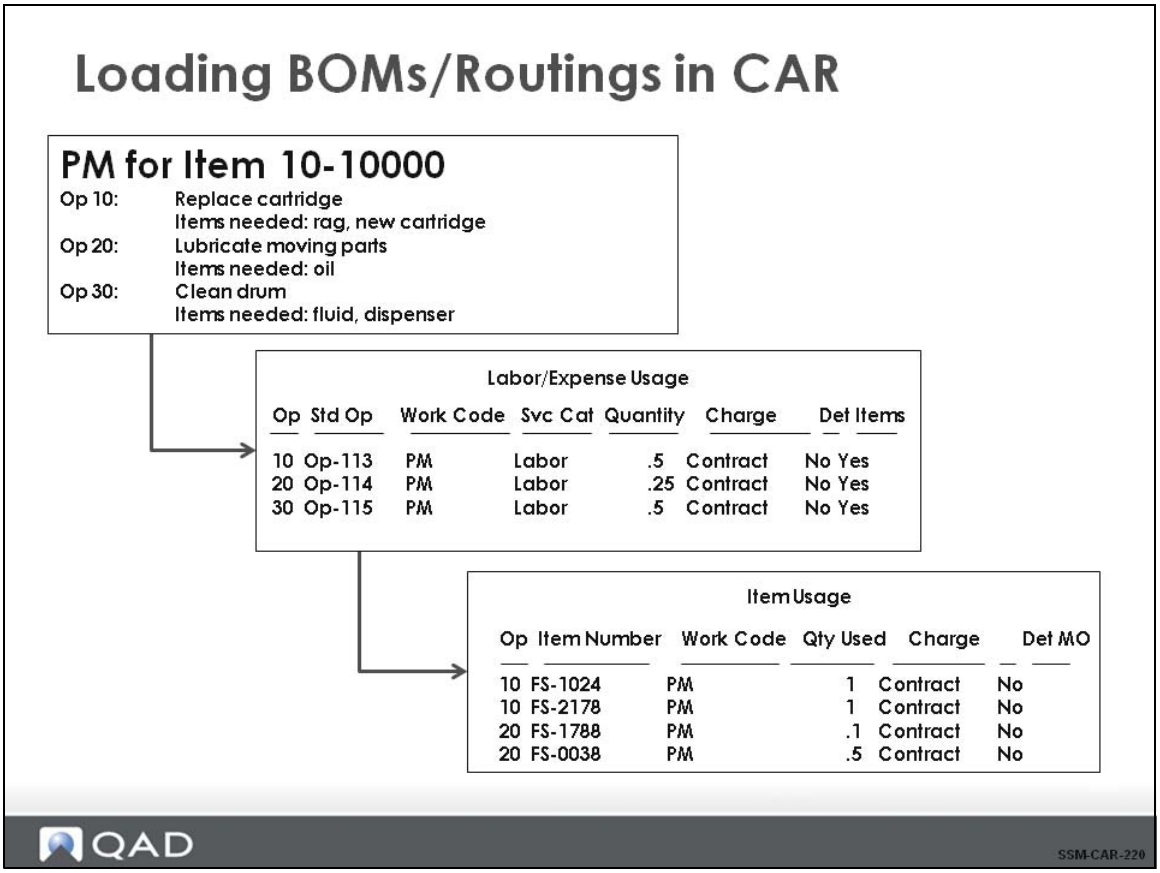
Site defaults from the engineer record if the engineer has a designated site. Otherwise, the system looks for the site associated with the engineer's assigned area, then the default spares site specified with Default Site Maintenance, then the site associated with the item in the item master, and finally, the call customer site.

Since costs are set up by site, once a report has been created, the site associated with the line cannot be changed.

BOM Code. BOM codes can be associated with an item in Service Item Maintenance or Service Item by Site Maintenance, or can be entered manually.

Routing. Routing codes can be associated with an item in Service Item Maintenance or Service Item by Site Maintenance, or can be entered manually

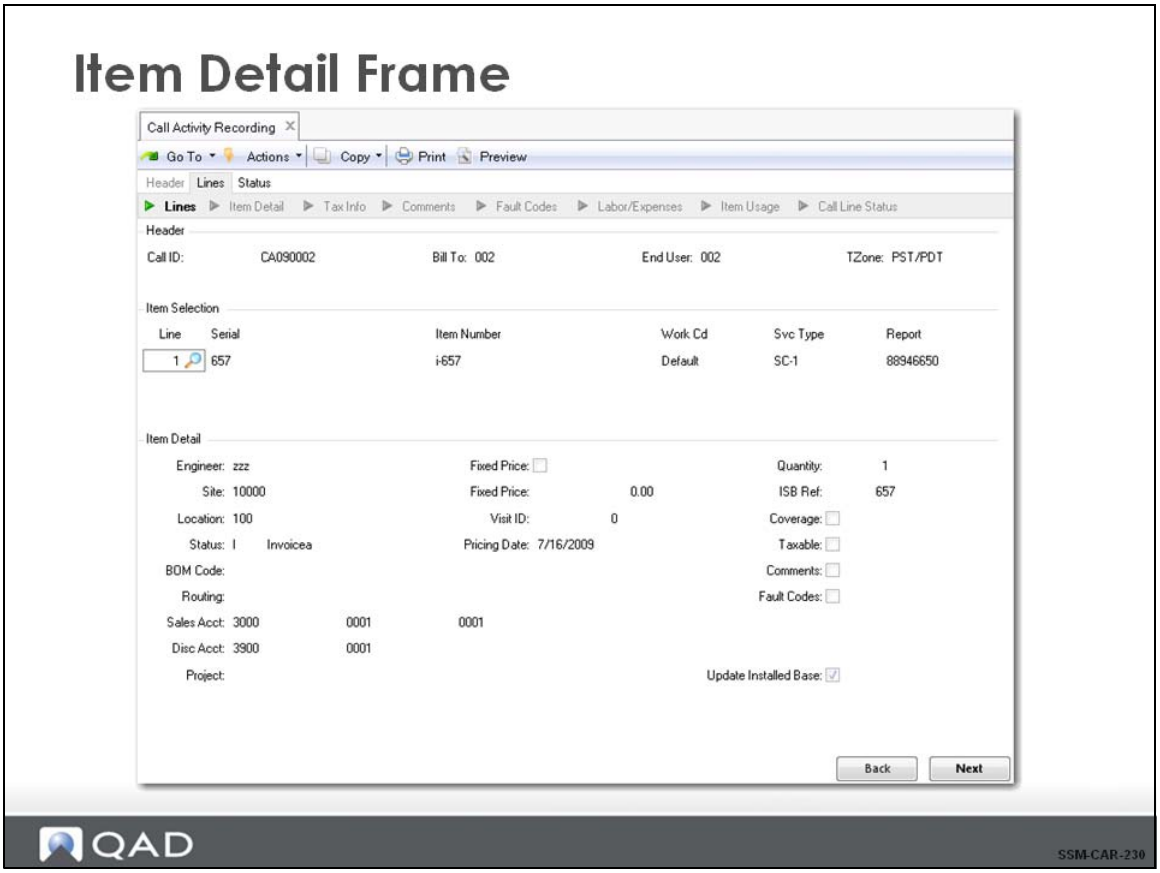
Loading BOMs/Routings in CAR



When you finish the item detail frame, the records associated with the BOM and Routing are loaded into the item usage frame for the first operation on the routing that does not already have items. If you do not want this to happen, you should clear this field before continuing.

Once the BOM and Routing associated with the line item have been generated, the field becomes display only and cannot be changed.

Item Detail Frame



Project . The project field is for reference, so that you can attach a GL project code if needed. If a project is associated with the contract providing coverage on the call, it displays by default in this field.

Fixed Price (Y/N) and Fixed Price. If this is a fixed price work code, Yes displays in this field; otherwise, it is no. Fixed price repair means that the customer is charged a fixed amount for service, regardless of the price of the individual item used. If Fixed Price is Yes, the system searches the price list specified on the header for a price for this item with the fixed price unit of measure specified in the Call Management Control. If none is found, the default price will be zero and must be entered manually.

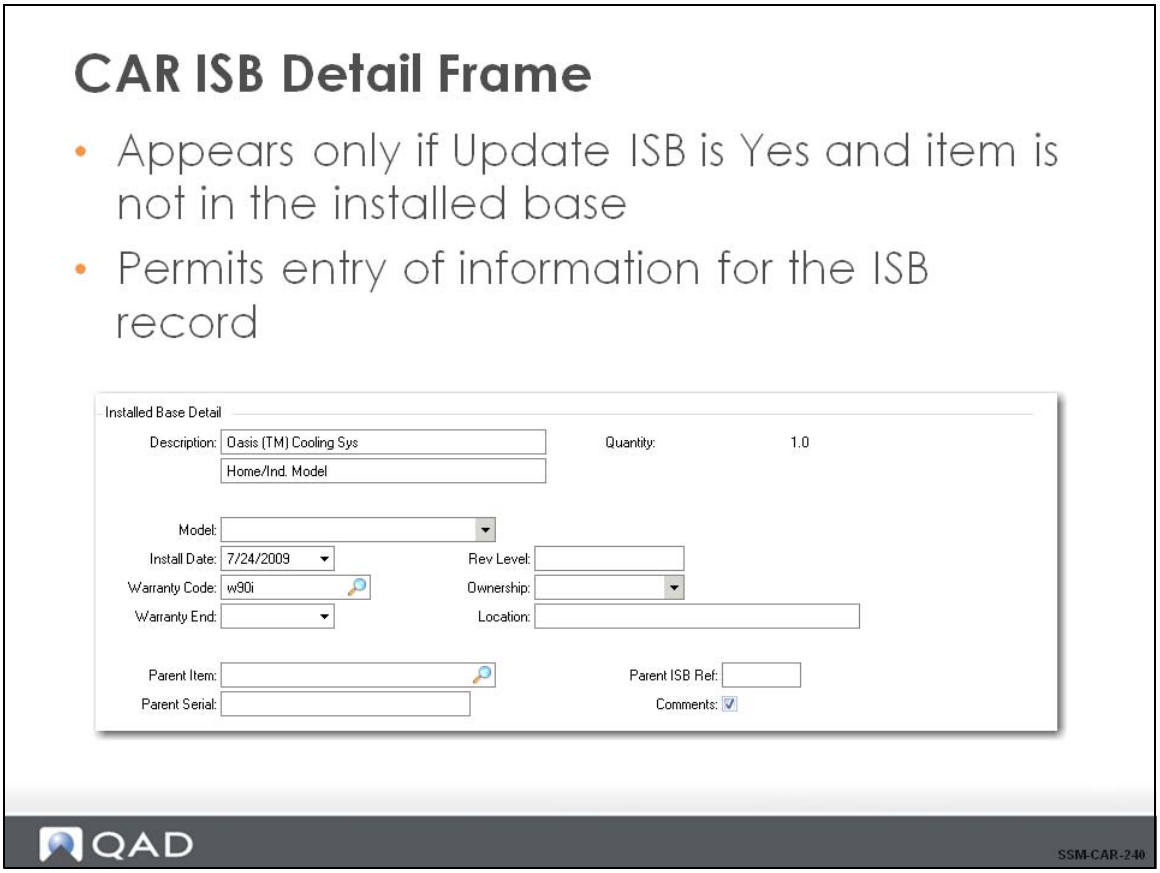
Coverage (Y/N). Defaults from the Coverage Window setting in the Call Management Control, but can be modified. If Coverage is Yes, a frame displays showing coverage information such as contract number, contract service type, start and end date, active service type, warranty service type, if any, and install and expiration dates.

Fault Codes (Y/N). Defaults from the Use Fault Codes setting in the Call Management Control. Setting Fault Codes to Yes brings up a frame where you can enter various problem, cause, and resolved codes, just like the one displayed in Call Maintenance. If fault codes were used in Call Maintenance, the values set there display here so that you can make adjustments or add new information.

Update ISB (Y/N). Defaults to Yes if the item is already in the installed base. Also defaults to Yes if the value for Update ISB for the end user and Update ISB for the item (from Service Item Maintenance) is Yes. Otherwise, defaults to No. This setting enables you to control how the installed base is updated. If this flag is Yes and the call line item is not in the installed base, a pop-up displays so you can specify ISB parameters and add the item to the installed base. If the call line item is already in the installed base, no additional frames display.

If Update ISB is Yes and Load Available Structure is Yes in the Service Management Control, the system automatically adds all component items issued as item usage to the installed base, if they have been marked as belonging in the installed base in Service Item Maintenance. Items returned that exist in the installed base are removed regardless of the setting of Load Available Structure.

CAR ISB Detail Frame

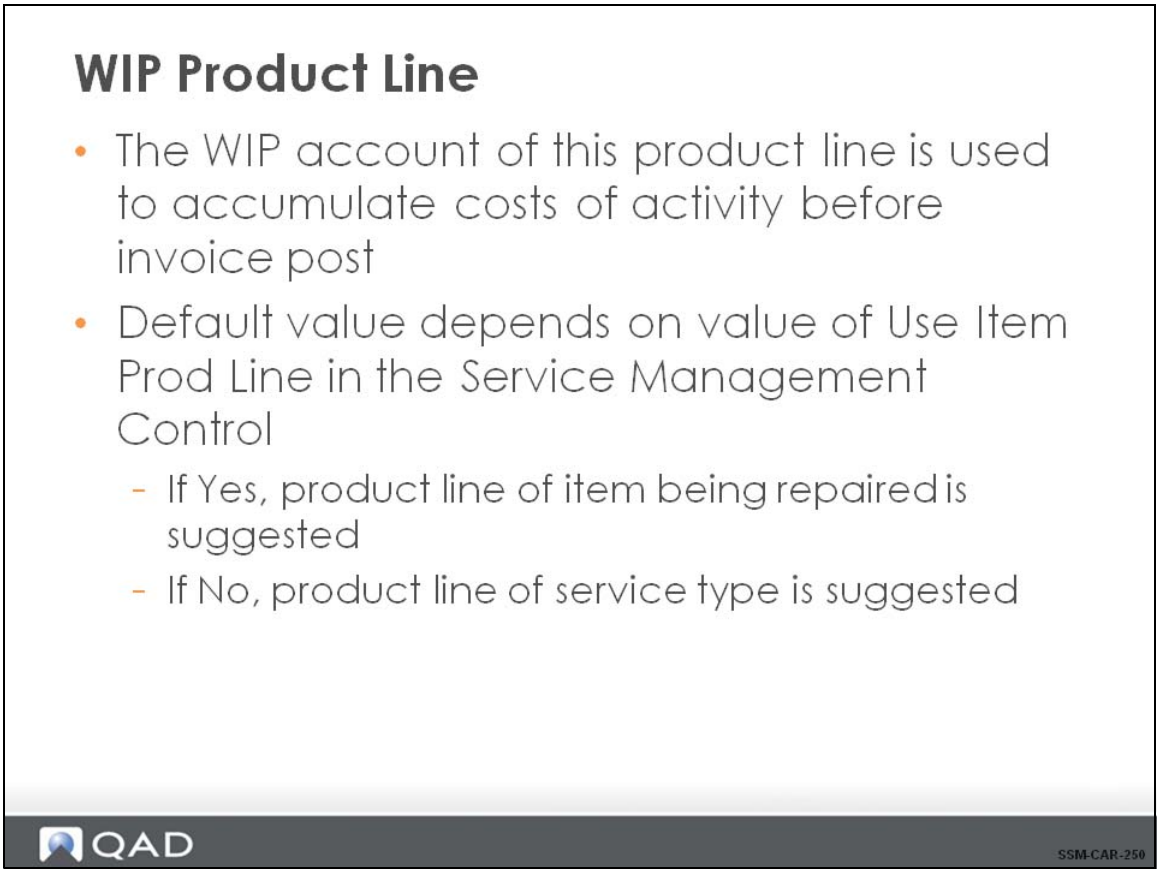


If the Update ISB field is set to Yes for the item being repaired and the item is not currently in the installed base, a pop-up window displays for information to use on the ISB record. If the item being repaired is a component of another, you can specify a parent item and serial number so that the installed base configuration is properly updated.

This frame is similar to the one that you saw in Sales Order Maintenance when we created a sales order and shipped an item to the installed base in Chapter 2.

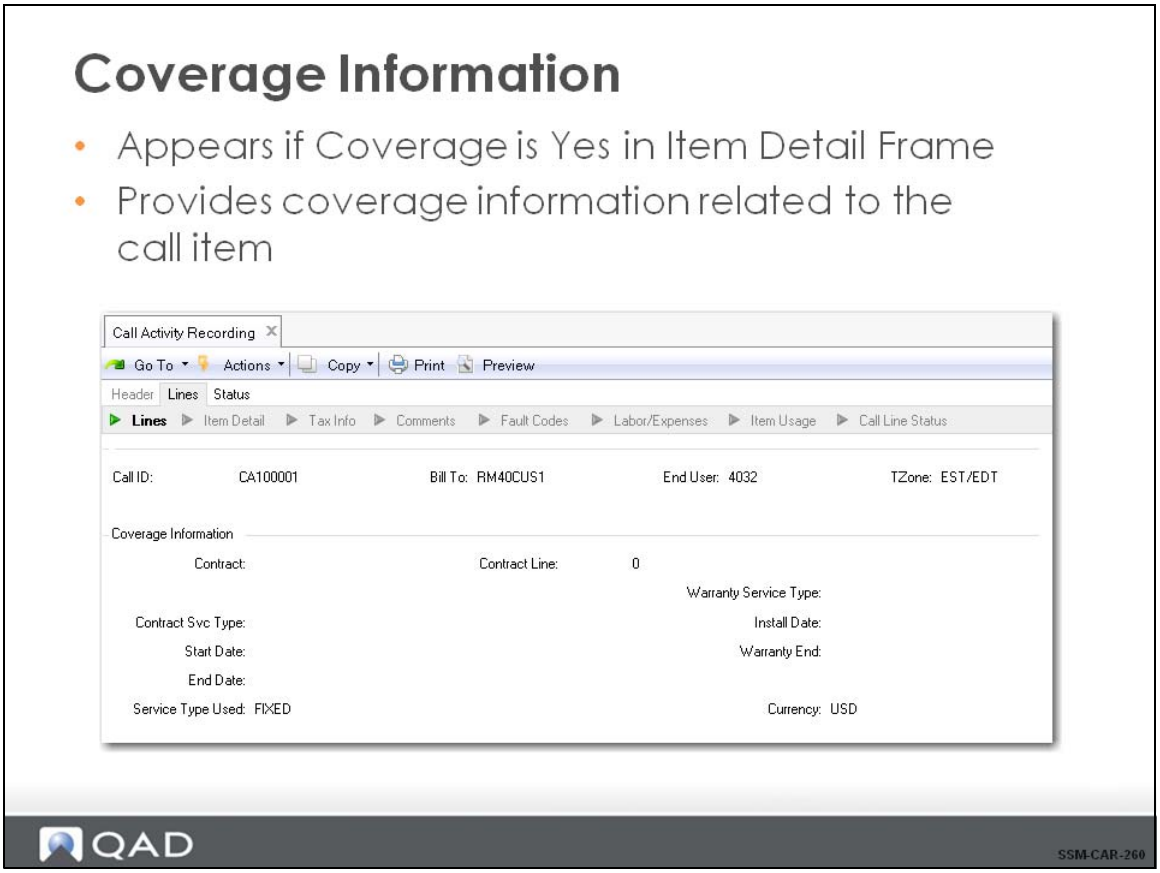
If you specify that the item should be added to the installed base with an active warranty, you will be prompted to change the effective service type to the warranty type for coverage of usage details on this call line.

WIP Product Line



The WIP Product Line accumulates costs from CAR before being posted via invoice post to the appropriate accounts.

Coverage Information



This screen displays all of the detail about the coverage limits currently applied to this line item. Only limits that are effective on the call open date display. These limits can be derived from a contract, service type, or warranty, as indicated in the header of the frame.

Limit Qualifier. Limits can be set up in three different ways: as a total record, by invoice sort, or by work/code service category combination. This column will display Total Limits in the first case. Otherwise, it will display the name of the invoice sort or work code/service category.

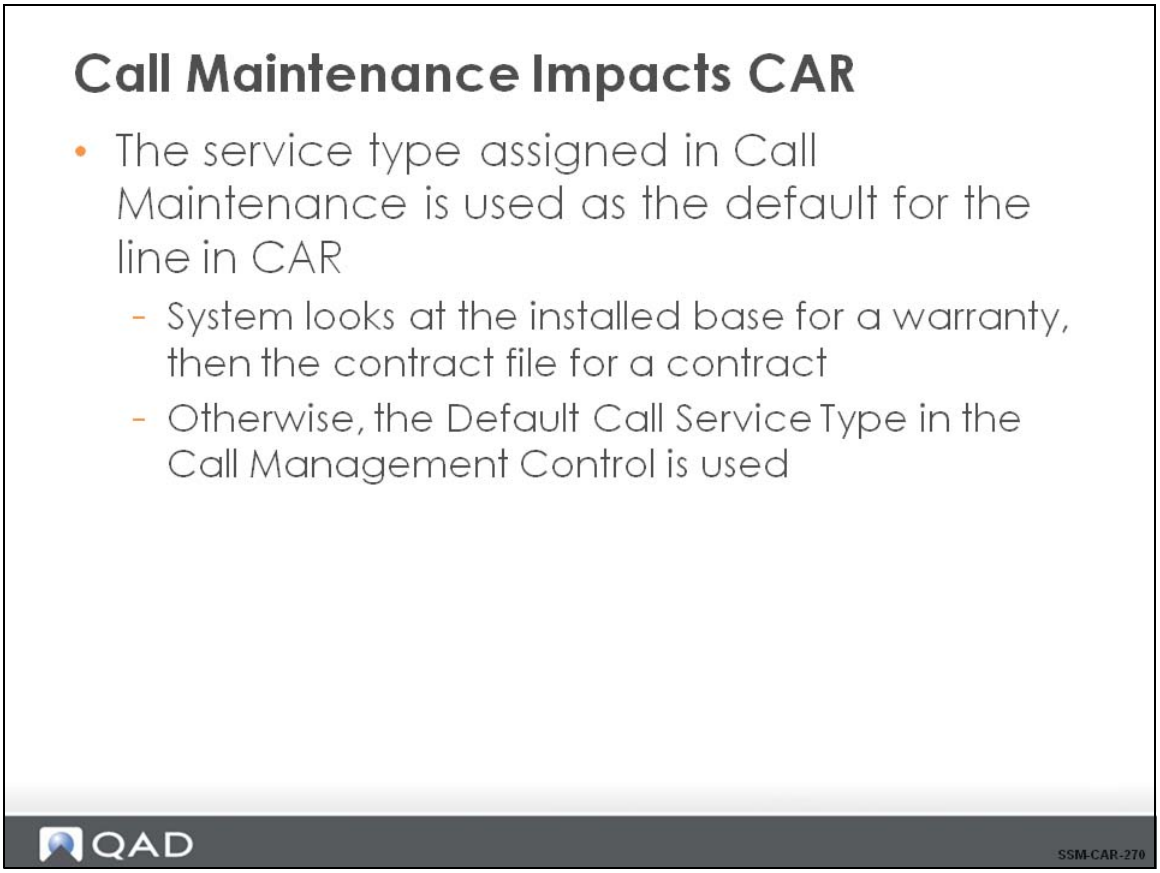
Amount. Displays the actual limit amount as defined for the service type or contract.

Used/Consumed. This field has a value only for contracts. As activity is recorded for an item with contract coverage, the quantity consumed against active limits is accumulated. the amount displayed in this column combines any amounts that have been used on open calls with any amounts that have actually been posted for call invoices.

List Price Limit. Displays the list price limit defined for the service type or warranty. If the price of an item to which this line applies exceeds this limit, it will not be covered even if all limits have not been consumed.

% Cv. Displays the level of coverage associated with this limit record.

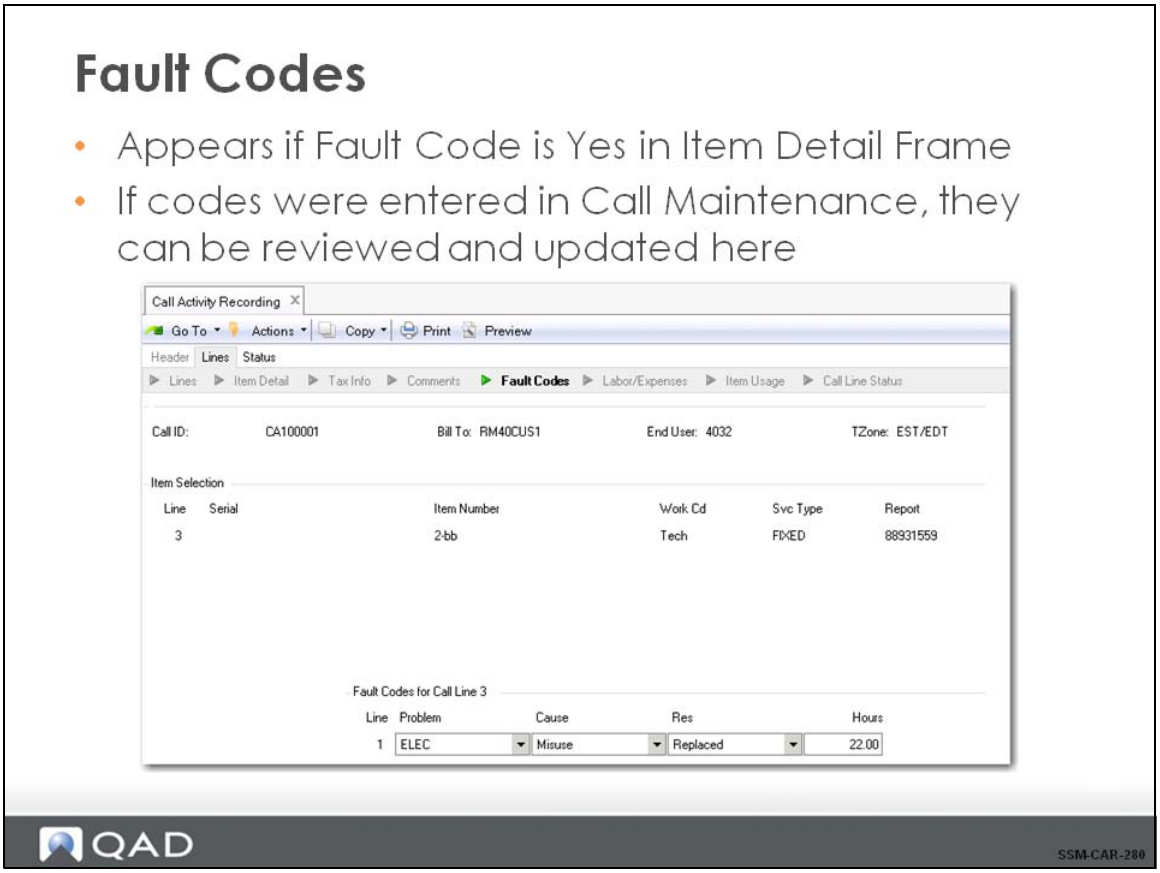
Call Maintenance Impacts CAR



Much of the background for processing in CAR has already been set up when the call was taken. This figure shows how the system applies values from the service type found to be effective when a call is taken. The levels and limits of coverage for this type will carry over into CAR.

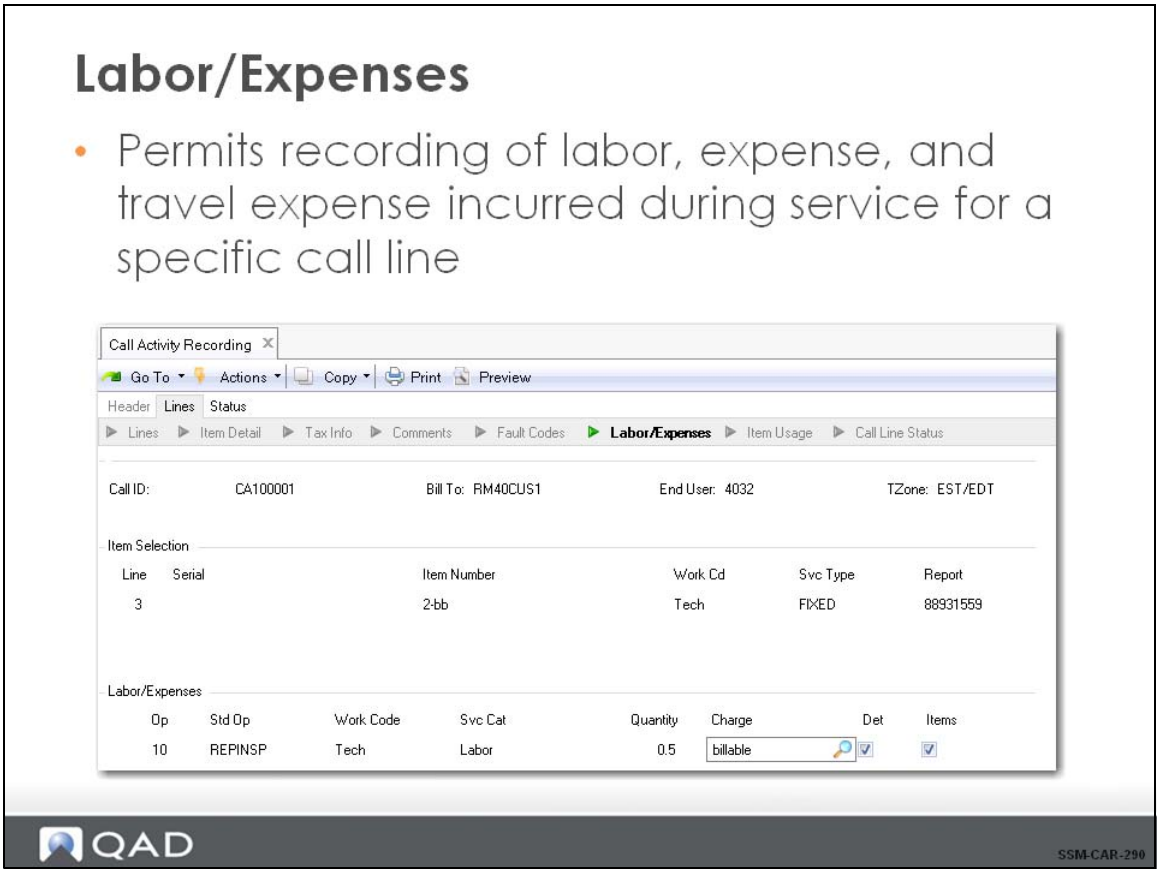
Typically, these are not changed. If a contract exists for an item, in a typical business situation, this is what is used to cover it. If you choose to override the coverage determined by the system, the system still retains information about any contract or warranty associated with the item.

Fault Codes



If Fault Codes is Yes the fault code pop-up appears. This is the same pop-up used in Call Maintenance. If information was entered for the call line in Call Maintenance, it is displayed.

Labor/Expenses



The Labor/Expenses frame enables you to record the operation steps taken and expenses incurred in servicing the call line item. Notice that the fields in the Item Selection frame retain their values. All information recorded in the Labor/Expenses frame will be recorded against the displayed item.

Op. Op is the operation number, which is used to track the sequence of tasks performed within a service, much like a routing sequence. Operation numbers always start by default with 10. If the service BOM and routing associated with the item being repaired are loaded into CAR, each operation on the routing will already be available for editing.

While multiple items can be consumed for one operation, only one line of labor or expense can be recorded per operation. If you need to specify several different service categories, each must be associated with a separate operation number.

Std Op. Standard operation codes are set up using Service Std Operation Maint (11.19.21). If you have created codes representing common operations performed in the repair or maintenance of an item, you can enter them here. If a service standard operation code is entered, values for the service category and quantity default. If the standard operation has a BOM associated with it, you are prompted to load the items specified as item usage for this operation. The labor rate of the work center associated with the routing step or standard operation is used for calculating labor costs.

Once a line has been recorded, the operation cannot be changed, since other values came from it. If the wrong standard operation is specified, you must delete the line and reenter it.

Work Code. Defaults from the Item Selection frame (which defaulted from the call record), and can be modified. If coverage limits have been set up using work code/service category combinations, this work code is used to determine the applicable limit. It is used when the system suggests a charge code and also in the search for a price for labor and price and cost for expenses. If the work code is changed, the default charge code is automatically recalculated by the system.

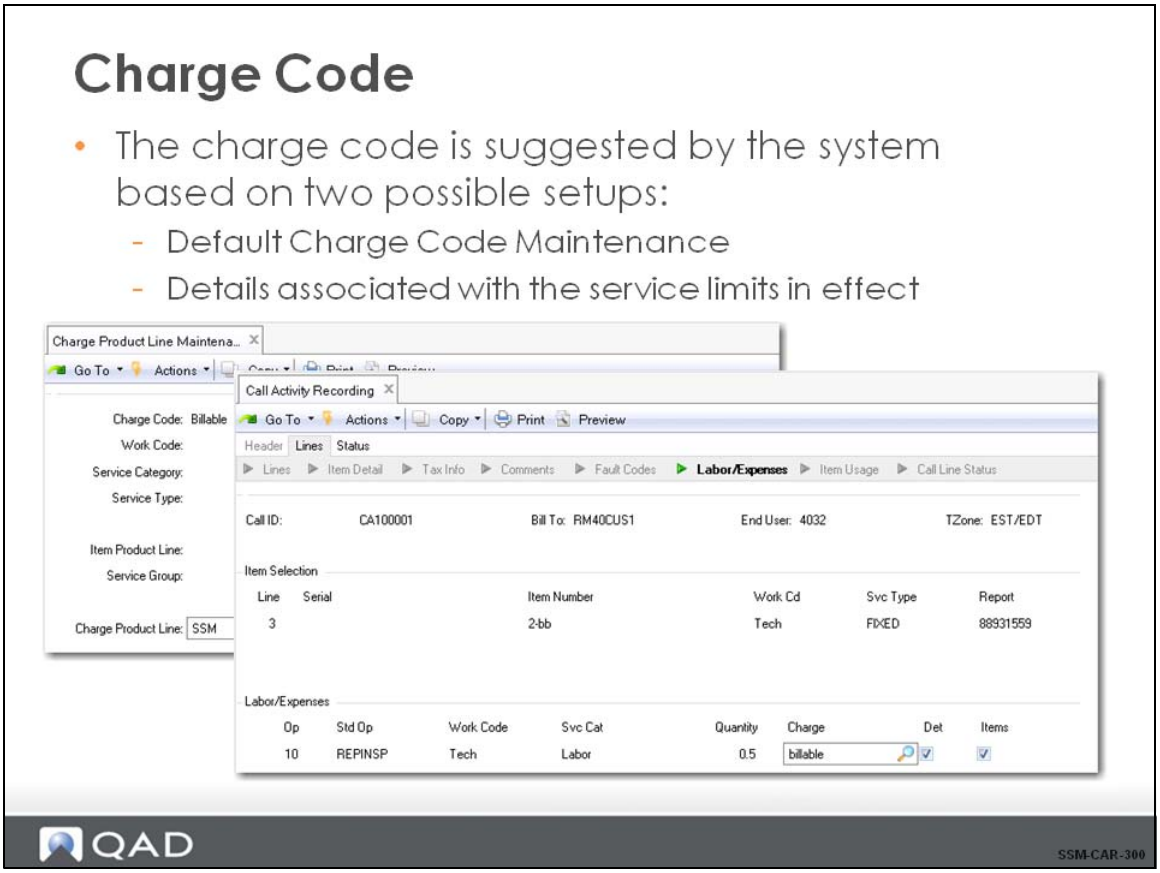
Svc Cat. Service categories are predefined in Service Category Maintenance with one of the following flags set to Yes: Labor, Expense, Travel Labor, or Travel Expense. For standard operations and operations defined as part of a service routing, this service category defaults from the operation. Otherwise, it defaults from the Default Labor Svc Cat field in the Call Management Control.

Service coverage limits can be consumed based on the service category specified. Service category is also the basis of pricing for labor and expenses and for cost prices for expenses. If the service category is changed, the default charge code is automatically recalculated. Once a labor or expense record is saved, the service category can be modified, but only to a service category of the same type. You cannot switch a labor or travel labor category to expense or travel expense.

Quantity. The number of units of the associated service category consumed by servicing this line item. For labor, this is calculated in hours. For expenses, it represents 1 unit of the service category. If a standard operation is used or this operation has been generated from a routing, this field defaults from the operation run time. The quantity is used to calculate the extended price according to the formula:

(Quantity x Price) - Covered Amount

Charge Code

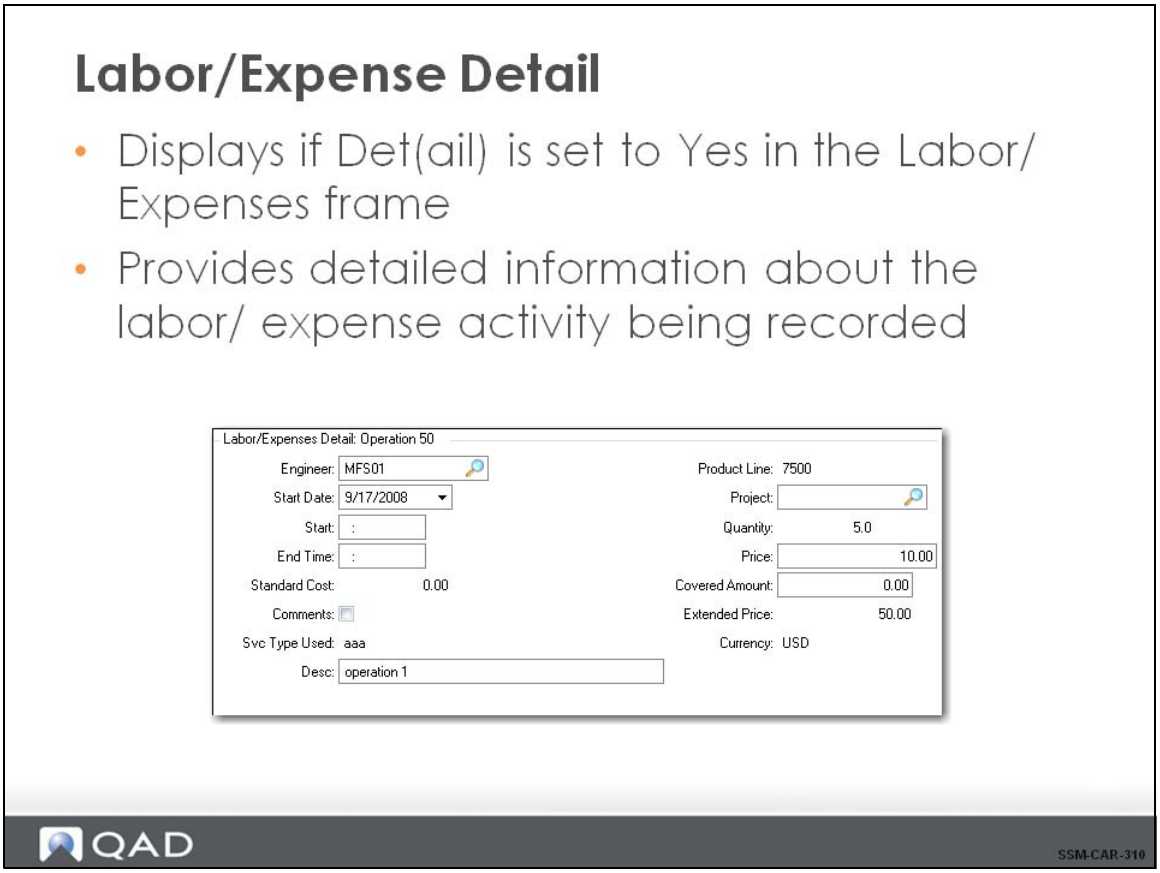


The charge code entry is a suggestion supplied by the system based on a number of factors. If the work code is marked as fixed price, the Fixed Billable charge code set up with Default Charge Code Maintenance displays.

If this is not a fixed repair, the under- or over-limit charge code associated with the coverage limits of the contract or service type in effect is used. The one suggested depends on the extended price of the operation and, for contracts only, the amount already applied against the limit. If charge codes are not associated with the limits, one of the charge codes set up in Default Charge Code Maintenance (11.21.21.13) displays, depending on the source of coverage (contract, warranty, or call default service type) and whether the current operation is over or under limit.

You can override the displayed value with some restrictions, but cannot change between a non-fixed and fixed repair charge code. The charge code specified is used to determine the charge product line. The product line in turn, determines the GL accounts affected by this service activity.

Labor/Expense Detail

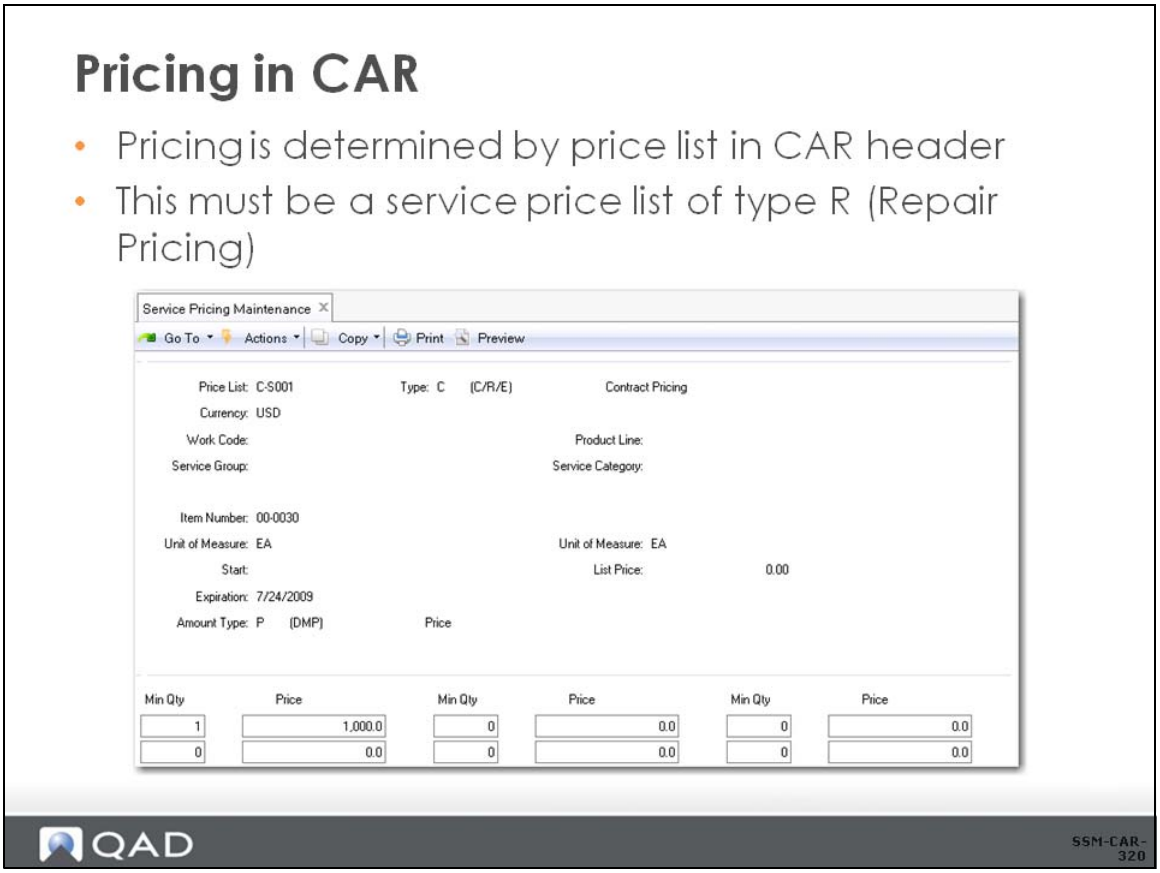


The information in the Labor/Expenses Detail frame may default from information recorded during the call or information stored in related records. Otherwise, it is calculated by the system. Standard costs are calculated as follows:

If the service category used on this line is related to labor, this field displays the standard labor cost for the engineer for one hour, and cannot be changed. Cost is derived from the work center associated with the operation (either from the service routing or a standard operation). For labor operations entered manually, the cost is derived from the default Service Work Center specified in the Call Management Control.

If the service category used on the line is related to expenses, the cost is derived from the expense cost price list (type E) associated with the call. The cost of one unit of the service category displays. If no expense cost list is found, expense cost defaults to zero and must be specified manually.

Pricing in CAR



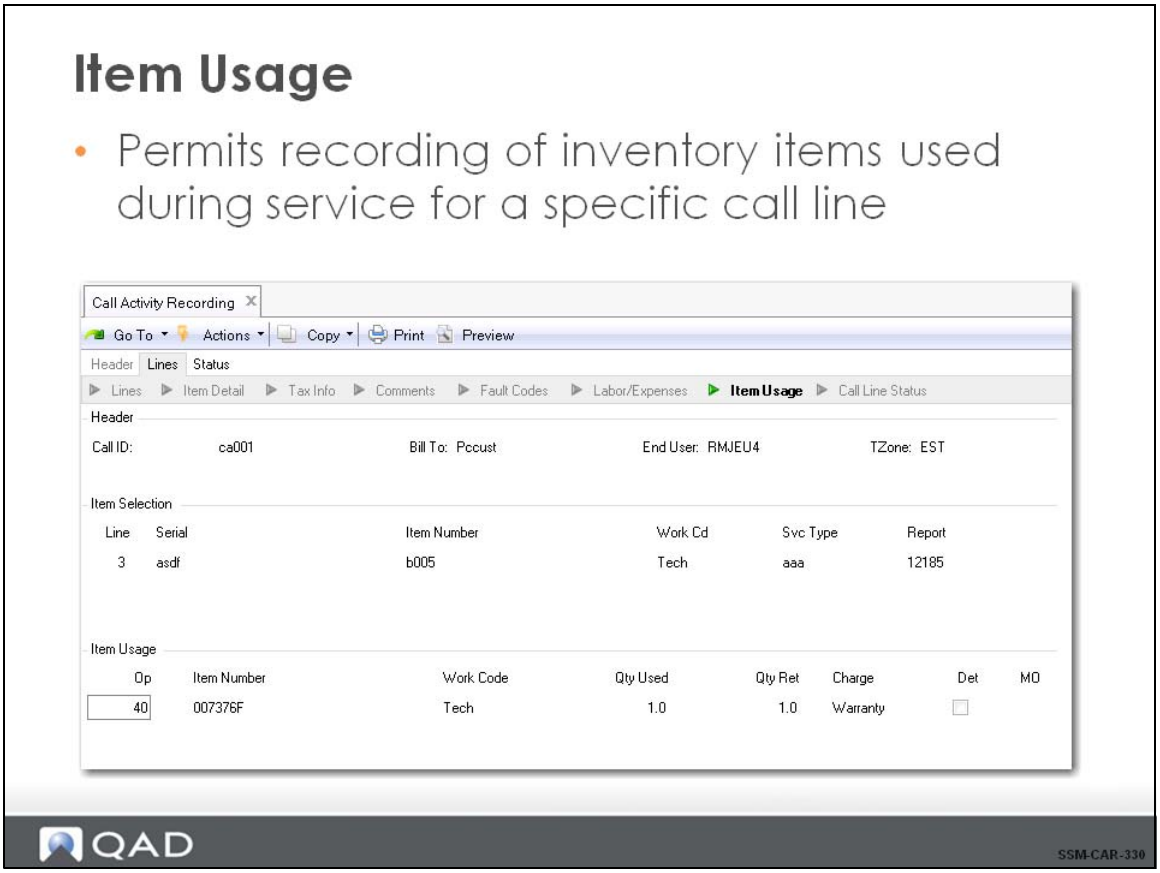
The price defaults from the price list specified in the CAR header, unless this is a fixed price repair. For fixed price repairs, the price was determined at the call line level. Prices for individual details default to zero and cannot be changed.

The price displayed is the price for one unit. Prices for labor are based on the service category. If the system cannot find a price on the price list, the default is zero and must be entered manually. The Extended Price is calculated by determining the covered amount from the service type currently in effect and subtracting it from the total price (price x quantity). Price can be changed, but the field can be secured.

Covered Amount is the total price for which the customer is not billed as determined by coverage limits associated with the current contract or service type. The amount covered can be zero if no coverage is provided, if service limits on a contract have already been exceeded, or if a list price limit is exceeded. Covered amount can be modified, but the field can be secured. The covered amount cannot exceed the price times the quantity.

For fixed price repairs, covered amount always defaults to zero and cannot be changed.

Item Usage



The Item Usage frame is the portion of Call Activity Recording where you report the inventory items (parts) used to repair or service the item listed in the Item Selection frame. Item usage can be recorded against each operation or all items used can simply be added after you complete the Labor/Expenses frame.

The Item Number must be a valid inventory item defined in the Item Master. If a service BOM is associated with the item being repaired, it is exploded and the items are loaded as item usage for the first operation without an attached BOM. If you need to record the use of a non-inventory item, it should be entered as an expense in the Labor/Expense Usage frame.

The Work Code defaults from the call line and can be modified. If coverage limits have been set up using work code/service category combinations, this work code is used to determine the applicable limit. It is also used by the system to determine the default charge code. If the work code is changed, the default charge code is automatically recalculated by the system.

The Qty Used is the number of units of the item consumed in servicing this line item. If this usage line was loaded from a service BOM, the standard quantity per of the component is loaded into this field. If this usage line was loaded from a Material Order, the order quantity defaults into this line. The quantity used is used in the calculation of the extended price according to this formula:

(Qty Used x Price) - Covered Amount

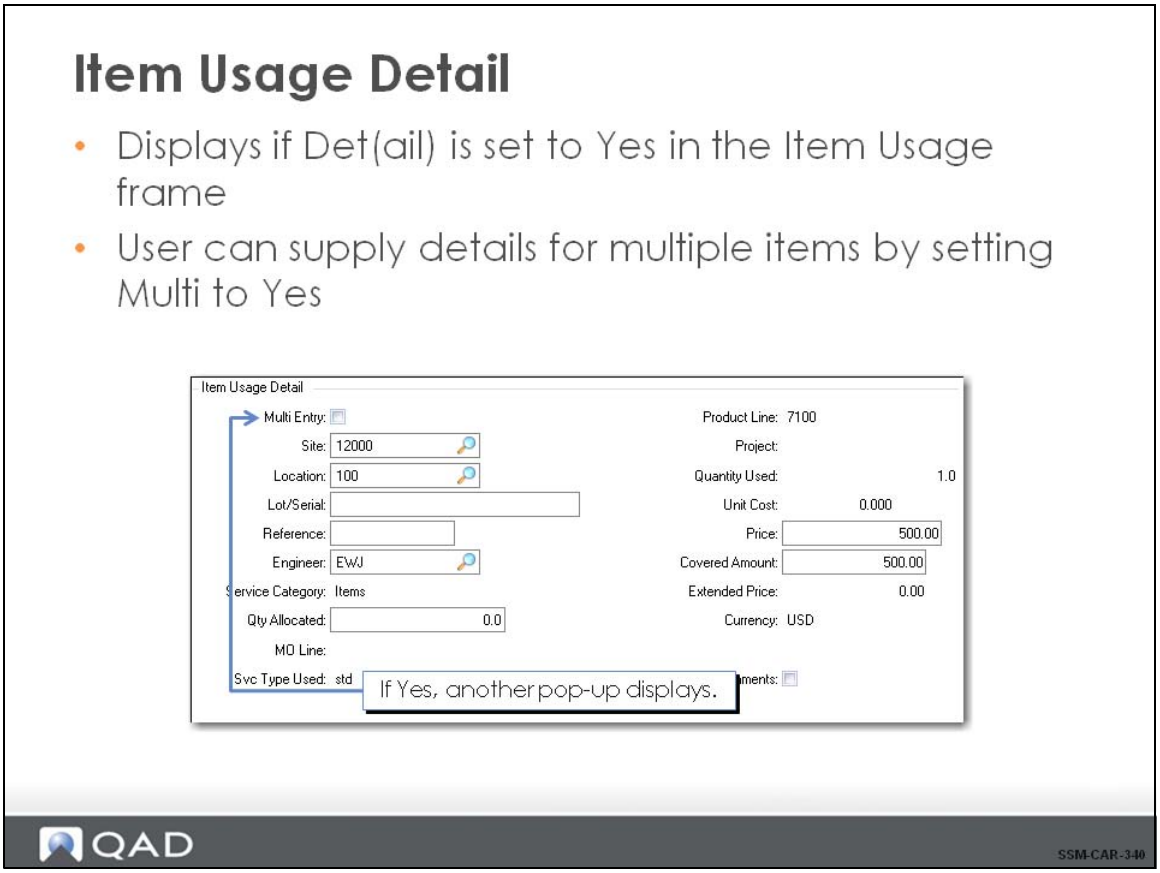
Qty Ret indicates the number of units of this item being returned. If the item being issued is repairable (as defined in Service Item Maintenance), the Qty Ret defaults to the Qty Used.

Returns in CAR are not the same as RMAs. Items are normally returned as part of an exchange when the engineer replaces a defective or worn item with a new one or because items were ordered for this call on an MO and not required. Returning items is discussed more in a later lesson.

A charge code is a suggested for items just as for labor and expenses.

Setting Det (Detail) to Yes activates the display of the Detail frame, which shows more complete data for this line item. If you are returning items and want to update the installed base, set this to Yes so you can enter the serial or ISB reference of the returned item.

Item Usage Detail

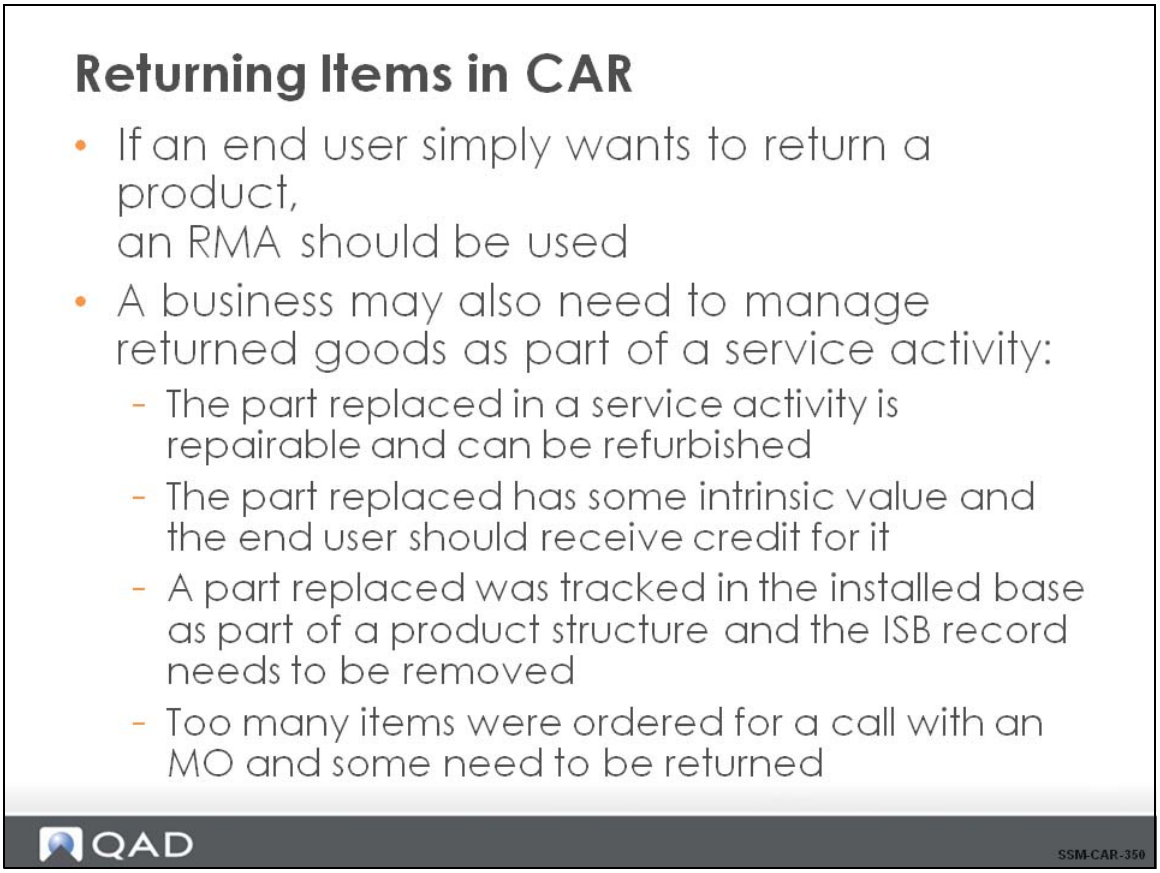


Setting the Det field to Yes in the Item Usage frame displays the Item Usage Detail frame. Multi (Y/N) Defaults to No unless the quantity used is greater than 1 and the item being issued was defined in the Item Master with Lot/Serial Control set to S. If Yes, a detail frame appears enabling you to enter a site, lot/serial, and location, and reference for each item consumed. Note that the records created as a result of executing this frame are not the same as detail allocation; they simply record detail about the items to be consumed.

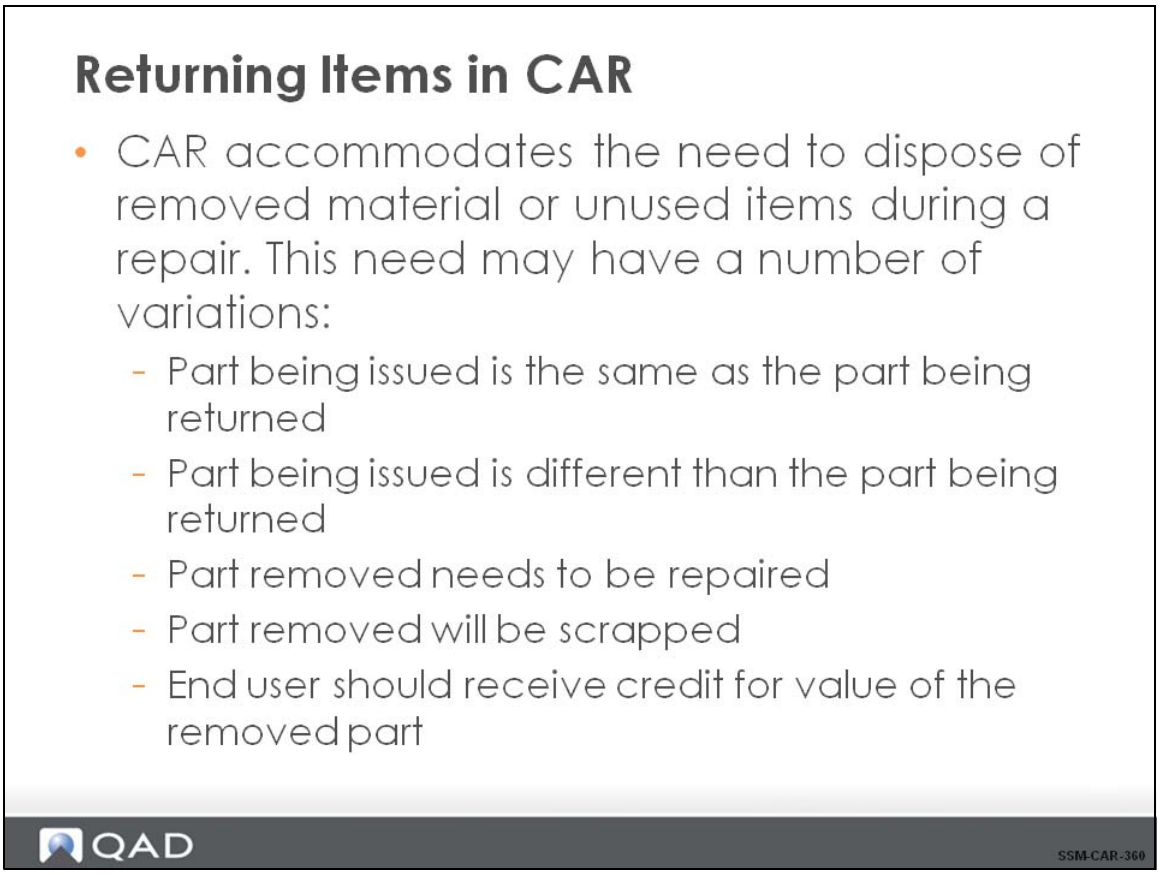
Unit Cost is a display-only field showing the cost for one unit of the item being issued. Cost is derived from the site specified for the item being repaired, which is not necessarily the site from which the component is issued. During CAR processing, any items from alternate sites are transferred to the call item site and issued from there. The inventory transfer creates a GL transaction for any variance in costs between the two sites, before the item is issued.

Price defaults from the price list specified in the CAR header, unless this is a fixed price repair. For fixed price repairs, prices for individual details default to zero and cannot be changed.

Returning Items in CAR



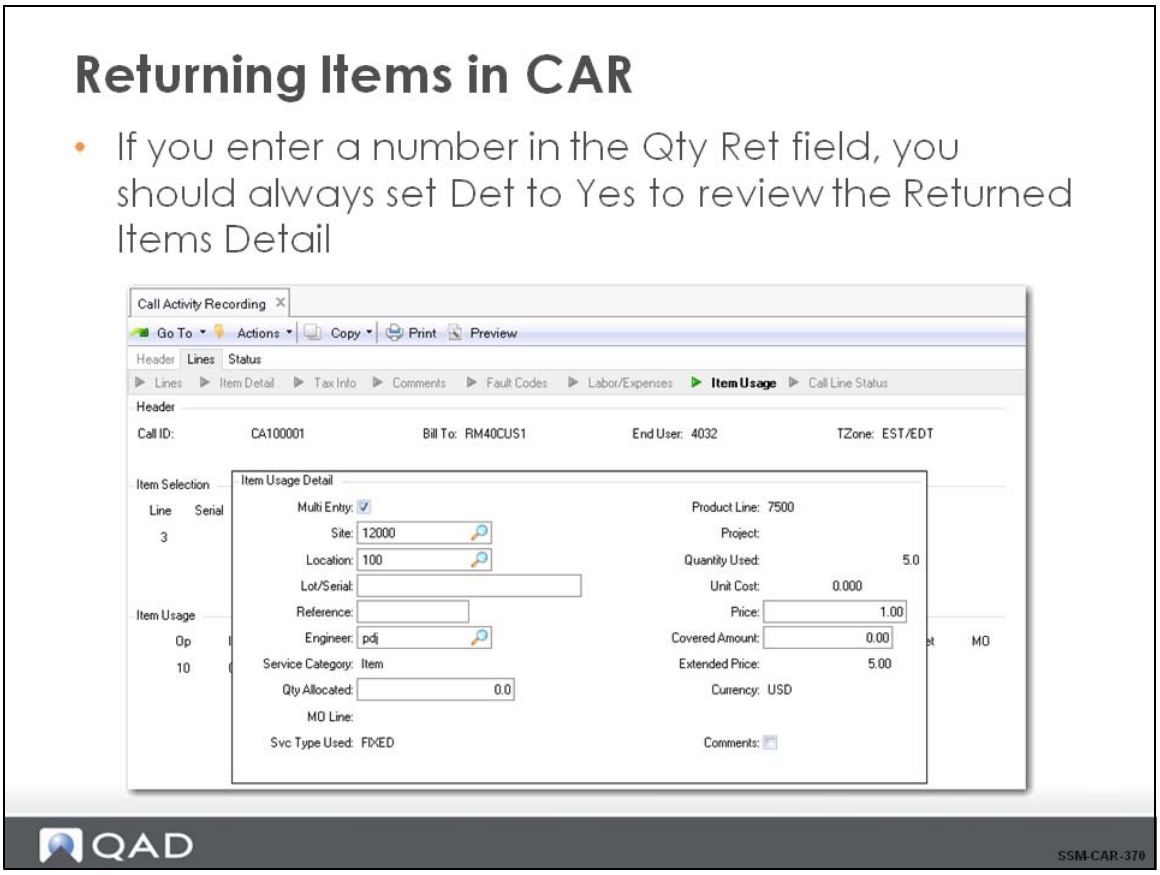
Returns in which it is not necessary to record an engineer's time and material should be handled in the Service and Support module through an RMA. The customer simply returns an item, and you ship them a replacement. The item can then be repaired with a repair work order or by creating an RTS (Return to Supplier) and then returned to the customer.



CAR provides support for returns and exchanges in the context of recording service activity. A number of different scenarios exist in which items might be returned in CAR as noted above.

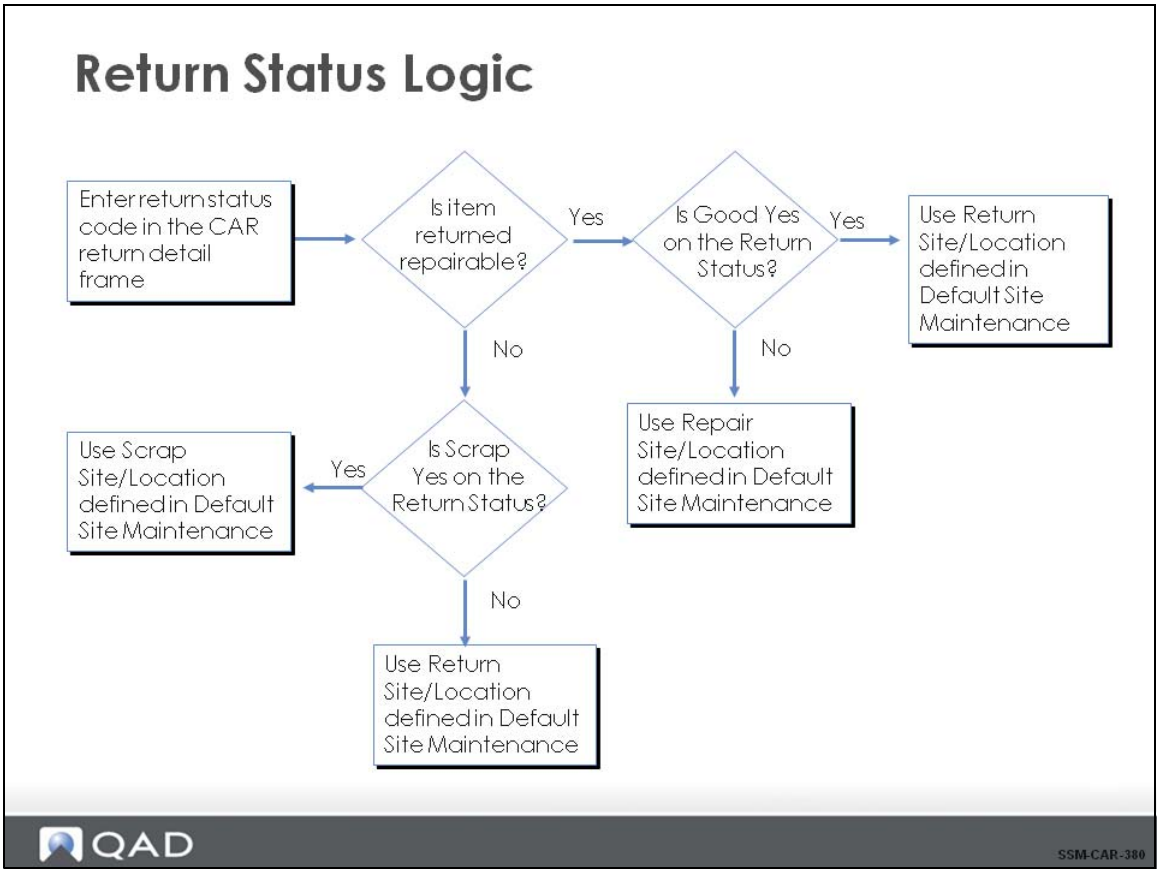
All of the items ordered by an engineer for a call with an MO must be accounted for before the call can be closed. If some items are not needed, they can be returned directly in CAR.

In the repair or maintenance of an item, engineers frequently replace a faulty or worn part with a new one. In some cases, the old part is returned and simply discarded. In other cases, the used part has some value for which the customer receives credit. In this situation, the used part can be returned in CAR as part of an exchange.



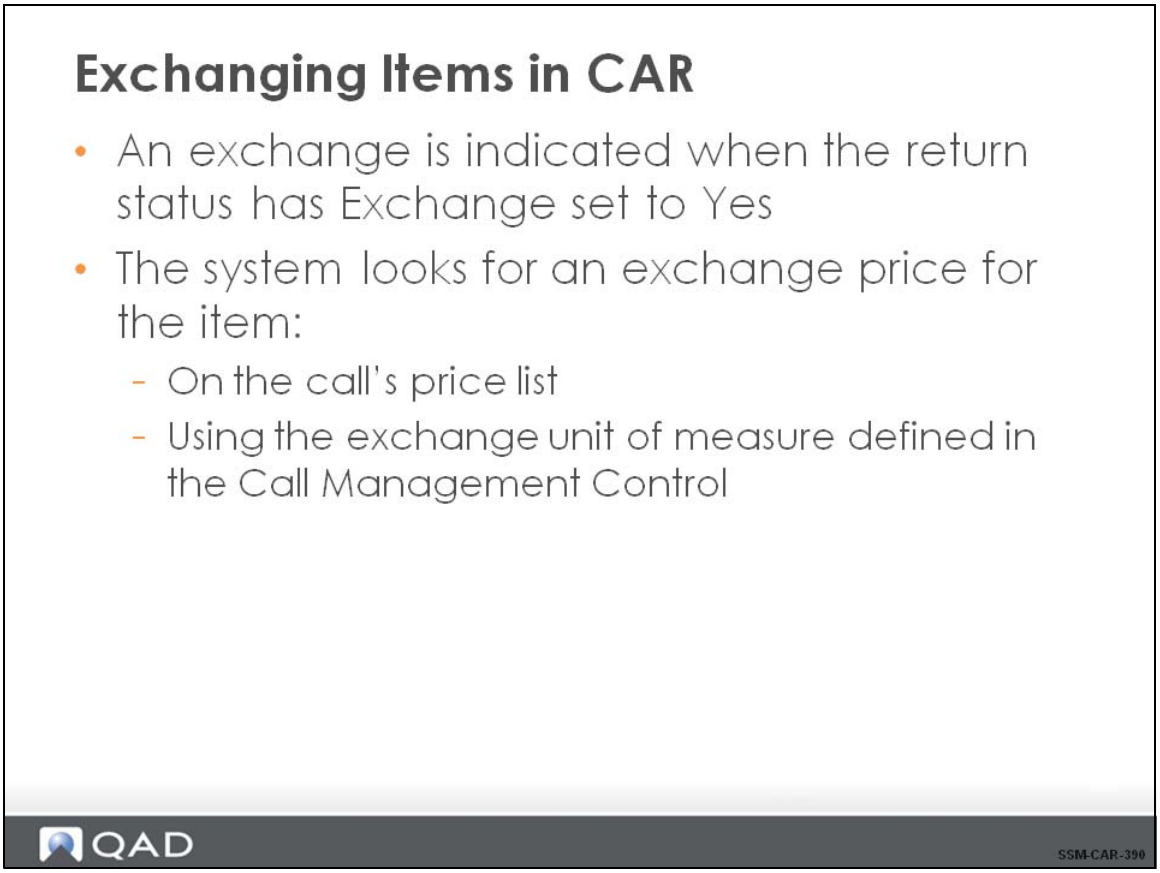
Return processing is governed by return status codes that work in conjunction with default sites. These were discussed in the Setup Chapter.

Return Status Logic



This figure illustrates the logic the system uses to determine default sites based on return status flag values.

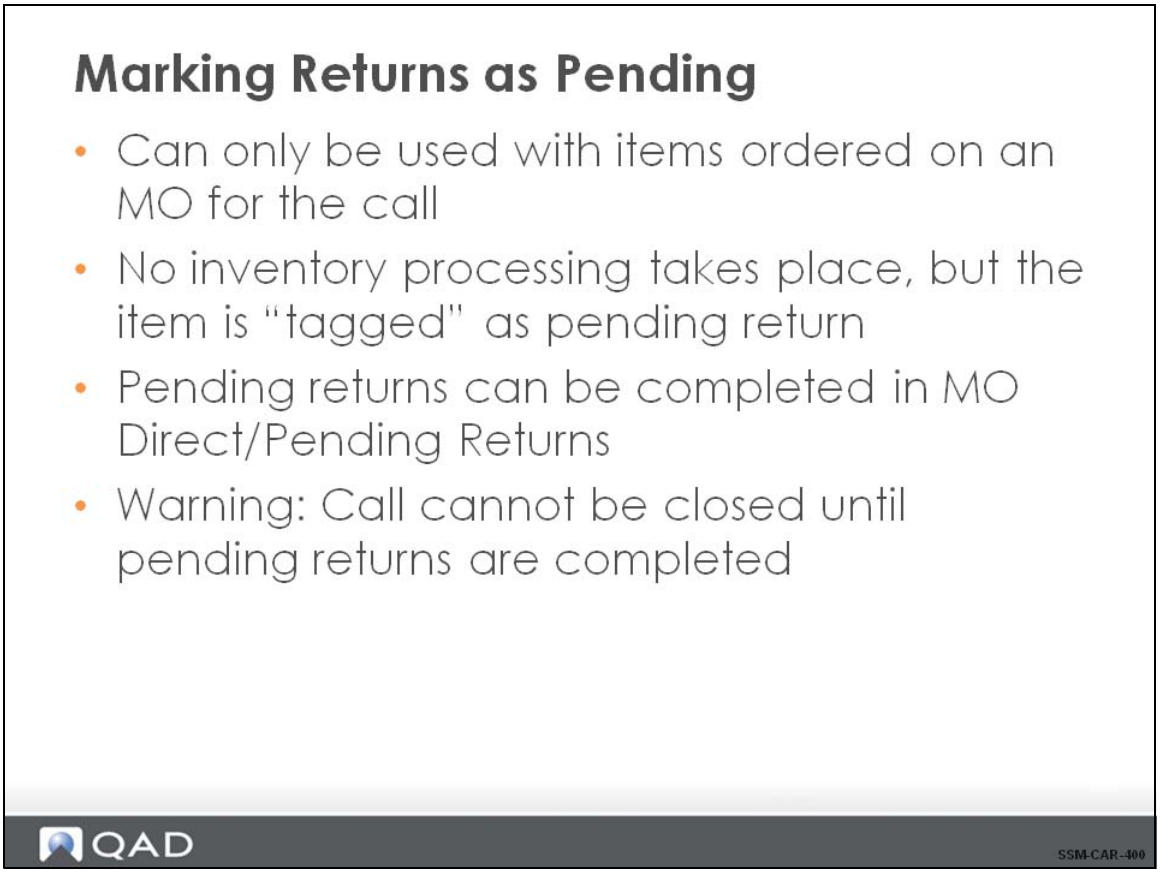
Exchanging Items in CAR



The exchange UM defines the unit of measure to be used in Service Price List Maintenance when setting up repair price lists for exchanges in Call Activity Recording.

When a return status with Exchange set to Yes is used in Call Activity Recording for a non-covered item, the system searches the call price list for a price with this UM. When it finds it, the associated price is assumed to be the exchange (or credit) price.

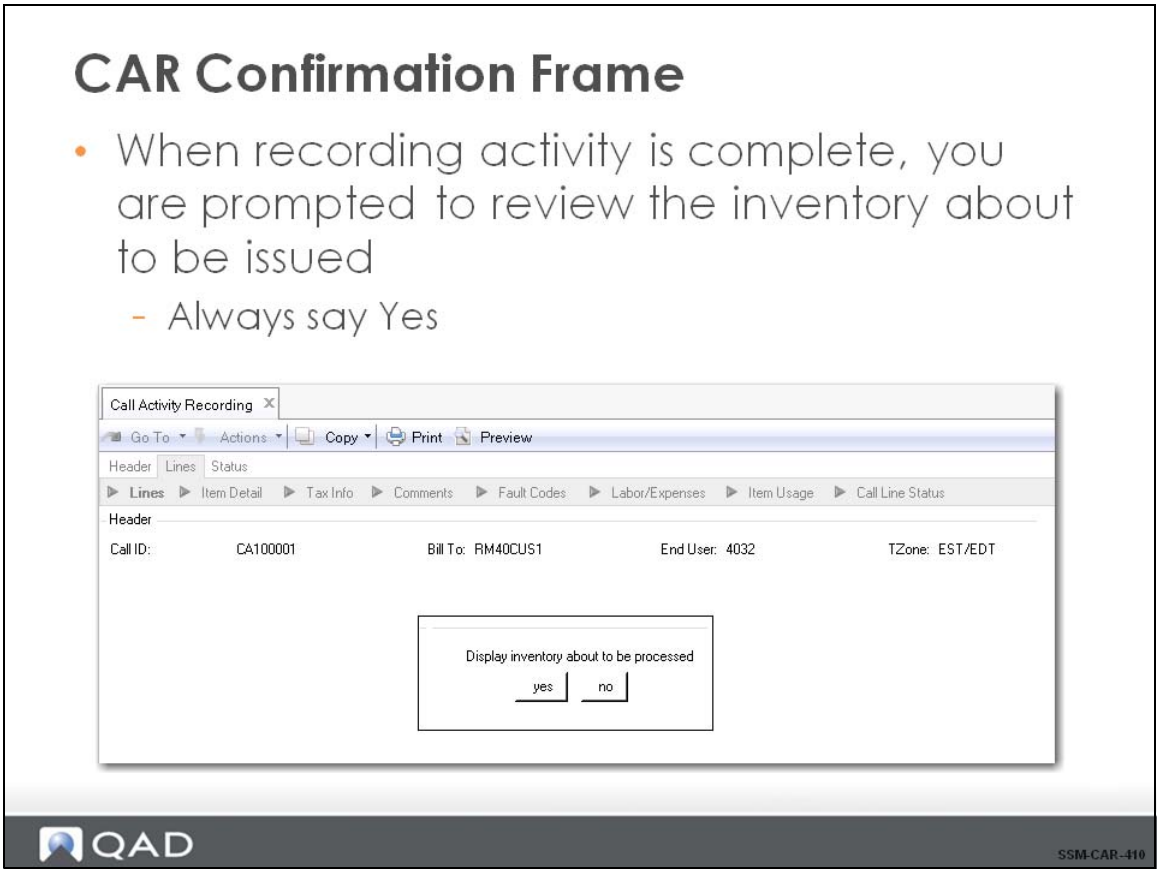
Marking Returns as Pending



Pending returns can be used only for items ordered on an MO. For Pending to be set to Yes, Good must also be Yes, and Scrap must be No. Since the items being returned were taken directly out of inventory and not used, they should still be good, and should be returned to a site/location for good stock.

The pending status is used in Call Activity Recording to mark items ordered on an MO as returned. During a pending return, the return is registered against the call and allocations for the returned items are cleared. However, no inventory transfer takes place. The return must be completed later, using MO Direct/Pending Returns (11.11.8).

CAR Confirmation Frame



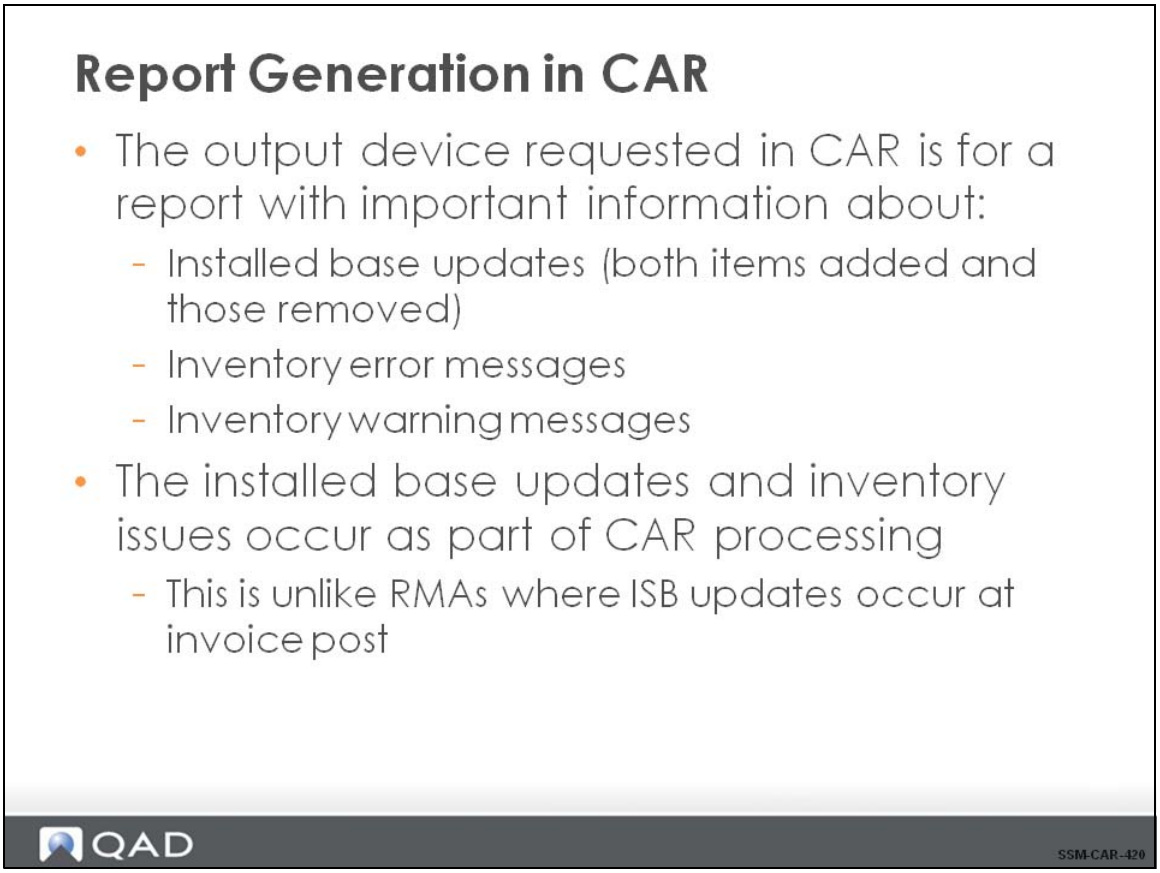
Inventory processing in CAR is similar to a backflush operation. The service activity has already taken place; now you are entering information about labor already performed and items and expenses already consumed. Therefore, the system assumes you want to issue the inventory immediately, once it has been recorded.

When you exit the usage frames, you can optionally view a confirmation frame, listing the items to be issued and returned. It is recommended that you always review the summary information to ensure that the correct parts have been entered and the inventory sites and locations are correct.

If the information does not appear correct, respond with No to the prompt. In this case, you are returned to the Item Selection frame so that you can proceed through the detailed usage frames again and make any needed adjustments.

If you accept the information, the next frame prompts you for an output device.

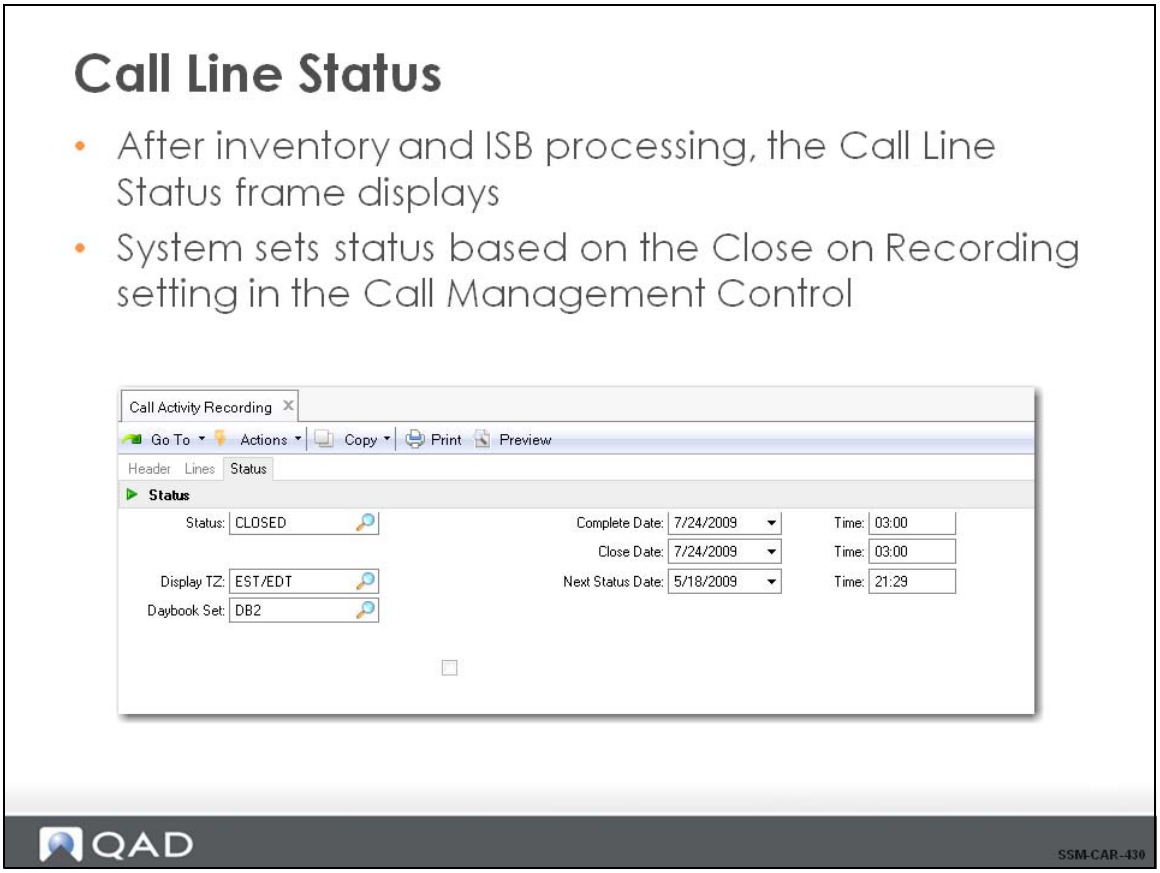
Report Generation in CAR



Inventory issues in CAR are subject to the same rules that govern inventory throughout the system. The location status determines the overissue policy.

If any errors are encountered during the issue process, the report status is set to Hold. You must correct the conditions causing the errors, set the report status to Invoiceable, and reprocess the inventory transactions in CAR before that call line can be set to complete.

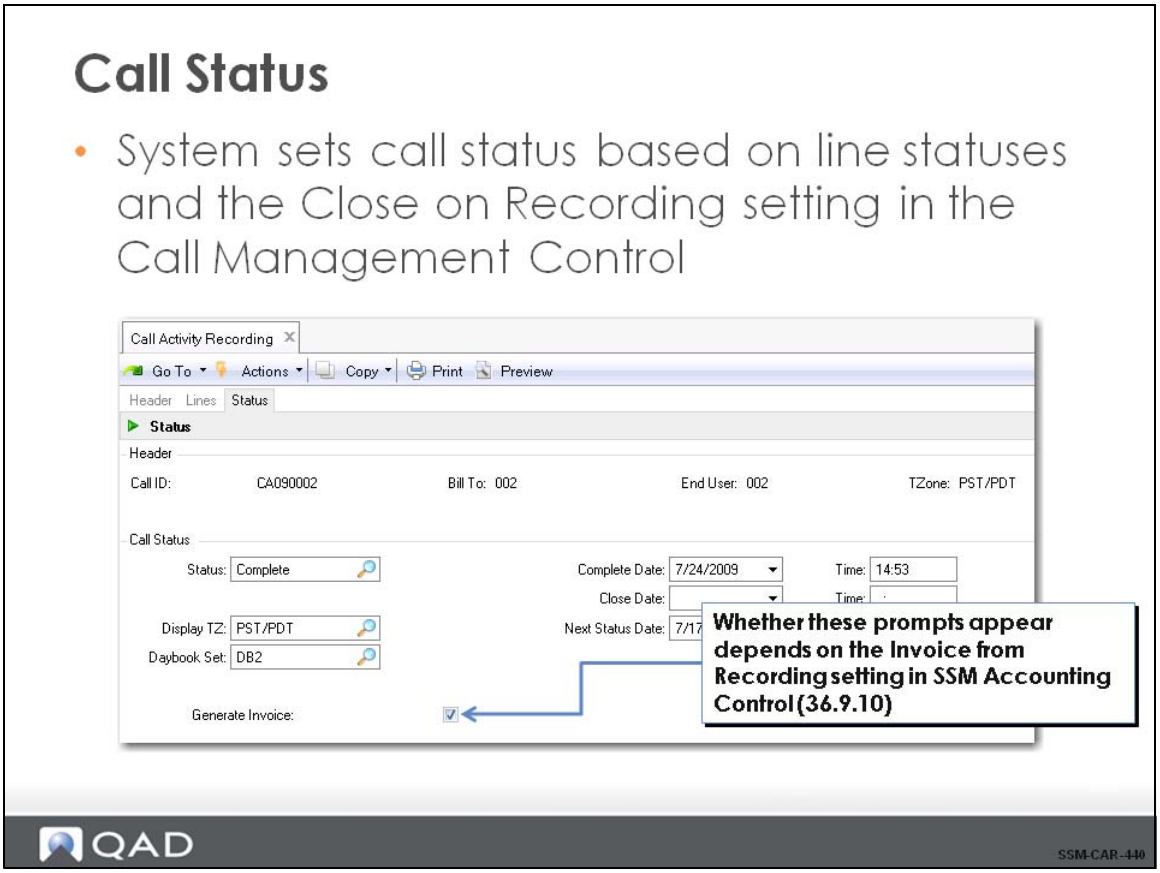
Call Line Status



If all the inventory issues for a line complete correctly in CAR and no other errors are encountered, the system first tries to set the line's status to either complete or closed, depending on the value of Close on Recording.

A line with a complete or closed status is subject to invoicing, as long as it has invoiceable reports. The complete status does not prevent you from recording more activity against a line. You can add to an existing report if needed, or open another report to record more activity. This enables you to progressively invoice for lengthy recording sequences. If the call line status is closed, more activity cannot be recorded against it unless the status is first changed.

Call Status



As the final step in CAR processing, the status of the call is determined, based on the Close on Recording setting in the Call Management Control.

If Close on Recording is Yes and the call status cannot be changed to closed, the system attempts to set its status to complete. If the status cannot be changed to complete, it is not changed. If you attempt to override the current status set by the system by entering either the complete or closed status, an error message displays, pointing out that there are incomplete lines or an open MO.

If you are not ready to invoice the call or do not want it closed for some particular reason, the closed or complete status suggested by the system can be overridden.

Some businesses prefer to have decisions regarding invoicing handled by management personnel, not the engineers or clerks entering data into CAR. Other service organizations prefer to have the call recording and invoicing completed in one process. Call Activity Recording can support either one of these options.

One of the settings in SSM Accounting Control (36.9.10) determines how invoicing is handled. If Invoice From Recording is No, all invoicing must be processed in Call Invoice Recording (11.1.1.15).

If Invoice From Recording is Yes, a Generate Invoice prompt displays in the Call Status frame of Call Activity Recording. If you accept the Yes value for Generate Invoice, a pending invoice is created for all item lines that have a complete or closed status. If the status for the entire call is set to the complete or closed status, then all activity on all lines is invoiced when Generate Invoice is set to Yes.

Exercise 20: Introduction to CAR

The following exercise familiarizes you with Call Activity Recording. As the lesson material has made you aware, CAR covers a broad range of functions. In this and the following activities, you visit CAR several times to explore different areas in more depth.

In this exercise, you are instructed to enter values in only some fields. For those fields that are not included in explicit instructions, you should leave whatever default the system provides, or leave blank if no default is supplied. Press Enter until you reach the next listed field.

Important Prior to starting this exercise, review the Locations assigned to site C1 in Location Maintenance (1.1.18). For locations C-500, C-600, and C-700, ensure that the inventory status code assigned allows for Overissues (A-N-O) - modify the value as necessary.

1. Go to Call Activity Recording (11.1.1.13). Enter the ID of the call created in Exercise 19 on page 327 as the Call ID and click Next twice.

2. You should be in the header frame of CAR. Enter the following values in the listed fields.

Field	Value
Price List	SSM1
Taxable	No
Comments	No
Detail	No

3. Click Next twice to save your changes and to display the Item Selection frame.

4. Select line number 1. Press Enter through the item information until you reach the Report field.

5. Press Enter in the blank Report field and the system automatically assigns the next report number. Record this number here.

   Report: _____

6. In the Item Detail frame, make these changes if needed, then click Next to accept your changes.

Field	Value
Engineer	DEM
BOM Code	Clear this field if it is not blank
Routing	Clear this field if it is not blank
Coverage	No
Fault Codes	No
Update ISB	No

7. Click Next to accept the default WIP product line.

8. Enter the following data in the Labor/Expenses frame.

Note Be aware of the action entries in the Comment column of the table.

Field	Value	Comment
Op	10	Press Enter to accept the default.
Std Op	<blank>	Press Enter to accept a blank Standard Operation code.

Field	Value	Comment
Work Code	Press Enter to accept default	Work Code has defaulted from the work Code attached to the Item Selection frame above. This represents the kind of service work being performed.
Svc Cat	Press Enter to accept default of LABR-REG	The Service Category of LABR-REG has defaulted from the Labor Svc Category field of the Call Recording/Invoicing section of the Call Management Control (11.1.24). This is the minimum setup required to make a service category default into CAR. We will be seeing more sophisticated combinations in later activities.
Quantity	1	This represents in hours the amount of the service category LABR-REG consumed for this operation.
Charge	Accept the default by pressing enter	This value is suggested by the system based on a number of factors. It represents who is responsible for the cost and whether it will be invoiced or not. We will be discussing Charge Codes in detail in a later exercise.
Det	No	Press Enter
Items	No	Press Enter

You have just recorded one hour of standard repair labor reported by engineer DEM. This is the simplest method of using CAR for recording labor consumption.

9 In this step, you will record overtime labor for the same repair call and review the detailed information.

Field	Value	Comment
Op	20	Press Enter to accept the Operation default of 20
Std Op	<blank>	Press Enter to accept a blank Standard Operation code.
Work Code	Tech	
SVC	LABR-OT	Override default value to LABR-OT
Quantity	1	This represents in hours the amount of the service category LABR-OT consumed on this operation.
Charge		The default Charge Code is suggested by the system. Accept the default by pressing Enter.
Det	Yes	Setting Det to Yes tells the system that you want to review and possibly change the detail behind this line. Press Enter.
Items	No	Press Enter.

A frame labeled Labor/Expenses Detail for Op 20 should now be displaying on your screen with detailed information about this operation. In this lesson, you are not going to change any field values. To help you understand what is displayed, the following table highlights some of the key fields.

Field	Value
Engineer	The engineer that actually performed the labor.
Standard Cost	The standard cost from the default Work Center in the Call Recording/Invoicing section of the Call Management Control.
Qty	Quantity of Service Category entered.
Price	Frm the Price List specified in the Call Header.
Covered Amount	The amount of the [Price times the Qty] that is covered under warranty or contract terms and conditions.
Extended Price	The Price times the Quantity recorded minus the covered amount.

Each time you select Det = Yes, you will receive this frame to review the behind the scenes detail.

10 Click Next to accept the defaults.

Now, you will record an expense transaction and review the details.

Field	Value	Comment
Op	30	Press Enter to accept the Operation default of 30.
Std. Op	<blank>	Press Enter to accept a blank Standard Operation.
Work Code		Press Enter to accept the default Work Code.
Svc Cat	Mileage	Replace default value with Mileage.
Quantity	10	This represents the number of units of the service category Mileage consumed at this operation.
Charge		Accept the default by pressing Enter.
Det	Yes	Set Det to Yes to review the detail; press Enter.
Items	No	Press Enter.

The detail for an expense transaction is similar to a labor transaction. Note how the cost for mileage (.43) defaults from price list SSM1 as well as the price (.45).

11 Click Next to return to the Op field. Click Back to exit the Labor/Expenses Frame.

The Item Usage frame should now display. This is where you record the parts used to service the item shown in the Item Selection frame.

Field	Value	Comment
Op	Press Enter to accept the default of 10.	Item usage can be recorded by operation needed. Alternately, all usage can simply be recorded against the first operation
Item Number	C-C001	Actual component item consumed during the repair. Must be an Item Master item. Press Enter.
Work Code		Press Enter to accept the default Work Code.
Qty Used	1	Indicates how many of the component item were used.
Qty. Ret	Accept the default of 0.	CAR enables you to record items removed.
Charge	Accept the default by pressing Enter.	Just as with Labor/Expenses, Charge Codes are suggested by the system.
Det	Yes	Like Labor/Expenses, setting this to Yes causes a detail frame to appear.

Since Det (Detail) is Yes, the Item Usage Detail frame should now display. This, too, has a large amount of detail information. The Site and Location fields in this frame are important because inventory is issued from them.

12 Verify that the site is C1 and the location is set to C-700. Click Next to accept the remaining default information.

13 Click Back to the Item Selection frame.

14 Click Back, and you should receive the message: Display Inventory about to be processed? Press Enter to accept default Yes.

15 A confirmation frame should display all the items that are going to be issued from inventory. If it is correct, you can proceed by accepting the default Yes. Press Enter.

The Output Device frame gives you the opportunity to produce a printed copy of the report generated as part of inventory processing. This report displays informational messages about all the transactions that occur, including labor and expenses, items issued, and updates to the installed base. It also displays any errors encountered.

16 Set Output value to Printer and press Enter.

17 After reviewing the output displayed in a separate output window, click End to dismiss the report.

Congratulations. You have now recorded labor and items used in responding to a service call.

18 You should now be in the Call Line Status frame. Use next/previous processing to display line 1. If all processing was successful, the status of the call line will automatically be set to COMPLETE. Each call line has its own status.

19 Click Back.

You are now in the Call Status frame.

The Call Status frame shows the call status and, if activated, the invoice generation flag. (In this exercise, the invoice generation flag is not present.)

20 Click Next to complete the CAR processing sequence. Return to the menu.

Exercise 21: Closer Look at Details in CAR

The following exercise continues to familiarize you with Call Activity Recording (CAR). We will turn on all of the available frames in CAR so you can see the full suite of capabilities. As with other activities, please accept default values unless told otherwise.

We do not list in the exercise every field on the frame, so after changing a listed field, press Enter or click Next until you reach the next listed field.

1 Go to Call Management Control (11.1.24), enter/verify the listed data.

Field	Value
Fault Codes	Yes
Coverage Window	Yes
Close on Recording	Yes

2 Go to SSM Accounting Control (36.9.10), click Next 3 times and set Invoice From Recording to YES.

3 Go to Call Activity Recording (11.1.1.13). Enter the ID of the call created in Exercise 19 and click Next twice.

4 The cursor should be at the Price List field; tab to Detail field and set flag to Yes.

Click Next twice.

The Item Selection frame should now display.

5 Add a second line for part number C-S001, serial number 113A. Press Enter until you reach the Report field. Press Enter again and the system assigns the next report number.

6 In the Item Detail fame, review the values in the following fields. Then click Next.

Field	Value
BOM Code	Clear this field if it is not blank.
Routing	Clear this field if it is not blank.
Coverage	Yes. Did this default to Yes? Do you know why?
Fault Codes	Yes. Did this default to Yes. Do you know why?
Update ISB	Yes.

The Installed Base Detail frame should now display. Do you know why this frame has appeared?

Earlier you set Update ISB to Yes, indicating that this item should be added to the installed base. The frame that is presented is similar to the one that appears in sales orders when SO Edit ISB Defaults is set to Yes (refer to Exercise 3: Updating the Installed Base from a Sales Order on page 55.

The item being added to the installed base is the item reported on the call.

Since the call item C-S001 does not have a default warranty code associated with it, you are given the opportunity to assign one when you add the item to the installed base.

7 Enter W90 in the Warranty Code field and enter in the correct Warrant End Date.

8 Select Yes to the message prompt Override Service Type with Warranty Type.

9 Click Next to accept the default WIP Product Line frame.

The Coverage frame now appears because the Coverage flag is set to Yes in the Item Selection Detail frame. This frame shows many pieces of information related to the item being serviced.

10 To dismiss the coverage window click Next. The Fault Codes frame should display. Fault codes are optional user-defined generalized codes. Exit the Fault Codes frame by clicking Back.

11 The Labor/Expenses frame now displays for recording labor/expense usage. Enter the following data.

Field	Value	Comment
Op	10	Press Enter to accept the default.
Std. Op	<blank>	Press Enter to accept a blank Standard Operation code.
Work Code		Press Enter to accept the default Work Code.
Svc Cat		Press Enter to accept the default of LABR-REG.
Quantity	1	This represents in hours the amount of the service category LABR-REG consumed for this operation.
Charge	Accept the default.	WARRANTY indicates that the service is covered under warranty terms.
Det	Yes	Press Enter. In this exercise, Detail has defaulted to Yes. Do you remember why? It is because the Detail flag was set to Yes on the header frame, this causes each usage line to default to Yes.
Items	No	Click Next to review detail.

Notice that the detail frame has appeared again. Click Next to return to the Labor/Expenses frame. Continue on to the Item Usage frame.

12 The Item Usage frame should now display. This is where you record the parts used to service the item shown in the Item Selection frame.

Field	Value	Comment
Op	Press Enter to accept the default of 10.	Item usage can be recorded by operation, if needed. Alternately, all usage can simply be recorded against the first operation.
Item Number	C-C002	Actual component item consumed during the repair. Must be an Item Master item.
Work Code		Press Enter to accept the default Work Code.
Qty. Used	1	Indicates how many of the component items were used.
Qty. Ret	Accept the default of 0.	CAR enables you to record items removed.
Charge	Accept the default by pressing Enter.	Just as with Labor/Expenses, Charge Codes are suggested by the system.
Det	Yes	Like Labor/Expenses, this defaults to Yes because you set the Detail flag to Yes in the CAR header. Click Next to display the Item Usage Detail frame.

13 The Item Usage Detail frame displays. Verify that the site is C1 and the location is C-700.

14 Click Next to return to the Item Usage frame.

15 Click Back until the Item Selection frame is displayed.

16 Click Back and you should receive the message: Display Inventory about to be processed? Press Enter to accept the default Yes.

A confirmation frame should display all the items that are going to be issued from inventory.

17 If it is correct, you can proceed by accepting the default Yes. Press Enter.

18 Set output value to Printer and click Next. Review the output for any errors.

19 Click Back to the Call Line Status frame.

If all processing was successful, the status of the call line 2 is automatically set to complete. Each call line has its own status.

The Call Status frame shows the call status. In this exercise, the invoice generation flag displays on the screen. Do you remember why? (Hint: Think back to the Call Management Control.)

20 Click Next to generate the invoice; return to the menu.

Exercise 22: Generating BOMs/Routings in CAR

In this exercise, you see how service BOMs and Routings are applied in Call Activity Recording. To integrate these concepts with those touched upon in earlier chapters, this exercise combines a number of features we have touched upon but not actually tried.

The exercise follows these steps:

- Create an installation BOM for the C-S001
- Create a standard operation
- Use the standard operation in an installation routing for C-S001
- Define the C-S001 to require an install call and specify the new BOM and Routing in Service Item Maintenance
- Set up call defaults for the install work code
- Create an install call for a C-S001 in Call Maintenance
- Access the call in Call Activity Recording and review how the operations and items are loaded in CAR
- Review the impact of recording activity against contract limits

Create an Installation BOM

For purposes of this exercise, we assume that the same items that required for PM are needed for an installation call.

1 Go to Service Structure Copy (11.19.9).

2 Enter PMC-S001 for the Source Structure and INC-S001 for the Destination Structure.

3 Click Next twice to create the new structure. Press Enter to Go to Yes when the confirmation message displays.

4 After reviewing the contents of the new BOM, return to the menu.

Create a Standard Operation

Before creating an installation routing, we create a standard operation to be used for installations.

1 Go to Service Std Operation Maint (11.19.21).

2 Enter the listed data in the specified fields; leave the default value in the remaining fields. Then click Next to save your changes

Field	Value
Standard Operation	INSTALL
Description	Install Product on-site
Work Center	SSM
Run Time	2.0
Service Category	Labr-Reg

3 Return to the menu.

Create an Installation Routing

1 Go to Service Routing Maintenance (11.19.17).

Enter the listed data in the specified fields; accept all other defaults. Notice how the other fields fill in after a standard operation is specified. Remember to click Next to save your changes.

Field	Value	Value	Value
Routing Code	INC-S001	INC-S001	INC-S001
Operation	10	20	30
Standard Operation	SETUP	INSTALL	CLEANUP
Service Category	Labr-Reg	Labr-Reg	Labr-Reg

2 Return to the menu.

3 Go to Service Routing Inquiry (11.19.18), from your menu. Enter INC-S001 in the Routing Code field.

4 Click Next twice to generate a report to the terminal. After reviewing the routing you have created, return to the menu.

Update Service Attributes

In this part of the exercise, you set up the C-S001 to require an installation call and associate the BOM and Routing codes you just created with it.

1 Go to Service Item Maintenance (11.3.7).

2 When the maintenance screen displays, enter C-S001 in the Item Number field, and click Next.

3 Review the Item Service Data and set Installation Call to Yes for the C-S001. Click Next to access the Service Structure Data frame.

4 Key in INC-S001 in the Installation BOM and Installation Routing fields. Click Next to save your changes; return to the menu.

Update Control Defaults

To make creating a call easier, change a few defaults in the Call Management Control.

1 Go to Call Management Control (11.1.24) and enter the listed data.

Field	Value
Schedule New Calls	No
Fault Codes	No
Coverage Window	No

2 Go to SSM Accounting Control (36.9.10) and update Invoice From Recording to No.

Create an Install Call

Normally, installation calls are created automatically during invoice post of sales orders for items requiring an installation. To simplify the process, manually create a call in Call Maintenance using the install work code. As part of this exercise, review some of the features of Call Maintenance discussed in Chapter 8.

1 Go to Call Maintenance (11.1.1.1). When the maintenance screen displays, enter the following data in the listed fields and click Next.

Field	Value
Call ID	<blank>
Serial	

The serial number you entered was used earlier when you created a contract in Exercise 10: Using Service Types on page 156. The system displays a pop-up listing the contract information.

2 Select the contract by pressing Enter. The End User and Item numbers are filled in automatically. Write down the contract number here for reference and click Next.

Contract Number: _____

3 Respond with No when you are prompted to display other calls for this end user. Click Next to get to Call Default pop-up.

4 When the Call Defaults pop-up displays, change the default TECH to INSTALL; then click Next.

5 Notice that the new call has been created with the call defaults you set up previously. Write down the Call ID here.

Call ID: _____

Most of the fields of the call header, except for Assigned, have default values.

6 Enter JGB in this field; an engineer must be assigned to do Call Activity Recording.

7 Click Next to display the Travel and Estimated Time pop-up.

Three hours, the default you set up in Call Default Maintenance, displays as the default estimated time.

8 Click Next to display the Item Service Structure Detail pop-up.

The installation BOM and Routing you associated with the item in Service Item Maintenance should display.

9 Complete the call and return to the menu.

Access the Call in Call Activity Recording

Now you are ready to see how the BOM and Routing are exploded in Call Activity Recording.

1. Go to Call Activity Recording (11.1.1.13). In the Call ID field, enter the ID of the installation call from the previous task. Click Next to get through the header frames.
2. Press Enter through the call line fields to reach the Report field. Press Enter again on the blank Report field and the system will supply a new report number.

   Notice the location associated with the engineer to be used for issuing inventory. The installation BOM and Routing displayed will be exploded as part of CAR processing.
3. Set Coverage to Yes to review the contract coverage for this call.
4. Click Next to display the Installed Base Detail frame. Clear the Warranty Code field and click Next.
5. Accept the default WIP product line. The Coverage Information frame displays.
6. Click Yes to any Override prompt.

   You will notice a slight delay as processing occurs. At this point, CAR is exploding the BOM and routing attached to the call line and generating item and labor/expense usage records automatically, so you do not have to do it manually. In a moment the Labor/Expense Detail frame will display. The system displays the next operation to be created. This is 40, since the install routing already had routing steps 10, 20, and 30.
7. Verify that the Charge Code is set to Contract for each operation.

   Use Next/Previous to scroll through the usage records to see the three operations. Stop at Op 10. Notice how the Items flag is set to Yes. The items on the installation BOM have been loaded as item usage for the first operation. Ensure the Charge Code is set to Contract for each Operation and that each Operation has a value in the Covered amount field (found by ticking Det and then reviewing the specific information associated with the Operation).
8. If there is no amount in the covered field, key in a value of $20.00.

   Imagine that during this call, the engineer had very little cleanup to do. As a result, it took 1 hour to complete rather than 3 hours. To make the necessary modification:
9. Enter 30 in the OP field and click Next.
10. Go to the Quantity field and update the value to 1. Save the change.
11. Continue on until the Item Usage frame is displayed.
12. Press Enter to access the Item Number field. Use Next/Previous to display the item usage records.

    There should be two of them corresponding to the items specified on the installation BOM: C-C005, C-C006. Verify that the Charge Code is set to Contract for each item - if you receive a message while processing that the limit has been exceeded remove item C-C005; ensure the site is set to C1, but the location is blank
13. Click Back to display the Item Selection frame. Click Back again and you should receive the following question.

    Display inventory about to be processed.

Accept the default Yes.

14 A confirmation frame should display all the items that are going to be issued from inventory. If it is correct, you can proceed by accepting the default Yes.

15 Set output value to Printer, click Next and review the output for any errors.

16 Click Back and you should now be in the Call Line Status frame. If all processing was successful, the status of the call line is automatically set to COMPLETE.

Note If you receive a message that the call line can't be set to Complete, review the status of the report. If the Status field has a status of H (Hold) then it can't be completed/invoiced. If this is the case, set the Status field to I (Invoiceable) and re-process.

17 Click Back and you are at the Call Status frame which is now COMPLETE; click Next to complete processing. Return to the menu.

Instead of Complete was the status set to Closed automatically? If so, do you know why? (Hint: check the Call Management Control file)

Review Contract Limit Consumption

When activity is recorded for an item on a contract, the system keeps track of the consumption of amounts related to the contract limits. In this task, review the effect of the activity you just recorded.

1 Go to Limits Consumption Inquiry (11.5.13.21.4).

2 Enter the contract number you recorded on earlier in this exercise. Generate a report to Page.

3 The first screen displays header limits. You can tell this because no line level information is filled in at the top. In this display, the Used/Unposted and Consumed columns are all zero.

4 Click Next to continue. Notice the information at the top that relates these limits to the item C-S001 with an end user of C-EUMDI1. In this display, look carefully at the amounts in the Used/Unposted column. This amount of activity was recorded during your previous session in CAR.

5 Continue to display limits for line 2 on the contract; then return to the menu.

Exercise 23: Returning Items in CAR

The following exercise is intended to familiarize you with the item return capability provided with Call Activity Recording. This capability supports exchanges/returns performed as part of the repair activity.

Prior to beginning this exercise, we must first verify that the correct values have been set up in the Default Site Maintenance program. This program provides the appropriate site/location values for inventory returned by a customer, depending upon the disposition of the returned inventory. For example, if it can be Repaired, or must be Scrapped.

Go to Default Site Maintenance (11.21.13).

Enter the following values in the specified fields:

Field	Value
Product Line	<blank>
Service Group	<blank>
Work Code	<blank>
Item Number	<blank>
Area	<blank>
Return Site	C1
Return Location	Return
Spares Site	C1
Spares Location	C-500
Scrap Site	C1
Scrap Location	C-500
Repair Site	C1
Repair Location	Repair

Mark Item as Repairable

Typically, items are returned rather than just being thrown away, because they can be refurbished. CAR supports this by defaulting a return quantity when a repairable item is returned.

1. Go to Service Item Maintenance (11.3.7).
2. Enter the following values in the specified fields.

Field	Value
Item Number	C-C001
System Type	O (for Other)
Repairable	Yes

3. Save your changes; return to the menu.

Return Item in CAR

In this task, return an item for credit, using the price list and return status set up in Activities 6 and 7.

1 Go to Call Activity Recording (11.1.1.13).

2 Enter the ID of the call created in Exercise 22.

If the call has a status of Closed reset both the line and then the call status to Open so that you can edit the call. At the header level, ensure that the price list is set to SSM1 in the Price ID field.

3 Click Next until you reach the Item Selection frame.

4 In the Item Selection Frame, select line 1 of the call, and answer Yes to the warning message about an invoice having been generated to reach the Report field.

5 Clear the Report field; then press Enter for the next Report number.

6 Go to the Labor/Expense frame and then proceed to the Item Usage frame. In the Item Usage frame, enter the following data in the appropriate fields.

Field	Value	Comment
Op	10	Accept default
Item Number	C-C001	Notice the repairable warning message at the bottom of the screen.
Work Code	Accept default	
Oty Used	1	
Qty Ret	1	Enter 1 if it does not default to 1
Charge	Accept default	Enter Contract if it is blank.
Det	Yes	

7 Click Next to display the Item Usage Detail frame.

8 Click Next again to display the Returned Items Detail frame.

Notice that the status has defaulted to GOOD. Do you remember where this status came from? If not, review the field help. Notice also that the location listed is RETURN and that the Exchange Price is zero.

9 Change the Status to EXCHANGE, and press Enter.

Notice that the location changed to REPAIR. Do you know why?

Notice that the exchange price of $30.00 has defaulted into the Exchange Price field. The system has found the exchange price that you set up in Exercise 7: Creating a Price List on page 111. You can override the price, if needed.

For now, leave the price as is, and return to the Op field in the Item Selection Frame.

10 Click Back twice so you receive the question.

11 Display inventory about to be processed. Accept the default Yes.

On the inventory confirmation screen, notice the issue and the return transactions. Issues are indicated by the Fr (from) and returns by the To. Accept the displayed information.

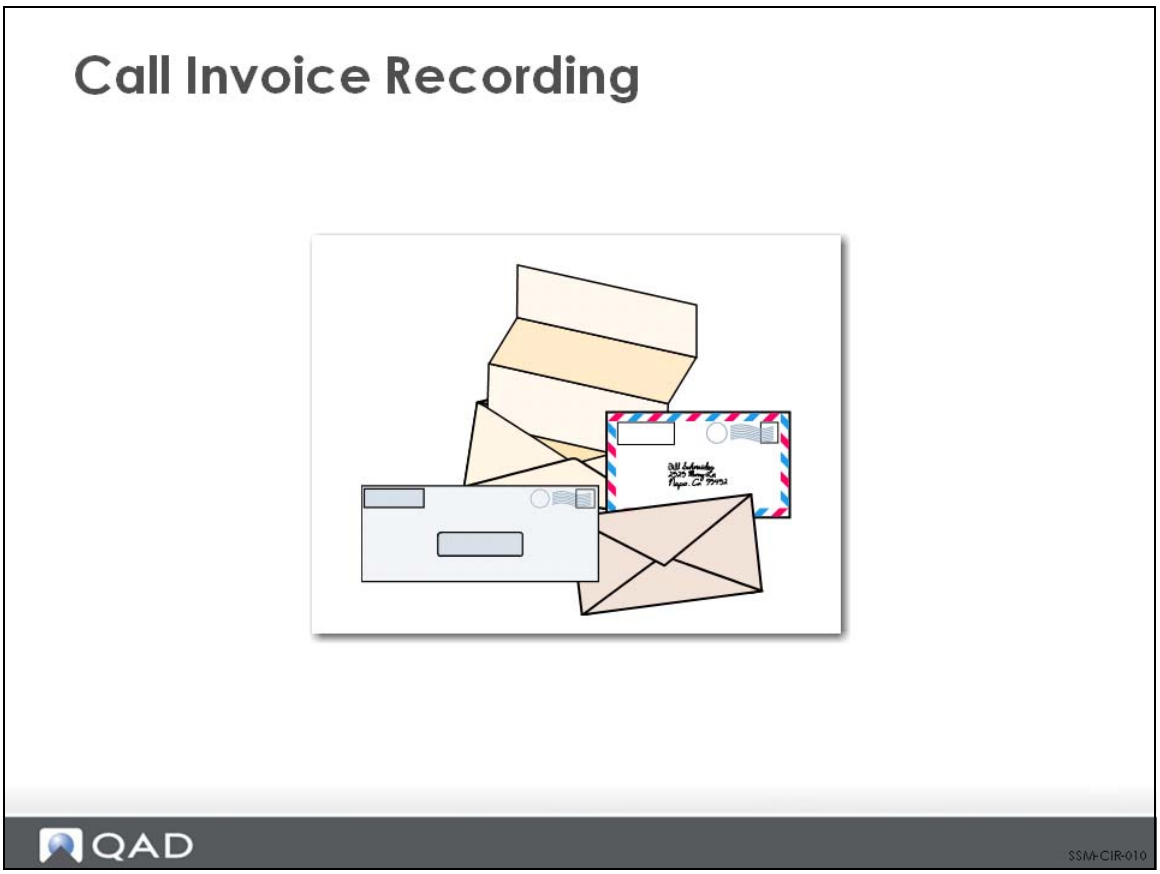
12 Set the output device to Printer; review the output to verify successful completion of the transactions.

13 In the last frame, verify that the Generate Invoice field is not ticked - we will invoice this call in the next exercise.

Chapter 12

Call Invoice Recording

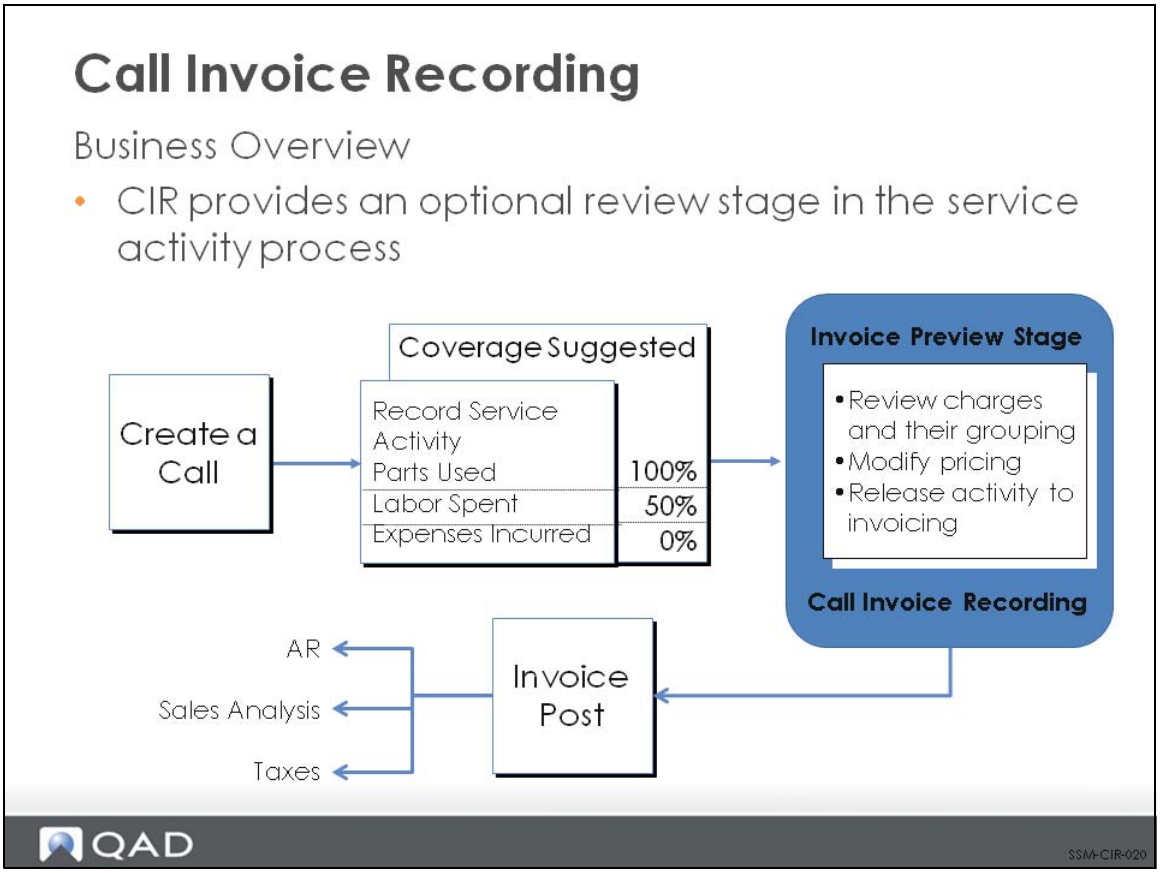
Overview



The features of Call Invoice Recording (CIR) complement and complete those of Call Activity Recording. With CIR, invoice detail for calls can be created, modified, and reviewed. A general overview of the totals by charge code and invoice sort is also available. Labor, expense, and item costs are displayed along with pricing, the line total, total cost, and margin percent.

Multiple items from a single call can be adjusted and processed on one invoice. Once the review is completed and adjustments made, you can print a draft invoice for final review. The presentation of information on the printed invoice can be managed by setting flags for either detail or summary invoice lines.

Call Invoice Recording - Business Overview



This figure illustrates where Call Invoice Recording fits in the call management life cycle.

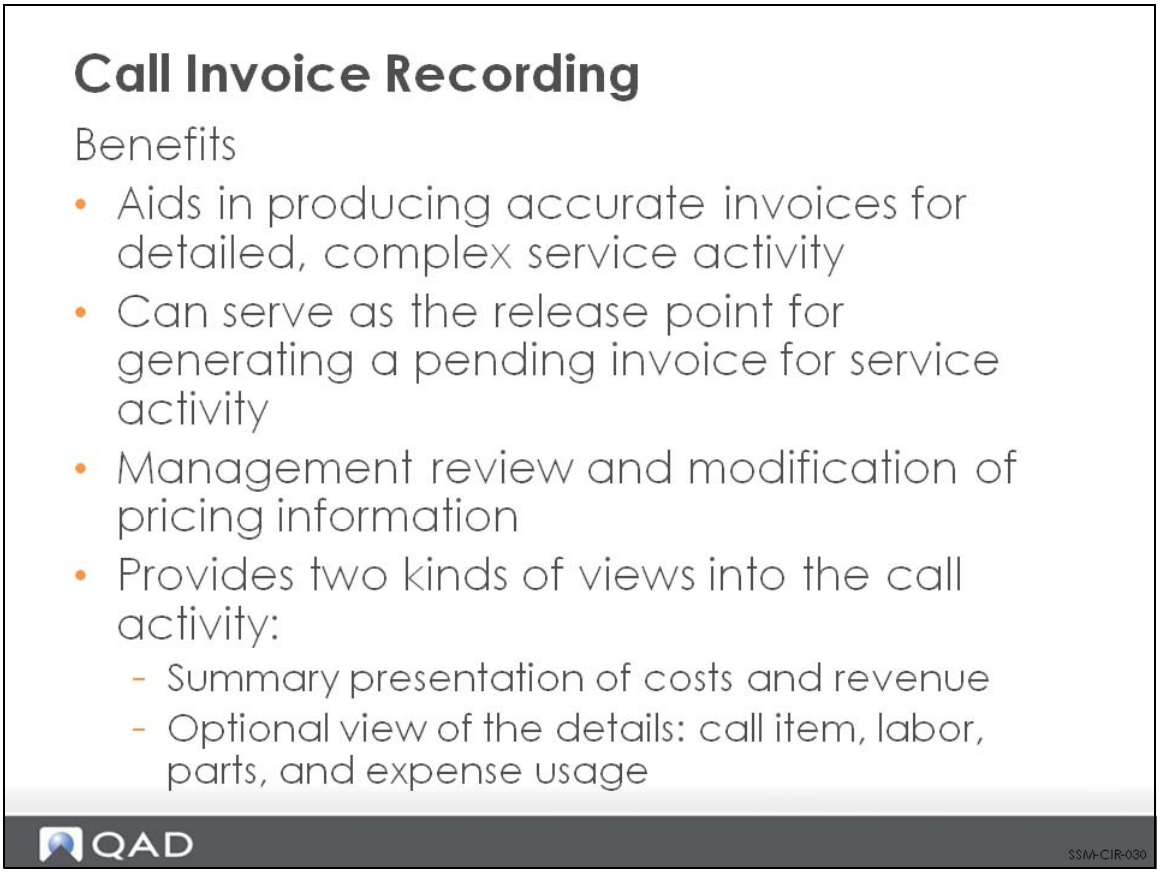
1 A call is created using any of the methods available on the system.

2 Service is provided to meet the requirement of the call and activity is recorded in Call Activity Recording. A pending invoice can be generated at the end of CAR, or later in CIR.

3 An invoice is generated and reviewed in Call Invoice Recording. Changes to pricing and other minor modifications can be made.

4 The invoice is printed and posted using standard sales order invoicing functions.

Call Invoice Recording - Benefits

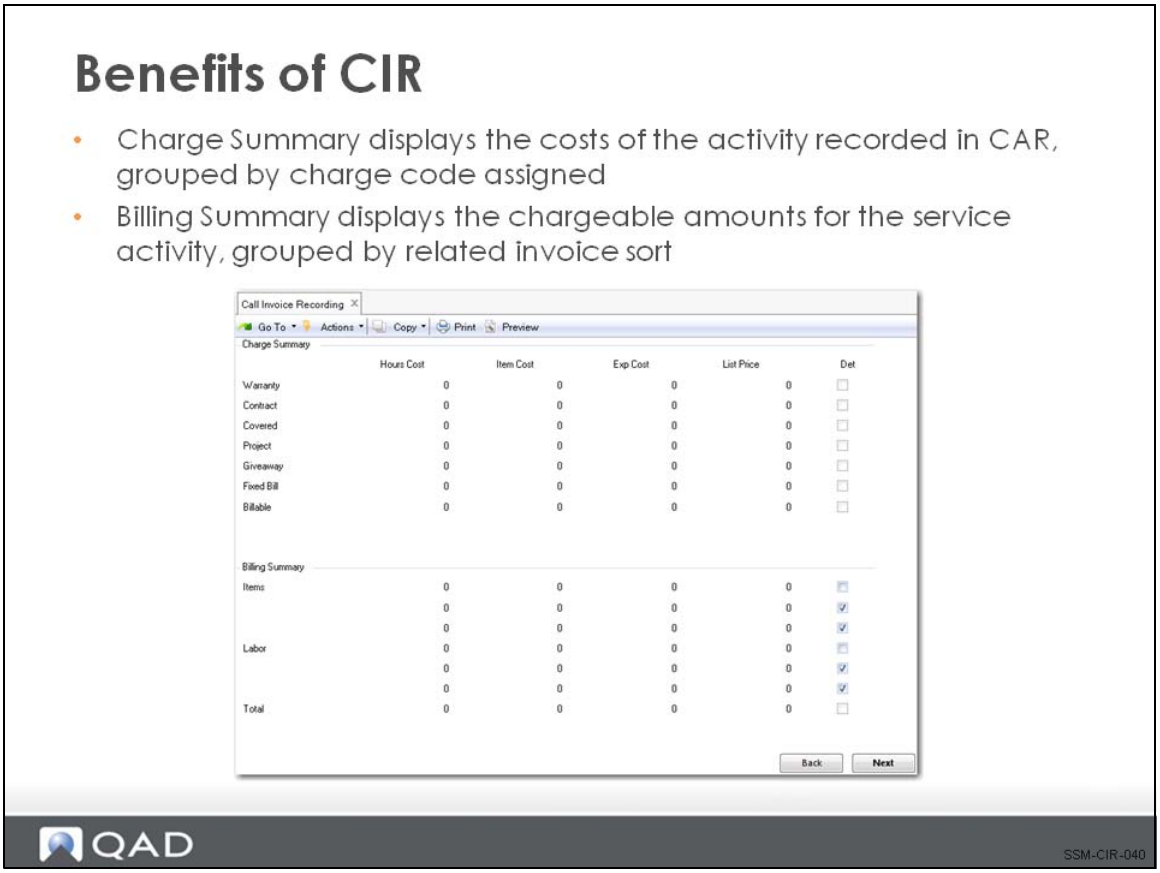


Call Invoice Recording is a complementary function to Call Activity Recording. It is especially important for businesses that do not invoice directly from CAR. But all users will find the high level overview of costs a useful management feature.

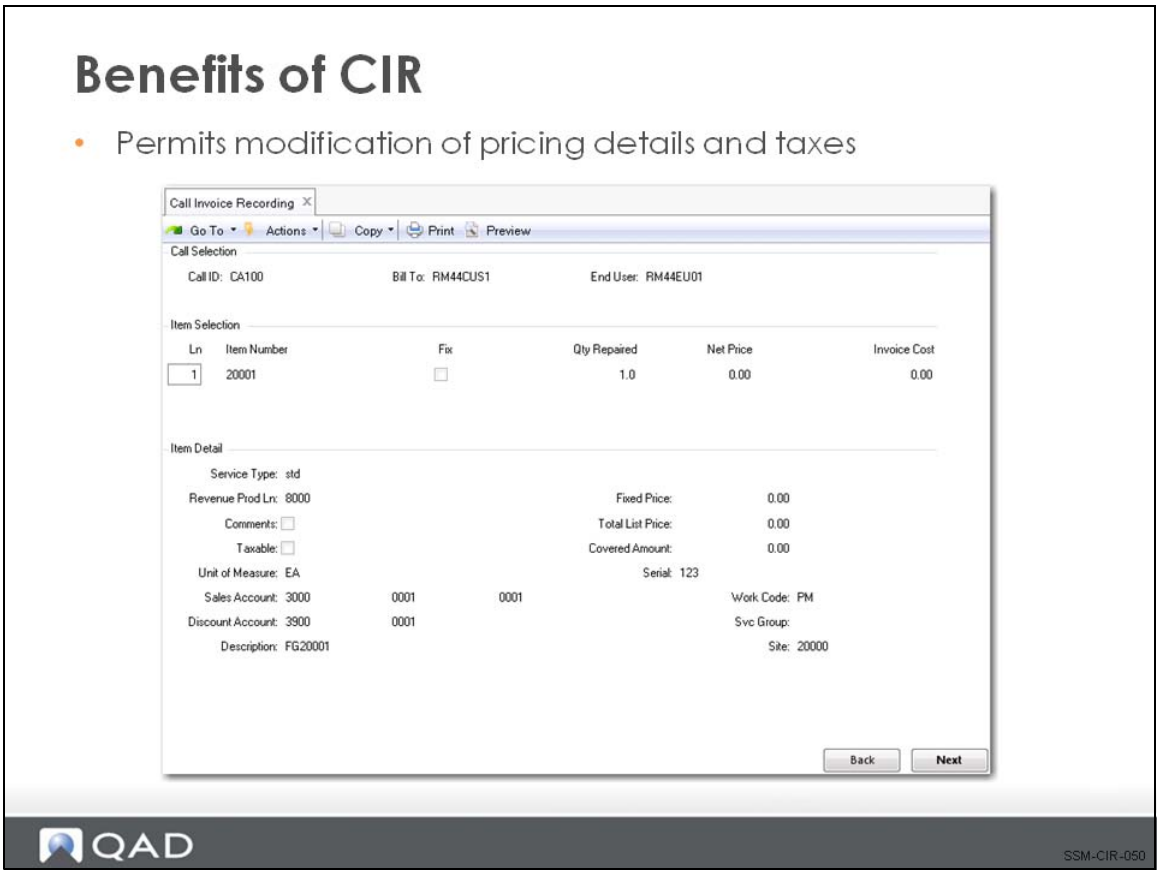
The Invoice From Recording field in SSM Accounting Control (36.9.10) enables management to control where pending invoice records can be created. If this field is set to Yes, the individuals recording call activity in CAR can generate the corresponding invoice. If this field is set to No, then Call Invoice Recording is the only place invoices are generated for call activity.

Call Invoice Recording gives supervisory personnel a tool for reviewing call activity on a call-by-call basis. Summary screens display costs and invoiceable amounts arranged by invoice sort and charge code type. Details for each item on the call can be reviewed, and pricing modifications can be made. Modifications to prices are reflected in CAR when the call records are reviewed. Call activity details are displayed in frames that are very similar to those used in CAR.

Benefits of CIR



Using CIR, managers can ensure that all information is correct and that there are no data entry errors or needed adjustments before an invoice is printed. Standard sales order trailer information can also be reviewed and updated. If any changes are made in CIR, the invoice is regenerated automatically when the program is exited.

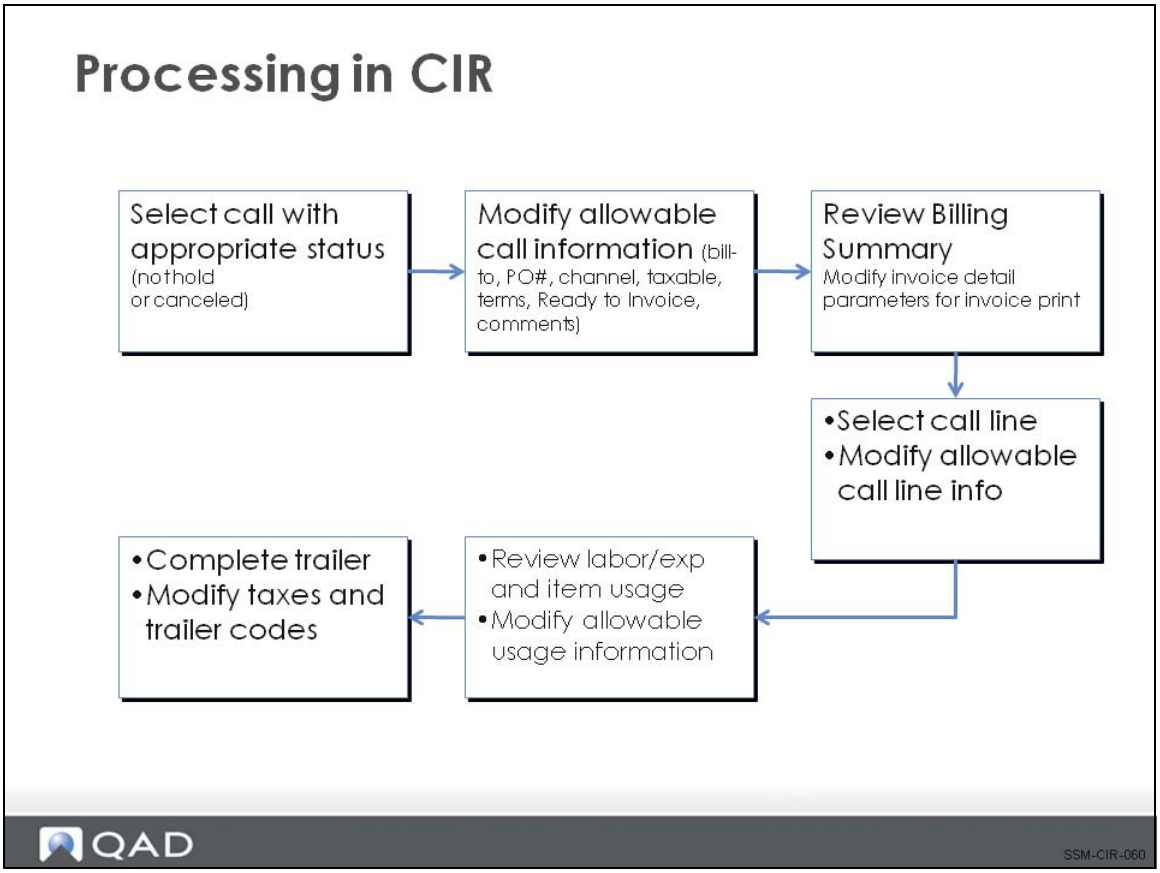


The information displayed in Call Invoice Recording screens is based on the activity recorded and codes used in Call Activity Recording. Some modifications to currency amounts can be made in CIR; however, more fundamental changes must be made in CAR and the invoice regenerated based on those changes.

For example, item issues take place in CAR. Changes cannot be made to item quantities later in CIR, since this would lead to errors in actual inventory amounts. Similarly, charge codes, work codes, and service categories cannot be changed in CIR, since they control the underlying detail that is being summarized in CIR. For this reason, many of the fields in CIR are display only and cannot be modified.

Pricing information is the main kind of data that can be modified in CIR. List price, net price, exchange price, and covered amount can be changed. Any changes made to prices in CIR are reflected in CAR. If the covered amount is changed and contract limits are effective, contract consumption is recalculated.

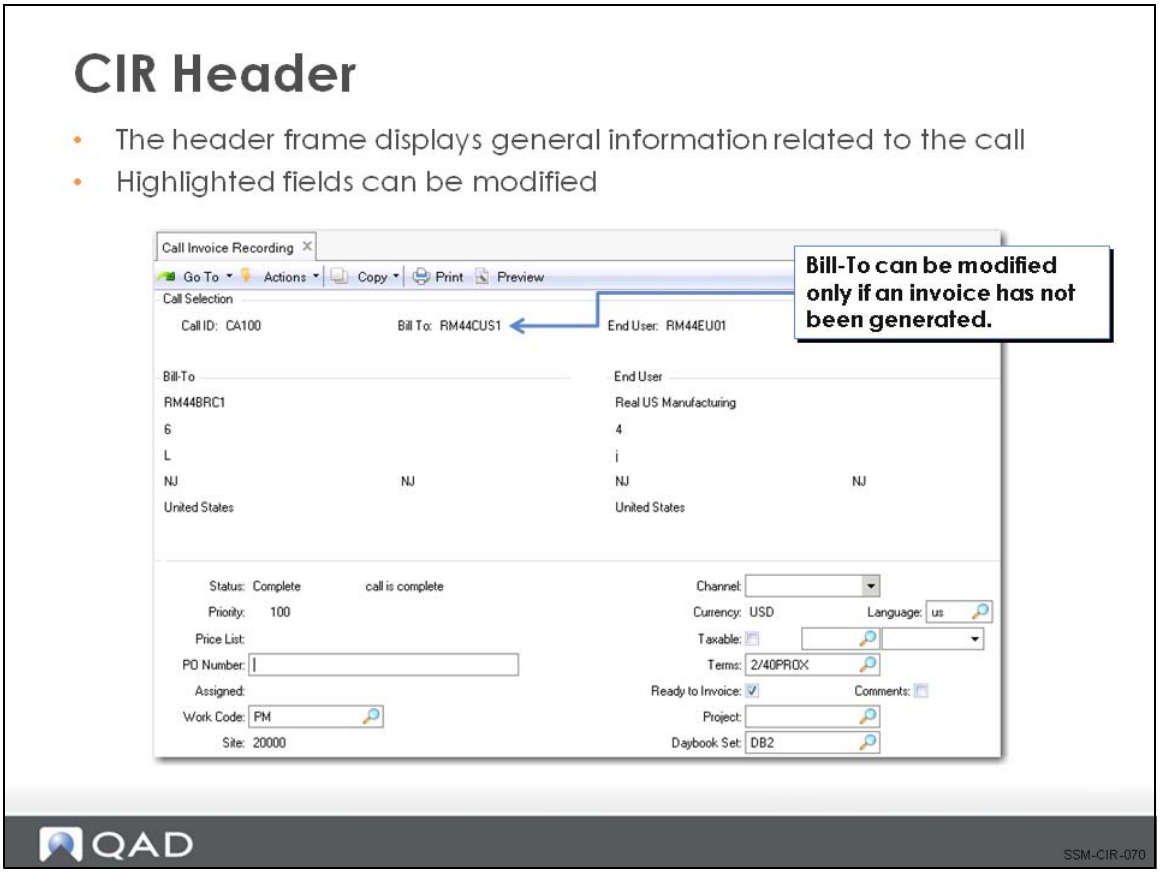
Processing in CIR



This figure outlines the main processing steps in Call Invoice Recording:

- First, a call is selected and header information can be reviewed and modified.
- Next, the summary frame displays with a global view of costs and billing for the call.
- You can then select a particular line for review and view the labor, expense, and item usage details as recorded in CAR.
- After exiting the item selection screens, you can update trailer codes and taxes to finalize the invoice amount.

CIR Header



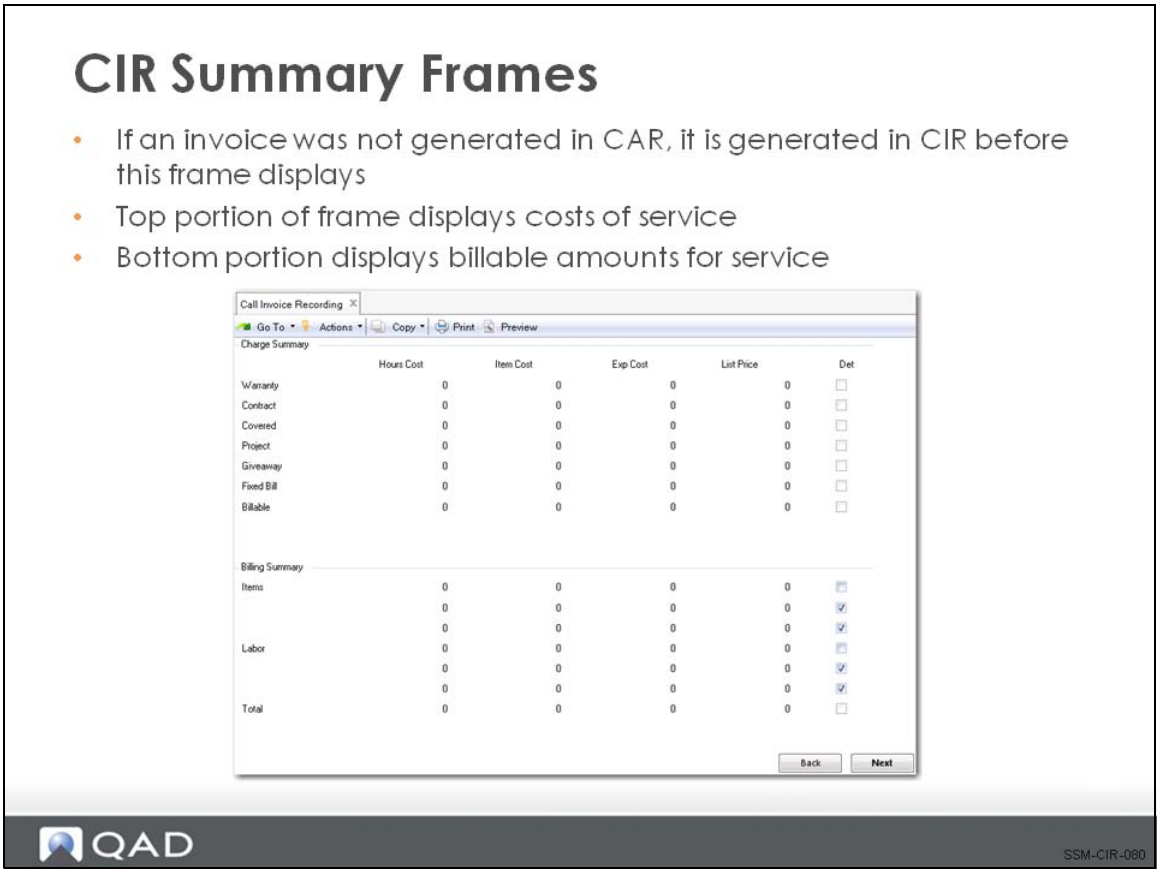
In order to access a call in CIR, it must meet two conditions:

- It must have a valid status; it cannot be on hold or canceled
- It must have at least one line with a complete status and an invoiceable report
  - Calls that do not have at least one complete line item are not ready for invoicing

Most of the fields in the header frames display information associated with the call record and updated in Call Activity Recording. Some of the fields (End User, Price List, Assigned, Work Code, Priority, Status, Site, Description, and Currency) are display only.

The PO, Channel, Language, Taxable, Terms, Ready to Invoice, Invoiced, Invoice Number, and Comments fields can be updated. Except for Ready to Invoice and Invoiced, these fields all default from Call Activity Recording and have exactly the same significance.

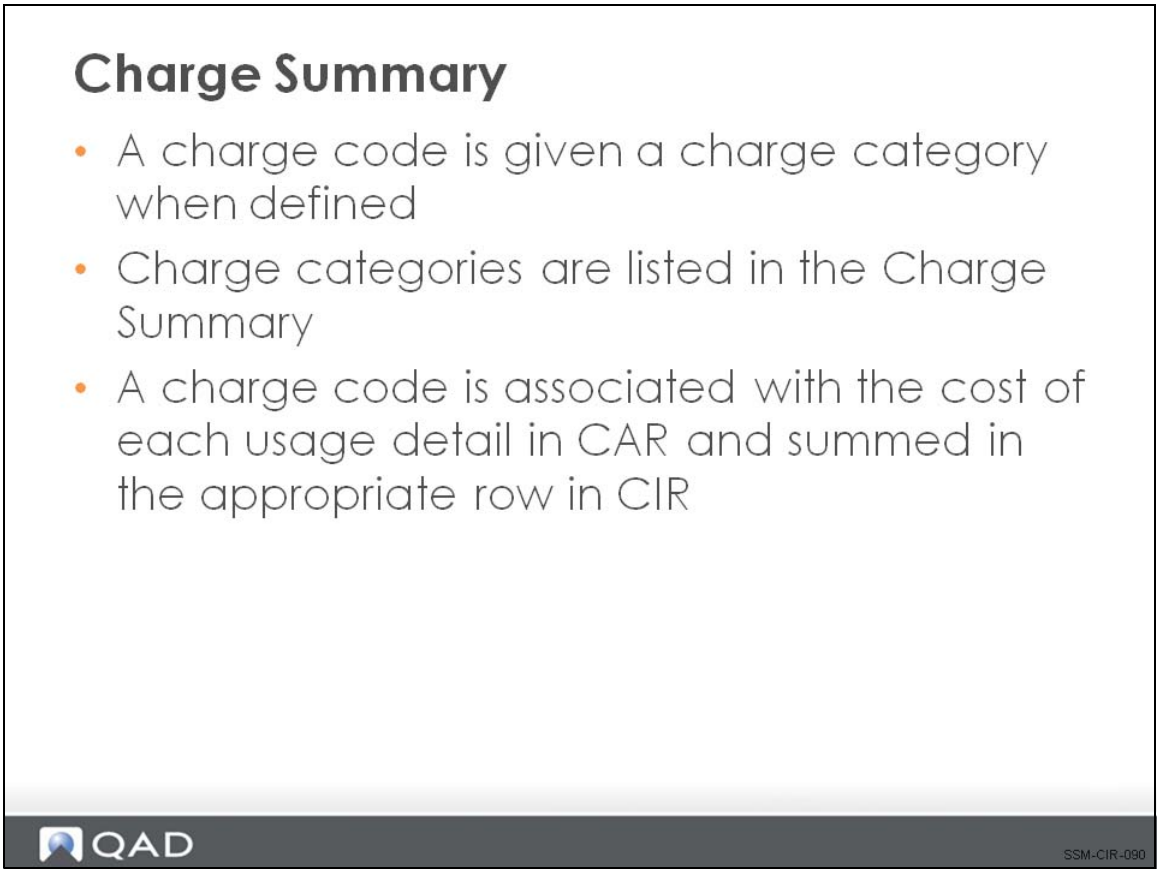
CIR Summary Frames



At the beginning of the Call Invoice Recording screen sequence, a summary screen displays. This summary is intended to give a brief, high-level overview of activity in CAR and the invoice amounts that have resulted from it. This is only a summary, and does not include all relevant information. To fully understand how the summary was built, you must view the detailed information.

If an invoice was not generated from Call Activity Recording, entering the summation screen generates invoices for any call line items that are complete or closed and have invoiceable reports.

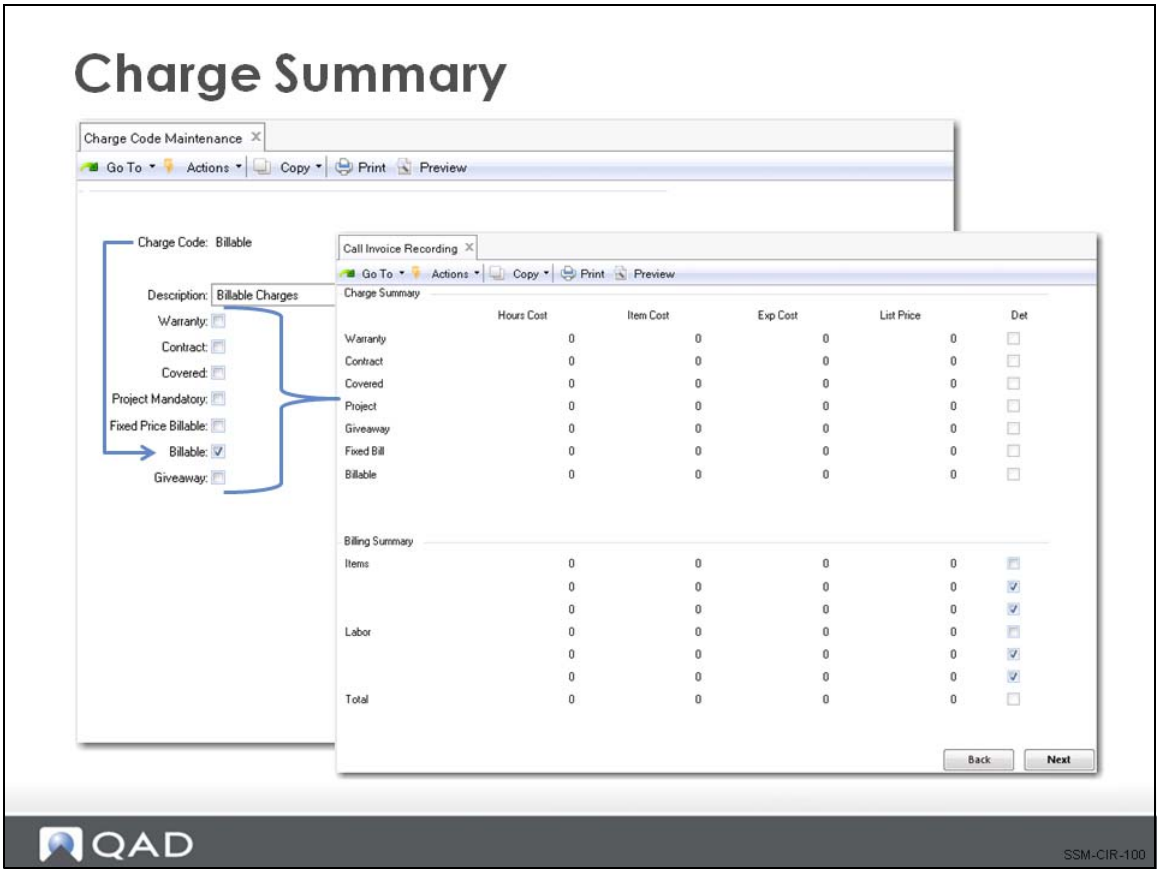
Charge Summary



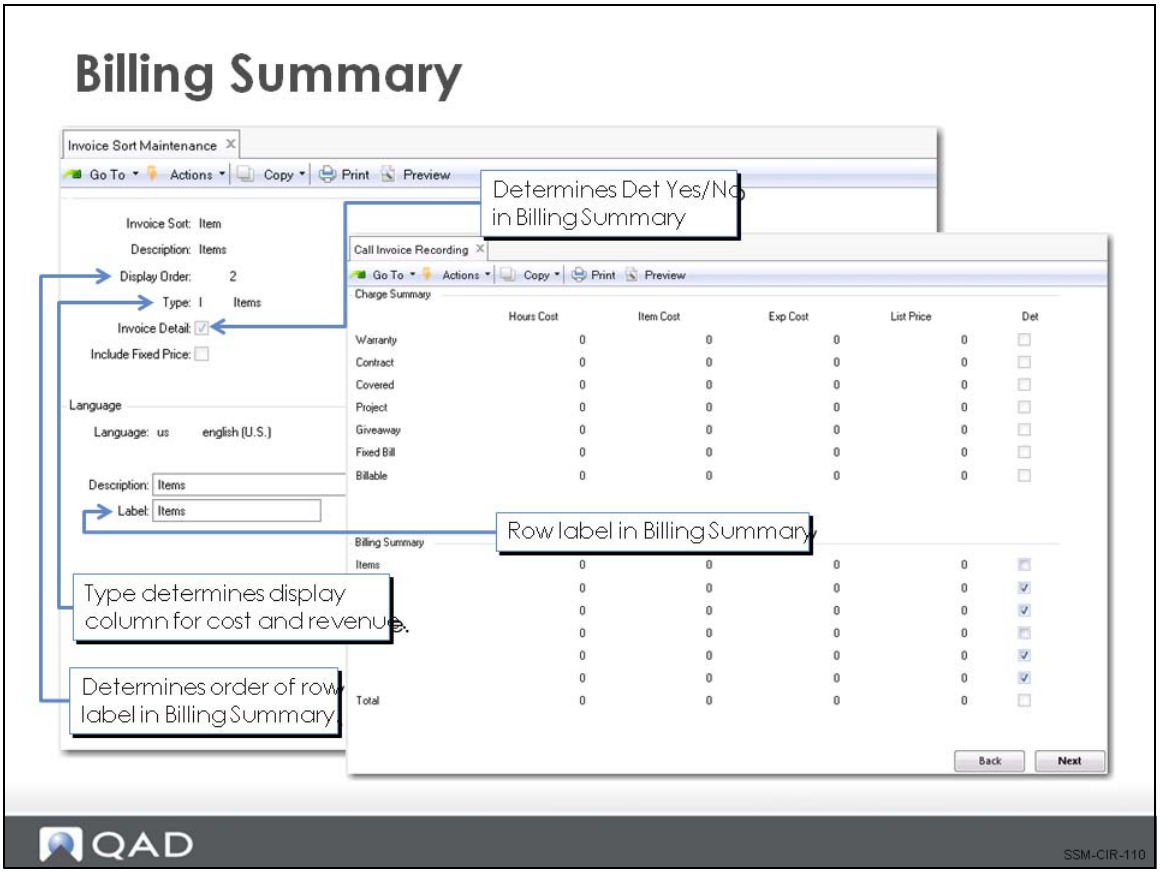
The invoice sort and charge code information is used to build the Charge Summary in the top half of the CIR summary screen. Basically, the rows and columns in the Charge Summary show a grid relating invoice sorts (columns) with types of charge codes (rows). Costs for all invoice sort codes with Type set to L are summarized in the column labeled Hrs Cost. Similarly, costs for invoice sorts with Type set to I are displayed in the column labeled Item Cost, and with Type set to E in Exp Cost.

These costs are further broken out by the type of charge involved. Each of the seven flags on the Charge Code Maintenance function represents a different type of charge code. These seven flags correspond to the seven rows in the Charge Summary.

Charge Code Maintenance (11.21.21.1)



Billing Summary

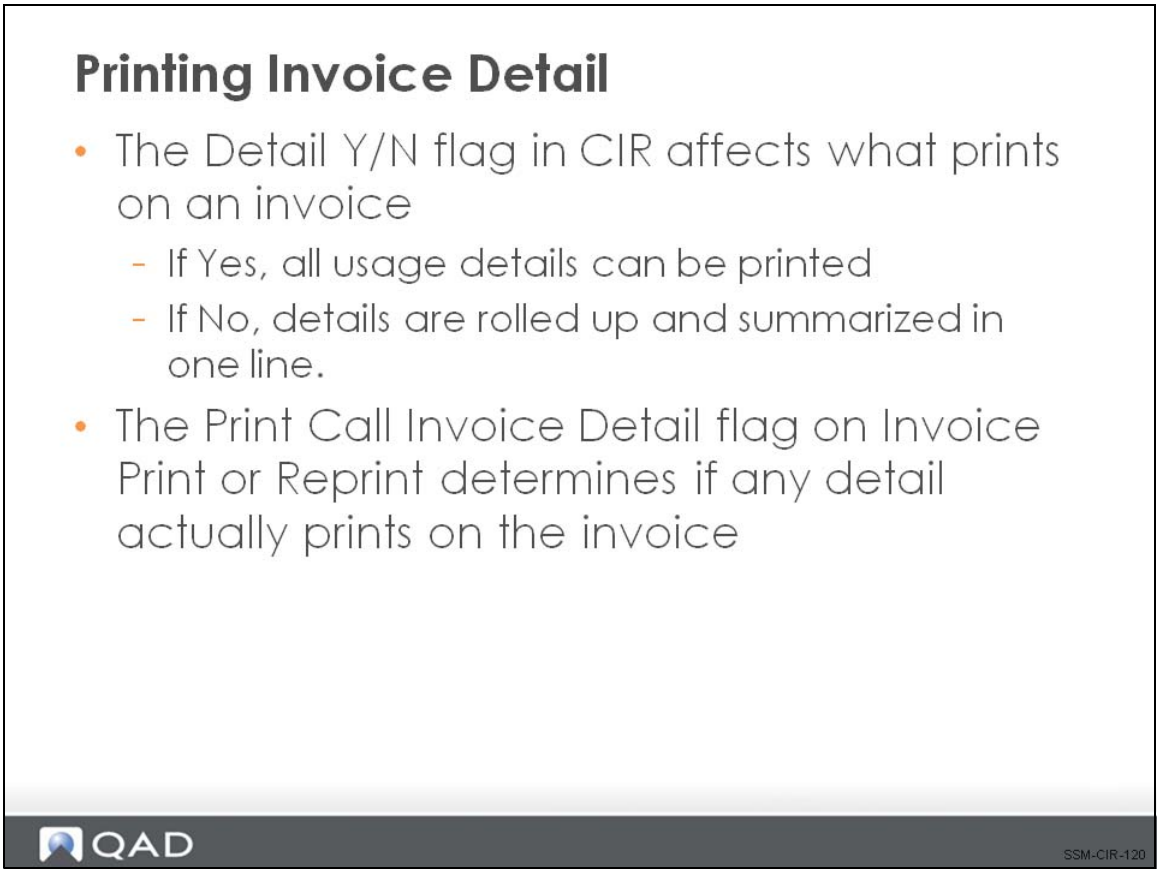


The Billing Summary frame provides another summary view of financial data recorded in CAR. The Billing Summary frame displays the total cost for each invoice sort. This allows you to see at a glance how costs are spread between items, labor, and expenses. The List Price column shows the total amount billed for each invoice sort.

The setting of the Det (detail) column only affects the printed invoice presentation. All billing details are available for review in CIR.

The rows in the Billing Summary refer to invoice sorts. They have user-defined labels and appear in the order defined in Invoice Sort Maintenance (11.21.5). You can display information for up to six invoice sorts.

Printing Invoice Detail



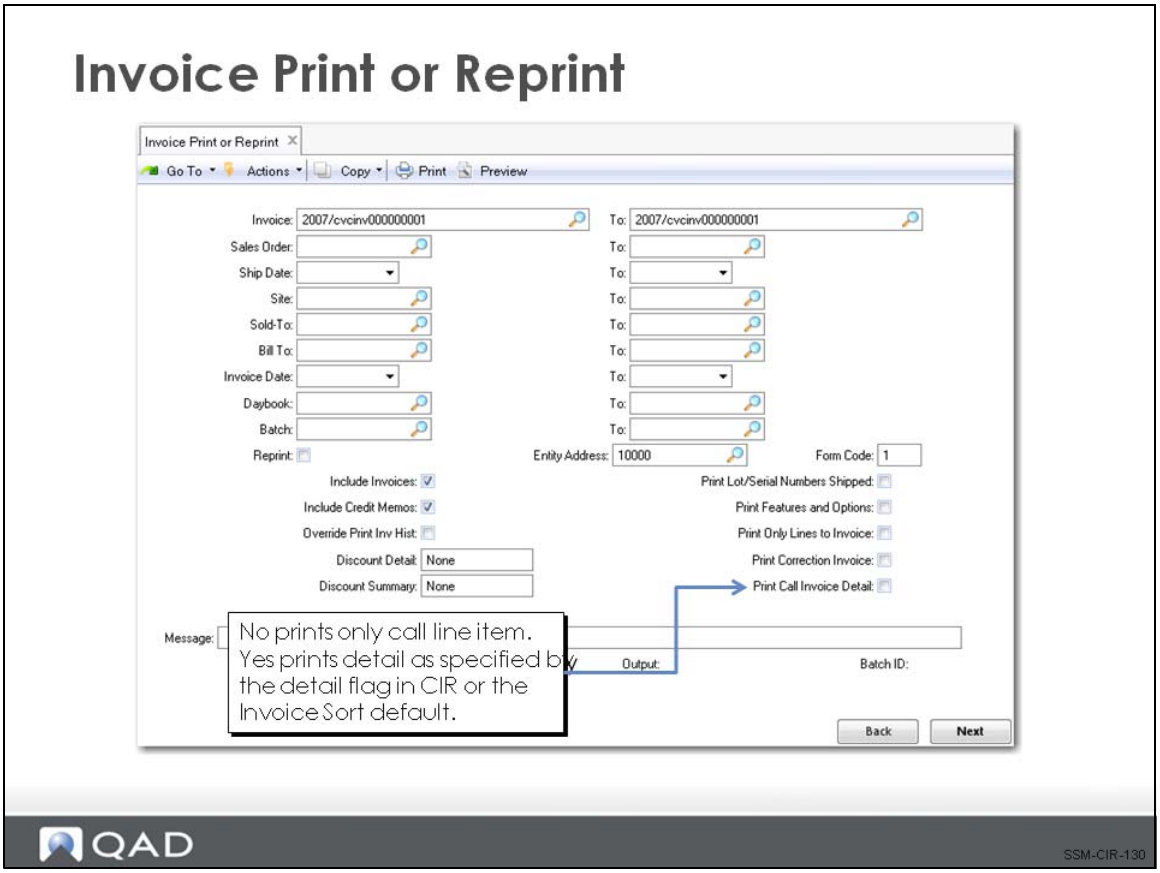
The level of detail included on a call invoice is determined by the setting of the Detail flag.

If Det is Yes for an invoice sort and Print Call Invoice Details is Yes when the invoice is printed, each line of billing detail prints on the invoice. If Det is No for an invoice sort and Print Call Invoice Details is Yes, all billing details for the invoice sort are rolled up into one summarized line on the printed invoice.

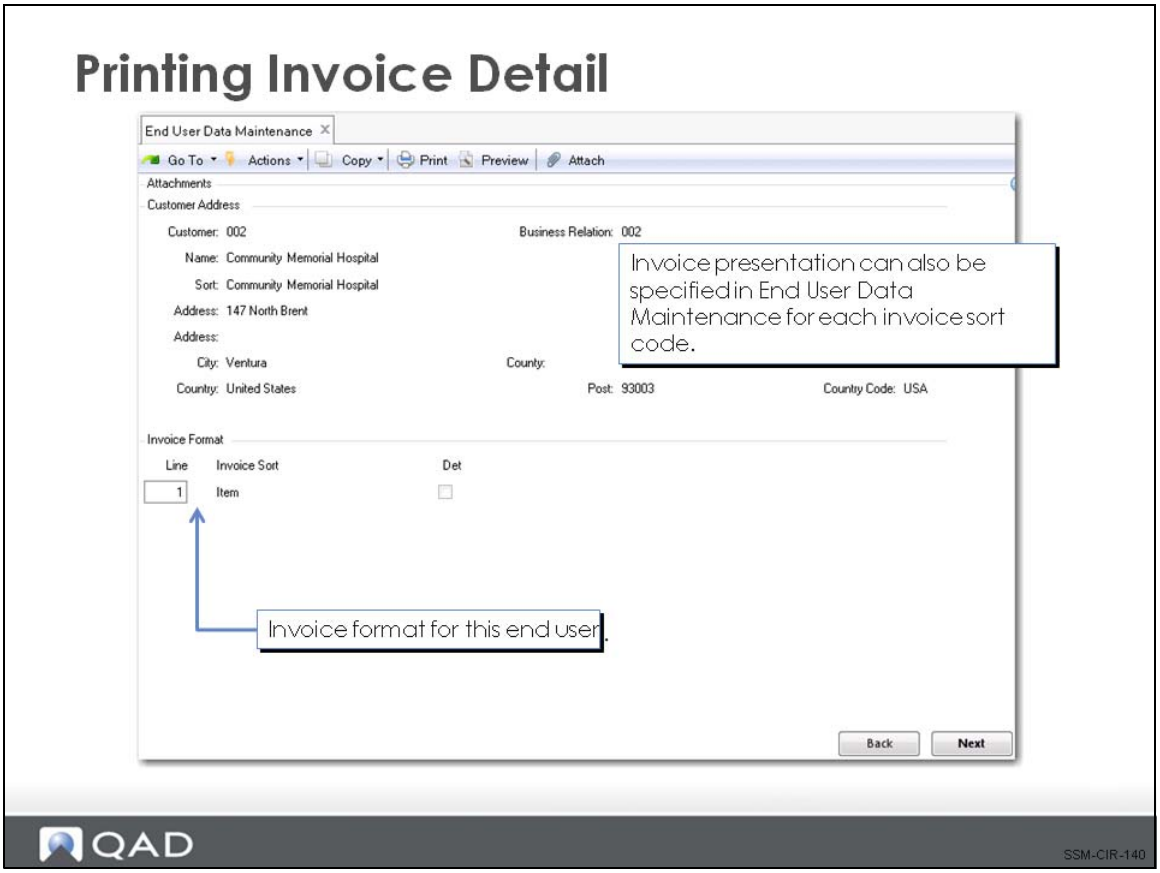
The value of Det defaults first from the end user, if an invoice format has been defined in End User Address Maintenance. Otherwise, it defaults to the value specified in Invoice Sort Maintenance.

Note When fixed pricing is being used and detail is printed, no pricing information is included, since all services are provided at one price.

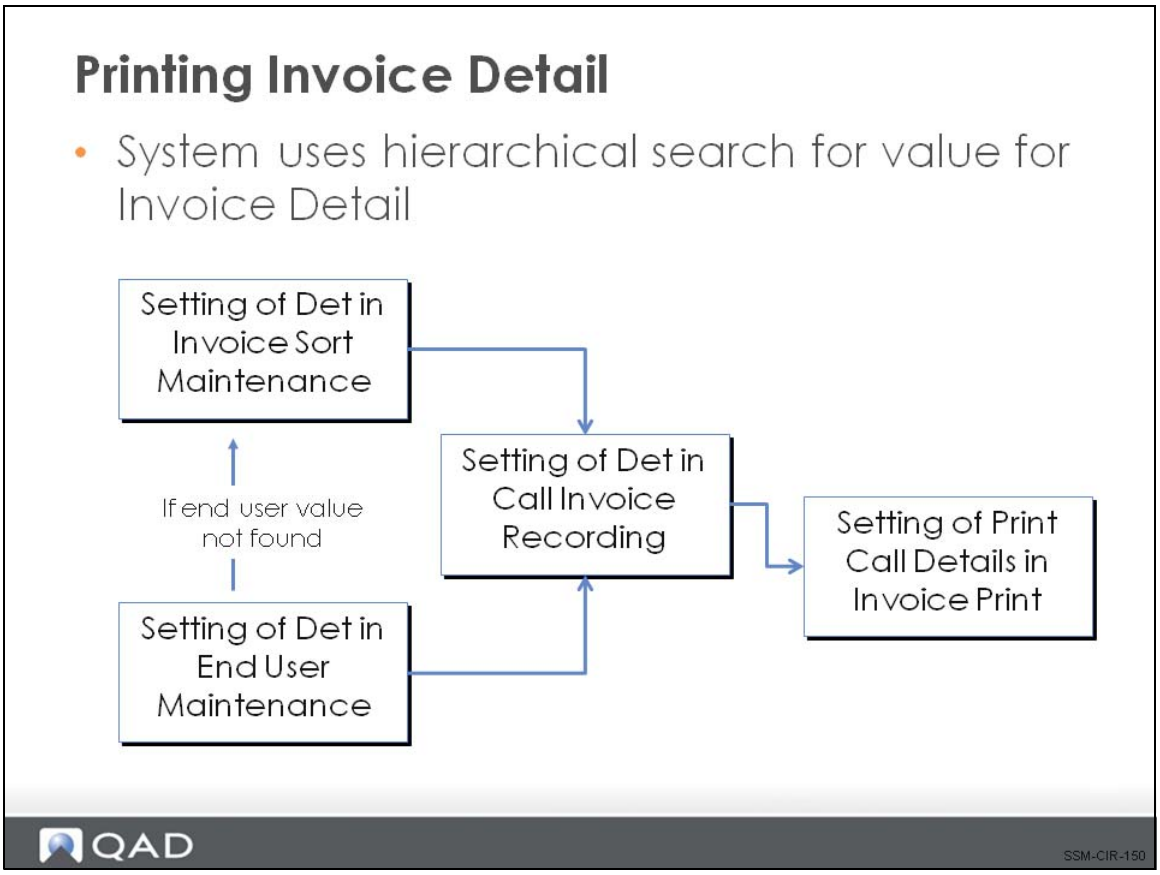
Invoice Print or Reprint (7.13.12)



Printing Invoice Detail



This figure illustrates how the detail setting for an Invoice Sort can be customized in End User Address Maintenance.



Since the invoice detail flag can be set in more than one place, the system follows a defined pattern in looking for a value:

It looks first at the value for the end user.

- If this is not defined it looks at the value defined for the invoice sort in Invoice Sort Maintenance
  - Either one of these settings can provide the default value in Call Invoice Recording.
- If the invoice is generated in Call Invoice Recording the value for Invoice Detail is read directly from CIR
  - If the user has modified defaults previously set the modified values are used
- When the invoice is printed you can choose to print the detail (either complete or summarized) or simply print the call line items and the amounts recorded

Exercise 24: Call Invoice Recording (CIR)

In this exercise, use CIR to review the cost and revenue information for one of the calls updated previously in CAR. Then print the invoice using various settings for printing call detail; finally, post the call invoice.

Review Invoice Amounts in CIR

1 Go to Call Invoice Recording (11.1.1.15). Enter the Call ID used in Exercise 23 above.

2 Click Next, in the lower part of the header tick the Ready to Invoice field.

Note If your are unable to tick the Ready to Invoice field, you will be able to do so after step 12.

3 Continue on until the Charge Summary/Billing Summary frame appears.

Ignore the warnings about no tax environment found.

Notice that the top portion of the frame represents the accumulation of the costs. The costs are grouped by the charge code associated with each transaction recorded in CAR.

The lower frame (Billing Summary) summarizes the billable charges for this call. Charges are grouped by the invoice sort for the service category used in CAR. The column grouping is also determined by the invoice sort.

The Det (Detail) setting for each invoice sort row determines how invoice information can be printed on the invoice.

4 Verify that Det (Detail) set to No for each invoice sort.

Notice the Line Total summary below the frame. Refer back to the earlier discussion if you are uncertain about how CIR uses the columns and rows to group the financial information.

5 After reviewing the summaries, click Next to display the Item Selection frame.

In line 1 access the Item Detail frame. Notice that some fields can be modified and some fields are display only.

6 Continue until you are at the Invoice Sort field in the Labor/Expense Totals. Use your arrow key to select Labor and click Next.

7 At line 1 change Det to Yes and click Next.

Notice what you can change. In each, the details of the recorded usage can be reviewed and some information, particularly that related to pricing, can be modified.

8 Proceed to the Item Totals frame. Enter ITEMS in the Invoice Sort field and click Next.

9 In the Ln field, use Next/Previous to display the three item usage records.

Feel at liberty to enter one of the lines, change Det to yes and change the pricing information of an item. When the summation frame displays again at the end of CIR, you should see the effect of your changes.

10 Save any changes.

11 Continue on until the call trailer screen displays.

12 Continue on and you will see the Charge and Billing Summary one last time. Return to the menu.

Print Invoice with Various Options

1. Go to Preview Invoice Print (7.13.3). Enter the call ID used for this exercise in the Sales Order and To fields.
2. Set Print Call Invoice Detail to No. Accept all other defaults. Print the invoice.

   Review the invoice when it displays. Without details, the invoice lists the call line item and the total charged. Call-related data includes only the work code and service type for each call line.
3. Set Print Call Invoice Detail to Yes. Accept all other defaults. Print the invoice.

   Review the invoice with the additional details. The call invoice details you are viewing are in summarized form because Detail was set to No in Call Invoice Recording.

   For each line on the call, one line of detail displays for each invoice sort, summarizing the items, labor, and expenses used. The quantity field is blank; it only has value when data is not summarized.
4. Go to Call Invoice Recording (11.1.1.15). Enter the Call ID, and click Next until the Charge/Billing summaries display.
5. Set all the Det flags to Yes for the invoice sort codes, Labor, Expense, Items, in the Billing Summary frame. Click Next; then continue on thru the Trailer. Once the changes have been saved, return to the menu.
6. Go to Invoice Post and Print (7.13.4), and enter the Call ID in the Sales Order and To fields. Set Print Call Invoice Detail to Yes. Print the Invoice
7. Review the invoice when it displays and write down the invoice number here:

   Invoice Number:_____

   This time a line displays for each item, labor, and expense transaction as it was recorded in Call Activity Recording. The item number and descriptions display with a quantity for each. This view gives you the most detailed invoice presentation.

Chapter 13

Material Orders

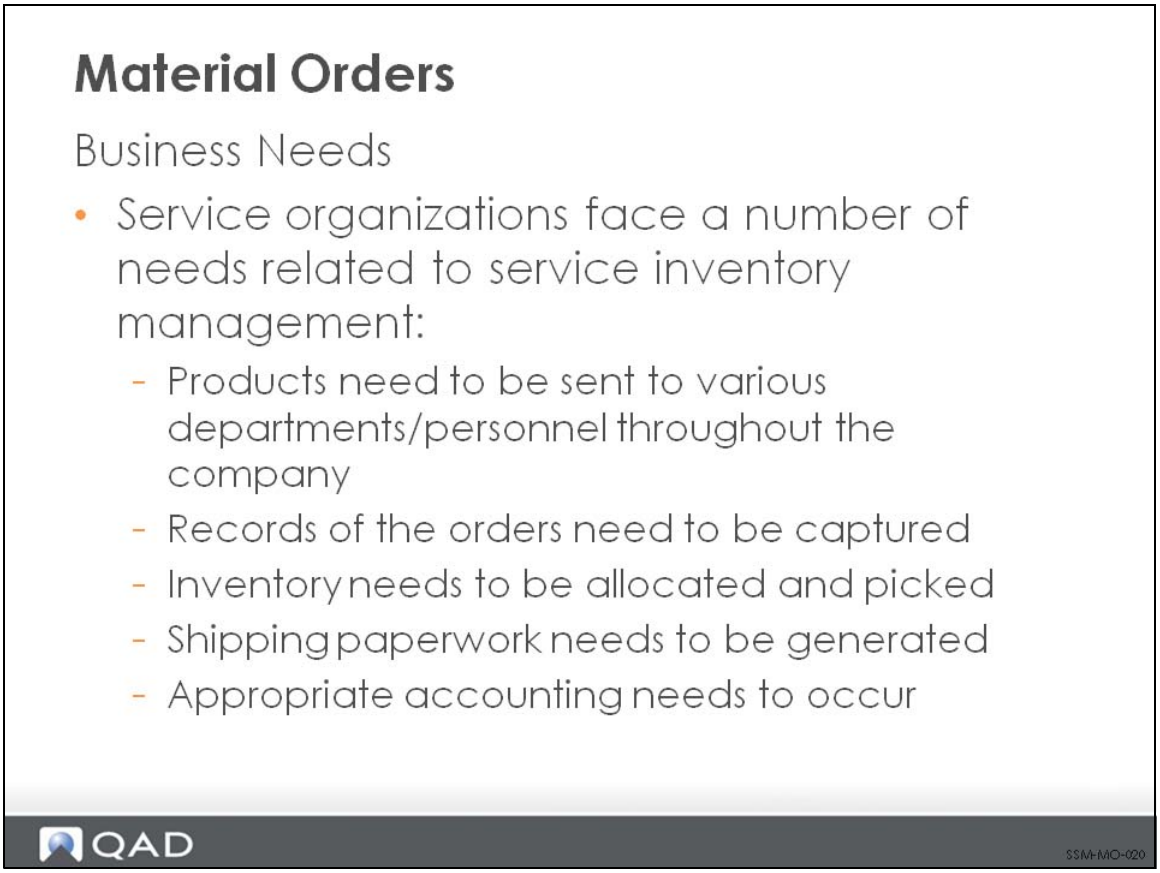
Overview

SSM provides a flexible mechanism for managing inventories in the service environment: the material order (MO). With MOs, service personnel, whether in the field or repair center, can order repair parts for specific calls or to replenish their inventory.

MOs use standard inventory allocation routines and create MRP demand just like sales orders. Back orders are tracked, and the MO can interact with call tracking, enabling users to manage the relationship between service inventory and call closure.

This chapter describes the various features of MOs and illustrates how they are used.

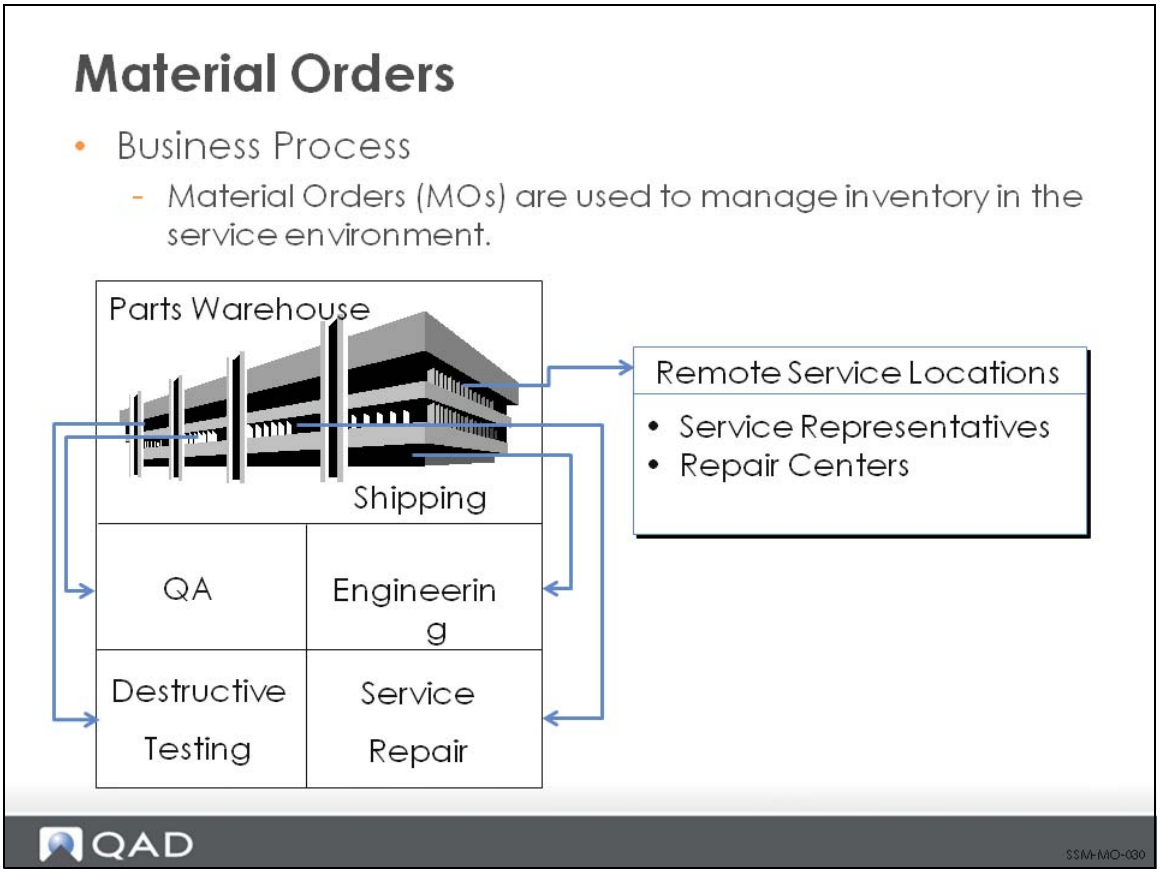
Material Orders - Business Needs



MOs provide features that meet a number of business requirements in the service environment relative to tracking service inventory.

The MO is similar to a sales order, and allows inventory to be picked and either transferred to the engineer or drop shipped to a designated location.

Material Orders - Business Process



This figure illustrates the kind of demand that can be generated against a parts warehouse. Both internal departments and remote service locations can generate demand for parts that can be managed through an MO.

Use MOs to:

Issue items that you do not track individually, similar to manufacturing floor stock. These are items you typically issue in bulk, like screws or washers, without detailed usage tracking. This type of MO is an expensed MO.

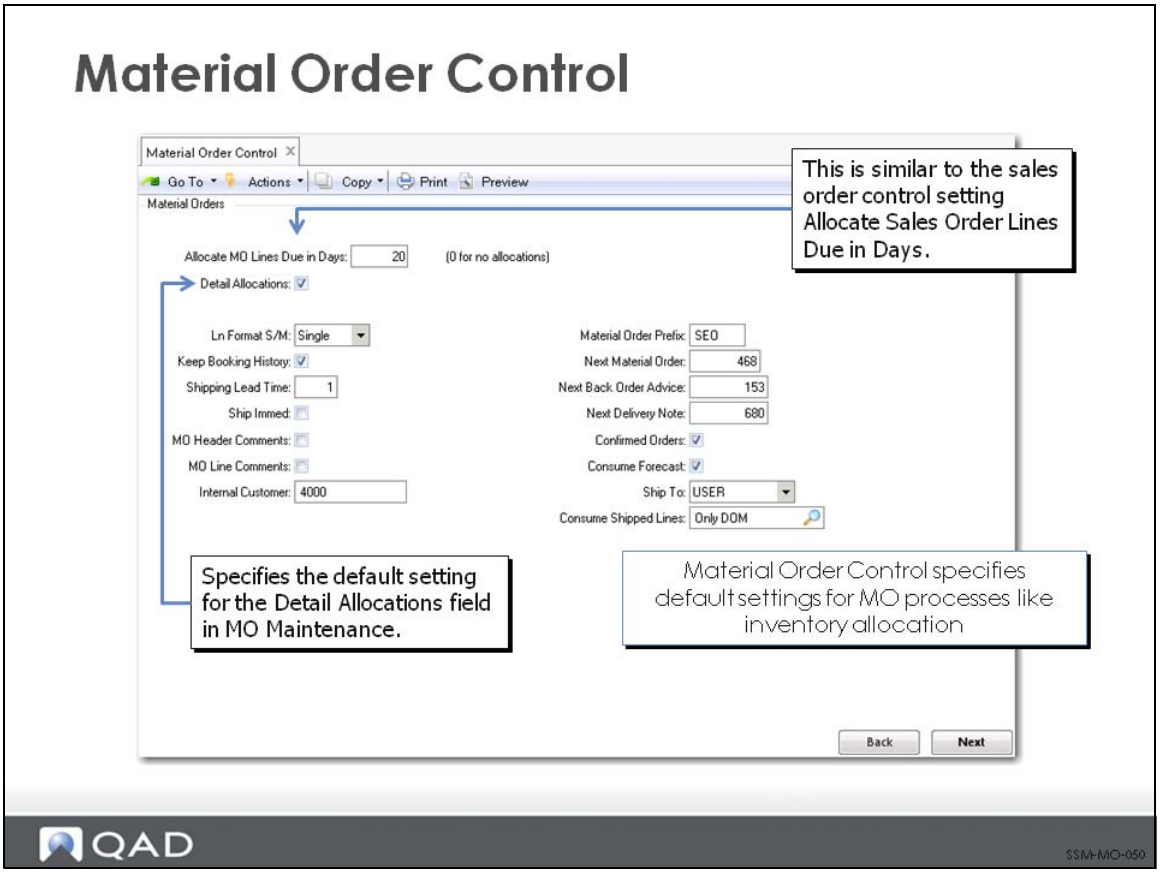
Manage inventory between a supply center and service locations. Locations are typically remote such as engineers in the field carrying truck stock or a remote service center. You can also issue items to a service location within a manufacturing site.

Using MOs can enhance your business processes in three areas:

1. Inventory Management. For inventory management, MOs provide functionality to manage the transfer of inventory from storage locations to the site/location where it will be used. Pick lists can be generated to facilitate retrieval from warehouse locations. The status of items on the MO is tracked, giving you immediate visibility. Shipment documents are automatically generated.
2. Planning. Items ordered on an MO create requirements for MRP, enabling you to plan for service needs.

3 Recording service activity in Call Activity Recording. Items can be tracked on a call basis, making all the power of CAR available to tracking and recording item usage. When items are ordered on an MO for a call, they can be loaded as item usage in Call Activity Recording.

Material Order Control (11.11.24)



The Material Orders Control enables you to tailor various aspects of MO processing. Some of the fields are similar to fields in the Sales Order Control, since MOs and sales orders share similar functionality.

Allocate MO Lines Due in Days. Specifies the number of days into the future that MOs should be allocated. For example, if Allocate Days is set to 5 and the due date on an MO is 4 days in the future, a general allocation is performed. This setting has an impact when the MO is created and when performing MO Automatic Allocations (11.11.5).

Detail Allocations (Y/N). Specifies whether detail allocations are usually made during MO entry. Detail allocations function to assign specific inventory lot/serial numbers and locations to be shipped on an MO. Enter Yes if detail allocations are made during MO Maintenance. Enter No if detail allocations are not normally entered on the MO. The default value displays and can be changed on each MO line item.

Keep Booking History (Y/N). Indicates whether booking history is maintained. If Yes, the system keeps an audit trail of all incoming MOs, including new orders added or existing orders changed. A record is kept in transaction history and identified as type ORD-SO with the item, order quantity, price, cost, date, user ID, and other information. You can review this information using booking inquiries and reports. Detailed transaction history can also be reviewed using Transaction Detail Inquiry.

Shipping Lead Time. The usual number of calendar days elapsing between the date an MO is entered and when the items are shipped to the destination. (If orders are shipped immediately, this can be left as zero.) The default required and due dates on an MO derive from shipping lead time. When you first enter an MO, the required and due dates are set to the system date plus the shipping lead time, indicating the normal delivery date. You can change this date if necessary.

Ship Immediately (Y/N). If Yes, a screen appears when you leave line entry that enables you to initiate the shipment process from within MO Maintenance. If Ship Immediately is No, you are finished with the material order when you accept your input.

Material Order Prefix and Next Material Order. Used together to determine the next MO number for numbers automatically generated by the system. The prefix is optional. The MO number is incremented by the system each time an MO is entered.

Next Back Order Advice and Next Delivery Note. Number used by the system when documents are created during MO shipments and automatically incremented by the system.

Confirmed Orders (Y/N). Indicates whether MOs are normally entered as confirmed and determines the default in MO Maintenance. If orders are entered unconfirmed, a separate MO confirmation step must be executed before shipment.

Consume Forecast (Y/N) . Determines the default in the Consume Fcst field in MO Maintenance. If Yes, MO items consume forecast the same way that sales order lines do. If you do not forecast parts used for repair and service, this field is generally set to No.

Ship To (End User/Engineer). The value of this field determines the value for the Ship-To on a new MO associated with a call. When set to end user, Ship-To defaults to the user who called. When set to engineer, it defaults to the address of the engineer assigned to the call.

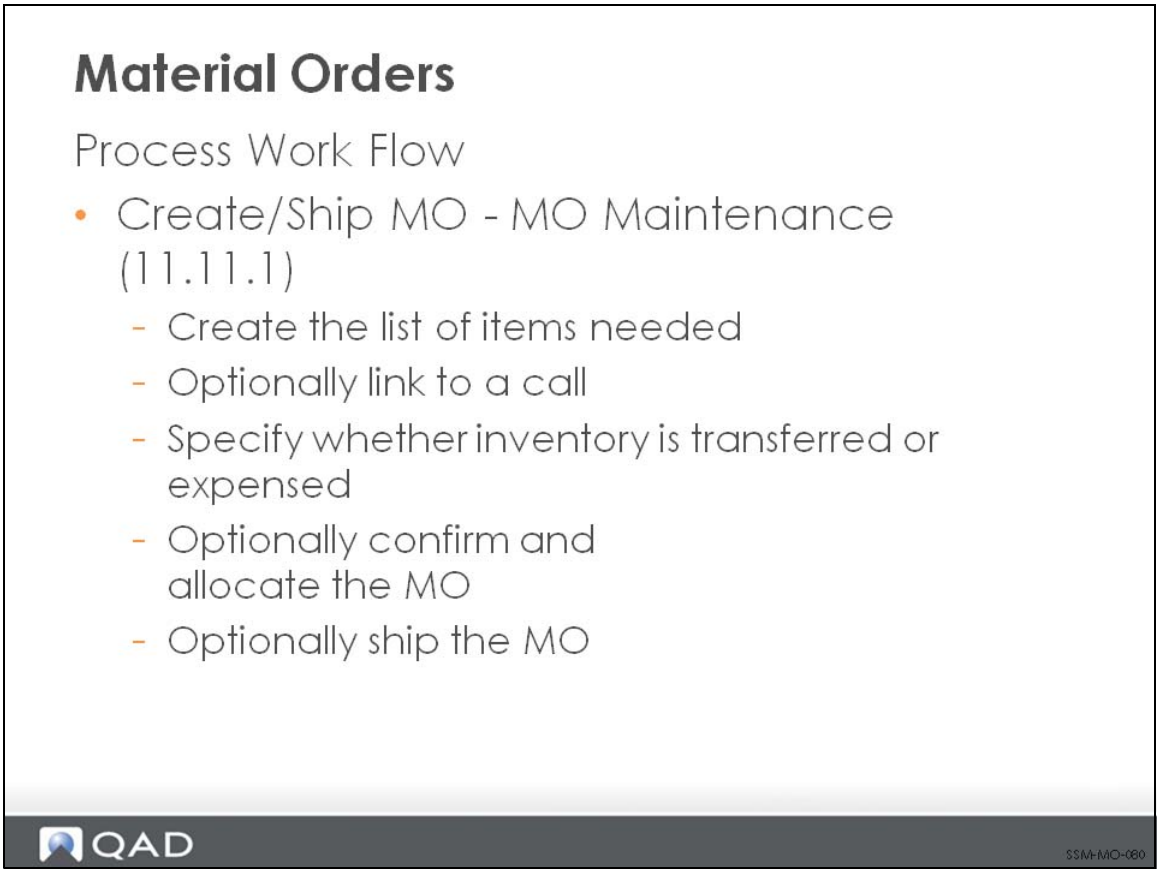
Consume Shipped Lines. Set this field to control the consumption of items.

Yes. Enables the automatic MO shipment/CAR consumption for all material orders. This is the default setting.

Only DOM. Enables the automatic MO shipment/CAR consumption for depot material orders only (that is, for orders associated with calls that have a work code with Repair Center set to Yes).

No. Do not auto-consume items. Instead, use the standard MO shipment/CAR consumption.

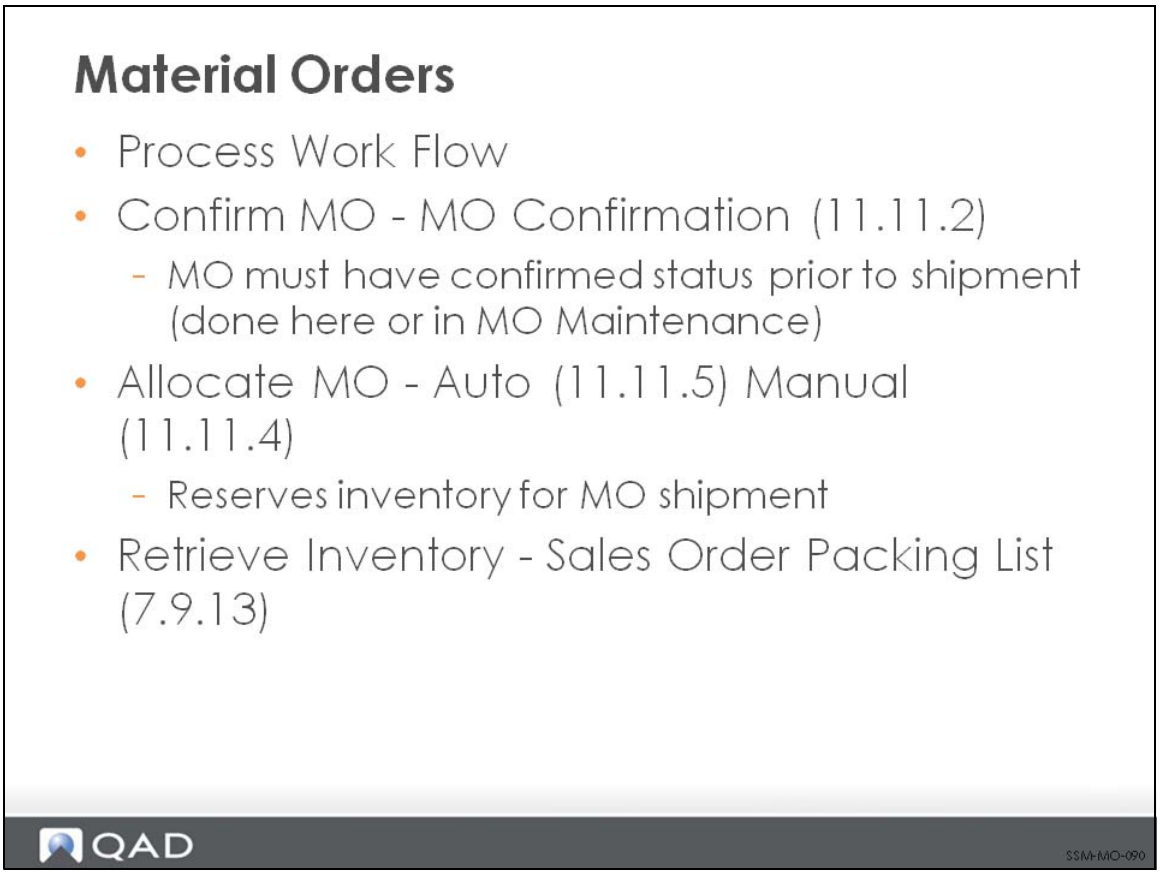
Material Orders - Process Work Flow

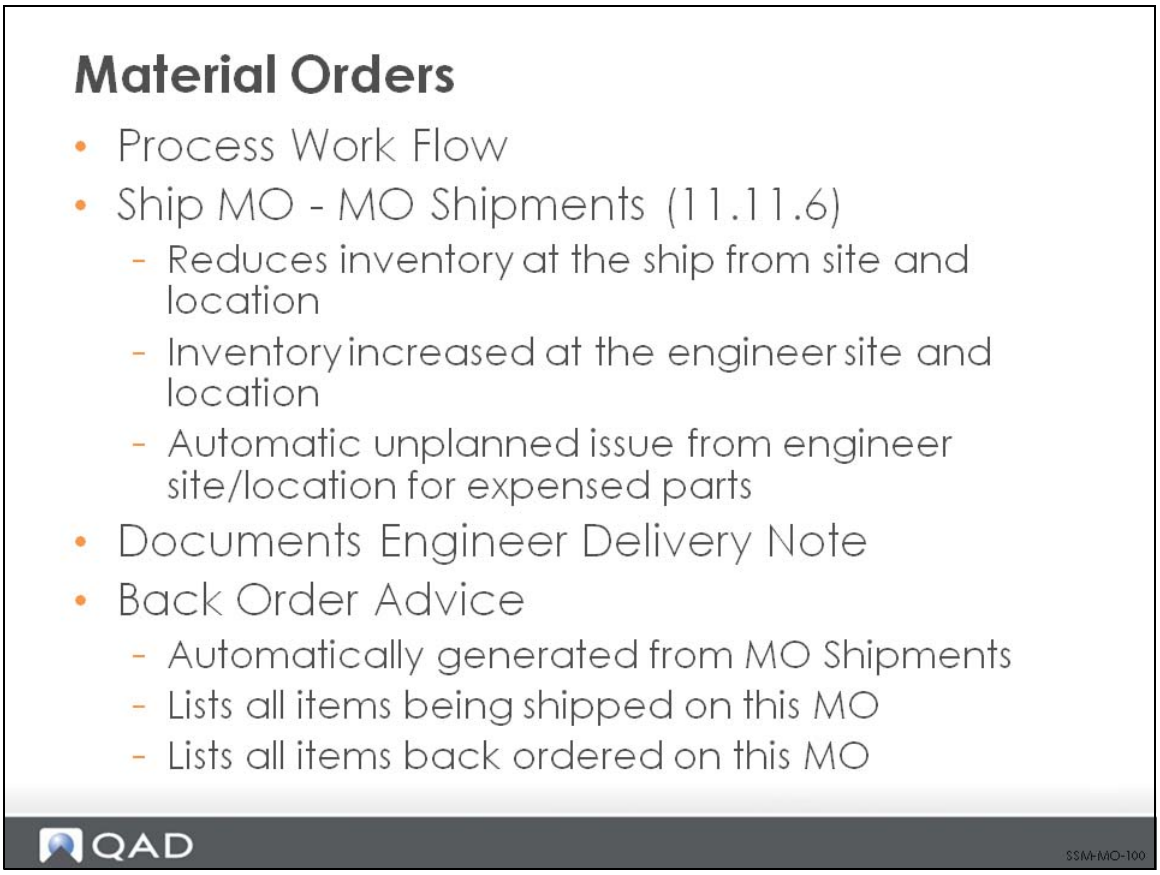


This figure, and the next three, illustrates the different functional steps involved in creating and managing an MO.

MOs are created (MO Maintenance) and are either linked with a call, for the engineer's inventory, or expensed. The shipment of ordered items can take place directly when the MO is created, if the order is allocated and confirmed. Otherwise, separate confirmation, allocation, and shipment functions can be executed (MO Confirmation, MO Manual Allocations, MO Automatic Allocations, and MO Shipments). These functions are all very similar to their counterparts in the Sales Order module.

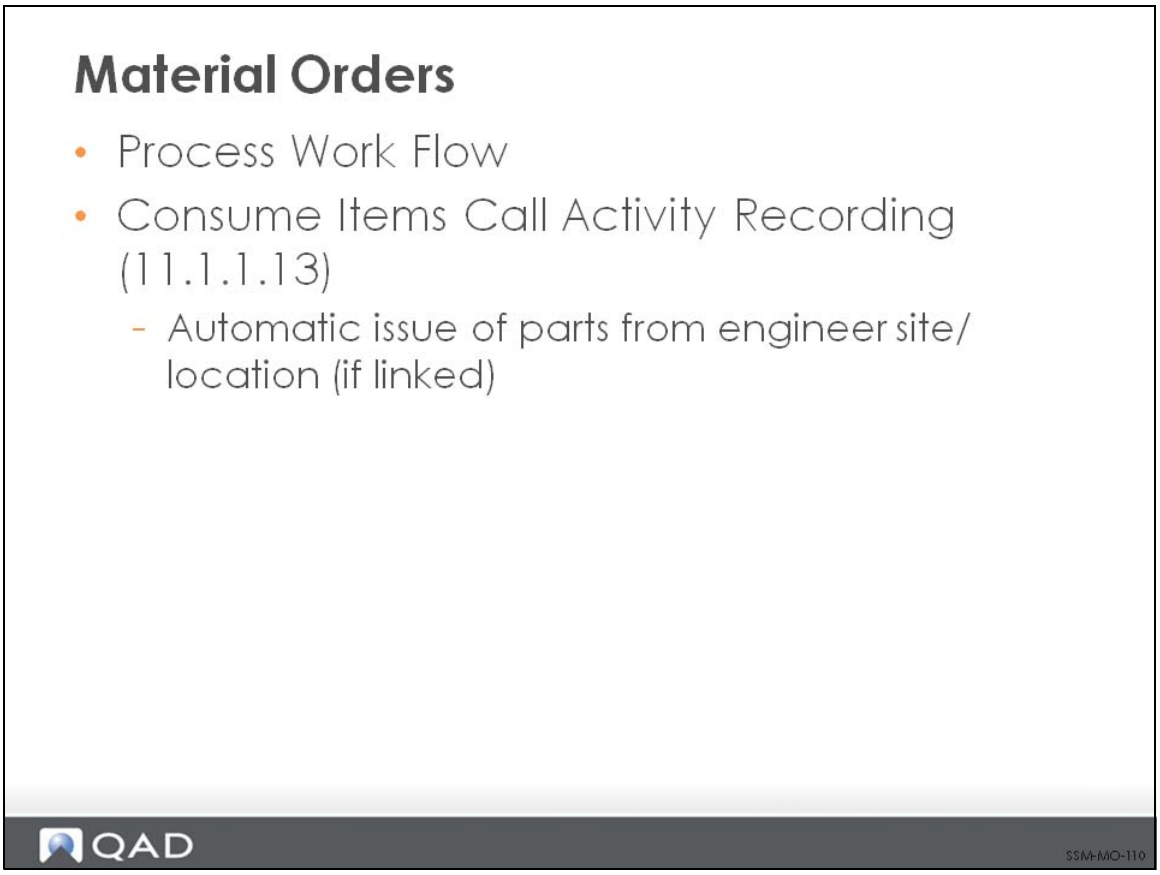
A packing list for an MO can be generated in the Sales Order module if needed.


Material Orders
• Process Work Flow
• Confirm MO - MO Confirmation (11.11.2)
– MO must have confirmed status prior to shipment (done here or in MO Maintenance)
• Allocate MO - Auto (11.11.5) Manual (11.11.4)
– Reserves inventory for MO shipment
• Retrieve Inventory - Sales Order Packing List (7.9.13)
QAD
SSM-MO-090

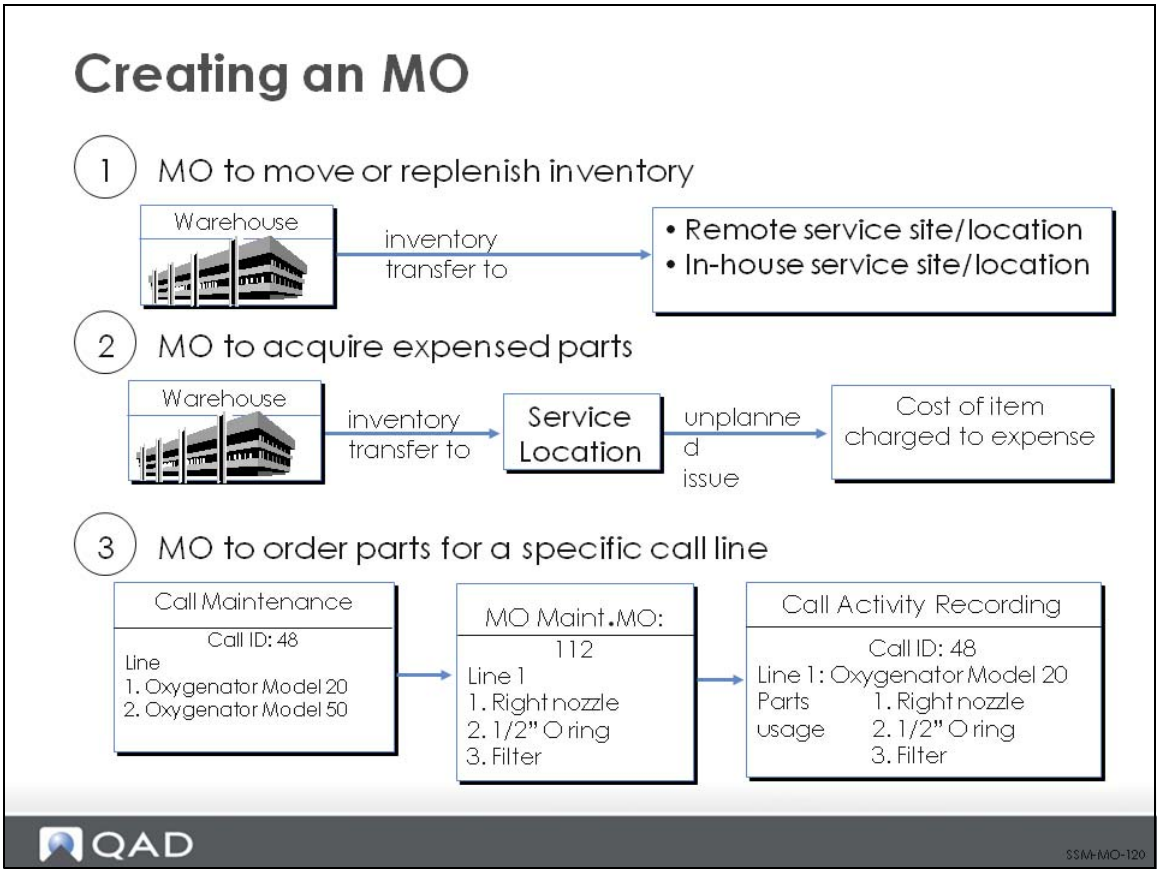


MO Shipments automatically create shipment documents, including an Engineer Delivery Note and a Back Order Advice, if the shipment is incomplete.

Expensed MOs and MOs for the engineer's own consumption are automatically deleted by the system once they ship completely. MOs associated with a call must be consumed for that call in Call Activity Recording or returned with MO Direct/Pending Returns. When all items on the MO with a call are consumed or returned, it is also deleted by the system.


Material Orders
• Process Work Flow
• Consume Items Call Activity Recording (11.1.1.13)
– Automatic issue of parts from engineer site/ location (if linked)
QAD
SSM-MO-110

Creating an MO

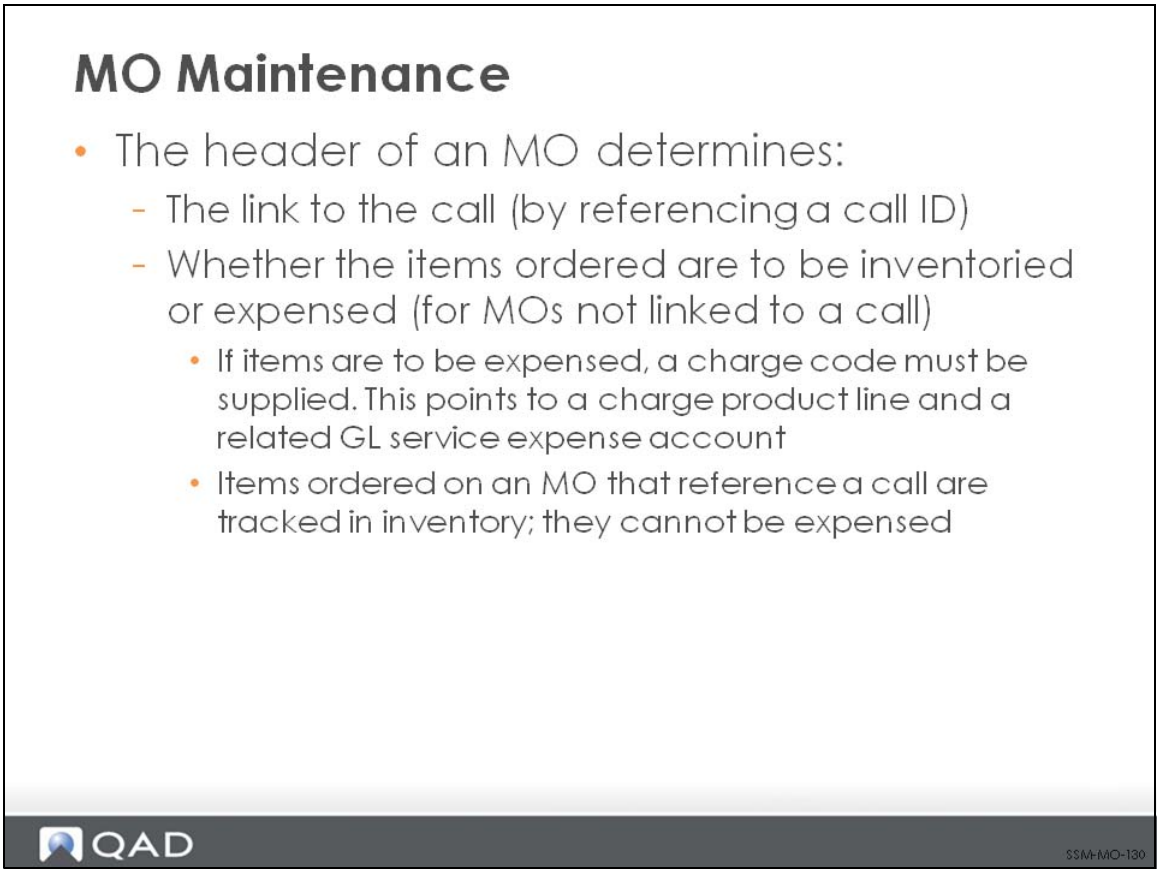


As mentioned in the introduction, there are three basic types of MOs, each of which plays a particular role in a service organization:

- MOs with a call
- MOs without a call
- Expensed MOs

These distinctions are used throughout the discussion of MOs in SSM. Each type of MO has a slightly different effect on inventory. In general, regardless of its type, the MO is used to replenish material consumed by service personnel. Any given service organization can use any one or all of these approaches.

MO Maintenance



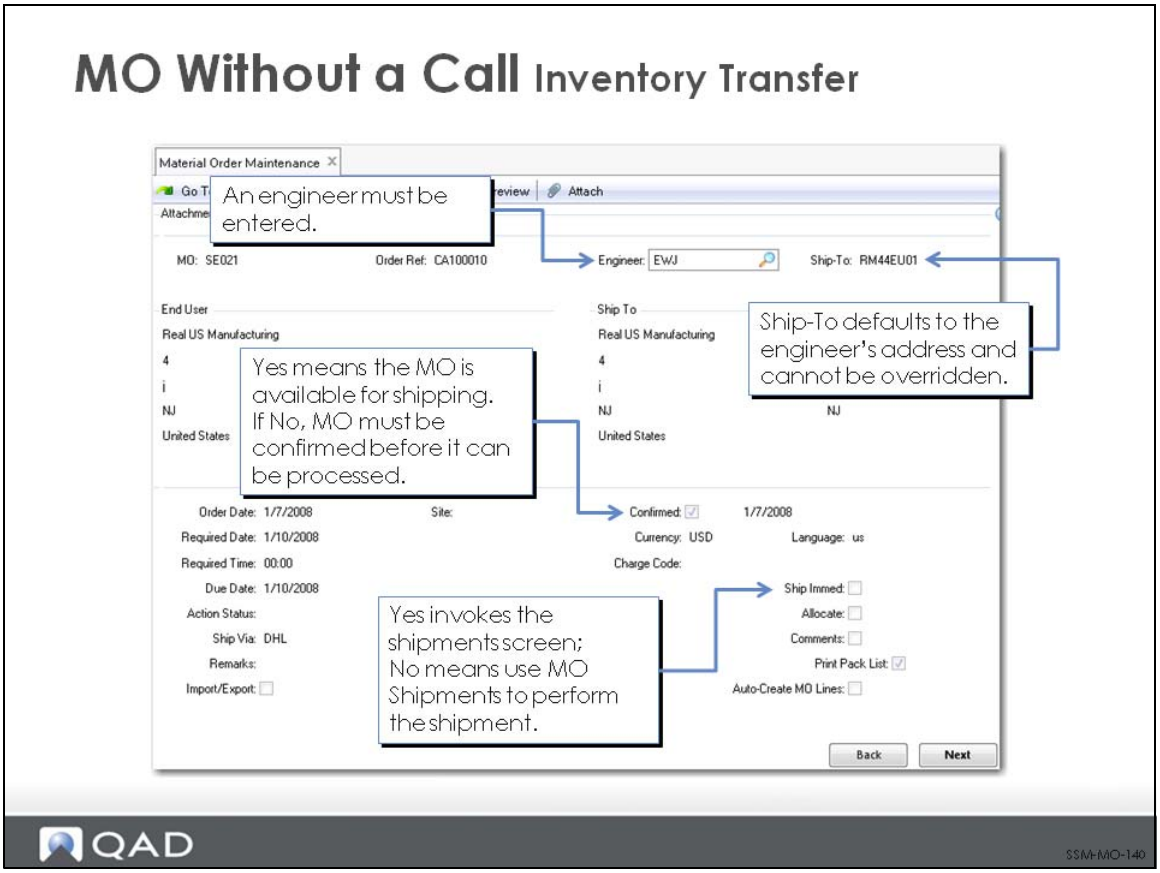
How you fill out the MO header determines the type of MO you are going to create: with a call, without a call, or expensed. Header information differs for each of the three types. Once the MO has been created, it cannot be changed. For example, if you create an MO without a call, you cannot go back later and add one.

If you link to a call, ordered items must be consumed against it or returned.

If they are neither linked to a call nor have a charge code is entered, the ordered items are transferred to the engineer location at shipment time.

If no call is entered in the Call field, but a charge code is specified, the ordered items are issued and costs are debited against the Service Expense account of the charge product line associated with the charge code.

MO Without a Call - Inventory Transfer



An MO does not have to be attached to a call. The inventory transferred by an MO without a call is treated as general replenishment inventory for the engineer's service stock. This method is used when it is not reasonable to track against particular calls, but you still need to track individual items.

Once all the items ordered on the MO ship completely, the MO is automatically deleted from the system. Full details about the transactions processed are included in the transaction history.

In this example, the MO does not reference a call and does not have a charge code specified, so it simply executes an inventory transfer. The engineer must be entered manually. On this kind of MO, the Ship-To defaults to the engineer and cannot be changed.

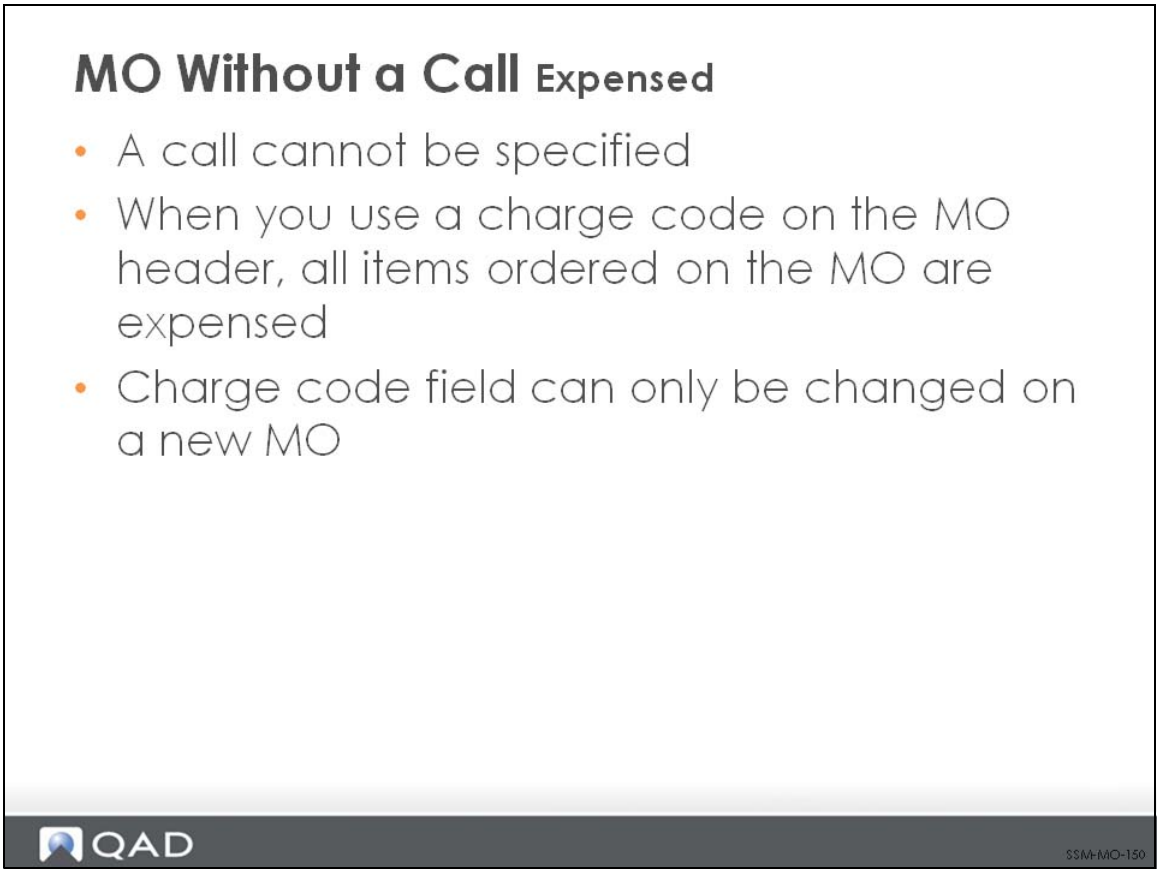
The value for Confirmed defaults from the setting in the MO Control. If No, you will have to execute MO Confirmations before trying to ship the MO. The entire MO shipment process can take place at one time if you entered orders as confirmed and set Ship Immed to Yes.

Auto-Create MO Lines. Read only if the Material Order already exists

No - results in the current Material Order functionality whereby users manually enter in the Material Order Lines

Yes - results in additional functionality being triggered that is to be modeled off of the current Parts List Maintenance.

MO Without a Call - Expensed



Expensed MOs are also not attached to a call. This method is used when tracking items expensed as part of the general service activity and ordered in bulk such as nuts, bolts, screws, washers, lubricants, cleaners, disposable tips, and wipes.

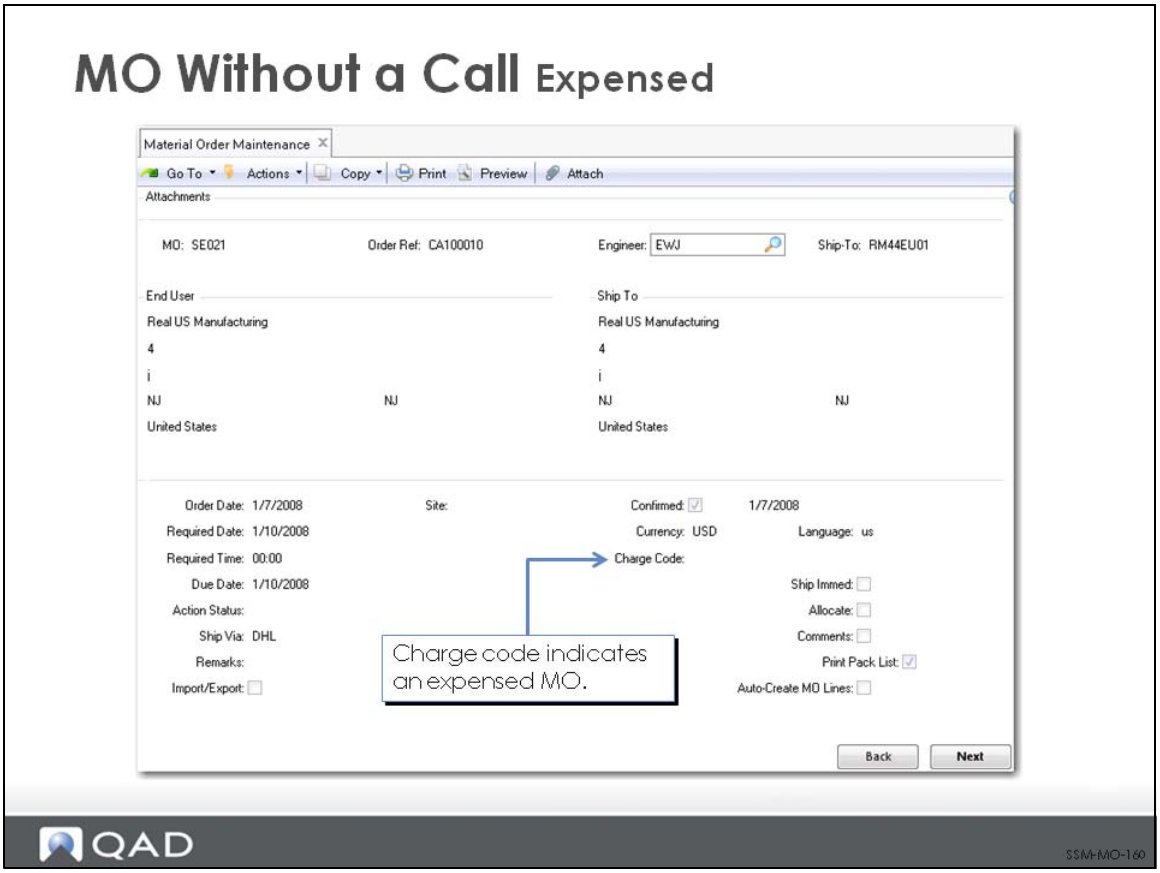
Expensed items are usually ordered in lots and stored at the work bench or truck. The service engineers do not track any inventory piece by piece; they expense the items once and use them as necessary. Reordering is typically controlled by a reorder point method.

Expensed MOs require that a charge code be supplied. This field can only be updated when an MO is first being created and no call has been specified. The system uses the charge code to find a charge product line set up in Charge Product Line Maintenance for this charge code. The Service Expense account of this product line is charged for the cost of the items issued. When a charge code is entered, everything on the MO is expensed to this charge code.

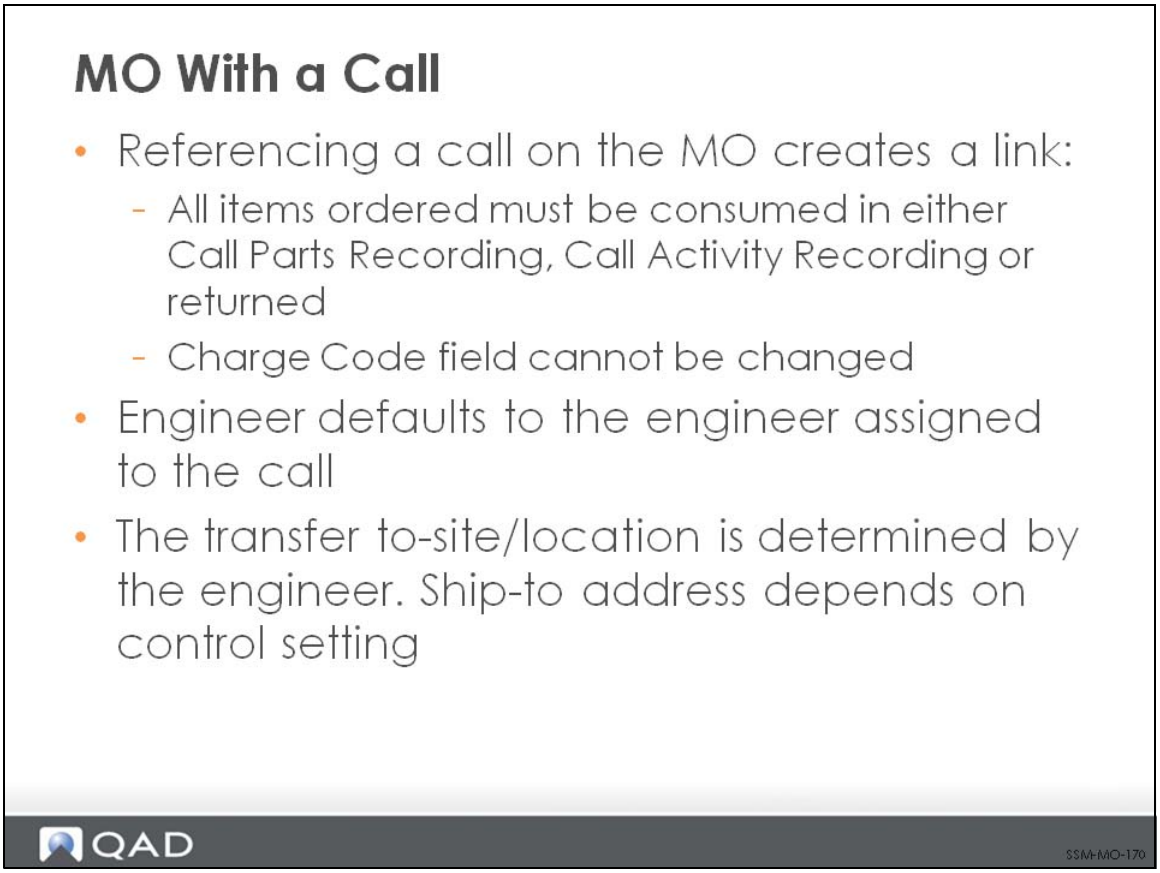
When an expensed MO is shipped, inventory is transferred to the destination site/location and then the items are actually issued and consumed. If all this completes successfully, the MO is deleted upon completion of shipment. Transaction history can be reviewed for transaction details.

Set up requires a product line, if necessary set it up in Product Line Maintenance (1.2.1); to be referenced in Charge Product Line Maintenance (11.21.21.5). Charge Code Maintenance (11.21.21.1) would create the Charge Code.

Material Order Maintenance (11.11.1)



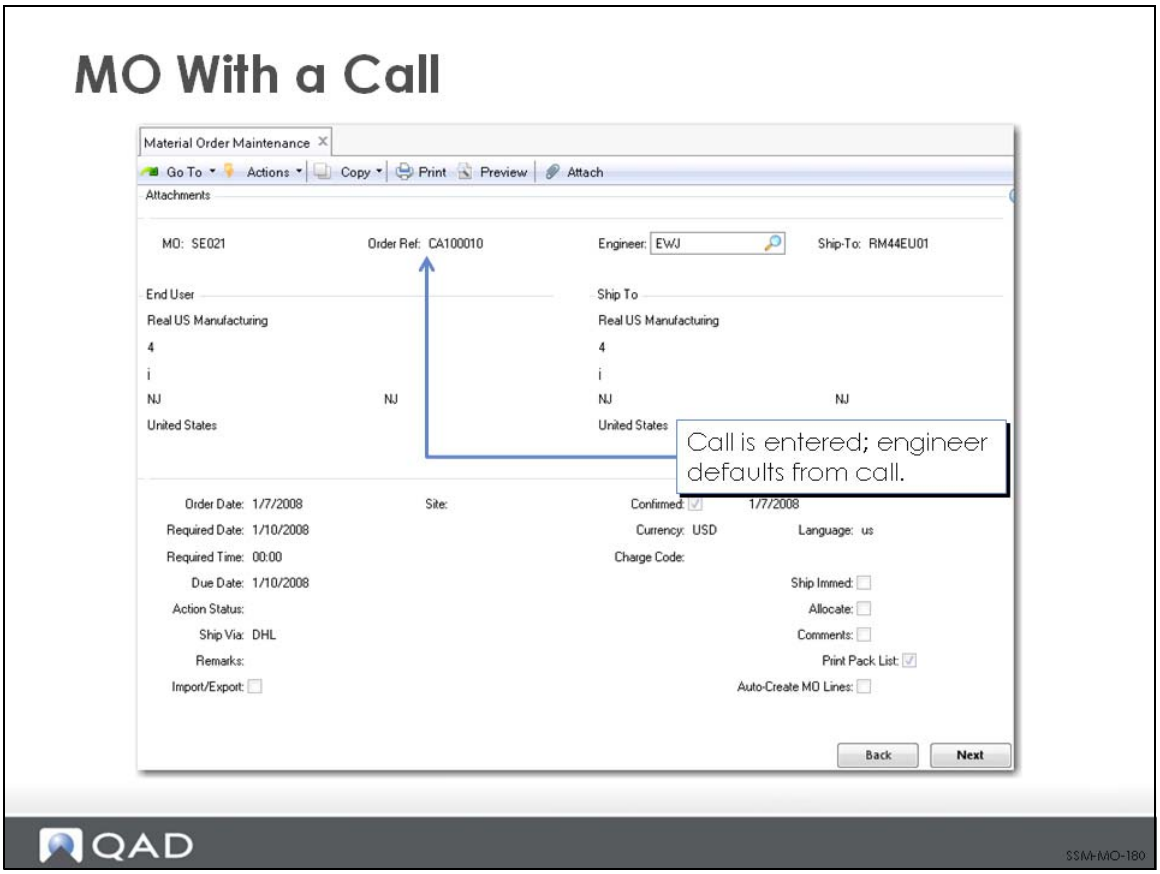
MO With a Call



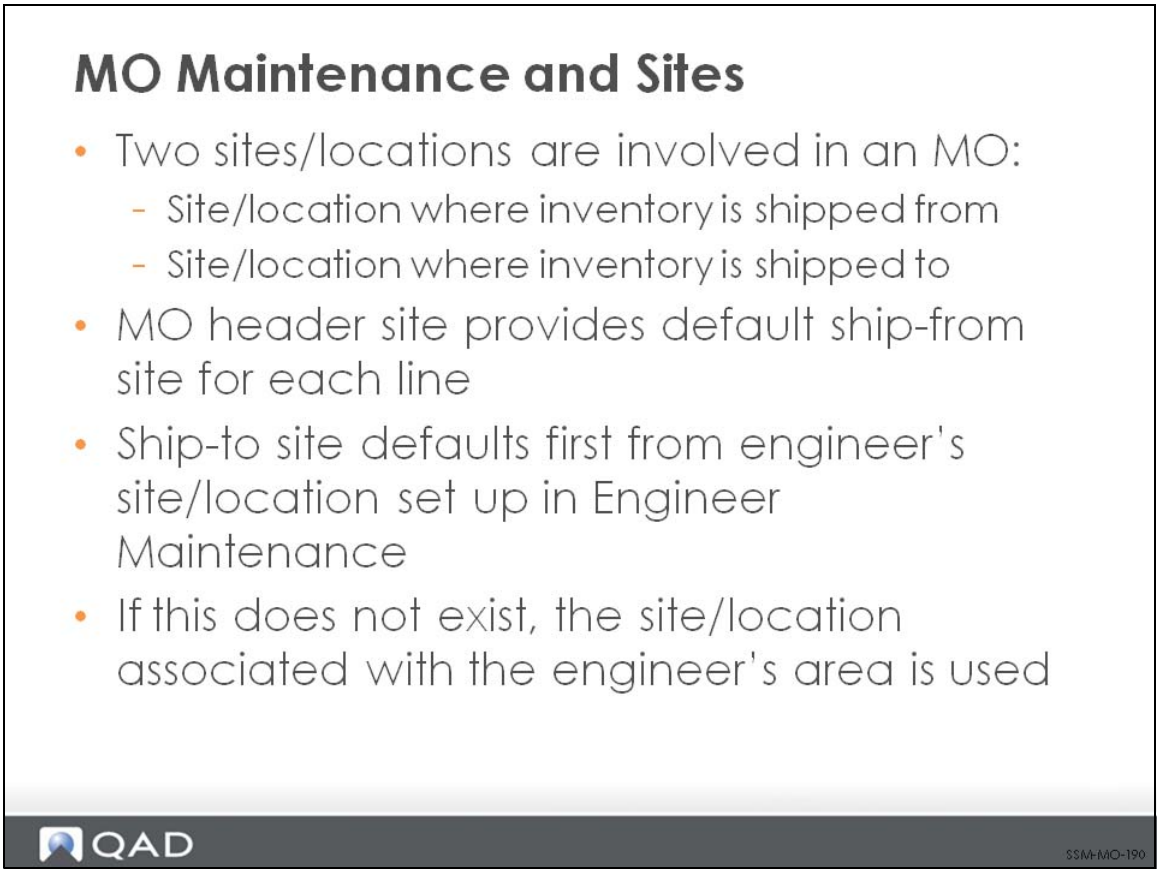
In this method, a call is opened and material is ordered specifically for that call. Tying the MO to the call has the advantage of making all the tools inside Call Activity Recording available for managing the MO. In some business situations, this explicit connection between service inventory allotments and call history is required for legal or contractual reasons. In other cases, the business simply prefers this method, or it is the easiest, most economical way to supply engineers and account for service costs.

When a call is specified, the engineer defaults to the one currently assigned to the call, but this value can be overridden. If no engineer is assigned to the call, you must select a valid engineer to receive this order. If shipments for this MO have already been processed, the engineer cannot be modified.

MO With a Call



MO Maintenance and Sites

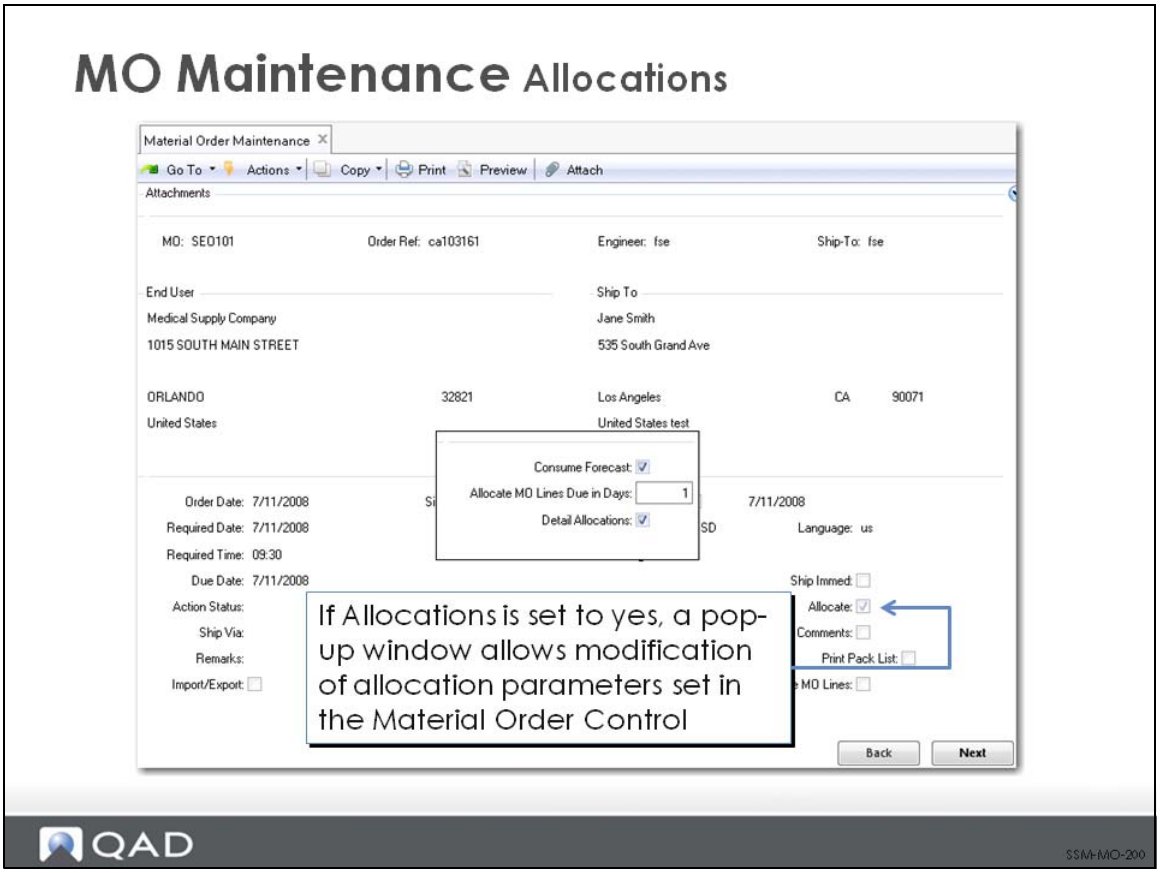


MOs use sites similarly to sales orders. The site specified on the header is used by default for each line on the MO, but can be modified as needed.

The other site used in MOs is the ship-to site.

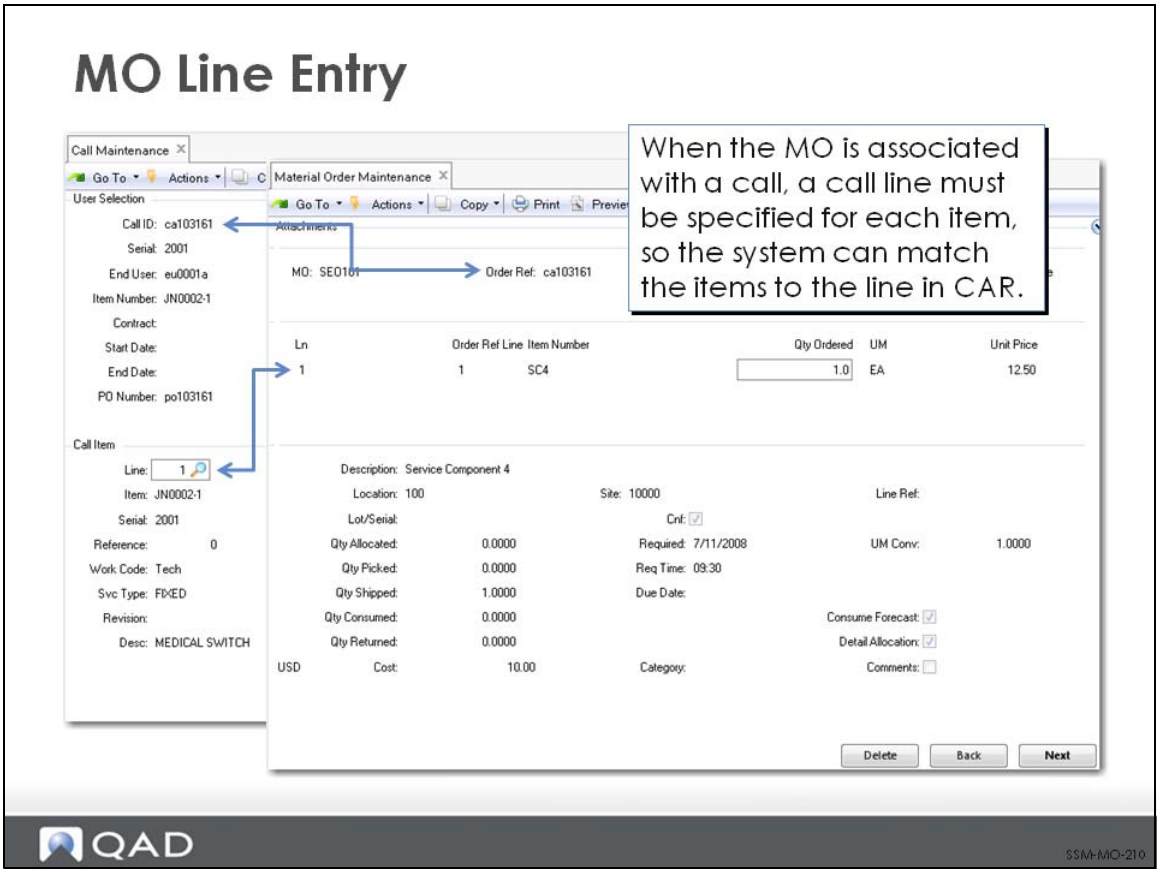
The engineer associated with an MO normally determines the site and location to which items are transferred during MO shipments. If a site and location are associated with the engineer in Engineer Maintenance, these are used by default. Otherwise, the site and location associated with the engineer's area are used. Maintaining consistent defaults is important in streamlining the consumption and return of items ordered on MOs for a call in Call Activity Recording and MO Direct/Pending Returns.

MO Maintenance Allocations

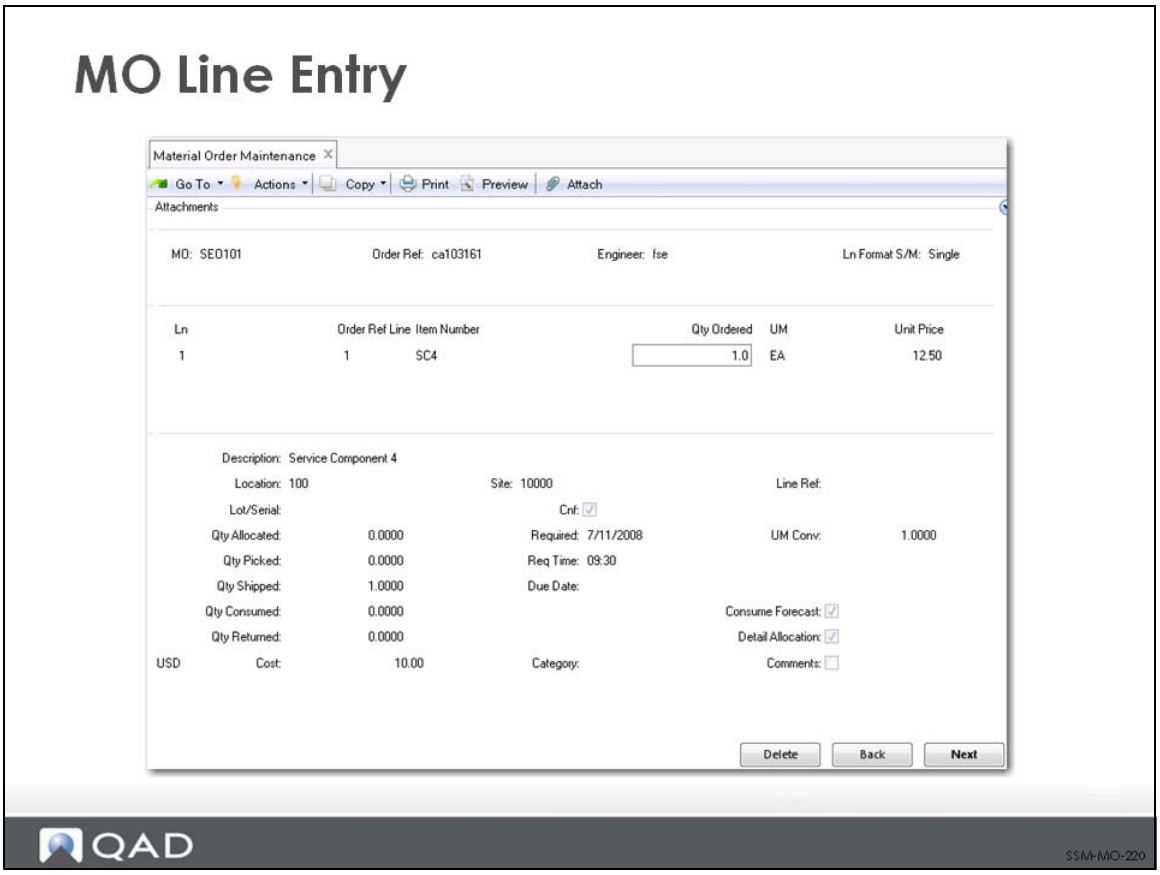


If Allocations is Yes, a pop-up window displays so that you can modify the allocation parameters set by default in the MO control. These parameters include consume forecast, allocate days in future, and detail allocations.

MO Line Entry



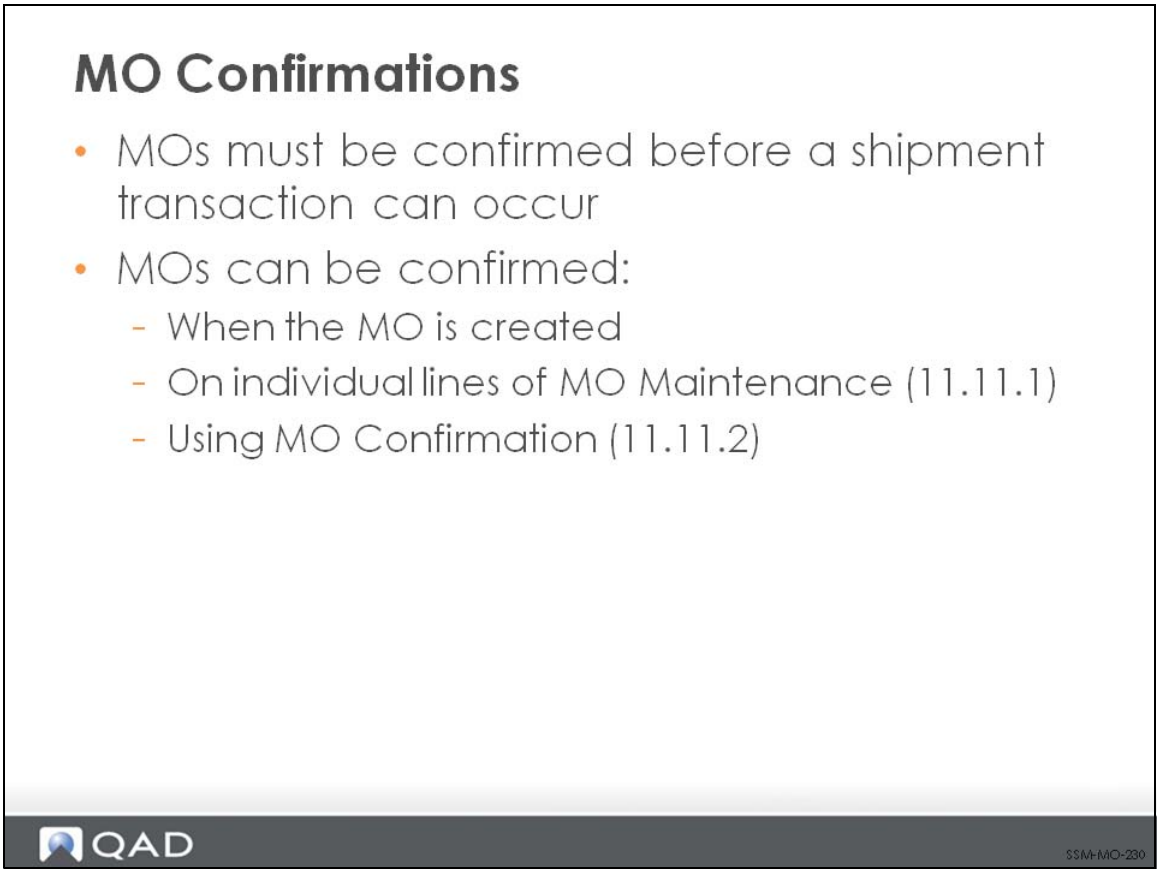
Items ordered for a call are related to a specific call line. If you are creating an MO that is not referencing a call, the line number field is skipped by the system.



The MO line item entry screen is similar to what you would see in Sales Order Maintenance. However, for MOs, only items defined in the item master can be ordered. Items also cannot be configured, since these also are not considered “in inventory.” The list price as defined in the item master displays, but this field is for reference only, since no one is actually going to be paying for the MO.

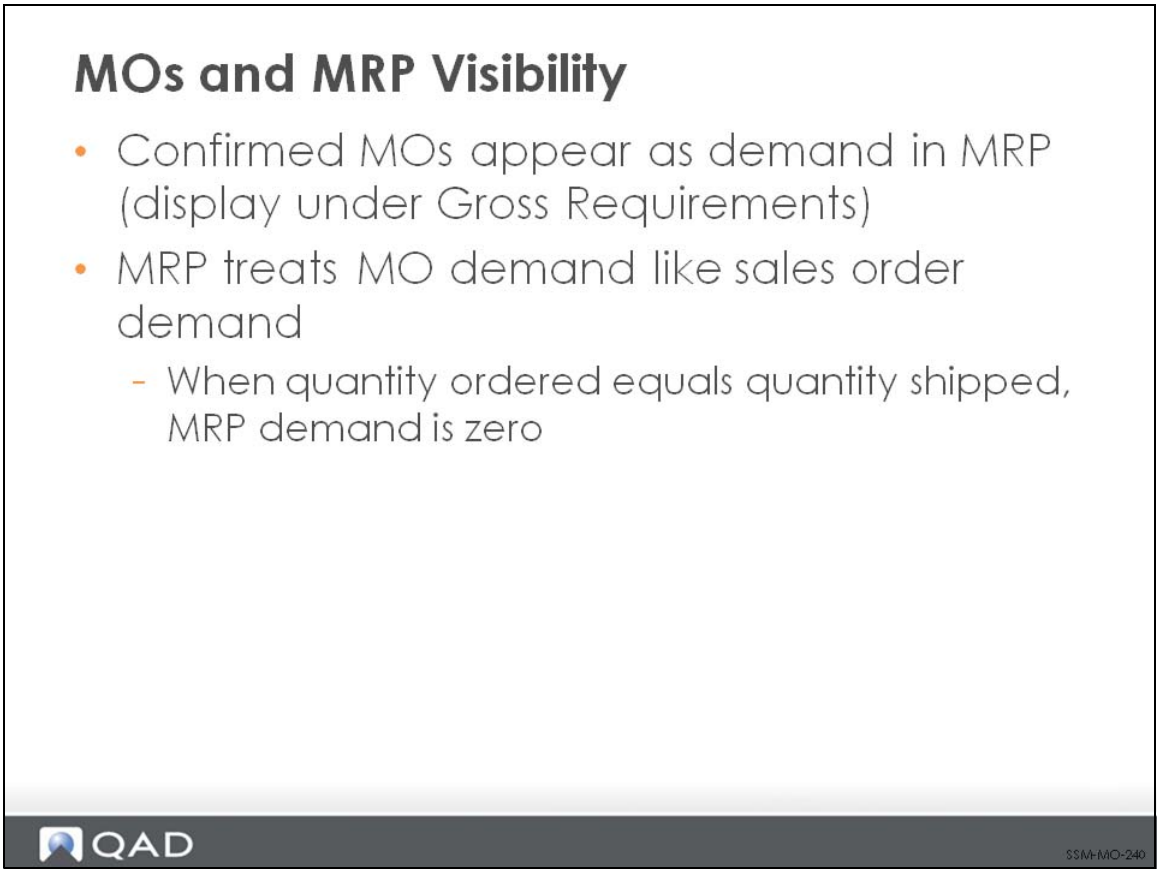
The line reference feature enables users to create eight-character labels or references of their own choosing, and build custom reports for any MO activity line by line.

MO Confirmations



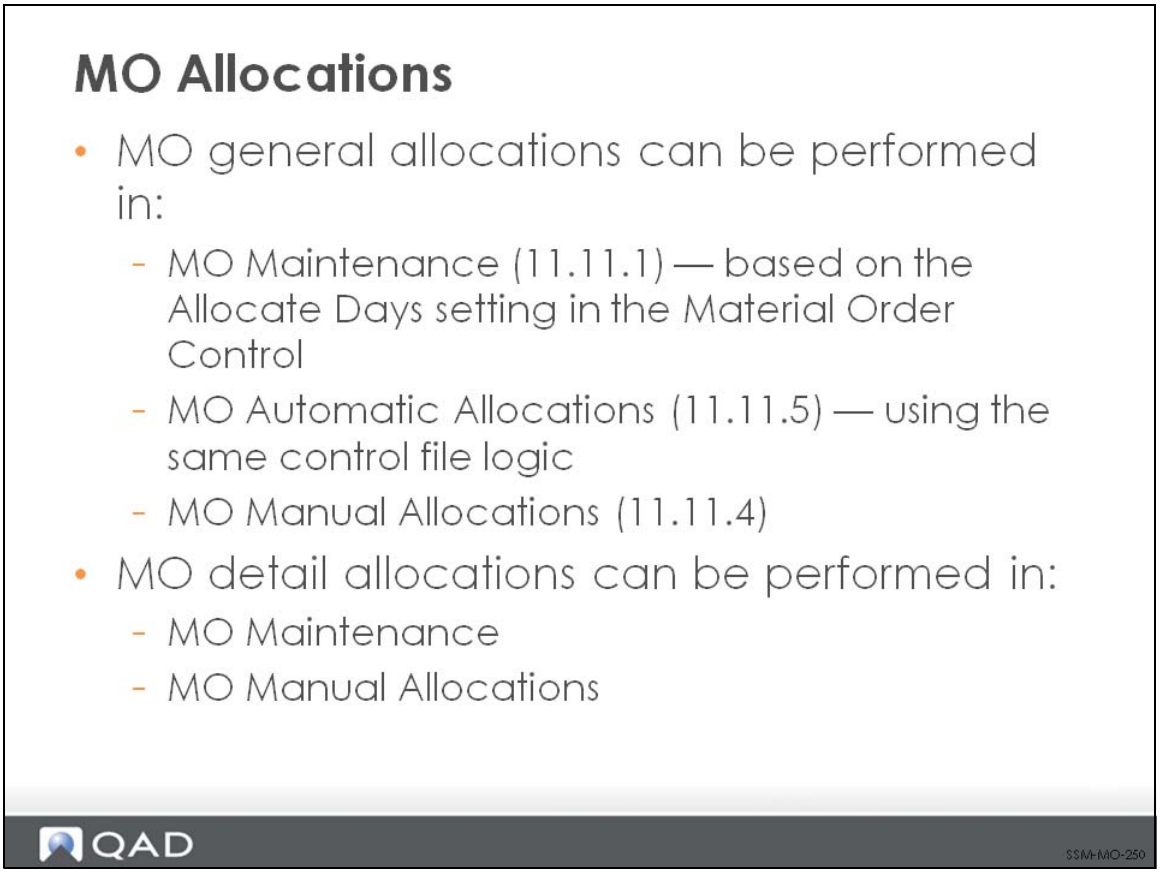
If you entered MO lines unconfirmed, you must execute MO Confirmations before the items can be shipped. The input frame allows various selection criteria, just like Sales Order Confirmation.

MOs and MRP Visibility



Confirmed MOs create MRP demand just like a confirmed sales order line. This figure shows how you can see this demand in the system using the MRP Detail Inquiry.

MO Allocations



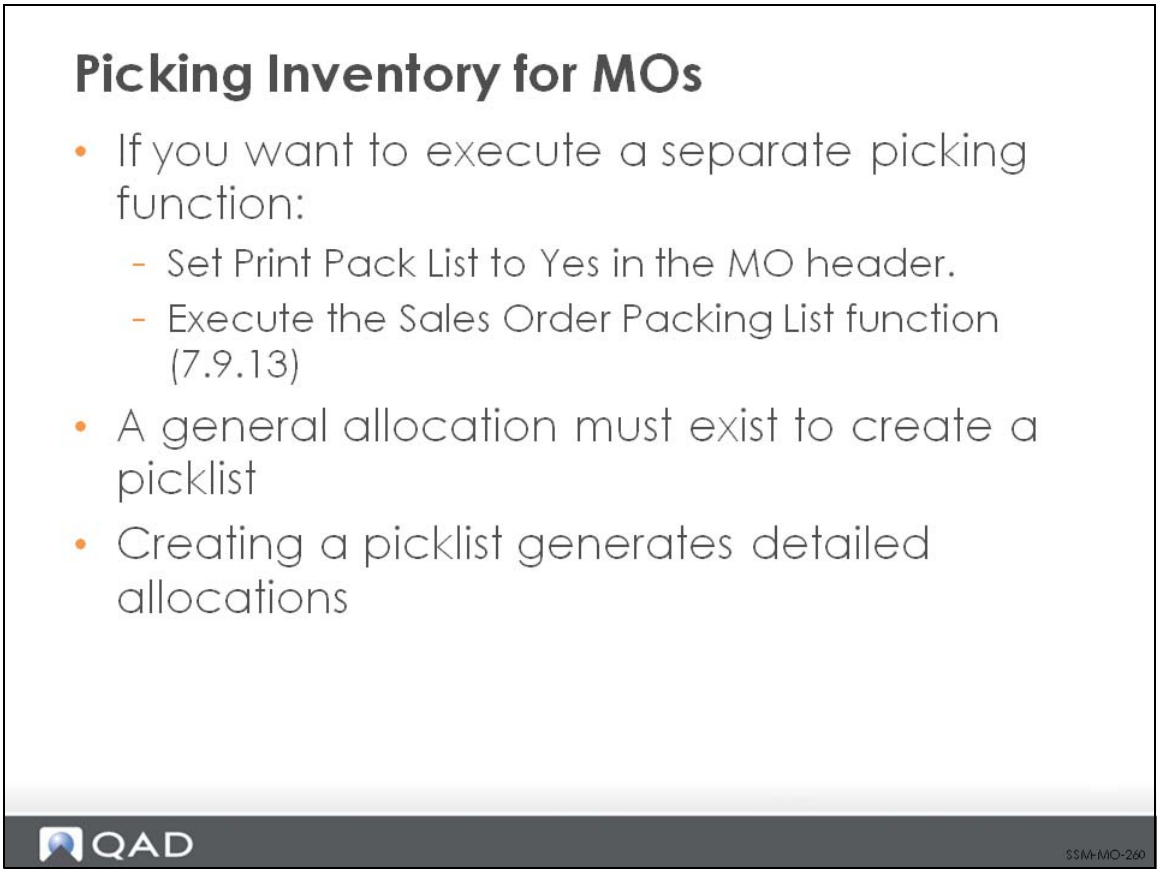
Allocations reserve inventory for shipment on open MOs. General allocations reserve only the quantity needed at a particular site. Detail allocations set aside specific quantities by location, lot/serial, or reference number. Allocations give you control over what orders get shipped and when. Inventory can be allocated in several MO functions.

MO Automatic Allocations can be executed regularly to perform general allocations for any orders due within a certain number of days. This function can be used to allocate for MOs beyond the allocation limit specified in the control during order entry.

MO Manual Allocations can be used to override general or detailed allocations.

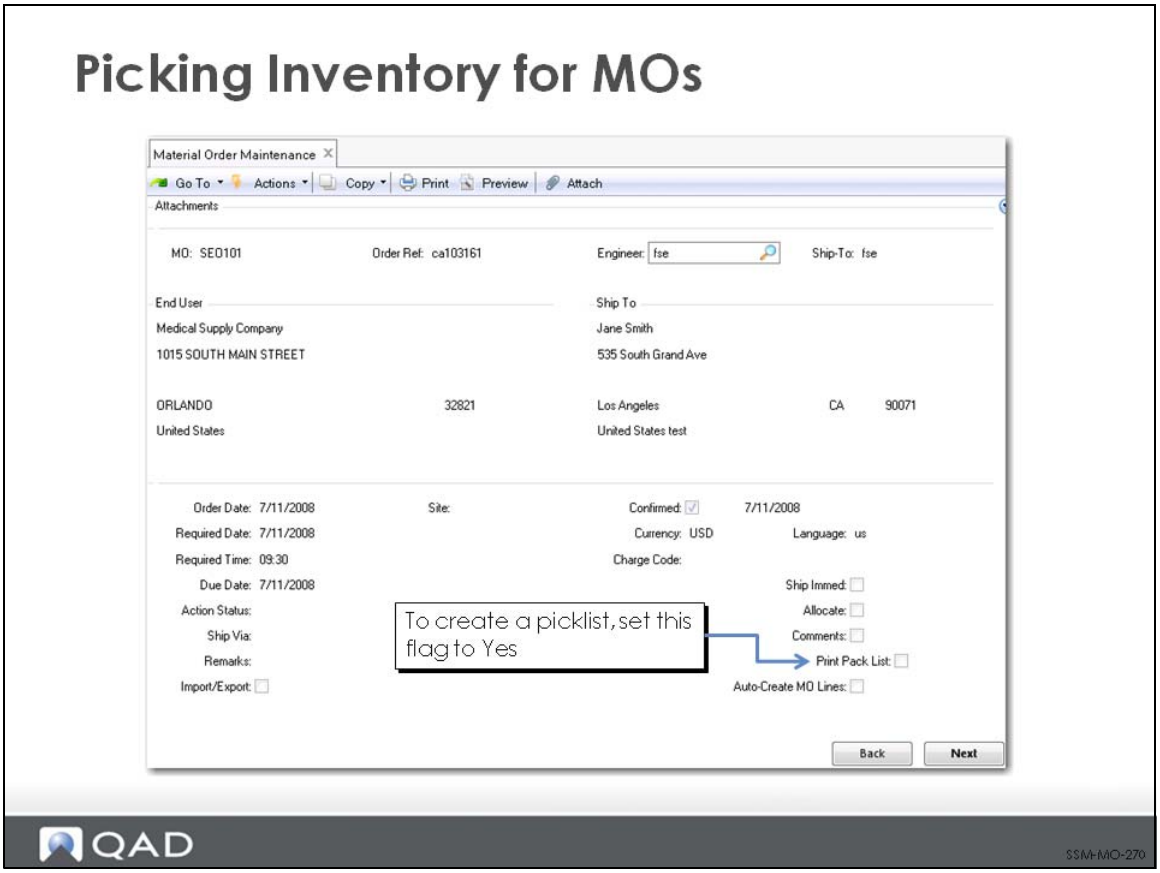
Manual and automatic allocations for MOs are exactly the same as for sales orders, except that the value for Allocate Days into Future is read from the MO control rather than the Sales Order Control.

Picking Inventory for MOs

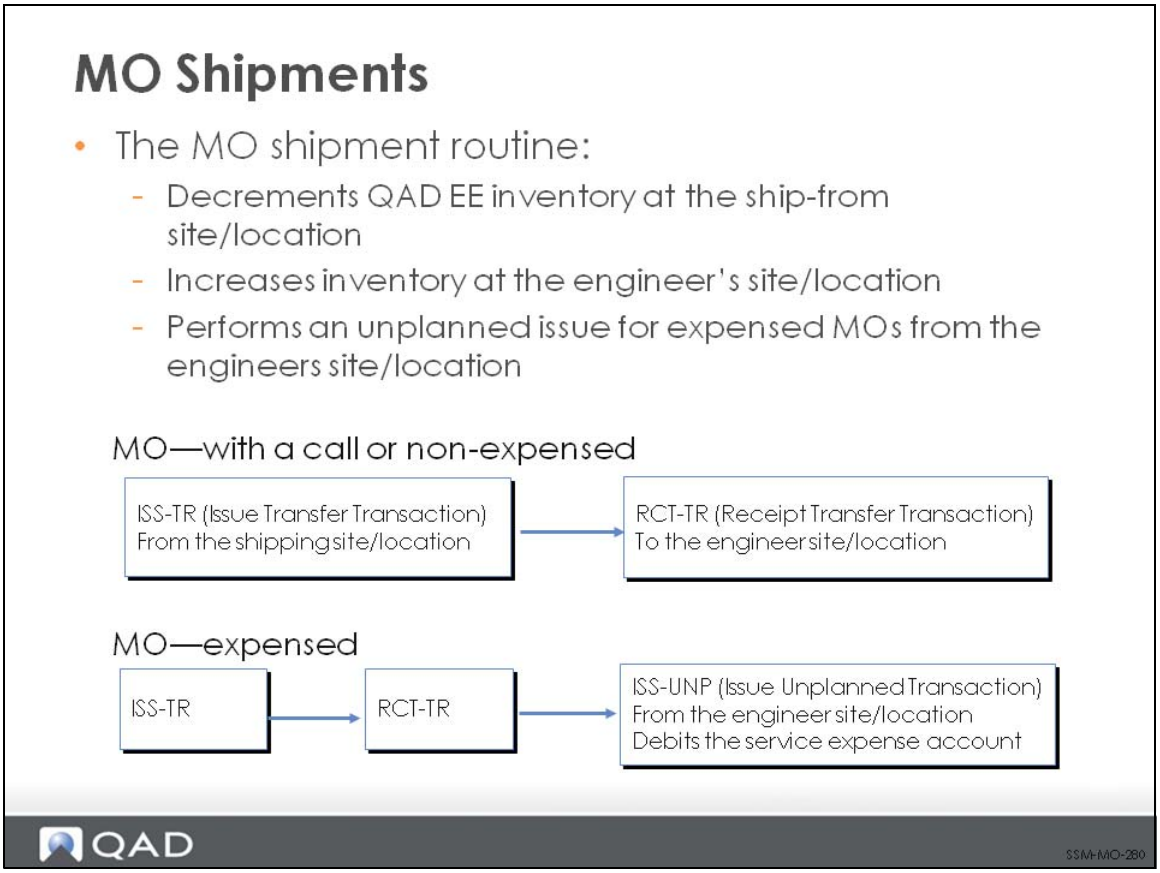


Picking can take place as part of the MO shipment process. If you want to generate a picklist for an MO, set Print Pack List to Yes in the MO header. Then the Sales Order Packing List function can be executed for the MO.

Picking Inventory for MOs - Flag Setting



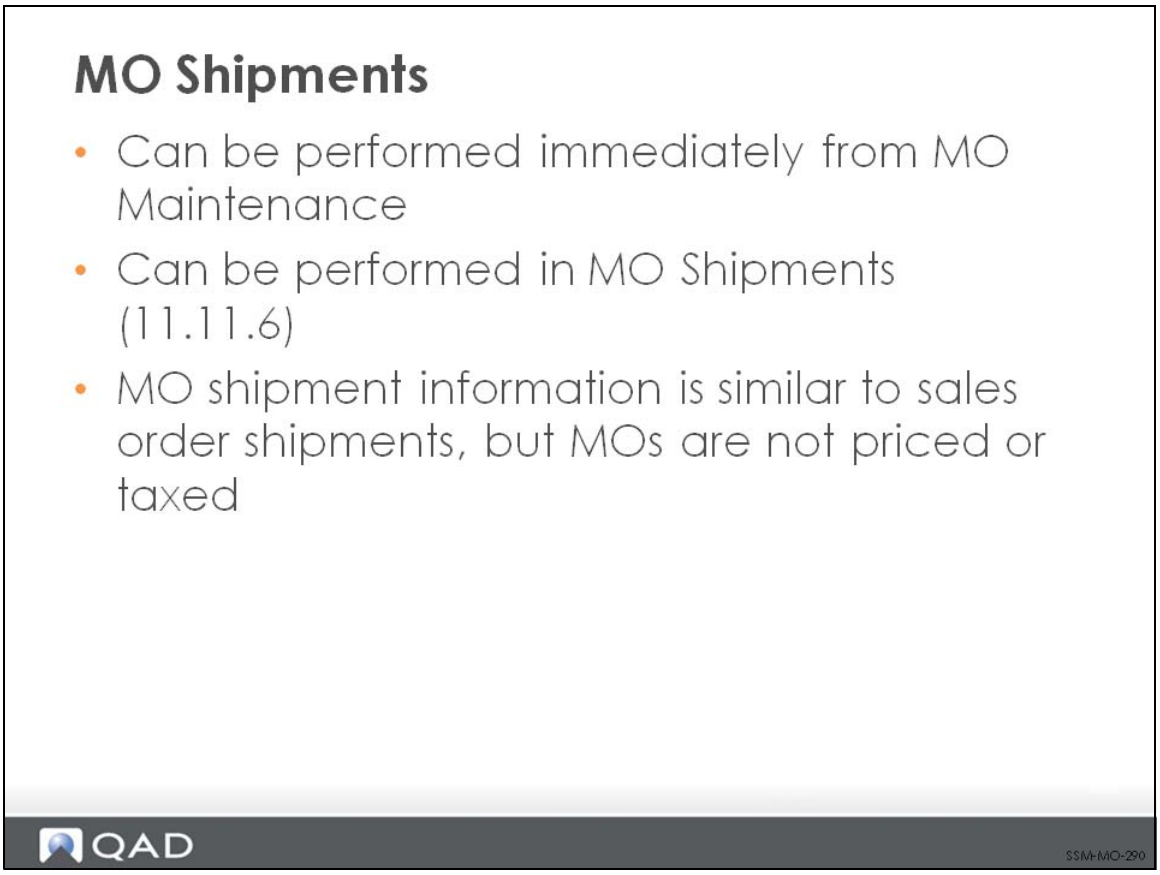
MO Shipments



The MO shipment function enables you to enter the selection data for shipping MOs. Unlike shipment for standard sales orders, MO Shipment executes an inventory transfer and receipt, and an additional unplanned issue, depending on the kind of MO:

- MO with a Call. Transfers items from their current location to the place where they will be consumed on a call.
- MO without a Call. Transfers items from their current location to replenish engineer stock.
- Expensed MO. Transfers the items and then issues them as service expense.

A transfer reduces inventory quantity for an item at the from site and location, and increases it at the to site and location. MO Shipments combines both picking and shipment in one function. Delivery documents are printed when the function completes.

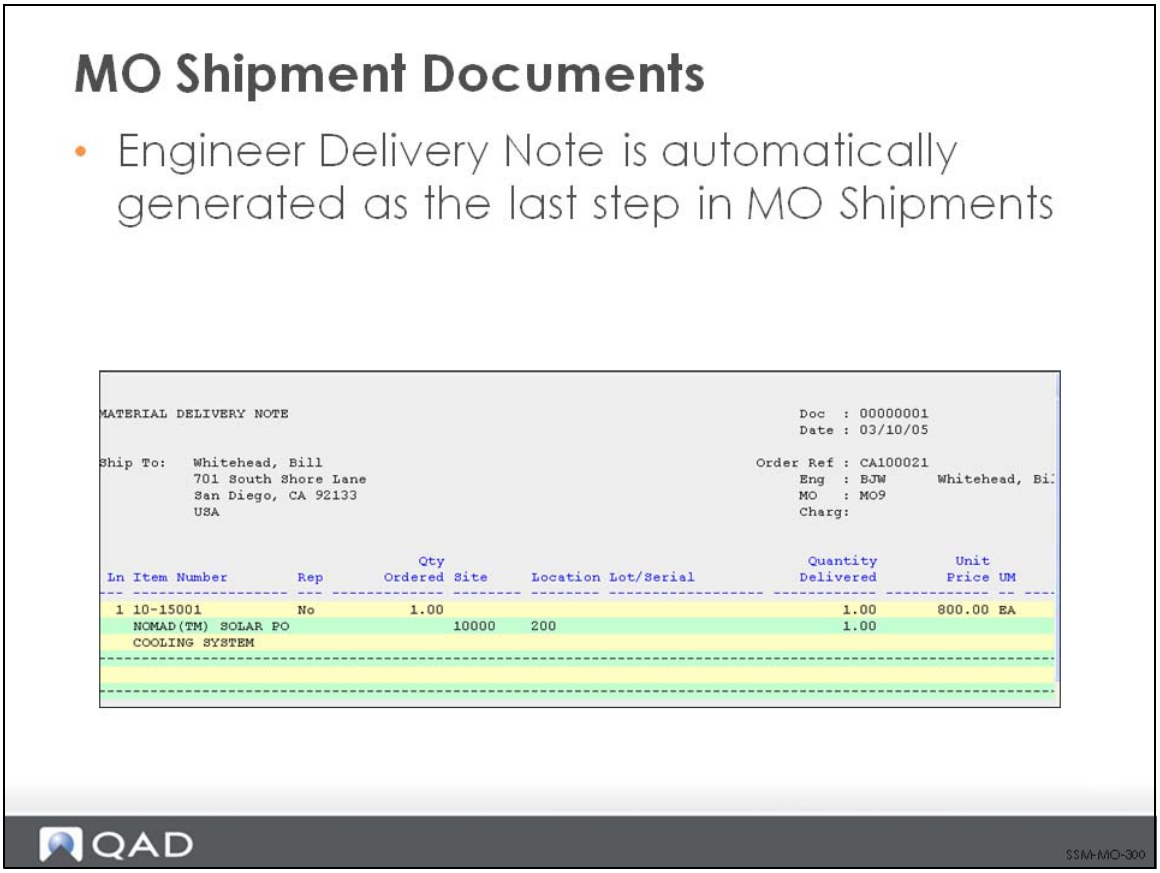


MO shipments can execute as a separate function or be automatically initiated as part of the MO Maintenance function if orders are entered confirmed. Initiating shipment directly from maintenance is determined by the value of the Ship Immed field.

During the MO shipment process, the following steps occur:

- Enter shipment data
- Pick available items
- Confirm shipments
- Enter trailer data
- Print Engineer Delivery Note and Back Order Advice

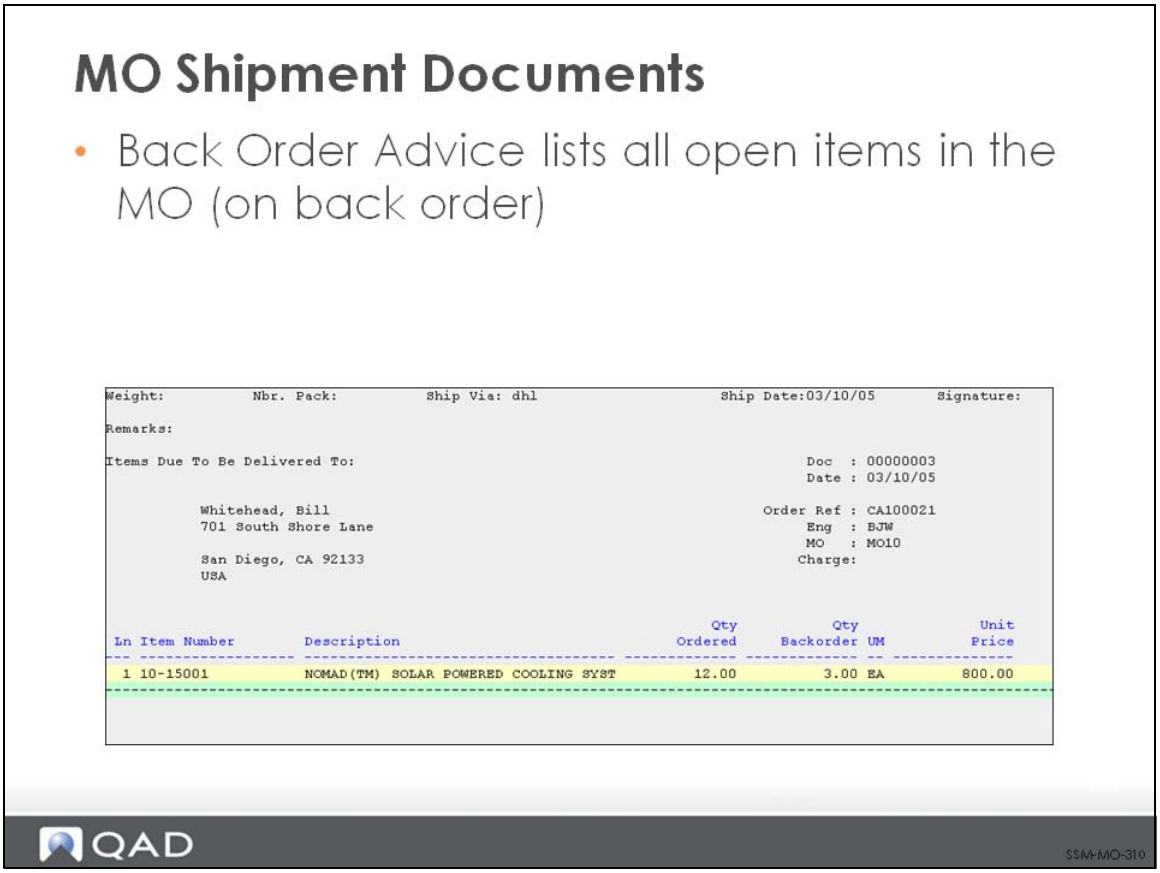
MO Shipment Documents



Each Engineer Delivery Note has a control number on it. This number is used by the system to track transactions related to this MO. This is useful when partial shipments are made or items are left on backorder and shipped later. In this case, the system tracks the quantity shipped on each document. The value for this number can be set in the Next Delivery Note field of the MO control.

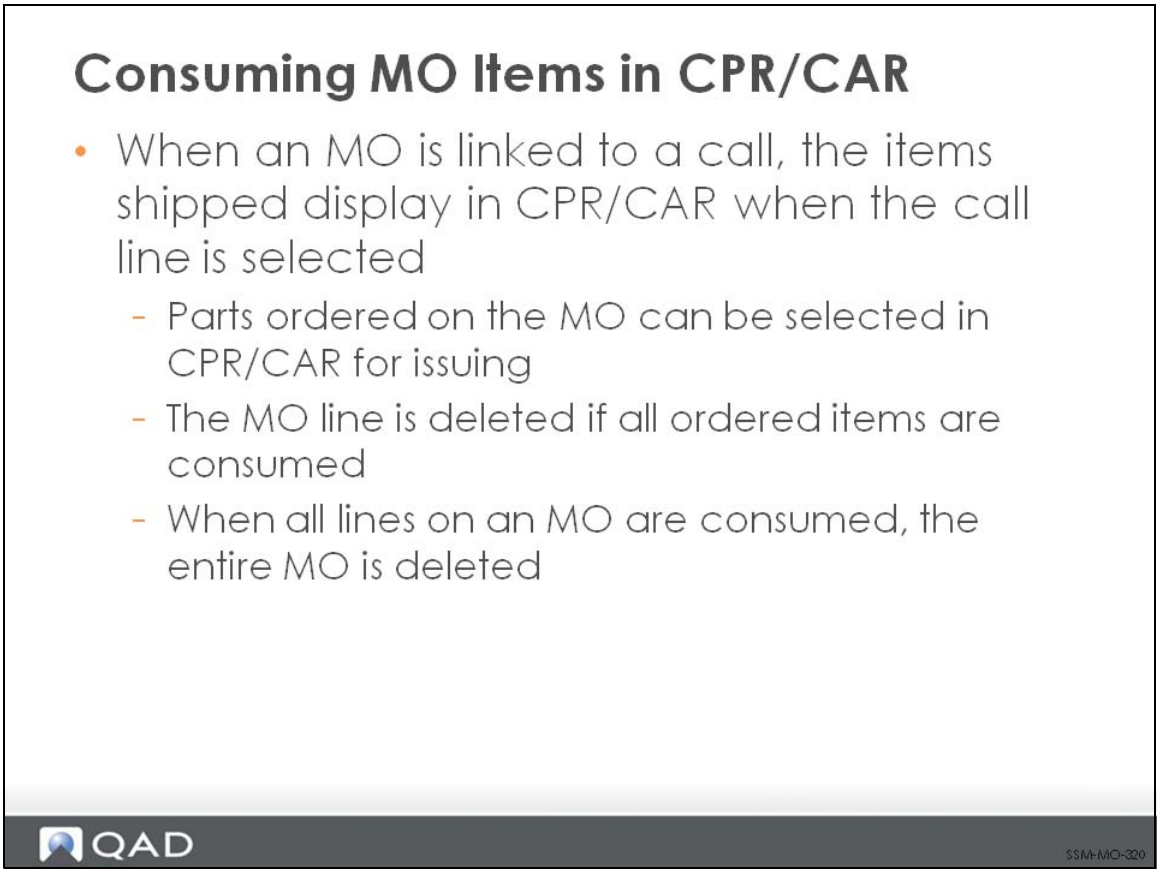
The engineer delivery note lists all the items on the MO that are transferred to the engineer location or the end user on a call. This includes all picking information and price information based on the price of the item defined in Item Master Maintenance. These prices are suggestions only and can differ from the invoice pricing determined during Call Activity Recording.

MO Shipment Documents



The Back Order Advice lists all MO items on back order and their quantity. It also contains sales price information. Each Back Order Advice has a control number on it. The value for this number can be set in the Next Back Order Advice field of the MO control.

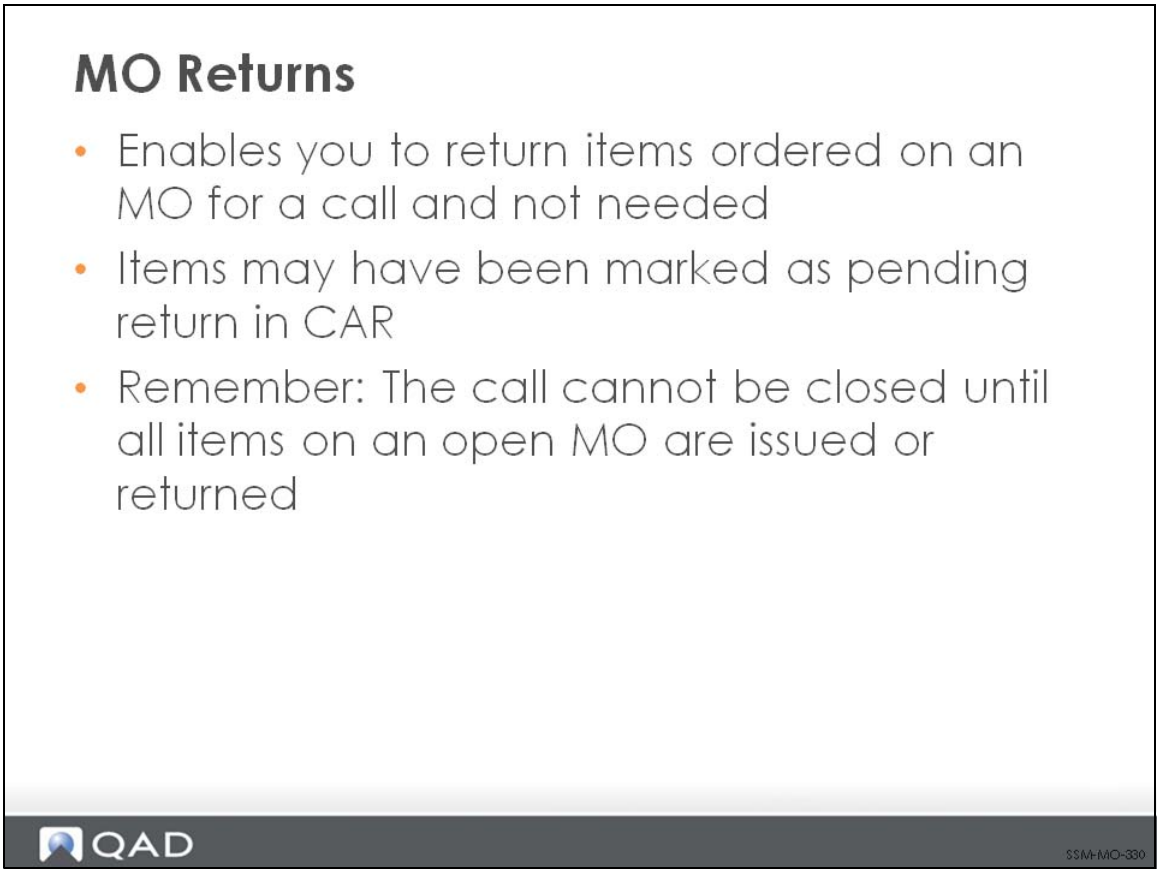
Consuming MO Items in CPR/CAR



The selection screen is a scrolling window with all open MO lines for the call line. An MO line is considered open when the quantity shipped on the MO is greater than the quantity consumed plus the quantity returned.

For each selected MO line, one item usage record is created. Internally, each item usage record remains linked to the MO line so it is recognized later when quantities are updated. As a result, if all the items on an MO are not yet accounted for, the MO remains on the list of open MOs to be selected the next time this call item is processed.

MO Returns

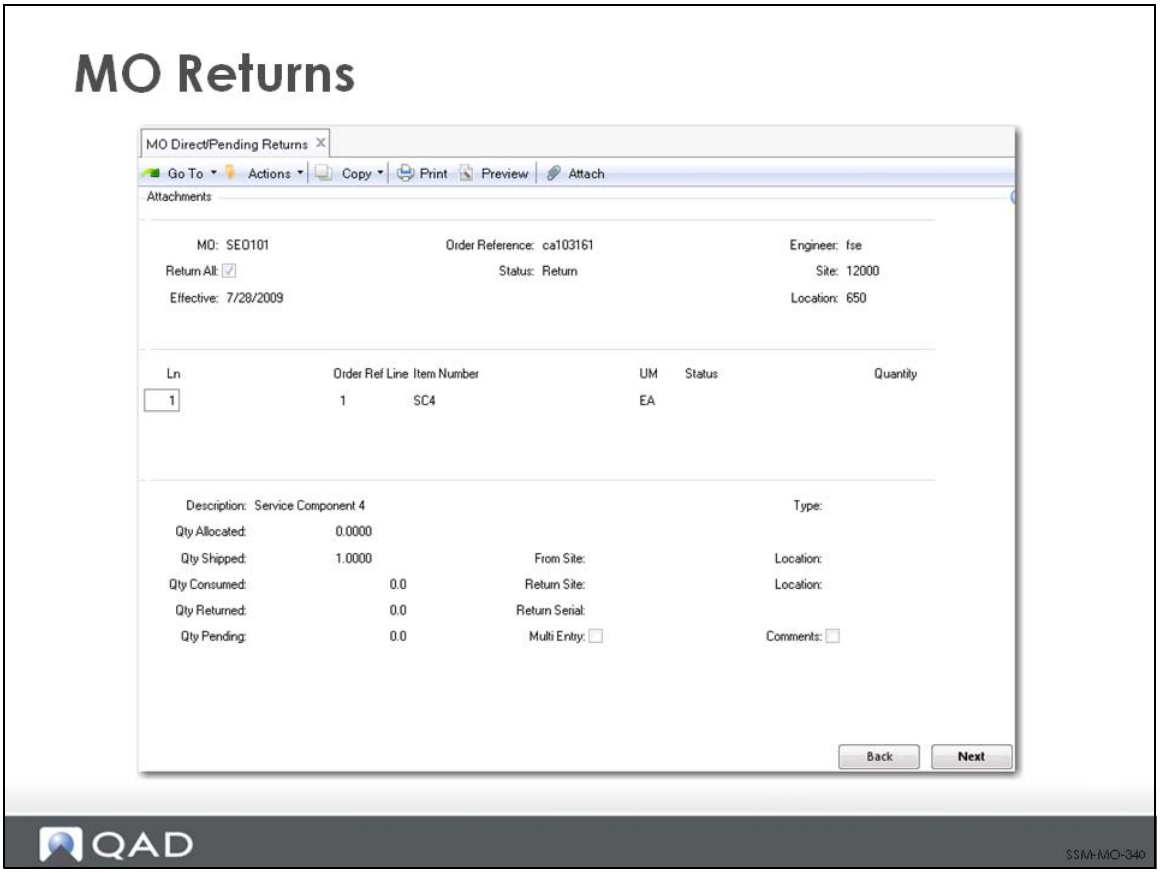


There are two main circumstances when an engineer may need to return items ordered on an MO:

All of the items ordered for a call are not used. These items can be returned in either Call Parts Recording or Call Activity Recording. They can also be returned directly in MO Direct/Pending Returns (11.11.8).

Items returned by an engineer in either Call Parts Recording or Call Activity Recording are given a pending status. This means that the items are registered as returned, but remain in the engineer stock. They must be physically returned to general stock in MO Direct/Pending Returns.

MO Direct/Pending Returns (11.11.8)



Exercise 25: Creating a Material Order (MO) for a Call

In this exercise, you create and ship an MO for a call. Then you go to Call Activity Recording (CAR) and see the value of having an MO created for a specific call. Throughout the exercise, accept field defaults unless specifically asked to change a value.

Prior to starting this exercise, you will need to choose a call to associate with the Material Order. To do this, go to the Manage End User collection and select End User C-EUMDI1. Once you have selected the end user, the information that displays in the tabs below is specific to that end user. Select the Open Call Browse, and view the open calls. If the call you used in Exercise 24 is still open, you may use that call for this exercise. Otherwise, select another call for this end user and proceed to Step 1 below.

1 Go to Material Order (MO) Maintenance (11.11.1).

2 Press Enter on the MO field, and the system will assign the next available MO number.

Write that number here: _____

3 Put the listed value in the following field and continue.

Field	Value
Order Ref	Call ID created on page 390

Notice that the engineer assigned to the call defaults as the Ship-To. This can be overridden to any valid Ship-To for the Customer related to the call. Leave the default engineer as the Ship-To and go to the next frame.

If the engineer was not assigned, assign engineer as JGB, and Ship To as JGB.

4 Notice the Site field and its default value. How is this site used in MO processing? Set the following value.

Field	Value
Ship Immed	Yes

5 Click Next to display the MO line item entry frame. Enter the following data in the listed fields.

Field	Value
Ln	1
Order Refer	1
Item Number	C-C001
Site	C1
Qty Ordered	1
Confirmed (Cnf)	Yes
Detail Alloc	No

6 Save your changes; proceed to the shipment frame.

Notice the Engineer Site and the Engineer Location. If you do not remember where these default from, review the help for these fields.

7 Go to the shipment detail frame. The item ordered is now ready to ship. verify that the Consume Shipped Items field is set to No. We will consume these items in CAR in the next exercise.

8 Continue on until prompted to display Material Order lines being shipped, accept the default Yes by pressing Enter.

9 When the Is all information correct question displays, accept the default Yes.

10 The final shipment frame displays. Enter the following data.

Field	Value
Ship Via	FedEx
Ship Date	<Accept default>
Remarks	This my first MO.

11 Print the MO and review the Material Delivery Note. Notice the following information.

Field	Value
Doc	Delivery Note ID number
Order Ref	Call ID attached to MO
Eng	Engineer on the MO
MO	MO number

Notice the item listed as shipped. Down at the bottom, notice that the remarks you entered are also displayed.Return to the menu.

Exercise 26: Consuming MO Items in CAR

In this exercise, we see the benefits in Call Activity Recording of using an MO to order items in support of performing a repair.

1 Go to Call Activity Recording (11.1.1.13) and enter the Call ID from Exercise 25.

2 Proceed to the Item Selection frame. Select line 1.

3 Proceed to the Report field. Press Enter and the system will automatically assign the next Report number. If you used the same call for Exercise 25 that you used for Exercise 24, then you will receive the prompt about the line already being invoiced. Answer yes to the prompt and then leave the Report field blank so that a new report ID will be system assigned.

4 In the Item Detail frame, review/change the following values and then continue.

Field	Value
Eng	JGB
BOM Code	<blank>
Routing	<blank>
Taxable	No
Fault Codes	No
Update Installed Base	Yes

5 The Material Order Selection frame should now appear.

In this frame, the system automatically loads the item you ordered and shipped on your MO. If there were multiple items ordered for this call line on the MO, they would all display. You would use the Next/Previous capability to toggle through the items. When you find the item or items that you want to record as consumed on this report, click on the Material Order ID to select the line. An asterisk displays to the far left of the item, indicating that it is selected.

6 Press Enter and make sure that the asterisk displays.

7 Continue to the Labor/Expense frame.

8 Continue to the Item Usage frame.

You should now see the item you selected in the Material Order Selection frame displayed in the Item Usage frame. Notice also that an asterisk appears at the far right of the line, under the MO label. This is to let you know that this item was selected from an MO attached to this call line.

9 Select this line and set the Det field to Yes; then click Next. Notice in the Item Usage Detail frame that a value has been filled in by the system next to the MO Line label on the bottom left. The system maintains this link with the MO until the item is actually consumed from inventory.

10 Continue on until you receive the message: Display inventory about to be processed? Accept the default Yes.

11 You should receive a message asking: Is all information correct? This is your last opportunity to prevent inventory processing by responding No and pressing Enter. Go ahead and accept the default.

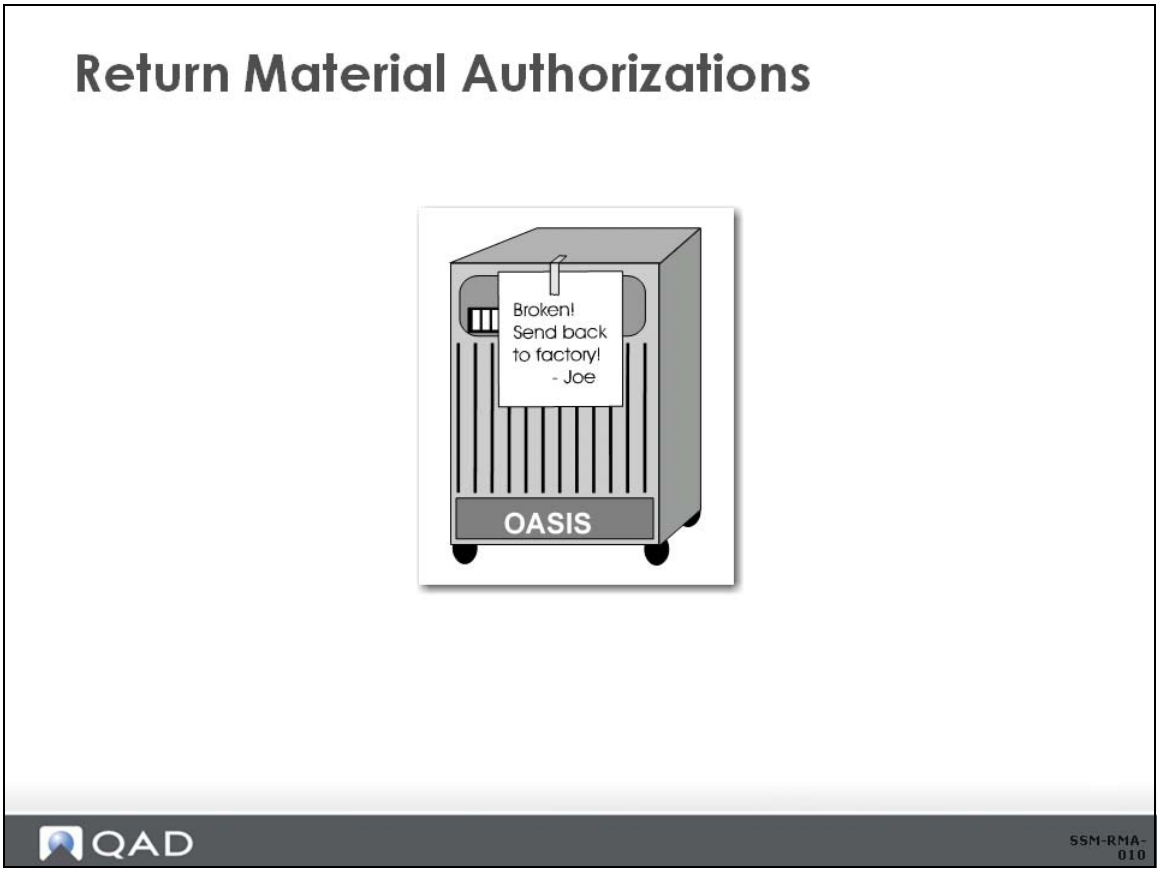
12 Specify Printer for the Output device prompt and review the output

13 Return to the menu.

Chapter 14

Return Material Authorizations

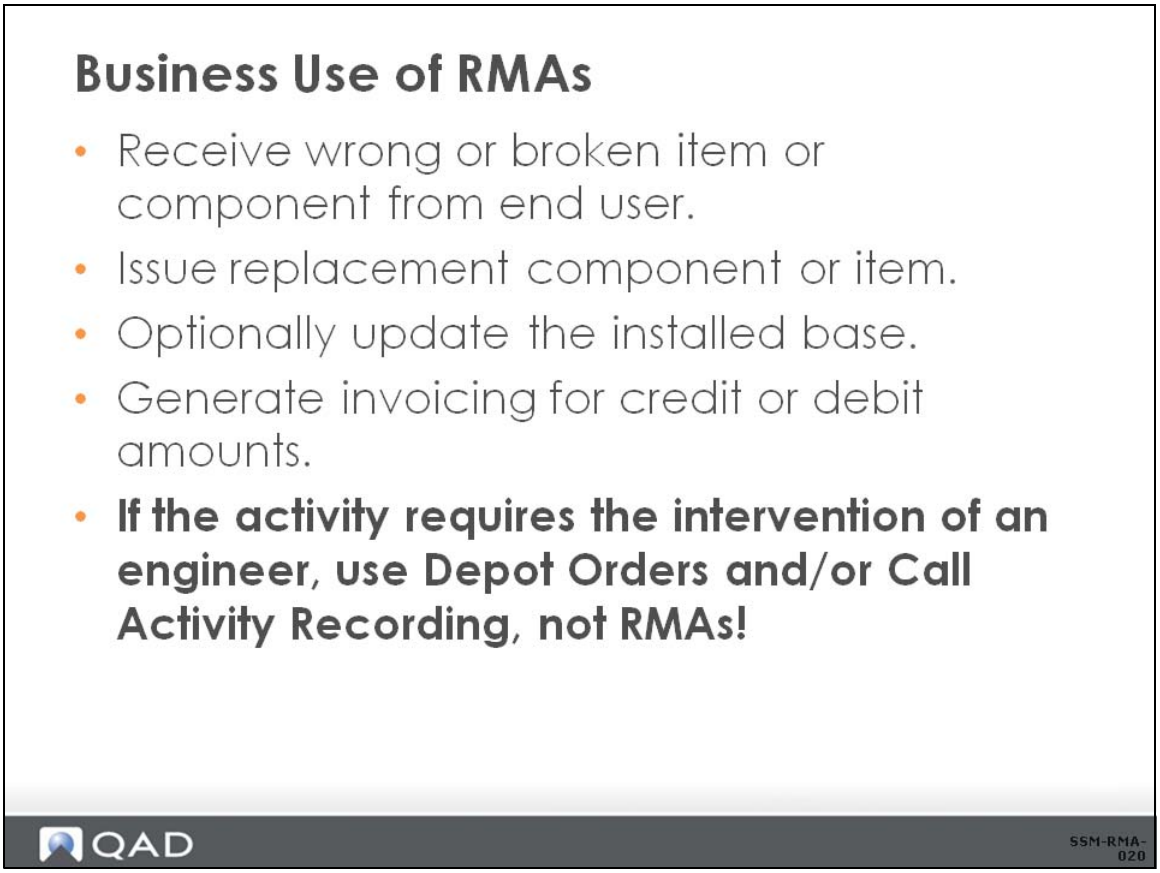
Overview



Return material authorizations (RMAs) are used to manage the process of receiving returns from your end users and issuing replacement parts.

This lesson will explore the setup required to use RMAs and how they fit into the service environment.

Business Use of RMAs



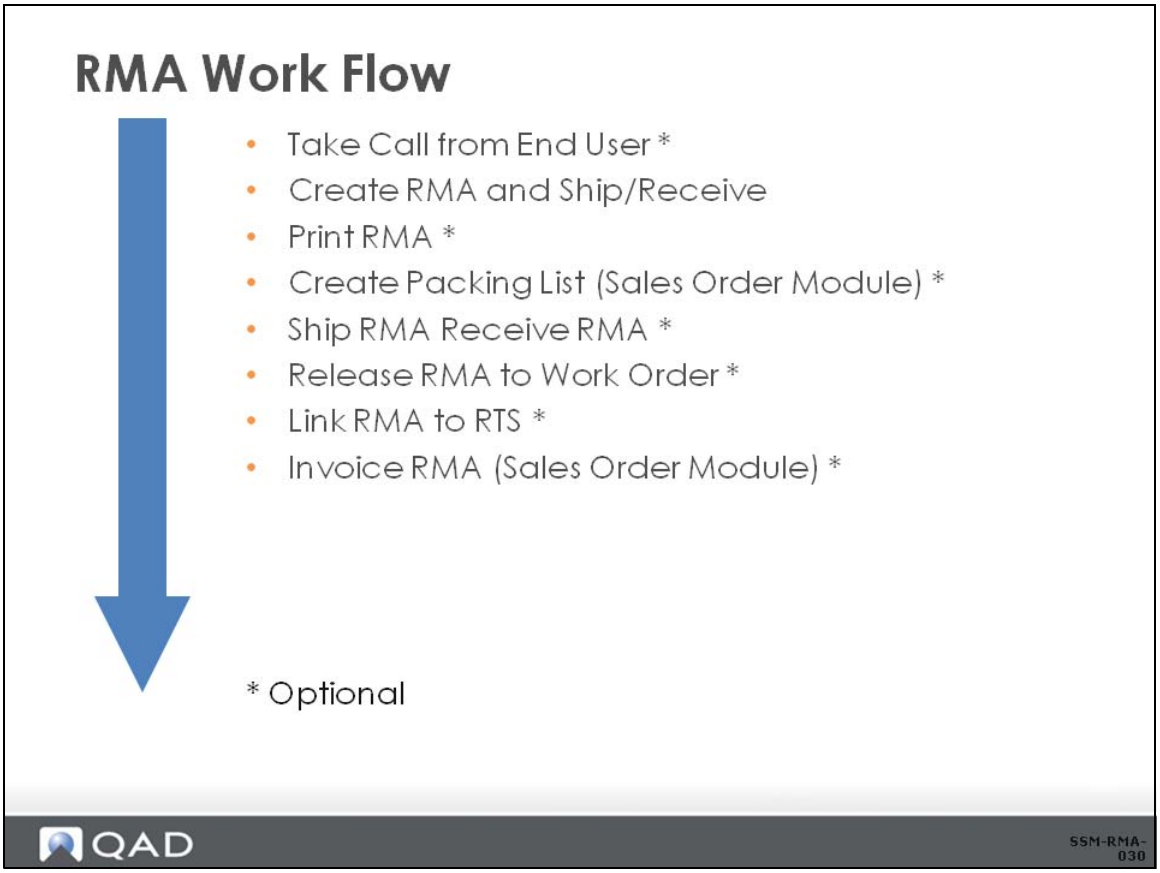
The RMA is the primary mechanism for managing simple returns in QAD EE. In general, RMAs perform the activities as noted in the figure.

The scope of RMAs is limited strictly to the receipt and issue of items. Any activity that requires the intervention of an engineer should be tracked with Call Activity Recording. There is some overlap in these two functions in that both Depot Orders and Call Activity Recording support the exchange of items. However, in CAR, this exchange is part of an engineer's activity in responding to a call for repair or preventive maintenance.

The following two features distinguish RMA returns from returns in Depot Orders and CAR.

- RMAs can be generated independently of call tracking functions
- RMAs do not require the intervention of a service engineer

RMA Work Flow

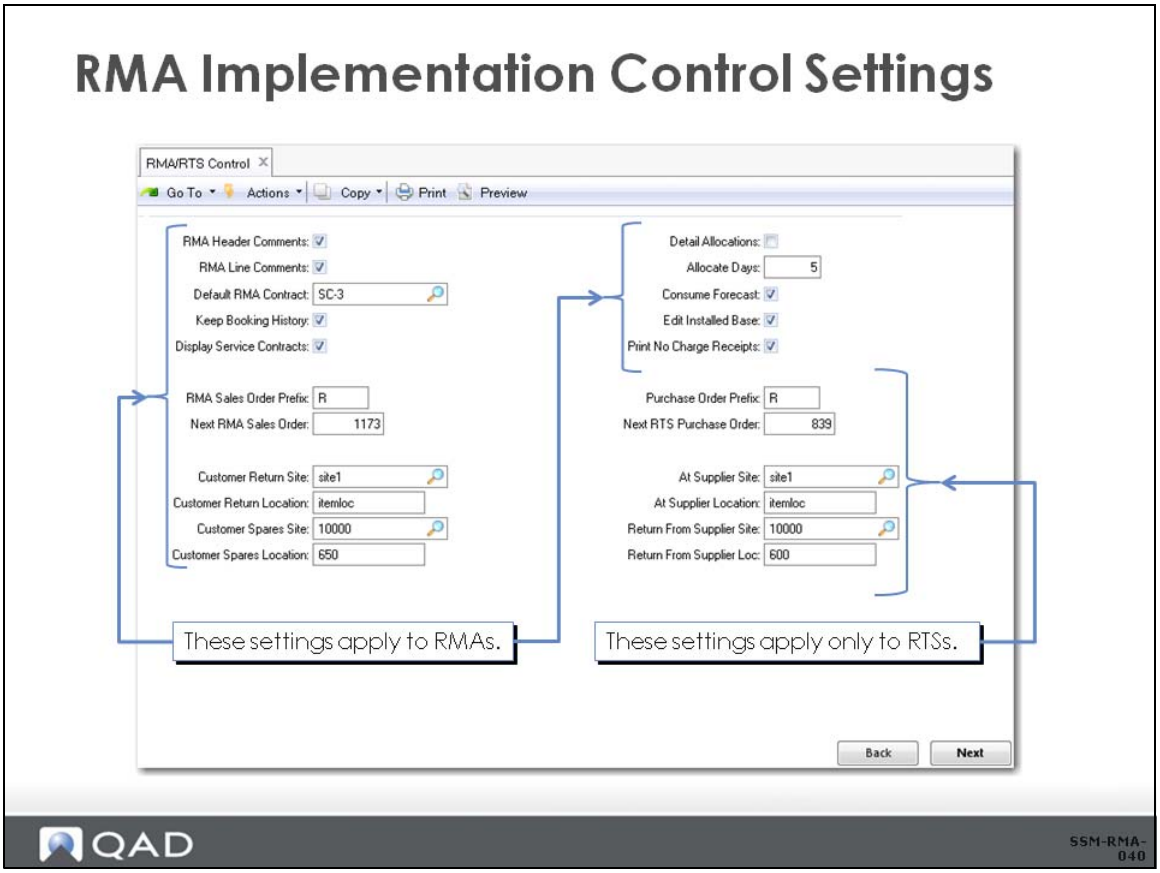


RMAs are created with RMA Maintenance (11.7.1.1). Shipments and receipts can take place directly when the RMA is created or later in separate RMA Shipments and RMA Receipts functions. The RMA can be printed (RMA Print) and a packing list for an RMA can be created in the Sales Order module (Sales Order Packing List).

If the item received on an RMA is going to be refurbished, it can be released to a work order using RMA Release to Work Order. If an item returned from an end user needs to be sent to a supplier for repair, an RMA can also be associated with an RTS in RTS Maintenance.

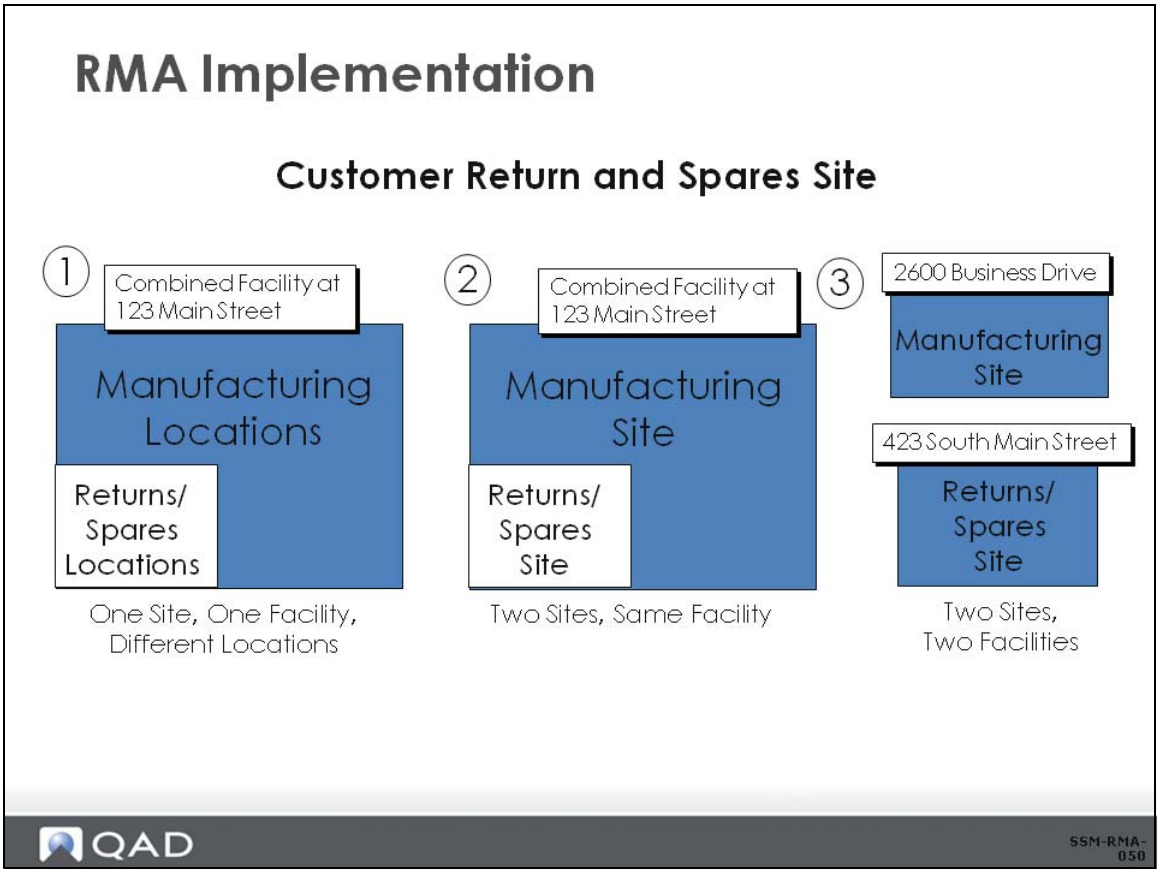
RMA billing takes place in the Sales Order module using the standard invoice print and post functions. Just as with a sales order, you must use Pending Invoice Maintenance (7.13.1) to change prices. Pending Invoice Maintenance can also be used to change tax status and salesperson commission. Credit issues are also managed in the Sales Order module. If an RMA is on hold because of a credit problem, it can be cleared using Sales Order Auto Credit Approval.

RMA Implementation Control Settings



The RMA/RTS Control (11.7.24) sets defaults for handling both RMA and RTS (return to supplier) functions. Some fields apply to both RMAs and RTSs. Others are used exclusively by one or the other.

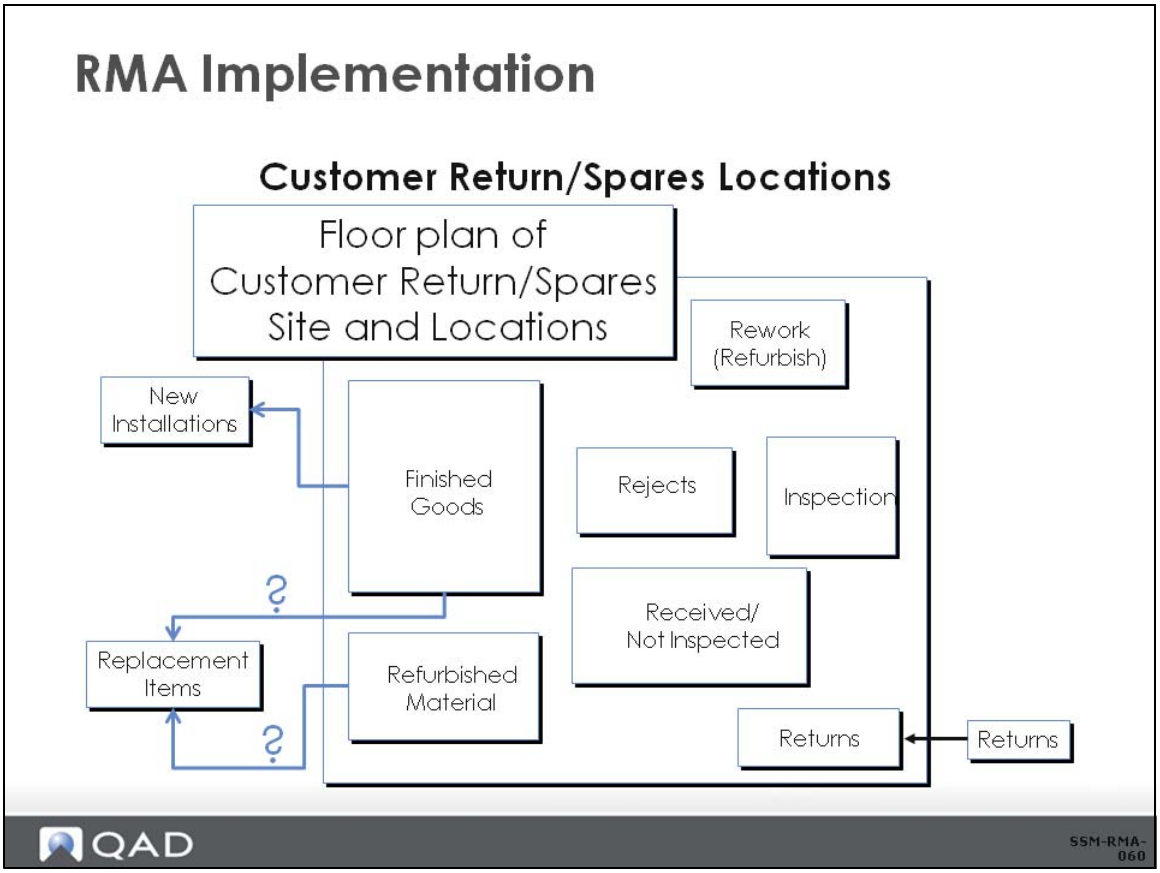
Customer Return and Spares Site



The site specified in the control for Customer Return Site is used as the default for RMA receipts. If you perform repairs at a manufacturing site, you should specify it as the Customer Return Site. If you keep your return and repair operations separate from manufacturing, use the repair site as your Customer Return Site default.

Another important control setting for RMAs is Customer Spares Site. The site specified in the control for Customer Spares Site is used as the default for RMA issues of replacement items.

Customer Return/Spares Locations



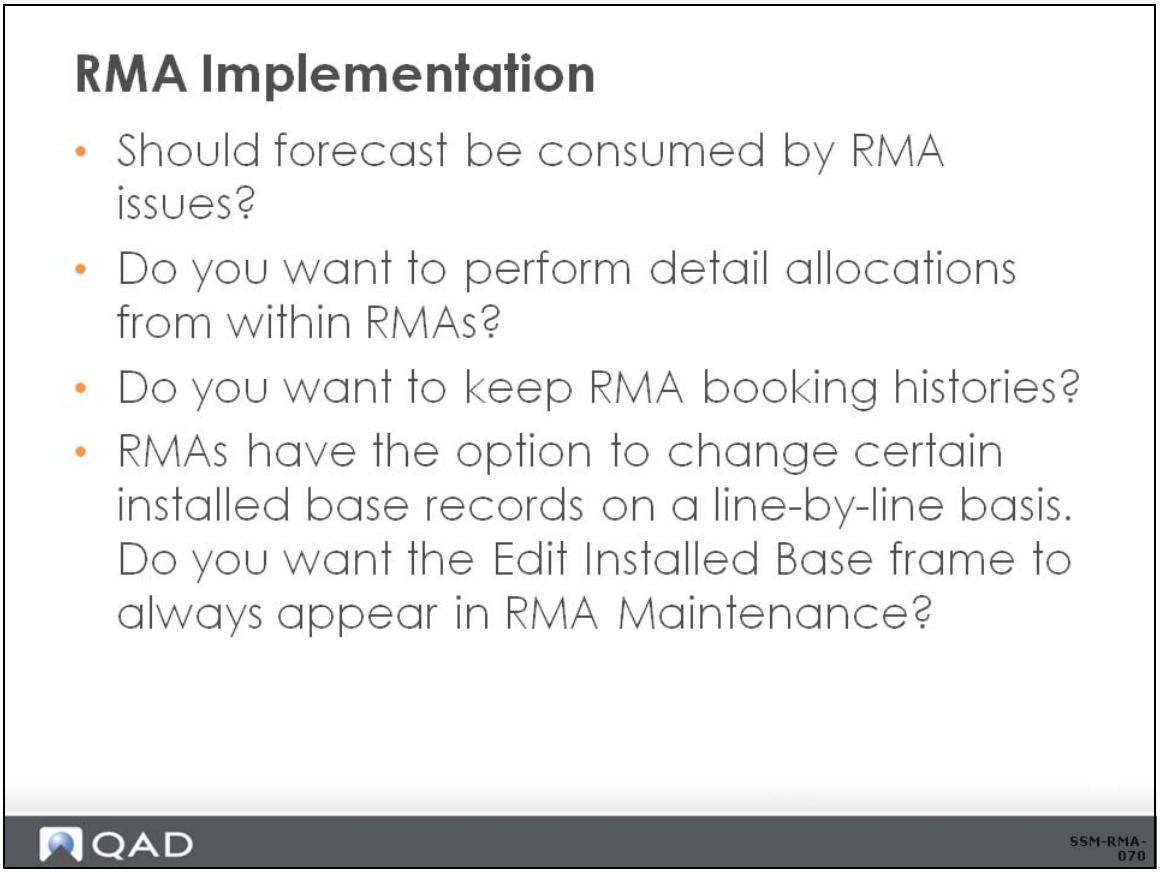
Along with a customer return site and customer spares site, you can set customer return and spares location defaults. The return default location appears on RMA receipt lines, the spares default on RMA issue lines.

If you use a special location for receiving RMA goods, this location probably has special characteristics. You need to ask yourself: Should the received material or items be available for inventory allocation? Generally, until the returned item is thoroughly inspected, you would not want it to be available for sales orders or work orders. In this case, set your return location to have a status of not available.

Another consideration: Do you want the inventory at your return location to be nettable? In other words, do you want this inventory to be considered on hand by MRP? If most of your returns can be put into usable stock with little or no repair, set the status of this inventory location to be nettable. If you tend to scrap most returns, set the status to be non-nettable, so MRP does not count the inventory as being on hand.

The RMA receipt function actually does a negative sales order shipment to process the return, so the ISS-SO transaction should not be restricted for this location.

RMA Implementation

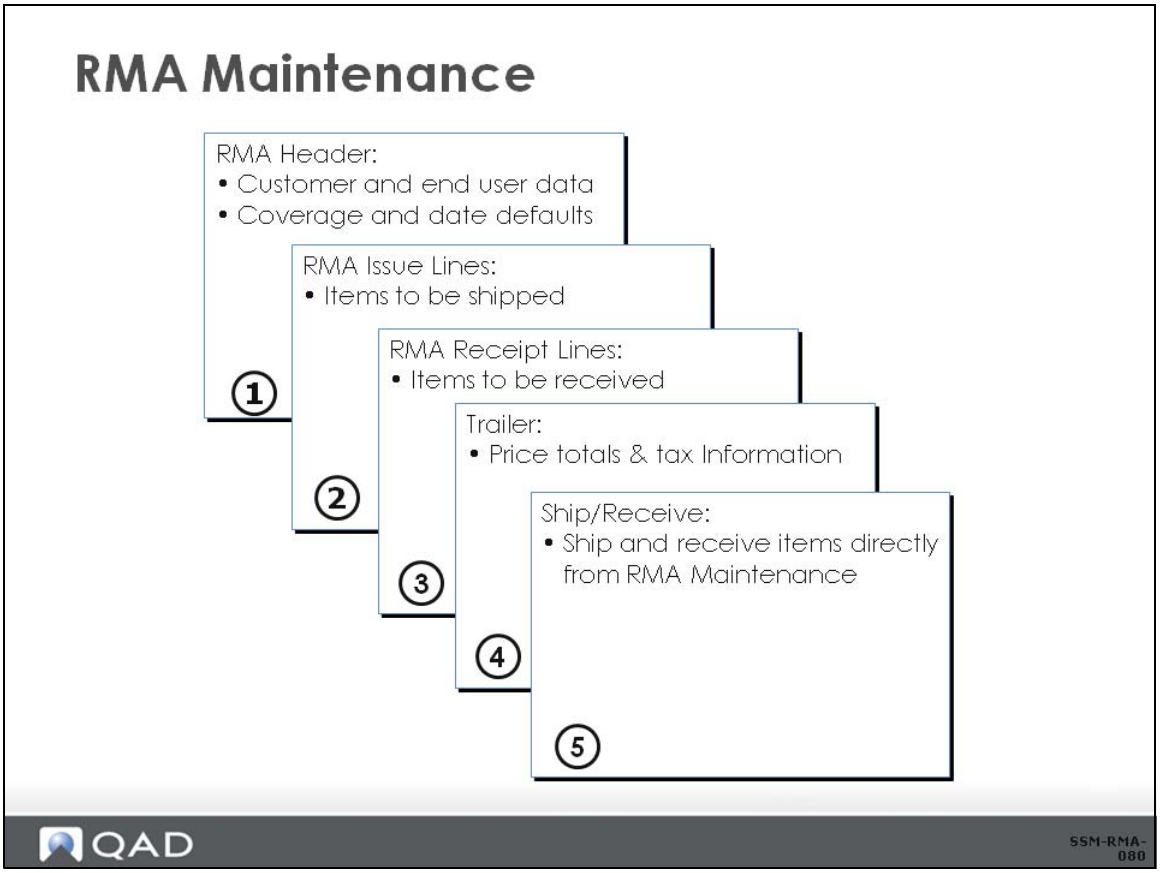


As shown in the figure, there are several other implementation issues that determine how you set remaining parameters in the RMA/RTS Control.

- If you are forecasting your replacement parts, set Consume Forecast to Yes. Forecast is then consumed when items are issued on an RMA.
- If you are going to perform detailed inventory allocations from within RMA Maintenance, set Detail Allocations to Yes so that you always get an inventory allocation pop-up window.
- If you want to keep a transaction history beginning from when an RMA line is first entered, set Keep Booking History to Yes.
- If you want to be able to modify installed base information within an RMA, set Edit Installed Base to Yes in the control.

Note Since an RMA is similar to a sales order, some settings in the Sales Order Control are considered by RMAs as well as sales orders (Shipping Lead Time, Line Format, Price Table Required, Vary Pricing Date by SO Line, Minimum Ship Amount, Consume forecast forward or backward, FOB Point).

RMA Maintenance



Executing RMA Maintenance follows a number of distinct steps:

1 Fill out the RMA header frames which sets up default values for line item issues and receipts.

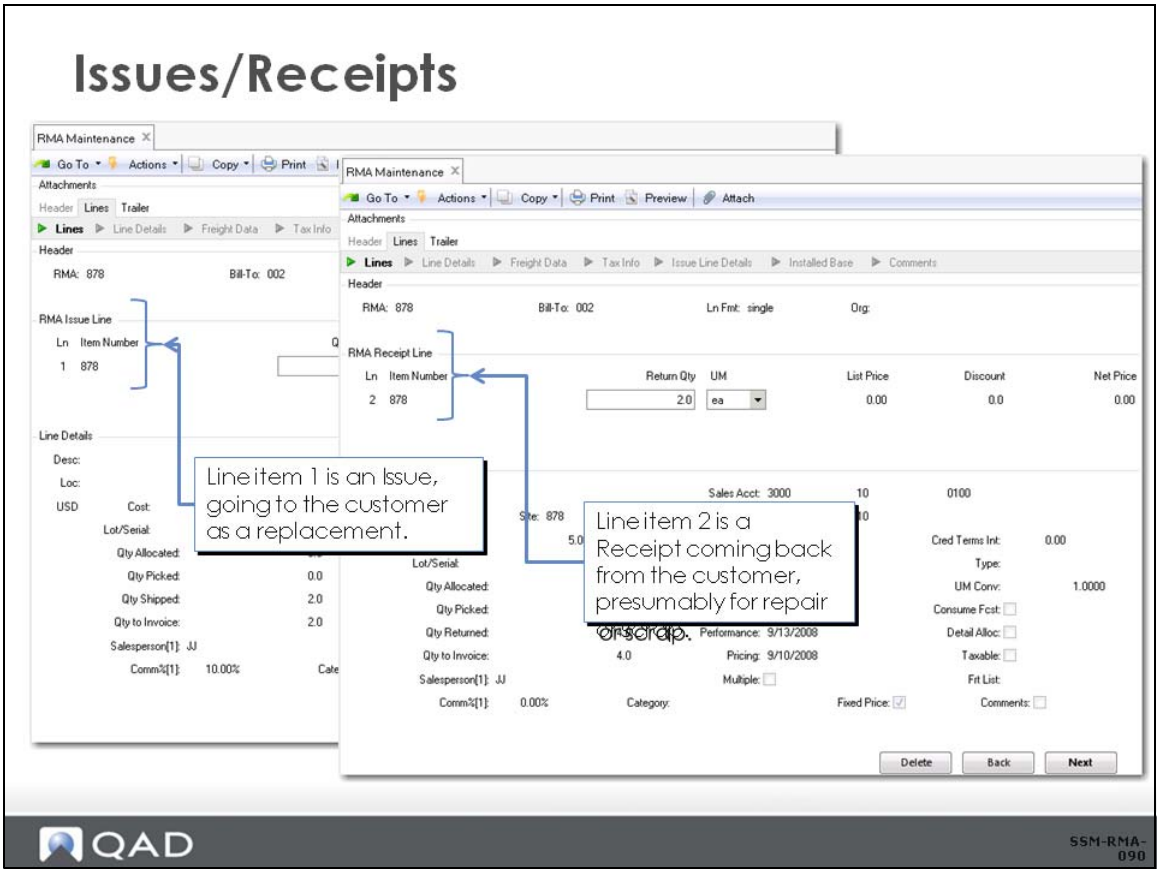
2 Record items to be issued to the customer (Issues).

3 Record items to be returned from the customer for repair or replacement (Receipts).

4 Complete the trailer that totals billing amounts and trailer codes.

5 Optionally ship/receive directly from RMA Maintenance; if not done here, separate ship and receive functions can be used.

Issues/Receipts



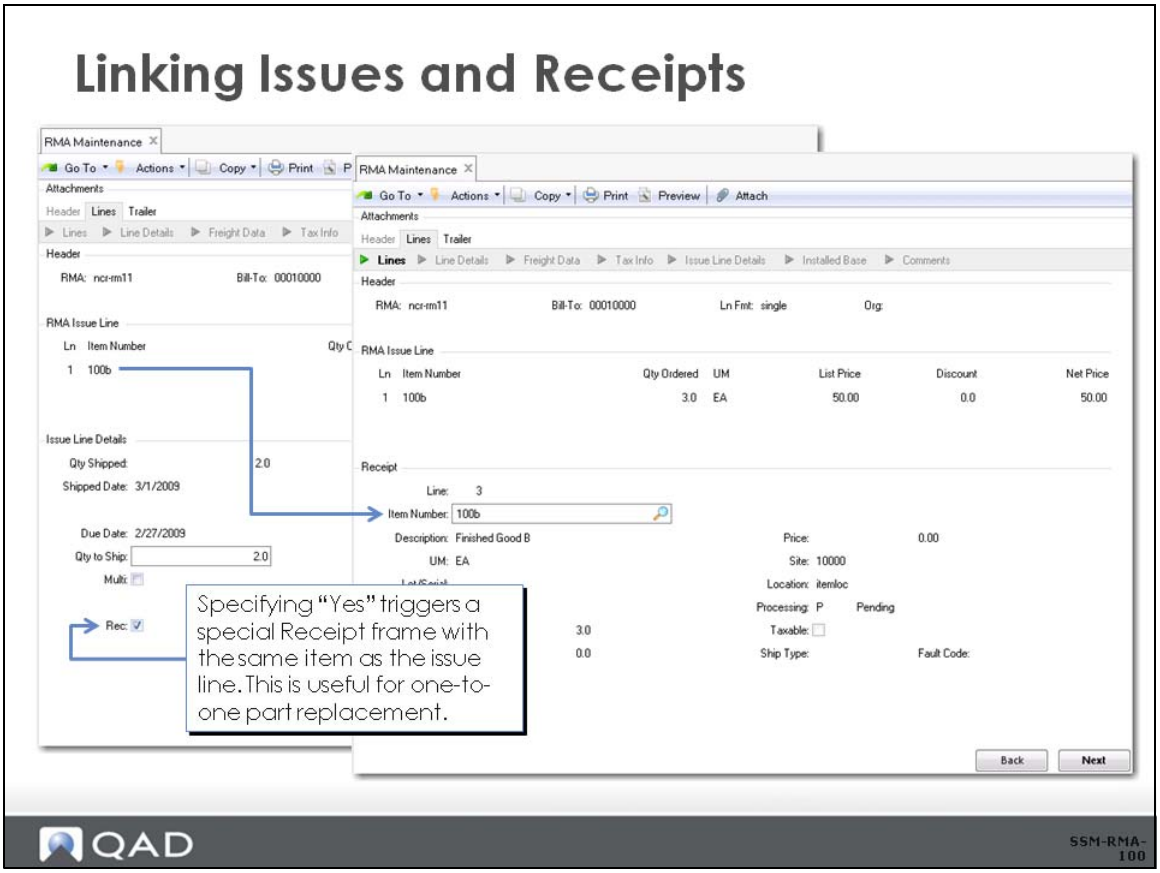
An RMA can track items leaving from or arriving at your site or warehouse. This includes items shipped to or returned from customers. Once items are issued or received, the installed base can be updated when the RMA invoice is posted. The system can automatically record items issued to your end users and automatically remove items received from them.

In the classical flow for returned items, a service organization receives a returned item and then either issues a replacement or fixes the returned item and ships it back. In this scenario, an RMA receipt is processed before an RMA issue.

However, in modern service organizations, an RMA issue often occurs before the item is received from the end user, thereby ensuring that the customer does not go without its use. This has always been an important part of servicing mission-critical items, since customer down time can be so costly. In this scenario, the issue is processed first.

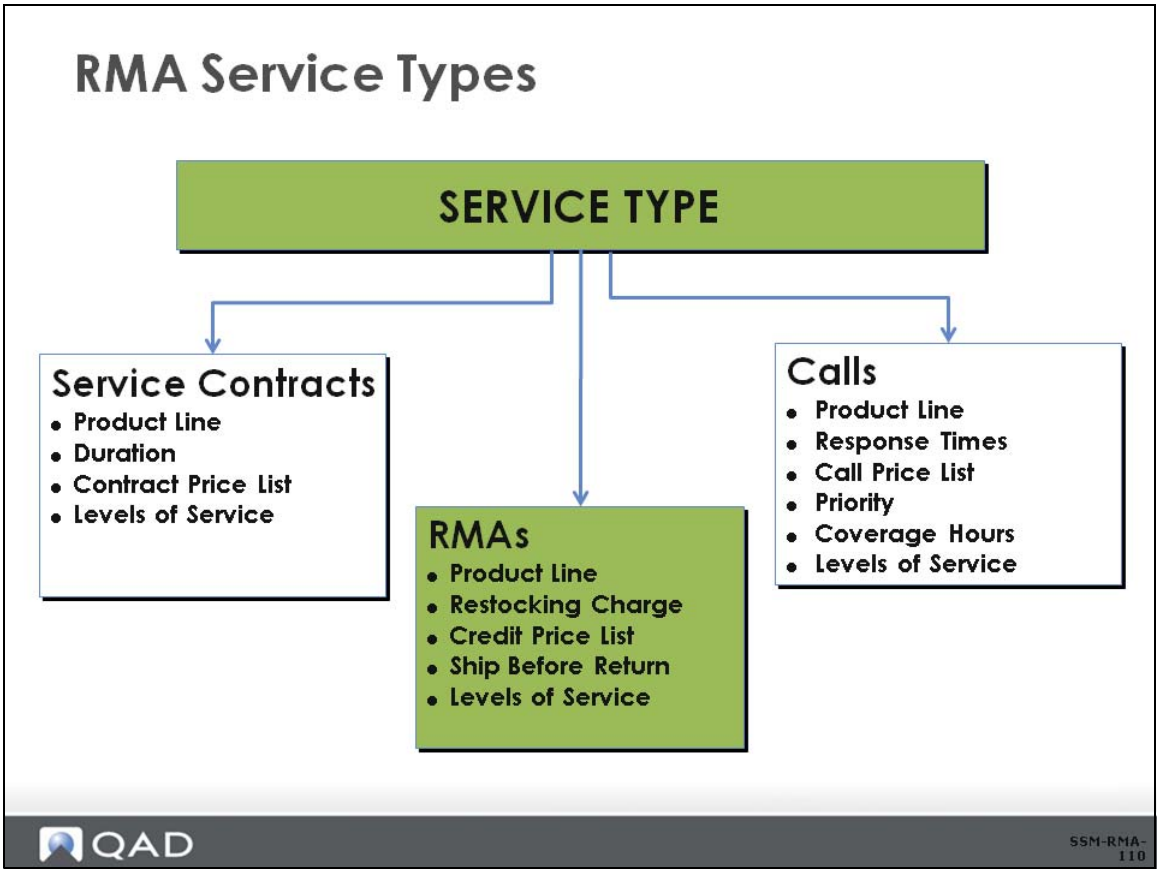
The Ship Before Return setting of the service type controls whether or not items can be shipped before defective ones are returned.

Linking Issues and Receipts



The Issue Line Detail frame in RMA Maintenance contains a Rec (receipt) field. Setting this field to Yes causes a pop-up window to appear so you can create a receipt corresponding to this issue immediately. The item on the current RMA issue line is used as the default receipt line item, and the two lines are automatically linked. This feature is useful for one-to-one part replacement.

RMA Service Types

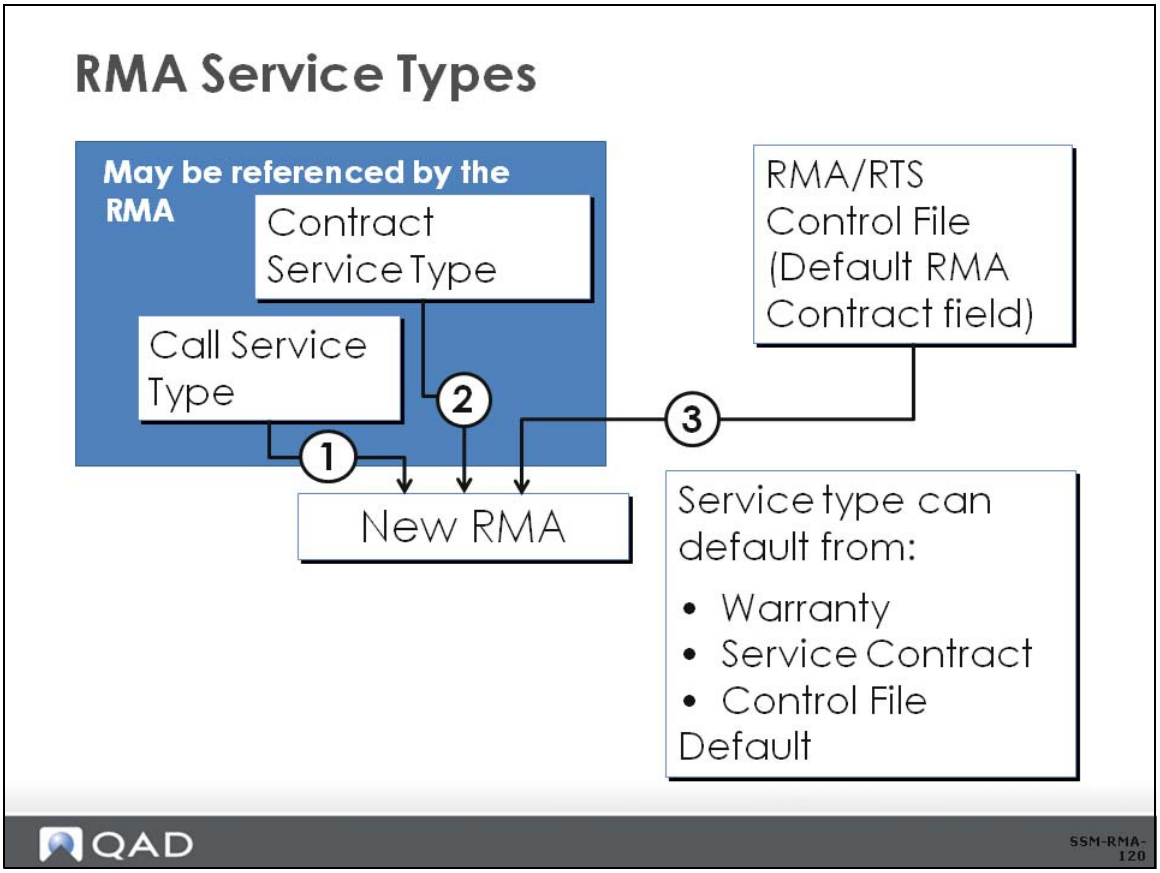


In earlier lessons, we saw how service types defined the rules for your relationships with end users.

Service types provide significant information for RMAs, as this figure indicates. Service types are used to answer questions related to coverage. Is repair covered? Is repair feasible in terms of the amount of coverage? Is this an account-critical item that perhaps needs its RMA costs shifted to goodwill? How can coverage be adjusted for one item or special case?

Service types also provide credit price list information. A returned item is often not new (or at least most manufacturers hope it is not new). It probably is not in good condition or at least not worth the standard list price.

RMA Service Types



Both credit pricing and coverage levels, as well as other coverage details, are determined by the service type associated with an RMA. By default, an RMA uses the service type from one of three sources:

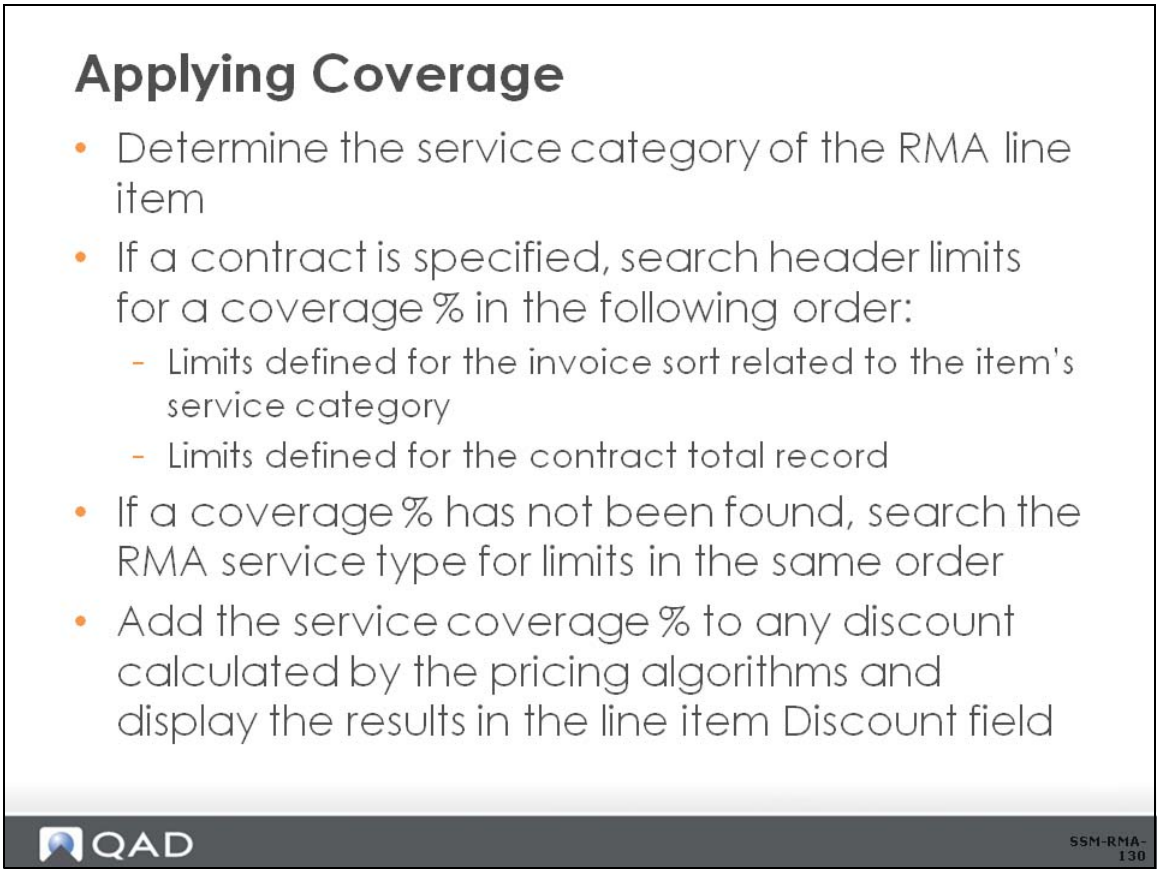
The service type of the call associated with the RMA. If a contract is providing coverage on the call, it is brought into the RMA also.

The service type of a contract selected to cover the RMA. If Display Service Contracts is Yes in the RMA/RTS Control, a pop-up window showing all active (valid or open) contracts for the end user displays after the upper frame of RMA Maintenance) is completed. Selecting a contract from the list applies its terms and conditions to the current RMA.

The default service type specified in the RMA/RTS Control (11.7.24), if there is no call or contract associated with this RMA.

Service types determine the financial impact of RMA processing. They provide default credit price lists for RMA receipts, default restocking charges, and also determine the percentage of coverage. In addition, the service type determines whether or not a replacement item can be shipped before the defective item is received, and may determine the default product line used.

Applying Coverage



One of the fields used during line item entry for RMA issues is a Discount field. The system supplies a default for this field in the following manner.

1 The system determines the line item's service category specified with Service Item Maintenance (11.3.7) or the default item service category from the Call Management Control.

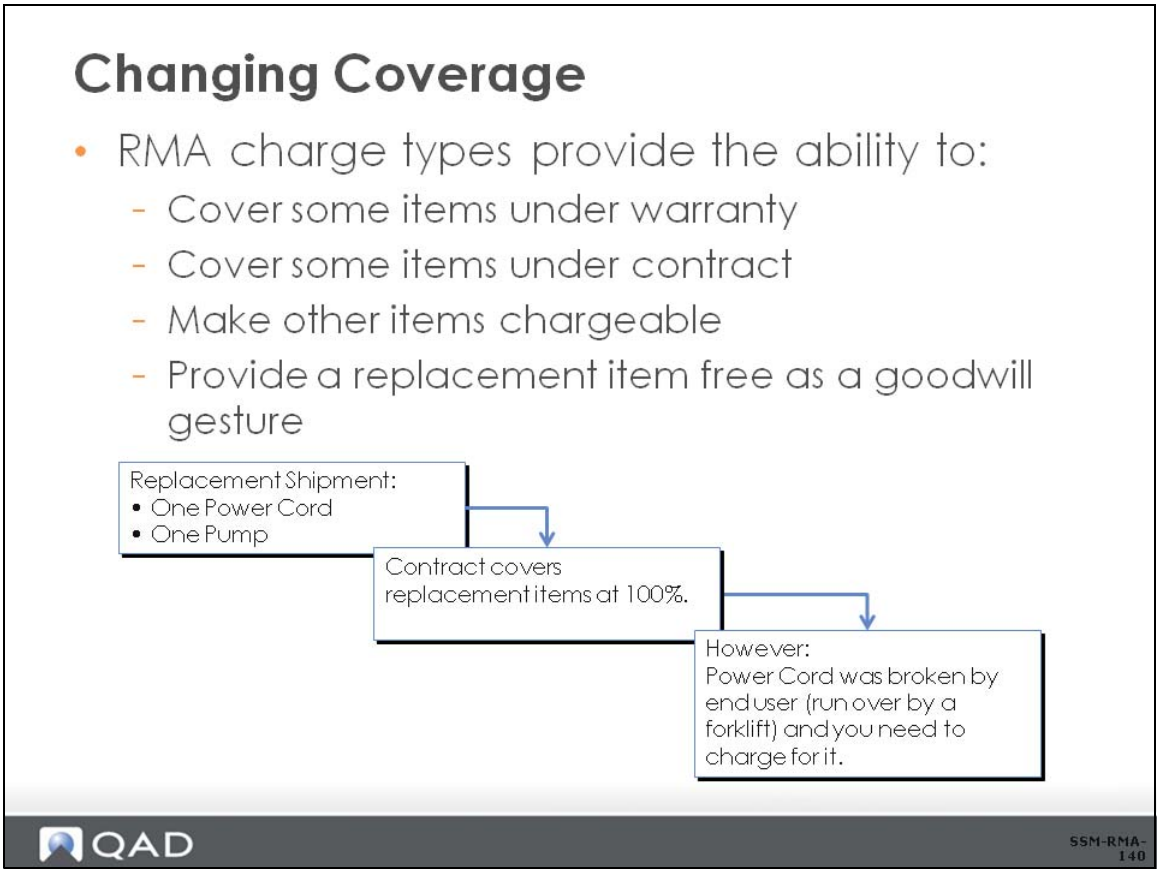
2 If a contract is specified, the system searches the contract header limits for a coverage percentage in the following order:

- Search for a coverage percent defined for the invoice sort related to the item's service category
- -Search for a coverage percent defined for the contract total limit

3 If a coverage percent has not been found yet, search the service type specified on the RMA in the same order

4 Add the service coverage percent to any discount calculated by the pricing algorithms and display the results in the line item Discount field

Changing Coverage

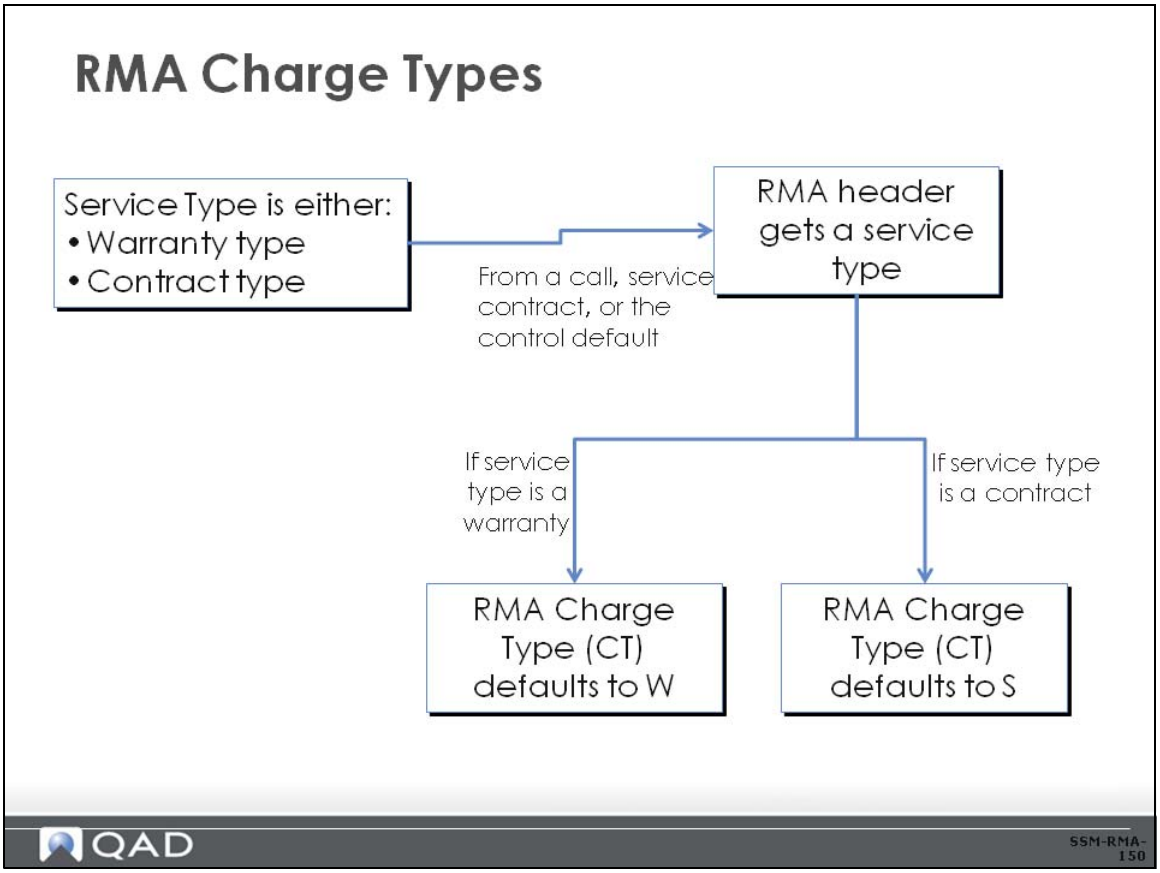


The RMA charge type addresses an issue arising in the day-to-day activities of many service organizations: How can coverage be adjusted for one call or special case?

When this need occurs, the ongoing contractual or warranted relationship with the customer should remain unchanged; only a one-time adjustment is needed. For example, the service engineer may want to make a special charge for an unusual repair. Or, for various reasons, normal charges are waived for this RMA. The charge type enables you to adjust coverage for this special case without changing the coverage relationship with the customer.

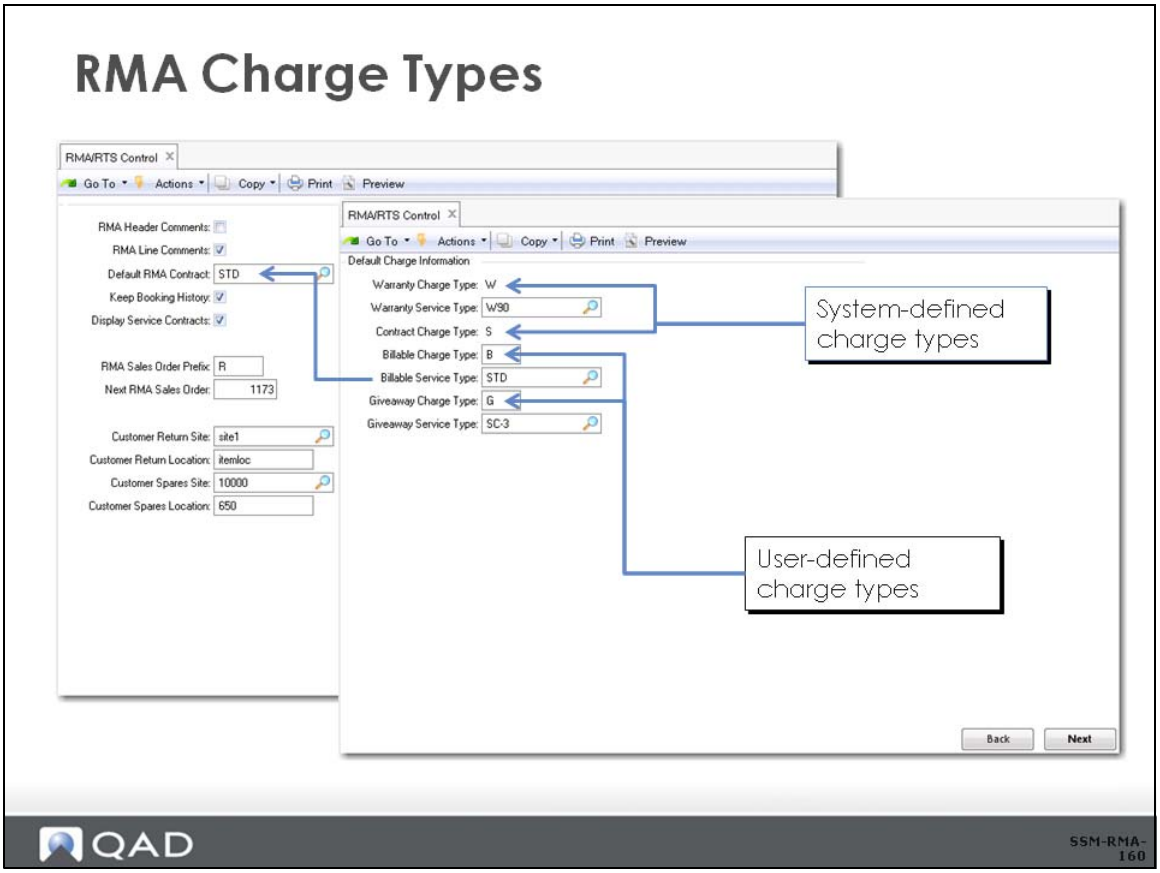
Example You might be issuing replacement items normally covered 100% by a contract. However, one item was broken due to misuse by the customer and is, therefore, not covered under the contract terms. You need to charge full price for this part. In this case, the charge type for this item issue can be changed to reference a service type that has a 0% coverage.

RMA Charge Types



When you create an RMA, the header's service type is either a warranty code or a service contract type. The characteristics of the header service type provides a default for each line item. If the type is a warranty, the charge type for each line item defaults to W (warranty). If the header's service type is a contract, the charge type on line items defaults to S (service contract).

RMA Charge Types



RMA charge types are defined in the Default Charge Information frame of the RMA/RTS Control. The system supports four charge types, each of which can be associated with a separate service type. The warranty and contract charge type codes are system defined and cannot be changed (W and S, respectively). You can select any other code you want for the billable and giveaway charge types.

There are three groups of charge/service type relationships readily apparent:

- Warranty Charge Type (W) and Warranty Service Type (W-1)
- Billable Charge Type (B) and Billable Service Type (BILLABLE)
- Giveaway Charge Type (G) and Giveaway Service Type (GIVEAWAY)

There is a fourth relationship that is not so apparent. The contract charge type, which cannot be changed from S, references the Default RMA Contract specified on the first frame of the RMA/RTS Control. When a charge type of S is entered as an override, it brings in the characteristics of the default RMA contract type.

A default charge type displays during RMA line item entry and can be overridden to reference one of the other charge types defined in the control. Changing the charge type changes the level of coverage for a particular line item.

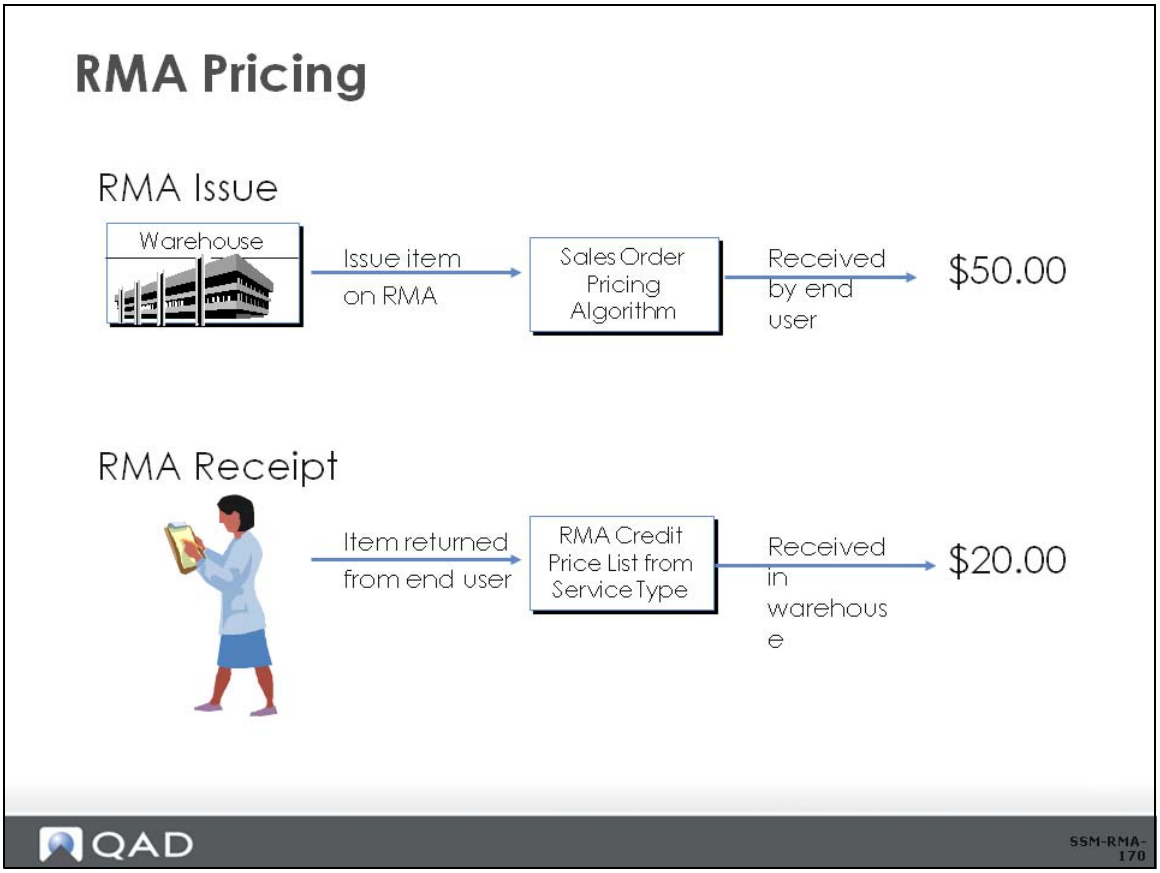
For example, if the default charge type for a line item is W, you can change it to reference one of three other service types:

- Specifying S uses the default RMA contract type from the RMA/RTS Control

- Specifying the user-defined billable charge type brings in the billable service type from the control
- Specifying the user-defined giveaway charge type brings in the giveaway service type from the control

A default of S (service contract) can be changed to W, the user-defined billable or giveaway charge types.

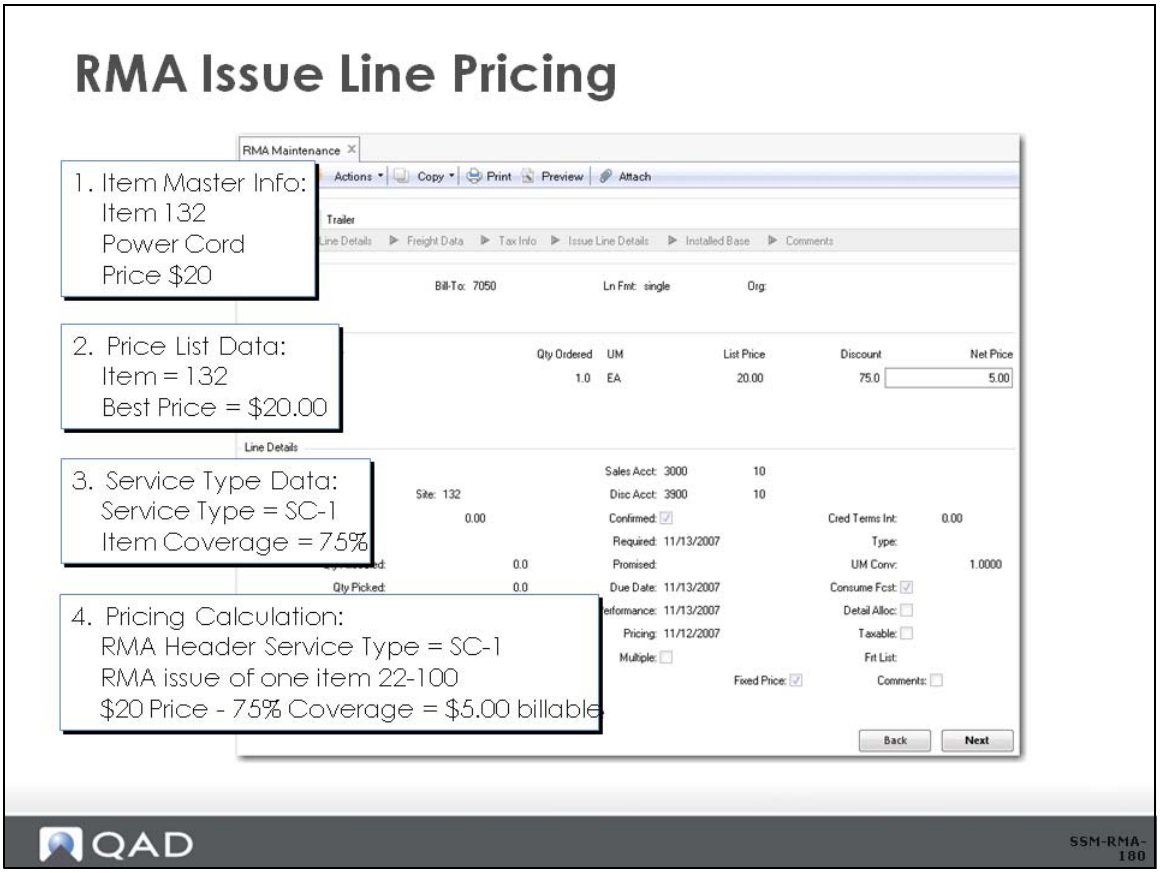
RMA Pricing



Pricing for RMA issues lines and receipt lines is handled differently by the system. An item on an RMA issue line is treated just like the same item on a sales order line. This is consistent with normal business practice, which would price a replacement item the same as the one sold, minus any discount provided by service coverage or credit for a returned item.

Items returned from the end user, on the other hand, require their own price lists. A returned item is often not new (or at least most manufacturers hope it is not new). It probably is not in good condition, or at least not worth the standard list price. These price lists are derived from the service type in effect.

RMA Issue Line Pricing



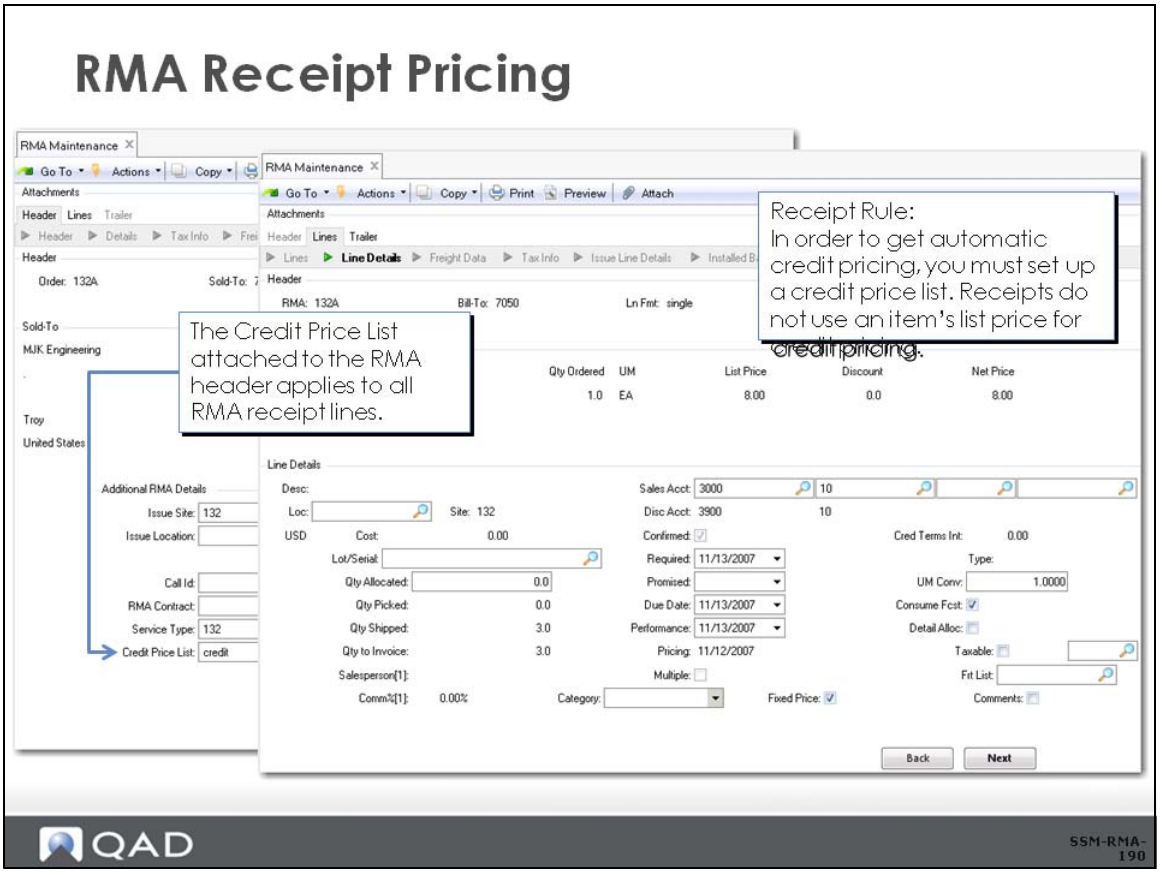
During processing in RMA Maintenance for line item issues, the system determines which price lists apply, based on the pricing customer and the item. It then determines the applicable coverage percent based on the service type, warranty, or contract providing coverage. This percent is added to the discount previously calculated (100% maximum), and the net price is recalculated. The Discount and Net Price fields are then displayed on the RMA issue line.

This example illustrates how an item is priced in RMA Maintenance.

1. The system determines the item master list price.
2. It then looks for other list type price lists and determines the best list price for the item. It also looks for any applicable pricing discounts. In this case, none were found.
3. Using the levels of coverage specified on the service type in effect, a coverage percent is determined and displayed in the Discount field.
4. Based on the list price and discount, a net price is calculated and displayed.

   Shipping or receiving items on the RMA automatically creates an invoice. You can decide if you are ready for the invoice to be printed directly from RMA Maintenance.

RMA Receipt Pricing



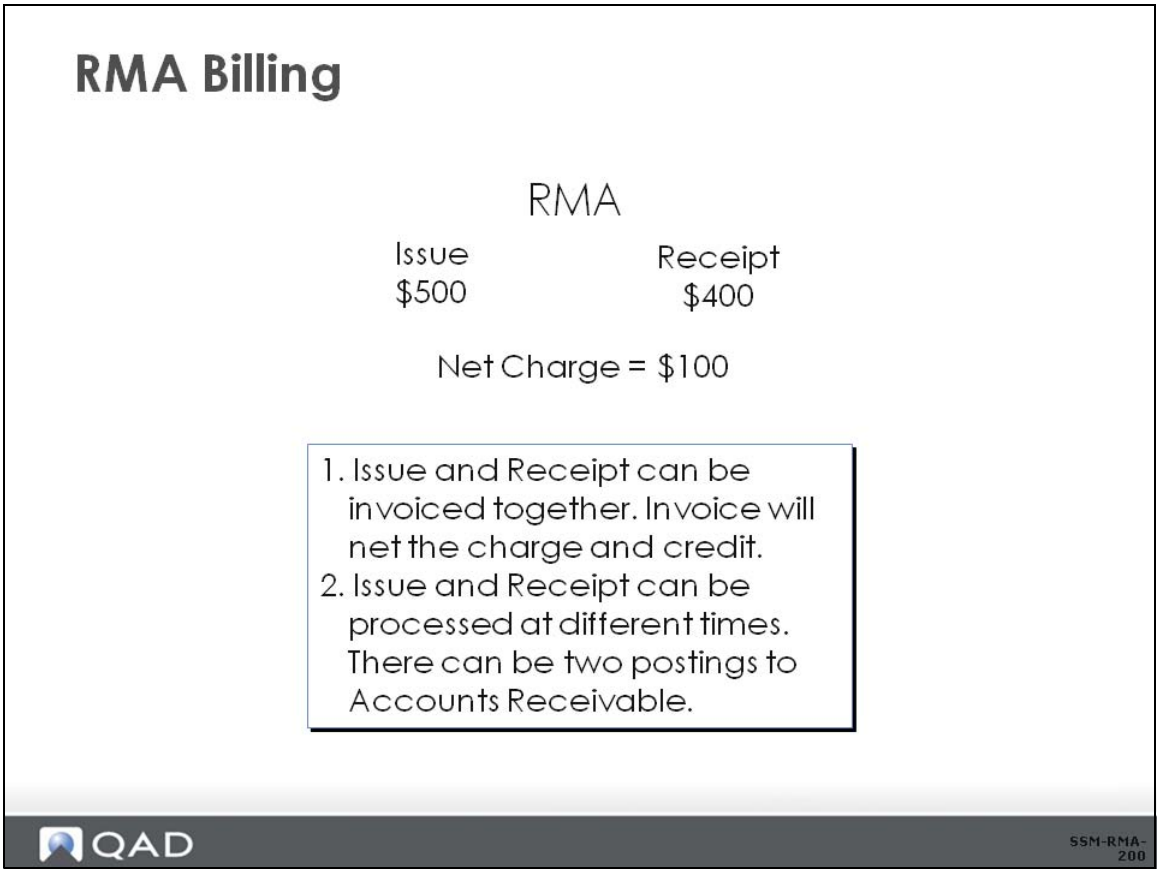
RMA receipts require that a specific credit price list be set up in the PO/RTS/RMA.

Credit Pricing Menu (1.10.2). The credit price list defaults from the service type in effect, but can be modified when an RMA is created.

The credit price list specified on the header applies by default to each RMA receipt line item. If no credit price list exists, the price displayed for that line item will be zero. This is because the RMA receipt only looks at the Credit Price List, not the full item price.

If a restocking charge has been specified on the service type providing coverage, it displays in the discount field. The credit price is multiplied by the restocking percent. This amount is deducted from the credit to be provided the customer.

RMA Billing

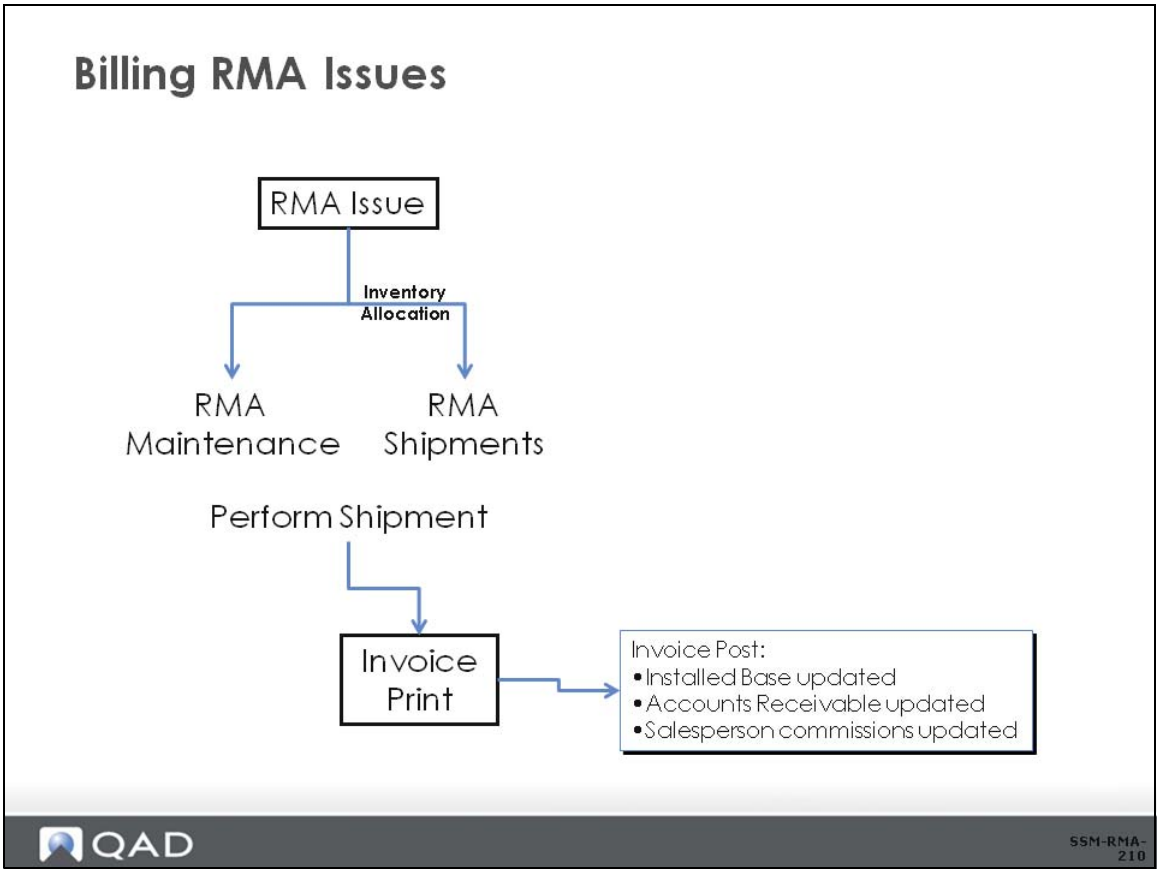


RMA issues and receipts can be invoiced together. RMA issues can create an invoice charged to the bill-to address. RMA receipts can create a credit, as well as a billable amount if a restocking charge exists. When an RMA includes both issues and receipts, the net amount is charged.

Example An RMA issue is charged $500 and a receipt credited $400. When this RMA is processed and invoiced, the resulting net charge is $100. The RMA lists the line items and shows a $500 charge for line item one and a credit price of $400 for line item two, with a net price of $100.

The issue and receipt can also be processed separately at two different times. In this case, there are two postings to Accounts Receivable, one for $500 and a credit for $400. The net result is an invoice for $100 US.

Billing RMA Issues



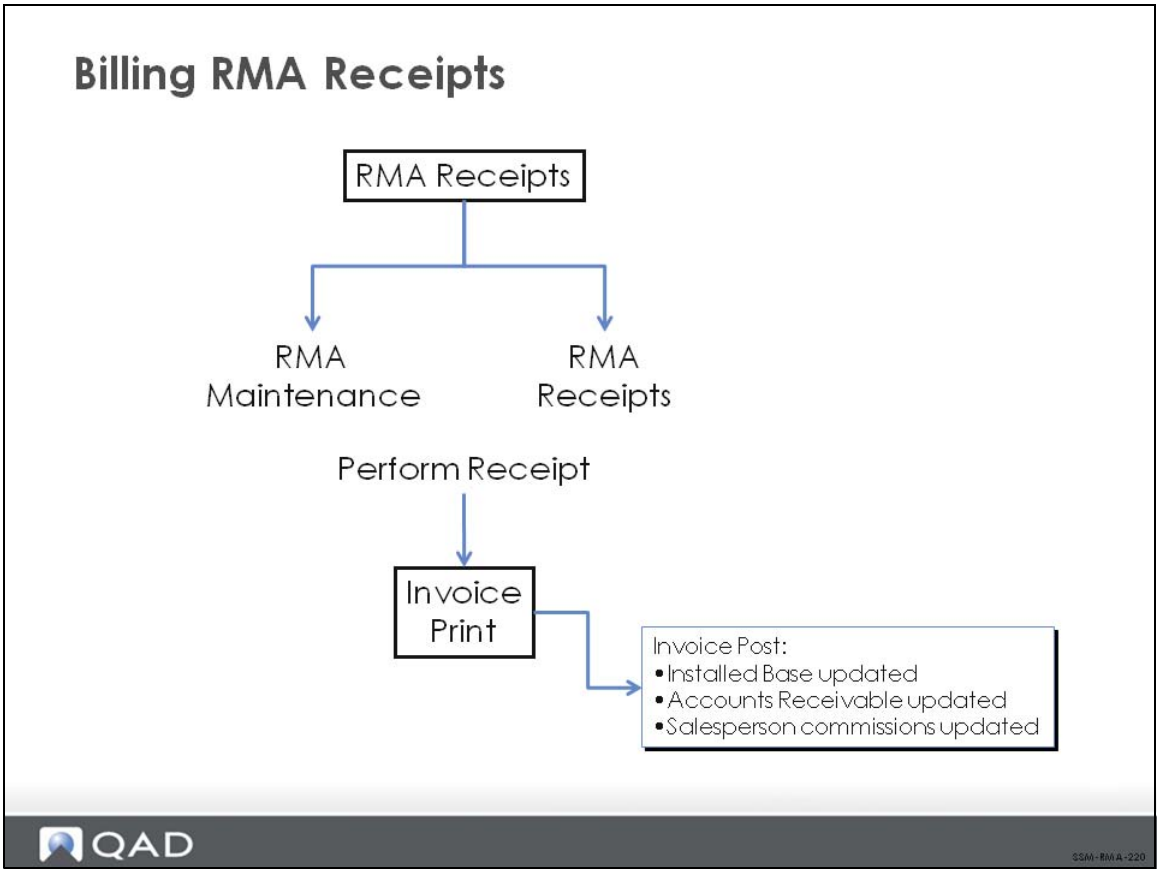
An RMA issue typically follows these steps to create an invoice:

1. Create an RMA issue line.
2. Ship the line item, either directly from RMA Maintenance or using RMA Shipments (11.7.1.16).
3. Print and post the invoice using Invoice Post and Print (7.13.4).

Once the item on an RMA issue has shipped, you must print an invoice in order to get an invoice number for the RMA sales order. Printing automatically assigns the number. It is also possible to manually assign an invoice number to the RMA in the RMA header. The Ready to Invoice line must be set to Yes in order for an RMA to be processed to the next step. Either way, an invoice number is assigned to the RMA before it is posted to the general ledger.

Posting the invoice updates the installed base (if needed), accounts receivable, and salesperson commissions. Once an amount to invoice exists on an RMA, pricing data can only be updated with Pending Invoice Maintenance (7.13.1).

Billing RMA Issues - RMA Receipts



An RMA receipt typically follows four steps to generate an invoice.

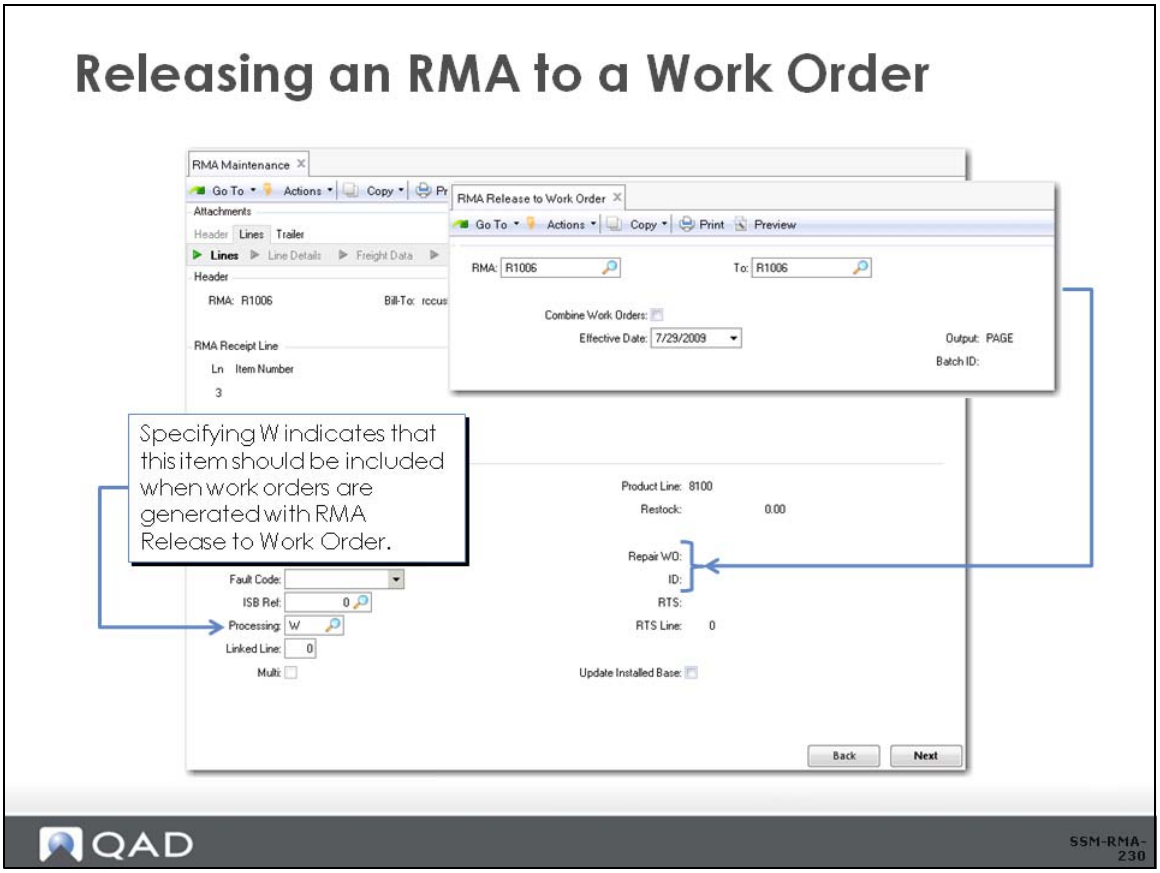
1 Create an RMA receipt line.

2 Receive the line item, either directly from RMA Maintenance or using RMA Receipts (11.7.1.13).

3 Print and Post the invoice using Invoice Post and Print (7.13.4).

Once the item on an RMA receipt line has been received, the invoice can be printed and posted just as for RMA shipments. Posting the invoice updates the installed base (if needed), accounts receivable, and salesperson commissions.

Releasing an RMA to a Work Order



Some service organizations use standard manufacturing operations to refurbish items received from customers on an RMA. To accomplish this in QAD EE, you specify W (work order) as the processing option on the RMA receipt line item.

When the RMA Release to Work Order function is executed, rework orders will be created for all RMA receipt lines that have quantity received and a W processing option.

The work order number that is created contains a concatenation of the RMA number and the line item number, separated by a period. In this example, the work order is RMA4.8. The work order uses the repair routing associated with the item in Service Item Maintenance.

The default processing option is P for pending. You can change this to W at any time. For example, when you first create the RMA receipt line, you might not know if you need to open a work order to repair the item until it is received. Once you receive the item, you might then decide you need to process it via a work order. At this point, you can go into RMA Maintenance and place a W in the Processing field.

Exercise 27: Creating a Return Material Authorization (RMA)

This exercise has a number of separate tasks:

- Verify appropriate Control settings
- Create an RMA with issue and receipt lines
- Ship/receive directly from RMA Maintenance

Verify Control Settings

1 Go to RMA/RTS Control (11.7.24).

2 Verify that the following settings have the listed value. Change as needed.

Field	Value
RMA Header Comments	No
RMA Line Comments	No
Default RMA Contract	NoCover
Display Service Contracts	Yes
Edit Installed Base	No

Review the values for Customer Return Site/Location and Customer Spares Site/Location and ensure that they match the following table. When you create an RMA in the next task, you will verify that these defaults display.

Field	Value
Customer Return Site	C1
Customer Return Location	RETURN
Customer Spares Site	C1
Customer Spares Location	100
At Supplier Site	C1
At Supplier Location	ATVEND
Return Supplier Site	C1
Return Supplier Location	RETVBND
Warranty Service Type	W90
Billable Service Type	Standard
Giveaway Service Type	Giveaway

3 Save your changes; return to the menu.

4 Go to Contract Type Maintenance (11.5.10) and for contract SC-10, verify that the Credit Price List is set to RMA-CR and the Restocking Charge is set to 5.0%.

Create an RMA

1 Go to, RMA Maintenance (11.7.1.1).

2 Leave the Order field blank, and press Enter so that the system supplies the next available number. Write down the number here for reference.

Order: _____

3 Click Next to accept the blank Call ID and enter C-MDI for Sold To.

This value defaults into the Bill-To. Update the End User and Ship-To to be C-EUMDI1 Accept the remaining defaults.

4 Click Next until the Service Contracts pop-up displays.

Do you remember why it displays? The display of this pop-up is controlled by the Display Service Contracts field in the RMA/RTS Control.

5 Select the first contract from the list by pressing Enter.

6 Accept all the defaults on the first two header frames and tax information. The Additional RMA Details frame should display.

Review the defaults displayed in this frame. Are the Issue Site/Location the same as the RMA Spares Site and Location in the Control? How about the Receive Site/Location?

The contract you selected should display along with the contract type (SC-10) and the credit price list you updated earlier (RMA-CR).

7 Accept these defaults. When the RMA Issue Line frame displays, enter the following values in the listed fields and then proceed.

Field	Value
Line	1
Item Number	C-C002
Site	C1
Qty Ordered	1
UM	EA

8 When the pricing pop-up displays, continue on. A pop-up should now display the default charge type (S).

Do you remember why an S displays? S indicates that a service contract is providing coverage as we designated in the header.

9 Accept the default S for Charge Type, and proceed. When your cursor enters the List Price field, a message also displays at the bottom of the screen indicating the Discount percent the system found (75%).

Think back to the discussion on pricing of RMA issue lines. In this case, item C-C002 is not on any sales order price lists, so the system finds its Item Master price ($900.00). Since there are no price list discounts to apply, the Discount field simply displays the discount derived from the service coverage in effect (75%). The net price is calculated based on these two values as $225.00.

10 Continue on, accepting any defaults, until your cursor is in the Loc field in the lower frame. Tab to the Lot/Serial field and enter 44 and click Next.

11 The Issue Line Details frame displays. To perform shipment directly from RMA Maintenance, you must specify a quantity to ship. Specify 1 in the Qty to Ship field.

12 Click Back twice to display the RMA Receipt Line frames. Enter the following values in the listed fields and proceed.

Field	Value
Line	2
Item Number	C-C002
Site	C1
Qty Returned	1
UM	EA

When your cursor enters the List Price field, a message displays at the bottom of the screen, indicating that a restocking charge applies to this item. You should see a credit price of $450 displayed in the List Price field. This was the amount you set up on the credit price list. The restocking charge from the service type (5%) displays in the Discount field resulting in a net credit of $427.50.

13 Continue on, accepting any defaults, until your cursor is in the Loc field in the lower frame.

14 Tab to the Lot/Serial field, and enter RMA-RET; proceed.

The Receipt Line Details frame displays. To perform a receipt directly from RMA Maintenance, you must specify a quantity to receive.

15 Specify 1 in the Quantity to Receive field.

16 Change the default of P in the Processing field to R to indicate we intend to return this item to the supplier for repair or replacement.

We would enter W if we were to create a work order should be created to refurbish the item returned. We would leave the P if neither work order or return was needed.

17 Click Next to accept changes.

18 Click Back until the RMA trailer frame appears. Review the information in the trailer. A message display indicates that the invoice for this RMA will create a credit. This is a result of combining the line item issue price $225.00 with the return credit $427.50, resulting in a remaining credit of $202.50.

19 Continue thru the trailer. A message prompts you to display RMA lines. Respond with Yes. The system displays the receipt line and then the issue line.

20 Review the display, and then continue on. The system prompts you to ship/receive RMA lines now. Respond with Yes and continue.

When the shipment/receipt completes, the cursor will return to the Order field in the header.

21 Return to the menu.

22 To verify the shipment/receipt transactions, go to Transaction Detail Inquiry (3.21.1). When the inquiry displays, use the Next/Previous to display the last two transactions. There should be two ISS-SO transactions, one for a quantity of 1 and one for a quantity of -1.

23 Return to the menu.

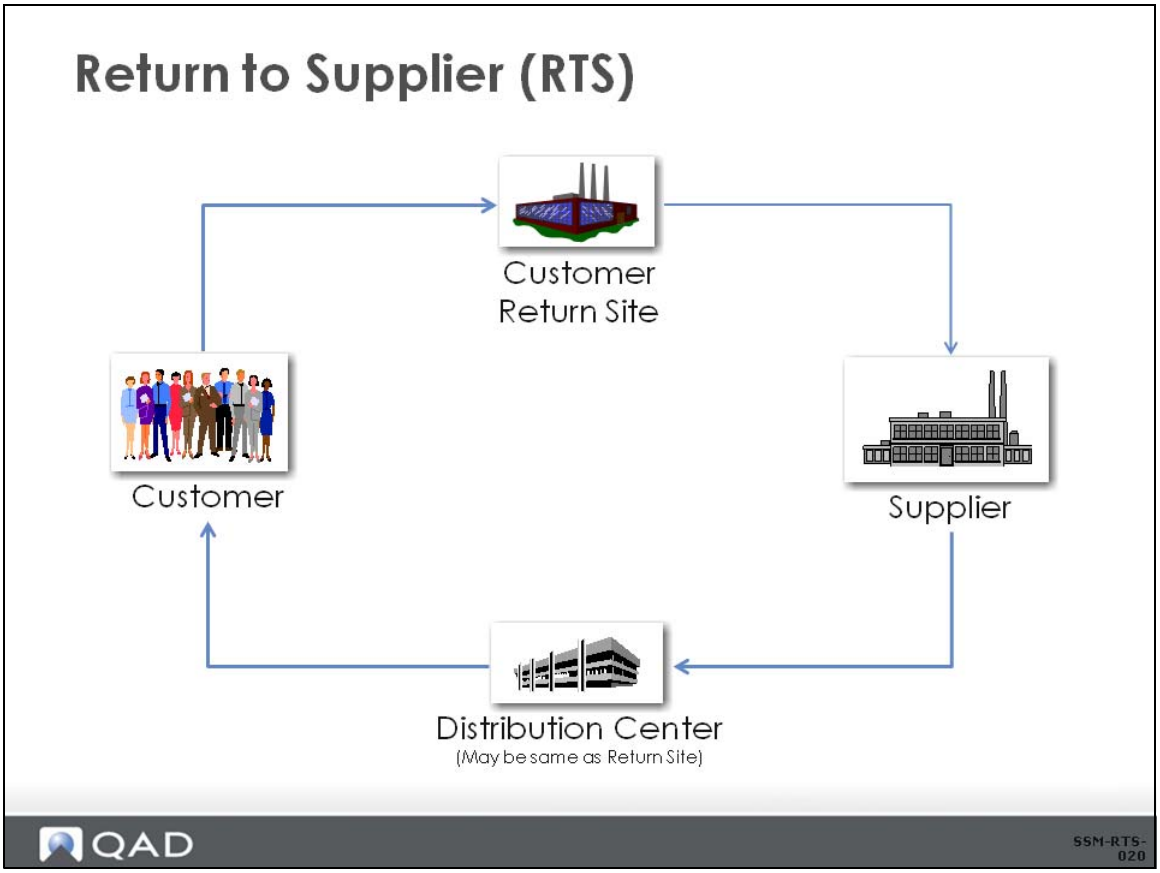
Chapter 15

Return to Supplier

Overview

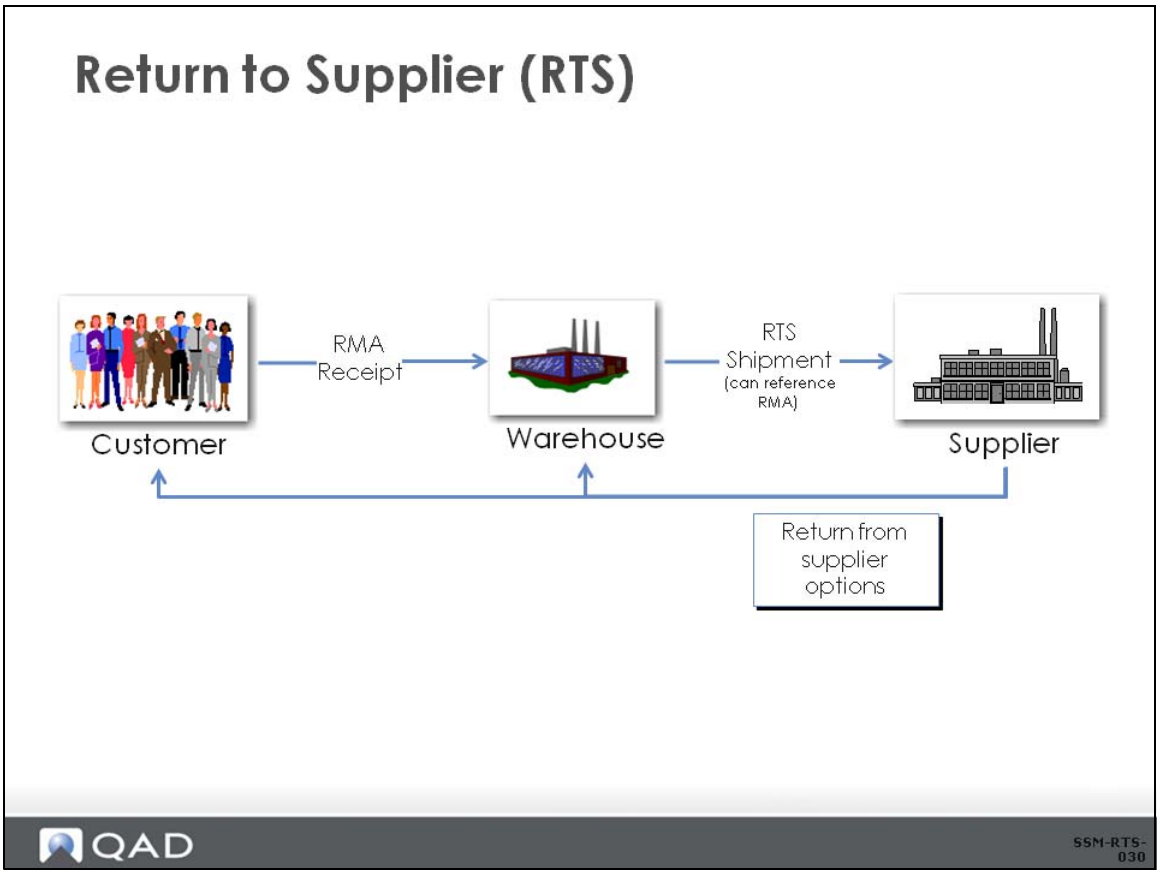
The return to supplier (RTS) process enables you to manage items received from your end users that need to be returned to a vendor for repair. Like a return material authorization (RMA), an RTS has two parts that allow you to set up lines for shipment to the supplier and receipt from the supplier when the repair is complete.

Return to Supplier (RTS)



The return to supplier process takes the return material authorization (RMA) process one step further. Sometimes you may need to send an item returned from the end user back to a supplier, who will repair or replace it. The return to supplier function enables you to track the return to the supplier (RTS) and link the original return from your customer to it.

This figure shows the full route of the item as it is received by the customer, returned to you, and then returned to your supplier, who in turn returns it to you.

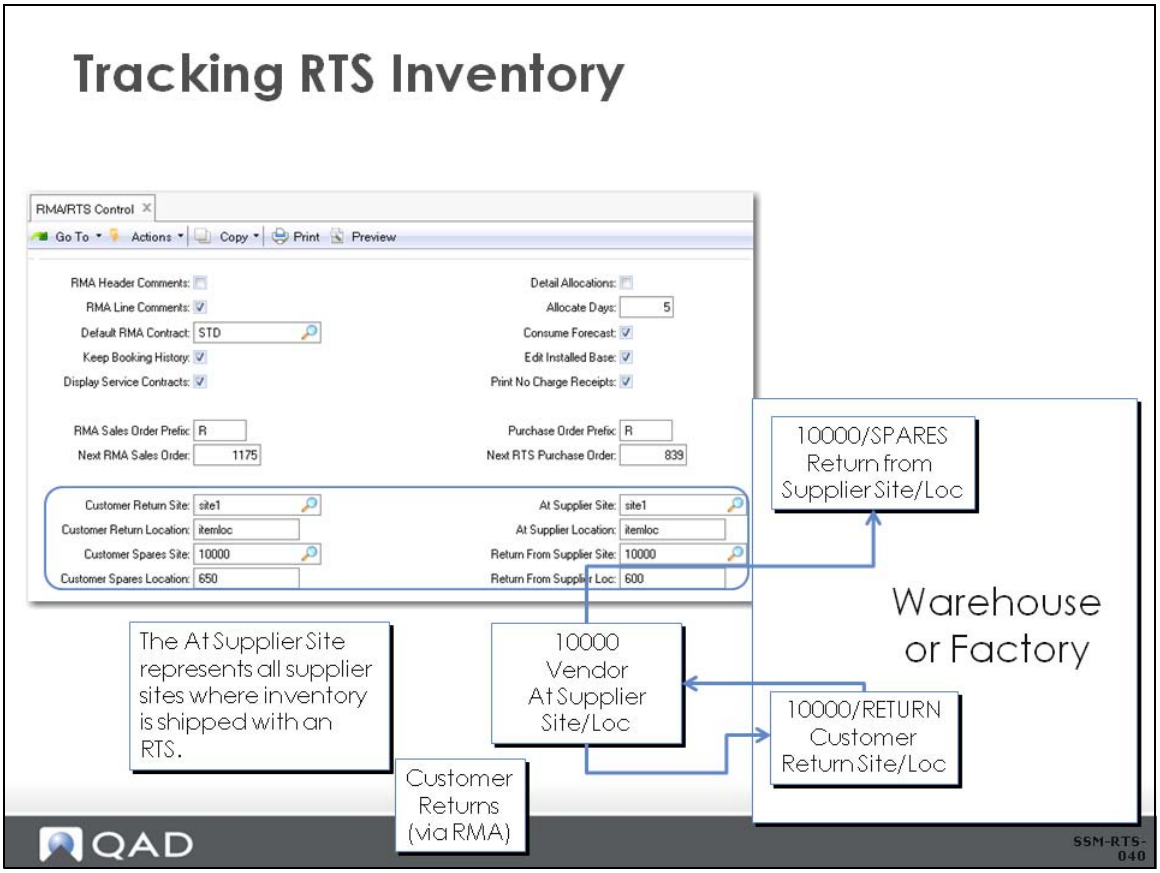


Within RTS Maintenance, there are two distinct processes or functions: items being returned to the supplier, and items received back from the supplier. The return to supplier process enables you to specify whether the:

- Repaired supplier item is shipped back to you at your service repair site
- Or the item is shipped directly back to the customer

RTSs have a life cycle similar to a standard purchase order. They are created with RTS Maintenance (11.7.3.1) Shipments and receipts for an RTS take place in separate functions, RTS Shipments (11.7.3.16) and RTS Receipts (11.7.3.13).

Tracking RTS Inventory



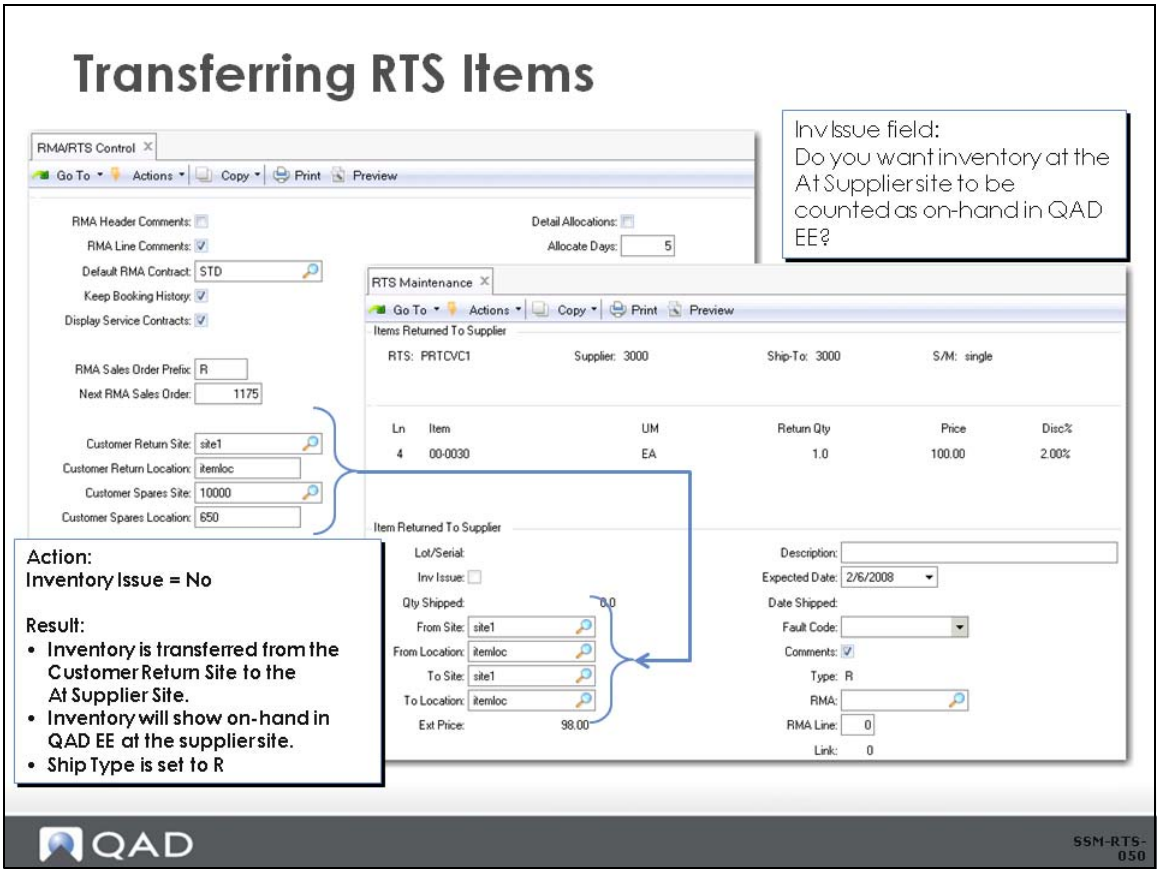
There are two ways to manage inventory for an item returned to a supplier: specify the supplier as an inventory site and track it, or issue the item out of inventory and not track it.

In the first option, inventory remains within view in QAD EE, even though it is not physically present. You specify a supplier inventory site and locate the RTS item there. This approach gives you the advantage of knowing at all times exactly how many units of the item are being repaired.

Since costing by site is a feature of QAD EE, you can assign any cost or no cost to these RTS items while they are at your supplier's site.

The supplier site for inventory is set up in the RMA/RTS Control (11.7.24). The At Supplier Site is a virtual representation of all your suppliers. If you want to track the RTS while it is at the supplier and you have multiple suppliers, one option is to have one at supplier site with a different location for each supplier.

Transferring RTS Items

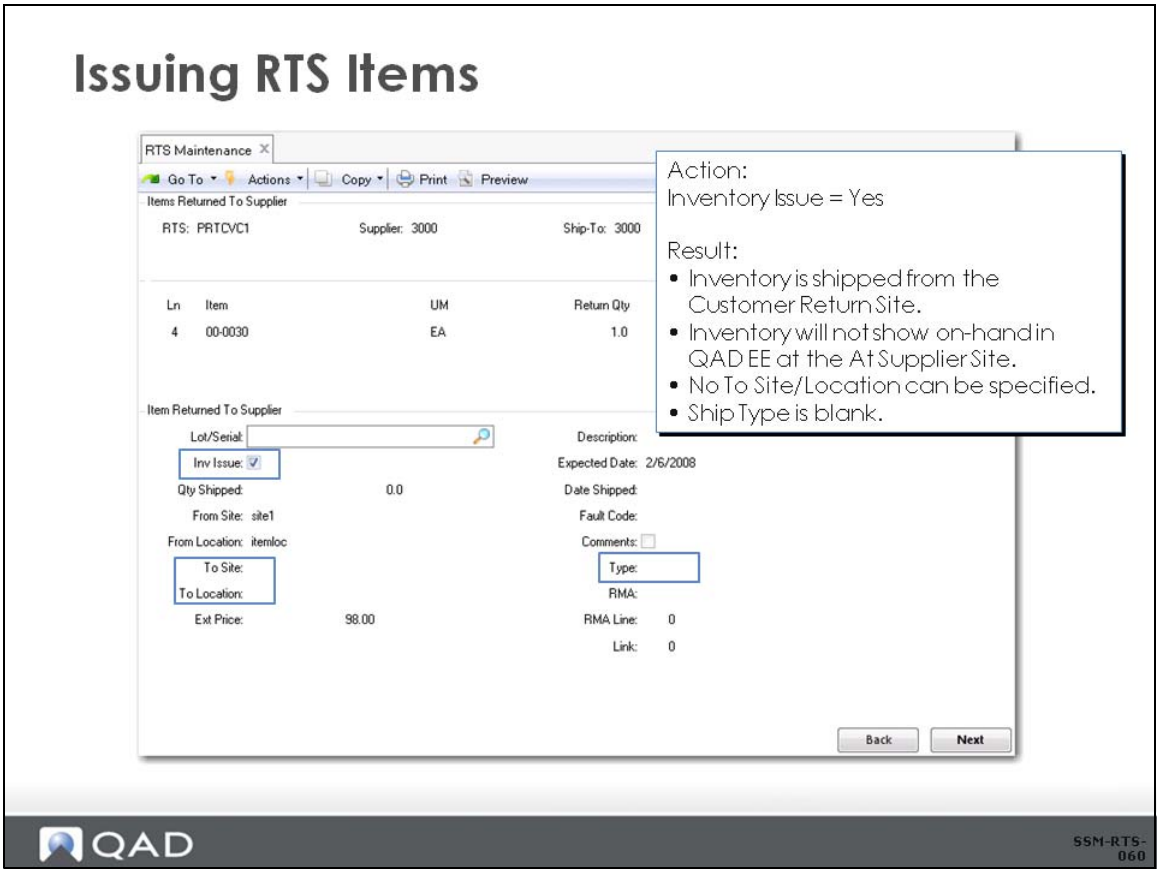


If you want to track RTS items as inventory, you must set Inventory Issue to No in RTS

Maintenance. When inventory issue is set to No, the RTS is automatically created with a type of R. When Inventory Issue is set to No, the destination site defaults to the At Supplier Site. That is, the inventory is transferred from the customer return site to the At Supplier Site and shows up in inventory inquiries and reports as on-hand at the supplier site. The following table shows the inventory transactions generated when Inventory Issue is set to No.

Transaction	Description	Debit Account	Credit Account
ISS-TR	Ship from site	Goods in transit	Inventory
RCT-TR	At supplier site	Inventory	Goods in transit

Issuing RTS Items



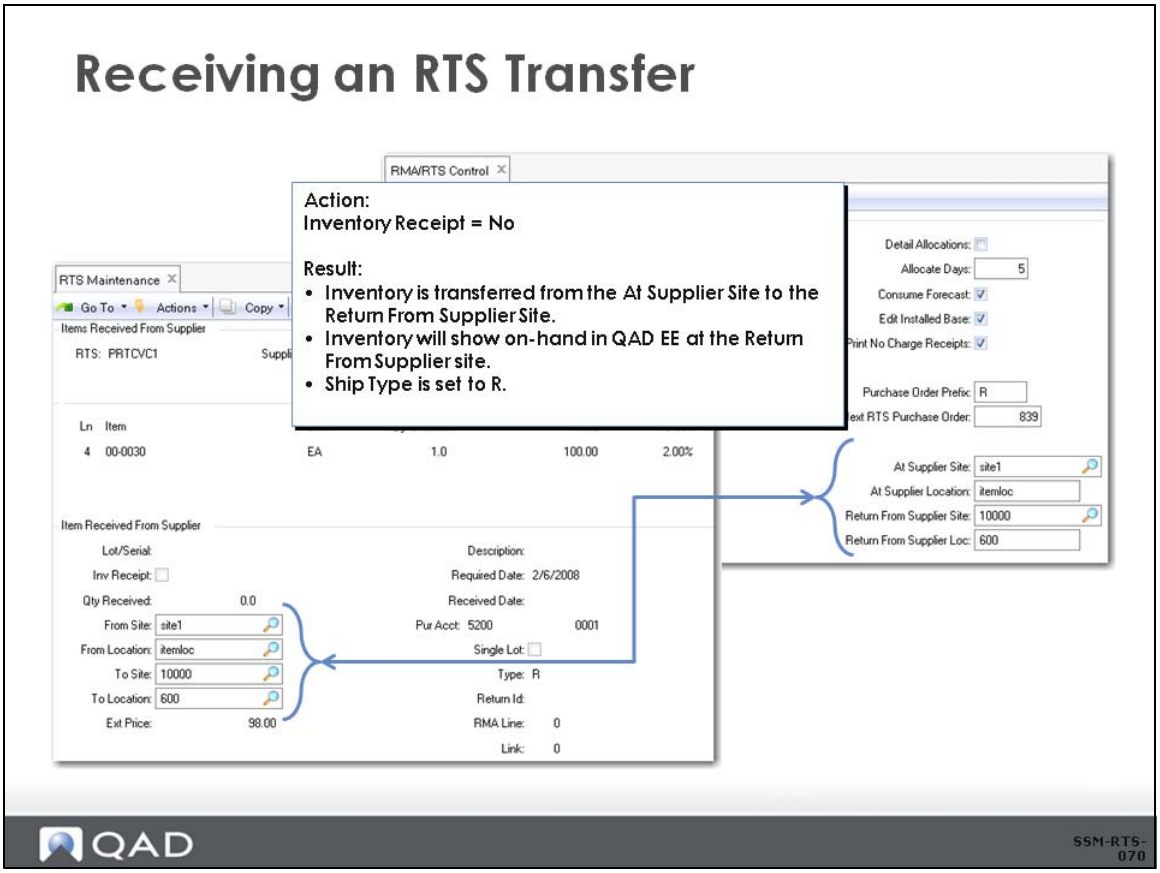
The second option you have when processing RTS items is to set Inventory Issue to Yes in RTS Maintenance (11.7.3.1). This means you are issuing inventory and not tracking the returned item in the database.

Setting Inventory Issue to Yes is roughly the same as when you are processing a sales order shipment or RMA shipment. Once the shipment occurs, the inventory is reduced, and you no longer have visibility of the inventory for this item. When you set Inventory Issue to Yes, the inventory ships from the customer return site and is no longer visible within QAD EE.

Transaction	Debit Account	Credit Account
RCT-PO	PO Receipts	Inventory

Both a return to supplier and a receipt from supplier create the same transaction type (RCT-PO). The only difference is that in the return, the quantity is negative.

Receiving an RTS Transfer



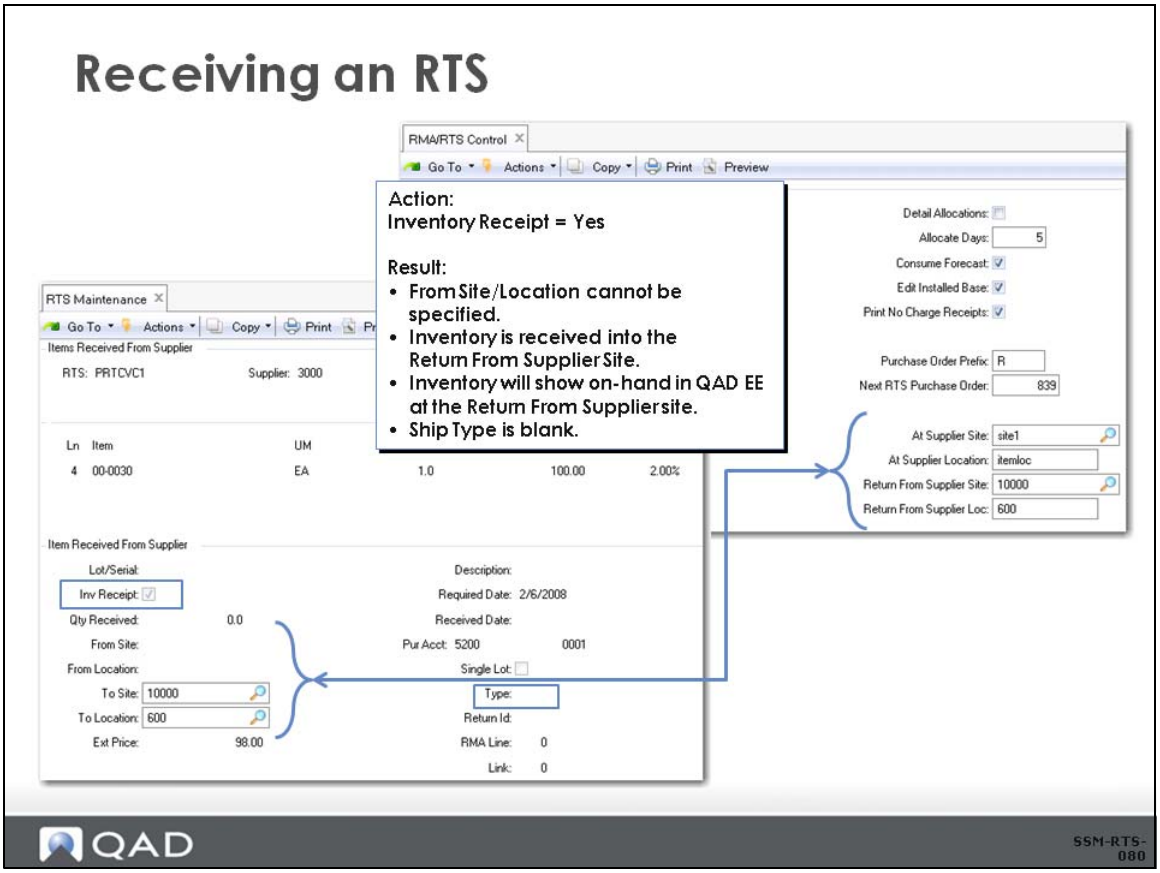
RTS Maintenance is used for two functions: sending the item needing repair back to the supplier and receiving the refurbished item. Corresponding to these functions, there are two frames in RTS Maintenance with a similar appearance: one for sending an item to the supplier and one for an item returned from the supplier. The frame titles in RTS Maintenance help you to remember which function is being executed.

The Inventory Receipt flag functions just like the Inventory Issue flag. When you have a matching issue and receipt line on an RTS, Inventory Issue and Inventory Receipt must be set the same for both, so they both affect inventory in the same way.

Setting Inventory Receipt to No means you are going to transfer inventory from the At Supplier Site and Location to the Return From Supplier Site and Location. You can determine these settings line-by-line.

In this figure, Inventory Receipt is set to No, indicating the item will simply be transferred. Notice how the From site and location default to the At Supplier Site and Location; the To site and location default from the Return From Supplier site and location.

Receiving an RTS



Setting Inventory Receipt to Yes indicates that you are going to receive the item from the supplier into your inventory. In this case, no From Site and Location can be specified.

Exercise 28: Creating a Return to Supplier (RTS)

In this exercise, verify the appropriate Control settings and then create an RTS with both a shipment and receipt line. We will ship the RTS and then receive it back.

Create an RTS

1 Go to RTS Maintenance (11.7.3.1).

2 Leave the RTS field blank so that the system will supply the next number. Write the number here for reference.

RTS: _____

3 Enter the following values in the listed fields.

Field	Value
Supplier	C-SU001
Ship-To	C-SU001
Bill-To	10000000
Site	C1

Accept all defaults in the header frame.

Click Next, Ignore any warnings and proceed to the Items Returned to Supplier frame.

The Items Returned to Supplier frame should be displaying.

4 Press Enter so that you are in the Item field for line one. Use the lookup to display the RMA Receipt Line attached to this field.

5 Look for the item C-C002 with the serial number RMA-RET that you received in Exercise 27: Creating an RMA on page 478. Select the item (if the item does not appear, enter it manually) and press Enter so that your cursor is in the UM field. Enter 1 in the Return Qty field and continue.

6 Your cursor is in the Lot/Serial field. Enter RMA-RET and tab to access the Inv Issue field. The setting of Inv Issue controls how the RTS return is handled. Review the field help if you are unsure of its effect.

7 To see the difference in how the line is handled, leave the default No.

Notice how the To Site and To Location fields are now editable.

The system uses the At Supplier Site and Location as the default destination for the inventory transfer if Inv Issue is No.

8 In this exercise, we are going to issue inventory, so click Back to redefine the line.

9 Repeat steps 5-7.

10 This time, change Inv Issue to Yes, and proceed. Notice that the To Site and To Location fields are now blank and cannot be edited. Do you remember how the From Site and Location default? These are the default Return Site and Location defined in the RMA/RTS Control.

11 Accept the defaults, and return to the line item entry. Click Back twice until the Items Received from Supplier frame is displayed. In this frame, you will receive the item you shipped back into stock.

12 Enter the following values in the listed fields. Save the data.

Field	Value
Ln	2
Item Number	C-C002
UN	EA
Qty Ordered	1
Price	0
Disc	0
Lot/Serial	RMA-RET
Inv Receipt	Yes

13 Proceed. Go to the Link field, and enter 1, the number of the shipment line, continue.

14 Leave the line item entry frames move to the trailer; proceed thru the trailer screen and complete the RTS. Return to the menu.

15 Go to MRP Detail Inquiry (23.16), make sure the correct item number and site display; direct the output to Printer.

You will see that a PO has been created to send out and then receive back the item. If you had transferred the item to the supplier instead of issuing, and you were to transfer back, there would be no supply created in MRP.

16 Return to the menu.

Ship the RTS

1 Go to RTS Shipments (11.7.3.16).

2 Enter the RTS number from the previous section and continue.

3 Enter 1 in the Line field and continue.

4 Enter 1 in the Quantity field and continue Accept the Display Items Being Issued question by pressing Enter. If all information is correct, continue.

5 Once done, return to the menu.

Receive the RTS

1 Go to RTS Receipts (11.7.3.13).

2 Enter the RTS number from the previous section and continue.

3 Enter 2 in the Line field and continue.

4 Enter 1 in the Quantity field and continue. Accept the Display purchase order lines being received question by pressing Enter. If all information is correct, continue.

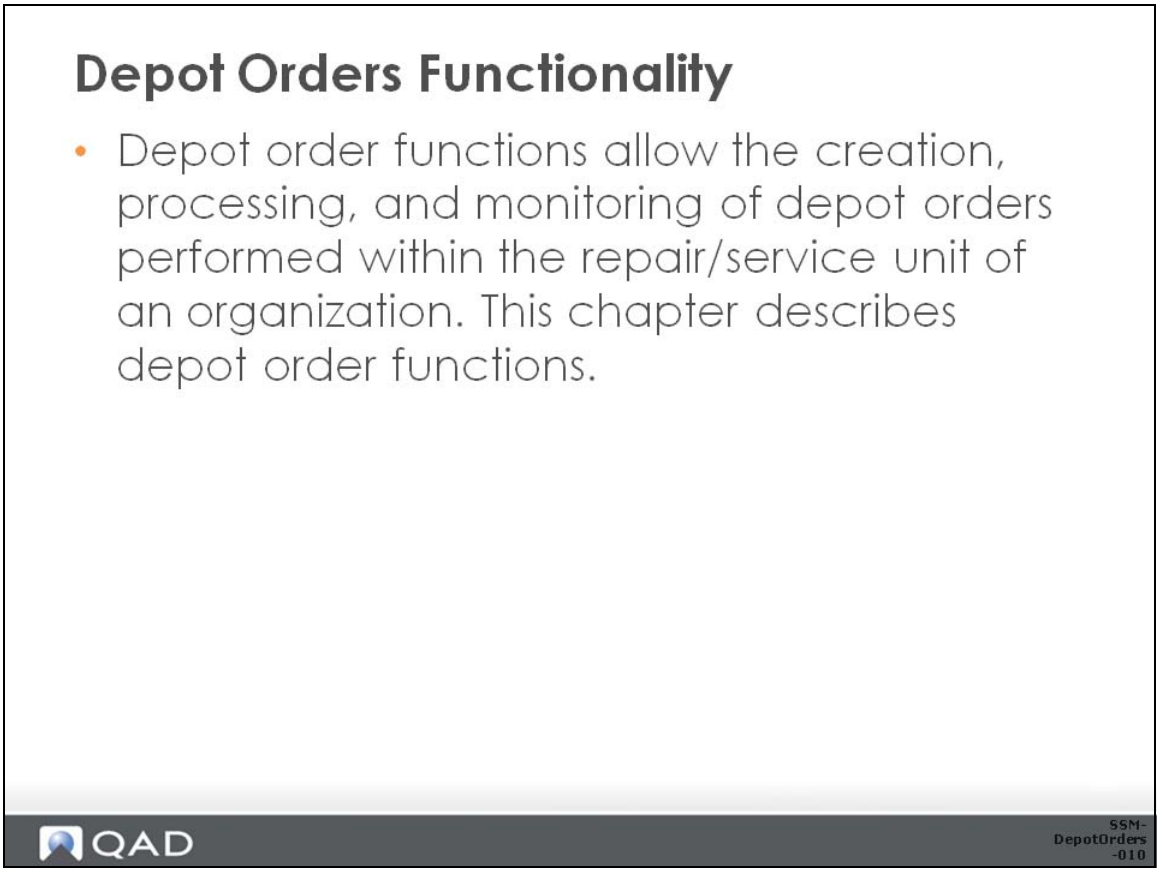
5 Once done, return to the menu.

You have just shipped and receive an RTS. Well Done.

Chapter 16

Depot Orders

Overview



Overview

Typically a depot order is defined as activity that occurs in-house at the site of the manufacturer or distributor, rather than at the site of the end user. Repair activities that take place at the customer site are usually defined as constituting field service repair.

A depot order may require a replacement part to be sent to the customer before the damaged part is received in-house. A depot order also requires the defective part to be tracked when received in-house for repair from the customer.

As with any repair, the repaired items may or may not be covered by a warranty contract. Chargeable labor, material, and miscellaneous expenses may be incurred during evaluation and repair processes. Changes to installed base records must be recorded timely and accurately.

Note Where a customer wants to return a recently purchased item, RMAs should be used. Using an RMA instead of processing a negative sales order allows the item to be properly inspected before it is returned to inventory. Where a user has returned a defective item, QAD recommends that a depot order be used rather than an RMA since this allows the replace/repair process to be tracked more effectively. Note, however, that depot orders do not provide RTS capability.

Depot Order Collection

You can use the Depot Order collection to access programs that let you create, process, and monitor depot orders.

The Depot Order collection consists of the following browses:

Depot Order browse. Lists customer-returned items for repair or replacement. The browse displays the call ID, item number, end user, status, receipt date, shipment date, and so on. This browse drives the records displayed in the other browses listed below.

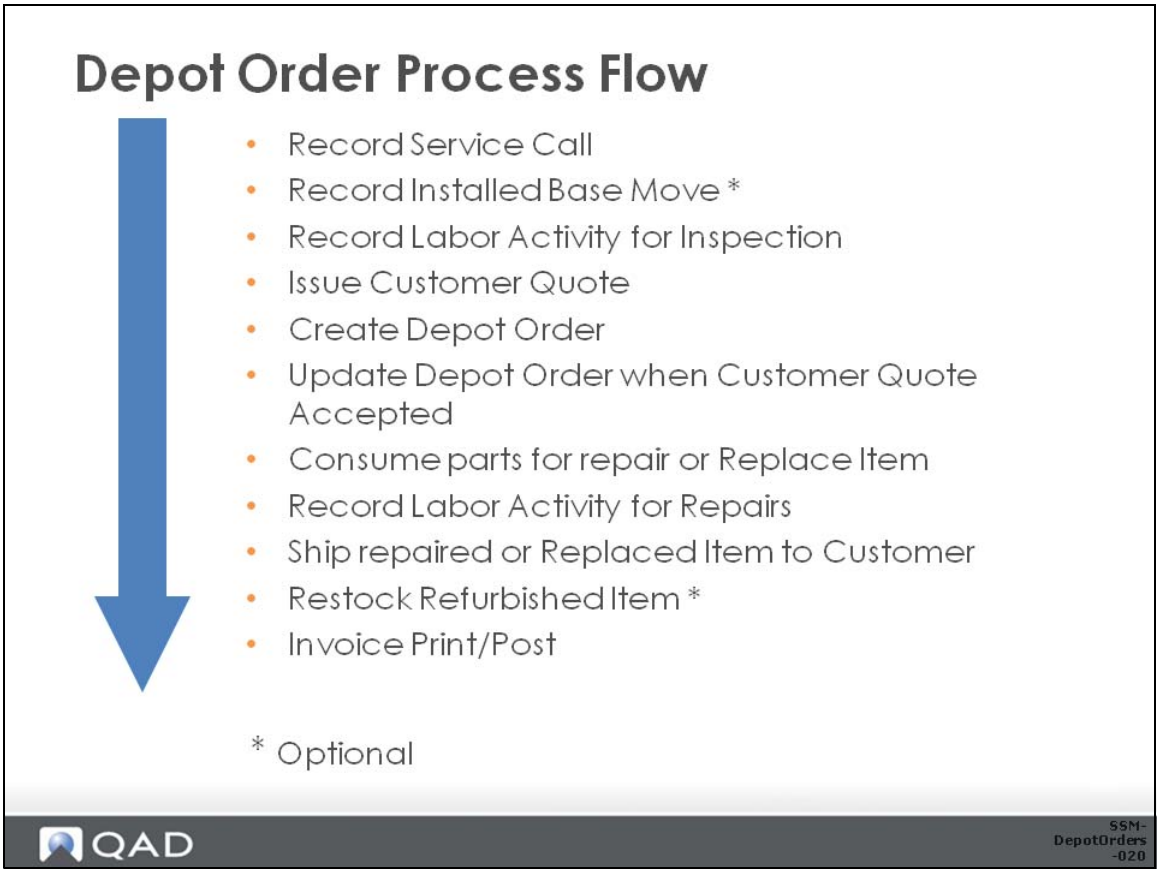
Parts List browse. Displays parts list records, including item number, description, and quantity.

Material Order browse. Displays material order-related information, including sold-to and order date information.

Call Labor Recording browse. Displays labor activity-related information, including start and end time, engineer, work code, and service category.

Depot Inventory Tracking browse. Displays inventory tracking information for the item, including unit of measure, lot/serial information, site, and transaction type (repair or replacement, receipt or shipment).

Depot Order Process Flow



Use this process flow and the accompanying description to help you process depot orders in your organization.

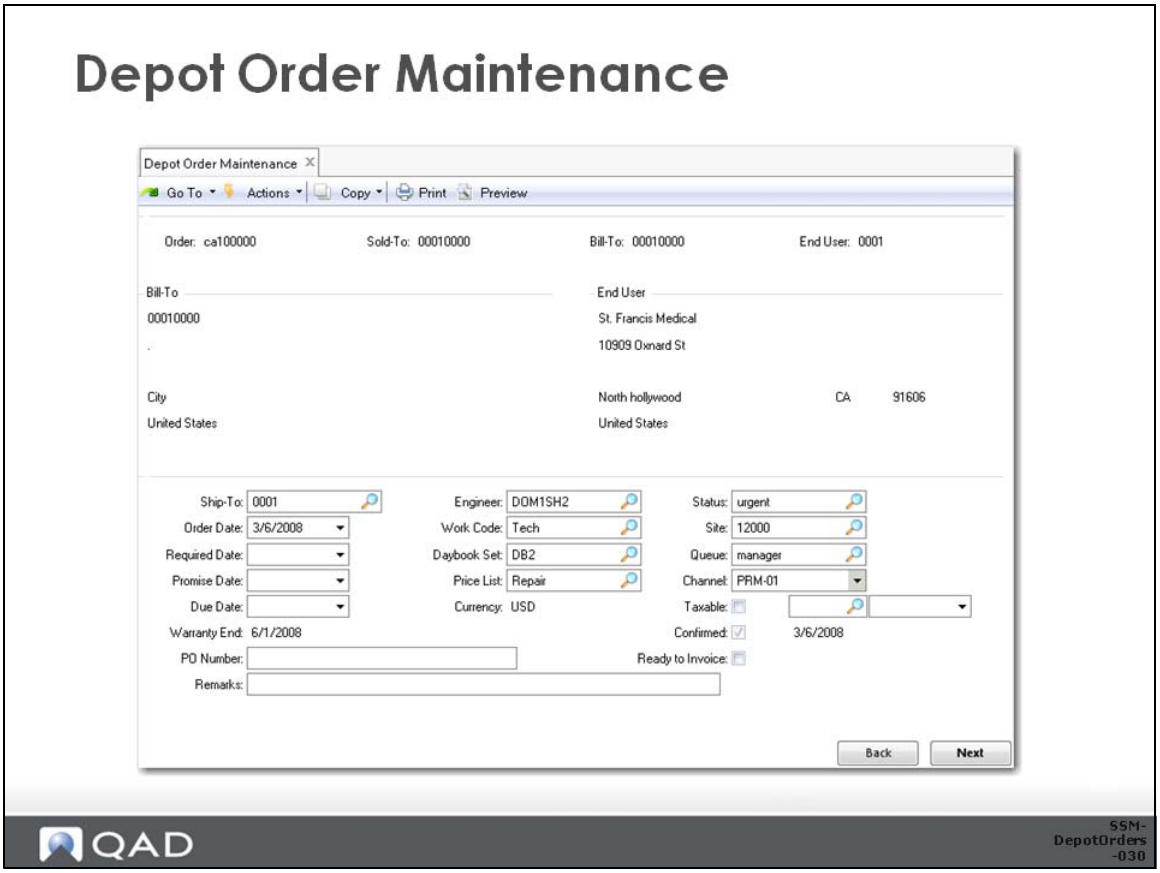
- Log the service call using Call Maintenance (11.1.1.1)
  - If the depot order item belongs to another end user, record it by using the Installed Base Move frame of Call Maintenance
- The item is received from the customer
  - inspected to determine whether the item should be replaced or repaired
  - associated repair/replacement costs are determined
- Labor activity for the inspection is recorded in either Call Labor Recording (11.1.1.17) or Call Activity Recording (11.1.1.13)
- The resulting quote is communicated to the customer.
- The depot order is created using Depot Order Maintenance (11.1.2.1)
  - If the customer accepts the quote, the status of the depot order in Depot Order Maintenance is manually updated to indicate the customer has confirmed the order
- If the item is being replaced
  - An additional call and sales order line is created automatically in Depot Order Maintenance

  The system automatically creates a material order for the item to be shipped and consumed against the call to remove the replacement from inventory.

- If the item is being repaired
  - Material for the repair is planned on a parts list and/or a material order
  - Parts can be preloaded from a BOM and saved as a new BOM for future use
- An engineer then records labor activity for repairs by using Call Labor Recording
  - Any additional items consumed or any items returned (not needed) are recorded as part of the repair in Call Parts Recording (11.1.1.19)

  The CSR verifies that the repair work has been completed and updates the depot order to enable invoicing. Optionally at this point the service type may be changed by using the Repair Data frame in Depot Order Maintenance to redirect service costs to different GL accounts based on the work performed and the coverage entitled to the customer. GL transactions are reversed and reposted.
- The repaired item is either shipped back to the customer or restocked
  - If the item is returned to inventory, this is recorded using Depot Item Restock (11.1.2.4)
  - Restocked items are removed from the customer installed base
- Invoicing occurs on the sales order line (which acts as a pending invoice for calls)
  - This may be a zero invoice if a replacement item was sent with pricing attached to its shipment

Depot Order Maintenance



Use Depot Order Maintenance (11.1.2.1) to manage depot orders.

- Depot orders can only be created from an existing Service Call that has an associated work code with the Repair Center field set to Yes.
  - The Depot Order ID is the same as the Call ID and cannot be updated

  The header frames of Depot Order Maintenance contain fields that display information defaulted from the call: call ID, sold-to, bill-to, name and address, and ship-to information. Other fields are used to record receipt and delivery data. The Confirmed field defaults to Yes; it can be set to No to indicate that customer authorization for the repair has not yet been received. Other fields on the headers contain tax environment, salesperson, and freight-related information.
- When entering information about a specific line item, indicate the repair type for the item
- Repair or Replace
  - If Replace is selected, the system automatically generates a second depot order line with a repair type of Replacement

  Use the Item Repair Data frame to record information about the item repair.

  Use the Item Repair Data frame to record BOM code, routing, service type information, and pricing information. You can use either fixed pricing or time and materials pricing types.

Use the Item Receipt frame to record receipt information for the returned item: receipt date, quantity, site, and so on. An Item Receipt Shipment Data frame displays shipment information, such as the actual date of shipment; this frame is updated when the repair or replacement item is shipped out via sales order shipments or the workbench.

If a depot order line is identified as being a replacement repair type, an MO is created automatically for this line using the alternate item ID if one has been specified on the depot order; otherwise the MO uses the item ID. The remainder of the information required to create the MO defaults from the depot order/call. The system uses the existing credit checking functionality to ensure that the order does not exceed authorized credit limits.

Use the new Depot Order browse (11.1.2.2) to view information about current depot order records, such as status of the call/call line, receipt, and shipment dates.

Depot Order Maintenance Flow

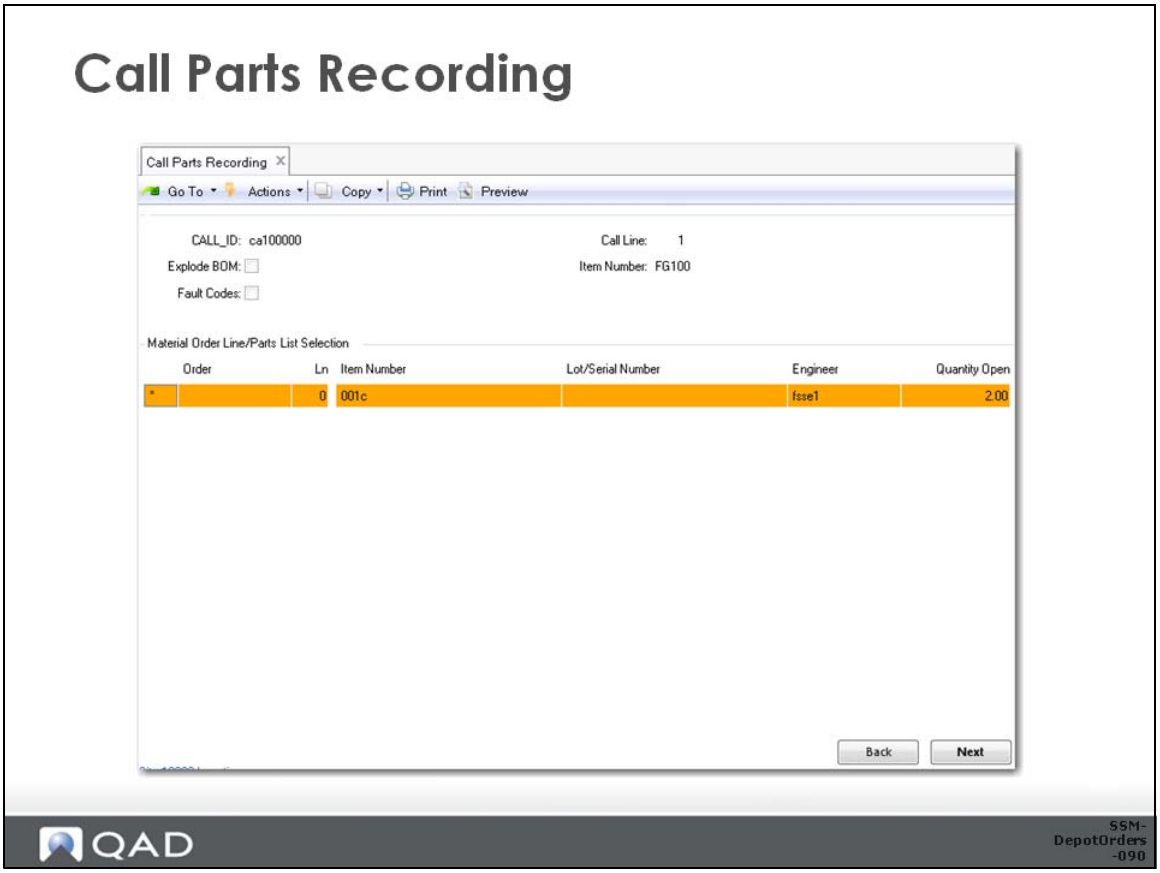
Depot order maintenance occurs in the following order:

Header information defaults in from call.

1. Specify items to be shipped to the customer.
2. Specify if items to be received from the customer for repair or replacement.
3. Enter trailer information, including trailer codes, tax, and standard credit information.
4. Complete the trailer that totals billing amounts and trailer codes.
5. Receive an item from a customer for repair in Depot Order Maintenance. All item receipts from customers are done in Depot Order Maintenance.
6. All Depot Order shipments are done through standard shipping functions, such as Sales Order Shipments.

   Use this frame to review shipment data, such as activity (repair receipt, repair shipment), actual date of activity completion, and so on; these fields are read-only. The data on this frame updates when the repair or replacement item is shipped using sales order shipments or the workbench.

Call Parts Recording



Call Parts Recording:

Use Call Parts Recording (11.1.1.19) to issue/consume parts from a parts list, or to return parts that were consumed previously. Returning the items reverses the original consumption activity and updates the quantity to return on the associated MO.

After entering the Call ID and call line, the fields are populated automatically from an existing parts list or material order that has been previously created.

If a BOM is associated with the call line, you are given the option of exploding it.

Exploding the BOM populates the item ID and quantity.

If the BOM is associated with a labor routing, the system issues a warning that the BOM will not be exploded as part of the Call Parts Recording process (but will continue to be done in CAR).

After selecting the items to process, indicate the items consumed and the quantity to return. Optionally you can record details about the consumed items and the returned items by using the Item Usage Detail and Item Return Detail screens.

On exiting the screens, fault code information can be entered. The system prompts for the effective date and destination for the report output, and then processes the items.

The system handles items to consume like this:

- Selecting a quantity to consume for an item with a material order causes that MO line to be shipped and updates CAR with the consumption of the item.

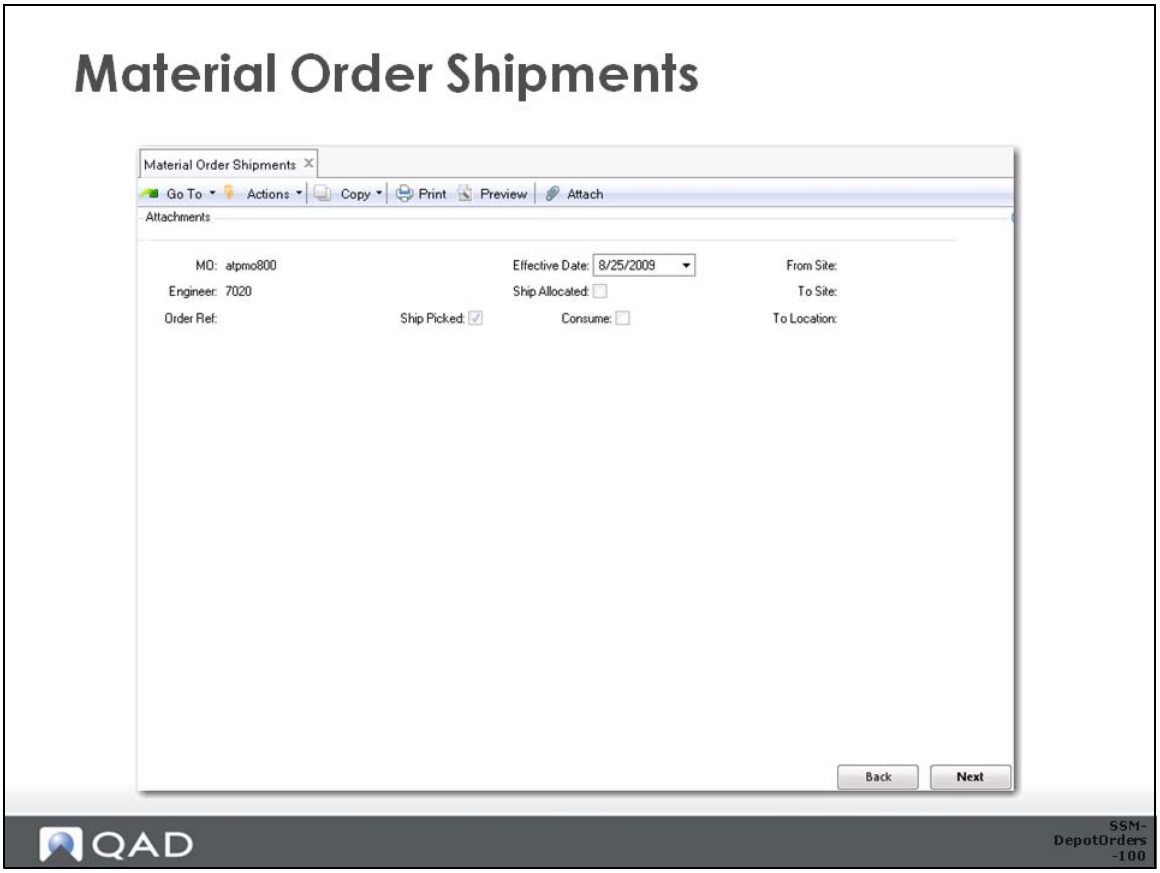
- Selecting a quantity to consume for an item without an MO updates CAR with the consumption of the item.

The system handles items to return like this:

- Selecting a quantity to return for an item with an MO causes the item to be received back into inventory. CAR is updated to indicate the item is not consumed.
- Selecting a quantity to return for an item without an MO (on the parts list only), returns the item to inventory and updates CAR to indicate it is not consumed.

Note Call Parts Recording is a subset of the parts recording functionality available in CAR, intended to simplify the process of recording parts issue/consumption. The fields in Call Parts Recording and CAR have identical functions; for field descriptions see Call Activity Recording in Chapter 11.

Material Order Shipments

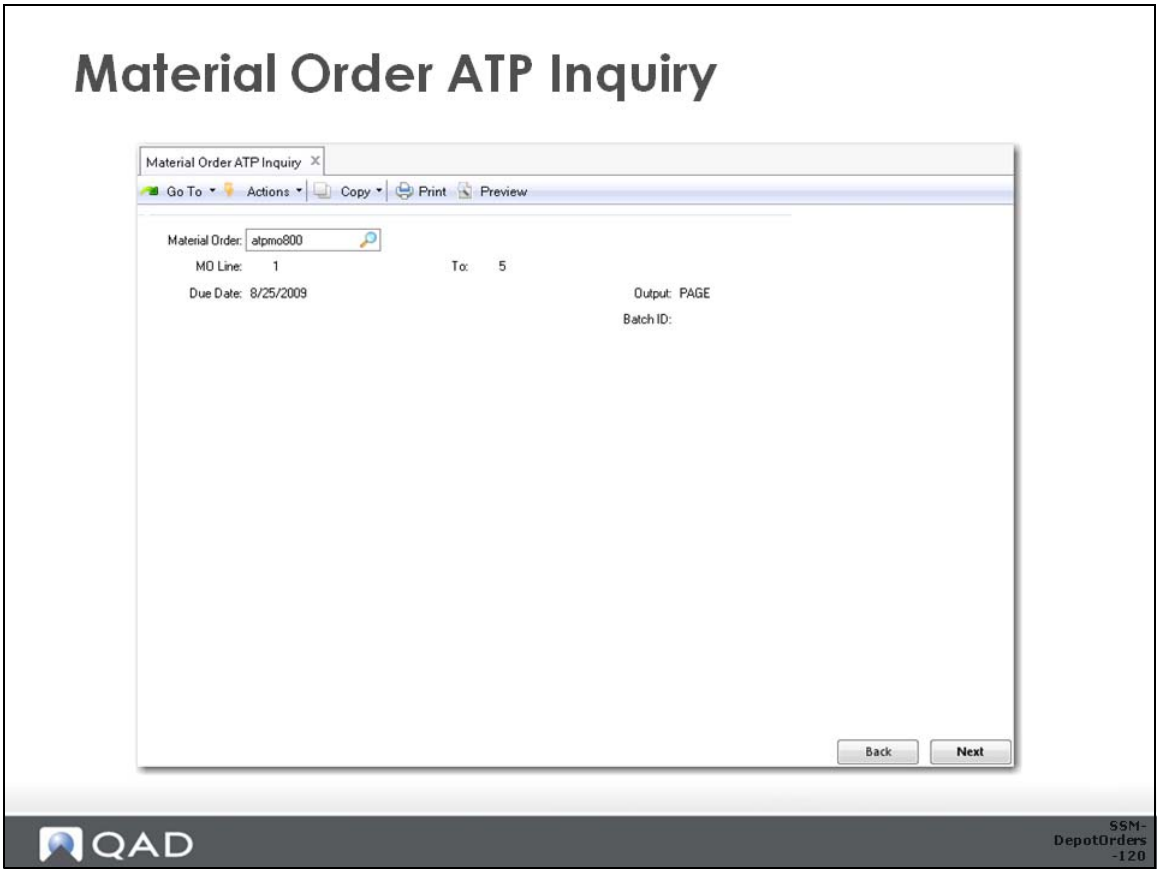


Use Material Order Shipments (11.11.6) to enable the optional automatic consumption of items that are shipped. This ability means that you do not have to explicitly consume MO parts in CAR. Consumption takes place against open calls only; if the call is complete or closed, no consumption will occur, even though the MO can be created and shipped.

Note Before using Material Order Shipment to consume items automatically, you must enable auto-consumption in Material Order Control file.

Click Next to display the line detail frame to control the consumption of line items.

Material Order ATP Inquiry

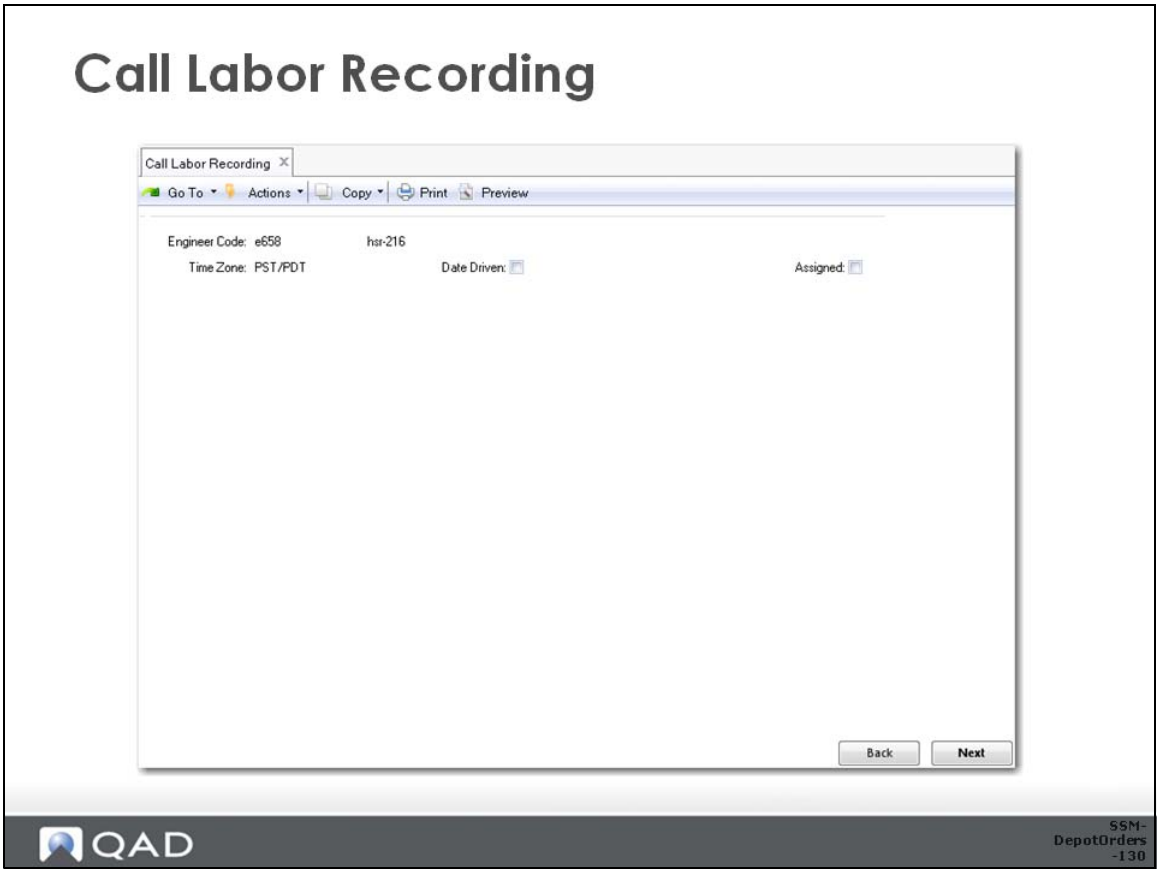


Use Material Order ATP Inquiry (11.11.7) to view ATP information associated with a specific material order and lines. Right-clicking a record in the Material Order browse causes the inquiry to run using the currently selected record.

Specifying a material order displays all unconfirmed material order lines whose due date is less than or equal to the date specified. If a material order line is not specified, all MO lines display. MO lines may be skipped if:

- No due date is specified for the MO line
- Site security does not allow the current user to view the line
- The line is an EMT part, a configured part, or ATP enforcement for the line is None

Call Labor Recording



Use Call Labor Recording (11.1.1.17) to record any repair/service call activity. An engineer records labor after evaluating a returned item, and then again when repairs to the item are complete. Labor activity may be recorded by call/call line or effective date.

Labor activity for existing records can be modified as long as the record is not closed. You can modify duration, start time, and end time, but cannot change the date of an existing labor activity record. If the call labor record is associated with a call report that has already been invoiced, but the invoice has not yet been posted and printed, the system issues a warning that the invoice has been generated, and prompts whether you want to continue to edit the call record. Responding Yes causes the Ready to Invoice field to be set to No in Call Invoice Recording (11.1.1.15).

Call Labor Recording does not support recording activity for service items. To record activity for service items, Call Activity Recording (11.1.1.13) should be used.

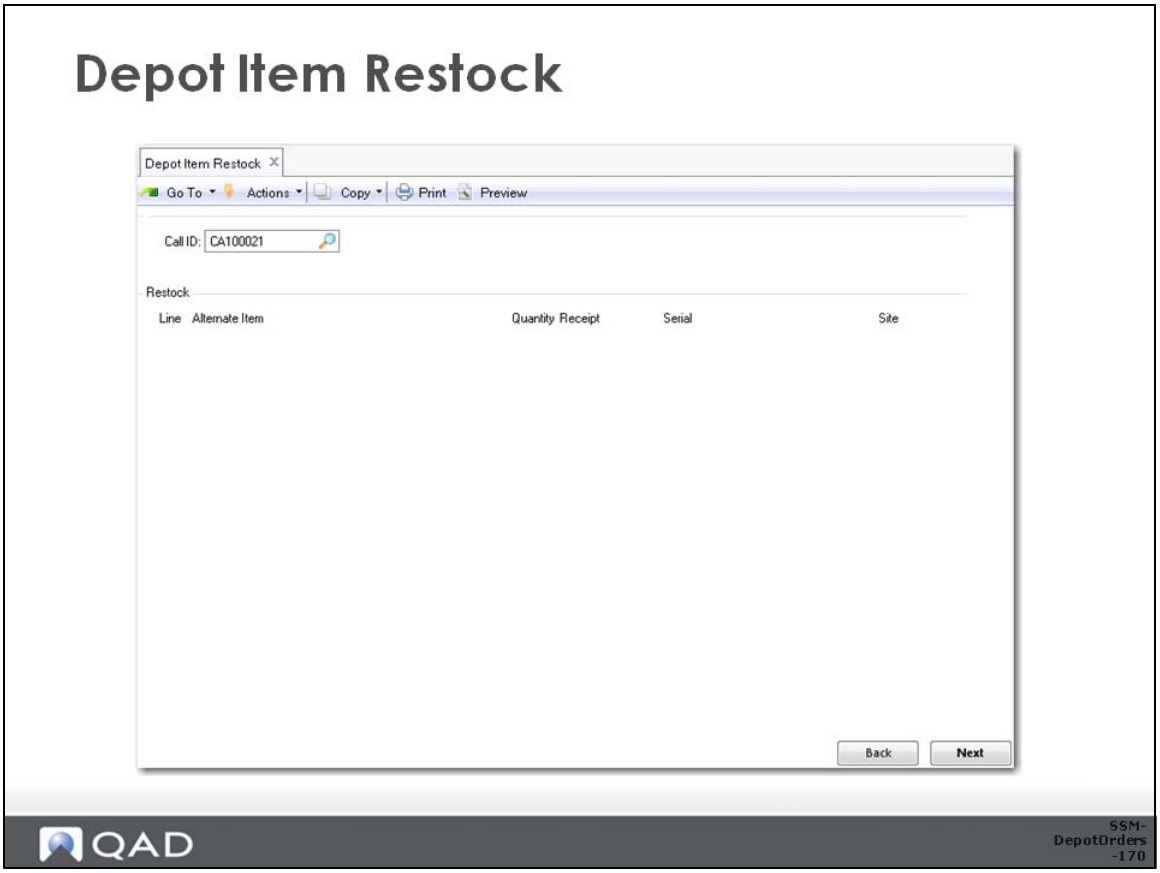
Call Labor Recording is available from the Labor browse in the Depot Order collection and from the application menu.

Use the Call Labor browse (11.1.1.18) to view existing call labor activity records.

If there is a repair routing associated with the call/visit and if Date Driven is No, the system asks if the routing should be exploded. Responding Yes explodes the routing, and the Standard Operation values and Duration times are populated from the routing values; these values can be updated if required. Responding No causes the routing not to explode.

If there is a BOM associated with the routing, the system issues a message to the effect that the BOM will not be exploded in call labor recording (but will continue to be done so in call activity recording).

Depot Item Restocking



Use the Depot Item Restock (11.1.2.4) to restock inventory with items that were originally returned by customers, repaired in-house, and then restocked in refurbished inventory.

Note This program is available from the Depot Order browse as well as the menu.

Restocked items may have a different item number to indicate that the item is a refurbished as opposed to a new unit. You can give an item that will be restocked a different item number by entering a value in the Alternate Item Number field in Depot Order Maintenance.

Depot items must be received before they can be restocked. If required, site information may be updated.

Only depot order lines that have a complete status can be restocked. The line selected is passed to the Receipts-Return to Stock (3.11) program. The installed base is updated to reflect that the item was restocked into inventory and removed from the customer's installed base.

Depot Order Shipment

After the item is repaired and ready to ship, the existing sales order shipment and pre-shipper workbench screens are used to ship the item to the customer.

Shipment of the item is prevented if:

- The Confirmed field is set to No to indicate that the order has not been accepted by the customer

- The shipment is on credit hold
- The depot order line status is not complete.

Note The depot order status may be set to complete if there is an open MO; the status cannot be set to closed unless the MO is for a replacement line.

The actual date of shipment records is updated. After the item ships, the invoice ISB is updated while printing and posting occurs.

Use the Depot Inventory Tracking browse (11.1.2.3) to review depot order, item ID and description, quantity and unit of measure, lot/serial number, end user ID, site (receipt or shipment, depending on the activity), location (receipt or shipment, depending on the activity), transaction type, and transaction date.

Depot Order Invoicing

A depot order line can be invoiced when the line status is complete and Ready to Invoice is set to Yes. Ready to Invoice cannot be set to Yes if any of the following apply:

Open MOs are associated with the depot order (with the exception of MOs for a line that has had, or will have, a replacement part shipped out against it).

An outstanding item receipt quantity is due from the customer for that depot order line (for example, a replacement unit was sent and the customer never returned their broken unit for repair, which was part of the agreement).

Customers must manually update the status of the depot order/order line to Closed.

Service Type Change

As part of depot order invoicing, you can update the service type on the depot order line if no activity has been posted against the order/call, or if the order/call status is complete and is ready to invoice. The service type cannot be changed if the line has been either partially or fully invoiced.

The service type for a replacement item cannot be updated: it is read-only. This ensures that the service type of the replacement item matches the service type of its associated replace item.

If you change the service type, the system checks to see if the inventory, work order, and service GL accounts associated with the new service type product line are different than those GL accounts associated with the old service type product line. If they are the same, no further processing is required. But if the GL accounts are different, the system:

Reverses any associated WO or IC transactions already created for the call/call line.

Creates new WO/IC transactions that use the product line inventory, WIP, and GL accounts associated with the updated service type.

This ensures that the inventory history and GL transaction activity are synchronized and posted to the correct product line accounts.

Reverses any other labor, item, or other expenses posted against the call in CAR that require reversing.

All transactions created after the service type is changed post to the GL accounts associated with the product line of the new service type.

The GL effective date for these reversing/correcting transactions defaults to the effective date for the original GL transaction; this date can be modified if required (or if the original GL posting period has been closed). The effective date for the reversing transaction defaults from the old effective date if the GL period is open; otherwise it defaults to the system date.

Exercise 29: Depot Orders

In this exercise you will:

- Create a Depot Order
- Ship out a replacement item to end user
- Create repair parts list and corresponding material order
- Record repair labor using Call Labor Recording
- Record repair material using Call Parts Recording
- Restock the repaired item
- Update the Service Type of the Depot Order
- Invoice Depot Order

Prior to beginning this exercise, make sure the following settings are found in Material Order Control (11.11.24):

Field	Value
Ship Immediately	Yes
Consume Shipped Lines	Yes
Internal Customer	CU100
Confirmed Orders	Yes

Create Depot Order

A depot order can only be created once a repair call has been generated.

1 Create a call in Call Maintenance (11.1.1.1) for the item/serial number combination created in Exercise 11), with the following attributes.

Field	Value
Serial Number	Your initials
Item Number	C-S001
Work Code	RepCtr
Description	Customer wants replacement unit sent
Severity	A
Type	PRODFAIL
Assigned	JGB
Prob/Skill	ELEC

Accept default values, verify that the site is C1.

Note the Call ID _____.

2 Go to Depot Order Maintenance (11.1.2.1) and select the Call ID created in step 1.

3 At line 1, indicate that the end user desires a replacement unit by selecting Repair Type Replace.

4 Accept default Service Type.

5 Click Yes in the field Receive in order to record the receipt of the end users item back in house so that it can be repaired.

Note Normally, the receipt would be done at a later date and not part of the depot order creation, but for training purposes, we'll go ahead and receive the part now.

6 Accept Item Receipt default values.

Note The Item Receipt/Shipment frame appears and is populated with the item receipt you just recorded.

Note When you return to the Item Selection frame, a second line has already been created. This was created automatically by the system and is for the actual replacement item that will be sent to the customer. Verify that the Estimated Cost field is set to 0.00, as this repair will be covered by Warranty, as agreed upon earlier with the end user.

7 Click the Back button twice to navigate to the Depot Order Trailer.

The Line Total defaults to zero.

8 Complete the order

9 Go to the Depot_Order_Collection and select Call/Order just created. Go to the Material Order tab - there is a material order created for the depot order.

How did that happen? (Hint: it's related to the Repair Type of the depot order line)

Replacement Item Shipment to the End User

1 Go to Material Order Shipments (11.11.6) and ship the material order created above, be sure to leave the serial number blank.

This material order was created in order to relieve inventory of the replacement item that will be shipped to the end user in the next step. Shipments of Depot Order replacement items are treated as a memo item activity, not an inventory activity, and the material order is the mechanism used to relieve inventory of the item that is to be shipped.

2 Go to Sales Order Shipments (7.9.15) and enter in the Depot Order Call ID.

3 Ship the Depot Order Line. Verify that the Site is set to C1 and the location is set to C-700, note that it is Line 2.

There is no Line 1 to ship on this Depot Order. Line 1 of the Depot Order refers to the item that the end user will be returning for repair; Line 2 refers to the replacement item being shipped to the end user

4 Return to the Depot Order Collection and select the Depot Inventory Tracking Tab.

What are the transactions that are recorded there? Where did they come from?

Invoice the Replacement Shipment

1 Go to Invoice Post and Print and select the Depot Order ID.

2 Select, Print GL Detail.

3 Post and then Print the invoice.

Call Labor Recording

Assume that the engineer has completed the repair of the item, using stock he had on-hand. Begin by recording his labor and then proceed to recording the consumption of the repair items used. Labor can be recorded in CAR, which we have done in previous activities, or it can be recorded in Call Labor Recording.

1. Go to Call Labor Recording (11.1.1.17) and enter in Engineer ID: JGB. Leave both the Date Driven and Assigned fields blank
   a. Enter in Call/Depot Order ID. Set the Line field to 1.
   b. Answer Yes to Explode Routing.
2. In the Labor Detail Section, select Setup as the standard operation and accept the default duration value.

   Where did that value come from? (Hint: it's related to the Service Item Structure)
3. Change the start time to be 10:00. What happens to the End Time? It's automatically updated using the start time plus duration.
4. Change the start time for the repair activity so that there is not an overlapping interval with the time recorded for the Setup activity.
5. Accept the default values for Work Code and Service Category.
6. Answer Yes to the prompt, Is all information correct?
7. Direct the output to printer.

   The print out displays the value of the labor being recorded by that engineer against the depot order. The ID field is the Report ID that is normally created in Call Activity Recording. Since Call Labor Recording updates CAR, we create the Report ID as part of this function.

Call Parts Recording

Record the consumption of the parts that the engineer used to repair the item. If the engineer didn't have these items on-hand, we could have created a Parts List for them, which would have resulted in the automatic creation of a material order.

1. Go to Call Parts Recording (11.1.1.19).
2. Enter the Call ID and Line 1. Set Explode BOM to No.

   Note that item C-S001 appears because we issued and consumed it earlier as part of the material order shipments process completed in a prior step.
3. Enter the following data:

Field	Value
Op	20
Item	C-C001
Qty Req	1
Qty Ret	0

Field	Value
Lot/Serial	<blank>
Det	Yes

Verify that the item is to be issued from site C1, location C-700.

4 Repeat the same for item C-C002. Use the same operation and same quantities.

5 Click the Back button to enter the Fault Codes field.

This is where you can enter data associated with the failure of the item. It is an optional step that we will skip.

6 Click Back and return to menu.

Depot Item Restock

It's now time for the engineer to record the receipt of the repaired item back into the spare parts inventory. Prior to executing the Depot Item Restock function, the status of the Depot Order Line must be set to Complete

1 Return to Depot Order Maintenance (11.1.2.1) and enter in the correct ID

Alternatively, you can access this via the Depot Order Collection - just find the correct Call ID, right click and select Depot Order Maintenance - the system will automatically fill in the data from the call.

2 Continue on to line 1 and change the status to Complete.

Note If you receive an error that the Status can not be changed, because there are no invoiceable reports, simply go to CAR and verify that the reports are there, then return to Depot Maintenance and update the Status.

3 From the Depot Order Collection, find the Call ID in the top browse, select line 1 and right click, select Depot Item Restock.

4 The Call ID, Line number, Item ID and Site are all filled in automatically. Click the Next button to bring up the Restock screen.

Accept the default values.

5 Answer Yes to, Is All Information Correct?

The repaired item has now been returned to inventory.

Closing and Invoicing the Depot Order

Since all of the repair activity has been recorded against the order, it's time for the CSR to update the order status to Closed and identify the order as available to invoice. Since we already invoiced the end user for the replacement item, the purpose of this invoicing process is to properly close out

the repair work order and charge the repair related expenses to the correct general ledger accounts. The GL accounts are those associated with the service type (warranty type or contract type) of the order.

1. From the Depot Order Collection, right click on the correct Call ID and select Depot Order Maintenance.
2. In the Header frame, set the Status to Complete and the Ready to Invoice field to Yes.
3. After the trailer frame is the expense summary that identifies the repair costs for this order, displayed in the Invoice Sort Categories created earlier in these activities.
4. Go to Invoice Post and Print (7.13.4) and post the invoice.
5. Return to Depot Order Maintenance (11.1.2.1) and set the order status to Closed.