WAREHOUSE MANAGEMENT SYSTEM

Third Party Logistic Service Billing Module

PROPRIETARY and CONFIDENTIAL

Copyright 1997 - 2015

CRISTAL Solutions Pte Ltd

All Rights Reserved

Last Updated: 12 December 2015

Note: This document is written based on the Enterprise version of CRiSTAL Warehouse Management System. Some of the functionality described may not be available in the other versions.

PREFACE

This manual is written for CRiSTAL Warehouse Management System Release **5.399**

This document contains information that is **PROPRIETARY and CONFIDENTIAL** to **CRiSTAL Solutions Pte Ltd.**

It is not to be released to any third party in whole or in part, in hard or soft copy without the expressed **written** consent of the Managing Director and/or the General Manager of CRiSTAL Solutions Pte Ltd.

Copies provided to licensees are strictly for the benefits of authorised users only.

This document aims to provide the users with an administrator guide. However, it is not meant as a substitution to the comprehensive training that is conducted as part of the implementation process.

Neither is this meant as a SOP (standard operation procedures) to any organisation.

For an overall understanding of CRiSTAL Warehouse Management System, please contact your implementation consultant for assistance or contact CRiSTAL Solutions Pte Ltd at:

CRiSTAL Solutions Pte Ltd

Phone: +65 6289 7838

Email: support@cristalsolutions.com

Website: www.cristalsolutions.com

www.cristalsolutions.com.sg

Revision History

S No	Reversion	Date	Description
1.	2015.001	10 Jun 2015	*Build 5.399.833.005 and later* *The change may be applied to selected sites on request.* Change to PLANNED storage charges calculation – to base on Receipt Date updated in Receipt Master instead of Receipt Location \ Pallet History
2.	2015.002	12 Dec 2015	*Elaborate on storage charges by Location's storage type.*

TABLE OF CONTENTS

CRISTAL

Solutions Pte Ltd

Copyright© 1999 - 2015

All Rights Reserved

Page 5

Last Updated : 12-Dec-15

1. INTRODUCTION

The 3PL Service Billing is designed as a separate module to the CRiSTAL Warehouse Management System and is available as part of the ENTERPRISE edition which is packaged as a 3PL warehouse management system

As methods of charging a client for the service performed is as varied as the number of people who conceptualise them, the system is designed as a configurable module which allows new calculation to be added without the need to change the front end – namely the VB program.

However, there are a number of terminologies and controls used which would have to adhere to in order to simplify the billing structure.

This document is written as a user guide and will not dive too much into detail.

However, the methods of calculation of the service will be briefly touched on to provide the user a basic understanding of the available Calculation methods.

It is anticipated that the users have a good understanding of the tasks and services performed in a warehouse before attempting to explore the module.

A good knowledge of logistics services and charges are also expected of the person who is tasked to configure the billing charges.

A fair bits of trial and error is expected in the configuration in order to achieve the results.

But as with any system, the Billing Module is designed to facilitate intensive computations that are routine and standardized.

New calculation method when make available will be provided with write-up to explain the logic.

One of the key concepts adopted in the design is that Storage is considered as a service function and therefore the treatment of it would very much similar to other services such handling and palletising.

1.1. Type of Services

Broadly, the services provided by a 3PL operation are being classified into following Service Type:

1. Adhoc
2. Fixed
3. System (derivable)
4. Storage
5. Transport   - Available from 5.398 Build 659

Adhoc services are defined as services that are provided on demand or adhoc basis. These services are therefore need to be captured or recorded as and when they occurred. Examples are container devanning and vanning (un-stuffing and stuffing).

Fixed or flat services are services that are provided on a fixed fee per week, month... basis.

System derivable services are services such as handling in (receiving) and handling out (picking / delivery). These services can be derived for the routine tasks that are performed in the warehouses, namely, check-in, putaway, picking, transfers, replenishment, etc.

Other System derivable chargeable services include by receipt, receipt lines, sales order, delivery order, order lines, delivery trip…

> Note: The Calculation Methods for Services are Receipt Type agnostic except for those that are specifically so named (designed) – RETURN (which filter for RETURNS receipt type) and NRTN (for receipt types other than RETURNS)

Storage is the stock keeping or warehousing function that the 3PL operator provides in keeping or storing of the stock or inventory on behalf of the clients.

Transport is transport services that are provided by the warehouse that are independent of the warehousing services. This service is in a way similar to Adhoc but usually does not have standard charges. This is summarized from the Transport Orders entry. The amount billable is the total of each transport order.

1.2. Warehouse Tasks and Logistic Services

In CRiSTAL WMS, the basic activities that the warehouse operation performs are defined as Warehouse Tasks.

These basic tasks are

1. Check-in
2. Putaway
3. Picking
4. Pallet Relocation
5. Item Relocation
6. Replenishment – of pickfaces
7. Despatch – delivery to customers
8. Stock Adjustment
9. Item Re-labelling (change of attributes)
10. Quality Hold
11. Quality Release
12. Owner Transfer
13. Kitting
14. De-kitting

These are also known as movements or movement types.

There are many other logistic activities that are performed in the warehouses such as palletising, labelling, shrink-wrapping, repackaging, etc.

However, these activities can be associated with and derived from one or more of the basic warehouse tasks.

For examples, palletising can be associated with Check-in, Putaway or Picking. The warehouse tasks need to be performed before or after performing the palletising.

1.3. The 3PL Service Billing Module Flowchart
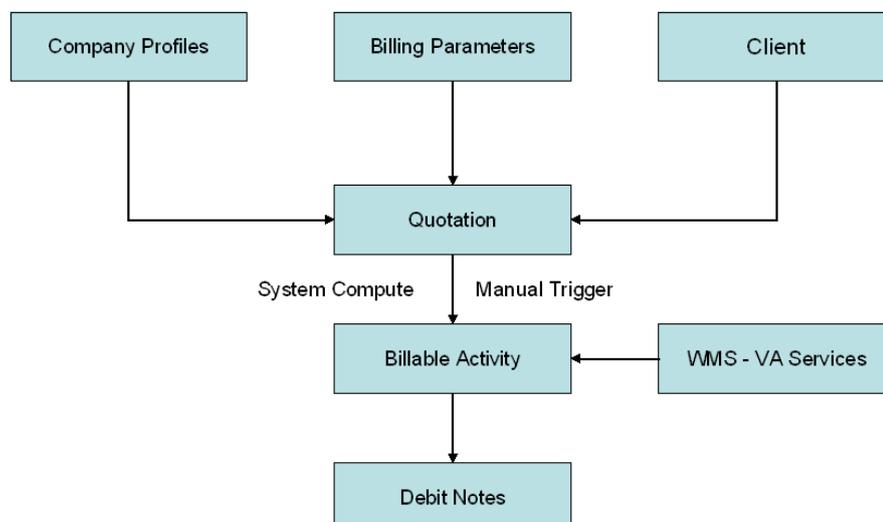
1.4. Limitation

Due to constant changes and variations to billing charges computation conjured to meet competition, users is cautioned that while CRiSTAL services billing module is highly flexible, it is not possible to fulfil all requirements at all times.

Customisations and enhancements thus regularly required to meet new requirements.

1.5. Warning

Billing Computation is a highly computation intensive functions / processes. Users are advised to run billing computation during off-peal operational period as overall system performance is likely to be affected when billing computation is in progress.

2. SETTING UP THE BILLING COMPANY

The 3PL Billing Module is designed to facilitate future development and enhancement as and when new method or needs arise. Company Profiles is intended as the set up for the billing company. This enables sites implemented CRiSTAL WMS to function as a 4PL operation in that it can bill on behalf of other 3PL that utilised its facilities to service their customers.

Each of these companies is defined as the Billing Entity in the 3PL Service Billing Module.

To set up the billing entity or Company Profiles

1. Input the Company Code

2. Enter the EAN Company Code, if available

3. Input the company Name and other available

4. Click Save

    a. This save the Company Information

5. Select Contacts

6. Input Contact Person and other available data

7. Click Save

CRISTAL
Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 9
Last Updated : 12-Dec-15

a. The contact information is saved

8. Select Miscellaneous
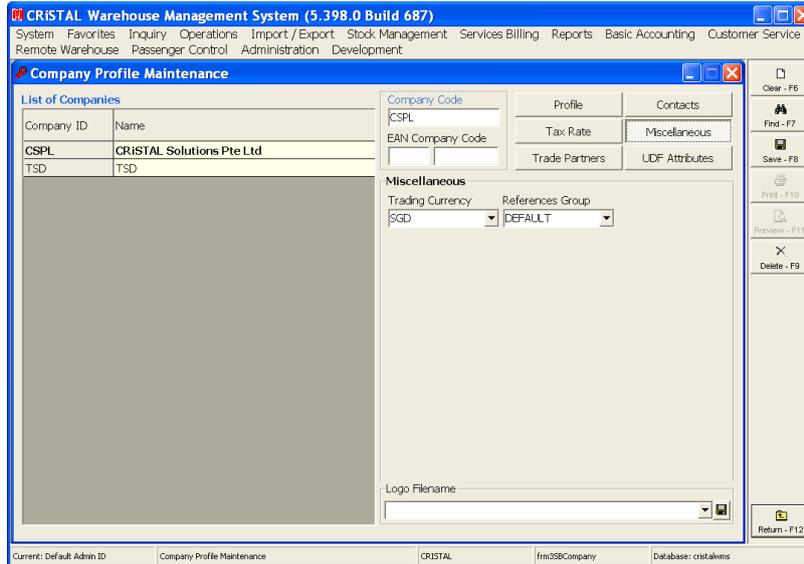
a. Specify the trading currency that is used by the entity

b. Specify the document Reference (Sequence) Group that the company will use

c. And Save

9. To update the Company Logo

a. Specify the logo file in Logo Filename – full path and file name

i. Only GIF and BMP is accepted

b. Click the save button beside the combo box.

10. Select Tax Rate (if applicable – used in Accounts Receivable interface)
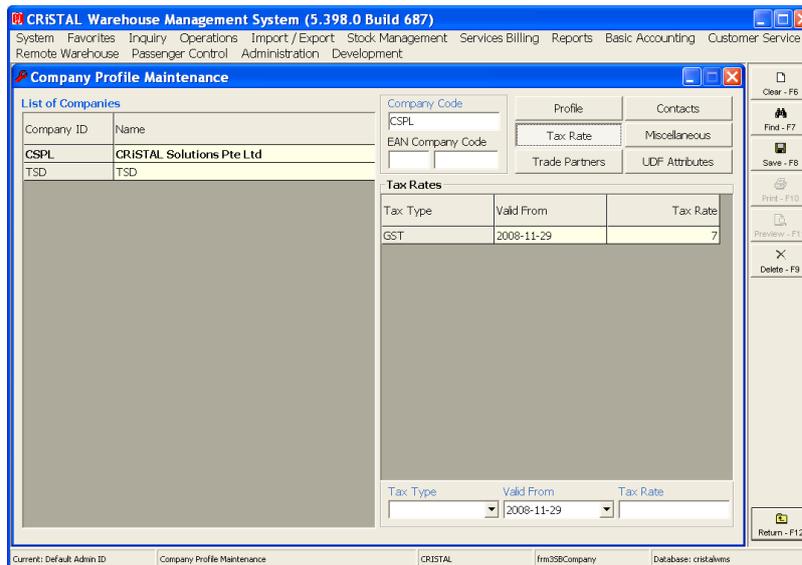
a. Select the Tax Type (Define in System Configuration | UDF Parameters)

b. Input the Valid From date

c. Specify the Tax Rate

11. Select Trade Partners

a. This is for the Basic Accounting module

CRiSTAL
Solutions Pte Ltd
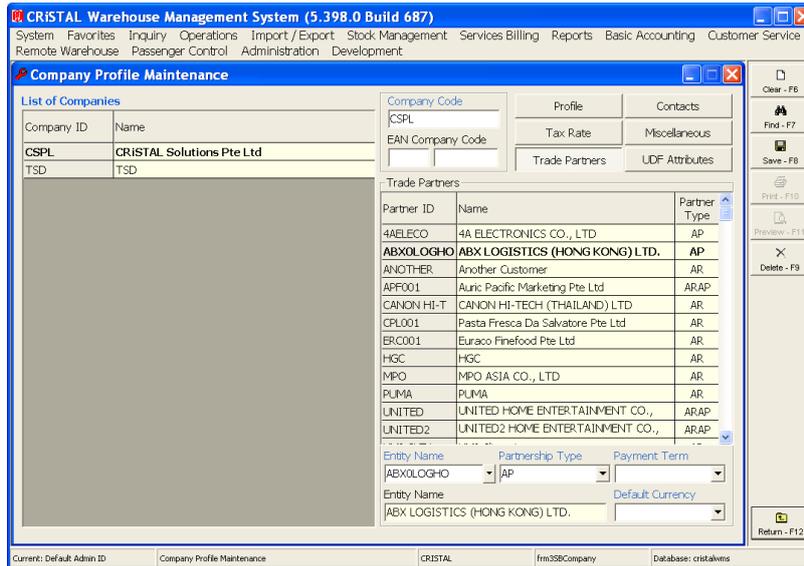
b. The trade partners' date are maintained in Entity Profiles

c. To add new partner, select them from the popup window and specify and Save

    i. Partnership Type – AR, AP or AR.AP

    ii. Payment Term

    iii. Default Currency

d. To update select from the grid box, amend accordingly and Save

12. Select UDF Attributes

a. This is designed to enable use of customised Debit and Credit Notes templates
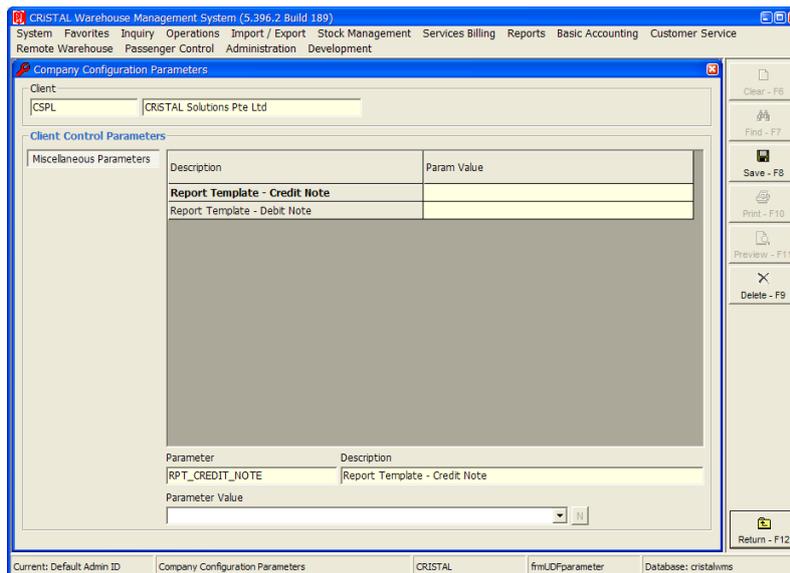
b. Select the required document and click the Down Arrow in the Parameter Value to select the required templates
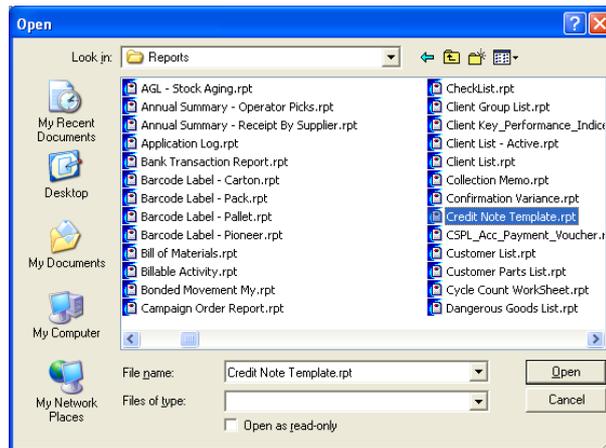
     c.   Select the template and click 'Open'

          i.   The file name will b e transferred to the Parameter Value

     d.   Click 'Update'

13.   To create the next billing entity, select Profiles and click Clear

14.   Repeat step 1 to 9

CRISTAL

Solutions Pte Ltd

3. SETTING UP THE BILLING MODULE

Before the Billing module can be deployed, a number of parameters need to be set up need to be defined. Some of these parameters are pre-defined. Requirement specific to a site are to be defined the users.

3.1. Pre-Defined Parameters

The pre-defined parameters are:

1. Billing Period

2. Billing Method

3. Calculation Method

4. Transaction Date Type

    a. Actual

        i. This is based on *create_date* of warehouse tasks in the *movements_history* table, when applicable

            ‣ The rationale for using *create date* instead of *last_update* is to circumvent issue of tasks being generated at month end and activities, completed and confirmed, spanned over to next month. This is to avoid some task being billed in one month and balance in the next.

    b. Planned (Scheduled)

        Updated 10 Jun 2015 – DL: Data source change in Build 833 to overcome computed stock balance discrepancy

        i. Inbound, the transaction date is based on Receipt Date specified in Receipt Master

            ‣ This change is made to overcome discrepancy issue in stock balance calculation that arise when users change the Receipt Date in Receipt Master after receipt have been checked in and confirmed.

                • However, administrators are cautioned that this will pose an issue in situation when users change the Receipt Date IN or OUT of a Billing Period – which will result in Inflated or Deflated storage charge respectively.

        ii. Outbound, the transaction is based on Delivery Date in the Sales Order.

            ‣ However in the event that the Delivery Date specified is before the Receipt Date, the transaction date will be default to DATE DESPATCHED – updated in Sales Order when the delivery order for a sales order is printed

5. Grade Type

    a. Bonded

    b. Non-Bonded

6. Minimum Charge Options

    a. The options at which level minimum charge is applied

        i. Bill Ref-Date

        ii. Bill Reference

            ‣ This is handled at report level. Customised template will be required

        iii. Billing Code

Copyright© 1999 - 2015
All Rights Reserved

Page 13
Last Updated : 12-Dec-15

CRISTAL
Solutions Pte Ltd

    iv.   Billing Group

- ‣ This is handled at report level. Customised template will be required

    v.   Billing Line

7. Free Days Options

    a.   NA

    b.   1st N Days

        i.   1st N days logic is to allow free storage if the stock of a receipt is issued within the defined N days.

        ii.   If Client did not have the stock issued within 1st N days, then storage charges will apply from the days of receipt.

    c.   N Days

        i.   N Days vary from 1st N days in that storage charge will apply N days after the receipt date (anniversary).

8. Rate Method

    a.   Effective

    b.   Stepped

9. Step / Min Charge Option

    a.   Bill Reference - Date

    b.   Bill Reference

    c.   Bill Code

    d.   Bill Group

    e.   Bill Line

        i.   Only this method is effective for auto-create of debit note from Billable Service Maintenance

10. Pro Rate Option

    a.   This is applicable when the billing period is MONTHLY

    b.   Options are

        i.   NA

        ii.   Days

        iii.   Half-Month

- ‣ That is if the period billable is less than half month, half month charge is applied

3.1.1. Billing Period

The values of Billing Period are:

1. Daily

    a.   Noted that when computing charges on Daily, considerable resources is utilised as the computation is very intensive. Overall system performance is likely to be affected. Users are advised to run this during off-peak hours.

2. Weekly

3. Monthly

4. Aweekly – Anniversary week of Receipt Date

5. Amonthly – Anniversary month of Receipt Date[1]

6. UDF99 – user defined period

    a. The prefix UDF indicate to the system that it is a user defined period

    b. The last 2 characters must be numeric and is the number of days

For other non-calendar period, please consult the vendor.

3.1.2. Billing Method

The values of Billing Method are

1. LOOSE – lowest unit of measurement (UOM) of item

2. WHOLE – one level above the lowest UOM

3. PALLET – the highest level in the UOM hierarchy

4. VOLUME – calculated at next whole quantity for the specified calculation method

    a. Measured in M3 (cubic meter)

5. WEIGHT – calculated at the next whole quantity for the specified calculation method

    a. Measured in MTON (metric tonne)

6. REVENUE TON – whichever is higher of VOLUME and WEIGHT

    a. Measured in RTON (revenue tonne)

7. LOCATION – the location used or occupied by the item

    a. Measured in number of locations – LOCATION

    b. This is enhanced in Build 394 to enable warehouse to charge different type of storage system such as bins, racks, shelf…

8. PALLET

9. ORDERLINE

10. RECEIPT

11. DELIVERY

3.1.3. Calculation Method[2]

The calculation methods are grouped into Service and Storage.

3.1.3.1. Service

The Service calculation methods are strictly on Accrued basis

1. SERVICE_LOOSE

2. SERVICE_WHOLE

3. SERVICE_PALLET

4. SERVICE_NONSTD

    a. This method is enhanced to handle billing by various UOM – Please see Appendix for details

    b. Method is also enhanced in 5.398 to handle billing by Receipt Type

5. SERVICE_DELIVERY

---

[1] The anniversary month of 31 Jan is either 28 Feb or 29 Feb depending whether it is a leap year. Anniversary month of 31 March are 30 Apr, 31 May, 30 Jun…
[2] See Appendix for more details

CRISTAL
Solutions Pte Ltd

a. This option is enhanced in Build 818 to incorporate the function of the following existing Calculation Method

    i. SERVICE_ORDERLINE

b. It is being enhanced for billing of specific Order Type, if specified.

c. For UOM option, it includes the following

    i. UNIT

        ‣ Sum of quantity delivered in lowest UOM

    ii. VOLUME

        ‣ as computed/recorded in Delivery Order

            • This is computed from the Pallet History dimension which is a snapshot of the UOM defined in Product Master at time of Receipt Check In

    iii. WEIGHT

        ‣ as computed/recorded in Delivery Order

            • This is computed from the Pallet History dimension which is a snapshot of the UOM defined in Product Master at time of Receipt Check In

    iv. ITEM

        ‣ Distinct Product ID count

    v. LINE_DO

        ‣ Number of delivery order lines

    vi. LINE_SO

        ‣ Number of (delivered) sales order line

    vii. CLT_REF

        ‣ Distinct count of Document (customer) Reference

    viii. ORDER

        ‣ Distinct count of Sales Orders

    ix. DO_NO

        ‣ Distinct count of Delivery Orders

    x. TRIP

        ‣ Distinct of Load Summary (Reference)

6. SERVICE_RECEIPT

a. This option is enhanced in Build 818 to incorporate the function of the following existing Calculation Method

    i. SERVICE_ASN_ORDERLINE

    ii. SERVICE_NON-RETURN_RECEIPT

    iii. SERVICE_NON-RETURN_RECEIPT_ORDERLINE

    iv. SERVICE_RECEIPT_ORDERLINE

    v. SERVICE_RETURN_RECEIPT

    vi. SERVICE_RETURN_RECEIPT_ITEM

    vii. SERVICE_RETURN_RECEIPT_ORDERLINE

CRISTAL
Solutions Pte Ltd
Copyright© 1999 - 2015
All Rights Reserved
Page 16
Last Updated : 12-Dec-15

b. It is being enhanced for billing of specific Order Type, if specified.

c. For UOM option, it includes the following

       i. ORDER (redundant – for backward compatibility)

           ‣ Distinct count receipt number

       ii. RECEIPT

           ‣ Distinct count of receipt number

       iii. LINE

           ‣ Distinct count of receipt lines

       iv. ORDERLINE (redundant – for backward compatibility)

           ‣ Distinct count of receipt lines

       v. LINE_ASN

           ‣ Distinct count of ASN lines (received)

       vi. ITEM

           ‣ Distinct count of Product ID received

       vii. ITEM-COLOR

           ‣ Distinct of Product ID – Item Color

       viii. UNIT

           ‣ Sum of quantity received in lowest UOM

       ix. VOLUME

       x. WEIGHT

           ‣ Sum of UNIT weight of product received

3.1.3.2. Storage

The calculation methods are group into Accrued, Advanced and Anniversary

The methods available for each group are:

1. Accrued

     a. ACCURRED_STORAGE_LOCATION

     b. ACCURRED_STORAGE_LOOSE

     c. ACCURRED_STORAGE_NONSTD

     d. ACCURRED_STORAGE_PALLET

     e. ACCURRED_STORAGE_PHY_PALLET

     f. ACCURRED_STORAGE_WHOLE

2. Advanced

     a. ADVANCED_STORAGE_LOCATION

     b. ADVANCED_STORAGE_LOOSE

     c. ADVANCED_STORAGE_NONSTD

     d. ADVANCED_STORAGE_PALLET

     e. ADVANCED_STORAGE_PHY_PALLET

     f. ADVANCED_STORAGE_WHOLE

3. Anniversary

     a. ANNIVERSARY_STORAGE_LOCATION

     b. ANNIVERSARY_STORAGE_LOOSE

      c.   ANNIVERSARY_STORAGE_NONSTD

      d.   ANNIVERSARY_STORAGE_PALLET

      e.   ANNIVERSARY_STORAGE_PHY_PALLET

      f.   ANNIVERSARY_STORAGE_WHOLE

4. Average

      a.   AVERAGE_STORAGE_LOCATION

      b.   AVERAGE_STORAGE_LOOSE

      c.   AVERAGE_STORAGE_PALLET

      d.   AVERAGE_STORAGE_PHY_PALLET

      e.   AVERAGE_STORAGE_WHOLE

5. Maximum Pallet

      a.   **MAXIMUM_STORAGE_PALLET**

6. Straight

      a.   STRAIGHT_STORAGE_LOCATION

      b.   STRAIGHT_STORAGE_LOOSE

      c.   STRAIGHT_STORAGE_PALLET

      d.   STRAIGHT_STORAGE_PHY_PALLET

      e.   STRAIGHT_STORAGE_WHOLE

3.1.3.3. Method Availability

The calculation methods that are available depend on the combination of Billing Period and Billing Method.

3.1.3.4. Storage Charges By Zone Locations

Enhancement in Build 828

This enhancement is applicable to all STORAGE LOCATION option – Accrual, Advanced, Anniversary, Average and Straight.

In this enhancement, rate storage charges can be based on the zone a location in assigned to.

This allows users to group locations of different height and charge different rate.

To define charges by Zone Location

1. Set up the storage charge by Location

      a.   using one of the Storage Location option

CR STAL
Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 18
Last Updated : 12-Dec-15

i. User must comprehand the implication when charging by Storage type of Location

– When using PLANNED date the locations (and their Storage type) are that at the (opening of) bill (start date of billing period) date, not the 'current' stock position.

2. Switch to the Rate page

   a. Select the Zone Type

   b. Specify the Tier From / to and the chargeable rate

3. Save

4. Repeat for every applicable Zones

   a. ***If any the Zone is not defined for any occupied location, the locations will not be charged when billing is computed.***

3.2. User-Definable Parameters

Beside the pre-defined parameters, a number of others that are user-definable need to be setup before the system can operate.

They are:

1. Currency

   a. The currency to be used to charge client for service

2. Payment Term

   a. Payment terms that are extended to the client

3. Billable Services code

   a. The services that the warehouse perform on behalf of and chargeable to the clients

4. Billing Group

   a. Billable service codes grouping

5. Billing Factor

   a. This is a mark-up or mark-down factor.

      i. By default, it is 1

      ii. It is user define

      iii. It must be used judiciously and typically should be applied only to billable by volume and/or weight to avoid discrepancy between billable and stock balance

6. Ship Mode

   a. Enable set up of different rate for different shipment mode

7. Destination Region

   a. Enable set up of destination based rate

8. Tax Type

   a. Allow set up of different effective tax code for different services

3.2.1. Other User Defined Parameters

Following parameters are user definable

1. GL Account Code

2. GL Account Category

3. Bank Code

4. Bank Accounts Type

5. Currency

6. Payment Term

7. Billable Services

8. Bill Group

These are to be configured under Admin | Billing Parameter Maintenance as shown below.

To define the values of the required parameter

1. Select the button by click on it.

2. Input the value or Parameter Code

3. Specify the Description

4. Click Save or press the F8 function key.

5. Repeat 2 to 4 until required values for the parameter is updated

Repeat the step for the next parameters.

4.   SETTING THE BILLABLE SERVICES COMPUTATION

This is the area function of the 3PL billing module.

What defined in this function determine the computation of the billable services to be charged to a client.

The setup is designed in the format of preparing of a quotation. This enables the user to use the system to generate the quotation, have it approved and then activate the quotation to commence the services to the client. This eliminates the possibility of data entry error as the printed quotation that a client would be exactly the data that have been updated.

Once the quotation is activated, the computation of the billable services is taken over by a scheduled job in the Microsoft SQL Server.

However, a billable services maintenance function together with a manual triggered computation is provided to enable the user to make amendment as and when such a need arise.

The manual triggered computation disregards whatever computation that the system may have performed. The onus is therefore on the user to manage and control the manual computation.

4.1.   Company-Client Relations

Before a quotation can be defined for a client, it is necessary to specify under which Company is to be billed under.

The Company is specified under the Client Profiles in the circled combobox.

4.1.1.   Company-Client Relations Enquiry

To ensure the relations have been defined, inquiry can be made in Service Billing | | Inquiry | Company=Client Relations Query.

Select the company and the client under it will be listed as below:
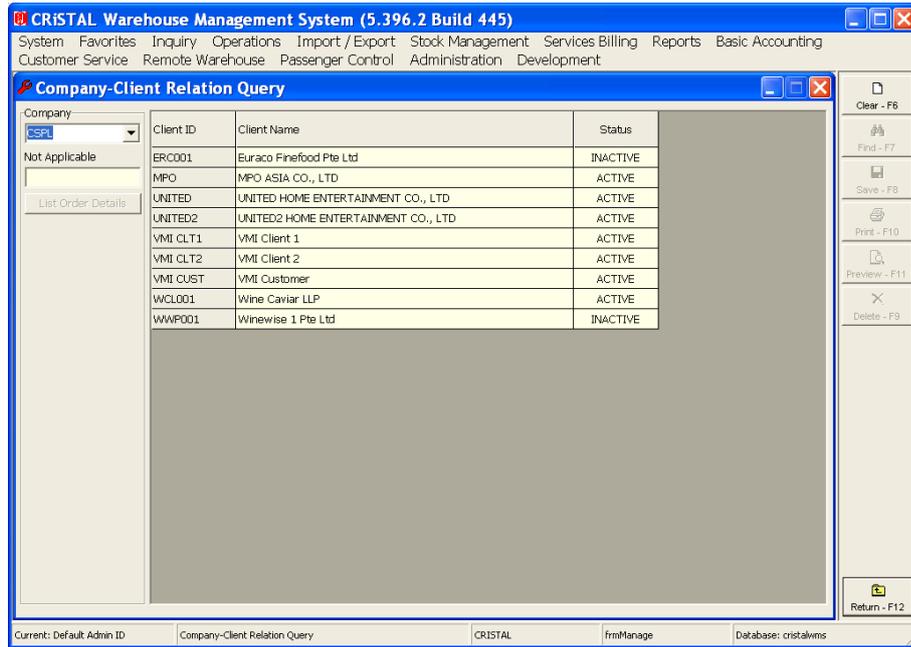
4.2.   Setting up a Quotation
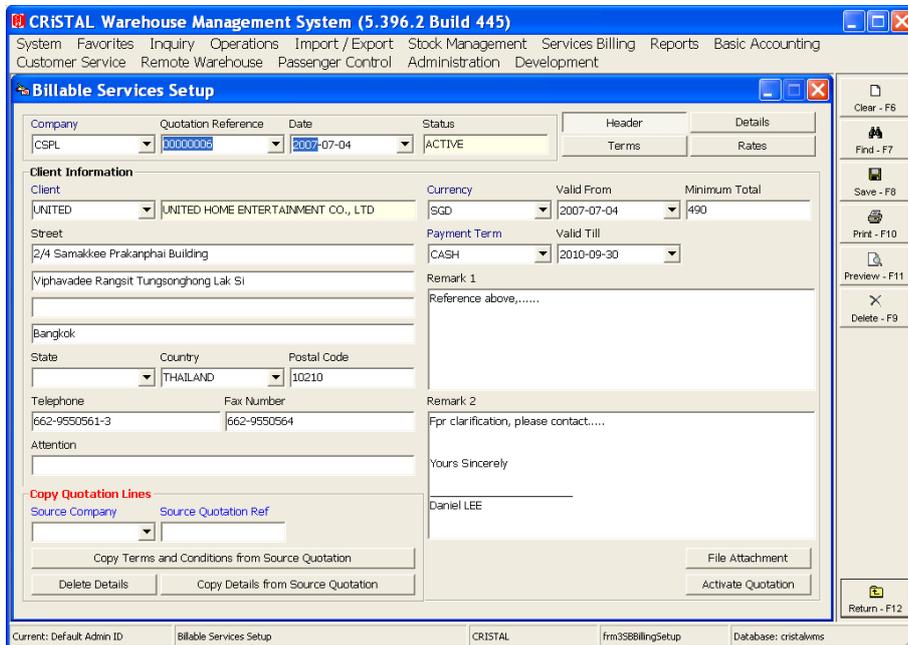
To set up the computation for a client, a quotation needs to be created.

In the above screen

1.   Specify the company that the quotation is prepared under

2.   Select the client[3], change any of the data if required

3.   Specify the Valid From date

4.   Specify the Valid Till date

5.   Select the currency

6.   Select the Payment Term

---

[3] A new client must be first defined before the quotation can be created and the Company-Client Relationship be defined. See Client Profiles setup for details.

7. Specify the Minimum Total, if applicable

    a. This will be invoked if the billable total is less than the specified

8. Click Save

9. A quotation reference will be given by the system.

We are now ready to prepare the computation details.

4.2.1.   Terms and Conditions

In version 5.396.2, the function is enhanced to enable user to specify and update the Terms and Conditions of a quotation.

This enables a quotation to be printed and send to potential client. This eliminates error in the setup of a quotation that has been agreed by the client.

Select Terms button
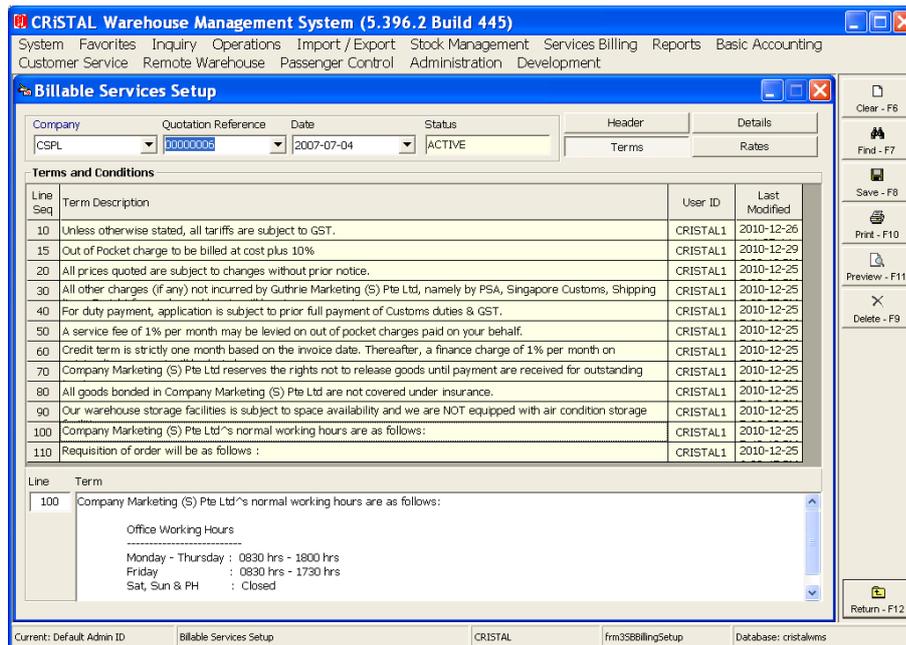
1. Leave Line blank for new term

2. Input the Term

3. Click Save

    a. The Line numbering is in Tens. This is to facilitate insertion of terms and conditions when required.

    b. Repeat as required.

4.2.2.   Defining the Computation Details

To define the billable services and computation method, select the Service Type

1. Adhoc services

    a. These services that occurred on an adhoc or on request basis. This needs to be recorded as and when it occurred.

2. System derived services

    a. Services that can be derived by associating to 1 more of the Warehouse Tasks

3. Storage services

4.2.2.1. Defining Adhoc Service

To define an Adhoc service, select 'ADHOC' for Service Type. Fields that are not required are greyed off.

1. Leave Line No blank for new service else select Line by click the required row in the grid box

2. Select the Billing Group that the service is to be grouped under

3. Select the Service Billing Code

   a. This must be created first under User Defined Parameters

   b. The system allows user to define the Billing Code. The onus is no the user to define them intelligently such that it is meaningful to other user.

4. Select the UOM that the services is to be charged

5. Specify the Step / Min Charge Option (Level), if applicable

   a. If specified, it is applicable to applying of Step Charge (Rate Method) and Minimum Charge.

6. Specify the Minimum Charge amount, if applicable

7. Specify Billing Factor

   a. Leave it as 1

   b. This is currently applicable to Storage service when the calculation is in Volume, Weight or Revenue Ton

8. Select the Free Period method and specify the number of days free

   a. Leave it as 'NA' as it is currently not activated.

   b. Leave the Free Days blank

9. The Next Computation is not applicable for Adhoc services

10. Click Save to update the Service

11. Select Rates
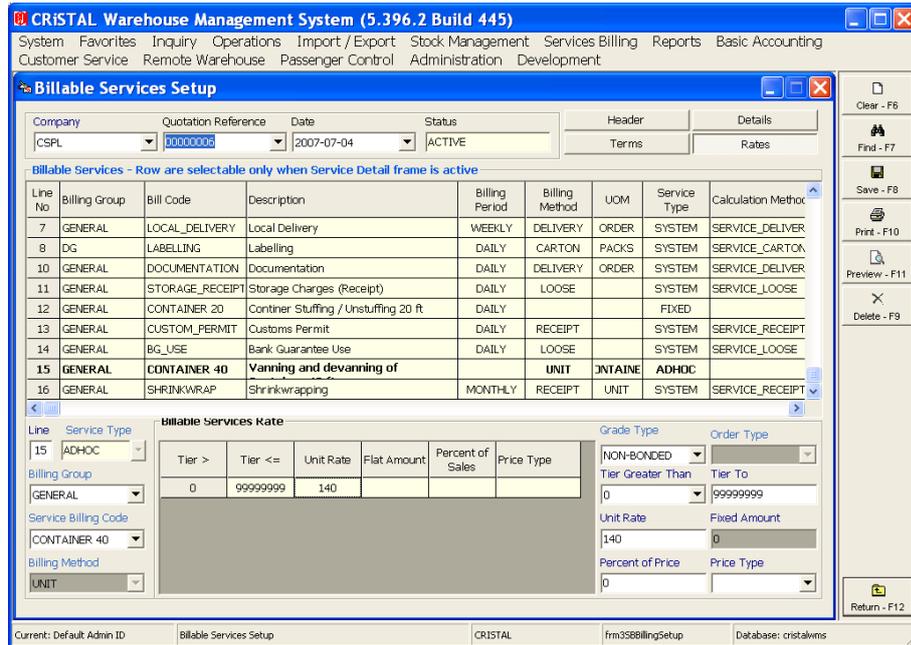
12. Specify Grade Type

    a. Bonded

    b. Non-Bonded

13. Specify the Tier Greater Than

14. Specify the Tier To

15. Specify the appropriate Rate Chargeable (the options are mutual exclusive)

    a. Unit Rate

        i. Leave Fixed Amount as 0 as it is not applicable.

    b. Fixed Amount

    c. Percent of Price

        i. Price Type

16. Click Add/Update Activity Tier

17. Repeat 1 to 16 for next Adhoc service.

4.2.2.2. Defining System Derived Services

To define a System derived service, select 'SYSTEM for Service Type. Fields that are not required are greyed off.

1. Leave Line No blank for new service else select Line by click the required row in the grid box

2. Select the Billing Group that the service is to be grouped under

3. Select the Service Billing Code

    a. This must be created first under User Defined Parameters

    b. The system allows user to define the Billing Code. The onus is on the user to define them intelligently such that it is meaningful to other user.

4. Select the Billing Period

    a. If Billing Period is 'MONTHLY' the Prorate Method will be enabled

    b. Option available is Half-Month and Days

        i. For Half-Month, if the part of months is greater than 0.52, the Prorate factor will be round to 1

        ii. For Days, the actual part month will apply

5. Select the Billing Method

6. Select the Calculation Method

    a. Only appropriate method will be available for selection

7. Specify the Warehouse Task to be associated

8. Select the UOM that the services is to be charged, if available or applicable

9. Specify the Step / Min Charge Option (Level), if applicable

    a. If specified, it is applicable to applying of Step Charge (Rate Method) and Minimum Charge.

10. Specify the Minimum Charge if applicable

11. Specify Billing Factor

    c. Leave it as 1 or redefine as appropriate

        i. Never specify as ZERO or NEGATIVE as then the service would free or the client will be paid instead

    d. This is currently applicable when the Billing Method is in Volume, Weight or Revenue Ton

12. Select the Free Period method and specify the number of days free

e.   Leave it as 'NA' as it is currently not activated.

f.   Leave the Free Days blank

13. Specify Ship Mode, if applicable

14. Specify Pro Rate option, if applicable

15. Specify Destination Region, if applicable

16. Specified the Next Computation or commencement of the computation, if system generated

17. Click Save to update

18. Select Rates command button

a.   Specify the Tier Greater Than

b.   Specify the Tier To

c.   Specify the appropriate Rate Chargeable (the options are mutual exclusive)

i.   Unit Rate

• Leave Fixed Amount as 0 as it is not applicable.

ii.   Fixed Amount

iii. Percent of Price

• Price Type

d.   Click Add/Update Activity Tier

e.   Repeat if step rate

19. Repeat above for next System derived service.

4.2.2.3. Defining Storage Services

To define Storage derived service, select 'STORAGE' for Service Type. Fields that are not required are greyed off.
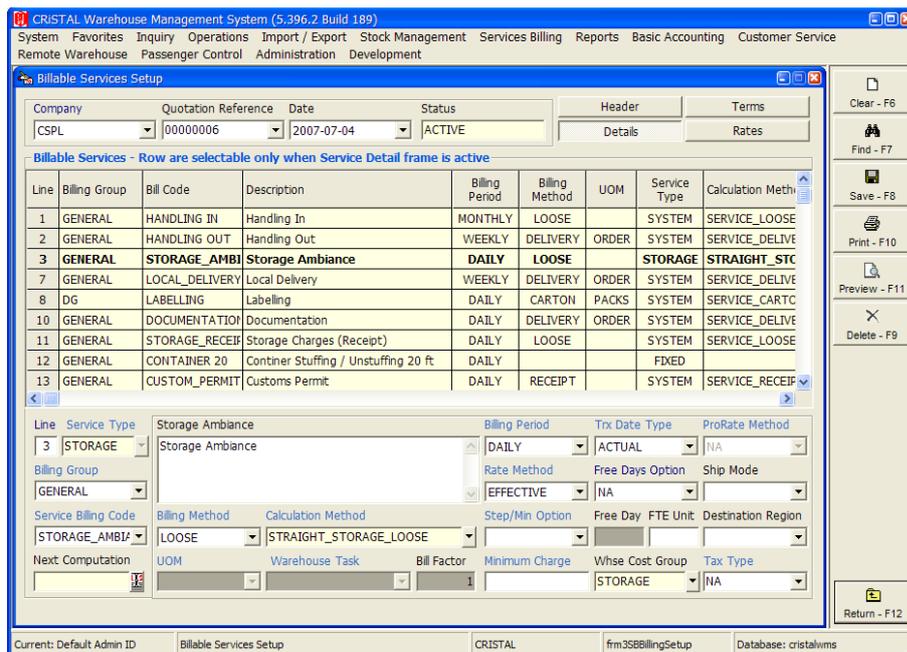
Only 1 Storage service should be defined per Billing Group unless specifically required. Otherwise the computation of Storage will be multiply by the number of Storage code defined

1.   Leave Line No blank for new service else select Line by click the required row in the grid box

2.   Select the Billing Group that the service is to be grouped under

CRISTAL
Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 27
Last Updated : 12-Dec-15

3. Select the Service Billing Code

   a. This must be created first under User Defined Parameters

   b. The system allows user to define the Billing Code. The onus is no the user to define them intelligently such that it is meaningful to other user.

   c. The onus is on the user to specify a storage billing code.

4. Select the Billing Period

5. Select the Billing Method

6. Select the Calculation Method

   a. Only appropriate method will be available for selection

7. Select the UOM that the services is to be charged, if available or applicable

8. Specify the Step / Min Charge Option (Level), if applicable

   a. If specified, it is applicable to applying of Step Charge (Rate Method) and Minimum Charge.

9. Specify the Minimum Charge if applicable

10. Specify Billing Factor

    a. Leave it as 1 or redefine as appropriate

       i. Never specify as ZERO or NEGATIVE as then the service would free or the client will be paid instead

    b. This is currently applicable when the Billing Method is in Volume, Weight or Revenue Ton

11. Select the Free Period method and specify the number of days free

    a. Leave it as 'NA' as it is currently not activated.

    b. Leave the Free Days blank

12. Specified the Next Computation or commencement of the computation

    a. This is applicable if computation is system generated

13. Click Save to update Service

14. Select Rates command button

    a. Specify the Tier Greater Than

    b. Specify the Tier To

    c. Specify the Unit Rate

       i. Leave Fixed Amount as 0 as it is not activated.

    d. Click Add/Update Activity Tier

    e. Repeat if there is multi-tier

15. Work Unit

    a. This is to be specified in term of FTE (Full Time Equivalent – man-day)

    b. This is used in Warehouse Costs Maintenance

16. Warehouse Cost Group

    a. This is used in Warehouse Costs Maintenance

17. Repeat 1 to 14 for Storage of next Billing Group

4.2.3.   Deletion of Details

To remove a billable code from a quotation, it is necessary to remove the Billable Service Rate. When the last range is removed the Billable Code will be removed from the quotation.

This is done by

1. Click the Billable Code row

2. Select Rate Setup

3. Click on the Billable Service Rate range

4. Click on the Remove Activity Tier

5. The Billable Service grid box will refresh and the Billable Service Rate will clear.

6. Select the Billable Code row again

7. Repeat 2 to 6 until all the rate ranges are removed.

4.2.4. Activate a Quotation

The background job scheduled in the MS SQL Server will process only 'ACTIVE' quotation. A quotation therefore must be activated once it is approved.

For version 5.395.2 and before, only 1 quotation can be active at any one time. Therefore, if there is an existing active quotation, it must be CLOSED before a new quotation can be activated.

Subsequent releases have been enhanced to allow multiple quotations to be activated. However the validity period of the quotation must not overlap nor is gap between the quotation periods be allowed. Failure to ensure continuity of active quotations will result in missing or incorrect computation of billable.

If there are 2 or more different rates are to charged, they are to be under different billing group within the same quotation. This would be applicable services that are product related – each product would have to be classified into different Billing Group.

On clicking of the Set Quotation to Active button, a pop-up window will prompt for authorisation. The quotation will be activated only if correction authorisation is entered.
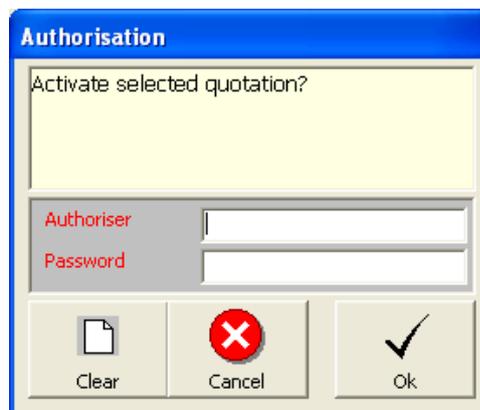
4.2.5. Close Active Quotation

When an active quotation is no longer valid or replaced, it has to be closed.

On clicking of the Close Active Quotation button, a pop-up window will prompt for authorisation. The quotation will be closed only if correction authorisation is entered.
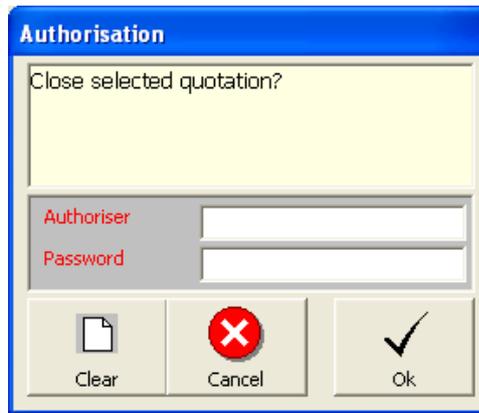
4.2.6. Copying Quotation

Given that an active quotation cannot be amended when there is a minor change to some of the rate, function is provided to facilitate user to copy an active quotation to a new quotation.

This allows amendment to be made in the new quotation. After which, the original quotation is closed and new quotation be activate.

5. BILLABLE ACTIVITY MAINTENANCE

Billable activities are services performed by the warehouse operation that is to be charged to the client.

The function is for updating of activity that are computed by the system via the setup defined in the Services Computation setup, adhoc activity captured via the VA services update in the WMS, and/or manually input in this function.

This menu option incorporates 3 functions:

1. Add and Update Billable Service

2. Manual generate of derivable services and storage

3. Export and generate of debit note

5.1. Add and Update Billable Service

This enable to add and maintain billable services that are generated by the system automated job or entry from the WMS' VA Services.

The process in the Billable Services Maintenance in adding new billable service

1. Input or select the Billable Document Ref

2. Leave the Line # blank

    a. System will automatically assigned the next number

3. Specify the Billing Group

4. Specify the Bill Code and update the Details

5. Select the Billing UOM

6. Input the Quantity

7. Input the Unit Rate

8. Optional – input Item Code, Item UOM and Item Quantity, if applicable.

9. Click Save

    a. The input is updated and the grid box is refreshed.

10. Repeat 1 to 9 for next Billable Services

To update existing record:

1. To update an existing click the row in the grid box

CRISTAL
Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 31
Last Updated : 12-Dec-15

a. The data will be transferred to the text boxes

2. Change, if applicable, the Billing Group

3. Change, if applicable, the Bill Code and update the Details

4. Change, if applicable, the Billing UOM

5. Change, if applicable, the Quantity

6. Change, if applicable, the Unit Rate

7. Optional – Change, if applicable, Item Code, Item UOM and Item Quantity, if applicable.

8. Click Save

a. The input is updated and the grid box is refreshed.

9. Repeat 1 to 8 for next rows

5.2. Manual Generation of Derivable Services and Storage

To manually trigger computation of derivable billable services

1. Select Compute Derivable Billable Services

2. Select Service Type to be derived

3. Select the Required Date or billing date

4. Click Process Billable Service

5. The system will generate the billable services and refresh the grid box on completion

5.3. Export and Create Debit Note

The generation of debit notes directly from the billable services is limited to direct line to line billing. If minimum charges and / or stepped charges are applied, it is enabled only at line level.

Complex application of minimum charge and stepped such as at reference, bill code, and billing group… is required to first generate the billing report and then manual raise the debit notes. This is due to the complexity of the billing and non-standard requirement of different sites.

CRISTAL

Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 32
Last Updated : 12-Dec-15
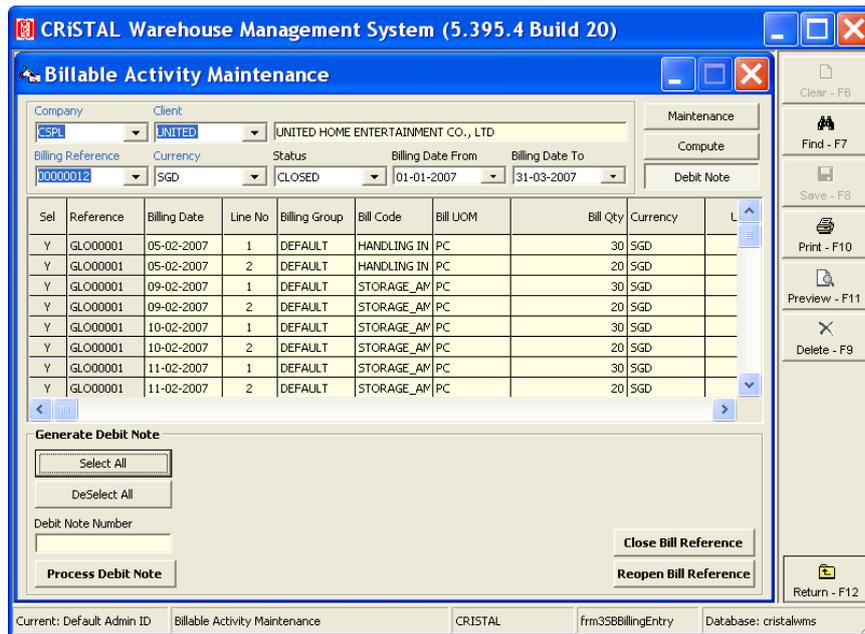
When creating debit note all the records that are in 'WAITING' status will be summarised to create the new debit note:

1. Select Debit Note Generation
2. Click 'Select All'

    a. To unselect row that is not to be billed, double-click the row.

3. Click 'Process Debit Note'
4. On completion, a message will show the debit note number created and the number of lines processed.
5. The status of the billing reference will set to CLOSED.
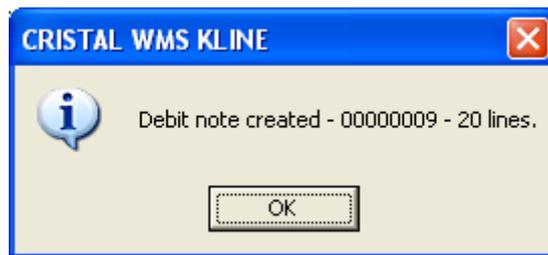
6. Clear the grid box

5.3.1. Closing Bill Reference

The button 'Close Bill Reference' button enable user to close off a billing computation that have been processed.

This is provided for site where invoicing is done on an accounts receivable system.

The function enables the data to be retained in the system for future reference,

5.3.2. Reopen Billing Reference

The function enable user to reopen a CLOSED billing reference that may required additional change.

However, the reopen is not allowed if the invoicing is done via the 'Process Debit Note' button.

5.4. File Attachment

The below window is activated by clicking on the 'File Attachment'.

This enabled user to attach copy of document related to the quotation.

CR//STAL

Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 33
Last Updated : 12-Dec-15

To attach a file:

1. Click the Down Arrow button in 'Attachment File Path and Name

    a. Windows Open folder will pop up

    b. Select the file

    c. The path and file will be displayed

        i. The specified file must be on a shared folder otherwise only the station that updated the attachment can open the file as it is 'local'

2. Input Remark as requirement

3. Click Update

To delete an attached file, click the file and then click Remove button

6. DEBIT NOTES

Debit Notes menu option is for the generation of debit notes or service invoices.

This function is available only under Basic Accounting – which is not usually enabled,

Sites that wish to use the option can request for it to be enabled.
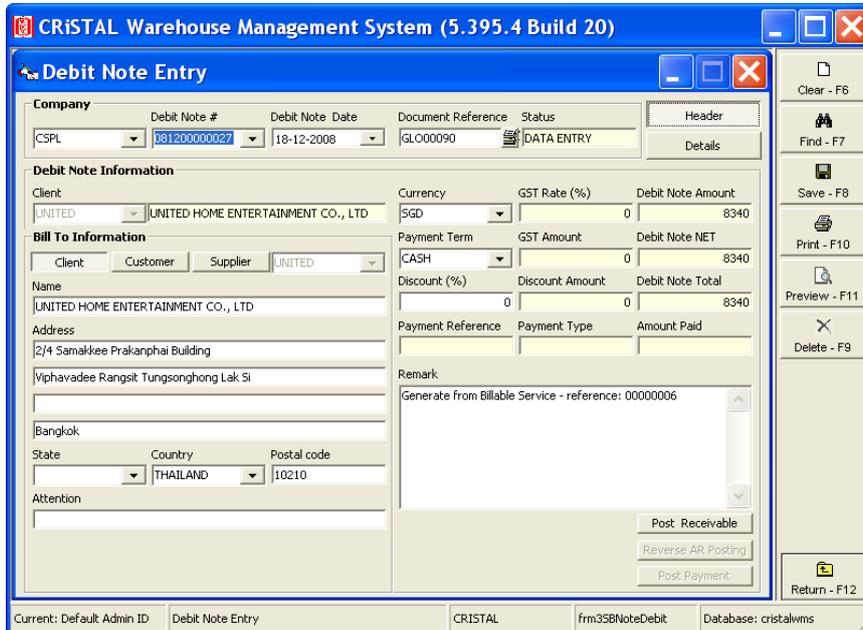
6.1. Create new debit note

To create a new debit note:

1. Select the Company code

   a. Update client code,

   b. Update the Bill To details

   c. Select Payment Term

   d. Update Discount, if applicable.

2. Click Save

3. A new debit note number will be assigned.

6.2. Update existing debit note
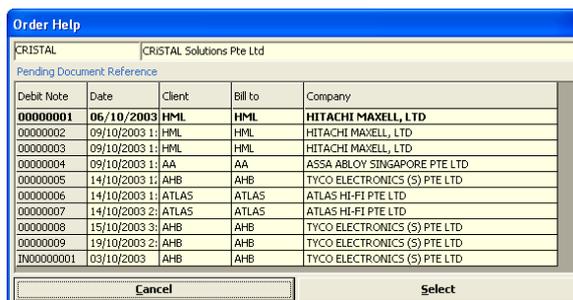
1. Select the company code and click the drop down button of the Debit Note #.

   a. A pop-up will appear

   b. Click on required record

   c. Click on Select

CRISTAL
Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 35
Last Updated : 12-Dec-15

2. Detail of the debit note will be displayed

6.3. Update Debit Note Detail
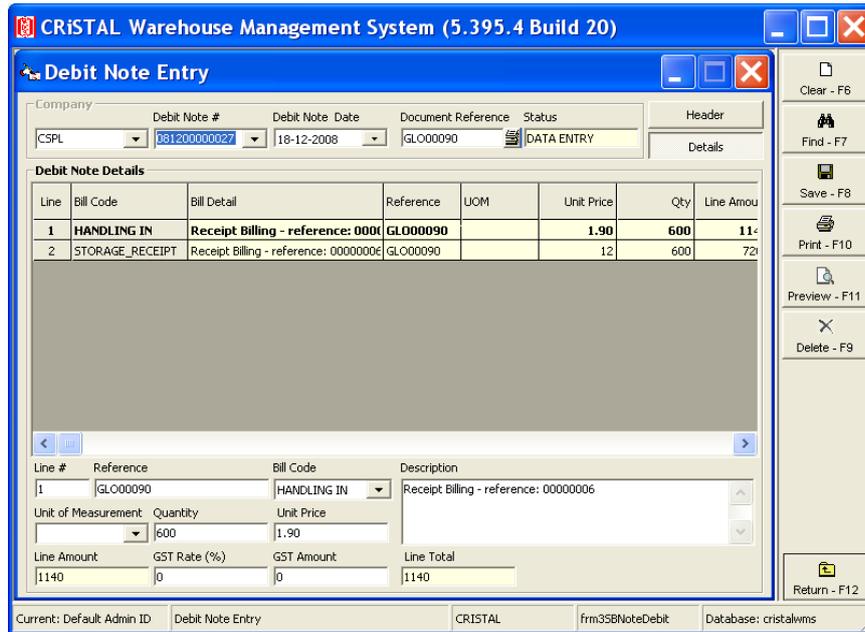
6.3.1. Update Existing Detail Line

1. Select the row to be edit

    a. The text boxes will be populated

2. To remove, click the Remove command button, else

3. Change the data in the text box that is to be amended

4. Click 'Save'

6.3.2. Add New Detail Line

1. Ensure the Line # is blank

    a. Click Clear command button if it is not

2. Select the Billing Group

3. Select the Bill Code

4. Amend the Description if applicable

5. Input the document Reference

6. Select the billing UOM

7. Input the Quantity

8. Input the Unit Rate

9. Amend the GST Rate if applicable

10. Click Add / Update

11. Repeat 1 to 10 for next detail line

CRISTAL

Solutions Pte Ltd

Copyright© 1999 - 2015
All Rights Reserved

Page 36
Last Updated : 12-Dec-15

Appendix A.   Billable Storage Computation

The storage computation is designed to be SQL statement based. This concept enables new calculation method to be designed and added to the system without the need to update the EXE.

A.1.   Calculation Methods

In Build 394 and later, following are the method of storage service calculations

1. Accrual
2. Advanced
3. Anniversary
4. Straight
5. Average
6. Max Pallet

The calculation process of each of the methods is independent of the billing period and billing unit of measurement.

A.1.1.   Accrual Method

In the Accrual method the storage chargeable is derived by computing

1. The stock balance as at the START of billable period – day, week, month...
2. Compute the stock received during the period

The billable quantity is the sum of the 2 calculations.

A.1.1.1.   Notes

This is in effect a combination of the Straight Method and SERVICE RECEIPT.

For WEEKLY billing where the storage is to be charged always from the start of week (Monday), then the combination must be used instead of Accrued Method.

SERVICE RECEIPT have been enhanced since Build 819 to facilitate this requirement.

A.1.2.   Advanced Method

In the Advanced method, the storage chargeable comprises of

1. The stock balance as at the START of the billable period – day, week, month…
2. The stocks that were received in the prior period,
    a. Bearing in mind that when the storage is billed in advance, the shipment received during the billing period have not been received yet and therefore have to be billed in the next billing period.

In the Advanced method, the billable storage would comprise of a forward period and a prior period.

A.1.2.1.   Notes

This is in effect a combination of the Straight Method and SERVICE RECEIPT.

For WEEKLY billing where the storage is to be charged always from the start of week (Monday), then the combination must be used instead of Advanced Method,

SERVICE RECEIPT have been enhanced since Build 819 to facilitate this requirement.

A.1.3.   Anniversary Method

In the Anniversary Method, storage chargeable is computed based the date of receipt, be it week or month…

In effect, storage is charges for every incoming shipment on the day of receipt. It is then charged again on period anniversary of receipt date on the stock balance of the receipt.

The receipt is charged on every anniversary until the stock is totally depleted.

This method requires every incoming shipment to be tracked by its receipt date.

A.1.4.　　Straight Method

Storage is charged based on the stock balance on the billing date.

The billing period can either be accrued or advanced.

The billing date is the START of the specified billing period range except when the billing period is WEEKLY (calendar week)

For WEEKLY, it always starts from Monday and end on Sunday.

- If the start day for a date range in WEEKLY is not a Monday, it is automatically be adjusted and commence from the first Monday in the billing date range.

A.1.5.　　Average Method

In average method, the chargeable stock is the average of the stock balance as at the START and END of the billing period.

The system computes the stock balance as at the start and end of the billing period. It then averages the 2 values to get the billable quantity.

A.1.6.　　Max Pallet Method

In this method, charges are computed based on the maximum number of pallets that during the billing period. This is done by computing the balance stock of each day in the billing period and identity the day with the maximum pallet.

Pallet count may be based on Logical or Physical pallet.

A.2.　　Calculation Process

The processes in the computation are:

1. If applicable, extract the relevant product UOM definition into a temporary table

   a. Definition of the LOWEST UOM if LOOSE is required

   b. Definition of the second LOWEST UOM if WHOLE is required

   c. Definition of the PALLET UOM if PALLET is required

   d. Not applicable if the Calculation is by LOCATION occupied

2. Compute the stock status as at the billing date

   a. This involve freeze the stock status by taking a snapshot of current stock status

   b. Reverse the transactions that have been effected since the required billing date

3. Compute the start and end of the required Billing Period

4. Reverse the transaction in the Billing Period prior to the billing date

   a. If Accrual billing, reverse Picking

   b. If Advanced billing, reverse Receipt

   c. If Anniversary billing, reverse Picking of selected Receipt.

5. Compute the billable services

6. Update the line numbering

7. Update unit rate and minimum charge basing on the billing group classification of the product

Appendix B.   AUTOMATED BILLABLE SERVICE COMPUTATION

The computation of the billable service can be triggered manually via the menu option Billable Service Maintenance or through a scheduled job of a stored procedure 'system_billable_activity_compute'.

When setting up the schedule job, the system date will be the default scheduled date.

Appendix C.   CALCULATION METHODS

C.1.   System – Services

The Calculation Methods are Receipt Type agnostic except for those that are specifically so named – RETURN (which filter for RETURNS receipt type) and NRTN (for receipt types other than RETURNS)

S/N0	CALCULATION METHODS	Stored Procedure Name	Details
1.	SERVICE_ASN_ORDERLINE	acc_service_asn_line_compute	Compute billable by the number receipt ASN lines
2.	SERVICE_CARTON_OUT	acc_service_carton_compute	Compute billable based on the number pack (carton) count as updated in Despatch Packing (delivery pallet table).
			If not available, computed WHOLE quantity.
3.	SERVICE_DELIVERY	acc_service_delivery_compute	Compute billable for delivery by
			• Trips
			• Delivery Orders
			From 5.398 Build 686, following billing UOM have been added
			• ITEM count
			• LINE_DO
			• LINE_SO
			• UNIT
			• VOLUME (based on UNIT dimensions)
			• WEIGHT (based on UNIT weight)
4.	SERVICE_LICENSE_SCAN	acc_service_license_tag_scan	Compute billable based on computed barcodes scanned
			• Number of pallet PLUS
			• Number of whole PLU
			• Balance LOOSE

S/N0	CALCULATION METHODS	Stored Procedure Name	Details
5.	SERVICE_LOOSE	acc_service_loose_compute	Compute billable at LOWEST UOM by • Quantity • Volume • Weight • Revenue Ton (Volume or weight, whichever is higher)
6.	SERVICE_NONSTD	acc_service_nonstd_compute	Compute billable for non-standard (flagged as in Product Definition) items basing on dimensions / weight input during receipt by • Volume • Weight • Revenue Ton (Volume or weight, whichever is higher)
7.	SERVICE_PACKED_CARTON	acc_service_packed_carton	Computed billable by the number of CARTON packed for dispatch via Carton Item Packing function • Number of cartons packed Date range based on Sales Orders.Delivery Date Method available from Release 5.398
8.	SERVICE_PALLET	acc_service_pallet_compute	Compute billable based on LOGICAL pallets by • Number of Pallets • Volume • Weight • Revenue Ton (Volume or weight, whichever is higher) Note: Pallets is computed by items and rounded up
9.	SERVICE_PALLET_WHOLE	acc_service_pallet_whole_compute In 5.398 Build 723, this procedure is converted to a wrapper to call procedure	Compute billable by logical PALLET and WHOLE (cartons) • PALLET – computed number of logical full pallet

S/N0	CALCULATION METHODS	Stored Procedure Name	Details
		acc_service_pallet_whole_loose which is designed as common procedure to handled PALLET & WHOLE and WHOLE & LOOSE	• WHOLE (carton) – computed remainder quantity after deducting full pallets and round-up WHOLE **Note:** WHOLE quantity is based on defined product UOM – if flagged else based on second lowest level When using this, it is necessary to defined PALLET and WHOLE billable services using 2 bill code. E.g. PICK_PLT and PICK_CTN Minimum Charge and Stepped Charging are not applicable with is option as they would not be apply correctly even though they are not disabled in the setup screen.
10.	SERVICE_PALLET_WHOLE_PICKED	acc_service_pallet_whole_picked	Compute billable based SKU (pallet and carton) handled • PALLET – computed **rounded-up** logical pallet • WHOLE (carton) – computed remainder quantity after deducting full pallets and round-up WHOLE Note: WHOLE quantity is based on defined product UOM – if flagged else based on second lowest level When using this, it is necessary to defined PALLET and WHOLE billable services
11.	SERVICE_PHY_PALLET	acc_service_phy_plt_compute	The computation is billing group insensitive. It computes based on the pallet numbering only – disregarding item code and therefore disregarding billing group. The rationale for the logic is that if there multiple items on pallet that belong to multiple billing groups, the pallet will be multiple counted.
12.	SERVICE_RECEIPT	acc_service_receipt_compute	Compute billable of receipts by number of receipts **Version 5.396.2** - Enhanced to compute by 1. (Number of) Order (Receipt) 2. (Number of Receipt) Line 3. (Number of) Order Line (same as Line – added for backward compatibility)

S/N0	CALCULATION METHODS	Stored Procedure Name	Details
			4. (Number of distinct) Item
			5. (Number of distinct) Item – Item Color
			6. Unit (quantity)
			This enhancement effectively redundant SERVICE_RECEIPT_ORDERLINE
			Version 5.398 and later – Enhanced to compute at UNIT level by
			1. Volume
			2. Weight
			3. Revenue Ton
			4. Location - a. Count of Locations
			5. PShelf a. Count of Locations that are defined as PSHELF
			6. Shelf a. Count of Locations that are defined as SHELF
			7. Racks a. Count of Locations that are defined with Storage system other than PSHELF or SHELF
			Method is also enabled for billing by Receipt Type
13.	SERVICE_WHOLE	acc_service_whole_compute	Computing WHOLE mandate that there is a WHOLE level defined in the Unit of Measurement hierarchy.
			The WHOLE level by definition is the level above the LOOSE or lowest level.
			The procedure computes the service against CHECK IN, PUTAWAY and PICKING.
			DESPATCH is enabled on 01 Dec 2008
			Compute billable by

S/N0	CALCULATION METHODS	Stored Procedure Name	Details
			• Quantity
			• Volume
			• Weight
			• Revenue Ton (Volume or weight, whichever is higher)
14.	SERVICE_WHOLE_LOOSE	acc_service_whole_loose_compute In 5.398 Build 723, this procedure is converted to a wrapper to call procedure **acc_service_pallet_whole_loose** which is designed as common procedure to handled PALLET & WHOLE and WHOLE & LOOSE	Compute billable by logical WHOLE (cartons) and LOOSE (Unit) • WHOLE – computed number of logical full carton • LOOSE – computed remainder quantity after deducting full carton quantity **Note:** WHOLE quantity is based on defined product UOM – if flagged else based on second lowest level When using this, it is necessary to defined PALLET and WHOLE billable services using 2 bill codes. E.g. PICK_PLT and PICK_CTN In 5.396.2, the PALLET level is treated as WHOLE if an item has only 2 UOM level defined. *Minimum Charge and Stepped Charging are not applicable with is option as they would not be apply correctly even though they are not disabled in the setup screen.*
15.	SERVICE_WHOLE_LOW	acc_service_whole_lowest_compute	This method is a variation to the SERVICE_WHOLE in that the 2nd lowest level is always treated as the WHOLE. This method will give the same result as SERVICE_WHOLE if none of the items has their UOM type flagged as WHOLE. Method is provided to meet situation where some service is charged at lowest WHOLE while other is charge as specified WHOLE at the same time.

C.1.1. Obsoleted Billing Options

The following billing options are obsoleted in Build 819.

1. The options are replaced by the enhanced SERVICE_RECEIPT procedures:

   a. SERVICE_NON-RETURN_RECEIPT

    b. SERVICE_NON-RETURN_RECEIPT_ORDERLINE

    c. SERVICE_RECEIPT_ORDERLINE

    d. SERVICE_RETURN_RECEIPT

    e. SERVICE_RETURN_RECEIPT_ITEM

    f. SERVICE_RETURN_RECEIPT_ORDERLINE

2. The options below are replaced by SERVICE_DELIVERY

    a. SERVICE_ORDERLINE

Their procedures are retained to facilitate backward compatibility.

However, they will no longer be maintained or enhancement.

Any redefinition of existing quotations that have been using the above methods will need to be redefined using the replace options.

C.2. Storage Services Computation

Please see Notes below when deciding on the options

S/N0	CALCULATION METHODS	Stored Procedure Name	Details
1.	ACCRUAL_STORAGE_LOCATION	acc_storage_location_accurred_compute	Compute by Location Accrued
2.	ACCRUAL_STORAGE_LOOSE	acc_storage_loose_accurred_compute	Compute by Whole Accrued
3.	ACCRUAL_STORAGE_NONSTD	acc_storage_phy_plt_accurred_compute	Compute by Non Standard Packing Accrued
4.	ACCRUAL_STORAGE_PALLET	acc_storage_pallet_accurred_compute	Compute by Logical Pallet Accrued
5.	ACCRUAL_STORAGE_PHY_PALLET	acc_storage_nonstd_accurred_compute	Compute by PHYSICAL Pallet Accrued
			When billing by VOLUME, WEIGHT or REVENUE TON, if there is multiple items on the pallet, then the average is used as the biking quantity
6.	ACCRUAL_STORAGE_WHOLE	acc_storage_whole_accurred_compute	Compute by Loose Accrued
7.	ADVANCED_STORAGE_LOCATION	acc_storage_location_advanced_compute	Compute by Location Advanced
8.	ADVANCED_STORAGE_LOOSE	acc_storage_loose_advanced_compute	Compute by Whole Advanced
9.	ADVANCED_STORAGE_NONSTD	acc_storage_nonstd_advanced_compute	Compute by Non Standard Packing Advanced
10.	ADVANCED_STORAGE_PALLET	acc_storage_pallet_advanced_compute	Compute by Logical Pallet Advanced
11.	ADVANCED_STORAGE_PHY_PALLET	acc_storage_phy_plt_advanced_compute	Compute by PHYSICAL Pallet Advanced
			When billing by VOLUME, WEIGHT or REVENUE TON, if there is multiple items on the pallet, then the average is used as the biking quantity
12.	ADVANCED_STORAGE_WHOLE	acc_storage_whole_advanced_compute	Compute by Loose Advanced
13.	ANNIVERSARY_STORAGE_LOCATION	acc_storage_location_anniversary_compute	Compute by Location Anniversary
14.	ANNIVERSARY_STORAGE_LOOSE	acc_storage_loose_anniversary_compute	Compute by Loose Anniversary
15.	ANNIVERSARY_STORAGE_NONSTD	acc_storage_nonstd_anniversary_compute	Compute Non-Standard Packing Anniversary by Transaction Date
16.	ANNIVERSARY_STORAGE_PALLET	acc_storage_pallet_anniversary_compute	Compute by Pallet Anniversary

CRISTAL
Solutions Pte Ltd

Copyright© 1999
All Rights Reserved

Page 46
Last Updated: 12-Dec-15

S/N0	CALCULATION METHODS	Stored Procedure Name	Details
17.	ANNIVERSARY_STORAGE_PHY_PALLET	acc_storage_phy_plt_anniversary_compute	Compute by PHYSICAL Pallet Anniversary When billing by VOLUME, WEIGHT or REVENUE TON, if there is multiple items on the pallet, then the average is used as the biking quantity
18.	ANNIVERSARY_STORAGE_WHOLE	acc_storage_whole_anniversary_compute	Compute by Whole Anniversary
19.	AVERAGE_STORAGE_LOCATION	acc_storage_location_average_compute	Compute by Location AVERAGE Stock Balance
20.	AVERAGE_STORAGE_LOOSE	acc_storage_loose_average_compute	Compute by Loose AVERAGE Stock Balance
21.	AVERAGE_STORAGE_PALLET	acc_storage_pallet_average_compute	Compute by Logical Pallet AVERAGE Stock Balance
22.	AVERAGE_STORAGE_PHY_PALLET	acc_storage_phy_plt_average_compute	Compute by PHYSICAL Pallet AVERAGE Stock Balance
23.	AVERAGE_STORAGE_WHOLE	acc_storage_whole_average_compute	Compute by Whole AVERAGE Stock Balance
24.	MAXIMUM_STORAGE_PALLET	acc_storage_maximum_compute	Compute by Maximum Pallet • Logical • Physical
25.	STRAIGHT_STORAGE_LOCATION	acc_storage_location_straight_compute	Compute by Location Straight Stock Balance
26.	STRAIGHT_STORAGE_LOOSE	acc_storage_loose_straight_compute	Compute by Loose Straight Stock Balance
27.	STRAIGHT_STORAGE_PALLET	acc_storage_pallet_straight_compute	Compute by Logical Pallet Straight Stock Balance
28.	STRAIGHT_STORAGE_PHY_PALLET	acc_storage_phy_plt_straight_compute	Compute by PHYSICAL Pallet Straight Stock Balance When billing by VOLUME, WEIGHT or REVENUE TON, if there is multiple items on the pallet, then the average is used as the biking quantity
29.	STRAIGHT_STORAGE_WHOLE	acc_storage_whole_straight_compute	Compute by Whole Straight Stock Balance

CRISTAL
Solutions Pte Ltd

Copyright© 1999
All Rights Reserved

Page 47
Last Updated: 12-Dec-15

C.2.1. Storage Option comparison

	Week 1							Week 2							Week 3						
Date	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Inbound		100			50			200		100			89				500				
OutBound			20			50			100			60			200				300		
Stock	0	100	80	80	130	80	80	280	180	280	280	220	309	309	109	109	609	609	309	309	309
Accured								150							469						
Advanced	0							230							698						
Straight	0							80							309						
Straight + Receipt	0	100			50			280		100			89		309		500				
Max Stock	0							130							309						
Average								40							295						
Anniversary		100			50			200	30	100			89		120		520				
		100							30												
					50							0									
								200							120						
										100							20				
													89							0	
																	500				
Cumulative																					
Accured		0	0	0	0	0	0	150	150	150	150	150	150	150	619	619	619	619	619	619	619
Advanced		0	0	0	0	0	0	230	230	230	230	230	230	230	928	928	928	928	928	928	928
Straight		0	0	0	0	0	0	80	80	80	80	80	80	80	389	389	389	389	389	389	389
Straight + Receipt		100	100	100	150	150	150	430	430	530	530	530	619	619	928	928	1428	1428	1428	1428	1428
Max Stock		0	0	0	0	0	0	130	130	130	130	130	130	130	439	439	439	439	439	439	439

C.2.2. **Notes**

1. Storage Computation by Physical Pallet (..PHY_PLT) disregards stocks in locations for which the Storage (system) is defined as BINS, PSHELF and SHELF.

    a. This locations by definition are not full pallet locations and thus deemed not be holding any pallet

2. For Straight Storage, when the billing period is WEEKLY (calendar week), the start day is always Monday and ending next Sunday.

    a. If the specified date range does not start on a Monday, the start day for the first billing week will the first Monday in the billing period.

3. For storage billing by PSHELF, this is applicable only if the location address is based on CRiSTAL convention of AABBLLSS where

    a. AA   - aisle or row id

    b. BB – Bay number

    c. LL – Racks Level

    d. SS – pallet Slot

Appendix D.   BILLING REPORTS

A number of billing reports are made available in the system to meet the needs of different operations:

1.   By transaction reference

2.   By Billing Group

3.   By lot number

Below is sample of the by transaction reference:

D.1.   Sample of Billing Activities (By Reference)

CRiST AL Solutions Pte Ltd

UNITED HOME ENTERTAINMENT CO., LTD
2/4 Samakkee Prakanphai Building
Viphavadee Rangsit Tungsonghong Lak Si
Bangkok
THAILAND 10210

Billing Reference : 00000012
Date : 2007-02-05
Quotation Ref :
Payment Term :
Currency : SGD
Page : 1 of 58

Billable Activities (by Reference) from 01 Jan 2007 to 31 Mar 2007   TEST

S/No	Ref #	Billing Date	Trx Date	Client Ref	Billing Group	Service Billing Code	Product Code	Item Qty	Billable Qty	Grade Type	PRF **	Unit	Rate	Amount
1	GLO00001	2007-02-05	09-02-2007	TEST	DEFAULT	HANDLING IN	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	5.000	150.00
2	GLO00001	2007-02-05	09-02-2007	TEST	DEFAULT	HANDLING IN	UHE-5028	20.00	20.00000	NON-BONDE	1.00	PC	5.000	100.00
3	GLO00001	2007-02-09	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
4	GLO00001	2007-02-10	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
5	GLO00001	2007-02-11	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
6	GLO00001	2007-02-12	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
7	GLO00001	2007-02-13	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
8	GLO00001	2007-02-14	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
9	GLO00001	2007-02-15	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
10	GLO00001	2007-02-16	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
11	GLO00001	2007-02-17	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
12	GLO00001	2007-02-18	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
13	GLO00001	2007-02-19	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
14	GLO00001	2007-02-20	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
15	GLO00001	2007-02-21	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
16	GLO00001	2007-02-22	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
17	GLO00001	2007-02-23	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
18	GLO00001	2007-02-24	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
19	GLO00001	2007-02-25	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	CHT-1650	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00

CRISTALWMS

C:\CRISTAL\Development\Reports\Acc_Billable_Service_Report_Landscape_billref-sort_by_ref.rpt

Printed : 28 Mar 2010 1:23:57AM

Printed by : CRISTAL1

Copyright© 1999
All Rights Reserved

Page 51
Last Updated: 12-Dec-15

CRISTAL
Solutions Pte Ltd

CRiSTAL Solutions Pte Ltd

UNITED HOME ENTERTAINMENT CO., LTD
2/4 Samakkee Prakanphai Building
Viphavadee Rangsit Tungsonghong Lak Si
Bangkok
THAILAND 10210

Billing Reference : 00000012
Date : 2007-03-26
Quotation Ref :
Payment Term :
Currency : SGD
Page : 8 of 58

Billable Activities (by Reference) from 01 Jan 2007 to 31 Mar 2007   TEST

S/No	Ref #	Billing Date	Trx Date	Client Ref	Billing Group	Service Billing Code	Product Code	Item Qty	Billable Qty	Grade Type	PRF**	Unit	Rate	Amount
133	GLO00002	2007-03-26	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5373	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
134	GLO00002	2007-03-27	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5373	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
135	GLO00002	2007-03-28	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5373	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
136	GLO00002	2007-03-29	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5373	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
137	GLO00002	2007-03-30	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5373	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
138	GLO00002	2007-03-31	09-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5373	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
	GLO00002		2007-03-31	TEST		Reference Total: GLO00002			1,020.00000					2,625.00
139	GLO00003	2007-02-05	10-02-2007	TEST	DEFAULT	HANDLING IN	UHE-5028	20.00	20.00000	NON-BONDE	1.00	PC	5.000	100.00
140	GLO00003	2007-02-10	10-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5028	20.00	20.00000	NON-BONDE	1.00	PC	2.500	50.00
141	GLO00003	2007-02-11	10-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	UHE-5028	20.00	20.00000	NON-BONDE	1.00	PC	2.500	50.00
	GLO00003		2007-02-11	TEST		Reference Total: GLO00003			60.00000					200.00
142	GLO00004	2007-02-12	12-02-2007	TEST	DEFAULT	HANDLING IN	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	5.000	150.00
143	GLO00004	2007-02-12	12-02-2007	TEST	DEFAULT	HANDLING IN	UHE-5028	50.00	50.00000	NON-BONDE	1.00	PC	5.000	250.00
144	GLO00004	2007-02-12	12-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
145	GLO00004	2007-02-13	12-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
146	GLO00004	2007-03-01	12-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
147	GLO00004	2007-02-28	12-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
148	GLO00004	2007-02-27	12-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
149	GLO00004	2007-02-26	12-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00
150	GLO00004	2007-02-22	12-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	30.00	30.00000	NON-BONDE	1.00	PC	2.500	75.00

CRISTALWMS

C:\CRISTAL\Development\Reports\Acc_Billable_Service_Report_Landscape_billref-sort_by_ref.rpt

Printed : 28 Mar 2010 1:23:58AM

Printed by : CRISTAL1

CRiSTAL Solutions Pte Ltd

UNITED HOME ENTERTAINMENT CO., LTD
2/4 Samakkee Prakanphai Building
Viphavadee Rangsit Tungsonghong Lak Si
Bangkok
THAILAND 10210

Billing Reference : 00000012
Date : 2007-02-12
Quotation Ref :
Payment Term :
Currency : SGD
Page : 57 of 58

Billable Activities (by Reference) from 01 Jan 2007 to 31 Mar 2007   TEST

S/No	Ref #	Billing Date	Trx Date	Client Ref	Billing Group	Service Billing Code	Product Code	Item Qty	Billable Qty	Grade Type	PRF**	Unit	Rate	Amount
1062	KGR0000045	2007-02-12	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1063	KGR0000045	2007-02-11	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1064	KGR0000045	2007-02-10	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1065	KGR0000045	2007-02-09	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1066	KGR0000045	2007-02-07	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1067	KGR0000045	2007-02-08	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1068	KGR0000045	2007-01-30	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1069	KGR0000045	2007-01-31	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1070	KGR0000045	2007-02-01	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1071	KGR0000045	2007-02-02	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1072	KGR0000045	2007-02-03	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1073	KGR0000045	2007-02-04	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1074	KGR0000045	2007-02-05	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
1075	KGR0000045	2007-02-06	02-02-2007	TEST	DEFAULT	STORAGE_AMBIANCE	PROD002	50.00	50.00000	NON-BONDE	1.00	PC	2.500	125.00
	KGR0000045	2007-02-06	TEST			Reference Total: KGR0000045			20,731.00000					52,702.50

UNITED TOTAL: **352,745.00**

CRISTALWMS
C:\CRISTAL\Development\Reports\Acc_Billable_Service_Report_Landscape_billref-sort_by_ref.rpt

Printed : 28 Mar 2010 1:23:58AM
Printed by : CRISTAL1