

## 1. INTEREST RATE DERIVATIVES OVERVIEW

This document guides you through the setup and capture of interest rate derivatives trades.

### Reference Data Specific to IRD Trading

- [Environment properties](#)

### Market Data Requirements

Market data requirements for IRD trades are described in "IRD Pricing Recommendations" for each type of trade. Generally, you will need the following market data (Help is available from all market data windows):

- Discount and Forecast curves - See [Main Entry > Market Data > Interest Rate Curves > Zero Yield Curve](#)
- Probability curves - See [Main Entry > Market Data > Credit Curves > Probability Curve](#)
- RATE volatility surfaces - See [Main Entry > Market Data > Volatilities > Volatility Surface](#)

Market data can be imported from Reuters - Refer to *Calypso Reuters RFA Integration Documentation* for details.

### Trade Capture

All types of trades are described below.

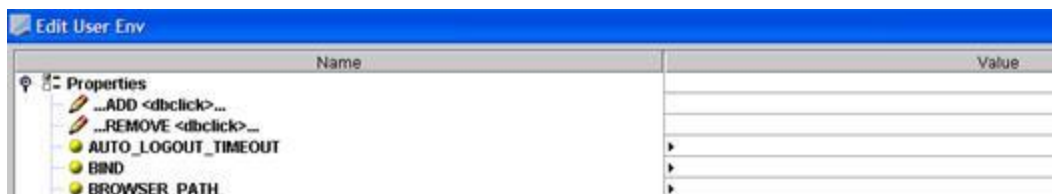
### Trade Lifecycle

The following trade lifecycle actions can be applied to IRD trades (Help is available from all trade lifecycle windows):

- Allocation - See [Back Office > Allocate](#) in the trade window
- Option exercise - See [Main Entry > Trade Lifecycle > Expiration & Exercise > Options Exercise](#)
- Rate reset - See [Main Entry > Trade Lifecycle > Reset > Rate Reset](#)
- Termination and partial termination - See [Back Office > Terminate](#) in the trade window, or [Main Entry > Trade Lifecycle > Termination > Terminate](#)
- Markit Wire trade lifecycle operations - Refer to *Calypso MarkitWire Integration Documentation* for details

## 2. IRD ENVIRONMENT PROPERTIES

This section describes environment properties that impact the back office and trading of IRD trades. We recommend that you review the settings. You can add or modify properties in the User Env or System Env applications.



» Here you can add, edit, and remove environment properties. After making changes to properties, click **Save**.

[**NOTE**: When you modify an environment property, you need to restart the data server in order for the property to take effect. Also, environment properties are case sensitive]

The Y/N value is not case sensitive and can be replaced by Yes/No or True/False.

» Click **Help** for a description of all environment properties.

The following environment properties impact the behavior of IRD trading.

Environment Property	Description - Recommended Value
<b>ADVICE_ON_SETTLEDATE</b>	<p>ADVICE_ON_SETTLEDATE determines when the system generates payment advices.</p> <p>Recommended value is Y, default value. The Message Engine creates message documents on the settle date. You can set a kickoff rule on the message workflow (task PENDING-AUTHORIZE-VERIFIED) to generate the messages N days in advance (kickoff days lag = -N). If N, message documents are created as soon as the Message Engine receives events.</p>
<b>CASH_SETTLEMENT_TRADE</b>	<p>CASH_SETTLEMENT_TRADE allows you to view at the trade level if the trade has cash settlement information (that is, information relating to early terminations or break clauses). Otherwise, you need to check each trade individually by opening the Cash Settlement window(<a href="#">Product Type &gt; Cash Settle Info</a>).</p> <p>If you set this property to Y, when you attach cash settlement information to the trade and click Save, the application displays Cash Settled Trade in the status bar at the bottom of the trade worksheet. If you do not have the status bar already displayed, the application automatically opens it.</p> <p>[<b>NOTE</b>: Setting this property to Y may affect loading time and performance]</p> <p>If you set this property to N (default value), you need to open the Cash Settlement window to determine if the trade has cash settlement information attached.</p>
<b>DIFFERENT_RESET_DT_PER_CPN</b>	<p>Y or N. Y to generate the reset dates based on the coupon payment frequency, or N to generate the reset dates based on the index tenor.</p> <p>For a coupon frequency higher than the index frequency, all coupons within an index term can have a different reset date, or the same reset date.</p> <p>For example, LIBOR 3M and coupon frequency = M. If Y, every coupon within the index term will have a different reset date. If N, every coupon within the index term will have the same reset date.</p> <p>You can override this property at the trade level in the Product Details window.</p>

Environment Property	Description - Recommended Value
<b>DISALLOW_TRADE_SAVE_WO_PRICE</b>	<p>DISALLOW_TRADE_SAVE_WO_PRICE specifies whether you can save a trade when you have customized the cashflows, changed the trade (for example, the spread), and have not regenerated the cashflows.</p> <p>If you try to save the trade without regenerating the cashflows, you receive a warning message and cannot save the trade.</p> <p>Recommended value is N You can save a trade without regenerating the cashflows.</p>
<b>ENABLE_TRADE_NOTES</b>	<p>ENABLE_TRADE_NOTES specifies whether you can attach notes to a trade. When you open an existing trade, the note(s) appear in front of the trade. The back office could use this feature to create notes about the SDI.</p> <p>Set this property to Y to enable this feature.</p>
<b>OPTION_FEE_PRECISION</b>	<p>OPTION_FEE_PRECISION specifies whether to input fees for Swaption and Cancellable and Extendible Swap products as an amount or percentage.</p> <p>The recommended value is 2 (default value), which specifies to enter fees as amounts.</p> <p>If you set this property to 5, then you can enter fees as a percentage with five decimal places of precision.</p>
<b>TRADE_VERSION_INC</b>	<p>TRADE_VERSION_INC relates to the audit trail of trades, which you can view in the Trade Audit Viewer window; from trade worksheets, choose <a href="#">Back Office &gt; Audit</a> to open the window.</p>
<b>USE_PARENT_PO</b>	<p>USE_PARENT_PO specifies that in a parent/child relationship between processing organizations, if the child does not have any workflow setup, then the child can use the parent's workflow. Note that if the child has a workflow for a specific product only, it cannot use the parent's workflow for all products, so you can only trade products setup in the child's workflow.</p> <p>Set this property to Y to enable this feature.</p>
<b>WARN_SWAP_LEGS_DIFFERENT</b>	<p>WARN_SWAP_LEGS_DIFFERENT specifies that in Swap, XCCY Swap, and Swaption trades, you receive a warning message when you try to price the trade if any of the following are true:</p> <ul style="list-style-type: none"> <li>• Pay and Recv notionals are not equal.</li> <li>• Pay and Recv End Dates are not the same.</li> <li>• Pay and Recv Start Dates are not the same.</li> </ul> <p>Set this property to Y to enable this feature.</p>
<b>XCCY_SWAP_SHOW_EXCH_PANEL</b>	<p>XCCY_SWAP_SHOW_EXCH_PANEL specifies whether to display the initial, amort, and final checkboxes when you select Actual in the Trade Cross-Currency Swap Window. You can use these options so that you do not have to customize the cashflows.</p> <p>If you set this property to Y (default value), when you select Act (actual) in the Trade Cross-Currency Swap Window, you can specify when the principal will be exchanged:</p> <ul style="list-style-type: none"> <li>• init Ex — at the beginning of the cross-currency swap.</li> <li>• amort Ex — according to an amortization schedule.</li> <li>• final Ex — at the end of the cross-currency swap.</li> </ul> <p>You can select a combination of these options. These apply to both legs of the cross-currency swap.</p>

Environment Property	Description - Recommended Value
	<div><div>Pay <span>USD</span> <span>1,000,000.00</span> Act <input checked="" type="checkbox"/></div><div>Bullet</div><div>Principal Exchange: Initial <input checked="" type="checkbox"/> Final <input checked="" type="checkbox"/> Amort. <input checked="" type="checkbox"/></div></div> <p>If you set this property to N, you disable this feature. When you select Act (actual) in the Trade Cross-Currency Swap Window, the options are not available. Selecting Act means that principal is exchanged at the beginning and end of the cross-currency swap. If you want to use any other combinations for the principal exchange, you have to customize the cashflows.</p> <div><div>Pay <span>USD</span> <span>1,000,000.00</span> Act <input checked="" type="checkbox"/></div><div>Bullet</div></div>

### 3. INTEREST RATE DERIVATIVES TRADES

This section describes the various types of IRD products supported by Calypso. Help is available from all trade worksheets - Choose [Help > Trade Help](#) in any trade worksheet for complete details.

Functions common to all trade worksheets are described under Calypso Trading Environment documentation: trade functions, trade menus, Details panel, Cashflows Panel, and Fees panel.

#### Swaps

Product Name	Description	Trade Worksheet
Brazilian Swap	Swap trade with Brazilian conventions.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a>
Cancelable Cross-Currency Swap	Contains an underlying cross-currency swap with the option to cancel it in the future.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a> - Cancelable feature
Cancelable Swap	Contains an underlying interest rate swap with the option to cancel it on one or more cancellation dates.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a> - Cancelable feature
Capped Swap	A swap with a cap floor on the floating leg.	<a href="#">Trade &gt; Interest Rates &gt; Capped Swap</a>
CMS Swap	Constant maturity swap trade.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a>
Credit Contingent Cross-Currency Swap	Contains an underlying cross-currency swap contingent upon credit events.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a> - Credit Contingent feature
Credit Contingent Swap	Contains an underlying interest rate swap contingent upon credit events.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a> - Credit Contingent feature
Cross-Currency Swap	One party makes periodic payments based on a fixed rate or floating rate index with resets in one currency, and the other party makes payments based on a floating rate index with resets in another currency. Payments are based on the notional amounts of the two currencies.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a>
Exotic Swap	A swap where the structure of coupon and principal payments is customized using Calypso exotic structures. It allows you to define exotic payout formulas on the fly, for example, basis swaps, spread swaps, capped swaps, range accrual swaps, ratchets, snowballs, bonus swaps.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a> - Exotic structure
Extendible Swap	Contains an underlying interest rate swap with the option to extend it.	<a href="#">Trade &gt; Interest Rates &gt; Extendible Swap</a>
Inflation Swap	Inflation swaps are based on inflation indices. Inflation is defined as the percentage increase or decrease in some index of prices.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a>
Non-deliverable Swap	A Non-Deliverable Cross Currency Swap is an agreement between two parties to exchange a stream of interest payments and the notional principal in one major currency for another non-deliverable currency.	<a href="#">Trade &gt; Interest Rates &gt; Non-Deliverable Swap</a>
OIS Swap	A Non-Deliverable Interest Rate Swap is where both sides of the swap are in a non-delivery currency whereas the settlement currency is a major currency. An overnight index swap (OIS) is a fixed-for-floating interest rate swap with a one week to two year duration. The floating-rate period is usually tied to a daily overnight rate rate, although occasionally, a daily fixing rate may be used. On the floating side, interest is calculated on a compound basis.	<a href="#">Trade &gt; Interest Rates &gt; Swap</a>
Quanto Swap	The Quanto Swap is an interest rate swap where the currency of the notional on the floating leg	<a href="#">Trade &gt; Interest Rates &gt; Swap</a>

Product Name	Description	Trade Worksheet
Single Swap Leg Vanilla Swap	differs from the currency of the reference index. A swap with a single leg. One party makes periodic payments based on a fixed rate and the other party makes payments based on a floating rate index that is reset periodically. The payments are based on a notional and are in the same currency.	<a href="#">Trade &gt; Cash Flow Structuring</a> <a href="#">Trade &gt; Interest Rates &gt; Swap</a>

### Swaptions

Product Name	Description	Trade Worksheet
Swaption Trigger Swaption	An option to enter into a swap at a future date. An option on a swap that you can exercise on the exercise date if the trigger index rate is above (or below) the trigger rate.	<a href="#">Trade &gt; Interest Rates &gt; Swaption</a> <a href="#">Trade &gt; Interest Rates &gt; Trigger Swaption</a>

### Caps and Floors

Product Name	Description	Trade Worksheet
Cancelable Cap Floor  Cap Floor	Contains an underlying cap floor with the option to cancel it on one or more cancellation dates. The following types of trades can be captured: Vanilla, Digital, Flexible, Chooser, Ratchet, Sticky and Momentum.  For a vanilla cap floor, you can capture the following transactions: <ul style="list-style-type: none"> <li>• Cap — The borrower and lender agree that the borrower will pay no more than a specified maximum interest rate to the lender with respect to floating interest rate funds.</li> <li>• Floor — The borrower and lender agree that the lender will receive no less than a specified minimum interest rate from the borrower with respect to floating interest rate funds.</li> <li>• Corridor - Combination of two caps, one purchased by a borrower at a set strike and the other sold by the borrower at a higher strike to, in effect, offset part of the premium of the first cap.</li> <li>• Flooridor - combination of two floors where cost of the purchase of a floor is offset by the sale of another floor with a lower, further, out of the money strike.</li> <li>• Collar — A simultaneous purchase of a cap with the sale of a floor, or a simultaneous purchase of a floor with the sale of a cap.</li> <li>• Straddle — A simultaneous purchase or sale of a cap and a floor with the same strike and maturity.</li> <li>• Strangle - Combination of a bought cap and a bought floor with different strikes.</li> </ul>	<a href="#">Trade &gt; Interest Rates &gt; Cap/Floor/Collar</a> – Cancelable feature <a href="#">Trade &gt; Interest Rates &gt; Cap/Floor/Collar</a>
CMS Cap Floor	Constant maturity swap trade.	<a href="#">Trade &gt; Interest Rates &gt; Cap/Floor/Collar</a>
Credit Contingent Cap Floor	Contains an underlying cap floor contingent upon credit events.	<a href="#">Trade &gt; Interest Rates &gt; Cap/Floor/Collar</a> – Credit Contingent

Product Name	Description	Trade Worksheet
Exotic Cap Floor	Allows barriers on caps and floors including: <ul style="list-style-type: none"> <li>Up-and-out caps</li> <li>Up-and-in caps</li> <li>Down-and-out floors</li> <li>Down-and-in floors</li> </ul>	feature <a href="#">Trade &gt; Interest Rates &gt; Exotic Cap/Floor</a>
Inflation Cap Floor	Inflation cap floors are based on inflation indices. Inflation is defined as the percentage increase or decrease in some index of prices.	<a href="#">Trade &gt; Interest Rates &gt; Cap/Floor/Collar</a>
Spread Cap Floor	A cap or floor having a floating rate index which is the difference (spread) between two floating indices.	<a href="#">Trade &gt; Interest Rates &gt; Spread Cap/Floor</a>

### Spread Locks

Product Name	Description	Trade Worksheet
Spread Lock	Two types of spread locks can be defined: <ul style="list-style-type: none"> <li>Rolling — A standard Fixed for Floating swap.</li> <li>European — The buyer enters into a swap at a fixed spread between the forward price of the swap and the yield of its underlying bond.</li> </ul>	<a href="#">Trade &gt; Interest Rates &gt; Spread Lock</a>

### Treasury Locks

Product Name	Description	Trade Worksheet
Treasury Lock	A treasury lock is a customized agreement that fixes the yield or price on a specified bond for a specific period.	<a href="#">Trade &gt; Interest Rates &gt; Treasury Lock</a>


### Structured Products

Product Name	Description	Trade Worksheet
Structured Products	Multiple products can be combined into a single trade using the Structured Product worksheet.	<a href="#">Trade &gt; Structured Product</a>

 Refer to Calypso Structured Product documentation for details.

### Generic Options

Product Name	Description	Trade Worksheet
Generic Options	The Generic Option worksheet allows capturing an option trade over any product type.	<a href="#">Trade &gt; Generic Option</a>

 Refer to Calypso Generic Options documentation for details.

## 4. CAPTURING SWAP TRADES

The Swap worksheet allows capturing any type of swap trade through the use of the extended type, and through the configuration of exotic structures.

Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

### Swaps Quick Reference



When you open a Swap worksheet, the Trade panel is selected by default.

### ENTERING TRADE DETAILS

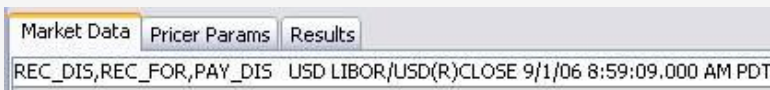
- » You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable.  
Or you can enter the trade fields directly. They are described below.  
Note that the Trade Date is entered in the Details panel.
- » Proceed to the other panels as applicable.
- » For defining break clauses, choose [Swap > Cash Settle Info](#)

### SAVING A TRADE

- » Hit F5 to save the trade, or choose [Trade > Save](#).  
You can also hit F3 to save the current trade as a new trade, or choose [Trade > Save As New](#).  
You can also hit F12 to save the trade using any action available in the workflow, or choose [Trade > Save Action](#). You will be prompted to select an action.  
A description will appear in the title bar of the trade worksheet, a trade id will be assigned to the trade, and the status of the trade will be modified according to the workflow configuration.

### PRICING A TRADE

- » You can choose [Pricing Env > Check](#) to check if all required pricing data are available in the Pricing Environment.



- » Click **Price** to price the trade.  
You can hit F11 to solve for the break-even rate, and apply it to the fixed leg of the swap.  
You can hit F12 to solve for the break-even spread, and apply it to the floating leg of the swap.
- » Hit F9 to bring up the solver (or choose [Analytics > Solve](#)).



Solve for

Set target measure: NPV with a value of: 10,000

by solving for: Pay with a result of: 2.34741116 %

given that:

Solver Variable Constraints

Lower Boundary (%) 0

Upper Boundary (%) 1,000

... Solver details

Solve

Apply

Close

Select a target pricer measure and enter the target value. Then select the value to solve for (pay rate, receive rate, or FX rate), and click **Solve**.

You can click **Apply** to set the value to solve for on the trade. Then click **Price** to obtain the target value.

You can modify the solver variables and details as needed.

**TRADE LIFECYCLE**

- » You can terminate a swap using [Back Office > Terminate](#)
- » You can reset the floating rates of the swap using [Main Entry > Trade Lifecycle > Reset > Rate Reset](#), or using the RATE\_RESET scheduled task

## 4.1 SAMPLE VANILLA SWAP TRADE

Swap/09/30/2008/P:USD 3.00000 R:USD/LIBOR/3M (-1) - Version : 0 Cur User : (calypso\_user) [100100/rele

Trade Back Office Swap Cashflows Analytics Pricing Env Market Data View Utilities Help

Trade Details Cashflows Resets Fees

CounterParty NONE NONE ID

Book TRADINGA Status NONE Template NONE

Subtype Standard Broker

+ Not Cancellable

+ Not Credit Contingent

Fix Pay USD 1,000,000.00

Bullet Actual

Start 03/31/2008 End 09/30/2008

3.00000000 % Cmp NONE

Pmt SA END\_PER NONE

MOD\_FOLLOW NONE Lag 0

ACT/360 NYC NEAREST

NONE ADJUSTED

>> Float Rec USD 1,000,000.00

Bullet Actual

Start 03/31/2008 End 09/30/2008

USD LIBOR 3M + 0.000000 T3750

Cmp BEG\_PER Lag -2 Bus, (LON) NONE

Rst

1st Rate 1st Rate 12000000

Pmt QTR END\_PER NONE

FOLLOWING NONE Lag 0

ACT/360 NYC NEAREST

NONE ADJUSTED

Market Data Pricer Params Results Pricer Override Market Data Item Override

REC\_DIS,REC\_FOR,PAY\_DIS USD Libor/USD(R)CLOSE 3/3/08 12:36:18.000 PM PST

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This document describes all the fields of the Swap worksheet. You can click the links below for information on capturing specific types of swaps:


- [➤ Brazilian Swap Trades](#)
- [➤ Cancelable Swap Trades](#)
- [➤ Capped Swap Trades](#)
- [➤ Chilean Camara Swap Trades](#)
- [➤ CMS Swap Trades](#)
- [➤ Credit Contingent Swap Trades](#)
- [➤ Cross Currency Swap Trades](#)
- [➤ Exotic Swap Trades](#)
- [➤ Extendible Swap Trades](#)
- [➤ In Arrear Swap Trades](#)
- [➤ Inflation Swap Trades](#)
- [➤ Non Deliverable Swap Trades](#)
- [➤ OIS Swap Trades](#)
- [➤ Quanto Swap Trades](#)

#### 4.1.1 FIELD DESCRIPTION

The fields of the standard swap worksheet are defined here.




##### Trade Details

Fields	Description
<b>Role/Cpty</b>	<p>The first two fields of the worksheet identify the trade counterparty.</p> <p>The first field identifies the trade counterparty's role. The default role is specified using <a href="#">Utilities &gt; Set Default Role</a>. However, you can change it as applicable.</p> <p>You can select a legal entity of specified role from the second field provided you have setup favorite counterparties. You can also type in a character to display the favorite counterparties that start with that character. Favorite counterparties are specified using <a href="#">Utilities &gt; Configure Favorite Counterparties</a>.</p> <p>Otherwise, click <input type="text"/> to select a legal entity of specified role from the Legal Entity Chooser. You can also type [Ctrl-F] to invoke the Legal Entity Chooser, or directly enter a Legal Entity short name.</p>
<b>Book</b>	<p>Trading book to which the trade belongs. Defaults to the book selected in the User Defaults. You can modify as applicable.</p> <p>You can select a book provided you have setup favorite books. Favorite books are specified using <a href="#">Utilities &gt; Configure Favorite Books</a>.</p> <p>Otherwise, click <input type="text"/> to select a book.</p> <p>The owner of the book (a processing organization) identifies your side of the trade.</p>
<b>Id</b> <b>Ext Ref</b> <b>Int Ref</b>	<p>Unique identification number of the trade. The trade id is automatically assigned by the system when the trade is saved.</p> <p>You can load an existing trade by typing the trade id into this field, and pressing [Enter].</p> <p>You can also display the internal reference or external reference. The default trade reference to be displayed can be selected in the User Defaults.</p> <p>The internal reference and external reference can be set in the Details panel of the trade worksheet.</p>
<b>Status</b>	<p>Current status of the trade. The status is automatically assigned by the system based on the workflow configuration.</p>






Fields	Description
	The status will change over the lifetime of the trade according to the workflow configuration and the actions performed on the trade.
<b>Template</b>	<p>You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable. If you setup favorite templates, only the favorite templates will be available for selection.</p> <p>You can setup favorite templates using <a href="#">Utilities &gt; Configure Favorite Templates</a>.</p> <p>In some trade window, you can click  to setup favorite templates.</p>
<b>Subtype</b>	<p>The following subtypes are set by the system based on the type of swap being captured: Arrear, CMS, CMT, Exotic, Standard, RangeFloater.</p> <p>You can set pricers and market data by swap subtype.</p>
<b>Broker</b>	Displays the broker if a broker fee is captured in the Fees panel.

### Swap Details

You can begin by entering the trade details in either the left or right panel. Note that as you enter each value, the application copies it to the other leg if applicable. There are three direction signs in the middle of the worksheet. Double-click the signs to toggle between:

-  Copy to the right panel.
-  Copy to the left panel.
-  Turn off copying.

Choose [Swap > Save Panel Directions](#) to save the settings.

Fields	Description
<b>Fix/Float/Exotic</b>	<p>Select Fix to define a fixed leg, Float to define a floating leg, or Exotic to define a structured swap.</p> <p>You can also select an exotic structure type if you have defined any. See <a href="#">Main Entry &gt; Configuration &gt; Product &gt; Structure Type Creator</a> for details.</p> <ul style="list-style-type: none"> <li>• For details on defining a fixed leg, see Fixed Leg below.</li> <li>• For details on defining a floating leg, see Floating Leg below.</li> <li>• For details on defining structured swaps, see <a href="#">Capturing Exotic Swap Trades</a>.</li> </ul>
<b>Pay/Receive</b>	<p>Direction of the trade from the book's perspective. Double-click the Pay label to change to Rec as applicable.</p> <p>   1,000,000.00</p> <p>The adjacent field defaults to the currency selected in the User Defaults. You can select another currency as needed.</p> <p>Enter the principal amount in the adjacent field. You can use shortcuts, for example enter "10m" for 10,000,000.</p>
<b>Actual</b>	<p>Check the Actual checkbox to indicate that the principal amount will be exchanged, otherwise there is no exchange of principal.</p> <p></p> <p> Check the boxes as applicable to exchange the initial principal, the final principal, or the amortized principal.</p>
<b>Bullet</b>	Double-click the Bullet label to define the amortization structure of the principal. It brings up the Swap Detail window. You can set amortization details in the Amortization and Accrual panel - Help is available from that window.
<b>Start End</b>	Enter the start and end dates of the swap. The start date defaults to the spot date of the selected currency. You can modify it as needed. You can use shortcuts, for example enter "1y" for one year, [Ctrl+N] for today, etc.

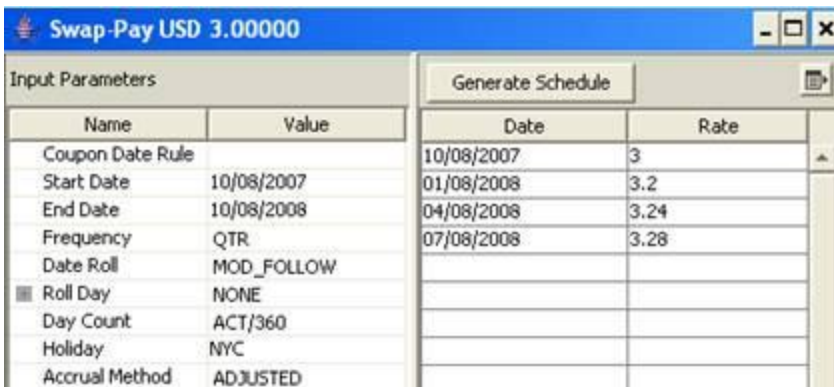


Fields	Description
	<p>Note that the system uses the payment calendar to calculate the spot date. For a fixed leg, it is the payment calendar of the selected currency. For a floating leg, it is the payment calendar of the selected index. You can modify it as needed in the Payment Details area.</p> <p>A date that appears with a red background indicates a non-business day. Hit [+] or [-] to move the date one day forward or backward, respectively.</p>

**Fixed Leg**

3.00000 % ...

Cmp ☐

NONE

Fields	Description
<b>Rate</b>	<p>Enter the fixed interest rate in percentage. The number of decimals defaults to the rate decimals specified in the User Defaults, up to 8 decimals.</p> <p>You can also click ... to define a fixed rate schedule, and specify the payment details.</p>  <ul style="list-style-type: none"> <li>» Select a date rule from the Coupon Date Rule field to generate the schedule using the date rule, or select a frequency from the Frequency field to generate the schedule using a frequency.</li> <li>» Enter start and end dates.</li> <li>» Select date roll information, daycount convention, holiday calendars, and the accrual method.</li> <li>» Then click <b>Generate Schedule</b> to generate the schedule and enter the rates.</li> </ul> <p>You can also click  to add rows to enter specific dates.</p> <ul style="list-style-type: none"> <li>» Click <b>Save</b> to save the schedule. The payment details are updated on the trade worksheet.</li> </ul>
<b>Cmp</b>	<p>Check the Cmp checkbox to enable interest compounding.</p>  <ul style="list-style-type: none"> <li>» Select the compounding frequency from the adjacent field. The compounding frequency must be more frequent than the payment frequency.</li> <li>» Double-click the Flat label to toggle between: <ul style="list-style-type: none"> <li>- Flat — Flat compounding.</li> <li>- Spread — Does not apply to fixed rates, only to floating rates.</li> <li>- SimpleSpread - Does not apply to fixed rates, only to floating rates.</li> <li>- NoCmp — A cashflow is created at the compounding period without actually compounding the interest.</li> </ul> </li> </ul> <p>There is no compounding otherwise.</p>
<b>NONE</b> (payout formula)	<p>This feature is obsolete. You should create an exotic structure instead.</p>

## Floating Leg

Fields	Description
<b>Reference Index</b>	<p>Select the reference index. The reference index is defined by a currency, rate index, tenor and source.</p> <p>The currency and rate index default to the currency and default index selected in User Defaults.</p> <p>The tenor and source default to the first tenor and source available for that rate index. Rate indices are created using <a href="#">Main Entry &gt; Configuration &gt; Interest Rates &gt; Rate Index Definitions</a>.</p> <p>You can modify the default values as needed.</p> <p>You can enter a spread over the rate value in the field adjacent to the tenor. If you double-click the source label (T3750 in this example), it brings up the Product Detail window. You can define a spread schedule in the Index and Resets panel. Help is available from that window.</p>
<b>Cmp</b>	<p>Check the Cmp checkbox to enable interest compounding.</p> <p>» Select the compounding frequency from the adjacent field. The compounding frequency must be more frequent than the payment frequency.</p> <p>When you select a DLY compounding frequency for a rate index that is not setup for daily compounding, the DailyCompound calculator is used.</p> <p>» See <a href="#">Capturing OIS Trades</a> for details on daily compounding.</p> <p>Difference between LUN and LUN(R), BIWK and BIWK(R), WK and WK(R). For a 3M swap paying MONTHLY compounding WEEKLY:</p> <ul style="list-style-type: none"> <li>- Original method splits the 90 days into periods of 7 days and puts the remaining as STUB.</li> <li>- Regular (R) method splits the 90 days into 3 periods of 30 days each, and then splits the 30 day periods into periods of 7 days thus leaving stubs on each coupon period.</li> </ul> <p>» Double-click the Flat label to toggle between:</p> <ul style="list-style-type: none"> <li>- Flat - Flat compounding - The spread is added after the compounding is computed if any. Current period interest is calculated using floating rate plus spread. But compound interest is calculated using floating rate only (and the spread is not added).</li> <li>- Spread - The interest compounds at the rate value plus spread. Double-click the spread value to enter it. It brings up the Product Detail window. You can set the spread value in the Index and Resets panel. It can be a fixed value or a spread schedule. Help is available from that window.</li> <li>- SimpleSpread - This involves compounding the Floating Rate but treating the spread as simple interest. In other words, the floating rate interest is earned at the end of a period but not the spread (only the floating rate is added back into principal). The spread is then calculated on the principal for the entire calculation period without compounding.</li> <li>- NoCmp - A cashflow is created at the compounding period without actually compounding the interest. The daily rate resets for the floating rate are used</li> </ul>

Fields	Description
	<p>to calculate the simple interest everyday and summed to find the total interest for the period.</p> <p>There is no compounding otherwise.</p>
<b>BEG_PER/END_PER</b>	<p>Double-click the BEG_PER label to switch to END_PER as needed:</p> <ul style="list-style-type: none"> <li>• BEG_PER indicates that the reset occurs at the beginning of the reset period.</li> <li>• END_PER indicates that the reset occurs at the end of the reset period – The trade becomes “in arrear”, and the subtype is set to “Arrear”.</li> </ul>
<b>Lag</b>	<p>Double-click the Lag label to define the lag between the actual reset date and the beginning or end of the reset period. It brings up the Product Detail window. You can set lag details in the Index and Resets panel. Help is available from that window.</p>
<b>NONE</b> <b>(payout formula)</b>	<p>This feature is obsolete. You should create an exotic structure instead.</p>

### Exotic Leg Details

For details on defining structured swaps, see [Capturing Exotic Swap Trades](#).

Fields	Description
<b>Formula</b>	Click <b>Structured Window</b> to define the coupon formula and / or notional formula. Help is available from that window. When the formula is applied, it is displayed in the exotic leg.

### Rate Reset Details

Fields	Description
<b>Rst</b>	<p>Check the Rst checkbox to sample resets at a frequency different from the payment frequency. Otherwise, the resets are sampled at the payment frequency.</p> <p>» Select the sampling frequency from the adjacent field.</p> <p>When the sampling frequency is more frequent than the payment frequency, you can define the weight of the resets, and the duration of the sampling period.</p> <p><b>Weight</b></p> <p>Double-click the Equal label to toggle between:</p> <ul style="list-style-type: none"> <li>Equal — Resets within the sampling period are equally weighted.</li> <li>Weighted — Resets are weighted according to the number of days for which they apply. For example, if a reset occurs on a Monday, the weight is 1 day; if it occurs on a Friday, the weight is 3 days (Friday, Saturday and Sunday).</li> <li>Simple — The reset rate is calculated as the mean rate within the sampling period.</li> <li>Cutoff Adj. — Calculates weighting up to cutoff date. The cutoff date is set as a number of days from the last sample period's end date. Double-click any red label to set the cutoff lag in the CutOff Lag field of the Index and Resets panel.</li> <li>Cutoff Weekly — If you specify a reset cutoff, the last sample period will be "end date – reset cutoff". Double-click any red label to set the cutoff lag in the CutOff Lag field of the Index and Resets panel.</li> </ul> <p><b>Duration</b></p> <p>Double-click the Match label to toggle between:</p> <ul style="list-style-type: none"> <li>Match — Rates are sampled over the entire averaging period. You can double-click the ", , 0" label to define resets' effective day and a cutoff lag. It brings up the Product Detail window. You can set reset details in the Index and Resets panel. Help is available from that window.</li> <li>Custom — Rates are sampled over a user-defined period. Double-click the "0, , 0" label to define the number of days of the sampling period, as well as resets'</li> </ul>




Fields	Description
	<p>effective day and a cutoff lag. It brings up the Product Detail window. You can set reset details in the Index and Resets panel. Help is available from that window.</p> <p>[NOTE: The effective day of the resets only applies to weekly and monthly sampling (weekly: day of the week, monthly: day of the month)]</p>
<b>NONE / 1st Rate</b>	<p>Select "1st Rate" to set the rate for the first reset period if known.</p> <p>1st Rate <input type="text" value="3.12000"/></p> <p>» Enter the first reset rate in the "1st Rate" field.</p> <p>Otherwise, the rate will be set through the reset process.</p>

### Payment Details

The payment details allow generating the cashflows.

[NOTE: When you define a fixed rate schedule, the payment details are defined as well, and the fields below are set accordingly. If you modify the fields below, make sure to regenerate the fixed rate schedule]

Fields	Description
<b>Pmt</b>	<p>Select the payment frequency.</p> <p>You can also select a date rule to determine the payment dates and the interest dates. Double-click the "Lag 0" label. It brings up the Product Detail window. You can select payment and coupon date rules in the Date Rules panel. Help is available from that window.</p> <p>You can add custom frequencies to the "frequency" domain in the form of tenors like &lt;number&gt;D, &lt;number&gt;W, &lt;number&gt;M, or &lt;number&gt;Y. The tenor is case sensitive. D, W, M, or Y should be entered using uppercase.</p>
<b>END_PER/BEG_PER</b> <b>Interest Method</b>	<p>Select END_PER if the payment occurs at the end of the payment period, or BEG_PER if the payment occurs at the beginning of the payment period.</p> <p><b>END_PER</b></p> <p>Select EXP or ACC for an exponential interest calculation from the adjacent field, or select NONE otherwise. ACC only appears if the floating rate is an inflation rate.</p> <p>Interest = Notional * ((1 + Rate)<sup>t[n]</sup> - 1).</p> <ul style="list-style-type: none"> <li>For EXP: t[n] = Current Coupon Period n</li> <li>For ACC: t[n] = Total Period from Coupon 1 through n.</li> </ul> <p><b>BEG_PER</b></p> <p>You can select one of the following discount methods from the adjacent field.</p> <ul style="list-style-type: none"> <li>NONE – No discount.</li> <li>DISC</li> <li>FWD_DISC - Same as FIX_RATE_DISC for FRAs – Interest at beginning of period = interest amount at end of period / (1 + Fixed Rate * daycount/basis)).</li> <li>FWD_DISC_FRA – Same as FWD_DISC for FRAs - Discounts the payment/receipt amount from the end date to the start date using the fixing rate.</li> </ul>
<b>Date Roll</b>	<p>Select the date roll convention to roll the payment dates when they fall on business days. The payment calendar is used to determine business days.</p> <p>Date roll conventions are described under <a href="#">Main Entry &gt; Help &gt; Date Roll Conventions</a>.</p>
<b>Roll Day</b>	<p>Select a date roll adjustment.</p> <ul style="list-style-type: none"> <li>NONE — The date roll convention is not adjusted.</li> <li>DAY — Enter a fixed day of the month to which the date will be rolled. For example, entering "5" forces the payment date to be on the fifth calendar day of the month. Entering "31" indicates the last day of the month, even for months with fewer than 31 days - The selection changes to EOM.</li> </ul>

Fields	Description
	<ul style="list-style-type: none"> <li>• IMM — Applies the IMM_WED date roll convention.</li> <li>• EOM — The last day of the month, regardless of the number of days in the month.</li> </ul>
<b>Lag</b>	Double-click the "Lag 0" label to specify the number of days between the interest date and the payment date. It brings up the Product Detail window. You can set payment lag details in the Date Rules panel. Help is available from that window.
<b>Daycount</b>	<p>Select the day count convention to determine the number of days in the payment periods.</p> <p>Daycount conventions are described under <a href="#">Main Entry &gt; Help &gt; Day-Count Conventions</a>.</p>
<b>Payment Calendar</b>	Click  to select payment calendars. They are used to determine business days.
<b>NEAREST (rounding method)</b>	Double-click the NEAREST label to define the rounding method. It brings up the Product Details window. You can set rounding details in the Rounding panel. Help is available from that window.
<b>NONE (stub periods)</b>	<p>Double-click the NONE label to define or override stub period settings. It brings up the Product Details window. You can set stub details in the Stub Periods panel. Help is available from that window.</p> <p>The system automatically creates the stub periods when needed if <a href="#">Product &gt; Automatically Adjusting Stub</a>, or <a href="#">Product &gt; Warn before Adjusting Stub</a> is checked. Otherwise, you can define stub periods manually in this panel.</p>
<b>ADJUSTED (accrual period)</b>	Double-click the ADJUSTED label to define how the accrual period is adjusted on non-business days. It brings up the Product Detail window. You can set accrual details in the Amortization and Accrual panel. Help is available from that window.

## 5. CAPTURING BRAZILIAN SWAP TRADES

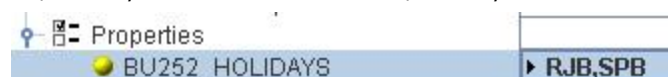
Brazilian swap trades are swap trades on the Brazilian currency - They require additional setup.

### ***Brazilian Swaps Quick Reference***

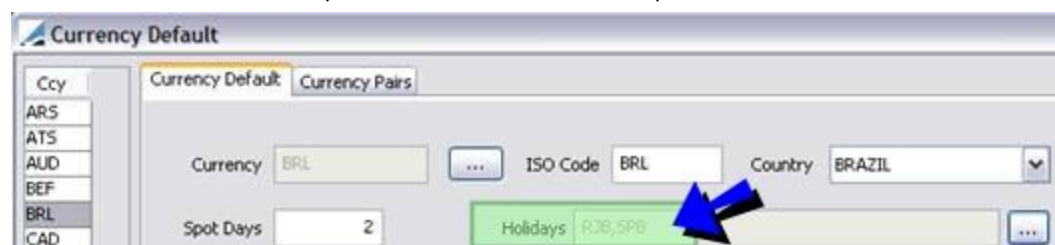
- » Make sure that the BRL currency (Brazilian Real) is defined in your system using [Main Entry > Configuration > Definitions > Currency Definitions](#)
- » Define Brazilian calendars using [Main Entry > Configuration > Definitions > Calendar Definitions](#)
- » Define the CDI rate index using [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#)
- » Enter Brazilian swap details in the Trade panel
- » Then enter more trade details as described in [Capturing Swap Trades](#)

### 5.1 DEFINING BRAZILIAN CALENDARS

Choose [Main Entry > Configuration > Definitions > Calendar Definitions](#), and add the holiday codes RJB and SPB. Then set the environment property BU252\_HOLIDAYS to the list of comma separated calendars to be used in the BU/252 daycount calculation. The BU/252 daycount convention is used in the reference index - See below.



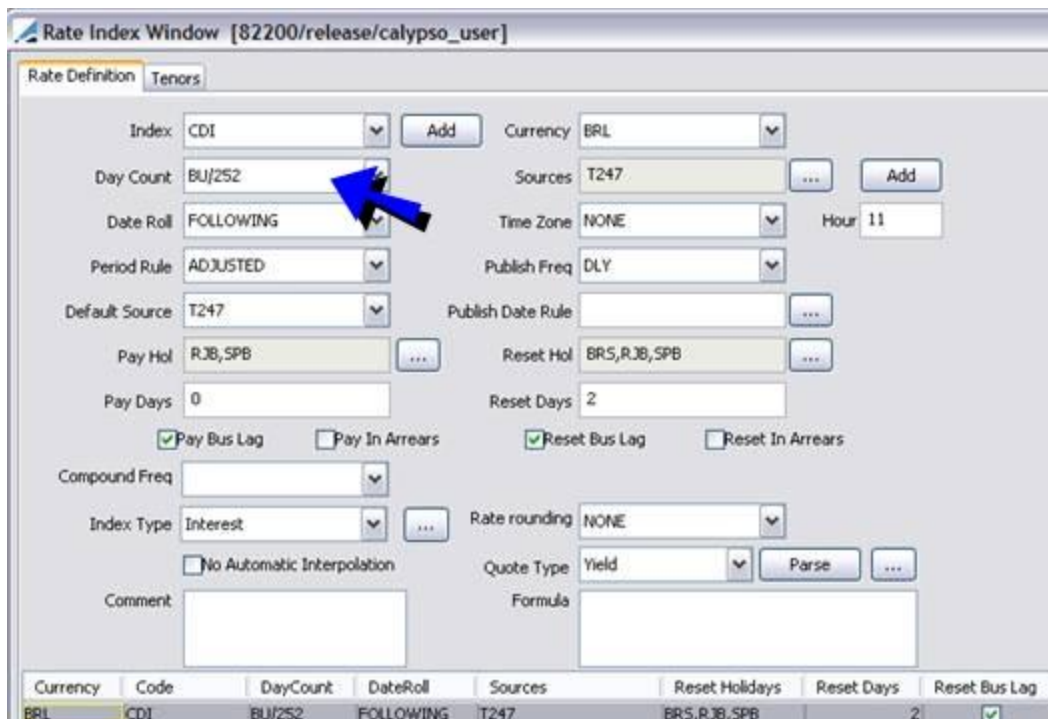
You can now select the holiday calendars on the BRL currency.



### 5.2 DEFINING THE CDI RATE INDEX

The CDI rate index is the most significant index in Brazil. The interest calculation associated with this rate index is commonly exponentially compounded unlike most other currencies.

Choose [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#).



Rate Index Window [82200/release/calypso\_user]

Rate Definition Tenors

Index: CDI Add Currency: BRL

Day Count: BU/252 Sources: T247 Add

Date Roll: FOLLOWING Time Zone: NONE Hour: 11

Period Rule: ADJUSTED Publish Freq: DLY

Default Source: T247 Publish Date Rule: ...

Pay Hol: RJB,SPB Reset Hol: BR5,RJB,SPB

Pay Days: 0 Reset Days: 2

☒ Pay Bus Lag ☐ Pay In Arrears ☒ Reset Bus Lag ☐ Reset In Arrears

Compound Freq: ...

Index Type: Interest Rate rounding: NONE

☐ No Automatic Interpolation Quote Type: Yield Parse ...

Comment: Formula: ...

Currency	Code	DayCount	DateRoll	Sources	Reset Holidays	Reset Days	Reset Bus Lag
BRL	CDI	BU/252	FOLLOWING	T247	BR5,RJB,SPB	2	<input checked="" type="checkbox"/>

The Rate Definition panel is selected by default.

- » Select the rate index from the Index field, and enter its details.

You can click **Add** to add it, if it does not exist.

Select the daycount convention BU/252.

- » Click **Attributes** and set the following attributes. It brings up the Rate Index Attributes window. You can click ... in the Rate Index Attributes window to add the attribute if it does not exist.

Note that the attributes and their values are case sensitive.

Rate Index Attributes Window	
Name	Value
BRL_CONVENTION	True
BRL_SUBTYPE	
CMT_BOND_COUPON	
CMT_BOND_NAME	
Coupon_Frq	
DailyIndexCalculator	DailyCompound

- BRL\_CONVENTION = True

It uses Brazilian conventions for reset, and sets the trade subtype to "BRL". If you do not want to use Brazilian conventions for reset but still set the trade subtype to "BRL", you can set BRL\_CONVENTION = False (or not set), and BRL\_SUBTYPE = True.

- BRL\_SUBTYPE = True (Only needed if BRL\_CONVENTION = False and you want to set the trade's subtype to "BRL").
- DailyIndexCalculator = DailyCompound

- » Click **Save** to save your changes.

- » Then select the Tenors panel to define tenors for the rate index, and click **Save** to save your changes.

### 5.2.1 DAYCOUNT CONVENTION

Interest accrues using the Business/Business daycount convention BU/252. The daycount fraction is the number of business days in the period divided by 252. The calendars used to determine business days must be set on the environment property BU252\_HOLIDAYS, as seen above.

## 5.3 CAPTURING BRAZILIAN SWAP TRADES

Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

A Brazilian swap on the CDI rate index is averaging daily, and has exponential interest calculation.

- » Select EXP in the payment details for exponential interest calculation.
- » Select the daycount convention BU/252.
- » For overnight swap trades on a discount basis, check the menu item [Swap > Discount](#). If the payment frequency is set to ZC, the field Negotiated Price will appear.

When you enter a value in that field, the principal of the legs will be updated according to the following formulas:

$PV = FV / (1 + \text{Fixed Rate})^{\text{Period}}$  for exponential interest

$PV = FV / (1 + \text{Fixed Rate} \times \text{Period})$  for simple interest where Period = (Swap Start, Start End, Fixed Leg Pay Daycount)

i.e.  $PV + \text{Interest from Fixed Leg Cashflow} = FV$ .

[NOTE: The trade subtype is set to "BRL" if the rate index attribute BRL\_CONVENTION = True or the rate index attribute BRL\_SUBTYPE = True - The pricer defaults to BRLSwap]

## 5.4 DISPLAYING THE CASHFLOWS

Select the Cashflows panel for displaying the cashflows.

Trade Details Cashflows Resets Fees													
Notional Amortization		Bullet	Customized										
Pmt Dt	Notional	Rate	Pmt Begin	Pmt End	Cmp Begin	Cmp End	Period	PV Disc	Interest Amt	Manual Amt	df	Type	
07/01/2009	889,250.65	12.0000000000	07/01/2008	07/01/2009			1.03571429	106,546.54	110,749.35		0.96205118	INTEREST	

Notional Amortization		Bullet	Customized										
Pmt Dt	Notional	Rate	Spread	Reset	Fwd Begin	Fwd End	Pmt Begin	Pmt End	Cmp Begin	Cmp End	Idx Term	Interp	Period
07/01/2009	889,250.65	0.0000000000	0.0000000000	06/29/2009	07/01/2009	07/02/2009	07/01/2008	07/01/2009			1D		1.03571429

- » Right-click a cashflow and choose Sample Dts to display the compounding periods. It brings up the Reset Samples window.

Reset Samples							
Sampl...	Rate	Weight	Period Start	Period End	Proj. Rate	Rate Index	Interest Amount
06/30/2008	11.3400000000	0.00547945	07/02/2008	07/03/2008	11.3400000000	BRL/CDI/1D/T3750	379.14
07/01/2008	11.3800000000	0.00273973	07/03/2008	07/04/2008	11.3800000000	BRL/CDI/1D/T3750	380.57
07/02/2008	11.0000000000	0.00821918	07/04/2008	07/07/2008	11.0000000000	BRL/CDI/1D/T3750	368.65
07/03/2008	11.5200000000	0.00273973	07/07/2008	07/08/2008	11.5200000000	BRL/CDI/1D/T3750	385.33
07/04/2008	12.3400000000	0.00273973	07/08/2008	07/09/2008	12.3400000000	BRL/CDI/1D/T3750	411.40
07/07/2008	12.6500000000	0.00273973	07/09/2008	07/10/2008	12.6500000000	BRL/CDI/1D/T3750	421.34
07/08/2008	12.2300000000	0.00273973	07/10/2008	07/11/2008	12.2300000000	BRL/CDI/1D/T3750	408.32
07/09/2008	11.6500000000	0.00821918	07/11/2008	07/14/2008	11.6500000000	BRL/CDI/1D/T3750	390.16
07/10/2008	11.8200000000	0.00273973	07/14/2008	07/15/2008	11.8200000000	BRL/CDI/1D/T3750	395.72
07/11/2008	11.4100000000	0.00273973	07/15/2008	07/16/2008	11.4100000000	BRL/CDI/1D/T3750	382.87
07/14/2008	11.2100000000	0.00273973	07/16/2008	07/17/2008	11.2100000000	BRL/CDI/1D/T3750	376.67
07/15/2008	11.3500000000	0.00273973	07/17/2008	07/18/2008	11.3500000000	BRL/CDI/1D/T3750	381.29
07/16/2008	11.0500000000	0.00821918	07/18/2008	07/21/2008	11.0500000000	BRL/CDI/1D/T3750	371.88

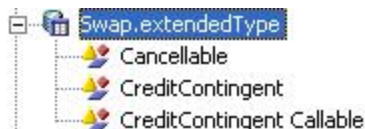
Reset Rate	4.5591875400
------------	--------------

You can click **Apply** to compute the reset rate over the period, and click **Reset** to set the rate on the selected cashflow.

## 6. CAPTURING CANCELABLE SWAP TRADES

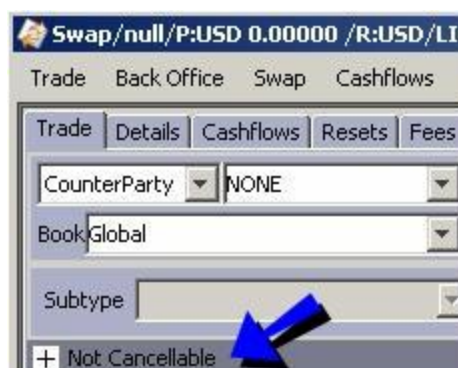
A cancelable swap contains an underlying swap with the option to cancel it in the future.

To enable the Cancelable feature, create the domain "Swap.extendedType" and add the Cancelable value to that domain. Note that domain values are case sensitive.



Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

The Cancelable area is added to the swap worksheet. The trade is marked "Not Cancelable" by default.



Click **+** to view the Cancelable details.



- » Check the Cancelable checkbox to make the trade cancelable, then specify the cancelable details described below.
- » Then enter more trade details as described in [Capturing Swap Trades](#).
- » You can cancel the trade using [Back Office > Exercise](#), or [Main Entry > Trade Lifecycle > Exercise & Expiration > Option Exercise](#) - Help is available from that window.

### Cancelable Details

Fields	Description
<b>Cancelable</b>	Check the Cancelable checkbox to indicate that the trade is cancelable, or uncheck otherwise.
<b>BUY/SELL</b>	Select BUY or SELL, the direction of the trade from the book's perspective.
<b>Call Type</b>	Select European, Bermudan, or American. See below for details.

### European

The trade can only be canceled on the expiration date.







You can enter the fees in the delivery schedule in percentage or in amounts. The Fee currency is selected in the "Cancellable" area.

Then click **Apply** to save the schedule.

- » Select the Fee currency.

### American

The trade can be canceled within a date range.

The screenshot shows a trade entry form for an American trade. The top row contains: a dropdown menu set to 'BUY', an 'Exp Dt' field with '05/21/2008', an 'Expiry Time' dropdown set to 'LON/UTC', and a 'First Ex Dt' field with '04/21/2008'. The bottom row contains: a dropdown menu set to 'American', a 'Del Dt' field with '05/22/2008', a field with '1' followed by a dropdown set to 'D Bus', a 'Fee' field, a field with '92 percent', and a currency dropdown set to 'USD'.

- » Enter the expiration date in the Exp Dt field. Enter the expiration time and select the timezone from the adjacent fields.
- » Click **Expiry Time** to enter the expiration time, and select the corresponding timezone and holiday calendars.
- » Enter the first exercise date in the First Ex Dt field. The trade can be canceled between the first exercise date and the expiration date.
- » The delivery date defaults to the spot date for the selected currency. You can modify as needed. You can also enter the number of lag days in the adjacent field and select whether the lag days are business days or calendar days.
- » You can click ... next to the Fee field to define a fee schedule.

## 7. CAPTURING CAPPED SWAP TRADES

A Capped Swap is a swap with a cap floor on the floating leg. The trade can be fixed-floating or floating-floating.

Choose [Trade > Interest Rates > Capped Swap](#) to open the Capped Swap worksheet, from Main Entry or from the Calypso Workstation.

You can also choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, and define an exotic structure for the cap / floor on the swap.

### 7.1 SAMPLE TRADE

(User: calypso\_user) Trade CappedSwap Window [120000/LAPTOP\_RELEASE]

Trade Back Office CappedSwap Cashflows Analytics Pricing Env Market Data View Utilities Limits Help

Trade Details Cashflows Resets Fees

CounterParty NONE ID NONE

Book Global Status NONE Template NONE

+ Not Cancellable

Fix Pay USD 1,000,000.00

Bullet

Actual

Start 03/08/2011 End 03/08/2012

2.150000 %

Cmp

NONE

Pmt SA END\_PER NONE

MOD\_FOLLOW NONE Lag 0

ACT/360 NYC NEAREST

NONE ADJUSTED

Float Rec USD 1,000,000.00

Bullet

Actual

Start 03/08/2011 End 03/08/2012

USD LIBOR 3M + 0.000000 LIBO...

Cmp

BEG\_PER Lag -2 Bus, (LON) NONE

Rst

NONE 1st Rate 0.00

Pmt QTR END\_PER NONE

MOD\_FOLLOW NONE Lag 0

ACT/360 NYC NEAREST

NONE ADJUSTED

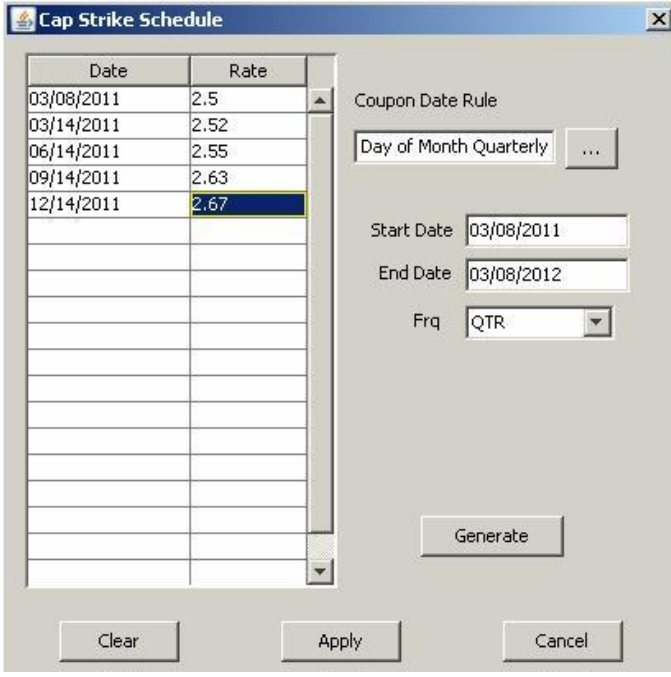
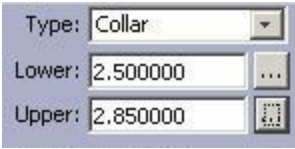
Type: Cap Exclude 1st Period

Strike: 2.500000 Digital Include Spread

Factor (%): 0.00000

- » Enter the fields described below to define the cap / floor.
- » Then enter more trade details as described in [Capturing Swap Trades](#).

Fields	Description
<b>Type</b>	Select the type of cap floor: Cap, Floor, Collar, Flooridor, or Strangle.
<b>Exclude 1st Period</b>	Check the "Exclude First" checkbox to exclude the first caplet from the cashflows. When doing a Copy/Paste Cap to Swap: If "Exclude First" is checked, copying the Cap to a Swap will ignore that flag. In order to copy the flag, set the environment property OLD_CAPTOSWAP_PASTE to true.
<b>Strike</b>	Only appears for trade types Cap and Floor.

Fields	Description
	<p>Type: <input type="text" value="Cap"/></p> <p>Strike: <input type="text" value="2.5"/></p> <p>» Enter the strike rate.</p> <p>You can also click ... to define a strike schedule.</p>  <p>» Click ... next to the Coupon Date Rule field to select a date rule. In this case, the date rule will be used to determine the schedule and the frequency will be ignored. Or select the schedule frequency from the Frq field.</p> <p>» Enter the start and end dates for the schedule in the Start Date and End Date fields.</p> <p>» Click <b>Generate</b> to generate the schedule. Double-click a rate cell to enter the strike for the corresponding date.</p> <p>» Then click <b>Apply</b> to apply to the strike schedule.</p>
<b>Upper</b> <b>Lower</b>	<p>Only appears for trade type Collar.</p>  <p>» Enter the lower and upper strike rates.</p> <p>You can also click ... to define a lower schedule, and an upper schedule.</p>
<b>Digital</b>	<p>This only applies to cap, floor, and collar.</p> <p>You can check the Digital checkbox so that you can specify payoff details.</p>

Fields	Description
	<div data-bbox="496 222 837 323"> <div> <input checked="" type="checkbox"/> Digital           <input type="checkbox"/> Include Spread         </div> <div>Factor (%): <input type="text" value="0.00000"/></div> </div> <p>» Enter a factor percentage for calculating the caplet payoffs. Each payoff uses this factor.</p> <p>However, you can enter variable digital factors for some or all caplets in the trade. In the Cashflows panel, check the Customized checkbox, and edit the Payoff Factor(%) column for each individual caplet.</p> <p>The payoff for a digital caplet will be calculated as follows: If Reset Rate &gt; Strike, payoff = Notional * Period * Factor (Payoff Spread). Otherwise, payoff = Zero.</p> <p>» Check the "Include Spread" checkbox to include the spread in the payoff.</p>

## 8. CAPTURING CHILEAN CAMARA SWAP TRADES

Camara swap trades are swap trades on the Chilean ICP rate indices in Chilean Peso and Chilean UF - They require additional setup.

### Camara Swaps Quick Reference

- » Make sure the CLP currency (Chilean Peso) and CLF currency (Chilean UF) are defined in your system using [Main Entry > Configuration > Definitions > Currency Definitions](#)
- » Define the ICP rate index on CLP and the ICP rate index on CLF using [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#)
- » Define underlying swaps for curve generation
- » Enter Chilean swap details in the Trade panel
- » Then enter more trade details as described in [Capturing Swap Trades](#)

### 8.1 DEFINING THE ICP RATE INDICES

Choose [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#).

#### ICP on CLP Setup

(User: calypso\_user) Rate Index Window [120000/LAPTOP\_RELEASE/]

Rate Definition | Tenors

Index: ICP Add Currency: CLP

Day Count: ACT/360 Sources: ABIF Add

Date Roll: MOD\_FOLLOW Time Zone: America/Santiago Hour: 14

Period Rule: ADJUSTED Publish Freq: DLY

Default Source: ABIF Publish Date Rule: ...

Pay Hol: SAN Reset Hol: SAN

Pay Days: 0 Reset Days: 0

☒ Pay Bus Lag ☒ Pay In Arrears ☒ Reset Bus Lag ☒ Reset In Arrears

Compound Freq: NON

Index Type: Interest Rate rounding: NEAREST Dec Places: 2

☐ No Auto. Interp. Quote Type: Price Parse

Comment: Source: 2006 ISDA Definitions Formula:

Rate Index Attributes Window

Currency	Code	DayCount	DateRoll	Sources	Name	Value
CLP	ICP	ACT/360	MOD_FOLLOW	ABIF	IndexCalculator	TNA

The Rate Definition panel is selected by default.

- » Click **Add** to add the index name, ICP for example.
- » Click **Attributes** and set the following attribute. It brings up the Rate Index Attributes window. You can click ... in the Rate Index Attributes window to add the attribute if it does not exist.  
Note that the attributes and their values are case sensitive.
  - IndexCalculator = TNA
- » Click **Save** to save your changes.
- » Then select the Tenors panel to define the 1D tenor for the rate index, and click **Save** to save your changes.

$$TNA = \text{Round}(((ICP1 / ICP0) - 1) * 36000 / (T1 - T0); 2)$$

Where ICP1 = value at T1, and ICP0 = value at T0

T1 = end calculation period

T0 = start calculation period

### ICP on CLF Setup

(User: calypso\_user) Rate Index Window [120000/LAPTOP\_RELEASE/]

Rate Definition | Tenors

Index: UHF Add Currency: CLF

Day Count: ACT/360 Sources: ABIF Add

Date Roll: NO\_CHANGE Time Zone: America/Santiago Hour: 14

Period Rule: ADJUSTED Publish Freq: DLY

Default Source: ABIF Publish Date Rule: ...

Pay Hol: SAN Reset Hol: SAN

Pay Days: 2 Reset Days: 0

☒ Pay Bus Lag ☐ Pay In Arrears ☒ Reset Bus Lag ☐ Reset In Arrears

Compound Freq: NON

Index Type: Interest Rate rounding: NONE

☐ No Auto. Interp. Quote Type: Price Parse ...

Comment: Source: 2006 ISDA Definitions

Formula: Rate Index Attributes Window

Name	Value
IndexCalculator	TRA
NominalIndex	ICP

Currency	Code	DayCount	DateRoll	Sources
CLF	UHF	ACT/360	NO_CHANGE	ABIF

The Rate Definition panel is selected by default.

- » Click **Add** to add the index name, UHF for example.
- » Click **Attributes** and set the following attributes. It brings up the Rate Index Attributes window. You can click ... in the Rate Index Attributes window to add the attribute if it does not exist.  
Note that the attributes and their values are case sensitive.
  - IndexCalculator = TRA

- NominalIndex = Rate index name of the ICP rate index in CLP (TRA is derived from TNA and the CLF/CLP rates) = ICP in this example

» Click **Save** to save your changes.

» Then select the Tenors panel to define the 1D tenor for the rate index, and click **Save** to save your changes.

$$TRA^{**} = \left[ \frac{\left( \frac{TNA * (T1 - T0)}{36000} - \left( \frac{UF_1}{UF_0} - 1 \right) \right)}{\left( \frac{UF_1}{UF_0} \right)} \right] * \frac{36000}{(T1 - T0)}$$

Where UF1=value at T1 and UF0 = value at T0

T1= end calculation period

T0 = start calculation period

## 8.2 SAMPLE CURVE UNDERLYING SWAP

You can define the underlyings from the Zero Curve window.

Cash	Future	Bond Future	FRA	Spread	Swap	Turn Rate	Basis Swap	Bond	CDS	CDS Index												
<div> <div> Fixed Side <div> Currency <div>CLP</div> </div> </div> <div> Float Side <div> Currency <div>CLP</div> </div> </div> <div> Rate Index <div>ICP</div> </div> <div> Index Tenor <div>1D</div> </div> <div> Source <div>ABIF</div> </div> <div> Maturity <div>3</div> <div>M</div> </div> <div> <input type="checkbox"/> Manual First Reset <input type="checkbox"/> Start Lag 0, Bus <div>Int. Method</div> <div>NONE</div> <input type="checkbox"/> Act </div> <div> <input type="checkbox"/> Check First Reset </div> <div> <input type="checkbox"/> Specific Dates <div>Spec Start Date</div> <div>Spec End Date</div> <div> <input checked="" type="checkbox"/> Day of month <div>9</div> </div> </div> </div> <div> <div> <div>Fixed Side</div> <div> <div> Freq <div>SA</div> </div> <div> DayCount <div>ACT/360</div> </div> <div> DateRoll <div>MOD_FOLLOW</div> <div>DAY</div> <div>9</div> </div> </div> <div> Pay Holidays <div>SAN</div> </div> <div> Period Rule <div>ADJUSTED</div> </div> <div> Stub <div>NONE</div> <input type="checkbox"/> Interp </div> <div> Cmp Frq. <div>NON</div> <div>NONE</div> </div> </div> <div> <div>Floating Side</div> <div> <div> Freq <div>QTR</div> </div> <div> DayCount <div>ACT/360</div> </div> <div> DateRoll <div>MOD_FOLLOW</div> <div>DAY</div> <div>9</div> </div> </div> <div> Pay Holidays <div>SAN</div> </div> <div> Period Rule <div>ADJUSTED</div> </div> <div> Stub <div>NONE</div> <input type="checkbox"/> Interp </div> <div> Cmp Frq. <div>NON</div> <div>NONE</div> </div> <div> Reset Timing <div>END_PER</div> </div> <div> <input type="checkbox"/> Averaging Reset </div> <div> Avg Frq. <div>DLY</div> <div>Equal</div> </div> </div> </div> <table border="1"> <thead> <tr> <th>Id</th> <th>Fixed Ccy</th> <th>Floating Ccy</th> <th>Index</th> <th>Tenor</th> <th>Maturity</th> </tr> </thead> <tbody> <tr> <td>28551</td> <td>CLP</td> <td>CLP</td> <td>ICP</td> <td>1D</td> <td>3M</td> </tr> </tbody> </table>											Id	Fixed Ccy	Floating Ccy	Index	Tenor	Maturity	28551	CLP	CLP	ICP	1D	3M
Id	Fixed Ccy	Floating Ccy	Index	Tenor	Maturity																	
28551	CLP	CLP	ICP	1D	3M																	

The swaps are defined with payment on the 9th day, and with termination on the 9th of the termination month.



### 8.3 CAPTURING CAMARA SWAP TRADES

Choose **Trade > Interest Rates > Swap** to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

(User: calypso\_user) Swap/03/14/2013/P:CLF/UHF/1D/R:CLP/ICP/1D-CLF/CLP (-1) - Version : 0 [120000/LAPTOP\_RELEA

Trade Back Office Swap Cashflows Analytics Pricing Env Market Data View Utilities Limits Help

Trade Details Cashflows Resets Fees History

CounterParty CP ... Delete during implementation ID ...

Book Global ... FX:CLF,CLP 0.00000 Status NONE Template NONE ...

Subtype Arrear Broker ...

+ Not Cancellable

+ Not Credit Contingent

Float Pay CLF 300,000 >> Float Rec CLP 300,000

Bullet Actual

Start 03/11/2011 End 03/14/2013 >> Start 03/11/2011 End 03/14/2013

CLF UHF 1D + 0.000000 ABIF >> CLP ICP 1D + 0.000000 ABIF

Cmp

BEG\_PER Lag 0 Bus, (SAN) NONE >> END\_PER Lag 0 Bus, (SAN) NONE

Rst

NONE 1st Rate 0.000000 >> NONE 1st Rate 0.000000

Pmt SA END\_PER NONE >> Pmt SA END\_PER NONE

NO\_CHANGE NONE Lag 2 B >> MOD\_FOLLOW DAY 9 Lag 0

ACT/360 SAN ... NEAREST >> ACT/360 SAN ... NEAREST

NONE ADJUSTED >> NONE ADJUSTED

» Choose the indices, and set up the swap to match the term sheet.

#### Cashflows

Select the Cashflows panel for displaying the cashflows.

Trade Details Cashflows Resets Fees History

Notional Amortization Bullet ... Customized

Notional	Rate	Spread	Reset	Fwd Begin	Fwd End	Pmt Begin	Pmt End	Idx Term	Interp	Period	Proj Amt	PV Disc	Pmt Dt
300,000	0.0000000	0.0000000	09/14/2011	09/14/2011	09/15/2011	03/11/2011	09/14/2011	1D		0.51944444	-22,014	-17,147	09/16/2011
300,000	0.0000000	0.0000000	03/14/2012	03/14/2012	03/15/2012	09/14/2011	03/14/2012	1D		0.50555556	10,111	5,508	03/16/2012
300,000	0.0000000	0.0000000	09/14/2012	09/14/2012	09/15/2012	03/14/2012	09/14/2012	1D		0.51111111	6,674	2,616	09/18/2012
300,000	0.0000000	0.0000000	03/14/2013	03/14/2013	03/15/2013	09/14/2012	03/14/2013	1D		0.50277778	5,816	1,628	03/18/2013

Notional Amortization Bullet ...

Notional	Rate	Spread	Reset	Fwd Begin	Fwd End	Pmt Begin	Pmt End	Idx Term	Interp	Period	Proj Amt	PV Disc	Pmt Dt
300,000	0.0000000	0.0000000	09/14/2011	09/14/2011	09/15/2011	03/11/2011	09/14/2011	1D		0.51944444	65,630	52,405	09/14/2011
300,000	0.0000000	0.0000000	03/14/2012	03/14/2012	03/15/2012	09/14/2011	03/14/2012	1D		0.50555556	22,873	13,762	03/14/2012
300,000	0.0000000	0.0000000	09/14/2012	09/14/2012	09/17/2012	03/14/2012	09/14/2012	1D		0.51111111	23,535	10,659	09/14/2012
300,000	0.0000000	0.0000000	03/14/2013	03/14/2013	03/15/2013	09/14/2012	03/14/2013	1D		0.50277778	20,208	6,784	03/14/2013



- » Right-click a cashflow and choose Sample Dts to display the rates used in the calculations. It brings up the Reset Samples window.

The TRA index will display four values, while the TNA index will display two. Known rates/values are from the quote set. Forecast rates are the one-day forward rates.

Reset Samples						
Sample Dt	Rate	Weight	Period Start	Period End	Proj. Rate	Rate Index
03/11/2011	0.0000000	1.00000	03/11/2011	03/11/2011	45.3896300	CLF/UHF/1D/ABIF
03/11/2011	0.0000000	1.00000	03/11/2011	03/11/2011	40.8892121	CLP/ICP/1D/ABIF
09/14/2011	0.0000000	1.00000	09/14/2011	09/14/2011	59.6732853	CLF/UHF/1D/ABIF
09/14/2011	0.0000000	1.00000	09/14/2011	09/14/2011	49.8128141	CLP/ICP/1D/ABIF

Reset Samples						
Sample Dt	Rate	Weight	Period Start	Period End	Proj. Rate	Rate Index
03/11/2011	0.0000000	1.00000	03/11/2011	03/11/2011	40.8892121	CLP/ICP/1D/ABIF
09/14/2011	0.0000000	1.00000	09/14/2011	09/14/2011	49.8128141	CLP/ICP/1D/ABIF

## 9. CAPTURING CMS (CONSTANT MATURITY SWAP) TRADES

### CMS Quick Reference

- » Define the CMS rate index using [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#)
- » Define a generic bond using [Main Entry > Configuration > Fixed Income > Default](#) (only if you are using PricerSwap)
- » Enter swap details in the Trade panel
- » Then enter more trade details as described in [Capturing Swap Trades](#)

### 9.1 CMS RATE INDEX

Choose [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#).

**Rate Index Window [90800/release/calypso\_user]**

Rate Definition | Tenors

Index: CMS Add Currency: USD

Day Count: ACT/360 Sources: ISDA ... Add

Date Roll: NO\_CHANGE Time Zone: GMT Hour: 11

Period Rule: UNADJUSTED Publish Freq: DLY

Default Source: ISDA Publish Date Rule: ...

Pay Hol: NYC,LON ... Reset Hol: LON ...

Pay Days: 0 Reset Days: 2

☒ Pay Bus Lag ☒ Pay In Arrears ☒ Reset Bus Lag ☐ Reset In Arrears

Compound Freq: NON

Index Type: Swap ... Rate rounding: NONE

☐ No Auto. Interp. Swap Quote Type: Yield Parse ...

Comment: Formula:

Currency	Code	DayCount	DateRoll	Sources	Reset Holidays	Reset Days	Reset Bus Lag
USD	CMS	ACT/360	MOD_FOLLOW	ISDA	LON	2	<input checked="" type="checkbox"/>

The Rate Definition panel is selected by default.

- » Select the rate index from the Index field, and enter its details.
- » You can click **Add** to add it, if it does not exist.
- » Select the Index Type "Swap", and click **Swap** to define the most liquid swap.

Enter the various fields to define the swap and click **Apply**. The coupon frequency, rate index name, and rate index tenor are retrieved from the swap.

- » Click **Attributes** and set the following attributes. It brings up the Rate Index Attributes window. You can click ... in the Rate Index Attributes window to add the attributes if they do not exist.

Note that the attributes and their values are case sensitive.

Rate Index Attributes Window	
Name	Value
DailyIndexCalculator	DailyCompound
Excl_intrp_tnr_list	
IndexCalculator	SwapRate
SpotDateCalculator	

- DailyIndexCalculator = DailyCompound
- IndexCalculator = SwapRate

Click **Apply**.

- » Click **Save** to save your changes.
- » Then select the Tenors panel to define tenors for the rate index, and click **Save** to save your changes.

## 9.2 GENERIC BOND

[NOTE: This setup is only required if you are using PricerSwap]

### 9.2.1 BOND DEFAULTS

Choose **Main Entry > Configuration > Fixed Income > Default**.

The CMS calculator uses information from the bond default configuration to calculate the CMS adjustment.

- » In the Issue panel, select the Generic sub type, use a face value that is large enough to guarantee the precision required. Different values may be required for different currencies and markets.
- » In the Coupon Detail panel, set the Coupon details to match the currency and market conventions.

- » Enter a name and click **Save**.

### 9.2.2 PRICING PARAMETERS

Choose [Main Entry > Market Data > Pricing Environment > Pricing Parameter Set](#), and load your pricing parameter set.

Pricing Params Set Name: default

Pricing Param Name: USD.CMSBond Enter Value (a String): CACMS or Choose Value: UST

ProductType: ANY Add Remove

ProductType	Name	Value
ANY	ADJUST_FX_RATE	true
ANY	INCLUDE_FEES	true
ANY	USD.CMSBond	CACMS

- » Select the pricing parameter "<currency>.CMSBond", and set its value to the generic bond that you have defined. This is required for all currencies.

### 9.3 SAMPLE CMS SWAP TRADE

Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

Fix Pay USD 1,000,000.00

Float Rec USD 1,000,000.00

Start: 03/31/2008 End: 09/30/2008

3.00000000 % ...

USD CMS 2Y 0.000000 ISDA

BEG\_PER Lag -2 Bus, (LON) NONE

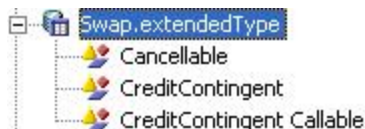
Rst 1st Rate 3.12

- » Select the CMS index that you have created.

## 10. CAPTURING CREDIT CONTINGENT SWAP TRADES

A Credit Contingent Swap contains an underlying swap contingent upon credit events.

To enable the Credit Contingency feature, create the domain "Swap.extendedType" and add the CreditContingent and "CreditContingent Callable" values to that domain. Note that domain values are case sensitive.

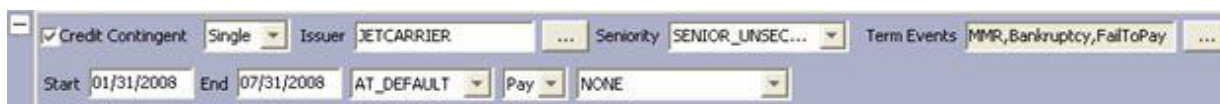


Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

The Credit Contingent area is added to the swap worksheet. The trade is marked "Not Credit Contingent" by default.





Click **+** to view the Credit Contingent details.



- » Check the Credit Contingent checkbox to make the swap sensitive to credit events, then enter the credit details.  
The swap is sensitive to credit events between the Start and End dates defined here.
- » Then enter more trade details as described in [Capturing Swap Trades](#).
- » You can define and apply credit events using [Main Entry > Trade Lifecycle > Corporate Action > Credit Events](#).

### Credit Contingent Details

Fields	Description
<b>Credit Contingent</b>	Check the "Credit Contingent" checkbox to indicate that the trade is sensitive to credit events, or uncheck otherwise.
<b>Credit Type</b>	<p>Choose Single or Basket.</p> <p><b>Single</b></p>  <p>» Click ... to select the issuer, and select the issuer's seniority.</p> <p><b>Basket</b></p>

Fields	Description
	 <p>» Click ... to select a basket and enter the number of defaults. Baskets are created using <a href="#">Main Entry &gt; Configuration &gt; Credit Derivatives &gt; Reference Entity Basket</a>.</p>
<b>Term Events</b>	Click ... to select the credit events to which the trade is sensitive.
<b>Start Date</b> <b>End Date</b>	Enter the start and end date of credit contingency. The trade will only be sensitive to credit events between the start and end dates.
<b>Settlement Details</b>	<p>Select whether the settlement is done when a default occurs (AT_DEFAULT) or at maturity (AT_MATURITY).</p> <p>Select the direction of the settlement: Pay or Rec.</p> <p>Select the type of settlement:</p> <ul style="list-style-type: none"> <li>• PAR</li> <li>• PAR_MINUS_RECOVERY</li> <li>• FIXED_AMOUNT – Enter the amount.</li> <li>• FIXED_PERCENTAGE – Enter the percentage.</li> <li>• NONE</li> <li>• RECOVERY</li> </ul>

## 11. CAPTURING CROSS CURRENCY SWAP TRADES

A cross-currency swap is a swap where each leg is expressed in a different currency.

Choose [Trade > Interest Rates > Cross-Currency Swap](#) to open the Cross-Currency Swap worksheet, from Main Entry or from the Calypso Workstation.

You can also choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, and simply select two different currencies.

### 11.1 SAMPLE CROSS-CURRENCY SWAP TRADE

Swap/01/31/2009/P:USD 3.00000 R:EUR/EURIBOR/3M-EUR/USD (-1) - Version : 0 Cur User : (calypso\_user)

Trade Back Office Swap Cashflows Analytics Pricing Env Market Data View Utilities Help

Trade Details Cashflows Resets Fees

CounterParty NONE NONE ID

Book TRADINGA FX.EUR.USD 1.23000 Status NONE Template NONE

Subtype

+ Not Cancellable

+ Not Credit Contingent

Fix Pay USD 1,000,000.00 Actual

Bullet

Start 01/31/2007 End 01/31/2009

3.00000 %

Cmp

NONE

>> Float Rec EUR 813,008.13

Bullet

>> Start 01/31/2007 End 01/31/2009

EUR EURIBOR 3M + 0.000000 T3750

Cmp

BEG\_PER Lag -2 Bus, (LON) NONE

- » Enter the FX rate between both currencies in "FX.<currency>.<currency>".
- » Then enter more trade details as described in [Capturing Swap Trades](#).



## 12. CAPTURING EXOTIC SWAP TRADES

An exotic swap is a swap where the structure of coupon and principal payments is customized using the Calypso eXSPress language. It allows you to define exotic payout formulas on-the-fly. The payout formulas require the definition of exotic variables.

### Exotic Swaps Quick Reference

- » Define exotic variables using [Main Entry > Configuration > Interest Rates > Exotic Variables](#)
- » Enter exotic details in the Trade panel
- » Then enter more swap details as described in [Capturing Swap Trades](#)

### 12.1 TRADE DETAILS

Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

- » Select the Exotic type of leg. You can also select an exotic structure type if you have defined any. See [Main Entry > Configuration > Product > Structure Type Creator](#) for details. Help is available from that window.
- » Click **Structured Window** to define the coupon formula and / or notional formula. When the formula is applied, it is displayed in the exotic leg. Click Help in that window for complete details and examples.

### 12.2 SAMPLE BASIS SWAP TRADE

One party makes periodic payments based on a floating rate index and the other party makes payments based on another floating rate index. Both rates are reset periodically. The payments are based on a notional and are in the same currency.

Exotic Structure Creator Window/Rec/Swap/nul/P:USD 0.00000 R:USD/LIBOR/3M (0) - Version : 0 Cur User : {calypso...				
Exotic Structure		Variables	Overrides	Flow Preview
Name	Value			
Direction	Receive			
Start Date	Mar 2, 2007			
End Date	Mar 2, 2009			
Currency	USD			
Initial Notional	1,000,000.00			
Exotic Capital	1000000			
Coupon Formula	qib+0.5%			
Day Count	ACT/360			
Payment Frequency	QTR			
Payment Timing	END_PER			
Date Roll	FOLLOWING			
Roll Day	NONE			
Holiday	NYC			

Cash Flow Reset Date	Payment Period	Coupon Formula	Proj. Amount	Compute.qib
02/28/2007	0.2611111111111111	qib+0.5%	10,270.87	0.03433526
05/31/2007	0.2555555555555556	qib+0.5%	9,931.05	0.03386065
08/31/2007		0.25 qib+0.5%	9,438.40	0.03275359
11/29/2007	0.2527777777777778	qib+0.5%	9,543.27	0.03275359
02/28/2008	0.2527777777777778	qib+0.5%	9,543.64	0.03275508
05/29/2008	0.2555555555555556	qib+0.5%	9,648.52	0.03275508
08/29/2008	0.2527777777777778	qib+0.5%	9,543.27	0.03275359
11/28/2008		0.25 qib+0.5%	9,438.03	0.03275210

[**NOTE:** Compounding and averaging are not supported for structured legs]

- » Set the coupon formula as a floating rate plus 0.5%, and enter the initial notional amount in the Exotic Capital field. The exotic variable qlb6m has been defined as USD LIBOR 6M.

Variable Name	qlb6m	QVar Name	qlb6m	Description	MM.USD.LIBOR.6M.T3750
Referenced Item	MM.USD.LIBOR.6M.T3750				

- » Click **Generate** to display the results.
- » Then click **Save** to return to the Trade worksheet.

The formula will appear as shown below.

Coupon: 03/02/2007 qlb+0.5%  
Capital: 03/02/2007 1000000.00

## 12.3 SAMPLE SWAP TRADE WITH CAP/FLOOR

Name	Value
Direction	Receive
Start Date	Mar 2, 2007
End Date	Mar 2, 2009
Currency	USD
Initial Notional	1,000,000.00
Exotic Capital	1000000
Coupon Formula	qlb6m-qlb
Day Count	ACT/360
Payment Frequency	QTR
Payment Timing	END_PER
Date Roll	FOLLOWING
Roll Day	NONE
Holiday	NYC

Variable	Value	Compute
qlb6m	0.034256366475	0.03425637
qlb	0.0343352565984	0.03433526

- » Set the coupon formula as a spread between two indices (**qlb6m – qlb**, **qlb6m** represents LIBOR 6M and **qlb** represents LIBOR 3M in this example). Also, set the exotic capital formula to the amount of the initial notional.
- » Click **Generate**.
- » Select the Variables panel and click **+**. You will be prompted to select a type and enter a name.

Name	Value
Variable Type	Array
Variable Name	cap

Select Array, and enter **cap** for example. Click **OK**.

Repeat for the **floor** variable.

[**NOTES**: Variable names cannot contain any symbols because these are used as operators or may have special meaning inside Calypso; this includes periods, hyphens and commas – Also, if an Array Variable has more than one formula, it is not typeable (i.e. the structure cannot be saved as a type)]

The system creates the variables **a<name>**, **acap** and **afloor**.

In the Variables panel, select each variable and set its calculation formula. Let's use fixed rates to begin.

Name	Value
Calculation	3.00%
Start Date	Mar 2, 2007
End Date	Mar 2, 2009

Start Date	End Date	Formula
03/02/2...	06/04/2007	3.00%
06/04/2...	09/04/2007	3.00%
09/04/2...	12/03/2007	3.00%

You can click **Generate** to view the details of the formula.

Set **acap** to 3% and **afloor** to 0.5%.

- » Now, return to the Exotic Structure panel and modify the coupon formula to incorporate the **acap** and **afloor** variables: **max(min((qlb6m-qlb), acap), afloor)**.

It means:

- Find the spread between LIBOR 6M and LIBOR 3M
- Compare spread to the cap rate and take the minimum
- Compare the minimum to the floor rate and take the maximum as the final rate

- » Once the coupon formula is modified, make sure to click **Generate** again.

Name	Value
Direction	Receive
Start Date	Mar 2, 2007
End Date	Mar 2, 2009
Currency	USD
Initial Notional	1,000,000.00
Exotic Capital	1000000
Coupon Formula	max(min((qlb6m-qlb), acap), afloor)
Day Count	ACT/360

Cash Flow Reset Date	Payment Period	Coupon Formula	Proj. Amount
02/28/2007	0.2611111111111111	max(min(qlb6m-qlb, acap), afloor)	1,305.56

Variable	Value
qlb6m	0.034256366475
qlb	0.0343352565984
afloor	0.005
acap	0.03

- » Then click **Save** to return to the Trade worksheet.

The formula will appear as shown below.

Coupon:	03/02/2007	max(min(qlb6m-qlb, acap), afloor)
Capital:	03/02/2007	1000000.00

## 13. CAPTURING EXTENDIBLE SWAP TRADES

An extendible swap contains an underlying swap with the option to extend it.

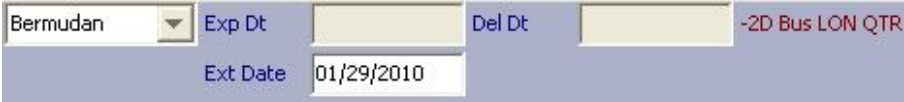
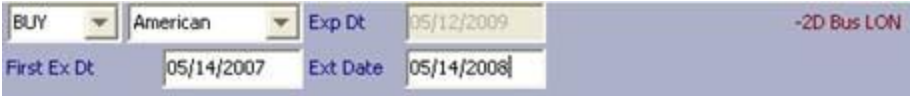

Choose [Trade > Interest Rates > Extendible Swap](#) to open the Extendible Swap worksheet, from Main Entry or from the Calypso Workstation.

### 13.1 SAMPLE EXTENDIBLE SWAP TRADE

- » Enter option and swap details in the Trade panel. Option details are described below.
- » Then enter more trade details as described in [Capturing Swap Trades](#).
- » You can extend the swap using [Back Office > Exercise](#).

#### Option Details

Fields	Description
<b>BUY/SELL</b>	Direction of the trade from the PO perspective. Select BUY or SELL.
<b>Extension Type</b>	Select "European".
<b>European</b>	<p>The swap can only be extended on the expiration date.</p> <ul style="list-style-type: none"> <li>» The expiration date defaults to the maturity date.</li> <li>» Enter the delivery date in the Del Dt field.</li> <li>» Double-click the "-2D Bus LON" label to bring up the OptionCalcDialog. See OptionCalcDialog below.</li> <li>» Enter an extension fee amount in the Fee field.</li> <li>» Enter the extension date in the Ext Date field.</li> </ul>

Fields	Description
<b>Extension Type</b> <b>Bermudan</b>	<p>Select "Bermudan".</p> <p>The swap can be extended according to a user-defined schedule.</p>  <ul style="list-style-type: none"> <li>» Select the Option panel to define the extension schedule. See <a href="#">Defining a Bermudan Extension Schedule</a> for details. The Exp Dt and Del Dt fields in the Trade panel are not editable.</li> <li>» Double-click the "-2D Bus LON QTR" label to bring up the OptionCalcDialog. See OptionCalcDialog below.</li> <li>» Enter the extension date in the Ext Date field.</li> </ul>
<b>Extension Type</b> <b>American</b>	<p>Select "American".</p> <p>The swap can be extended within a date range.</p>  <ul style="list-style-type: none"> <li>» Enter the last exercise date in the Exp Dt field, and the first exercise date in the First Ex Dt field. The swap can be extended between those two dates. The background color will change if the date is not a business day. You can double-click the Exp Dt label to roll the date to the previous business day.</li> <li>» Double-click the "-2D Bus LON" label to bring up the OptionCalcDialog. See OptionCalcDialog below.</li> <li>» You can also define an extension schedule for American options.</li> </ul> <p> See <a href="#">Defining an American Extension Schedule</a> for details.</p>

### OptionCalcDialog



- » Select the holiday calendar.
- » Enter a number of lag days, months or years in the Offset field.

Days lag "D" can be business days or calendar days. Double-click the Bus label to switch to Cal as needed. For months lag "M" and years lag "Y", the system uses calendar days only.

The "No Tenor" checkbox only applies to days lag, when you enter more than 31 days. If you check the "No Tenor" checkbox, the offset will not be converted to a tenor, as shown below for 35D.

Del Dt 09/28/0204 35D Bus NYC

Otherwise it will be converted to a tenor. Note that the conversion is for display only. The system always stores 35D.

Del Dt 09/10/0204 1M Bus NYC

- » For Bermudan options, select the frequency of the extension dates.

## 14. CAPTURING "IN ARREAR" SWAP TRADES

An "In Arrear" swap trade resets at the end of the reset period.

Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

The screenshot shows the Calypso Swap worksheet with the following details:

- Subtype:** Arrear (highlighted in green)
- Broker:** [Empty field]
- Not Cancellable:** +
- Not Credit Contingent:** +
- Fix:** Pay USD 1,000,000.00
- Float:** Rec USD 1,000,000.00
- Bullet:** Actual [ ]
- Start:** 04/17/2008 **End:** 04/17/2009
- Rate:** 3.00000000 %
- USD LIBOR 3M + 0.00000000 T3750**
- END\_PER:** Lag -2 Bus, (LON) (indicated by a blue arrow)

- » Double-click the BEG\_PER label to change it to END\_PER. The subtype is set to "Arrear".
- » Then enter more trade details as described in [Capturing Swap Trades](#).

## 15. CAPTURING INFLATION SWAP TRADES

Inflation swaps are based on inflation indices. Inflation is defined as the percentage increase or decrease in some index of prices.

### *Inflation Swaps Quick Reference*

- » Define the inflation rate index using [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#)
- » Enter inflation swap details in the Trade panel
- » Then enter more trade details as described in [Capturing Swap Trades](#)

### 15.1 DEFINING INFLATION RATE INDICES

Choose [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#).

The screenshot shows the 'Rate Index Window' with the 'Rate Definition' tab selected. The 'Index' dropdown is set to 'CPI'. The 'Currency' dropdown is set to 'USD'. The 'Day Count' dropdown is set to 'ACT/365'. The 'Date Roll' dropdown is set to 'NO\_CHANGE'. The 'Period Rule' dropdown is set to 'ADJUSTED'. The 'Default Source' dropdown is set to 'T133'. The 'Pay Hol' dropdown is set to 'NYC'. The 'Pay Days' field is set to '0'. The 'Index Lag' field is set to '0'. The 'Index Type' dropdown is set to 'Inflation', highlighted with a green background and a blue arrow pointing to it. The 'Compound Freq' dropdown is set to 'NONE'. The 'Calc Mtd' dropdown is set to 'IndexLevel'. The 'Interp Mtd' dropdown is set to 'NONE'. The 'Rate rounding' dropdown is set to 'NONE'. The 'Quote Type' dropdown is set to 'Price'. The 'Formula' field is empty. The 'Reset Holidays' checkbox is checked. The 'Reset Days' field is set to '0'. The 'Reset Bus Lag' checkbox is checked. The 'No Automatic Interpolation' checkbox is unchecked. The 'Comment' field is empty.

The Rate Definition panel is selected by default.

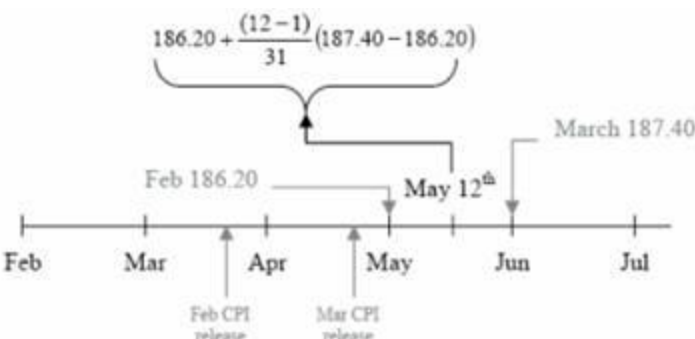
- » Select the rate index from the Index field, and enter its details. Select Inflation from the Index Type field. Fields specific to inflation indices are described below.

You can click **Add** to add it, if it does not exist.

### Fields Details

Rate Index	Attributes
<b>Index Type</b>	Select Inflation.
<b>Calc Mtd</b>	Select the calculation method: <ul style="list-style-type: none"> <li>IndexLevel – Index levels are not interpolated between publication dates.</li> </ul>



Rate Index	Attributes
	<ul style="list-style-type: none"> <li>Interpolated – Daily index levels are interpolated between reference dates. Select the interpolation method from the Interp Mtd field.</li> </ul>
<b>Interp Mtd</b>	<p>Only appears for the Interpolated calculation method.</p> <p>The only option is "Weighted" - Index levels are interpolated using the following formula:</p> $I(dd/mm/yy) = I(01/mm/yy) + \frac{dd-1}{DiM} [I(01/mm+1/yy) - I(01/mm/yy)]$ <p>where <i>DiM</i> denotes the number of days in the month for all days between the first of January and the first of December. For the days in December we have:</p> $I(dd/12/yy) = I(01/12/yy) + \frac{dd-1}{DiM} [I(01/01/yy+1) - I(01/12/yy)]$ <p>For example, to calculate an interpolated May 12<sup>th</sup> CPI index level, which has a 3 month lag:</p> 
<b>No Automatic Interpolation</b>	<p>This checkbox is not related to the interpolation method of Inflation rates.</p> <p>When checked, there is no automatic interpolation applied to stub periods, otherwise stub periods are automatically interpolated.</p>
<b>Publish Freq</b>	<p>Select the frequency at which the rate is published.</p> <p>For Inflation indices, select a publication frequency, enter a reference day and a publication lag.</p> <div data-bbox="495 1207 1153 1260"> Reference Day <input type="text" value="1"/> Publication Lag <input type="text" value="45"/> <input type="button" value="Publications"/> </div> <p>The reference day is the day of the month when the inflation is effective, and the publication lag is the time lag between the effective date of an inflation level and its actual publication.</p> <p>You can click <b>Publications</b> and generate the dates to make any modification if needed. Otherwise the reference day and publication lag are used to determine the publication dates.</p>

Rate Index	Attributes																		
	<div> <div> <b>Publications Dates</b> </div> <div> Currency: <input type="text" value="USD"/> Rate Index: <input type="text" value="CPI"/>  Publish Freq: <input type="text" value="MTH"/> Reference Day: <input type="text" value="1"/> Publication Lag: <input type="text" value="45"/>  From: <input type="text" value="01/01/2007"/> To: <input type="text" value="01/01/2010"/>  <div>Generate</div> <table border="1"> <thead> <tr> <th>Reference Month</th> <th>Publication Date</th> </tr> </thead> <tbody> <tr><td>01/01/2007</td><td>02/15/2007</td></tr> <tr><td>02/01/2007</td><td>03/18/2007</td></tr> <tr><td>03/01/2007</td><td>04/15/2007</td></tr> <tr><td>04/01/2007</td><td>05/16/2007</td></tr> <tr><td>05/01/2007</td><td>06/15/2007</td></tr> <tr><td>06/01/2007</td><td>07/16/2007</td></tr> <tr><td>07/01/2007</td><td>08/15/2007</td></tr> <tr><td>08/01/2007</td><td>09/15/2007</td></tr> </tbody> </table> <div> <div>Load</div> <div>Save</div> <div>Remove</div> <div>Clear All</div> <div>Close</div> </div> </div> </div> <div> <p>» Enter a From and To date and click <b>Generate</b>. You can modify the publication dates as needed.</p> <p>» Click <b>Save</b> when you are done.</p> </div>	Reference Month	Publication Date	01/01/2007	02/15/2007	02/01/2007	03/18/2007	03/01/2007	04/15/2007	04/01/2007	05/16/2007	05/01/2007	06/15/2007	06/01/2007	07/16/2007	07/01/2007	08/15/2007	08/01/2007	09/15/2007
Reference Month	Publication Date																		
01/01/2007	02/15/2007																		
02/01/2007	03/18/2007																		
03/01/2007	04/15/2007																		
04/01/2007	05/16/2007																		
05/01/2007	06/15/2007																		
06/01/2007	07/16/2007																		
07/01/2007	08/15/2007																		
08/01/2007	09/15/2007																		
<b>Index Lag</b>	Enter the index lag, usually 3M.																		

» Click **Attributes** and set the following attribute. You can click ... to add the attribute if it does not exist.

Note that the attributes and their values are case sensitive.

**IndexCalculator = InflationIndex or InflationIndexKerkhof**

» Click **Save** to save your changes.

» Then select the Tenors panel to define tenors for the rate index, and click **Save** to save your changes.

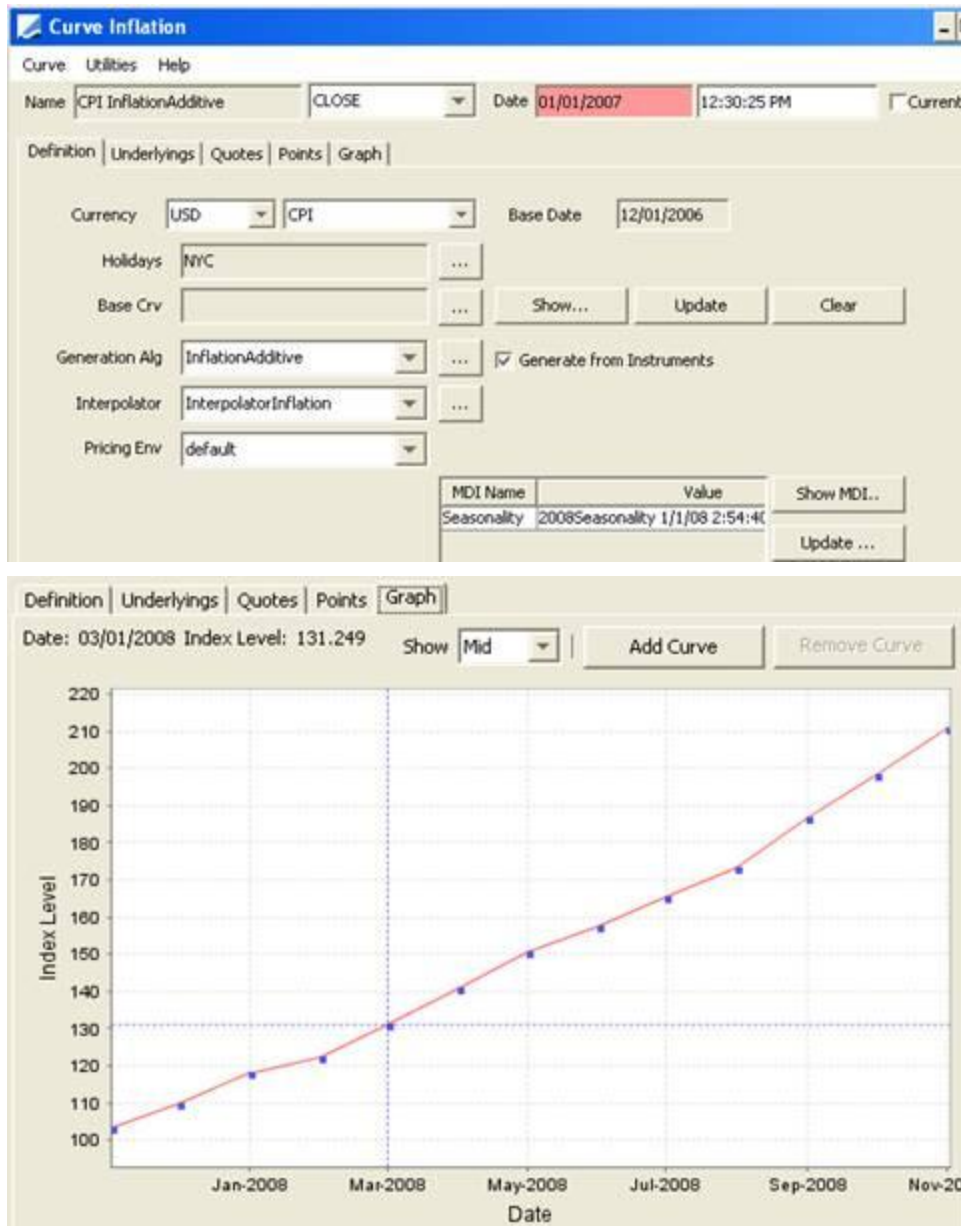
For zero coupon swaps, you can set the tenor to "0D".

For year on year swaps, the tenor is used to select reference dates for the resets. For example, if the tenor is "1Y", and the rate index setting in advance, the first reset is taken from 1 year before plus lag: Index Start Date = Index End Date – Tenor – Index Lag.

## 15.2 DEFINING MARKET DATA

Inflation curves are defined using [Main Entry > Market Data > Interest Rate Curves > Inflation Curve](#). You can create a simple inflation curve from offset points, a basis inflation curve (spread over another inflation curve), or a derived inflation curve from underlying instruments with various methods for applying seasonal adjustments – The seasonal adjustments can be retrieved from a seasonality curve.

### Sample Inflation Curve – Definition and Graph



» Choose [Help > Inflation Curve Help](#) for complete details.

### 15.3 CAPTURING ZERO COUPON SWAP TRADES

In a zero coupon swap, the parties exchange one cashflow—at maturity. A simple example is a swap with a fixed rate leg and an inflation-indexed leg. The fixed leg payer pays notional plus a coupon of the compounded value of the fixed rate. The inflation-indexed leg payer pays notional plus a coupon reflecting the percentage change in the inflation rate.

Sample zero coupon swap trade.

The screenshot shows a swap trade entry form for a USD LIBOR/USD CPI swap. The title bar indicates the trade is for 08/15/2008, with a notional of 3,000,000 USD. The interface is divided into two main sections: Fixed and Floating.

**Fixed Side (Left):**

- CounterParty: NONE
- Book: TRADINGA
- Status: NONE
- Template: NONE
- Subtype: Standard
- Broker: (empty)
- Not Cancellable: (checked)
- Not Credit Contingent: (checked)
- Fix: Pay USD, 2,000,000.00
- Bullet: (checked)
- Actual: (unchecked)
- Start: 02/15/2008, End: 08/15/2008
- Rate: 3.00000000 %
- Cmp: (unchecked)
- Pmt: ZC, EXP, MOD\_FOLLOW, NONE, Lag 0, 1/1, NYC, NEAREST, SHORT FIRST, ADJUSTED

**Floating Side (Right):**

- Float: Rec USD, 2,000,000.00
- Bullet: (checked)
- Actual: (unchecked)
- Start: 02/15/2008, End: 08/15/2008
- Rate: USD, CPI, 0D, + 0.00000000 T3750
- Cmp: (unchecked)
- BEG\_PER: Lag -90 Bus, (LON), NONE
- Manual Rate Settings: NONE, 1st Rate: 00000000
- Pmt: ZC, RateXNotl, NO\_CHANGE, NONE, Lag 0, 1/1, NYC, NEAREST, SHORT FIRST (I), ADJUSTED

**Market Data (Bottom):**

- REC\_DIS, PAY\_DIS: USD Libor/USD CLOSE 3/3/08 12:12:44.000 PM PST
- REC\_FOR: CPI InflationAdditive/USD CLOSE 3/3/08 11:49:54.000 AM PST

- » On the fixed side, set the payment schedule to ZC. If the fixed rate is to be compounded annually, select EXP or ACC from the adjacent field.

Interest = Notional \* ((1 + Rate)<sup>t[n]</sup> - 1).

- For EXP: t[n] = Current Coupon Period n
- For ACC: t[n] = Total Period from Coupon 1 through n.

- » On the floating side, select the inflation index with "0D" tenor. The default lag is as set on the rate index. If the inflation lag payment formula does not use a period, select RateXNotl.

- » In the Manual Rate Settings, you can select "Init Level" or "Init Level Date".

- Init Level

Enter the base index level and initial level date.

The Manual Rate Settings dialog box shows the following fields:

- Init Level: (dropdown menu)
- Init Level: 102
- Lvl Date: 02/01/2008

The level date is in the form "MM/DD/YYYY", where DD is the Reference Day specified in the Rate Index Definition.

- Init Level Date

Enter the level date - It is the publication date corresponding to the first reset (first reset date + publication lag). The system will retrieve the corresponding index level from the quotes if available, or will compute it from the inflation curve.

Manual Rate Settings

Init Level Date ▼ Fixed Initial Level Date 03/07/2011

» If you double-click any red label, you can overwrite the index defaults – Then click **Apply**.

Amortization and Accrual | **Index and Resets** | Stub Periods | Date Rules | Rounding | Embedded Option

Idx Source T3750 ☒ Reset Lag -90 Bus

Idx Factor 1.000000 Spread Schedule ...

Custom Reset Hol LON ...

☐ Convert Basis

Reset Roll PRECEDING


Calc Method IndexLevel Different Reset Dates Per Coupon ▼

Interp Method None Use Reset Period Dates for Compound ☐

» In the cashflows panel, you can view the projected index levels.

Fwd Rate	Init Ref Date	Init Publ Date	Final Ref Date	Final Publ Date	Init Index Level	Final Index Level
3.27175677	11/01/2007	12/16/2007	05/01/2008	06/15/2008	103.50	106.89

Right-click a cashflow and select Sample Dts to view the index levels used to compute the projected rate.

 **Reset Samples** ✕

Sampl...	Rate	Weight	Period Start	Period End
11/01/2007	103.50000	1.00000000	11/01/2007	11/15/2007
05/01/2008	106.88627	1.00000000	05/01/2008	05/15/2008

» Choose [Help > Trade Help](#) for complete details and additional examples.

## Cashflows

Since the index calculator InflationIndexKerkhof requires a specific reference date to pick up the projected inflation level from the curve, the following columns have been added to the cashflows:

- Initial Reference Number Projection Date
- Final Reference Number Projection Date
- Projected Initial Reference Number
- Projected Final Reference Number

## 15.4 CAPTURING YEAR-ON-YEAR SWAP TRADES

In a year-on-year inflation swap, payments are made annually. In a simple example, with a fixed rate leg and an inflation-linked leg, the fixed side pays an annual coupon reflecting the fixed rate. The inflation-linked leg pays the change in the inflation rate.

Sample year-on-year swap trade.

Swap/03/05/2010/P:USD 2.370000 R:USD/CPI/1Y (-1) - Version : 0 Cur User : (calypso\_user) [92200/release/

Trade Back Office Swap Cashflows Analytics Pricing Env Market Data View Utilities Help

Trade Details Cashflows Resets Fees

CounterParty NONE ID NONE  
Book TRADING Status NONE Template NONE  
Subtype Standard Broker

+ Not Cancellable  
+ Not Credit Contingent

Fix Pay USD 1,000,000.00 >> Float Rec USD 1,000,000.00  
Bullet Actual  
Start 03/05/2008 End 03/05/2010 >> Start 03/05/2008 End 03/05/2010  
2.37000000 % >> USD CPI 1Y + 0.000000 T3750  
Cmp NONE  
BEG\_PER Lag -90 Bus, (LON) NONE  
Manual Rate Settings  
Init Level Init Level 102.0 Lvl Date 03/01/2008  
Pmt PA NONE >> Pmt PA NONE  
MOD\_FOLLOW NONE Lag 0  
ACT/360 NYC NEAREST  
NONE ADJUSTED

Market Data Pricer Params Results Pricer Override Market Data Item Override  
REC\_DIS,PAY\_DIS USD Liber/USD CLOSE 3/3/08 12:36:18.000 PM PST  
REC\_FOR CPI InflationAdditive/USD(R)CLOSE 1/1/07 12:30:25.000 PM PST

» The tenor is used in selecting the reference dates for the resets. For example, if the tenor is 1 Year with setting in advance, the first reset is taken from 1 year prior plus the index lag. The general formula is Index Start Date = Index End - Tenor - Index Lag.

» In the Manual Rate Settings, you can select "Init Level" or "Init Level Date".

- Init Level

Enter the base index level and initial level date.

Manual Rate Settings  
Init Level Init Level 102 Lvl Date 02/01/2008

The level date is in the form "MM/DD/YYYY", where DD is the Reference Day specified in the Rate Index Definition.

- Init Level Date

Enter the level date - It is the publication date corresponding to the first reset (first reset date + publication lag). The system will retrieve the corresponding index level from the quotes if available, or will compute it from the inflation curve.

Manual Rate Settings  
Init Level Date Fixed Initial Level Date 03/07/2011



## 15.5 CAPTURING OATI-LIKE SWAP TRADES

These types of swaps are captured using exotic structures.

### 15.5.1 OATI-LIKE SWAP TYPE SETUP FOR A GIVEN INDEX WHERE INDEX INITIAL IS A PARAMETER

Defining the same structure for different indices (in this example using REUTERS screen name) may be the most convenient setup. In this example the user can enter a constant number for the index initial.

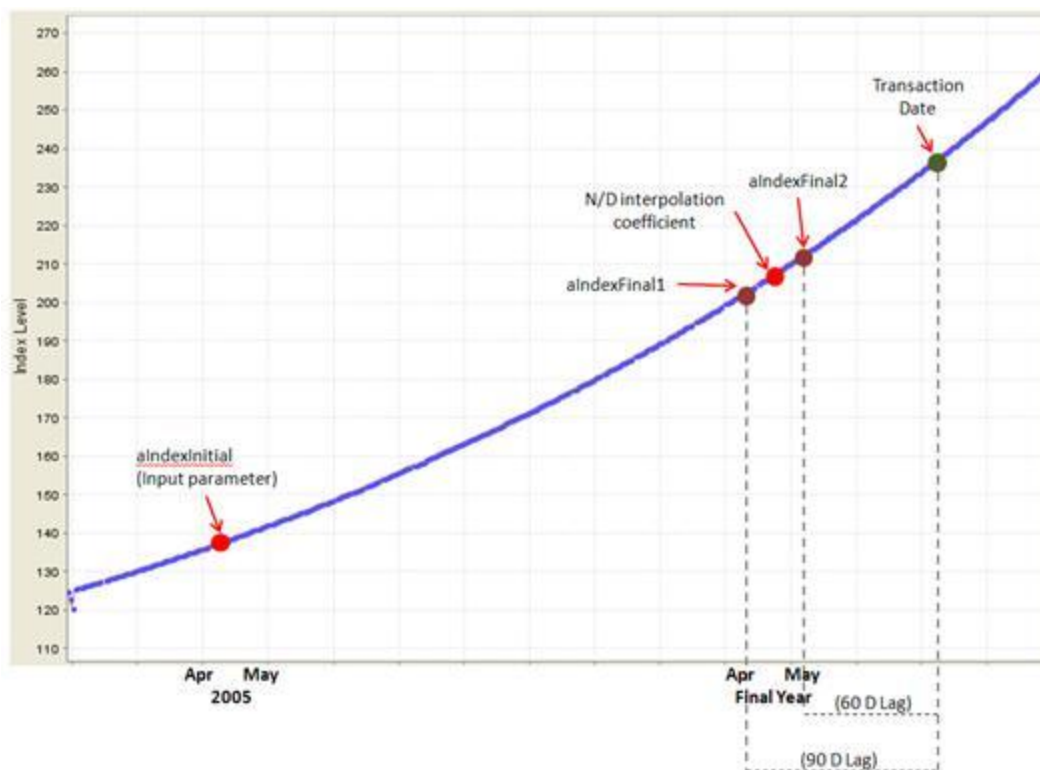
Below please find the details how to capture an exotic Type for OATI-like Swaps. In the structure there are two different formulas. The first formula is applicable to all the periods except the last one and the second formula is applicable to the last period only.

So the coupon formula checks if it is the last period and changes the applicable formula accordingly.

Coupon Formula:  $((SCP = xperiods()) ? (aLastPeriodFormula) : (aAllPeriodFormula))$

eXSP Structure Creator	
Configure Type Variables	
eXSP Structure	Variables
Name	Value
Direction	Receive
Start Date	01/30/2008
End Date	01/30/2011
Currency	USD
Initial Notional	1,000,000.00
Exotic Capital	sIN
Coupon Formula	((sCP==xperiods()))?(aLastPeriodFormula):(aAllPeriodFormula))
Day Count	ACT/360
Payment Frequency	PA
Payment Timing	END_PER
Date Roll	NO_CHANGE
<input checked="" type="checkbox"/> Roll Day	DAY
Roll Day Val	1
Holiday	

Below graph shows some of the terminology used in variables.



Variable Definition	Formula
<b>aLastPeriodFormula</b>	$(((1.00/100.00)*((aIndexFinal1+(aInterpolationCoef*(aIndexFinal2-aIndexFinal1)))/aIndexInitial))+((aIndexFinal1+(aInterpolationCoef*(aIndexFinal2-aIndexFinal1)))/aIndexInitial))-1.00$



Variable Definition	Formula
<b>aAllPeriodFormula</b>	$(1.00/100.00)*((aIndexFinal1+(aInterpolationCoef*(aIndexFinal2-aIndexFinal1)))/aIndexInitial)$
<b>aIndexFinal2</b>	Use an exotic variable: Second Point (60D Lag) of interpolation for the Index Final
<b>aIndexFinal1</b>	Use an exotic variable: First Point (90D Lag) of interpolation for the Index Final
<b>aIndexInitial</b>	Manual input for the Index Initial: This is shown in Type as a parameter
<b>aInterpolationCoef</b>	N/D interpolation coefficient: $(xMonthDay(0.00,0.00)-1.00)/xMonthDays()$

### 15.5.2 OATi-LIKE SWAP TYPE SETUP FOR A GIVEN INDEX WITH CONSTANT LAG OF INITIAL INDEX

This type definition assumes a constant lag between the “index initial” date and the first “index final” date. For example if the final index will be calculated using the index of MONTH and MONTH+1 of YEAR and index initial will be calculated using the index of MONTH and MONTH+1 of YEAR-2 then this structure type does not require the user to put the initial level but pulls it directly from the appropriate quote.

Below please find the details how to capture a Type for OATi-like Swaps with a constant lag of index initial. In the structure there are two different formulas. The first formula is applicable to all the periods except the last one and the second formula is applicable to the last period only. In this type please note that the index initial is interpolated and fixed using a pair of time series variables and `xwavg(TSeries,1,1)` functions, so that index initial remains same during the cash flows.

The coupon formula again checks if it is the last period and changes the applicable formula accordingly.

Coupon Formula:  $((SCP==xperiods())?(aLastPeriodFormula):(aAllPeriodFormula))$

Variable	Definition
<b>aLastPeriodFormula</b>	$((1.00/100.00)*((aIndexFinal1+(aInterpolationCoef*(aIndexFinal2-aIndexFinal1)))/aIndexInitial))+((aIndexFinal1+(aInterpolationCoef*(aIndexFinal2-aIndexFinal1)))/aIndexInitial)-1.00$



The cumulative multiplication of the previous rates.

The coefficient column converts the PA payments into a ZC!

Dummy variable to trigger calculation. It's a column of 0's.

The screenshot shows the 'eXSP Structure' window with the 'Variables' tab selected. The 'aCoef' variable is defined with the following properties:

- Name: aCoef
- Calculation:  $(aCLF1 * aCoef) + aZ$
- Start Date: 08/15/2007
- End Date: 08/15/2012

The 'Generate' button is clicked, resulting in the following table:

Start Date	End Date	Formula	Value
08/15/2007	08/15/2008	$(aCLF1 * aCoef) + aZ$	0
08/15/2008	08/17/2009	$(aCLF1 * aCoef) + aZ$	0
08/17/2009	08/16/2010	$(aCLF1 * aCoef) + aZ$	0
08/16/2010	08/15/2011	$(aCLF1 * aCoef) + aZ$	0
08/15/2011	08/15/2012	$(aCLF1 * aCoef) + aZ$	2.03709195086158

eXSP Structure Variables Overrides

aCoef

Name	Value
Calculation	0.00
Start Date	08/15/2007
End Date	08/15/2012

Generate

Start Date	End Date	Formula	Value
08/15/2007	08/15/2008	0.00	0
08/15/2008	08/17/2009	0.00	0
08/17/2009	08/16/2010	0.00	0
08/16/2010	08/15/2011	0.00	0
08/15/2011	08/15/2012	1.00	1

Flow Preview

Generate

Print Begin	Print End	Cash Flow Reset Rate	Cash Flow Date	Coupon Formula
08/15/2007	08/15/2008	0.00000	08/15/2008	Rate-1.00
08/15/2008	08/17/2009	0.00000	08/17/2009	Rate-1.00
08/17/2009	08/16/2010	0.00000	08/16/2010	Rate-1.00
08/16/2010	08/15/2011	0.00000	08/15/2011	Rate-1.00
08/15/2011	08/15/2012	0.00000	08/15/2012	Rate-1.00

Name: aLPI  
 Calculation:  $\text{index}(\text{aLPIPO}, \text{SCP})$   
 Start Date: 08/15/2007  
 End Date: 08/15/2012

IPI rate plus one

Generate

Start Date	End Date	Formula
08/15/2007	08/15/2008	$\text{index}(\text{aLPIPO}, \text{SCP})$
08/15/2008	08/17/2009	$\text{index}(\text{aLPIPO}, \text{SCP}) * \text{index}(\text{aLPI}, \text{SCP} - 1.00)$
08/17/2009	08/16/2010	$\text{index}(\text{aLPIPO}, \text{SCP}) * \text{index}(\text{aLPI}, \text{SCP} - 1.00)$
08/16/2010	08/15/2011	$\text{index}(\text{aLPIPO}, \text{SCP}) * \text{index}(\text{aLPI}, \text{SCP} - 1.00)$
08/15/2011	08/15/2012	$\text{index}(\text{aLPIPO}, \text{SCP}) * \text{index}(\text{aLPI}, \text{SCP} - 1.00)$

Cumulative Multiplication Formula:  
The last row will be equivalent to a ZC rate

Flow Preview

Generate

Start Date	End Date	Formula	Value
08/15/2007	08/15/2008	$\text{(((aHealth/aBasis)-1.00}<0.00)?(0.00):(((aHealth/aBasis)-1.00)>5.00)?(5.00):((aHealth/aBasis)-1.00)))$	0.045739527718621
08/15/2008	08/17/2009	$\text{(((aHealth/aBasis)-1.00}<0.00)?(0.00):(((aHealth/aBasis)-1.00)>5.00)?(5.00):((aHealth/aBasis)-1.00)))$	0.098026504104552
08/17/2009	08/16/2010	$\text{(((aHealth/aBasis)-1.00}<0.00)?(0.00):(((aHealth/aBasis)-1.00)>5.00)?(5.00):((aHealth/aBasis)-1.00)))$	0.15292782930978
08/16/2010	08/15/2011	$\text{(((aHealth/aBasis)-1.00}<0.00)?(0.00):(((aHealth/aBasis)-1.00)>5.00)?(5.00):((aHealth/aBasis)-1.00)))$	0.210574220775269
08/15/2011	08/15/2012	$\text{(((aHealth/aBasis)-1.00}<0.00)?(0.00):(((aHealth/aBasis)-1.00)>5.00)?(5.00):((aHealth/aBasis)-1.00)))$	0.271102931814033

Name: aLPI  
 Calculation:  $\text{(((aHealth/aBasis)-1.00}<0.00)?(0.00):(((aHealth/aBasis)-1.00)>5.00)?(5.00):((aHealth/aBasis)-1.00))}$   
 Start Date: 08/15/2007  
 End Date: 08/15/2012

Condition for the LPI rate to be between 0 and 5

Generate

Flow Preview

Generate

Start Date	End Date	Formula	Value
08/15/2007	08/15/2008	aLPI+1.00	1.04573952771862
08/15/2008	08/17/2009	aLPI+1.00	1.09802650410455
08/17/2009	08/16/2010	aLPI+1.00	1.15292782930978
08/16/2010	08/15/2011	aLPI+1.00	1.21057422077527
08/15/2011	08/15/2012	aLPI+1.00	1.27110293181403

Name: aLPIPO  
 Calculation: aLPI+1.00  
 Start Date: 08/15/2007  
 End Date: 08/15/2012

Generate

eXSP StructureVariablesOverrides

aHealth

Name	Value
Calculation	xwavg(tHEALTH)
Start Date	08/15/2007
End Date	08/15/2012

Generate

Start Date	End Date	Formula	Value
08/15/2007	08/15/2008	xwavg(tHEALTH)	156.860929157793
08/15/2008	08/17/2009	xwavg(tHEALTH)	164.703975615683
08/17/2009	08/16/2010	xwavg(tHEALTH)	172.939174396467
08/16/2010	08/15/2011	xwavg(tHEALTH)	181.58613311629
08/15/2011	08/15/2012	xwavg(tHEALTH)	190.665439772105

eXSP StructureVariablesOverrides

tHEALTH

Name	Value
Param	
Calculation	qHEALTH
Sampling	PA
Averaging Method	Weighted
Holiday	EUR
Reset Timing	END_PER
Reset DateRule	None

Generate

Start Date	End Date	Formula	Value
08/15/2007	08/15/2008	qHEALTH	156.860929157793
08/15/2008	08/17/2009	qHEALTH	164.703975615683
08/17/2009	08/16/2010	qHEALTH	172.939174396467
08/16/2010	08/15/2011	qHEALTH	181.58613311629
08/15/2011	08/15/2012	qHEALTH	190.665439772105

eXSP Structure		Variables	Overrides
aBasis			
Name	Value		
Calculation	150.00		
Start Date	08/15/2007		
End Date	08/15/2012		

Generate				
Start Date	End Date	Formula	Value	
08/15/2007	08/15/2008	150.00	150	
08/15/2008	08/17/2009	150.00	150	
08/17/2009	08/16/2010	150.00	150	
08/16/2010	08/15/2011	150.00	150	
08/15/2011	08/15/2012	150.00	150	

Below table summarizes the rest of the variables used in the structure.

Variable	Formula
<b>aHealth</b>	xwavg(tHEALTH)
<b>tHEALTH</b>	qHEALTH: Exotic Quotable Variable that refers to the related inflation index – Note: You must replace qHEALTH with xinfl(qHEALTH) in all formulas.
<b>aBasis</b>	150 (a preferred constant Index Level for the initial level)

## 15.7 INTERPOLATION METHODS

Below table summarizes the interpolation method and the integration of known / estimated rates into the generated inflation curve. The methods described are valid for all the generators including default, multiplicative and additive.

Case	Interpolation	Seasonality
Only swap underlyings No known / forecasted level	The first point of the curve is collected from the quotes. The monthly levels until the tenor of the first swap underlying are calculated using the yield of this first swap. For the months between two swap underlying tenors, the yield is linearly interpolated and used in the generation formula.	Seasonality applies for all the points except the first point collected from the quotes.
Swap underlyings With a single known / forecasted level	The first point of the curve is collected from the quotes. The monthly levels until the known / forecasted levels are simply linearly interpolated. After this known / forecasted level, inflation levels are calculated using the yield of this first swap. For the months between two swap underlying tenors, the swap rate is interpolated and used in the generation formula.	Seasonality applies to the points after the known / forecasted rate.



Case	Interpolation	Seasonality
Swap underlyings With multiple known / forecasted levels	The first point of the curve is collected from the quotes. The monthly rates until the first known / forecasted are simply linearly interpolated. The points between the known / forecasted levels are also simply linearly interpolated. The points between the last known / forecasted level and the tenor of the first swap underlying are calculated as stated in the generation formula using the first swap underlying yield.	Seasonality applies to the points after the last known / forecasted rate. The linear interpolations between the known / forecasted levels are not subject to seasonality adjustment.

## 15.8 ASSUMPTIONS FOR ENTERING SEASONALITY ADJUSTMENTS

The seasonality adjustments should be entered such that they follow the guidelines below for accurate calculations.

### 15.8.1 ADDITIVE INFLATION CURVE GENERATOR ASSUMPTIONS

- User will enter only monthly seasonality adjustments
- The first value that the user enters should be for the reference month
- User will enter adjustment values only in yearly increments (12 months, 24 months, ... The user can't enter values for 16 months)
- The sum of the seasonality adjustment entries should be 0

### 15.8.2 MULTIPLICATIVE CURVE GENERATOR ASSUMPTIONS

- User will enter only monthly seasonality adjustments
- The first value that the user enters should be for the reference month
- User will enter adjustment values only in yearly increments (12 months, 24 months, ... The user can't enter values for 16 months)
- The product of the seasonality adjustment entries should be 1

## 16. CAPTURING NDS TRADES

A **Non-Deliverable Cross Currency Swap** is an agreement between two parties to exchange a stream of interest payments and the notional principal in one currency for a non-deliverable currency.

A **Non-Deliverable Interest Rate Swap** is where both sides of the swap are in a non-deliverable currency.

The payments of the non-deliverable currency are made in a user-defined settlement currency based on a fixing between the non-deliverable currency and the settlement currency.

### NDS Quick Reference

- » Define the non-deliverable currency using [Main Entry > Configuration > Definitions > Currency Definition](#)
- » Configure an FX Rate Definition using [Main Entry > Configuration > Foreign Exchange > FX Rate Definitions](#)
- » Enter NDS swap details in the Trade panel
- » Then enter more trade details as described in [Capturing Swap Trades](#).
- » You can set the fixing between the non-deliverable currency and the reference currency using [Main Entry > Trade Lifecycle > Reset > FX Rate Reset](#)

### 16.1 DEFINING A NON-DELIVERABLE CURRENCY

Choose [Main Entry > Configuration > Definitions > Currency Definition](#) to define a non-deliverable currency.

The screenshot shows the 'Currency Definition' form. Key fields include:

- Currency:** KRW
- ISO Code:** KRW
- Country:** SOUTH KOREA
- Spot Days:** 2
- Holidays:** KOW
- Rounding:** DOWN
- Decimals:** 0
- Rate Decimals:** 6
- DayCount:** ACT/365
- Def. Index:** CD
- Tenor:** 3M
- Group:** (empty)
- Location:** Asia/Seoul
- Warning Threshold:** (empty)
- External Reference:** South Korean Won
- Attributes:** (button)
- Settlement Cutoff Time:** (empty)
- Settlement Cutoff Time:** NONE
- Precious Metal:** ☐
- Non Deliverable:** ☒ (indicated by a blue arrow)
- Description:** South Korean Won

- » Select the non-deliverable currency, or create it as needed.
- » Check the "Non Deliverable" checkbox, and save.



## 16.2 CONFIGURING AN FX RATE DEFINITION

Choose **Main Entry > Configuration > Foreign Exchange > FX Rate Definitions**, and define an FX Rate Definition between the non-deliverable currency and each possible settlement currency.

The FX Rate Definition allows fixing the rate between the non-deliverable currency and the settlement currency in order to convert all payment amounts into the settlement currency.

You can also define an FX Rate Definition between two non-deliverable currencies. This will be used to compute intermediary interest amounts between the two currencies.

**(User: calypso\_user) FX Rate Definitions Window Version - 0**

Name	KRW03	...	Id	12495
Prim Currency	USD		Time	15 H 30 M
Sec Currency	KRW		Time Zone	Asia/Seoul
Default Source	Reuters	...	Date Roll	FOLLOWING
Quote Side	MID		Reset Days	2
Quote Type	Multiply		Reset Hol	KOW, NYC
Details				
<input type="checkbox"/> Preferred <input type="checkbox"/> Manually Reset <input checked="" type="checkbox"/> Reset Bus Lag				
<div> <div>New</div> <div>Refresh</div> <div>Delete</div> <div>Save</div> </div>				

Name	Id	Prim	Sec	Rate Source	Reset Days	Preferred	Reset Hour	Time Zone
KRW03	12495	USD	KRW	Reuters	2	<input type="checkbox"/>	1530	Asia/Seoul

» Click ... next to the Name field and add an FX Rate Definition name, then select it.

» Then enter the information and save the FX Rate Definition - Help is available from that window.

## 16.3 CAPTURING NDS TRADES

Choose **Trade > Interest Rates > NDS** to open the NDS Swap worksheet, from Main Entry or from the Calypso Workstation.

(User: calypso\_user) NDS/03/08/2012/P:EUR/EURIBOR/6M /R:KRW/CD/3M-EUR/KRW (-1) - Version : 0 [120000...

Trade Back Office Non-Deliverable Swap Cashflows Analytics Pricing Env Market Data View Utilities Limits Help

Trade Details Cashflows Resets Fees

CounterParty NONE ID

Book Global FX.USD.KRW 1,050.00 Status NONE Template NONE

Float Pay USD 1,000,000.00 >> Float Rec KRW 1,050,000,000

Bullet Actual

Start 03/08/2011 End 03/08/2012 >> Start 03/08/2011 End 03/08/2012

USD LIBOR 3M + 0.000000 LIBO... >> KRW CD 3M + 0.000000 BOK01

Cmp

BEG\_PER Lag -2 Bus, (LON) NONE >> BEG\_PER Lag -1 Bus, (KOW) NONE

Rst

1st Rate 1st Rate 3.450000 >> 1st Rate 1st Rate 5.120000

Pmt QTR END\_PER NONE >> Pmt QTR END\_PER NONE

MOD\_FOLLOW NONE Lag 0 >> MOD\_FOLLOW NONE Lag 0

ACT/360 NYC NEAREST >> ACT/365 KOW DOWN

NONE ADJUSTED >> NONE ADJUSTED

Settlement USD KRW03 Lag -2 (KOW,NYC)

- » Once you select the settlement currency, the FX Rate Definition will appear. You can double-click the red label to override lag information. See below for details.
- » In the results panel, all pricer measures are expressed in the settlement currency, except for ND\_NPV.

Market Data Pricer Params Results					
	NPV	ACCRUAL	CASH	USD/KRW	ND_NPV
Trade results	23,053.17	0.00	0.00	1,049.84	24,202,079.56
DETAILED_DATA					
	NPV	ACCRUAL	CASH	USD/KRW	ND_NPV
Pay (USD)	-17.94	0.00	0.00	1,049.84	-18,833.65
Rec (USD)	23,071.11	0.00	0.00	1,049.84	24,220,913.20
Net (USD)	23,053.17	0.00	0.00		24,202,079.56
Net (KRW)	24,202,080	0	0		24,202,079.56

- » In the cashflows, additional columns are added to show the amounts in the non-deliverable currency and in the settlement currency.

Known Int Amt USD	Native Currency	Interest Amt KRW	Known Settle FX Rate	Settlement Reset	Settlement FX Description
0.00	KRW	13,550,465	0.000000	06/06/2011	USD.KRW.KRW03.Reuters
0	KRW	3,310,904	0.000000	09/06/2011	USD.KRW.KRW03.Reuters
0	KRW	3,424,353	0.000000	12/06/2011	USD.KRW.KRW03.Reuters
0	KRW	4,092,185	0.000000	03/06/2012	USD.KRW.KRW03.Reuters

You can modify the interest amount in native currency.

Fixed cashflows in native currency are discounted using the discount curve of the native currency.

Floating cashflows in native currency are projected using the forecast curve of the native currency and discounted using the discount curve of the native currency.

Once the FX rate for a flow has been fixed, both fixed and floating flows are converted to the settlement currency and discounted using the discount curve of the settlement currency.

- » If the settlement currency is different from the swap currencies, intermediary amounts are computed between the swap currencies provided an FX Rate Definition exists between the two currencies.

Intermediate Amt KRW	Intermediate SEK/KRW	Intermediate FX Rate Def	Intermediate Reset
47,325	3.54	SEK.KRW.SEK01.Reuters	12/23/2010

- » You can use [Pricing Env > Check Past Resets](#) and [Pricing > Check Past FXResets](#) to check if any reset information is missing.

### Trade Details

Fields	Description
<b>FX Rate</b>	Enter the FX rate between the selected currencies.

### Settlement Details

The settlement details allow selecting the settlement currency and the FX Rate Definition.

Settlement USD KRW03 Lag -2 (KOW,NYC)

Fields	Description
<b>Settlement</b>	<p>Select the settlement currency and the FX Rate Definition to fix rates between the non-deliverable currency and the settlement currency.</p> <p>You can double-click the red label to override lag information.</p> 

## 17. CAPTURING OIS TRADES

An overnight index swap (OIS) is a fixed-for-floating interest rate swap with a one week to two year duration. The floating-rate period is usually tied to a daily overnight rate, although occasionally, a daily fixing rate may be used. On the floating side, interest is calculated on a compound basis.

### OIS Quick Reference

- » Define the OIS rate index using [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#)
- » Enter OIS swap details in the Trade panel
- » Then enter more trade details as described in [Capturing Swap Trades](#).

### 17.1 DEFINING THE OIS RATE INDEX

Choose [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#).

Rate Index Window [111004SP2/release111/calypso\_user]

Rate Definition | Tenors

Index: OISNew Add Currency: USD

Day Count: ACT/360 Sources: T3750 ... Add

Date Roll: MOD\_FOLLOW Time Zone: NONE Hour: 11

Period Rule: ADJUSTED Publish Freq: DLY

Default Source: T3750 Publish Date Rule: ...

Pay Hol: TARGET Reset Hol: TARGET

Pay Days: 2 Reset Days: 2

☒ Pay Bus Lag ☐ Pay In Arrears ☒ Reset Bus Lag ☐ Reset In Arrears

Compound Freq: NON

Index Type: Interest ... Rate rounding: NEAREST Dec Places: 6

☐ No Auto. Interp. Quote Type: Yield Parse ...

Comment: Source: 2006 ISDA Definitions Formula:

Currency	Code	DayCount	DateRoll	Sources	Reset Holidays
USD	OISNew	ACT/360	MOD_FOLLOW	EONIA, T3750	TARGET

The Rate Definition panel is selected by default.

- » Select the rate index from the Index field, and enter its details.

You can click **Add** to add it, if it does not exist.

- » Click **Attributes** and set the following attributes. It brings up the Rate Index Attributes window. You can click ... in the Rate Index Attributes window to add the attributes if they do not exist.

Note that the attributes and their values are case sensitive.

- IndexCalculator = OISNew
- USE\_ARREARS\_ADJ = False

Note that other daily compounding calculators are available.

➤ See [Note on Daily Compounding](#) for details.

» You can click **Average** to define sampling details, and select the default values.

» Click **Save** to save your changes.

» Then select the Tenors panel to define tenors for the rate index, and click **Save** to save your changes.

### 17.1.1 NOTE ON DAILY COMPOUNDING

There are different ways of setting a rate for daily compounding: DailyIndexCalculator = DailyCompound, IndexCalculator = OISNew, or IndexCalculator = OIS.

With OISNew, you can also set USE\_ARREARS\_ADJ to true to calculate the convexity adjustment. For OIS, it is hard-coded to false.

The main difference between DailyCompound and OIS / OISNew is the following:

- With DailyCompound, you set the compound frequency on the trade.
- With OIS/ OISNew, the compound frequency is hard-coded to DLY (Daily). You cannot select the DLY compounding frequency on the trade but the index calculator takes care of it. The compounding frequency on the rate index must be set to NON.

Note that if you have IndexCalculator = OISNew and OISMethod=OIS, it is the same as IndexCalculator = OIS.

Summary of differences between daily compounding calculators:

Features	IndexCalculator = OIS	IndexCalculator = OISNew	DailyIndexCalculator = DailyCompound
USE_ARREAR_ADJ	No convexity adjustment.	Can be set to true or false.	No convexity adjustment.
Control over trade compounding frequency	No - DLY compounding is hard-coded.	No - DLY compounding is hard-coded.	Compounding frequency selected on the trade.
Control over trade Reset Lag	No - It comes from the Rate Index.	No - It comes from the Rate Index.	No - It comes from the Rate Index.
Control over Reset Holidays	No - It comes from the Rate Index. Also in finding the final rate in a period it rolls to the next date (it ignores the Period Rule of the Rate Index).	No - It comes from the Rate Index. Also in finding the final rate in a period it rolls to the next date (it ignores the Period Rule of the Rate Index). Ignores Date Roll "NO_CHANGE".	No - It comes from the Rate Index. The Period Rule of the Rate Index is respected. Respects Date Roll "NO_CHANGE".

Features	IndexCalculator = OIS	IndexCalculator = OISNew	DailyIndexCalculator = DailyCompound
Rounding	Ignores Rate Index rounding - Can be set on the trade. Hard-coded to End.	Defaults to Rate Index rounding - Can be overridden on the trade. Hard-coded to End.	No rounding.
Reset timing: Beginning or End	Hard-coded to End.	Hard-coded to End.	Hard-coded to End.
Compounding Flat	Not used.	Can be selected on the trade.	Can be selected on the trade.
Compounding Spread	Not used.	Not used.	Can be selected on the trade.
Compounding NoComp	Not used.	Not used.	Can be selected on the trade.
Compounding as in OIS calculator	Yes.	Yes with OISMethod = OIS	No.
Sample Dates Display, with spread	Yes.	Yes.	Yes.
Sample Dates Display, no spread	Yes.	Yes.	Yes.

## 17.2 CAPTURING OIS TRADES

Choose **Trade > Interest Rates > Swap** to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

Here is a sample trade on the OIS rate index.

- » You don't need to check the "Cmp" checkbox - Daily compounding is hard-coded in the calculator or the Rate Index.
- » Alternatively, if you select a DLY compounding frequency for a rate index that is not setup for daily compounding, the DailyCompound calculator is used.

## 17.3 DISPLAYING THE CASHFLOWS

Select the Cashflows panel for displaying the cashflows.



Swap/null/P:USD 0.00000 /R:USD/LIBOR/3M (-1) - Version : 0 Cur User :calypso\_user [111004SP2/release111/calypso\_user]

Trade Back Office Swap Cashflows Analytics Pricing Env Market Data View Utilities Limits Help

Trade Details Cashflows **Resets** Fees

Notional Amortization Bullet Customized

Notional	Rate	Pmt Begin	Pmt End	Period	PV Disc	Pmt Dt	Interest Amt	Manual Amt	df	Type
1,000,000.00	1.2500000	12/16/2010	03/16/2011	0.25000000	0.00	03/18/2011	3,125.00	<input type="checkbox"/>	0.00000000	INTEREST

**Reset Samples**

Sample Dt	Rate	Weight	Period Start	Period End	Proj. Rate	Rate Index
12/14/2010	0.0000000	0.01111	12/16/2010	12/17/2010	0.0000000	USD/OISNew/1D/T3750
12/15/2010	0.0000000	0.03333	12/17/2010	12/20/2010	0.0000000	USD/OISNew/1D/T3750
12/16/2010	0.0000000	0.01111	12/20/2010	12/21/2010	0.0000000	USD/OISNew/1D/T3750
12/17/2010	0.0000000	0.01111	12/21/2010	12/22/2010	0.0000000	USD/OISNew/1D/T3750
12/20/2010	0.0000000	0.01111	12/22/2010	12/23/2010	0.0000000	USD/OISNew/1D/T3750

Notional Amortization Bullet Customized

Notional	Rate	Spread	Reset
1,000,000.00	0.0000000	0.0000000	03/11/2011

- » Right-click a cashflow and choose "Sample Dts" to display the compounding periods. It brings up the Reset Samples window.

## 18. CAPTURING QUANTO SWAP TRADES

A Quanto Swap is an interest rate swap where the currency of the notional on the floating leg differs from the currency of the reference index.

### 18.1 SAMPLE QUANTO SWAP TRADE

Choose [Trade > Interest Rates > Swap](#) to open the Swap worksheet, from Main Entry or from the Calypso Workstation.

The floating leg notional is in USD, and the reference index is in JPY. Payments occur in USD, but using JPY rates.

Market Data	Pricing Params	Results
REC_DIS_PAY_DIS	USD LIBOR/USD(R)CLOSE	9/1/06 8:59:09.000 AM PDT
REC_FOR	JPY TIBOR/JPY(R)CLOSE	9/1/06 2:15:10.000 PM PDT
REC_QTO_CORR_RATE_INDEX_FX	TIBOR/LIBOR Correlation/NON(R)CLOSE	9/1/06 11:43:22.000 AM PDT
REC_QTO_FX_VOL	USD/JPY FX volatility/USD	CLOSE 10/10/06 5:00:02.000 PM PDT
REC_QTO_RATE_INDEX_VOL	JPY TIBOR Cap Volatility/JPY(R)CLOSE	9/15/06 2:47:36.000 PM PDT

- » Enter swap details in the Trade panel
- » Then enter more trade details as described in [Capturing Swap Trades](#).

### 18.2 DISPLAYING THE CASHFLOWS

Select the Cashflows panel for displaying the cashflows.

Select [Cashflows > Configure Columns](#) to select columns specific to Quanto Swaps:

- QTO\_ADJUSTMENT
- QTO\_CORR\_RATE\_INDEX\_FX
- QTO\_FX\_VOL
- QTO\_RATE\_INDEX\_VOL

Fwd Rate	df	Type	QTO_ADJUSTMENT	QTO_CORR_RATE_INDEX_FX	QTO_FX_VOL	QTO_RATE_INDEX_VOL
4.67019	0.95083937	INTEREST	0.00710	0.82	4.19211	4.42679
4.67163	0.94108400	INTEREST	0.00884	0.82	4.17559	4.42680
4.67335	0.93142872	INTEREST	0.01056	0.82	4.15907	4.42680





## 19. CAPTURING SWAP LEG TRADES

A Swap Leg is a swap with a single swap leg.

[**NOTE:** The product type SingleSwapLeg may not be available in the domain productType, so you need to add it. Similarly, if you plan to capture exotic single swap legs, you need to add Exotic to the domain "SingleSwapLeg.subtype"]

Choose **Trade > Cash Flow Structuring** to open the Swap Leg worksheet, from Main Entry or from the Calypso Workstation.

### 19.1 SAMPLE SWAP LEG TRADE

Cashflow Structuring - PO is Branche 1 (-1) - Version : 0 Cur User : {calypso\_user} [100100/release/calypso]

Trade Back Office SingleSwapLeg Cashflows Analytics Pricing Env Market Data View Utilities Help

Trade Details Fees Cashflows Resets

Cpty NONE CounterParty NONE

Book TRADING Status NONE ID Template NONE

Subtype Broker

+ Not Credit Contingent

+ Not Cancellable

Fix Pay USD 1,000,000.00

Bullet

Actual

Start 03/27/2008 End 09/27/2008

3.00000000 %

Cmp

Pmt SA END\_PER NONE

MOD\_FOLLOW NONE Lag 0

ACT/360 NYC NEAREST

NONE ADJUSTED

- » Enter swap details in the Trade panel as described in [Capturing Swap Trades](#).
- » You can enable the cancelable and credit contingency features using the "SingleSwapLeg.extendedType" domain.
- » You can enable the Exotic feature by selecting Exotic from the swap leg details – Then click **Structured Window** to define the exotic structure.

Exotic	Pay	USD	1,000,000.00
Bullet			
Actual			
Start	05/08/2007	End	05/08/2009
Structured Window			
Coupon:	05/08/2007	((qlb>3.5%?(qlb):(((qlb>3.00%?(3.00%):(0.00%))))))	
Capital:	05/08/2007	1000000.00	

When pricing an exotic single swap, you can examine the coupon payoff using the pricer measure COUPON\_PAYOFFS. In the pricing results, double-click the COUPON\_PAYOFFS pricer measure to view the coupon payoff.



## 20. CAPTURING SWAPTION TRADES

A Swaption is an option to enter into an underlying swap at a future date. The Swaption worksheet allows capturing European, American, and Bermudan swaptions.


Choose [Trade > Interest Rates > Swaption](#) to open the Swaption worksheet, from Main Entry or from the Calypso Workstation.

### Swaptions Quick Reference



When you open a Swaption worksheet, the Trade panel is selected by default.

### ENTERING TRADE DETAILS

- » You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable.  
Or you can enter the trade fields directly. They are described below.  
Note that the Trade Date is entered in the Details panel.
- » For cash settled swaptions, enter cash settlement parameters in the Exercise/Settlement panel.  
 See [Defining Cash Settlement Parameters](#) for details.
- » For defining the premium fees, choose [Swaption > Premium Fee Calculator](#)
- » For Bermudan and American swaptions, define the exercise schedule and fees in the Ex Schedule panel
- » Proceed to the other panels as applicable.
- » For defining break clauses, choose [Swaption > Cash Settle Info](#)

### SAVING A TRADE

- » Hit F5 to save the trade, or choose [Trade > Save](#).  
You can also hit F3 to save the current trade as a new trade, or choose [Trade > Save As New](#).  
You can also hit F12 to save the trade using any action available in the workflow, or choose [Trade > Save Action](#). You will be prompted to select an action.  
A description will appear in the title bar of the trade worksheet, a trade id will be assigned to the trade, and the status of the trade will be modified according to the workflow configuration.

### PRICING A TRADE

- » You can choose [Pricing Env > Check](#) to check if all required pricing data are available in the Pricing Environment.

Market Data	Pricer Params	Results
C_VOL USD LIBOR Swaption/USD(R)CLOSE 9/1/06 3:07:41.000 PM PDT		
REC_DIS,REC_FOR,PAY_DIS,DIS USD LIBOR/USD(R)CLOSE 9/1/06 8:59:09.000 AM PDT		

- » Click **Price** to price the trade.  
The intrinsic value of the swaption (underlying swap NPV) can be viewed using the pricer measure DETAILED\_DATA.

DETAILED_DATA	
	NPV
Total (USD)	2.39
Total Bps (USD)	0.024
Swap (USD)	-7,724.11

When pricing a Bermudan swaption using PricerSwaptionLGMM, you can examine the following data.

- The calibration results using the pricer measure CALIBRATION\_RESULTS. In the pricing results, double-click the pricer measure CALIBRATION\_RESULTS.
- The points on volatility surface to which the trade will be sensitive to using the pricer measure VEGA\_POINTS.
- The time-dependent Volatility and Mean Reversion using the pricer measure LGM\_MODEL. In the pricing results, double-click the pricer measure LGM\_MODEL.
- The pricer measure LGMM\_BESTFIT\_ERR allows plotting the calibration error function and get a sense of where the mean reversion.

When using the BEST\_FIT\_LM calibration scheme, the pricer will do an additional calculation, and search in a brute force fashion over a range of mean reversion and sigma values, and display the best-fit error function. Note: The calibration scheme BEST\_FIT\_LM does not use this brute-force method, the brute-force method is simply for the user to get a feel for the error function and double check the BEST\_FIT\_LM calibration.

You can use the pricing parameter LGMM\_BEST\_FIT\_GRAPH\_MESH\_SIZE to control how fine the mesh used in the brute force search is.

- The pricer measure LGMM\_MEANREV\_SCEN allows viewing the price by mean reversion.

When pricing a swaption using PricerSwaptionSABR, you can compare the SABR Greeks and the Black Greeks using the SABR\_GREEKS pricer measure.

The SABR Greeks can be compared with the individual pricer measures on PricerSwaptionSABR, whilst the Black Greeks can be checked against PricerSwaption.

You can also view details of the model's parameters using the pricer measure SABR\_MODEL.

[**NOTE:** When a user enters a value for the pricing parameter SABRIMPLIEDVOL or VOLATILITY, the model switches to the Black model, so VEGA returns the Black Vega, and IMPLIEDVOLATILITY returns the Black equivalent volatility]

When pricing a Bermudan swaption with PricerSwaption, you can view the whole adjusted strike schedule using the EFFECTIVE\_STRIKE pricer measure – Note that the pricing parameter ADJUST\_FOR\_EXERCISE\_FEES must be set to true.

- » You can hit F11 to solve for the break-even rate, and apply it to the fixed leg of the swap.
- » You can hit F12 to solve for the break-even spread, and apply it to the floating leg of the swap.
- » Hit F9 to bring up the solver (or choose [Analytics > Solve](#)).

When pricing with PricerSwaption, you can solve for VOLATILITY or STRIKE.

When pricing with PricerSwaptionCEV, you can solve for CEV\_ALPHA or CEV\_BETA.

Select a target pricer measure and enter the target value. Then select the value to solve for (pay rate, receive rate, or FX rate), and click **Solve**.

You can click **Apply** to set the value to solve for on the trade. Then click **Price** to obtain the target value.

You can modify the solver variables and details as needed.

### TRADE LIFECYCLE

- » You can exercise a swaption using [Back Office > Exercise](#), or using the AUTOMATIC\_EXERCISE scheduled task
- » You can terminate a swaption using [Back Office > Terminate](#)
- » You can reset the floating rates of the swap using [Main Entry > Trade Lifecycle > Reset > Rate Reset](#), or using the RATE\_RESET scheduled task

## 20.1 SAMPLE VANILLA SWAPTION TRADE

See also:




- » [Fixed Tenor Swaptions](#)
- » [Trigger Swaptions](#)

### 20.1.1 FIELD DESCRIPTION




The fields of the standard swaption worksheet are defined here.

#### Trade Details

Fields	Description
<b>Role/Cpty</b>	The first two fields of the worksheet identify the trade counterparty. The first field identifies the trade counterparty's role. The default role is specified using <a href="#">Utilities &gt; Set Default Role</a> . However, you can change it as applicable.

Fields	Description
	<p>You can select a legal entity of specified role from the second field provided you have setup favorite counterparties. You can also type in a character to display the favorite counterparties that start with that character. Favorite counterparties are specified using <a href="#">Utilities &gt; Configure Favorite Counterparties</a>.</p> <p>Otherwise, click  to select a legal entity of specified role from the Legal Entity Chooser. You can also type [Ctrl-F] to invoke the Legal Entity Chooser, or directly enter a Legal Entity short name.</p>
<b>Book</b>	<p>Trading book to which the trade belongs. Defaults to the book selected in the User Defaults. You can modify as applicable.</p> <p>You can select a book provided you have setup favorite books. Favorite books are specified using <a href="#">Utilities &gt; Configure Favorite Books</a>.</p> <p>Otherwise, click  to select a book.</p> <p>The owner of the book (a processing organization) identifies your side of the trade.</p>
<b>Id</b> <b>Ext Ref</b> <b>Int Ref</b>	<p>Unique identification number of the trade. The trade id is automatically assigned by the system when the trade is saved.</p> <p>You can load an existing trade by typing the trade id into this field, and pressing [Enter].</p> <p>You can also display the internal reference or external reference. The default trade reference to be displayed can be selected in the User Defaults.</p> <p>The internal reference and external reference can be set in the Details panel of the trade worksheet.</p>
<b>Status</b>	<p>Current status of the trade. The status is automatically assigned by the system based on the workflow configuration.</p> <p>The status will change over the lifetime of the trade according to the workflow configuration and the actions performed on the trade.</p>
<b>Template</b>	<p>You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable. If you setup favorite templates, only the favorite templates will be available for selection.</p> <p>You can setup favorite templates using <a href="#">Utilities &gt; Configure Favorite Templates</a>.</p> <p>In some trade window, you can click  to setup favorite templates.</p>
<b>Subtype</b>	<p>The following subtypes are set by the system based on the type of swaption being captured: American, Bermudan, European, Exotic, FT European, FT American and FT Bermudan (FT stands for Fixed Tenor).</p> <p>You can set pricers and market data by swaption subtype.</p>
<b>Broker</b>	Displays the broker if a broker fee is captured in the Fees panel.

### Option Details

Fields	Description
<b>Settle</b>	<p>Click Physical or Cash to determine the option's settlement method.</p> <p>If you click Cash, select the calculation method from the adjacent field to compute the settlement amount.</p> <div data-bbox="495 1570 893 1627">  <input type="text" value="Cash"/>  </div> <p>You can define additional parameters in the Exercise/Settlement panel.</p> <p> See <a href="#">Defining Cash Settlement Parameters</a> for details.</p> <p>[<b>NOTE</b>: If you have defined cash settlement defaults (CSD), it will pick up the settlement method from the CSD defined for the agreement specified in domain CashSettleDefaultsAgreements / rate index / currency - It is ANY by default.</p> <p>For example, ANY is defined in CashSettleDefaultsAgreements, and you have a CSD defined for ANY / LIBOR / USD. If the trade is LIBOR / USD and settles in Cash, then the</p>

Fields	Description
	settlement method from the CSD will be set on the trade by default]
<b>BUY/SELL</b>	Direction of the trade from the book's perspective. Double-click the BUY label to switch to SELL as applicable.
<b>RTP/RTR/Straddle</b>	<p>Direction of the option. Double-click the RTP label to switch to RTR or Straddle as applicable.</p> <ul style="list-style-type: none"> <li>• RTP (right to pay fixed leg)</li> <li>• RTR (right to receive fixed leg)</li> <li>• Straddle (a simultaneous RTP and RTR at the same strike and maturity)</li> </ul>
<b>Ex Type</b>	Select the exercise type: European, Bermudan, or American. See below for details.



### Exercise Type - European

The option can only be exercised on the expiration date.

Ex Type	European	Exp Dt		Del Dt		2D Bus NYC
---------	----------	--------	--	--------	--	------------

- » Enter the expiration date in the Exp Dt field. The background color will change if the date is not a business day. You can double-click the Exp Dt label to roll the date to the previous business day.
- » Enter the delivery date of the underlying swap (start date), or enter a number of days after the expiration date (2D for example).
- » Double-click the "2D Bus NYC" label to bring up the OptionCalcDialog. See OptionCalcDialog below.

### Exercise Type - Bermudan

The option can be exercised according to a user-defined schedule.

Ex Type	Bermudan	Exp Dt		Del Dt		2D Cal NYC-QTR
---------	----------	--------	--	--------	--	----------------

- » Select the Ex Schedule panel to define the exercise schedule. The Exp Dt and Del Dt fields in the Trade panel are not editable.
  - See [Defining a Bermudan Exercise Schedule](#) for details.
- » Double-click the "2D Cal NYC-QTR" label to bring up the OptionCalcDialog. See OptionCalcDialog below.

### Exercise Type - American

The option can be exercised within a date range.

Ex Type	American	Last Ex Date	09/19/2006	First Ex Dt	09/01/2006	2D Cal NYC
---------	----------	--------------	------------	-------------	------------	------------

- » Enter the last exercise date in the Last Ex Date field, and the first exercise date in the First Ex Dt field. The option can be exercised between those two dates. The background color will change if the date is not a business day. You can double-click the Last Ex Date label to roll the date to the previous business day.
- » Double-click the "2D Bus NYC" label to bring up the OptionCalcDialog. See OptionCalcDialog below.
- » You can also define an exercise schedule for American swaptions.
  - See [Defining an American Exercise Schedule](#) for details.

### OptionCalcDialog

The image shows a dialog box titled "OptionCalcDialog". It contains the following fields and controls:

- Holiday:** A text box containing "NYC" and a button with three dots "..." to its right.
- Offset:** A text box containing "2", a dropdown menu showing "D", a label "Bus", and a checkbox labeled "No Tenor".
- Adjustment:** A dropdown menu showing "FOLLOWING".
- Fee:** A text box.
- as percent:** A checkbox and an empty text box.
- Buttons:** "Apply" and "Cancel" buttons at the bottom.

- » Select the holiday calendar.
- » Enter a number of lag days, months or years in the Offset field. This is the offset between the expiration date and the delivery date.  
 Days lag "D" can be business days or calendar days. Double-click the Bus label to switch to Cal as needed. For months lag "M" and years lag "Y", the system uses calendar days only.  
 The "No Tenor" checkbox only applies to days lag, when you enter more than 31 days. If you check the "No Tenor" checkbox, the offset will not be converted to a tenor, as shown below for 35D.

Del Dt 09/28/0204 35D Bus NYC

Otherwise it will be converted to a tenor. Note that the conversion is for display only. The system always stores 35D.

Del Dt 09/10/0204 1M Bus NYC

- » Select the date roll convention in the Adjustment field.
- » For European options only, enter the exercise fee.  
 For American and Bermudan options, you can enter the exercise fee in the Ex Schedule panel.  
 For Bermudan options, select the frequency of the exercise dates.

## Swap Details

» See [Capturing Swap Trades](#) for details.

## 20.2 DEFINING CASH SETTLEMENT PARAMETERS

For cash settled options, select the Exercise/Settlement panel to define the parameters for computing the settlement amount.

The fields in this window default from Cash Settlement Defaults defined for the agreement specified in domain CashSettleDefaultsAgreements / rate index / currency - It is ANY by default.

- » The valuation date and payment date default to the dates entered in the Trade panel (Expiration Date and Delivery Date) +/- the number of valuations days / payment days defined in Cash Settlement Defaults if any. Double-click the adjacent label to modify the dates as needed. It will bring up the OptionCalDialog previously described.
- » The cash settlement method is selected in the Trade panel.
- » Enter the fields described below as needed.

### Settlement Details

Fields	Description
<b>Expiration Time</b>	Enter the time at which the option expires, in the selected timezone. Defaults to Cash Settlement Defaults if any.
<b>Earliest Exercise Time</b>	Enter the earliest time when the option can be exercised, in the selected timezone. Defaults to Cash Settlement Defaults if any.
<b>Latest Exercise Time</b>	Enter the latest time when the option can be exercised, in the selected timezone.
<b>Time Zone</b>	Select the timezone for expiration time, and exercise times. Defaults to Cash Settlement Defaults if any.
<b>Automatic</b>	<p>Check the Automatic checkbox to allow automatic exercise. Defaults to Cash Settlement Defaults if any.</p> <p>Swaptions can be automatically exercised using the AUTOMATIC_EXERCISE scheduled task, provided they are in-the-money.</p> <div> <input checked="" type="checkbox"/> Automatic           Threshold <input type="text" value="0.00"/> </div> <p>» You can specify a threshold in percentage to trigger the automatic exercise.</p> <p>Otherwise, choose <a href="#">Back Office &gt; Exercise</a> to exercise the option. Help is provided from that window.</p>
<b>Partial</b>	<p>Only appears for European options.</p> <p>Check the Partial checkbox to allow partial exercise.</p> <div> <input checked="" type="checkbox"/> Partial           Min Notional <input type="text" value="0.00"/>            Max Notional <input type="text" value="0.00"/> </div>

Fields	Description
	<p>» You can specify the minimum and maximum notional that can be partially exercised.</p>
<b>Multiple</b>	<p>Only appears for American and Bermudan options.</p> <p>Check the Multiple checkbox to allow multiple exercises.</p> <div><div><input checked="" type="checkbox"/> Multiple</div><div><div>Min Notional</div><div>0.00</div></div><div><div>Max Notional</div><div>0.00</div></div></div> <p>» You can specify the minimum and maximum notional that can be partially exercised.</p>
<b>Cash Settle Ccy</b>	<p>Select the currency of the settlement amount.</p> <p>Defaults to Cash Settlement Defaults if any.</p>
<b>Rate Source</b>	<p>You can select a rate source or none (empty). Rate sources are defined in the RateSource domain.</p> <p>If you select none, you have to select a set of reference banks.</p> <div><div><div>Ref Bank 1</div><div>To Be Determined</div><div>▼</div></div><div><div>Ref Bank 2</div><div>To Be Determined</div><div>▼</div></div><div><div>Ref Bank 3</div><div>To Be Determined</div><div>▼</div></div><div><div>Ref Bank 4</div><div>To Be Determined</div><div>▼</div></div><div><div>Ref Bank 5</div><div>To Be Determined</div><div>▼</div></div></div> <p>» You can select a legal entity of role ReferenceBank.</p> <p>If you select OTHER_SOURCE, you need to select a rate index from the Rate Index field.</p> <div><div>Rate Source</div><div>OTHER_SOURCE</div><div>▼</div><div>Rate Index</div><div>USD/LIBOR/3M/T3750</div><div>▼</div></div>
<b>Quotation Rate</b>	<p>Select the instance of the quotation rate that you want to use: MID, BID, or ASK.</p> <p>Defaults to Cash Settlement Defaults if any.</p>
<b>Settle Rate</b>	<p>Displays the settlement rate used to compute the settlement amount for the cash settlement methods "Par Yield Curve - Adj." and "Par Yield Curve - Unadj.".</p> <p>In the Option Exercise Window, there is a Settlement Rate field. You can get the value from the pricing environment by clicking <b>Price</b>, or you can enter a value. If you enter a rate, it will be displayed here.</p>
<b>Location</b>	<p>Select the ISDA location.</p> <p>Defaults to Cash Settlement Defaults if any, or to the location of the selected currency otherwise.</p>

### 20.3 DEFINING A BERMUDAN EXERCISE SCHEDULE

Select the Ex Schedule panel.

Expiry Dt	Delivery Dt	Fee as Percent	Fee (Amt)
03/01/2011	03/03/2011	<input type="checkbox"/>	520.00
06/01/2011	06/03/2011	<input type="checkbox"/>	550.00

You can generate a schedule from Swap Periods or a Custom Schedule.

### **Schedule from Swap Periods**

- » Click **Swap Periods** to generate the exercise schedule based on the cashflows of the underlying swap.

You can enter the fees for each period in percentage or in amounts.

You can check / uncheck the Include checkbox to include / exclude the corresponding period.

Note that the column Ex Choice is not currently used.

### **Custom Schedule**

- » Enter From and To dates, select a frequency, a date roll and holiday calendars (for the expiration date and for the delivery date).
- » Enter a number of lag days to compute the delivery date based on the actual call date. And select Bus if the lag days are business days, or Cal for calendar days.
- » Then click **Generate** to generate the schedule.

You can also click **Add** to add specific dates.

You can enter the fees for each period in percentage or in amounts.

You can check / uncheck the Include checkbox to include / exclude the corresponding period.

Note that the column Ex Choice is not currently used.

You can check "Lock Exercise Periods" to prevent the system from regenerating custom schedules.

## **20.4 DEFINING AN AMERICAN EXERCISE SCHEDULE**

Select the Ex Schedule panel.

From	09/20/2006
To	10/31/2007
Frequency	QTR
DateRoll	FOLLOWING
Holidays	NYC
<input type="button" value="Generate"/>	

Start Date	End Date	Fee
09/20/2006	10/31/2006	0.00000
10/31/2006	01/31/2007	0.00000
01/31/2007	04/30/2007	0.00000
04/30/2007	07/31/2007	0.00000
07/31/2007	10/31/2007	0.00000

» Enter the schedule details, and click **Generate** to define a custom schedule.

You can enter the exercise fee amount for each period.

## 21. CAPTURING FIXED TENOR SWAPTION TRADES

Choose [Trade > Interest Rates > Swaption](#) to open the Swaption worksheet, from Main Entry or from the Calypso Workstation.

The screenshot shows the Calypso Swaption worksheet with the following details:

- Trade** tab selected.
- CounterParty**: NONE
- ID**: 8558
- Status**: VERIFIED
- Template**: NONE
- Book**: TRADING
- Settle**: Physical
- Cash Price**: (dropdown)
- BUY PO RTP**: (dropdowns)
- Ex Type**: American
- Exp Dt**: 07/03/2009
- First Ex Dt**: 06/29/2007
- 2D Bus**: (checkbox)
- Fixed Tenor**: ☒ (highlighted with a green box and a blue arrow)
- Tenor**: 2 (dropdown)
- Subtype**: FT American
- Broker**: (dropdown)
- Fix**: (dropdown)
- Pay**: USD
- Amount**: 1,000,000.00
- Float**: (dropdown)
- Rec**: USD
- Amount**: 1,000,000.00
- Bullet**: (checkbox)
- Actual**: (checkbox)
- Start**: 07/03/2007
- End**: (disabled field)

» Check the "Fixed Tenor" checkbox, and enter the tenor in the adjacent fields. See below for details.

» Then enter more trade details as described in [Capturing Swaption Trades](#).

### Options Details

Fields	Description
<b>Fixed Tenor</b>	<p>Check the Fixed Tenor checkbox to set the swaption as fixed tenor. You can set the tenor in the adjacent fields.</p> <p><input checked="" type="checkbox"/> 2 Y</p> <p>The start and end date of the underlying swap are disabled – It starts on the option's delivery date and ends on the option's delivery date + fixed tenor.</p> <p>The system currently only supports the pricing of European fixed tenor swaptions.</p>

## 22. CAPTURING TRIGGER SWAPTION TRADES

A Trigger Swaption is an option on a swap that you can exercise on the exercise date if the trigger index rate is above (or below) the trigger rate. There are two types:

- Right to Pay (RTP) — a swap where the buyer pays a fixed interest rate when the trigger index rate exceeds the exercise price.
- Right to Receive (RTR) — a swap where the buyer receives a fixed interest rate when the trigger index rate declines below the exercise price.

Choose [Trade > Interest Rates > Trigger Swaption](#) to open the Trigger Swaption worksheet, from Main Entry or from the Calypso Workstation.

### 22.1 SAMPLE TRIGGER SWAPTION TRADE

» Enter trigger details as described below.

» Then enter more trade details as described in [Capturing Swaption Trades](#).

#### Trigger Details

Fields	Description
<b>ATM Payoff</b>	Check if the swaption should be exercised, if on the exercise date the index rate is equal to the trigger rate. Uncheck otherwise.
<b>Index</b>	Enter the index used on the exercise date to compare with the trigger rate. Note that it may be different from the floating index on the underlying swap. The rate index details include the currency, index name, tenor, spread, and source.
<b>Rate</b>	Enter the trigger rate.
<b>Reset Lag</b>	Double-click the red lag details to enter the offset and holidays.
<b>Exercise Labels</b>	The trade worksheet displays the type of exercise according to the following criteria: <ul style="list-style-type: none"> <li>• When the underlying swap pay side rate is fixed (RTP), it displays Up and In.</li> <li>• When the underlying swap receive side rate is fixed (RTR), it displays Down and In.</li> </ul>



## 23. PREMIUM CALCULATOR

This document describes the settings of the Premium Calculator window.

When the trade is priced, the premium fee is automatically calculated according to the cashflow schedule. You can modify the premium fee to be a single fee, or to be calculated according to a custom schedule.

The premium fee is a fee of type PREMIUM. Such a fee needs to be defined in [Main Entry > Configuration > Fees, Haircuts, & Margins > Fee Definition](#).

Fee Type	Pricing	Transfer	Role	Accounting	Settle Amount	Comments	Calculator	Product List
PREMIUM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CounterParty	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Premium		

Once you apply the premium fee to the trade, it is displayed in the Fees panel.

The premium fee can be defined as follows:

- [Defining a Premium Fee According to the Cashflow Schedule](#)
- [Defining a Single Premium Fee](#)
- [Defining a Premium Fee According to a Custom Schedule](#)

### 23.1 DEFINING A PREMIUM FEE ACCORDING TO THE CASHFLOW SCHEDULE

This is the default calculation when the trade is priced.

**Premium Calculator [90600/release/calypso\_user]**

Premium

Notional: 1,000,000

Fee: 3,467.72

PV %: 0.336523

3,365.23

Rounding: NEAREST

Mode: CashFlow Schedule

CashFlow Schedule

☒ Fixed Premium Amount: 0 ☐ Edit Amount

☐ Fixed Premium Percentage:  ☐ Edit Percentage

Type	Date	Start Date	End Date	Currency	Amount	Legal Entity	Pay/Rec	Known Date	Method	Input
PREMIUM	02/06/2008	02/06/2008	02/06/2008	USD	866.93	NONE	PAY			
PREMIUM	05/06/2008	05/06/2008	05/06/2008	USD	866.93	NONE	PAY			
PREMIUM	08/06/2008	08/06/2008	08/06/2008	USD	866.93	NONE	PAY			
PREMIUM	11/06/2008	11/06/2008	11/06/2008	USD	866.93	NONE	PAY			

Buttons: Calc, Apply, Refresh, Help, Close

» You can modify the rounding convention from the Rounding field.

» You can modify the fee amount as needed.

- Click "Fixed Premium Amount" and check the "Edit Amount" checkbox to modify the fee amount for each fee period.

☒ Fixed Premium Amount: 730.00 ☒ Edit Amount

- Or click "Fixed Premium Percentage" and check the "Edit Amount" checkbox to modify the fee percentage.

☒ Fixed Premium Percentage: 0.561 ☒ Edit Percentage

- » Then click **Calc** to recalculate the fee, and click **Apply** to save the fees. You can view the generated fees in the Fees panel.

## 23.2 DEFINING A SINGLE PREMIUM FEE

**Premium Calculator [90600/release/calypso\_user]**

Premium

Notional: 1,000,000    Apply fee as: ☒ Percentage OR ☐ Amount    Rounding: NEAREST

Fee: 3,365.23    0.336523    3,365.23    Mode: Custom Single

Single

Date: 08/07/2007

Type	Date	Start Date	End Date	Currency	Amount	Legal Entity	Pay/Rec	Known Date	Method	Input
PREMIUM	08/07/2007	08/07/2007	08/07/2007	USD	3,365.23	NONE	PAY			

Buttons: Calc, Apply, Refresh, Help, Close

- » Select "Custom Single" from the Mode field.
- » Click Percentage to enter the fee as a percentage of the notional, or Amount to enter a fee amount.
- » Select the rounding convention from the Rounding field, and enter the fee date in the Date field.
- » Then click **Calc** to calculate the fee, and click **Apply** to save the fee. You can view the generated fee in the Fees panel.

## 23.3 DEFINING A PREMIUM FEE ACCORDING TO A CUSTOM SCHEDULE

**Premium Calculator [90600/release/calypso\_user]**

Premium

Notional: 1,000,000    Apply fee as: ☒ Percentage OR ☐ Amount    Rounding: NEAREST

Fee: 3,365.22    0.336523    3,365.23    Mode: Custom Schedule

☒ Amortize Fee Over Schedule

Custom Schedule

From: 11/06/2007    Frequency: QTR    Holidays: NYC    END\_PER

To: 11/06/2008    DateRoll: FOLLOWING    Day Count: ACT/360    ☐ R Day

☐ Use Cashflow Schedule

Type	Date	Start Date	End Date	Currency	Amount	Legal Entity	Pay/Rec	Known Date	Method	Input
PREMIUM	02/06/2008	02/06/2008	02/06/2008	USD	845.9	NONE	PAY			
PREMIUM	05/06/2008	05/06/2008	05/06/2008	USD	827.52	NONE	PAY			
PREMIUM	08/06/2008	08/06/2008	08/06/2008	USD	845.9	NONE	PAY			
PREMIUM	11/06/2008	11/06/2008	11/06/2008	USD	845.9	NONE	PAY			

Buttons: Calc, Apply, Refresh, Help, Close

- » Select "Custom Schedule" from the Mode field.
- » Click Percentage to enter the fee as a percentage of the notional, or Amount to enter a fee amount. This is the total amount that will be broken down according to the schedule.
- » Select the rounding convention from the Rounding field.
- » Check "Amortize Fee Over Schedule" to assign the total premium by percentage or amount to each period, or uncheck to assign the same amount to each period.
- » Enter the criteria to define the custom schedule: From and To dates, frequency, payment calendars, date roll convention, day count, payment date, and roll day adjustment.

Fields	Description
<b>Frequency</b>	Select the payment frequency.
<b>Holidays</b>	Click <a href="#">...</a> to select payment calendars. They are used to determine business days.
<b>END_PER/BEG_PER</b>	Double-click the END_PER label to switch to BEG_PER as needed. <ul style="list-style-type: none"> <li>• END_PER if the payment occurs at the end of the payment period.</li> <li>• BEG_PER if the payment occurs at the beginning of the payment period.</li> </ul>
<b>DateRoll</b>	Select the date roll convention to roll the payment dates when they fall on business days. The payment calendar is used to determine business days. Date roll conventions are described under <a href="#">Main Entry &gt; Help &gt; Date Roll Conventions</a> .
<b>Daycount</b>	Select the day count convention to determine the number of days in the payment periods. Daycount conventions are described under <a href="#">Main Entry &gt; Help &gt; Day-Count Conventions</a> .
<b>R Day</b>	Check the "R Day" checkbox to enter a fixed day of the month to which the date will be rolled. For example, entering "5" forces the payment date to be on the fifth calendar day of the month.
<b>Use Cashflow Schedule</b>	Only applies if the trade has stub periods.  When checked, if your trade has stub periods, all the correct dates will have been generated for the trade. Then you can overlay the settings of frequency, date roll, beg/end, etc. on top of that. Ensure that the frequency is less than or equal to the frequency of the cashflows. This is similar to the way Bermudan exercise dates generation works.

- » Then click **Calc** to calculate the fee, and click **Apply** to save the fees. You can view the generated fees in the Fees panel.

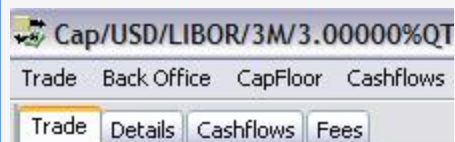
Type	Date	Start Date	End Date	Currency	Amount	Legal Entity	Pay/Rec
PREMIUM	02/06/2008	02/06/2008	02/06/2008	USD	845.9	NONE	PAY
PREMIUM	05/06/2008	05/06/2008	05/06/2008	USD	827.52	NONE	PAY
PREMIUM	08/06/2008	08/06/2008	08/06/2008	USD	845.9	NONE	PAY
PREMIUM	11/06/2008	11/06/2008	11/06/2008	USD	845.9	NONE	PAY

## 24. CAPTURING CAP FLOOR TRADES

The following types of trades can be captured in the Cap Floor worksheet: Vanilla, Digital, Flexible, Chooser, Ratchet, Sticky and Momentum.

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

### Caps & Floors Quick Reference



When you open a Swap worksheet, the Trade panel is selected by default.

### ENTERING TRADE DETAILS

- » You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable.  
Or you can enter the trade fields directly. They are described below.  
Note that the Trade Date is entered in the Details panel.
- » For defining the premium fees, choose [Cap Floor > Premium Fee Calculator](#)
- » Proceed to the other panels as applicable.
- » For defining break clauses, choose [Cap Floor > Cash Settle Info](#)

### SAVING A TRADE

- » Hit F5 to save the trade, or choose [Trade > Save](#).  
You can also hit F3 to save the current trade as a new trade, or choose [Trade > Save As New](#).  
You can also hit F12 to save the trade using any action available in the workflow, or choose [Trade > Save Action](#). You will be prompted to select an action.  
A description will appear in the title bar of the trade worksheet, a trade id will be assigned to the trade, and the status of the trade will be modified according to the workflow configuration.

### PRICING A TRADE

- » You can choose [Pricing Env > Check](#) to check if all required pricing data are available in the Pricing Environment.

Market Data	Pricer Params	Results
C_VOL	USD LIBOR Cap Volatility/USD(R)CLOSE	9/1/06 2:06:39.000 PM PDT
DIS,FOR	USD LIBOR/USD(R)CLOSE	9/1/06 8:59:09.000 AM PDT

- » Click **Price** to price the trade.  
You can hit F11 to solve for the break-even rate, and apply it to the fixed leg of the swap.  
You can hit F12 to solve for the break-even spread, and apply it to the floating leg of the swap.
- » Hit F9 to bring up the solver (or choose [Analytics > Solve](#)).

Solve for

Set target measure: NPV with a value of: 250

by solving for: Cap with a result of: 3.25131884 %

given that:

Solver Variable Constraints

Lower Boundary (%) -100
Upper Boundary (%) 500

... Solver details

Solve

Apply

Close

Select a target pricer measure and enter the target value. Then select the value to solve for (pay rate, receive rate, or FX rate), and click **Solve**.

You can click **Apply** to set the value to solve for on the trade. Then click **Price** to obtain the target value.

You can modify the solver variables and details as needed.

**TRADE LIFECYCLE**

- » You can terminate a cap floor using [Back Office > Terminate](#)
- » You can reset the floating rates of the cap floor using [Main Entry > Trade Lifecycle > Reset > Rate Reset](#), or using the RATE\_RESET scheduled task

## 24.1 SAMPLE VANILLA CAP FLOOR TRADE

Cap/USD/LIBOR/3M/3.40000%QTR/02/02/2008 (2410) - Version : 0 Mod User : {calypso\_user} Cur

Trade Back Office CapFloor Cashflows Analytics Market Data View Utilities Pricing Env

Trade

Details

Cashflows

Fees

CounterP... NONE

Status PENDING

ID 2410

Book TRADINGA

Template NONE

+ Not Cancellable

+ Not Credit Contingent

Buy USD 1,000,000.00

Digital

Bullet

Type None

Start 02/02/2007

End 02/02/2008

Exclude First

Cap USD LIBOR 3M + 0.000000 T3750

Strike 3.40000

BEG\_PER

Lag -2 Bus, (LON)

NONE

This document describes all the fields of the Cap Floor worksheet. You can click the links below for information on capturing specific types of caps and floors:




- » [Cancelable Caps and Floors](#)
- » [Chooser Caps and Floors](#)
- » [CMS Caps and Floors](#)
- » [Credit Contingent Caps and Floors](#)
- » [Digital Caps and Floors](#)
- » [Exotic Caps and Floors](#)

- [Flexible Caps and Floors](#)
- [In Arrear Caps and Floors](#)
- [Inflation Caps and Floors](#)
- [Momentum Caps and Floors](#)
- [Ratchet Caps and Floors](#)
- [Spread Caps and Floors](#)
- [Sticky Caps and Floors](#)



### 24.1.1 TRADE PANEL - FIELDS DESCRIPTION

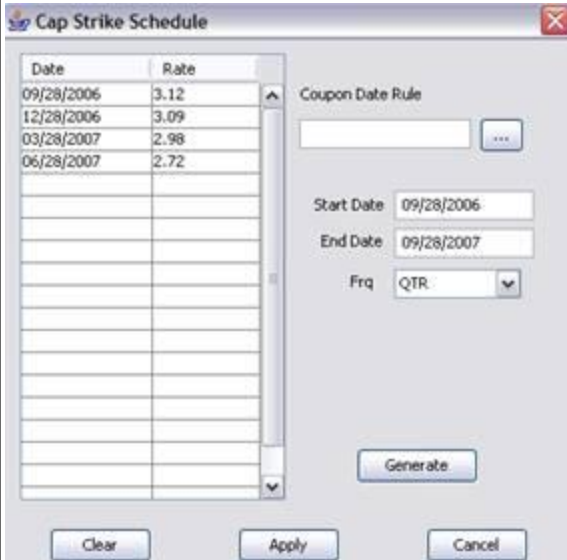
The fields of the standard cap floor worksheet are defined here.

#### Trade Details



Fields	Description
<b>Role/Cpty</b>	<p>The first two fields of the worksheet identify the trade counterparty.</p> <p>The first field identifies the trade counterparty's role. The default role is specified using <a href="#">Utilities &gt; Set Default Role</a>. However, you can change it as applicable.</p> <p>You can select a legal entity of specified role from the second field provided you have setup favorite counterparties. You can also type in a character to display the favorite counterparties that start with that character. Favorite counterparties are specified using <a href="#">Utilities &gt; Configure Favorite Counterparties</a>.</p> <p>Otherwise, click  to select a legal entity of specified role from the Legal Entity Chooser. You can also type [Ctrl-F] to invoke the Legal Entity Chooser, or directly enter a Legal Entity short name.</p>
<b>Book</b>	<p>Trading book to which the trade belongs. Defaults to the book selected in the User Defaults. You can modify as applicable.</p> <p>You can select a book provided you have setup favorite books. Favorite books are specified using <a href="#">Utilities &gt; Configure Favorite Books</a>.</p> <p>Otherwise, click  to select a book.</p> <p>The owner of the book (a processing organization) identifies your side of the trade.</p>
<b>Id</b> <b>Ext Ref</b> <b>Int Ref</b>	<p>Unique identification number of the trade. The trade id is automatically assigned by the system when the trade is saved.</p> <p>You can load an existing trade by typing the trade id into this field, and pressing [Enter].</p> <p>You can also display the internal reference or external reference. The default trade reference to be displayed can be selected in the User Defaults.</p> <p>The internal reference and external reference can be set in the Details panel of the trade worksheet.</p>
<b>Status</b>	<p>Current status of the trade. The status is automatically assigned by the system based on the workflow configuration.</p> <p>The status will change over the lifetime of the trade according to the workflow configuration and the actions performed on the trade.</p>
<b>Template</b>	<p>You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable. If you setup favorite templates, only the favorite templates will be available for selection.</p> <p>You can setup favorite templates using <a href="#">Utilities &gt; Configure Favorite Templates</a>.</p> <p>In some trade window, you can click  to setup favorite templates.</p>

#### Cap Floor Details

Fields	Description
<b>Buy/Sell</b>	<p>Direction of the trade from the book's perspective. Double-click the Buy label to switch to Sell as applicable.</p>  <p>Select the currency from the adjacent field. It defaults to the currency in the User Defaults.</p> <p>Enter the principal amount in the adjacent field. You can use shortcuts, for example enter "10m" for 10,000,000.</p>
<b>Bullet</b>	<p>Double-click the Bullet label to define the amortization structure of the principal. It brings up the Product Detail window. You can set amortization details in the Amortization and Accrual panel. Help is available from that window.</p>
<b>Type</b>	<p>Choose None for a vanilla cap floor.</p> <p>The other types are described in their own topic. You can click the links below for details.</p> <ul style="list-style-type: none"> <li><a href="#">➤ Chooser Caps and Floors</a></li> <li><a href="#">➤ Flexible Caps and Floors</a></li> <li><a href="#">➤ Momentum Caps and Floors</a></li> <li><a href="#">➤ Ratchet Caps and Floors</a></li> <li><a href="#">➤ Sticky Caps and Floors</a></li> </ul>
<b>Start/End</b>	<p>Enter the start and end dates of the cap floor. The start date defaults to the spot date of the selected currency. You can modify it as needed. You can use shortcuts, for example enter "1y" for one year, [Ctrl+N] for today, etc.</p> <p>Note that the system uses the payment calendar to calculate the spot date.</p> <p>A date that appears with a red background indicates a non-business day. Hit [+] or [-] to move the date one day forward or backward, respectively.</p>
<b>Exclude First</b>	<p>Check the "Exclude First" checkbox to exclude the first caplet from the cashflows.</p> <p>When doing a Copy/Paste Cap to Swap: If "Exclude First" is checked, copying the Cap to a Swap will ignore that flag. In order to copy the flag, set the environment property OLD_CAPTOSWAP_PASTE to true.</p>
<b>Cap Floor Type</b>	<p>Select the type of cap floor: Cap, Floor, Collar, Corridor, Flooridor, Straddle, or Strangle. The selection may be limited based on the Type field.</p> <ul style="list-style-type: none"> <li>• Corridor - Combination of two caps, one purchased by a borrower at a set strike and the other sold by the borrower at a higher strike to, in effect, offset part of the premium of the first cap.</li> <li>• Flooridor - combination of two floors where cost of the purchase of a floor is offset by the sale of another floor with a lower, further, out of the money strike.</li> <li>• Collar - Combined Cap and Floor. A collar is created by purchasing a cap or floor and selling the other. The premium due for the cap (floor) is partially offset by the premium received for the floor (cap), making the collar an effective way to hedge rate risk at low cost.</li> <li>• Straddle - Combination of a bought cap and a bought floor with the same strike; sold straddle is same combo but sold.</li> <li>• Strangle - Combination of a bought cap and a bought floor with different strikes.</li> </ul>
<b>Reference Index</b>	<p>Select the reference index. The reference index is defined by a currency, rate index, tenor and source.</p>  <p>The currency and rate index default to the currency and default index selected in User Defaults.</p> <p>The tenor and source default to the first tenor and source available for that rate index. Rate indices are created using <a href="#">Main Entry &gt; Configuration &gt; Interest Rates &gt; Rate Index Definitions</a>.</p>

Fields	Description
	<p>You can modify the default values as needed.</p> <p>You can enter a spread over the rate value in the field adjacent to the tenor. If you double-click the source label (T3750 in this example), it brings up the Product Detail window. You can define a spread schedule in the Index and Resets panel. Help is available from that window.</p>
<b>Strike</b>	<p>Only appears for trade types Cap, Floor and Straddle.</p> <p>Strike 2.45000 ...</p> <p>Enter the strike rate.</p> <p>You can also click ... to define a strike schedule.</p>  <p>» Click ... next to the Coupon Date Rule field to select a date rule. In this case, the date rule will be used to determine the schedule and the frequency will be ignored. Or select the schedule frequency from the Frq field.</p> <p>» Enter the start and end dates for the schedule in the Start Date and End Date fields.</p> <p>» Click <b>Generate</b> to generate the schedule. Double-click a rate cell to enter the strike for the corresponding date.</p> <p>» Then click <b>Apply</b> to apply to the strike schedule.</p>
<b>Upper Lower</b>	<p>Only appears for trade types: Collar, Corridor, Flooridor, and Strangle.</p> <p>Lower 2.45000 ... Upper 3.52000 ...</p> <p>You can also click ... to define a lower schedule, and an upper schedule.</p>
<b>BEG_PER/END_PER</b>	<p>Double-click the BEG_PER label to switch to END_PER as needed:</p> <ul style="list-style-type: none"> <li>BEG_PER indicates that the reset occurs at the beginning of the reset period.</li> <li>END_PER indicates that the reset occurs at the end of the reset period – The trade becomes “in arrear”.</li> </ul>
<b>Lag</b>	<p>Double-click the Lag label to define the lag between the actual reset date and the beginning or end of the reset period. It brings up the Product Detail window. You can set lag details in the Index and Resets panel. Help is available from that window.</p>
<b>NONE (payout formula)</b>	<p>Double-click the NONE label to associate a payout formula with the trade. It brings up the Payout Formula window. Default is NONE.</p> <p>Out-of-the-box, the RangeFloater formula is available. It allows defining an embedded</p>




Fields	Description
<b>Avg</b>	<p>option.</p> <p>Check the Avg checkbox to sample resets at a frequency different from the payment frequency. Otherwise, the resets are sampled at the payment frequency.</p>  <p>» Select the sampling frequency from the adjacent field.</p> <p>When the sampling frequency is more frequent than the payment frequency, you can define the weight of the resets, and the duration of the sampling period.</p> <p><b>Weight</b></p> <p>Double-click the Equal label to toggle between:</p> <ul style="list-style-type: none"> <li>Equal — Resets within the sampling period are equally weighted.</li> <li>Weighted — Resets are weighted according to the number of days for which they apply. For example, if a reset occurs on a Monday, the weight is 1 day; if it occurs on a Friday, the weight is 3 days (Friday, Saturday and Sunday).</li> <li>Simple — The reset rate is calculated as the mean rate within the sampling period.</li> <li>Cutoff Adj. — Calculates weighting up to cutoff date. The cutoff date is set as a number of days from the last sample period's end date. Double-click any red label to set the cutoff lag in the CutOff Lag field of the Index and Resets panel.</li> </ul> <p><b>Duration</b></p> <p>Double-click the Match label to toggle between:</p> <ul style="list-style-type: none"> <li>Match — Rates are sampled over the entire averaging period. You can double-click the ", , 0" label to define resets' effective day and a cutoff lag. It brings up the Product Detail window. You can set reset details in the Index and Resets panel. Help is available from that window.</li> <li>Custom — Rates are sampled over a user-defined period. Double-click the "0, , 0" label to define the number of days of the sampling period, as well as resets' effective day and a cutoff lag. It brings up the Cap Floor Detail window. You can set reset details in the Index and Resets panel. Help is available from that window.</li> </ul> <p>[NOTE: The effective day of the resets only applies to weekly and monthly sampling (weekly: day of the week, monthly: day of the month)]</p>
<b>First Reset</b>	 <p>» Select "1st Rate" to set the rate for the first reset period if known. Enter the first reset rate in the "1st Rate" field.</p> <p>Otherwise, the rate will be set through the reset process.</p>

### Payment Details

The payment details allow generating the cashflows.

[**NOTE:** When you define a fixed rate schedule, the payment details are defined as well, and the fields below are set accordingly. If you modify the fields below, make sure to regenerate the fixed rate schedule]

Fields	Description
<b>Pmt</b>	<p>Select the payment frequency.</p> <p>You can also select a date rule to determine the payment dates and the interest dates. Double-click the "Lag 0" label. It brings up the Product Detail window. You can select payment and coupon date rules in the Date Rules panel. Help is available from that window.</p> <p>You can add custom frequencies to the "frequency" domain in the form of tenors like</p>

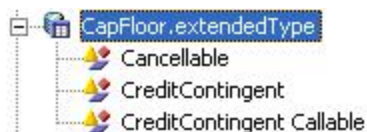
Fields	Description
	<number>D, <number>W, <number>M, or <number>Y. The tenor is case sensitive. D, W, M, or Y should be entered using uppercase.
<b>END_PER/BEG_PER</b> <b>Interest Method</b>	<p>Select END_PER if the payment occurs at the end of the payment period, or BEG_PER if the payment occurs at the beginning of the payment period.</p> <p><b>END_PER</b></p> <p>Select EXP or ACC for an exponential interest calculation from the adjacent field, or select NONE otherwise. ACC only appears if the floating rate is an inflation rate.</p> <p>Interest = Notional * <math>((1 + \text{Rate})^{t[n]} - 1)</math>.</p> <ul style="list-style-type: none"> <li>For EXP: <math>t[n]</math> = Current Coupon Period n</li> <li>For ACC: <math>t[n]</math> = Total Period from Coupon 1 through n.</li> </ul> <p><b>BEG_PER</b></p> <p>You can select one of the following discount methods from the adjacent field.</p> <ul style="list-style-type: none"> <li>NONE – No discount.</li> <li>DISC</li> <li>FWD_DISC - Same as FIX_RATE_DISC for FRAs – Interest at beginning of period = interest amount at end of period / <math>(1 + \text{Fixed Rate} * \text{daycount/basis})</math>.</li> <li>FWD_DISC_FRA – Same as FWD_DISC for FRAs - Discounts the payment/receipt amount from the end date to the start date using the fixing rate.</li> </ul>
<b>Date Roll</b>	<p>Select the date roll convention to roll the payment dates when they fall on business days. The payment calendar is used to determine business days.</p> <p>Date roll conventions are described under <a href="#">Main Entry &gt; Help &gt; Date Roll Conventions</a>.</p>
<b>Roll Day</b>	<p>Select a date roll adjustment.</p> <ul style="list-style-type: none"> <li>NONE — The date roll convention is not adjusted.</li> <li>DAY — Enter a fixed day of the month to which the date will be rolled. For example, entering "5" forces the payment date to be on the fifth calendar day of the month. Entering "31" indicates the last day of the month, even for months with fewer than 31 days - The selection changes to EOM.</li> <li>IMM — Applies the IMM_WED date roll convention.</li> <li>EOM — The last day of the month, regardless of the number of days in the month.</li> </ul>
<b>Lag</b>	Double-click the "Lag 0" label to specify the number of days between the interest date and the payment date. It brings up the Product Detail window. You can set payment lag details in the Date Rules panel. Help is available from that window.
<b>Daycount</b>	<p>Select the day count convention to determine the number of days in the payment periods.</p> <p>Daycount conventions are described under <a href="#">Main Entry &gt; Help &gt; Day-Count Conventions</a>.</p>
<b>Payment Calendar</b>	Click  to select payment calendars. They are used to determine business days.
<b>NEAREST</b> <b>(rounding method)</b>	Double-click the NEAREST label to define the rounding method. It brings up the Product Details window. You can set rounding details in the Rounding panel. Help is available from that window.
<b>NONE</b> <b>(stub periods)</b>	<p>Double-click the NONE label to define or override stub period settings. It brings up the Product Details window. You can set stub details in the Stub Periods panel. Help is available from that window.</p> <p>The system automatically creates the stub periods when needed if <a href="#">Product &gt; Automatically Adjusting Stub</a>, or <a href="#">Product &gt; Warn before Adjusting Stub</a> is checked. Otherwise, you can define stub periods manually in this panel.</p>
<b>ADJUSTED</b> <b>(accrual period)</b>	Double-click the ADJUSTED label to define how the accrual period is adjusted on non-business days. It brings up the Product Detail window. You can set accrual details in the Amortization and Accrual panel. Help is available from that window.
<b>Broker</b>	Displays the broker if a broker fee is captured in the Fees panel.



## 25. CAPTURING CANCELABLE CAP FLOOR TRADES

A cancelable cap floor contains an underlying cap floor with the option to cancel it in the future.

To enable the Cancelable feature, create the domain "CapFloor.extendedType" and add the Cancelable value to that domain. Note that domain values are case sensitive.



Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

The Cancelable area is added to the cap floor worksheet. The trade is marked "Not Cancelable" by default.

Click **+** to view the Cancelable details.

- » Check the Cancelable checkbox to make the trade cancelable, then specify the cancelable details described below.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).
- » You can cancel the trade using [Back Office > Exercise](#), or [Main Entry > Trade Lifecycle > Exercise & Expiration > Option Exercise](#) - Help is available from that window.

### Cancelable Details

Fields	Description
<b>Cancelable</b>	Check the Cancelable checkbox to indicate that the trade is cancelable, or uncheck otherwise.
<b>BUY/SELL</b>	Select BUY or SELL, the direction of the trade from the book's perspective.
<b>Call Type</b>	Select European, Bermudan, or American. See below for details.

### European

The trade can only be canceled on the expiration date.

- » Enter the expiration date in the Exp Dt field. If you enter a non-business day, it will automatically move to the previous business day.
- » Click **Expiry Time** to enter the expiration time, and select the corresponding timezone and holiday calendars.
- » The delivery date defaults to the spot date for the selected currency. You can modify as needed. You can also enter the number of lag days in the adjacent field and select whether the lag days are business days or calendar days.
- » Enter the fee amount in the Fee field, and select the fee currency from the adjacent field.

Or you can enter a percentage to compute the fee - Check the "as percent" checkbox, and enter a percentage in the adjacent field.

### Bermudan

The trade can be canceled according to a user-defined schedule.

- » The Exp Dt and Del Dt fields in the Trade panel are not editable.
- » Click **Expiry Time** to enter the expiration time, and select the corresponding timezone and holiday calendars.
- » Click **Exp/Del Schedule** to define the cancellation schedule.

Expiry Date	Delivery Date	Fee as Percent	Fee Amt
03/02/2011	03/03/2011	<input type="checkbox"/>	500.00
06/02/2011	06/03/2011	<input type="checkbox"/>	520.00

Enter From and To dates, select a frequency, a date roll and holiday calendars (for the expiration date and for the delivery date).

Enter a number of lag days to compute the delivery date based on the actual call date. And select Bus if the lag days are business days, or Cal for calendar days.

Then click **Generate** to generate the schedule.

You can also click **Add** to add specific dates.

You can enter the fees in the delivery schedule in percentage or in amounts. The Fee currency is selected in the "Cancellable" area.

Then click **Apply** to save the schedule.

- » Select the Fee currency.

### American

The trade can be canceled within a date range.

The screenshot shows a trade entry form for an American trade. The form is organized into two rows. The first row contains: a dropdown menu set to 'BUY', an 'Exp Dt' field with the date '05/21/2008', an 'Expiry Time' field, a dropdown menu set to 'LON/UTC', and a 'First Ex Dt' field with the date '04/21/2008'. The second row contains: a dropdown menu set to 'American', a 'Del Dt' field with the date '05/22/2008', a field with the value '1', a dropdown menu set to 'D', a dropdown menu set to 'Bus', a 'Fee' field, a field with the value '92 percent', and a dropdown menu set to 'USD'.

- » Enter the expiration date in the Exp Dt field. Enter the expiration time and select the timezone from the adjacent fields.
- » Click **Expiry Time** to enter the expiration time, and select the corresponding timezone and holiday calendars.
- » Enter the first exercise date in the First Ex Dt field. The trade can be canceled between the first exercise date and the expiration date.
- » The delivery date defaults to the spot date for the selected currency. You can modify as needed. You can also enter the number of lag days in the adjacent field and select whether the lag days are business days or calendar days.
- » You can click ... next to the Fee field to define a fee schedule.


## 26. CAPTURING CHOOSER CAP FLOOR TRADES

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The cap floor can only be used for a number of reset periods (the user decides to use or not a cap floor when the reset rate is above the strike for a cap, or below the strike for a floor). The last time the cap floor is used, the cap floor trade is automatically terminated.

### 26.1 SAMPLE CHOOSER CAP FLOOR TRADE

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.




Type Chooser # of uses 3 3 left

- » Choose the Chooser type.
- » Enter the number of usable reset periods in the “# of uses” field.  
The number of available usable reset periods is updated after each used reset.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).

## 27. CAPTURING CMS CAP FLOOR TRADES

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 See [Capturing CMS Trades](#) for details on setting up market data. The pricer is PricerCapFloorHagan.

Digital caps are priced by the call spread method. In this case two further pricing parameters are needed, namely the spread and the direction of the spread.

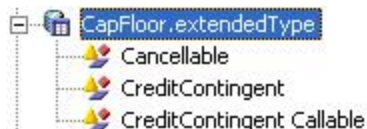
- STRIKE\_SPREAD\_EPSILON - Enter the size of the spread between the strikes of the call spread in basis points. For example, 5 to 10 bp.
- STRIKE\_SPREAD\_DIRECTION - Select the direction of the spread relative to the strike. Denote the strike of the digital as  $K$ , and the spread as  $eps$ . Default is CENTRAL.
  - SUPER – strikes at  $K$  and  $K+eps$
  - CENTRAL – strikes at  $K-0.5*eps$ ,  $K+0.5*eps$
  - SUB – strikes at  $K-eps$  and  $K$



## 28. CAPTURING CREDIT CONTINGENT CAP FLOOR TRADES

A Credit Contingent Cap Floor contains an underlying cap floor contingent upon credit events.

To enable the Credit Contingency feature, create the domain "CapFloor.extendedType" and add the CreditContingent and "CreditContingent Callable" values to that domain. Note that domain values are case sensitive.



Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

The Credit Contingent area is added to the cap floor worksheet. The trade is marked "Not Credit Contingent" by default.





Click **+** to view the Credit Contingent details.



- » Check the Credit Contingent checkbox to make the trade sensitive to credit events, then enter the credit details.  
The cap floor is sensitive to credit events between the Start and End dates defined here.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).
- » You can define and apply credit events using [Main Entry > Trade Lifecycle > Corporate Action > Credit Events](#).

### Credit Contingent Details

Fields	Description
<b>Credit Contingent</b>	Check the "Credit Contingent" checkbox to indicate that the trade is sensitive to credit events, or uncheck otherwise.
<b>Credit Type</b>	<p>Choose Single or Basket.</p> <p><b>Single</b></p>  <p>» Click <b>...</b> to select the issuer, and select the issuer's seniority.</p> <p><b>Basket</b></p>

Fields	Description
	 <p>» Click ... to select a basket and enter the number of defaults. Baskets are created using <a href="#">Main Entry &gt; Configuration &gt; Credit Derivatives &gt; Reference Entity Basket</a>.</p>
<b>Term Events</b>	Click ... to select the credit events to which the trade is sensitive.
<b>Start Date</b> <b>End Date</b>	Enter the start and end date of credit contingency. The trade will only be sensitive to credit events between the start and end dates.
<b>Settlement Details</b>	<p>Select whether the settlement is done when a default occurs (AT_DEFAULT) or at maturity (AT_MATURITY).</p> <p>Select the direction of the settlement: Pay or Rec.</p> <p>Select the type of settlement:</p> <ul style="list-style-type: none"> <li>• PAR</li> <li>• PAR_MINUS_RECOVERY</li> <li>• FIXED_AMOUNT – Enter the amount.</li> <li>• FIXED_PERCENTAGE – Enter the percentage.</li> <li>• NONE</li> <li>• RECOVERY</li> </ul>

## 29. CAPTURING DIGITAL CAP FLOOR TRADES

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

### 29.1 SAMPLE DIGITAL CAP FLOOR TRADE

- » Check the Digital checkbox and enter the digital details described below.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).

#### Digital Details

Fields	Description
<b>Digital</b>	<p>Check the Digital checkbox to specify payoff details.</p> <div> <input checked="" type="checkbox"/> Digital                     Factor(%) 0.00000                       <input type="checkbox"/> ATM Payoff                 </div> <p>» Enter a factor percentage for calculating the caplet payoffs. Each payoff uses this factor.</p> <p>However, you can enter variable digital factors for some or all caplets in the trade. In the Cashflows panel, check the Customized checkbox, and edit the Payoff Factor(%) column for each individual caplet.</p> <p>The payoff for a digital caplet will be calculated as follows: If Reset Rate &gt; Strike, payoff = Notional * Period * Factor (Payoff Spread). Otherwise, payoff = Zero.</p> <p>» Check the "ATM Payoff" checkbox to generate a payoff when the reset rate plus spread is equal to the strike rate (at-the-money).</p>

## 30. CAPTURING EXOTIC CAP FLOOR TRADES

The Exotic Cap Floor product allows barriers on caps and floors.

Choose [Trade > Interest Rates > Exotic Cap/Floor](#) to open the Exotic Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

### 30.1 SAMPLE EXOTIC CAP FLOOR TRADE

- » Enter barrier details as described below.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).
- » You can enable the cancelable and credit contingency features using the "ExoticCapFloor.extendedType" domain.

#### Barrier Details

Fields	Description
<b>Barrier</b>	<p>Select the type of barrier based on the type of cap floor, then enter the barrier in the adjacent field.</p> <p>Barrier <input type="text" value="UP_AND_OUT"/> <input type="text" value="3.45000"/></p> <p><b>Cap</b></p> <p>Select one of the following barrier types for Caps:</p> <ul style="list-style-type: none"> <li>UP_AND_OUT — The price increases as the rate increases from the strike level to the barrier level. When the rate equals the barrier level, the price is zero.</li> <li>UP_AND_IN — The price is zero until the rate equals the barrier level.</li> </ul> <p><b>Floor, Collar, Straddle, Corridor</b></p> <p>Select one of the following barrier types for Floors:</p> <ul style="list-style-type: none"> <li>DOWN_AND_OUT — The price increases as the rate decreases from the strike level to the barrier level. When the rate equals the barrier level, the price is zero.</li> <li>DOWN_AND_IN — The price is zero until the rate equals the barrier level.</li> </ul>

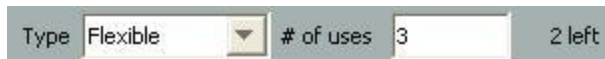
## 31. CAPTURING FLEXIBLE CAP FLOOR TRADES

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The cap floor can only be used for a number of reset periods (the cap floor is used when the reset rate is above the strike for a cap, or below the strike for a floor). The last time the cap floor is used, the cap floor trade is automatically terminated.

### 31.1 SAMPLE FLEXIBLE CAP FLOOR TRADE

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.



Type	Flexible	# of uses	3	2 left
------	----------	-----------	---	--------

- » Choose the Flexible type.
- » Enter the number of usable reset periods in the “# of uses” field.  
The number of available usable reset periods is updated after each used reset.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).

## 32. CAPTURING IN ARREAR CAP FLOOR TRADES

An "In Arrear" cap floor trade resets at the end of the reset period.

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

Not Cancellable

Buy USD 1,000,000.00 ☐ Digital

Bullet

Type None

Start 03/18/2009 End 06/18/2009 ☐ Exclude First

Cap USD LIBOR 3M + 0.000000 ... LIBOR01

Strike 2.350000 ...

END\_PER Lag -2 Bus, (LON)

- » Double-click the BEG\_PER label to change it to END\_PER. The subtype is set to Arrear.

Trade Id	Product Description	Sub Type	Trade Date	Trade Settle Date
1238	Cap/USD/LIBOR/3M/2.350000%QTR/06/18/2009	Arrear	Mar 16, 2009 08:17 PM	03/18/2009

- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).

### 33. CAPTURING INFLATION CAP FLOOR TRADES

Inflation caps & floors are based on inflation indices. Inflation is defined as the percentage increase or decrease in some index of prices.

#### *Inflation Caps & Floors Quick Reference*

- » Define the inflation rate index using [Main Entry > Configuration > Interest Rates > Rate Index Definitions](#)
  - » See [Capturing Swap Trades](#) for a sample inflation rate.
- » Enter inflation cap & floors details in the Trade panel
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#)

#### 33.1 SAMPLE TRADE

**(User: calypso\_user) Trade CapFloor Window [120000/LAPTOP\_RELEASE]**

Trade Back Office CapFloor Cashflows Analytics Pricing Env Market Data View Utilities Limits Help

Trade Details Fees Cashflows

Cpty NONE CounterParty NONE

Book Global Status NONE ID

Template NONE

+ Not Cancellable

Buy USD 1,000,000.00 ☐ Digital

Bullet

Type None

Start 03/07/2011 End  ☐ Exclude First

Cap USD CPI OD + 0.000000 ... UST

Strike 101.00000 ... BEG\_PER Lag -90 Bus, (NYC) NONE

Manual Rate Settings

Init Level Init Level 100.25000

Base Date 12/01/2010

Pmt ZC EXP

NO\_CHANGE NONE Lag 0

1/1 NYC ... NEAREST

NONE ADJUSTED

Broker

» Select the inflation index with "0D" tenor for zero-coupon trade and ZC payment frequency, or "1Y" tenor for year-on-year trade.

» In the Manual Rate Settings, you can select "Init Level", and enter the initial index level and base date.

The base date is in the form "MM/DD/YYYY", where DD is the Reference Day specified in the Rate Index Definition.

» You can select one of the following calculation methods:

- "Exp" - It is used to capture zero-coupon inflation cap/floors and has a payout of:  

$$\text{Notional} * \max\{ \text{Inflation}(\text{final})/\text{Inflation}(\text{initial}) - (1+K\%)^{\text{period}}, 0 \} : \text{Cap}$$

$$\text{Notional} * \max\{ (1+K\%)^{\text{period}} - \text{Inflation}(\text{final})/\text{Inflation}(\text{initial}), 0 \} : \text{Floor}$$
- "RateXNotl" - It is used to capture period-on-period (or year-on-year) inflation cap/floors and has a payout of:  

$$\text{Notional} * \max\{ \text{Inflation}(\text{final})/\text{Inflation}(\text{initial}) - K\%, 0 \} : \text{Cap}$$

$$\text{Notional} * \max\{ (K\% - \text{Inflation}(\text{final})/\text{Inflation}(\text{initial})), 0 \} : \text{Floor}$$
- "NONE" - Same as "RateXNotl" with the period applied to the payout.



## 34. CAPTURING MOMENTUM CAP FLOOR TRADES

When the difference between the reset rate and the previous reset rate is above a user defined target change, the strike for the next period is set to reset rate of the previous period + user-defined amount, up to a limit.

If  $\text{reset rate}(i) - \text{reset rate}(i-1) > \text{target amount}$ ,  $\text{Strike}(i+1) = \text{reset rate}(i-1) + \text{increment amount}$ .

### 34.1 SAMPLE MOMENTUM CAP FLOOR TRADE

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

The screenshot shows the Calypso Cap Floor worksheet with the following details:

- Type:** Momentum
- Limit(%):** 4.00000
- Target(bp):** 20.0000
- Incr(bp):** 50.0000
- Schedule:** (button)
- Start:** 03/25/2006
- End:** 03/25/2007
- Exclude First:** (checkbox)
- Cap:** (dropdown menu)
- USD:** (dropdown menu)
- LIBOR:** (dropdown menu)
- 3M:** (dropdown menu)
- +** 0.000000 ... T3750
- Strike:** 3.40000 ...
- BEG\_PER:** Lag -2 Bus, (LON)
- NONE:** (button)

- » Choose the Momentum type.
- » Enter the maximum strike in the Limit(%) field, enter the target change in rate in the Target(bp) field, and enter the increment amount in the Incr(bp) field.
- » You can also click **Schedule** to define a target and increment schedule.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).

Example, the first strike is 3.4, and the first reset is 3.2. The next strike does change.

The second reset is 3.45 ( $3.45 - 3.2 > 20\text{bps}$ ), the next strike is set to  $3.2 + 50\text{bps} = 3.7$ .

Notional	Rate *	Spread	Strike-upper
1,000,000.00	3.20000	0.00000	3.40000
1,000,000.00	3.45000	0.00000	3.70000
1,000,000.00	0.00000	0.00000	3.70000

## 35. CAPTURING RATCHET CAP FLOOR TRADES

The strike for the next period is set to reset rate + user-defined amount up to a limit.

Strike(i+1) = reset rate(i) + increment amount.

If Strike(i+1) > limit, Strike(i+1) = limit.

### 35.1 SAMPLE RATCHET CAP FLOOR TRADE

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

The screenshot shows the 'Cap Floor' worksheet interface. At the top, 'Type' is set to 'Ratchet', 'Limit(%)' is '4.00000', and 'Incr(bp)' is '50.0000'. A 'Schedule' button is visible. Below this, 'Start' is '03/25/2006' and 'End' is '03/25/2007', with an 'Exclude First' checkbox. The main section shows 'Cap' selected, currency 'USD', benchmark 'LIBOR', tenor '3M', and a reset increment of '+ 0.000000'. The strike is set to '3.40000'. Other fields include 'T3750', 'BEG\_PER', 'Lag -2 Bus, (LON)', and 'NONE'.

- » Choose the Ratchet type.
- » Enter the maximum strike in the Limit(%) field, and enter the increment amount in the Incr(bp) field.
- » You can also click **Schedule** to define an increment schedule.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).

Example, the first strike is 3.4, and the first reset is 3.42, the next strike is set to 3.42 + 50bps = 3.92.

The second reset is 3.2, the next strike is set to 3.2 + 50bps = 3.7. The maximum strike is not reached.

Notional	Rate *	Spread	Strike-upper
1,000,000.00	3.42000	0.00000	3.40000
1,000,000.00	3.20000	0.00000	3.92000
1,000,000.00	0.00000	0.00000	3.70000

## 36. CAPTURING SPREAD CAP FLOOR TRADES

A Spread Cap/Floor is a cap or floor having a floating rate index which is the difference (spread) between two floating indices.

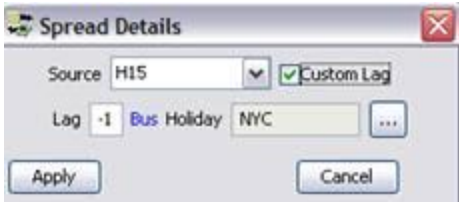
Choose [Trade > Interest Rates > Spread Cap/Floor](#) to open the Spread Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

### 36.1 SAMPLE SPREAD CAP FLOOR TRADE

- » Enter spread details as described below.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).
- » You can enable the cancelable and credit contingency features using the "SpreadCapFloor.extendedType" domain.

### Spread Details

Fields	Description
<b>Reference Indices</b>	<p>Select the reference indices that compute the spread. A reference index is defined by a currency, rate index, tenor and source.</p> <div> <div>1.000000 * USD LIBOR 3M T3750</div> <div>-1.250000 * USD TBILL 3M H15 + 0.000000</div> </div> <p>The currency and rate index default to the currency and default index selected in User Defaults.</p> <p>The tenor and source default to the first tenor and source available for that rate index. Rate indices are created using <a href="#">Main Entry &gt; Configuration &gt; Interest Rates &gt; Rate Index Definitions</a>.</p> <p>You can modify the default values as needed.</p> <p><b>First Index</b></p> <p>The first field is a factor. It defaults to 1.</p>

Fields	Description
	<p>If you double-click the source label (T3750 in this example), it brings up the Swap Detail window. You can define a spread schedule in the Index and Resets panel. Help is available from that window.</p> <p><b>Second Index</b></p> <p>The first field is the operator between both rate indices. It defaults to -1.</p> <p>You can enter a spread over the rate value in the field adjacent to the tenor. If you double-click the source label (H15 in this example), it brings up the Spread Details window.</p>  <p>» You can modify the source, and specify a custom reset lag as needed.</p>

### 37. CAPTURING STICKY CAP FLOOR TRADES

The strike for the next period is set to  $\min(\text{reset rate}, \text{strike}) + \text{user-defined amount up to a limit}$ .

$\text{Strike}(i+1) = \min(\text{reset rate}(i), \text{strike}(i)) + \text{increment amount}$ .

If  $\text{Strike}(i+1) > \text{limit}$ ,  $\text{Strike}(i+1) = \text{limit}$ .

#### 37.1 SAMPLE STICKY CAP FLOOR TRADE

Choose [Trade > Interest Rates > Cap Floor](#) to open the Cap Floor worksheet, from Main Entry or from the Calypso Workstation.

- » Choose the Sticky type.
- » Enter the maximum strike in the Limit(%) field, and enter the increment amount in the Incr(bp) field.
- » You can also click **Schedule** to define an increment schedule.
- » Then enter more trade details as described in [Capturing Cap Floor Trades](#).

Example, the first strike is 3.4, and the first reset is 3.2, the next strike is set to  $\min(3.4, 3.2) 3.2 + 50\text{bps} = 3.7$ . The second reset is 3.8, the next strike is set to  $(\min 3.8, 3.7) 3.7 + 50\text{bps} = 4.2$  (above limit) = 4.0.

Notional	Rate *	Spread	Strike-upper
1,000,000.00	3.20000	0.00000	3.40000
1,000,000.00	3.80000	0.00000	3.70000
1,000,000.00	0.00000	0.00000	4.00000

## 38. CAPTURING SPREAD LOCK TRADES

Two types of spread locks can be defined:

- Rolling — A standard Fixed for Floating swap.
- European — The buyer enters into a swap at a fixed spread between the forward price of the swap and the yield of its underlying bond.

Choose [Trade > Interest Rates > Spread Lock](#) to open the Spread Lock worksheet, from Main Entry or from the Calypso Workstation.

### Spread Locks Quick Reference



When you open a Spread Lock worksheet, the Trade panel is selected by default.

### DEFINING BOND PRODUCTS

- » To create bond products, choose [Main Entry > Configuration > Fixed Income > Bond Product Definition](#)

### ENTERING TRADE DETAILS

- » You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable.  
Or you can enter the trade fields directly. They are described below.  
Note that the Trade Date is entered in the Details panel.

- » Proceed to the other panels as applicable.
- » For defining break clauses, choose [Spread Lock > Cash Settle Info](#)

### SAVING A TRADE

- » Hit F5 to save the trade, or choose [Trade > Save](#).  
You can also hit F3 to save the current trade as a new trade, or choose [Trade > Save As New](#).  
You can also hit F12 to save the trade using any action available in the workflow, or choose [Trade > Save Action](#). You will be prompted to select an action.  
A description will appear in the title bar of the trade worksheet, a trade id will be assigned to the trade, and the status of the trade will be modified according to the workflow configuration.

### PRICING A TRADE

- » You can choose [Pricing Env > Check](#) to check if all required pricing data are available in the Pricing Environment.



- » Click **Price** to price the trade.  
You can hit F11 to solve for the break-even rate, and apply it to the fixed leg of the swap.  
You can hit F12 to solve for the break-even spread, and apply it to the floating leg of the swap.

- » Hit F9 to bring up the solver (or choose [Analytics > Solve](#)).

Select a target pricer measure and enter the target value. Then select the value to solve for (Swap pay rate, Swap receive rate, or FX rate), and click **Solve**.

You can click **Apply** to set the value to solve for on the trade. Then click **Price** to obtain the target value.

You can modify the solver variables and details as needed.

#### TRADE LIFECYCLE




- » You can lock the trade using [Spread Lock > Exercise Window](#) - See [Locking the Rate](#) for details
- » You can terminate the trade using [Back Office > Terminate](#)
- » You can reset the floating rates of the trade using [Main Entry > Trade Lifecycle > Reset > Rate Reset](#), or using the RATE\_RESET scheduled task

### 38.1 SAMPLE EUROPEAN SPREAD LOCK TRADE

- » Choose [Help > Trade Help](#) for complete details.

#### Spread Lock Details

You can begin by entering the trade details in either the left or right panel. Note that as you enter each value, the application copies it to the other leg if applicable. There are three direction signs in the middle of the worksheet. Double-click the signs to toggle between:



-  Copy to the right panel.
-  Copy to the left panel.
-  Turn off copying.

Choose [Spread Lock > Save Panel Directions](#) to save the settings.

Fields	Description
<b>Fix/Float</b>	Select Fix to define a fixed leg, or Float to define a floating leg. <ul style="list-style-type: none"> <li>For details on defining a fixed leg, see Fixed Leg below.</li> <li>For details on defining a floating leg, see Floating Leg below.</li> </ul>
<b>Pay/Receive</b>	Direction of the trade from the book's perspective. Double-click the Pay label to change to Rec as applicable. <div> Pay <input type="text" value="USD"/> <input type="text" value="1,000,000.00"/> </div> <p>The adjacent field defaults to the currency selected in the User Defaults. You can select another currency as needed.</p> <p>Enter the principal amount in the adjacent field. You can use shortcuts, for example enter "10m" for 10,000,000.</p>
<b>Actual</b>	Check the Actual checkbox to indicate that the principal amount will be exchanged, otherwise there is no exchange of principal. <div> Principal Exchange:    Initial <input checked="" type="checkbox"/>    Final <input checked="" type="checkbox"/>    Amort. <input checked="" type="checkbox"/> </div> <p>» Check the boxes as applicable to exchange the initial principal, the final principal, or the amortized principal.</p>
<b>Bullet</b>	Double-click the Bullet label to define the amortization structure of the principal. It brings up the Swap Detail window. You can set amortization details in the Amortization and Accrual panel - Help is available from that window.
<b>Start End</b>	Enter the start and end dates of the swap. The start date defaults to the spot date of the selected currency. You can modify it as needed. You can use shortcuts, for example enter "1y" for one year, [Ctrl+N] for today, etc.
	Note that the system uses the payment calendar to calculate the spot date. For a fixed leg, it is the payment calendar of the selected currency. For a floating leg, it is the payment calendar of the selected index. You can modify it as needed in the Payment Details area.
	A date that appears with a red background indicates a non-business day. Hit [+] or [-] to move the date one day forward or backward, respectively.

## Bond Details

Bond details are only required for a European spread lock.

Fields	Description
<b>Bond</b>	Click  to select a bond product. Bond products are created using <a href="#">Main Entry &gt; Configuration &gt; Fixed Income &gt; Bond Product Definition</a> .
<b>Price</b>	Displays the bond's price. Modify as needed. If you want to save the price in the Quote set, click  to set it.
<b>Yield</b>	Displays the yield based on the price. You can also enter the yield and the price will be computed accordingly.
<b>Lockout Dt</b>	Enter the lockout date.
<b>Spread</b>	Enter the fixed spread in basis points.



Fields	Description
	The SPREADLOCK_FIXED_RATE pricer measure displays the fixed spread.
<b>Settle type</b>	Select the settlement type: CASH or PHYSICAL.
<b>Fund. Rate</b>	Enter the funding rate.

### 38.1.1 LOCKING THE RATE

Choose [Spread Lock > Exercise Window](#) to lock the rate.

The screenshot shows the 'SpreadLock and T-Lock Set Yield Window' with the following details:

- Lockout From:** 02/02/2007, **To:** 02/02/2007, **Process Date:** 02/02/2007
- Trade Filter:** ALL, **Load** button
- Trade Id:** (empty), **Add ...** button
- Measures:** NPV, YIELD, **Configure** button
- Action:** EXERCISE, **Apply** button
- YldSprd:** 3.25000, **Set** button
- Ind Status:** NOTRES, UNHEDGED, VERIFIED, ...
- Table:**

Trade Id	Product Id	Description	Trade Status	Lockout Date	Product Type	LockSprd(bp)
2903	3803	SpreadLock/02/06/2008/P:USD-6.00880 /R:USD/LIBOR/3M	EXERCISE	02/02/2007	SpreadLock	50.000
- Buttons:** Print ..., Refresh, Clear, Lock, Close

- » Enter selection criteria and click **Load** to load the spread lock trades.
- » Enter a Process Date and click **Price** to price the trades as of the process date.
- » Select a trade, enter the yield, and click **Set**.
- » Verify the lock information and click **Lock** to generate the transfers as applicable. The trade will move to EXERCISED status.

## 39. CAPTURING TREASURY LOCK TRADES

A treasury lock is a customized agreement that fixes the yield or price on a specified bond for a specific period.

Choose [Trade > Interest Rates > Treasury Lock](#) to open the Treasury Lock worksheet, from Main Entry or from the Calypso Workstation.

### Treasury Locks Quick Reference



When you open a Treasury Lock worksheet, the Trade panel is selected by default.

### DEFINING BOND PRODUCTS

- » To create bond products, choose [Main Entry > Configuration > Fixed Income > Bond Product Definition](#)

### ENTERING TRADE DETAILS

- » You can select a template from the Template field to populate the worksheet with default values. Then modify the fields as applicable.  
Or you can enter the trade fields directly. They are described below.  
Note that the Trade Date is entered in the Details panel.

- » Proceed to the other panels as applicable.

### SAVING A TRADE

- » Hit F5 to save the trade, or choose [Trade > Save](#).  
You can also hit F3 to save the current trade as a new trade, or choose [Trade > Save As New](#).  
You can also hit F12 to save the trade using any action available in the workflow, or choose [Trade > Save Action](#). You will be prompted to select an action.  
A description will appear in the title bar of the trade worksheet, a trade id will be assigned to the trade, and the status of the trade will be modified according to the workflow configuration.

### PRICING A TRADE

- » You can choose [Pricing Env > Check](#) to check if all required pricing data are available in the Pricing Environment.



- » Click **Price** to price the trade.

### TRADE LIFECYCLE

- » You can lock the trade using [Treasury Lock > Exercise Window](#) - See [Locking the Rate](#) for details
- » You can terminate the trade using [Back Office > Terminate](#)
- » You can reset the floating rates of the trade using [Main Entry > Trade Lifecycle > Reset > Rate Reset](#), or using the RATE\_RESET scheduled task

## 39.1 SAMPLE TREASURY LOCK TRADE

TreasuryLock: BondUST/30Y/11/15/2028/5.25% -PO is Branche 1 (3401) - Version : 1 Mod User :...

Trade Back Office TreasuryLock Cashflows Analytics Pricing Env Market Data Utilities Help

Trade | Details | Fees

Cpty CREDILIONPAR CounterParty Book TRADINGA ID 3401

Credit Lyonnais Status VERIFIED

Selection

Bond Class Bond Bond Type UST

Product BondUST/30Y/11/15/2028/5.25% ... Show...

Security Id Type CUSIP Value

Trade Currency USD Market Type Secondary

Pricing

Buy Price 101-112 0 Quantity 1,500.00 Settle Date 02/12/2007

Yield 5.14538000 Trade Amt 1,500,000.00 Settle Currency USD

Dirty Price 102.64231250 Accrual(%) 1.29075 Accrual 19,361.25

Lockout Date 02/15/2007 Next Coupon 05/15/2007

Del Dt 02/20/2007 Coupon Amount 39,375

2 Bus NYC

Locked Yield 3.45000 Prem/Disc

Funding Rate 2.35000


» Choose [Help](#) > [Trade Help](#) for complete details.

### Bond Details

Fields	Description
<b>Bond Class</b>	Displays the bond class of the selected product.
<b>Bond Type</b>	Displays the bond type of the selected product.
<b>Product</b>	Click ... to select a bond product. Bond products are created using <a href="#">Main Entry &gt; Configuration &gt; Fixed Income &gt; Bond Product Definition</a> . You can click <b>Show</b> to display the bond's details.
<b>Security Id Type</b> <b>Value</b>	Defaults to the product code selected in the user defaults, and displays its value. You can select another product code as applicable. Product codes are set on the bond product.
<b>Trade Currency</b>	Defaults to the bond's currency. You can select another currency as applicable.
<b>Market Type</b>	Defaults to the market type selected in the user defaults. You can select another market type as applicable.

### Price Details

Fields	Description
<b>Buy/Sell</b>	Direction of the trade from the book's perspective. Double-click the Buy label to change to Sell as applicable.

Fields	Description
<b>Clean Price</b> <b>Yield</b> <b>Dirty Price</b>	<p>Enter the clean price, yield, or dirty price, and the other fields will be calculated accordingly.</p> <p>The dirty price is clean price + unit accrual.</p> <p>For bonds quoted using Price32, you can enter the trade's price with two, three, or four digits after the dash. The first two digits represent the number of thirty-seconds (between 1 and 31).</p> <p>If the price contains 3 digits, the third digit represents the number of eighths of a thirty second (or 1/256, between 1 and 7). A bond price entered as "99-022" will be read as <math>[99 + 2/32 + 2/8(1/32)]</math>, or 99.0703125. The third digit can also be +, indicating 4/8 of a thirty second.</p> <p>If the price contains 4 digits, the last two digits represent the number of sixteenths of a thirty second (or 1/512, between 1 and 15).</p> <p>Note that the four-digit logic only applies to bonds with the tick size 512.</p>
<b>Quantity</b>	Enter the quantity that is traded. The system will automatically compute the Trade Amount as quantity * face value of the bond.
<b>Trade Amount</b>	The trade amount is calculated based on the quantity. You can modify the trade amount as applicable and the quantity will be modified accordingly.
<b>Accrual (%)</b>	Accrued interest in percentage as of the trade date.
<b>Lockout Dt</b>	Enter the lockout date which identifies the end of the lockout period. In order to calculate the bond's price at the end of the lockout period, choose <a href="#">Treasury Lock &gt; Exercise window</a> .
<b>Del Dt</b>	<p>Double-click the Del Dt label to calculate the delivery date corresponding to the lockout date.</p> <p>You can double-click the "2 Bus NYC" label below the Del Dt field to specify the delivery offset as shown below.</p>  <ul style="list-style-type: none"> <li>» Enter the number of offset days in the Offset field.</li> <li>» The Bus label indicates that the offset is a number of business days (Bus). Double-click the Bus label to change to Cal (calendar days) as applicable.</li> <li>» Click ... next to the Hol field to select the holiday calendar.</li> <li>» Then click <b>Apply</b>.</li> </ul>
<b>Locked Yield</b>	Enter the yield for the locked period.
<b>Funding Rate</b>	Enter the funding rate.
<b>Settle Date</b>	<p>The settlement date defaults to the trade date + the number of settle days specified in the bond product.</p> <p>The settlement date uses the holiday calendar of the bond product to identify business days.</p> <p>If you change the trade date in the Details panel, double-click the Settle Date label to update the settlement date accordingly.</p>
<b>Settle Currency</b>	<p>Defaults to the trade currency.</p> <p>You can select another settlement currency as applicable.</p>
<b>Accrual</b>	Displays the accrual amount based on the accrual (%) and the quantity after pricing.
<b>Next Coupon</b>	Displays the date of the next coupon retrieved from the coupon schedule.
<b>Prem/Disc</b>	Displays the total premium / discount after pricing.

### 39.1.1 LOCKING THE RATE

Choose **Treasury Lock > Exercise Window** to lock the rate.

SpreadLock and T-Lock Set Yield Window

Lockout From: 02/02/2007 To: 02/02/2007 Process Date: 02/02/2007

Trade Filter: ALL Load Add ... Pricing Env: default Price

Trade Id: Measures: NPV, YIELD Configure

Action: EXERCISE Apply YldSprd: 3.25000 Set Ind Status: TOTRES, UNHEDGED, VERIFIED ...

Trade Id	Product Id	Description	Trade Status	Lockout Date	Product Type	LockSprd(bp)
2903	3803	SpreadLock/02/06/2008/P:USD 6.00880 /R:USD /LIBOR/3M	EXERCISE	02/02/2007	SpreadLock	50.000

Print ... Refresh Clear Lock Close

- » Enter selection criteria and click **Load** to load the treasury lock trades.
- » Enter a Process Date and click **Price** to price the trades as of the process date.
- » Select a trade, enter the yield, and click **Set**.
- » Verify the lock information and click **Lock** to generate the transfers as applicable. The trade will move to EXERCISED status.