



# Nasdaq Calypso

## Commodities - Precious Metals

Version 18

Revision 1.0

February 2024

Approved

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### Document History

Revision	Published	Summary of Changes
1.0	February 2024	First revision for version 18.

**This document guides you through the setup and capture of precious metals trades.**

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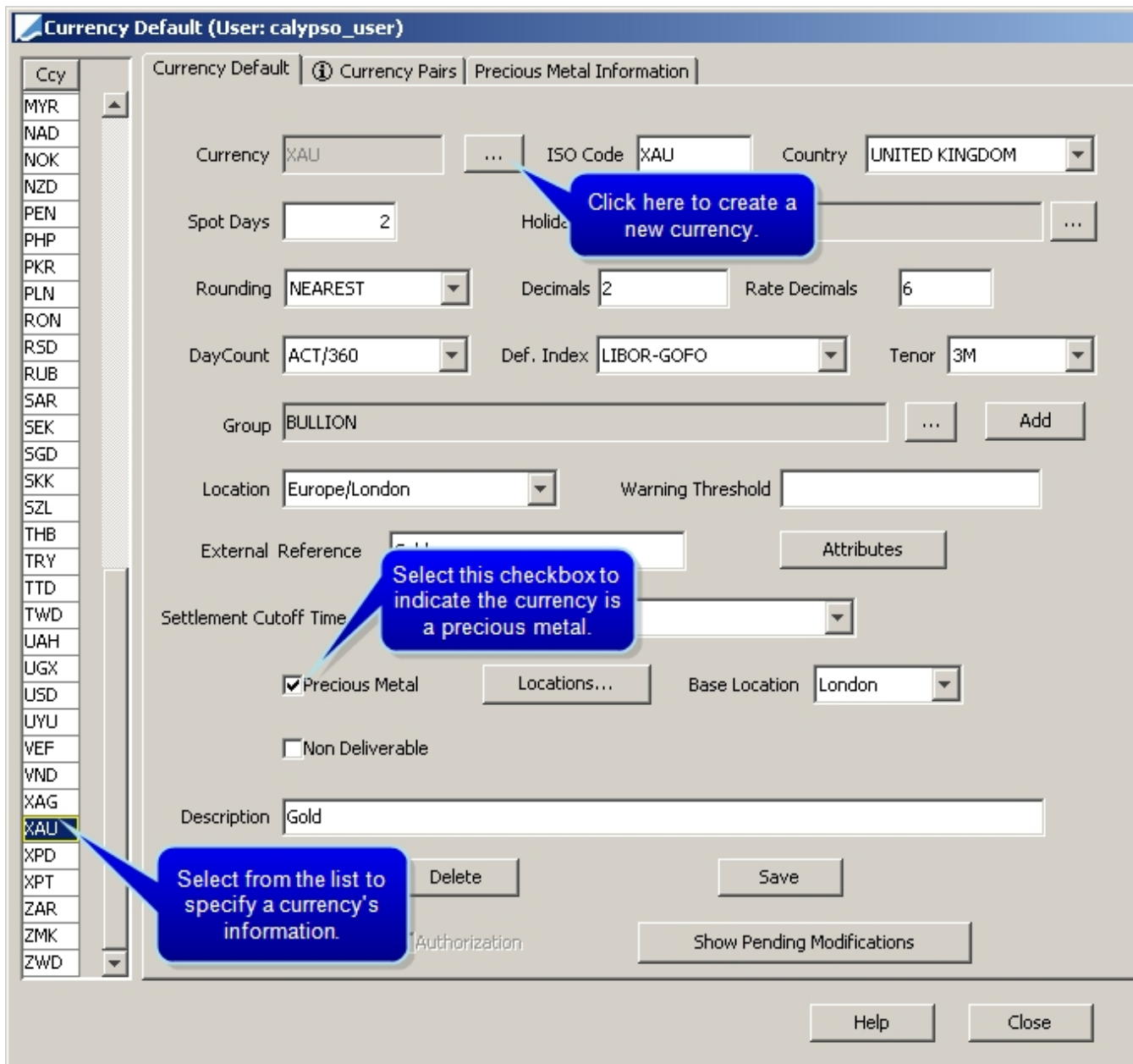
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# 1. Precious Metal Reference Data

You can define precious metals as currencies in the system, and define the precious metal and the settlement currency as a currency pair.

## 1.1 Currency and Currency Pair Definition

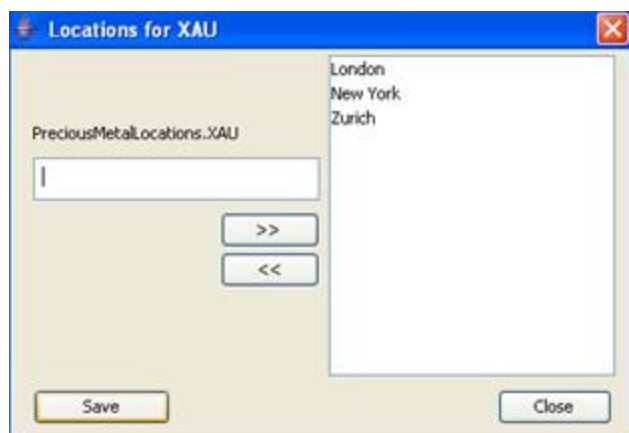
Define the precious metal currency and currency pair by choosing [Configuration > Definitions > Currency Definitions](#) from Calypso Navigator.



- » Check the Precious Metal box to indicate that the currency is a precious metal, XAU gold for example.

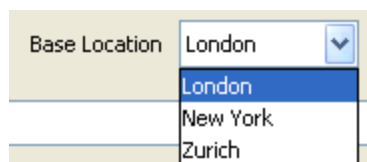


- » You can also define the locations where the precious metal trades, as the spot price differs between locations. Set the base location by selecting a user defined location from the drop-down menu. This will be the default location in the trade entry window.  
Click **Locations** to add location names.



Enter the location name in the text field, click >> to add it to the list, and click **Save**.

Select the base location from the drop-down menu.



- » When you save the currency, the system creates Loco-Spread quotes in the quote set.

Quote Name	Quote Type	Bid	Ask	Open	Close
FX.XAU.USD	▼ Price				600.000000
Loco-Spread.XAU.London-New York.allocated	▼ Price				0.300000
Loco-Spread.XAU.London-New York.unallocated	▼ Price				0.250000
Loco-Spread.XAU.London-Zurich.allocated	▼ Price				0.200000
Loco-Spread.XAU.London-Zurich.unallocated	▼ Price				0.150000
Loco-Spread.XAU.London-London.allocated	▼ Price				0.100000

- » The system creates both allocated and unallocated quotes for the locations. However, the base location does not have an unallocated quote, as the spread is zero.
  - Allocated - when a client requires the precious metal to be physically segregated, with a list of bar weights and assays (purity tests). Each bar has an identification code against which its details are recorded and the client holds full title of this bar. It is merely held in custody.
  - Unallocated - when specific bars are not set aside and the client retains a general entitlement to the metal. It is at its most convenient in this form, as it can be credited and debited electronically between parties.
- » When you use the FX Spot, FX Forward, or FX Swap trade windows to capture precious metal trades, you can set the location details in the Location panel.

	Counterparty	Location	Unallocated	Physical Form
	Counterparty	New York		Gold Certificate 1 Kg
Loco-London Spot	1,535.00	Points	0.00	Margin
Loco Form Spread	54.60	Trader	51,102.46	Final
Spot	1,589.60			

Select the location from the drop-down menu. The application automatically uses the unallocated spread from the quote set. Select Allocated to use the allocate spread.

	Counterparty	Location	Allocated	Physical Form
	Counterparty	New York		Gold Certificate 1 Kg
Loco-London Spot	1,535.00	Points	0.00	Margin
Loco Form Spread	58.50	Trader	51,227.84	Final
Spot	1,593.50			

► For more information about precious metal currencies, refer to Defining Currencies and Currency Pairs in the Getting Started documentation.

## 1.2 Rate Index Definition

A precious metal requires a reference index. Define the reference index for the precious metal by choosing [Configuration > Interest Rates > Rate Index Definitions](#) from Calypso Navigator.

**Rate Index Window**

**Rate Definition** | **Tenors**

Index: LIBOR-GOFO  Currency: XAU

Day Count: ACT/360 Sources: T3750,BBA

Date Roll: MOD\_FOLLOW Time Zone: GMT Hour: 11

Period Rule: ADJUSTED Publish Freq: DLY

Default Source: T3750 Publish Date Rule:

Pay Hol: LON,NYC  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: Interest  Rate rounding: NONE

☐ No Automatic Interpolation Quote Type: Yield

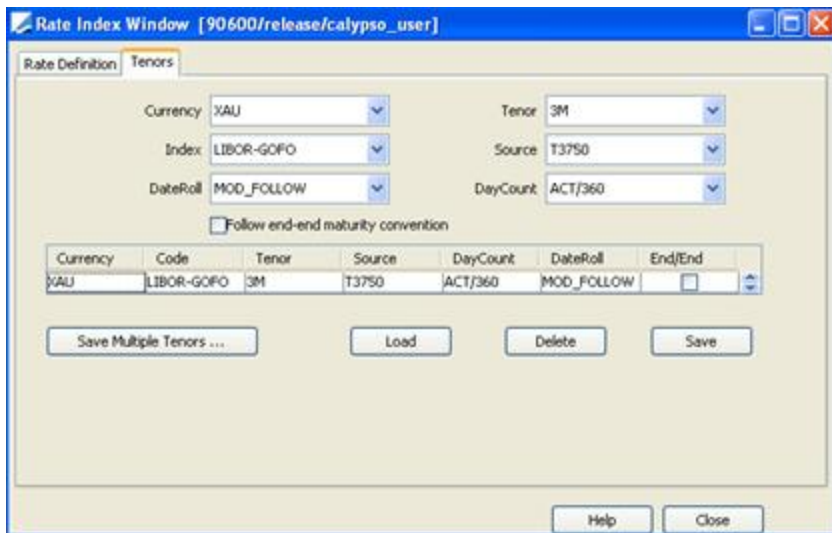
Comment:  Formula:

Currency	Code	DayCount	DateRoll	Sources	Reset Holidays
USD	TBILL	ACT/ACT	FOLLOWING	H15	NYC
USD	TBILL_BONDEQ	ACT/360	FOLLOWING	T120	NYC
USD	TBILL_DISC	ACT/360	FOLLOWING	T120	NYC
USD	VRDB	ACTB/ACTB	FOLLOWING	VRDB	NYC
USD	VRDN	ACTB/ACTB	FOLLOWING	VRDN	NYC
XAU	LIBOR-GOFO	ACT/360	MOD_FOLLOW	T3750,BBA	LON

☐ Authorization

Select the Tenors panel to define the quoted index in the system. A reference index is defined by the combination of currency, index name, tenor and quote source. A tenor must be associated with an index before quotes can be entered in the system for the index.





The screenshot shows the 'Rate Index Window' with the 'Tenors' tab selected. The window contains several dropdown menus for defining a rate index: Currency (XAU), Index (LIBOR-GOFO), DateRoll (MOD\_FOLLOW), Tenor (3M), Source (T3750), and DayCount (ACT/360). There is a checkbox for 'Follow end-end maturity convention' which is currently unchecked. Below these fields is a table with columns: Currency, Code, Tenor, Source, DayCount, DateRoll, and End/End. The table contains one row with the values: XAU, LIBOR-GOFO, 3M, T3750, ACT/360, MOD\_FOLLOW, and an empty End/End field. At the bottom of the window are buttons for 'Save Multiple Tenors ...', 'Load', 'Delete', 'Save', 'Help', and 'Close'.

Currency	Code	Tenor	Source	DayCount	DateRoll	End/End
XAU	LIBOR-GOFO	3M	T3750	ACT/360	MOD_FOLLOW	

## 1.3 FX Rate Definition

Define the FX rate definition between the precious metal currency and the settlement currency by choosing **Configuration > Foreign Exchange > FX Rate Definitions** from Calypso Navigator.

You can also create FX rate definitions for cross-currency commodity trades (for example, when the payment currency is a different currency than the trade currency).

FX Rate Definitions Window Version - 0

Name
XAU/USD
...

Id
1101

Prim Currency
XAU

Time
15 H 0 M

Sec Currency
USD

Time Zone
GMT

Default Source
LBMA
...

Date Roll
FOLLOWING

Quote Side
MID

Reset Days
0

Quote Type
Multiply

Reset Hol
LON
...

Details

☐ Preferred
☐ Manually Reset
☐ Reset Bus Lag

New

Refresh

Delete

Save

Name	Id	Prim	Sec	Rate Source	Reset Days	Preferred	Reset Hour	Time Zone
XAU/USD	1101	XAU	USD	LBMA	0	<input type="checkbox"/>	1500	GMT
EUR/USD_RESET	7238	EUR	USD	LBMA	2	<input type="checkbox"/>	1230	GMT
EUR/USD	6720	EUR	USD	LBMA	2	<input type="checkbox"/>	1230	GMT

Show Pending Authorizations
Help
☐ Authorization
Close

## 2. Capturing Precious Metal Trades

### 2.1 Precious Metals Products Overview

The following types of precious metals products are supported by Calypso.

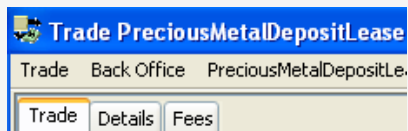
Product Name	Definition	Trade Worksheet
Lease Rate Swaps	<p>In the Precious Metal Lease Rate Swap trade worksheet, you can capture the Gold Interest Rate Swap, also called Gold Deposit Rate Swap (GDRS). It is an agreement between two counterparties, A and B. Counterparty A would pay fixed rate and receive floating rate and Counterparty B would receive fixed rate and pay floating rate. The floating rate is tied to the gold deposit rate.</p> <p>GDRS is an exchange of a series of fixed cashflows versus floating cashflows in ounces of gold. The payment amount is calculated based on an agreed notional in troy ounces at trade inception.</p> <p>Settlement takes place at the contracted interest payment dates. It will be net cash settlement of fixed and floating cashflows in a deliverable currency such as USD, EUR or GBP, using a specific rate fixing page for gold. A drop-down menu will be provided in the trade input screen for users to select the required settlement currency.</p> <p>There is no delivery of the physical gold.</p> <p>GDRS are traded over-the-counter (OTC).</p> <p>Note that you can capture a vanilla interest rate swap using the Precious Metal Lease Rate Swap worksheet when the settlement currency is the same as the currency in both legs.</p>	<p><a href="#">Trade &gt; Commodities &gt; Precious Metal Lease Rate Swap</a></p> <p>trading.TradePreciousMetalLeaseRateSwapWindow</p>
Leases Forward Leases	<p>The precious metal lease can begin on the spot date, or a forward lease can begin on a date in the future. The lender</p>	<p><a href="#">Trade &gt; Commodities &gt; Precious Metal Deposit Lease</a></p> <p>trading.TradePreciousMetalDepositLeaseWindow</p>

Product Name	Definition	Trade Worksheet
	transfers the quantity of the precious metal to the borrower on the value date. On the maturity date, the borrower returns the quantity plus interest. The interest is often payable in the physical precious metal, but can be settled in currency.	
Spots	<p>The precious metal is exchanged for currency and settled in two business days.</p> <p>The price is based on Loco London (base location). Spreads are added for delivery in other locations and if the precious metal is allocated.</p>	<a href="#">Trade &gt; Foreign Exchange &gt; FX Deal Station</a>
Forwards	<p>An agreement to buy a quantity of the precious metal at a specified location on a future date for an agreement upon price.</p> <p>The price is based on Loco London (base location). Spreads are added for delivery in other locations and if the precious metal is allocated.</p>	<a href="#">Trade &gt; Foreign Exchange &gt; FX Deal Station</a>
Swaps	<p>An agreement to buy a quantity of the precious metal at a specified location on an agreed upon date and price, and to sell the same quantity of the precious metal at the same or different location on another agreed upon date and price.</p> <p>The price is based on Loco London (base location). Spreads are added for delivery in other locations and if the precious metal is allocated.</p>	<a href="#">Trade &gt; Foreign Exchange &gt; FX Deal Station</a>
Options	The right but not the obligation to buy a quantity of the precious metal for an agreed upon price on a future date.	<a href="#">Pricing &gt; FX Options Pricing Sheet</a>

## 2.2 Capturing Precious Metal Deposit Lease Trades

Choose [Trade > Commodities > Precious Metal Deposit Lease](#) to open the Precious Metal Deposit Lease worksheet, from Calypso Navigator or from the Calypso Workstation.

## Precious Metal Deposit Lease Quick Reference



When you open a Precious Metal Deposit Lease worksheet, the Trade panel is selected by default.

### Configuration

- » Define the precious metal as a currency by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator
- » Define the precious metal and settlement currency as a currency pair also by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator
- » Define the FX reset by choosing **Configuration > Foreign Exchange > FX Rate Definitions** from Calypso Navigator

### 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, see Field Description.  
  
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**.  
  
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

- » A precious metal lease trade requires the following market data: a precious metal discount curve, a discount curve for the interest currency, an FX rate between the precious metal currency and the interest currency.
- » You can choose **Pricing Env > Check** to check if all required pricing data are available in the Pricing Environment.

MarketData
Pricer Params
Results

DIS Zero Curve USD/USD CLOSE 3/15/06 12:00:02.000 AM PST  
DIS XAU/XAU CLOSE 3/15/06 1:03:05.000 PM PST

» Click **Price** to price the trade.

### Trade Lifecycle

» You can allocate the trade to multiple books using **Back Office > Allocate**

» You can terminate and partially terminate the trade using **Back Office > Terminate**

» You can reset the FX rate between the precious metal currency and the settlement currency by choosing **Trade Lifecycle > Reset > Rate Reset** from Calypso Navigator, or the FX\_RATE\_RESET scheduled task

## 2.2.1 Sample Precious Metal Deposit Lease Trade

PreciousMetalDepositLease/10/31/2019/XAU/R:USD 2.0000 -PO is Default Processing Organisation (-1) - Versi...

Trade
Back Office
PreciousMetalDepositLease
Analytics
Pricing Env
Market Data
View
Utilities
Help

Trade
Details
Fees

Cpty: ABC BANK  
Book: Global  
Broker:   
CounterParty: ABC Bank  
Status: NONE  
ID:   
Template: NONE  
Start Date: 10/24/2019  
End Date: 10/31/2019  
Borrow: 10,000.00  
Unit: Ounces  
XAU  
Lease Rate: 2  
Interest Ccy: USD  
Lease Term: 7  
Lease Fee: -5,787.76  
Location: London  
Allocated: ☐  
Fixed Price: 100.00  
FX Reset: ☒  
London A...  
Reset Date: 10/22/2019  
Day Count: 30/360  
Holidays: ...  
Selected Holidays: LON, NYC

Cash Flows

Type	Pmt Begin	Pmt End	Pmt Dt	Principal Amt	Interest Amt	Currency	Rate	Spread	Reset	Fwd B
PRINCIPAL			10/24/2019	10,000.00		XAU				
PRINCIPAL			10/31/2019	-10,000.00		XAU				
INTEREST	10/24/2019	10/31/2019	10/31/2019		-5,787.76	USD	2.00000			

MarketData
Pricer Params
Results

	NPV	CASH	CUMULATIVE_CASH	PV	FEES_ALL_NPV
Pay/Rec (USD)	4,276.19	0.00		0.00	4,276.19

Val Date: 10/22/2019  
3:16:17 PM  
Pricing Env: INTRADAY

Price
Close

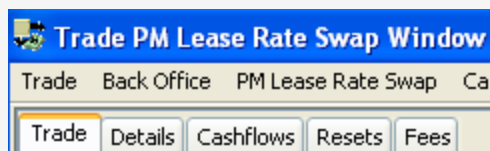
» Choose [Help > Trade Help](#) for complete details

## 2.3 Capturing Precious Metal Lease Rate Swap Trades

Choose **Trade > Commodities > Precious Metal Lease Rate Swap** to open the Precious Metal Lease Rate Swap worksheet, from Calypso Navigator or from the Calypso Workstation.

[Note: You can capture a vanilla interest rate swap using the Precious Metal Lease Rate Swap worksheet when the settlement currency is the same as the currency in both legs]

### Precious Metal Lease Rate Swap Quick Reference



When you open a Precious Metal Lease Rate Swap worksheet, the Trade panel is selected by default.

#### Configuration

- » Define the precious metal as a currency by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator
- » Define the precious metal and settlement currency as a currency pair also by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator
- » Define the FX reset by choosing **Configuration > Foreign Exchange > FX Rate Definitions** from Calypso Navigator

#### 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, see Field Description.  
  
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**.  
  
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

- » A precious metal lease rate swap trade requires the following market data: an FX rate between the precious metal currency and the settlement currency, a discount curve for the precious metal, a forecast curve for the precious metal, a discount curve for the settlement currency, a first reset rate for the floating leg index, resets between the

precious metal currency and the settlement currency.

- » You can choose **Pricing Env > Check** to check if all required pricing data are available in the Pricing Environment.

Market Data	Pricing Params	Results
REC_DIS_PAY_DIS:	GoldCurveDiscount(XAU(R))	CLOSE 2/8/07 2:44:52.000 PM PST
REC_FOR:	GoldCurveForecast(XAU(R))	CLOSE 2/8/07 2:44:52.000 PM PST
SETTLE_PAY_DIS:	USDZeroCurve(USD(R))	CLOSE 2/8/07 2:08:18.000 PM PST

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

## Trade Lifecycle

- » You can allocate the trade to multiple books using **Back Office > Allocate**
- » You can terminate and partially terminate the precious metal lease rate swap using **Back Office > Terminate**
- » You can reset the interest rates by choosing **Trade Lifecycle > Reset > Rate Reset** from Calypso Navigator, or using the RATE\_RESET scheduled task
- » You can reset the FX rate between the precious metal currency and the settlement currency by choosing **Trade Lifecycle > Reset > Rate Reset** from Calypso Navigator, or the FX\_RATE\_RESET scheduled task



## 2.3.1 Sample Precious Metal Lease Rate Swap Trade

PreciousMetalLeaseRateSwap/08/20/2007/P:XAU 1.54000 /R:XAU/LIBOR-GOFO/3M (-1) - Version : 0 C...

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

Trade Details Cashflows Resets Fees

CounterP... NONE ID ...  
Book TRADINGA Status NONE Template NONE

Fix Pay XAU 000,000.00000  
Bullet  
Actual

Start 07/19/2007 End 08/20/2007  
1.54000 %  
Cmp

NONE

Pmt QTR END\_PER NONE  
MOD\_FOLLOW NONE Lag 0  
ACT/360 LON NEAREST  
NONE ADJUSTED

Settlement USD Float Rese XAU/USD  
END\_PER Lag -2 (LON)

Float Rec XAU 000,000.00000  
Bullet  
Actual

Start 07/19/2007 End 08/20/2007  
XAU LIBOR-GOFO 3M + 0.000000 T3750  
Cmp  
BEG\_PER Lag -2 Bus, (LON) NONE

Rst  
NONE 1st Ra... 0.00000

Pmt QTR END\_PER NONE  
FOLLOWING NONE Lag 0  
ACT/360 LON NEAREST  
NONE ADJUSTED

Settlement USD Float Rese XAU/USD  
END\_PER Lag -2 (LON)

Market Data	Pricing Params	Results
	NPV	ACCRUAL
Pay (XAU)	-1,270.28880	0.00000
Rec (XAU)	24,611.42829	0.00000
Net (XAU)	23,341.13949	0.00000
Net (XAU)	23,341.13949	0.00000
Net (USD)	0.00	0.00

Val Date 07/17/2007 4:30:05 PM Pricing Env Pricing\_09 Price Close

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

## 2.4 Capturing Precious Metal Spot Trades

Precious Metal Sport trades are captured using the FX Deal Station.

You first need to define the precious metal as a currency using [Configuration > Definitions > Currency Definition](#) from the Calypso Navigator, then define the precious metal and settlement currency as a currency pair also from the Currency Definition window.

Finally choose [Trade > Foreign Exchange > FX Deal Station](#) to capture trades - Help is available from that window.

## 2.5 Capturing Precious Metal Forward Trades

Precious Metal Forward trades are captured using the FX Deal Station.

You first need to define the precious metal as a currency by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator, then define the precious metal and settlement currency as a currency pair also by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator.

Finally, from Calypso Navigator choose **Trade > Foreign Exchange > FX Deal Station** to capture trades. Help is available from that window.

## 2.6 Capturing Precious Metal Swap Trades

Precious Metal Swap trades are captured using the FX Deal Station.

You first need to define the precious metal as a currency by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator, then define the precious metal and settlement currency as a currency pair also from the Currency Definition window.

Finally, from Calypso Navigator, choose **Trade > Foreign Exchange > FX Deal Station** to capture trades. Help is available from that window.

## 2.7 Capturing Precious Metal Option Trades

Precious Metal Option trades are captured using the FX Options Pricing Sheet.

You first need to define the precious metal as a currency by choosing **Configuration > Definitions > Currency Definition** from Calypso Navigator, also from the Currency Definition window.

Finally, from Calypso Navigator, choose **Pricing > FX Options Pricing Sheet** to capture trades. Help is available from that window.