



Calypso Collateral Management



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Purpose of this Training Manual

The Calypso University team has prepared this Training Manual to facilitate your successful transition into using the Calypso suite of products. It is very important to us that you understand not only the “hows” of using Calypso software but in most cases the “whys.” This methodology will help you to become not only a more proficient user of the software but will provide you with additional knowledge that will enhance your current skills.

Using the Training Manual

We have made every effort to ensure that your learning experience using this Training Manual is enjoyable. To that end we have developed internal iconology that should facilitate a consistent and easy-to-understand learning methodology. The iconology is as follows:

Iconology Legend

	Monitor - found in task/step portion of manual. It will let you know what screen you will need to be in to complete the task along with the path to reach the screen.
	Notes - generally found to the right side of each page in a grayed out box. It is the area set aside for you to take notes.
	Additional Research - Any additional information or research that is related to the module subject will be located in the section following this icon.
	Comment - Any tips, suggestions or comments will be preceded by this icon.
	Warning - Any terms or information that are important for completing module objective or that will be part of a review or exam will be preceded by this icon.

Course Overview

Introduction

The objective of this two-day course is to provide participants with a comprehensive understanding of the business context of the Collateral Management solution and how the solution can be configured to meet the needs of various business users. Participants will gain hands-on experience in all of the Calypso processes necessary to set up Collateral Agreements, set up the Collateral Manager Workstation, run the optimization tools, and produce reports.

The course is designed for Calypso clients working in the Middle/Back Office area, or who are business analysts or partners who want to understand how to set up the Collateral Management Solution.

Learning Strategy

This course takes a ground-up approach to the learning the Collateral Management process in Calypso. Calypso University instructors use the following instructional framework in order to provide you with the opportunity to obtain fundamental Calypso skills:

- One or more presentations for each learning module.
- Coaching, guidance, and specific feedback from the instructor regarding correct software use throughout the course.
- A set of practice exercises for each learning module that will be completed by the participant using his/her own instance of Calypso.
- At course completion, participants will be given a final exam to measure their level of comprehension and demonstrate their achievement of course objectives. Participants who satisfactorily complete the final exam will be presented with a Calypso University course completion certificate.

Learning Objectives

Upon successful completion, participants will be able to:

- Demonstrate an in-depth understanding of the Calypso Collateral Management Module including functional and non-functional components and covering the roles of technology, support, Front Office, Middle Office and Back Office.
- Set up a Margin Call Agreement from scratch, and understand the different setups for bilateral business across supported product types.
- Demonstrate proficient configuration skills and use of Calypso for managing the various collateral processes, including configuring screen layouts for several use cases (Manager, Operations Clerk, Dispute Manager, Optimization Front Office user) covering Valuation, Notification, Disputes, Reconciliations, Margin Call Trades and Optimization.
- Configure and use Collateral Optimization including definition of best to worst collateral and defining optimization business rules and algorithms.

Course Agenda

The Calypso Collateral Management course is structured as a two-day class.

Day 1	Module 1: Collateral Manager Overview Module 2: Loading and Pricing Contracts Module 3: Margin Call Agreements Module 4: Collateral Exposures
Day 2	Module 5: Collateral Workflow Module 6: Calculating Exposures, Reconciling, and Allocating Module 7: Collateral Optimization Module 8: Collateral Reports

Course Prerequisites

The registered participants of this course should review the following Calypso University eLearning modules:

- [Calypso Overview](#)
- [Legal Entities \(books, counterparties, hierarchies\)](#)
- [Trading Books](#)
- [Calypso Workflow](#)
- [Calypso Pricing Environment](#)
- [Calypso Message Configuration](#)
- [Static Data Filters, Domain Values, Scheduled Tasks](#)





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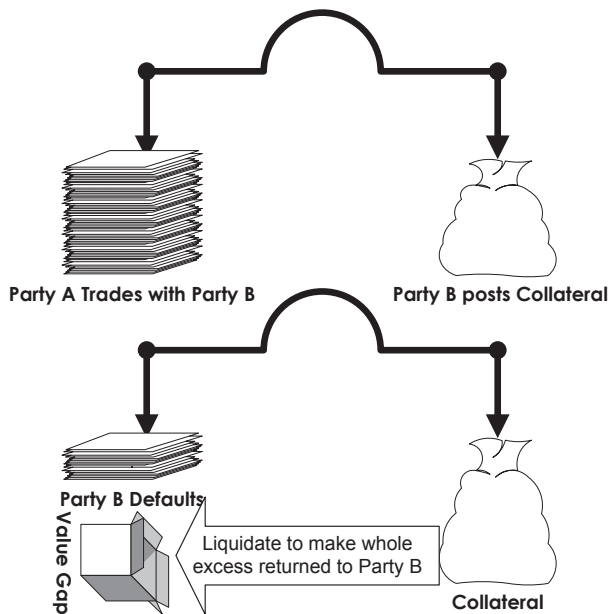
Collateral Management Course Exercises

Introduction to Collateral Management

Collateral is formally defined as “of, relating to, or guaranteed by a security pledged against the performance of an obligation.” In simple terms, collateral mitigates credit risk. For example, when an individual takes out a mortgage to buy a house, the funds are (usually) borrowed from a bank. The collateral that the bank holds is the title and the equity invested over time in the house. If the individual defaults on the loan repayments, the bank has the right to take possession of the house.

The Business Process

While collateralization in the financial markets involves greater complexity than a home mortgage transaction, the fundamental principles remain the same. The following diagram illustrates the general collateral process.



One person is holding the principal (Party A) and the other person is holding the collateral (Party B). If Party B defaults, Party A will usually liquidate the collateral by converting it to cash (if the collateral is not already in cash form) thus making themselves whole in the transaction. Any excess is returned to Party B.

If there is no default, Party A and Party B try to maintain the balance. Periodically, both Party A and Party B measure the value of the loan and the value of the collateral and adjust the collateral amount to match the loan value. This is the “big picture” of the fundamentals of the collateralization process.

Collateralization in Today's Financial Markets

In recent years, collateralization in the financial markets has proven to be extremely effective. If we look at recent financial crises large and small, in general the collateralized markets have done what they were supposed to do. For example, in the Lehman default the repo market unwound itself fairly well and the repo market is a collateralized market. Institutions were made whole.

Because trade collateralization has worked well as a credit risk mitigator, it is being recommended by regulators, supervisors, politicians, and the market participants themselves and is widely adopted. The end result is that the OTC financial markets are moving to fully collateralized trading.

At the same time, governments are mandating centrally cleared OTC trades. This movement will significantly change the entire process of collateralization, from documentation to delivery. Additionally, service providers who work in the area of collateral management (firms that hold custody of collateral, firms that provide independent pricing and firms that calculate collateral or margin amounts) will need to change their offerings as the market moves to a centrally-cleared model.

Collateralized Financial Products

For the purposes of this course, we will take a closer look in at the various types of collateralized financial trades including securities finance products (SEC lending and repos) and OTC derivatives (swaps). We will also discuss the collateral management process as followed by Central Clearing Counterparties (CCP).

SEC Lending

There are two types of SEC lending finance products, cash and non-cash collateral.

SEC Lending Cash Collateral

Assets such as equities or bonds are used for SEC Lending agreements. A typical transaction would follow this scenario:

1. The principal in the transaction is an equity and the collateral is cash.
2. The equity is re-valued each day using the previous night's closing convention.
3. The posted cash collateral is adjusted either by marking the trade to market or by adding up all trades and making a cash transfer to bring the portfolio into full collateralization.

In practice, the value of the loan might not always match the value of the cash collateral if the lender decides to take an extra margin over and above the value of the cash collateral (102-105 percent). The extra margin guards against default and balances the potential for loss in the event that the market moves adversely. The idea is to have more collateral to protect the equity owner so that there is no deficit at the end.

SEC Lending Non-Cash Collateral

A variation of the cash collateral scenario is that instead of equity for cash, there is equity for noncash collateral (typically a bond). The bond is valued and should be equal to roughly the 102 percent value.

However, several factors might influence the lender to request a haircut: (a) the bond might not be worth less when it is liquidated, (b) it might be difficult to liquidate and (c), not all bonds are equal in quality.

A lender would rather have a high quality bond than a lower quality bond, so in principle, they want 102 percent but if they are receiving low-grade corporate bonds, they might haircut the bonds by 5 percent and ask for 105 percent of the 102 percent value so that the total collateralization comes out to 112 percent.

Repos

A repurchase agreement or a *repo*, is the sale of [securities](#) with an agreement for the seller to buy back the securities at a later date. The repurchase price should be greater than the original sale price, the difference effectively representing interest, sometimes called the *repo rate*. The party that originally buys the securities acts as a [lender](#). The original seller is acting as a [borrower](#), using their security as [collateral](#) for a secured cash [loan](#) at a fixed rate of [interest](#).

OTC Derivatives

Collateral for Derivatives with Bilateral Agreements

In the derivatives market, collateral works in a slightly different way because of what derivatives represent. For the derivative there is the derivative type, the underlying of the derivative, and the notional amounts of the derivative and its underlying.

The collateral for a derivative breaks down to a future series of cash flows and whether the derivative is in or out of the money. If the trade is in the money, Party A might end up being owed a future series of cash flows. If the trade is out of the money, Party A might have an obligation to pay.

The way exposure is calculated in this type of situation is that future cash flows are discounted back to today using whatever curve is used to generate the discount factors and summed to obtain the net present value (NPV). This is the market exposure and the NPV is the amount collateralized with cash or cash equivalents.

Swap Example

Suppose you have a notional of a million in a fixed floating interest rate swap, with a fixed rate you are paying of 2%. The current floating rate is 2.1%, so you are receiving a net of 0.1%. In this case, it is unlikely that the collateral will have the same value as the notional. The collateral amount will be much smaller than the amount of the notional and will depend on how deeply in the money or out of the money the trade is. In aggregate, across the market, the collateral values tend to be somewhere between 5 and 10 percent of the notional values.

This is one of the differences between securities where the loan value and the collateral value are the same and derivatives where the collateral value is a fraction of the notional value. Also, for securities lending, it is reasonably clear who needs to post the collateral but for derivatives, the exposure switches between the two parties, based on whether the derivative is in or out of the money.

The collateral practices that have evolved in the securities and the derivatives markets are subtly different although the fundamentals remain exactly the same. The fundamental purpose of the collateral, that it is balancing the NPV against the collateral, and that it is returned if there is no default is similar in the two markets.

The exact way in which the calculation is done in the two markets is different however. The way that the margin call is calculated is slightly different. These differences are embedded into legal agreements. The legal agreement that defines the collateral methodology is the Global Master Securities Lending Agreement (GMSLA) and the International Swaps and Derivatives Association (ISDA).

The margin call process begins with the receiver notifying the payer that an amount is due. This is based on the receiver's calculation. If the collateral is not cash, the payer and the receiver can value the securities differently. In this case, there is a dispute resolution process. After resolution, the payer delivers according to the terms of the agreement.

Collateral for Central Clearing

With centrally cleared derivatives, the trades are split into parts and the Central Clearing Party (CCP) has become the buyer to the seller and the seller to the buyer. What changes is that the collateral amounts are determined by the CCP and there is no dispute resolution process.

The methodology for calculating the required value of the collateral may not be fully transparent, but the collateral that a CCP will accept is non-debatable. The legal agreements supporting central clearing are defined by the CCP. Regulators like the central clearing model because it provides greater transparency and clarity, and a regulator has only one place to go to understand everything about the collateralization rules. Also, there is independent risk measurement and a well-defined process for dealing with default.

Initial Margin

In bilateral trading, the required collateral is determined by the value of the trade. This is also true for cleared derivatives. The CCP has valued the trade, so both original counterparties have delivered what is called the variation margin. Additionally, the CCP needs to protect itself in the event of default so the CCP also demands an initial margin from both sides. The initial margin is designed to cover the CCP in the event that one party defaults.

In general, the initial margin reflects the CCP's view of maximum expected loss from a default. If the amount is insufficient, the CCP can look at the pool of assets available from all parties and also a guarantee fund that all clearing members contribute to. These represent additional clearing costs compared to bilateral trading.

Also, in bilateral trades there is typically revaluation of the margin once a day, but the CCP may revalue positions and collateral multiple times a day. Upon a shortfall, the CCP will issue a margin call which will require immediate action.

A Note on Terminology

Over time, the participants in each of these sub-markets have adopted terminology that is understood within that sub-market but not necessarily in other markets. So a word of warning: context is everything. For example, you will see and hear the words "haircut" and "margin" and you think that they mean the same thing in the different sub-markets. In fact, there are subtle differences. Also, in an application like Calypso labels are used to identify fields, and there isn't a market-wide agreement about the precise meaning of each label.

Throughout this course, it is important to be aware that this terminology is not always fully the same for everybody. In this class we will be careful to define terms and give examples to provide additional clarification

Module 1: Collateral Management Overview

By the end of Module 1, you will be able to:

- Describe the collateral management business process
- Describe the five most common types of Collateral Contracts
- Explain the various components of the Collateral Management Module
- Identify the various windows in the Collateral Manager Workstation
- Identify various data field columns

Introduction

The Calypso Collateral Manager is used in financial organizations (most often by Back Office personnel) to systematically monitor collateralized portfolios on a contract-by-contract basis. The Collateral Manager tracks comprehensive trade information including counterparty details, trade movement and marking, and Credit Support Annex (CSA) compliance.

The Collateral Manager Workstation provides a centralized platform and a configurable workflow for optimizing collateral allocations, reconciling exposures (including information imported from external systems), dispute management, generating counterparty notifications, and viewing allocation history.

The data used by the Collateral Manager includes Master Agreements and Margin Call Contracts.

1.1 Margin Call Agreements: The Master Agreement

The Master Agreement is a binding legal document created by two parties that defines the standard terms automatically applying to all transactions between those parties.

Although the Master Agreement is often viewed as a tool for banks and financial institutions, it is widely used by a variety of counterparties. While a Master Agreement is quite often lengthy, and the negotiation process sometimes burdensome, once a Master Agreement is signed, the documentation for future transactions between parties is reduced to a brief confirmation of the material terms of the transaction.

Benefits of a Master Agreement

A Master Agreement reduces the possibility of disputes by providing extensive resources defining the terms and intent of the contract. It also provides a neutral resource to interpret standard contractual terms and finally, the Master Agreement facilitates risk and credit management for both parties.

The Master Agreement sets forth all of the general terms and conditions necessary to properly allocate the risks of the transactions between the parties but does not contain any commercial terms specific to a particular transaction. Once the Master Agreement is executed, the parties can enter into numerous transactions by agreeing to the material commercial terms over the telephone as evidenced by a written confirmation without having to revisit the underlying terms contained in the Master Agreement.

In the following section we will look at the details of each type of Master Agreement supported by Calypso.

Types of Master Agreements

Master Agreement Type	Description
ISDA (International Swaps & Derivatives Association)	This contract generally governs Interest Rate Swaps.
GMSLA (Global Master Securities Lending Agreement)	This contract generally governs Securities Lending agreements.
PSA/ ISMA GMRA (Global Master Repo Agreement)	This contract generally governs North American Repo contracts.
CMF Clearing Contract (VM)	In the new business area of client clearing, this type of contract governs the Variation Margin requirement for a client of the Clearing Member Firm.
CMF Clearing Contract (IM)	This type of contract governs the Initial Margin requirement for a client of the Clearing Member Firm.

ISDA CSA

A Credit Support Annex, or CSA, is a legal document which regulates credit support (collateral) for derivative transactions. It is one of the four parts that make up an ISDA Master Agreement but is not mandatory. It is possible to have an ISDA agreement without a CSA, but normally you cannot have a CSA without an ISDA.

A CSA defines the terms or rules under which collateral is posted or transferred between Swap counterparties to mitigate the credit risk arising from "in the money" derivative positions.

ISLA GMSLA

Securities Lending is now an important and significant business that describes the market practice where securities are temporarily transferred by one party (the lender) to another (the borrower). The borrower is obliged to return the securities to the lender, either on demand or at the end of any agreed term.

The International Securities Lending Association (ISLA) is an independent trade association established in 1989 to represent the interests of the Securities Lending industry. Headquartered in the United Kingdom, the primary goal of ISLA is to assist in the orderly, efficient and competitive development of the international Securities Lending market.

One of ISLA's major initiatives has been to promote the adoption of industry-wide standards by way of uniform lending agreements, notably the Overseas Securities Lending Agreement (OSLA) and the Global Master Securities Lending Agreement (GMSLA).

ISMA GMRA

Repo is the term commonly used in the market to describe a securities sale and repurchase transaction. Under a "classic" Repo, the owner of securities (the seller) will sell the securities (typically bonds or shares) to a bank or other finance provider (the buyer) for a price and agree to buy back equivalent securities at a specified future date for the repurchase price. With a Repo transaction, the seller is able to generate funds from the securities on the basis that its holding of the securities should be restored on an agreed future date when the buyer will transfer equivalent securities back to the seller. Repos therefore form part of the huge global securities financing market.

The Global Master Repurchase Agreement (GMRA) is used across the globe as the standard contract for documenting transactions in the international repo market.

CMF Clearing Contract (VM)

A Variation Margin (VM) Contract exists between the Processing Organization (PO) and a Clearing Member Firm (CMF) when the PO is clearing OTC trades through a Central Clearing Counterparty (CCP). Variation margins are collected to cover current counterparty exposures. These are equal to the market values of cleared portfolios. Cleared portfolios with positive market values from the point of a view of a CCP, for example, represent claims on counterparties, and collateral is collected against these claims.

When portfolio market values change, collateral requirements are adjusted through variation margin calls. Specifically, CCPs demand more collateral from counterparties whose portfolios have lost value and effectively pass this on to counterparties whose portfolios have gained value. Portfolios are usually re-valued at the end of each trading day, but revaluation and requests for variation margin may occur intraday if price movements are unusually sharp. Variation margining therefore requires timely and reliable price data for all cleared derivatives. Only cash is accepted as collateral for variation margins.



CMF stands for Clearing Member Firm. These organizations are highly capitalized and generally low-risk organizations that typically provide clearing services to smaller clients.

CMF Clearing Contract (IM)

Like a Variation Margin Contract, an Initial Margin (IM) Contract also exists between the PO and a CMF when the PO is clearing OTC trades through a CCP.

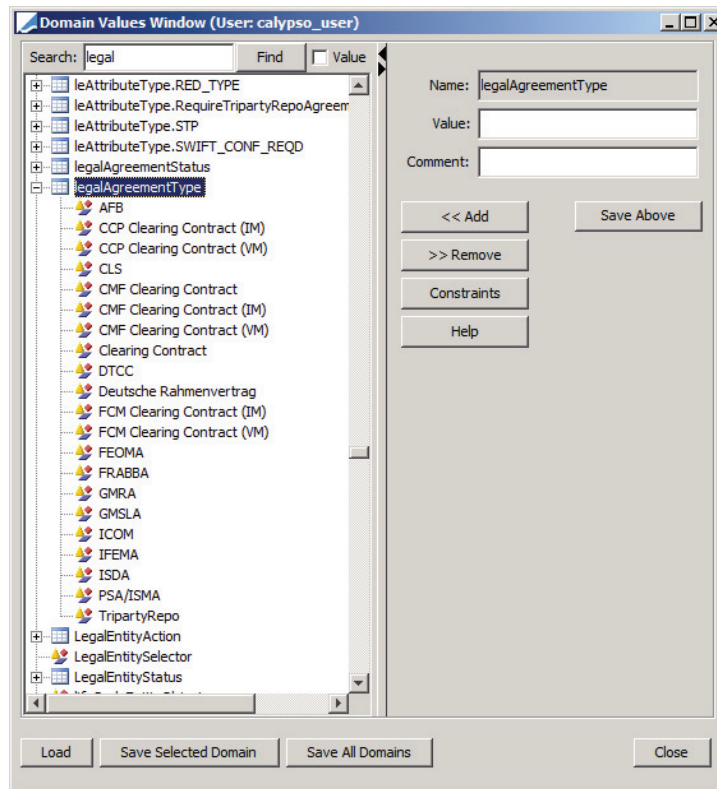
Initial margins are collected to cover the vast majority of potential future counterparty exposures. These can arise in the event of counterparty defaults as a defaulter's positions could lose value before a CCP could resolve them by, for example, auctioning them to remaining clearing system members. More specifically, CCPs are vulnerable to losses on defaulting counterparty exposures between the time of the last variation margin payment of the defaulting counterparty and resolution (or 'close out') of its portfolio. During this period, the CCP is committed to pay variation margins to non-defaulters that would have been funded by payments from the defaulting counterparty. In highly liquid markets, like the markets for exchange-traded equities or futures, even large portfolios could probably be resolved in a day or two. For standardized OTC derivatives, however, a reasonable expectation might be that resolution could take at least a few days. Initial margin requirements are usually set to cover at least 99% of possible valuation changes over an appropriate resolution period. They may be paid in cash or liquid securities.

1.2 Managing Contracts in Calypso

Calypso allows you to record in detail the various terms of a Margin Call Agreement using the Margin Call Config Window so that the terms and conditions set forth in the agreements can be applied accurately to the contract.

Adding Contracts in Domain Values

Other types of contracts available from the Fast-Track configuration can be selected in this window. You can also add a new contract type in the Domain Values under 'legalAgreementType.'



Notes:

1.3 Working with the Calypso Collateral Manager

This section will help familiarize you with the panels of the Collateral Manager Workstation that you will be working with on a daily basis. The screenshot below shows the default view when you launch the Collateral Manager Workstation.

Navigate to:



Main Entry> Processing>Collateral Management>Collateral Manager

The screenshot shows the Calypso Collateral Manager workstation interface. It features several panels and tabs:

- 1. Selection Criteria (Margin Call Filter):** Located on the left-hand side, it contains various filters and options for selecting contracts, such as Process Date, Value Date, CounterParty, and Contract Types.
- 2. Margin Call Details:** Located on the right-hand side, it displays detailed information for a selected contract, including Contract Id, Description, Contract Type, Contract Currency, and various margin call metrics like Net Balance, Prev Cash Mrg, and Total Prev Mrg.
- 3. Contracts:** A central table displaying a list of contracts with columns for Status, Legal Entity, Contract Type, Contract Description, Yesterday's Exposure, Today's Exposure, and Required Mrg.
- 4. Trade Details:** A table below the Contracts panel showing detailed information for selected trades, including Trade Id, Product Type, Description, Trade Date, Settle Date, CCY, Our Margin Call, and Their Margin Call.

Each panel is described in the following table.

Panels/Tabs	Description
1. Selection Criteria (Margin Call Filter) by default the panel on the left-hand side	Displays configuration details for the Collateral Manager Window such as contracts, processing and valuation dates, Optimizer, Forward Margin, and history.
2. Margin Call Details by default the panel on the right-hand side	Displays the margin call contract details of the selected contract.

Notes:

Module 8

Perform the following steps:

1. Create a Margin Call Entry report for your contract.
2. Update Selection Criteria for your Collateral Manager to read Value Date to be two days prior to Process Date and contract status to be PRICED_PAY, PRICED_RECEIVE, PRICED_NO_CALL,EXECUTED.
3. Add the following columns to the Results tab: Action, Contract Name.
4. Rename the newly added columns on the Results tab as follows:
5. Action: Workflow Action
6. Contract Name: Name
7. Configure Totals on your Underlying tab on the basis of the field: Measure.MARGIN_CALL.
8. Add conditional color on the basis of the contract type column within your Margin Call Config tab to be light blue (RGB values = 51, 102, 255) if contract type = ISDA.

Notes:

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www.calypso.com
For more information, email: calypso_university@calypso.com

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