



**HKEx**  
香港交易所

# **An Overview of DCASS**

**March 2010**

## **Table of Contents**

<b>A. Introduction to DCASS .....</b>	<b>1</b>
<b>B. Benefits .....</b>	<b>2</b>
1. Consolidated Clearing and Settlement System.....	2
2. System Flexibility.....	2
3. Straight Through Processing .....	2
4. Support Risk Management Functionality .....	2
<b>C. System Overview .....</b>	<b>3</b>
<b>D. Key Features and Functionality.....</b>	<b>4</b>
1. Product Design Model.....	4
2. Account Structure.....	4
3. On-line Real-time Management of Trades and Positions.....	5
4. Margining .....	6
5. Audit Trail .....	6
6. Reports .....	6
7. Common Collateral Management System.....	6
<b>E. Technical Overview .....</b>	<b>7</b>
1. Network .....	7
2. Participant's LAN.....	7
3. DCASS Terminal .....	8
4. OMnet Network Gateway .....	8

## **A. Introduction to DCASS**

The Derivatives Clearing and Settlement System (DCASS) is the clearing and settlement system for the derivatives products of Hong Kong Exchanges and Clearing Limited (HKEx) and was launched in April 2004.

DCASS is a fully electronic and automated clearing and settlement system capable of supporting various types of derivatives products. Participants can access DCASS through a terminal or through an Application Programme Interface (API), base on the HKATS Open API.

DCASS comprises the core derivatives clearing and settlement functionality, the margining engine and the Common Collateral Management System (CCMS). CCMS supports the management of collateral for the cash and derivative markets. It accommodates a wide range of collateral types and has cross-market collateral management capability.

## **B. Benefits**

The key benefits of DCASS include:

### **1. Consolidated Clearing and Settlement System**

DCASS is an integrated clearing system for derivative markets covering futures and stock options products. It provides a common clearing application, associated user interface and operational procedures for all derivative products. It also provides a seamless interface for derivatives trading and clearing through common hardware, software and communication links.

### **2. System Flexibility**

The DCASS architecture is highly flexible and can accommodate new derivative products, a multiple market environment and extended market operation without major development effort. This enables HKEx and Participants to implement market initiatives with relatively short lead-time.

### **3. Straight Through Processing**

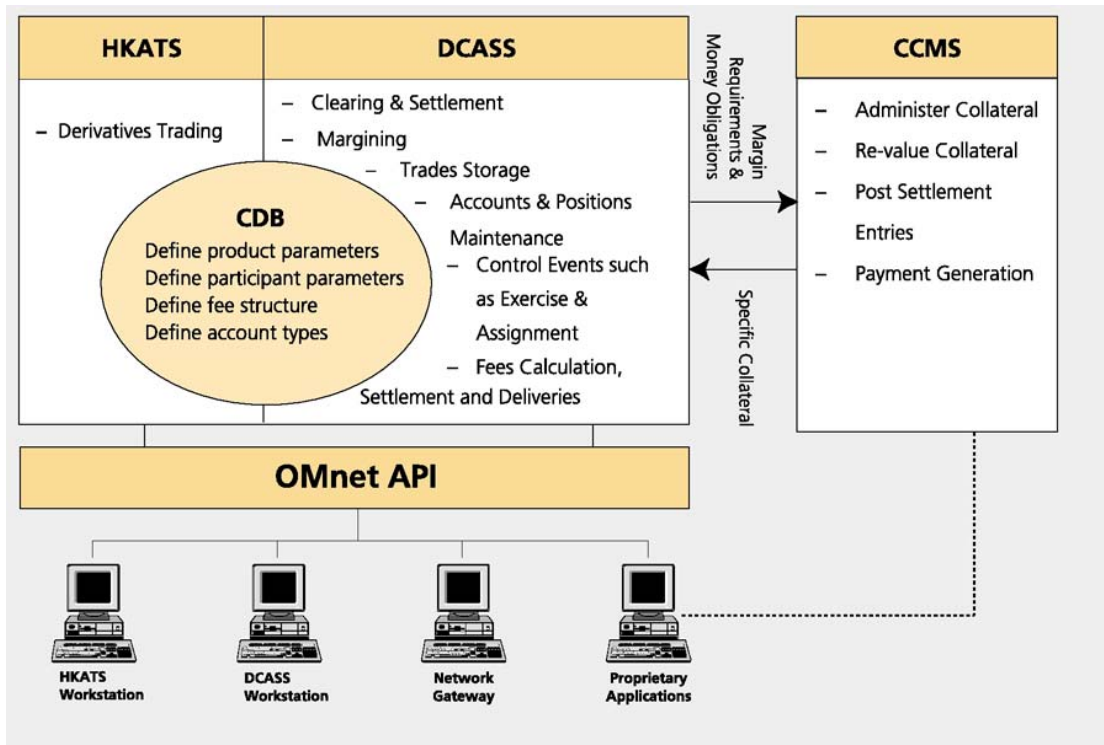
The API connectivity provided by DCASS allows participants to connect their own back-office applications and third-party back-office applications on a host-to-host basis. This facilitates straight through processing for improved operational efficiency and reduced risk.

### **4. Support Risk Management Functionality**

DCASS processes clearing transactions in real-time and provides extensive access to clearing data to support the risk management functions.

### C. System Overview

The following diagram shows a logical overview of DCASS including the seamless interface between HKATS and DCASS for the flow of trades. The common database (CDB), OMnet and operation control functions are shared between HKATS and DCASS.



## D. Key Features and Functionality

Key features and functionality of DCASS include:

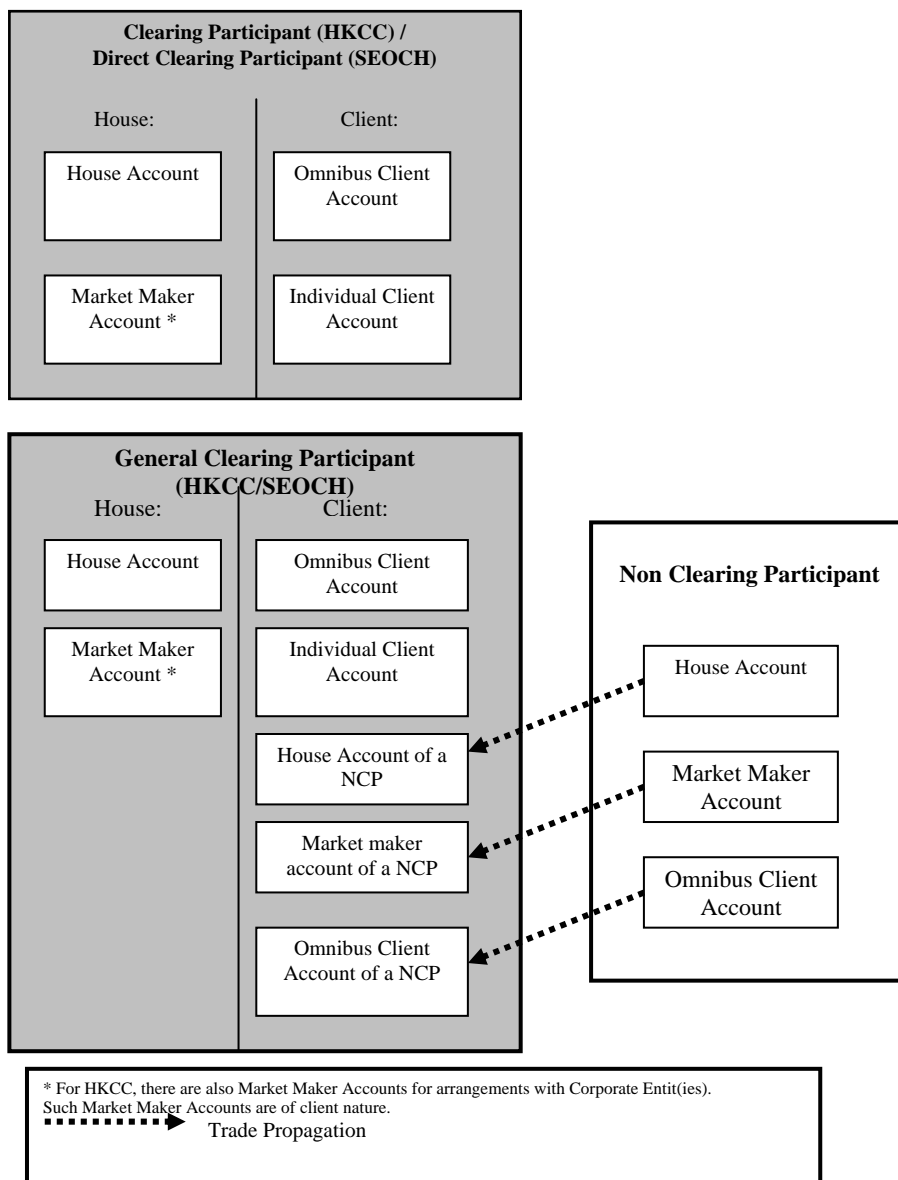
### 1. Product Design Model

The product design model allows considerable flexibility for the introduction of new derivative products without the need for significant development effort.

### 2. Account Structure

DCASS provides a flexible account structure and a number of accounts can be established for each Participant. In addition to the mandatory accounts, a Participant can choose to setup a number of accounts to represent individual client positions. This facility replaces the offset request procedure.

### Possible Account Structure at DCASS



### 3. On-line Real-time Management of Trades and Positions

State	Account	Series	B/S	Quantity	Qty left	Price	Effect	Q/C/N/D	Trade nbr	Created	User
	HK CCCC H	HSIV6	S	300	300	0	0	D	10007	10/4/2006 10:06:11 AM	HK CCCC ♦♦♦♦
	HK CCCC H	HSIV6	B	300	300	0	C	C	10010	10/4/2006 10:07:05 AM	HK CCCC ♦♦♦♦
Rectified	HK CCCC H	HSIV6	S	2	2	16,880	0	D	11923	10/5/2006 3:35:05 PM	HK CCCC ♦♦♦♦
Rectified	HK CCCC H	HSIV6	B	13	13	17,520	0	D	11927	10/5/2006 3:57:15 PM	HK CCCC ♦♦♦♦

a. Account Positions

Individual trades are aggregated at the month or series level to reflect positions in individual accounts.

b. Trade and Position Management

Subject to the clearing rules and procedures, participants can manage trades and positions on-line.

c. Propagation

DCASS offers several ways to propagate trades and/or positions between accounts. Subject to agreements and authorization, propagation can be between accounts of the same participant or accounts of other participants.

d. Exercise Management

A participant can choose to exercise specific long option positions through on-line instructions.

#### **4. Margining**

The margining methodology in DCASS produces results compatible with SPAN<sup>1</sup>. This provides for margin calculation at Participant and Client level. The methodology harmonizes the margining procedures of HKCC and SEOCH.

DCASS enables Participants to establish and maintain positions in client accounts. Subject to the clearing rules and procedures, individual client accounts can be margined independently of the omnibus client account. Participants have on-line access to margin requirements through the DCASS Terminals.

For further details, please refer to the [Risk Management information](#) at HKEx website.

#### **5. Audit Trail**

DCASS maintains an audit trail of clearing transactions, which can be reviewed as required.

#### **6. Reports**

Participants can download clearing and settlement reports through the DCASS Terminals and CCMS Terminals, respectively. Various clearing data are also available for retrieval and processing.

For further details, please refer to “Appendix 1 – Reports and Data Files” of [DCASS Terminal User Guide Full Version](#) and “Section 4 Reporting Functions” of [CCMS Terminal User Guide](#).

#### **7. Common Collateral Management System**

The Common Collateral Management System (CCMS) serves both DCASS and CCASS<sup>2</sup> Participants. Access to CCMS is through the CCASS/3 or CCMS Terminal browser. This can be available to both DCASS and CCASS Participants. For DCASS Participants, a browser (e.g. Internet Explorer) on the CCMS Terminal can be used to access CCMS.

CCMS provides a platform for flexible management of participants’ collateral for derivatives and securities market products. It accommodates a range of cash and non-cash collateral in multiple currencies.

For further details, please refer to [CCMS Terminal User Guide](#).

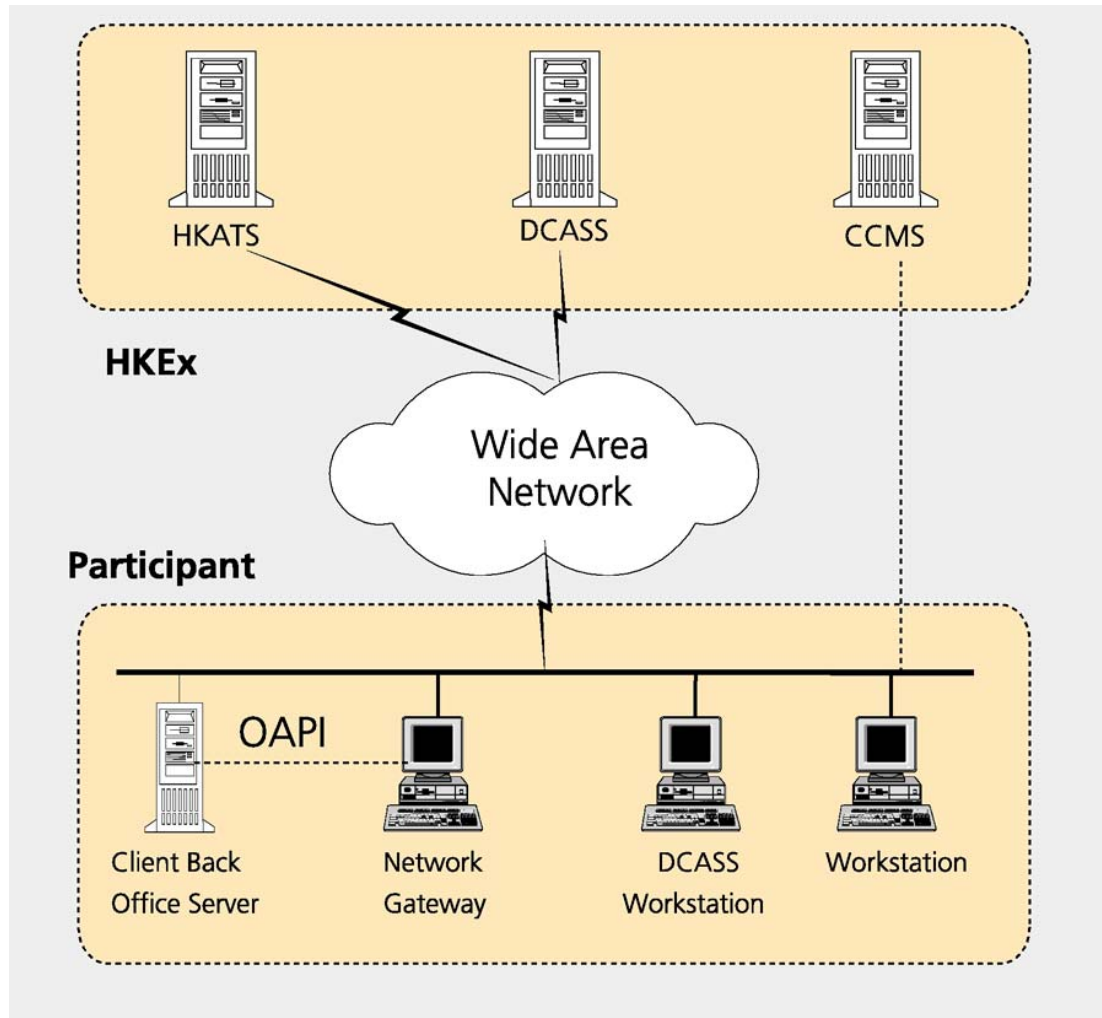
---

<sup>1</sup> SPAN (Standard Portfolio Analysis of Risk) is a registered trademark of the Chicago Mercantile Exchange

<sup>2</sup> CCASS stands for Central Clearing and Settlement System, which is the clearing and settlement system for securities traded on The Stock Exchange of Hong Kong Limited.

## E. Technical Overview

DCASS is implemented on the HKATS operational infrastructure.



### 1. Network

DCASS utilizes the Securities and Derivatives Network (SDNet). CCMS access is provided through Participants' CCASS access or an alternate link.

### 2. Participant's LAN

DCASS connection to a Participant's LAN requires a Router and a Hub to be installed in the participant's premises.

### **3. DCASS Terminal**

Participants can access DCASS through the Windows-based DCASS Terminals which is designed to support participants with low to medium clearing volume as it facilitates manual input of post trade activities. The Terminals are connected to the local Network Gateway and then to the DCASS Host System through the SDNet.

Major Functionalities of DCASS Terminals include:

a. Account Information

Participants can access information on specific accounts, including propagation and position details.

b. Trade and Position Management

Participants can perform on-line trade and position management functions.

c. Exercise Handling

Participants can submit on-line exercise instructions.

d. Margining

Participants can estimate margin requirements based on their actual or hypothetical positions. Participants can also access margining parameters and data for margining through the DCASS Terminal.

e. DCASS Reports

Reports can be down-loaded from the DCASS host and printed locally.

### **4. OMnet Network Gateway**

Participants can connect their own back-office systems to DCASS through the OMnet Network Gateway (NG) based on DCASS OAPI, which enables straight-through-processing and supports high clearing volume. The NG is installed in the participant's premises as a dedicated device.

Each DCASS NG can accommodate up to ten DCASS applications. These can be a combination of DCASS Terminals and Participant's DCASS Open API applications. A Participant's back-office application communicates with the DCASS Host through the NG using the Open API.

For further details on the DCASS Terminal and Open API, please refer to the DCASS Terminal Installation Guide and DCASS OAPI Manual at <http://www.hkex.com.hk/eng/market/clr/dvclr/dcass/dcass.htm>.