



PC London SPAN Guide

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Document History

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02 Aug 2004	0.1	Paul Kirkwood	First draft
03 Aug 2004	0.2	Stuart Girt	Updates following review
05 Aug 2004	1.0	Paul Kirkwood	Final version issued
01 Feb 2007	2.0	Paul Kirkwood	Updates for SPAN 4 and contract codes
08 Aug 2007	3.0	Paul Kirkwood	Updates for Exchanges and contract codes
03 Nov 2008	4.0	Paul Kirkwood	Updates for Exchanges and contract codes

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1. Introduction

PC London SPAN is a specially designed PC software program used to calculate London SPAN Initial Margins required by LCH.Clearnet Limited ('the Clearing House').

A Clearing Member may, however, charge a greater Initial Margin Requirement to their clients than the Clearing House requires from its Clearing Members. You will need to retrieve risk parameter files supplied by LCH.Clearnet Limited. These need to be loaded into PC London SPAN and applied to your positions to calculate London SPAN initial margins. PC London SPAN generates a series of reports, which show the breakdown of the London SPAN Initial Margin calculations.

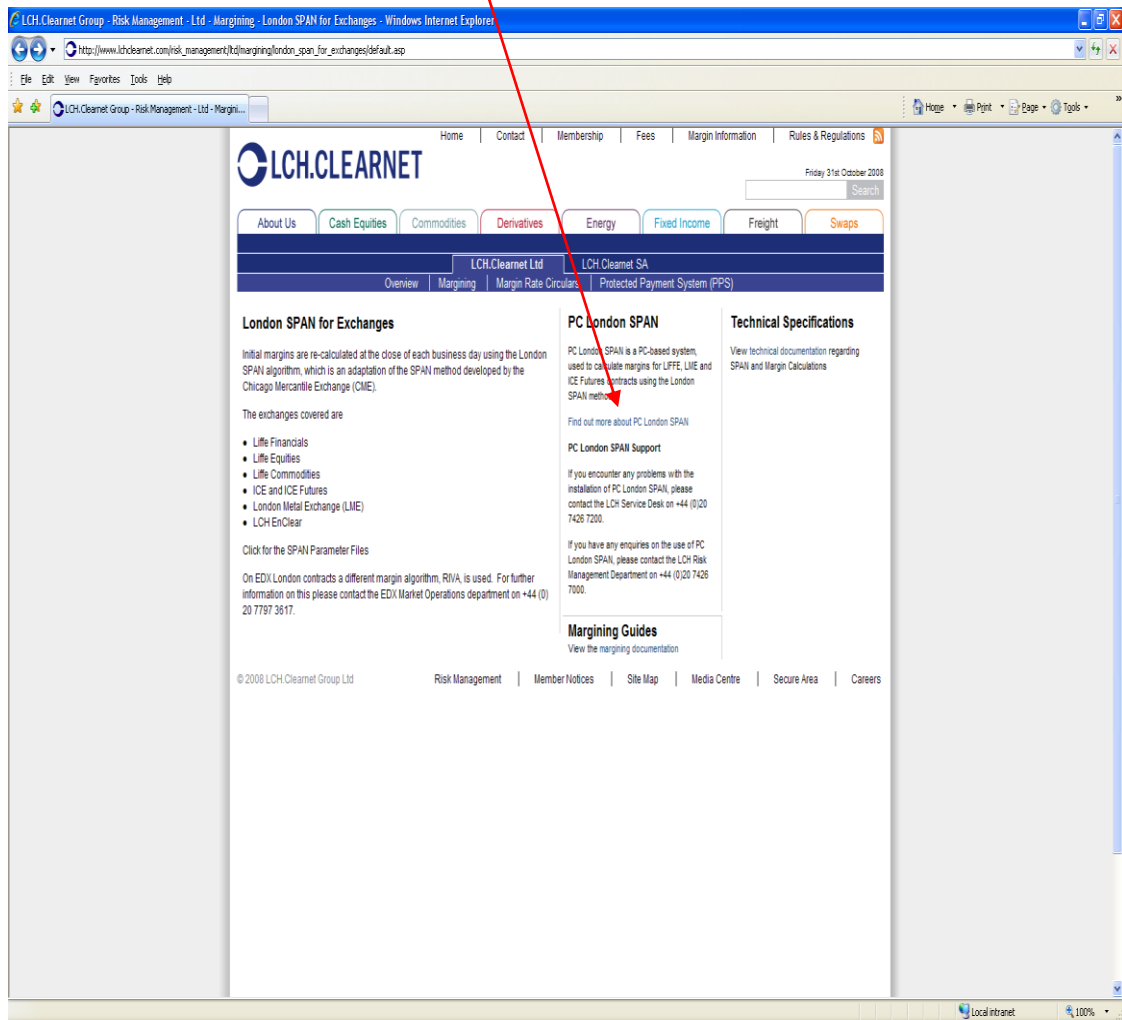
PC London SPAN is used to calculate Initial Margin Requirement on the following exchanges:

- Euronext.Liffe (LIFFE) – PC London SPAN Version 4
- LME - PC London SPAN Version 3
- LCH EnClear - PC London SPAN Version 2 equivalent
- LCH services RepoClear

2. Downloading PC London SPAN

PC London SPAN is available on the LCH.Clearnet Limited website (www.lchclearnet.com). On the website select Risk Management > LCH.Clearnet Ltd > London SPAN for Exchanges.

If you click on the PC London SPAN link, this will give you all the details on how to download the application.



The screenshot shows a web browser window displaying the LCH.Clearnet website. The browser's address bar shows the URL: http://www.lchclearnet.com/risk_management/ld/margining/london_span_for_exchanges/default.asp. The website header includes the LCH.CLEARNET logo and navigation tabs for various market segments: About Us, Cash Equities, Commodities, Derivatives, Energy, Fixed Income, Freight, and Swaps. Below the navigation, there are sub-tabs for LCH.Clearnet Ltd and LCH.Clearnet SA, with further sub-tabs for Overview, Margining, Margin Rate Circulars, and Protected Payment System (PPS). The main content area is divided into three columns: 'London SPAN for Exchanges', 'PC London SPAN', and 'Technical Specifications'. The 'PC London SPAN' column contains a link to 'View technical documentation regarding SPAN and Margin Calculations'. A red arrow points from the text above to this link. The footer of the page includes copyright information and a list of links: Risk Management, Member Notices, Site Map, Media Centre, Secure Area, and Careers.

3. Parameter Files

Before any positions can be entered into PC London SPAN, Parameter File(s) will need to be downloaded into the application. These are available on the LCH.Clearnet website (www.lchclearnet.com). On the website select Data Downloads > LCH.Cleatnet Ltd > SPAN Risk Parameter Files. Each Exchange or Clearing House Service has its own Parameter File, with the only exceptions being Liffe who has three Parameter Files, one for Financials entitled LIFFE, one for Equities entitled LIFFE Equities and one for Commodities entitled LCP.

One point of note is that the FTSE Options (SEI, ESX, FLX) contracts are in the LIFFE Equities Parameter File, while the FTSE Future (Z) contract is in the LIFFE Parameter File. If you are calculating margin requirement for a portfolio of FTSE-100 Futures and Options positions, you must download both the LIFFE and LIFFE Equities files, loading them into PC SPAN together.

Tick the Parameter File you require. The date should be the last working day's date if you are calculating today's margin requirement. If you are calculating an older margin requirement you need to change the date to download the appropriate parameter file. Generally the Timing field should be set as 'Final' and the Type field should be set as 'Standard'. These can be changed using the drop down menus as necessary.

The screenshot shows the LCH.CLEARNET website interface for selecting SPAN Risk Parameter Files. The page includes a navigation menu with options like Home, Contact, Membership, Fees, Margin Information, Rules & Regulations, About Us, Cash Equities, Commodities, Derivatives, Energy, Fixed Income, Freight, and Swaps. The main content area is titled 'SPAN Risk Parameter Files' and features a date selector set to '30 October 2008'. Below this is a table of parameter files with columns for Exchange, Version, Timing, and Type. A red arrow points to the 'Next' button at the bottom of the table.

Exchange	Version	Timing	Type
<input checked="" type="checkbox"/> LIFFE	<input type="radio"/> 02 <input type="radio"/> 03 <input type="radio"/> 04	<input type="radio"/> Final	<input type="radio"/> Standard
<input checked="" type="checkbox"/> LIFFE Equities	<input type="radio"/> 02 <input type="radio"/> 03 <input type="radio"/> 04	<input type="radio"/> Final	<input type="radio"/> Standard
<input checked="" type="checkbox"/> LCP	<input type="radio"/> 02 <input type="radio"/> 03 <input type="radio"/> 04	<input type="radio"/> Final	<input type="radio"/> Standard
<input checked="" type="checkbox"/> ICE Futures	<input type="radio"/> 02 <input type="radio"/> 03 <input type="radio"/> 04	<input type="radio"/> Final	<input type="radio"/> Standard
<input checked="" type="checkbox"/> LME	<input type="radio"/> 03	<input type="radio"/> Final	<input type="radio"/> Standard
<input checked="" type="checkbox"/> RCL	<input type="radio"/> 03	<input type="radio"/> Final	<input type="radio"/> Standard
<input checked="" type="checkbox"/> LCH EnClear	<input type="radio"/> 04	<input type="radio"/> Final	<input type="radio"/> Standard

NYMEX SPAN parameter files will not be available until trading commences. Please click here to access the Member Test SPAN files for NYMEX.

Clear Next

Risk parameter files are required to calculate London SPAN initial margins. They contain details of all the London SPAN parameters as well as the theoretical profits and losses for each of the SPAN scenarios. Risk parameter files are required if calculating initial margin using PC London SPAN. They can also be loaded into other systems used to calculate London SPAN initial margin.

There are three versions of the risk parameter files, Version 2, Version 3 and Version 4. The version(s) available for each market are dependent on the version of SPAN being used to calculate initial margin. As a minimum, Version 4 files will be provided for LIFFE and ICE Futures. Version 3 files are provided for RepoClear and LME. Once an exchange has been upgraded to use a later version of SPAN, only historic parameter files may be obtained in earlier format versions.

Because of the size of the risk parameter files they are available in both standard and compressed (using zip) format, except RepoClear and LCH EnClear files which are smaller and therefore only made available in standard format. The LIFFE exchange is split into three separate markets and risk parameter files are provided for each of these.

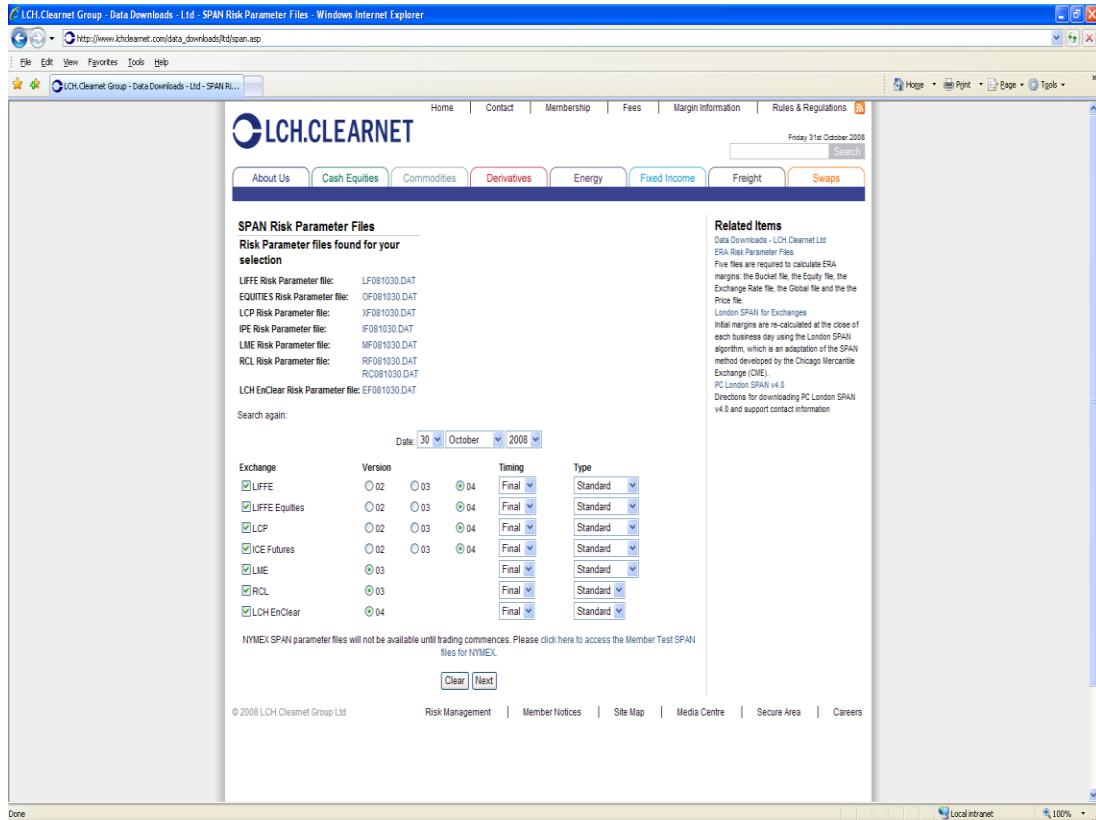
The LIFFE Financials file contains details for all LIFFE STIR and Bond contracts as well as index futures contracts. The LIFFE Equities file contains information for all LIFFE equity option contracts as well as index option contracts. The LIFFE Commodities file contains the risk parameters for commodity contracts such as cocoa and sugar.

Mail Us Administrator with suggestions or comments or call the Help Desk on 020 7426 7200.

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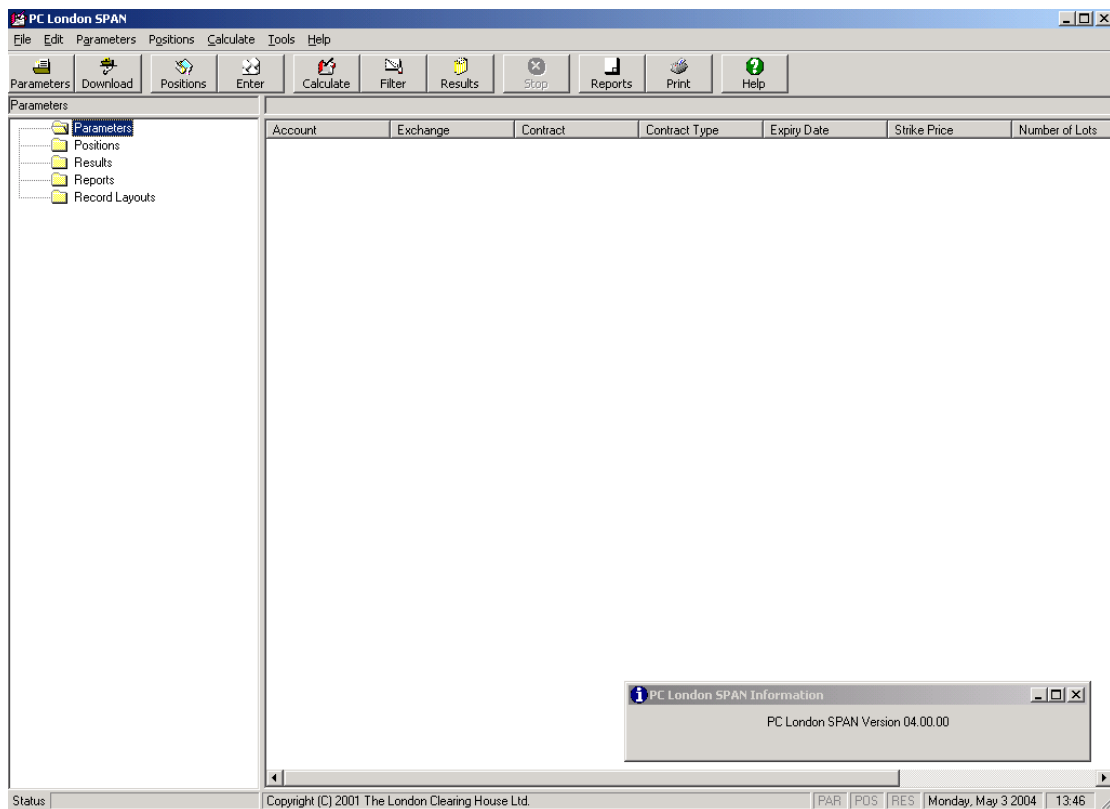
Risk Management | Member Notices | Site Map | Media Centre | Secure Area | Careers

Click on Next and then this will display the list of Parameter Files you requested.

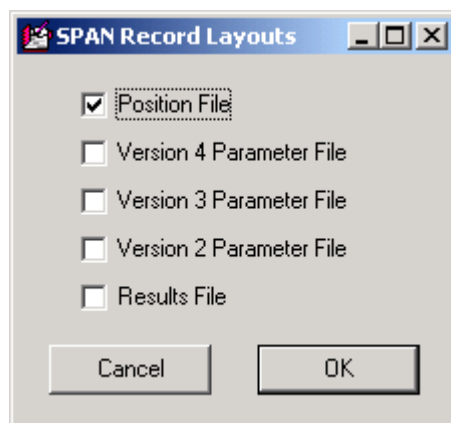


If you click on the Link it will open the Parameter in a web page. To Save the Parameter File you need to Right Click on the Link and select 'Save Target As...'. The Parameter File(s) you need should be saved in an easily accessible place on your computer.

4. Using PC London SPAN

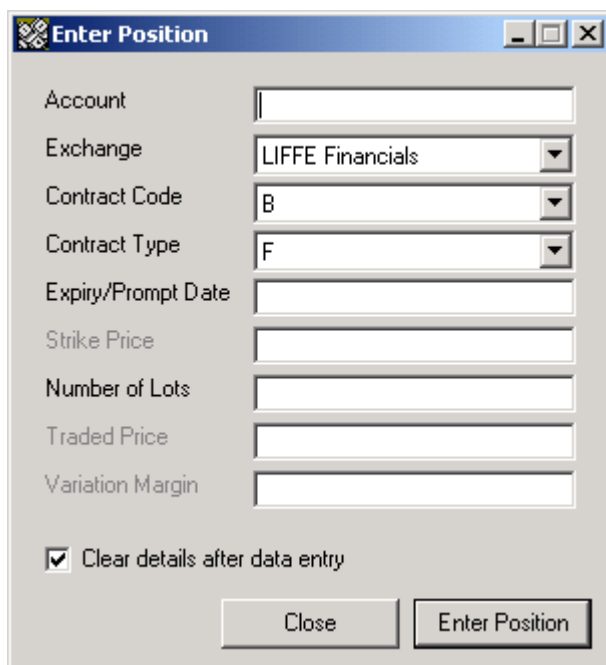


1. Once you have opened PC London SPAN, the first thing you will need to do is input the Parameter File(s). Click on the 'Parameters' button located in the top left hand corner of the screen. Load in the file(s) previously saved from the website. You can load in as many Parameter Files as necessary.
2. You can now enter positions. To load in a Positions File simply click on the 'Positions' button. You will then be able to upload the position file. If you wish to create a position file then you can find out the format required within PC London SPAN. Simply click on the Tools option located at the top of the menu bar and in the drop down menu select Show Record Layouts. The following screen will appear:



Tick the Position File box and then click on OK and the layout will be described (see Appendix A for a further description).

3. If you wish to enter in a list of positions manually then you will need to click on the 'Enter' button at the top of the screen. The following screen will appear:



4. The following information will need to be entered:
- **Account** – This can be anything you want to call the Account.
 - **Exchange** – The Exchange you wish to enter positions for. This will be the same as the Parameter File(s) you entered in.
 - **Contract Code** – The SPAN Contract Code of the security you wish to add in. See Appendix B for a list of the SPAN Contract Codes.
 - **Contract Type** – F for a Future, C for a Call Option and P for a Put Option are the more commonly used contract types.
 - **Expiry/Prompt Date** – This should be the delivery month that you require. For most contracts this should be the month and year, there is no need to put an actual day in. For the LME contracts you may have to put in the date of the third Wednesday of the delivery month you require. For LIFFE Flex Options you must enter the date format as YYYYMMDD. There are only a certain number of formats PC SPAN will accept. These are:

MMYY

MM YY

MMYYYY

MM YYYY

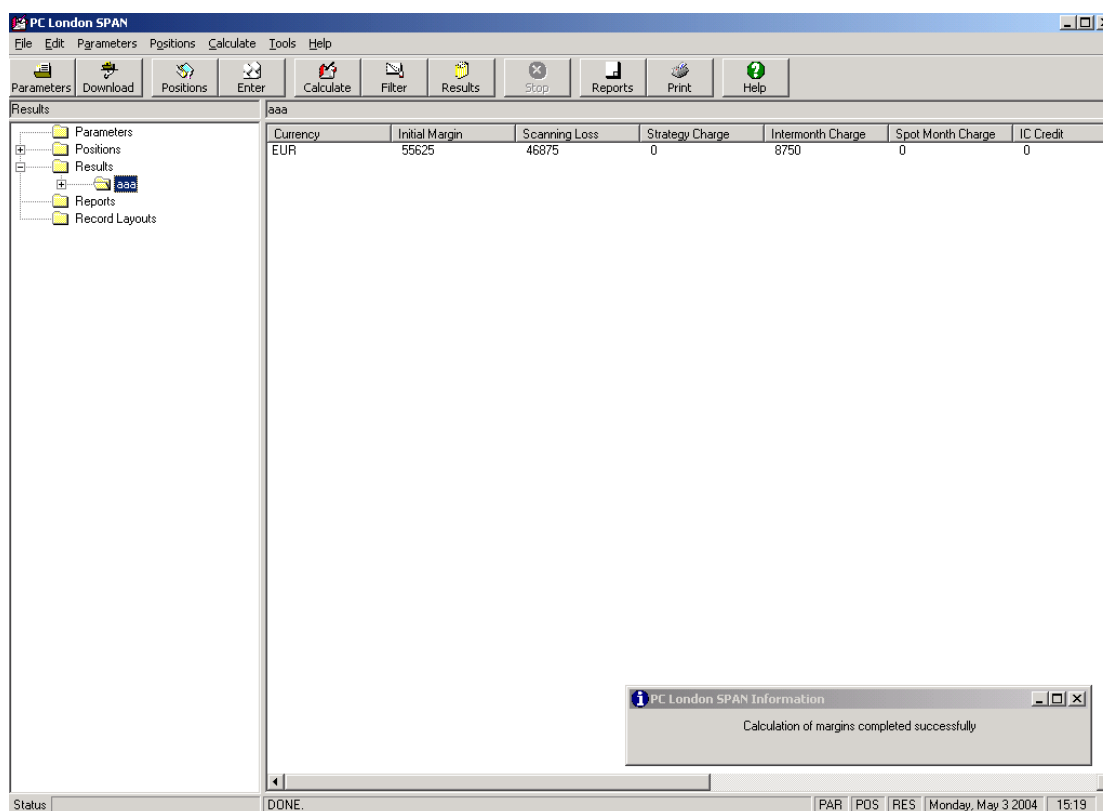
DD/MM/YY

DD/MM/YYYY

YYYYMMDD

YYYY/MM/DD

- **Strike Price** – For options a Strike Price will need to be added. You will not be able to input the position without entering a Strike Price. If you have selected a future contract you will be unable to populate this box. This will have to be a valid Exchange strike price. Details are available in the Parameter File (see Appendix C on how to find valid Strike Prices in the Parameter Files). For LIFFE STIRs you do not need to insert the decimal place and there should be five digits, for example a strike price of 98.375 would be 98375 and 98.000 would be 98000. For Energy contracts priced in dollars you need to again enter the price without the decimal place, i.e. expressed in cents rather than dollars.
 - **Number of Lots** – This should be the number for Long positions and with a minus symbol for Short positions. E.g. 70 (long position), -70 (short position).
 - **Trade Price** – this field can only be used on LME Positions, although it does not have to be populated.
 - **Variation Margin** - this field can only be used on LME Positions, although it does not have to be populated.
5. Click on 'Enter Position'. Once all positions have been added then click on 'Close'.
 6. Now click on 'Calculate'. London PC SPAN will calculate the Initial Margin Requirement on the positions you have entered.



7. The Initial Margin Calculation will be shown on the screen along with the following additional information:
 - Scanning Loss
 - Strategy Charge
 - Intermonth Charge
 - Spot Month Charge
 - IC Credit
 - Shirt Option Min
 - Net Margin
 - NLV
8. The Initial Margin figure does not include any Net Liquidation Value (NLV) that may result from the list of positions you have, so the final figure LCH.Clearnet Ltd would require will be the Net Margin figure
9. The calculations are further broken down in the Reports section. If you click on the 'Reports' button the following screen will appear:

Generate Reports

Produce reports for account

Separate report per account

Net Figures

Net Margin by Margin Group

Net Margin by Combined Contract

Variation Margin

Discount Variation Margin

Net Liquidation Value

Contingent Variation Margin

Summary Figures

Summary by Margin Group

Summary by Combined Contract

Delta Calculations

Combined Contract Tier Deltas

Strategy Spread Charges

Intermonth Spread Charges

Spot Month Charges

Inter-contract Spread Credit

Expiry Group Delta

Scanning Risk

Summary Scanning Risk

Summary Value Losses

Option Value Losses

Show reporting options

Cancel OK

10. Select the reports you require by putting a tick in the respective box. See Appendix D for a description of the reports. Now click on OK. This will now bring up all the reports you selected.

5. Additional Information

5.1 Documents

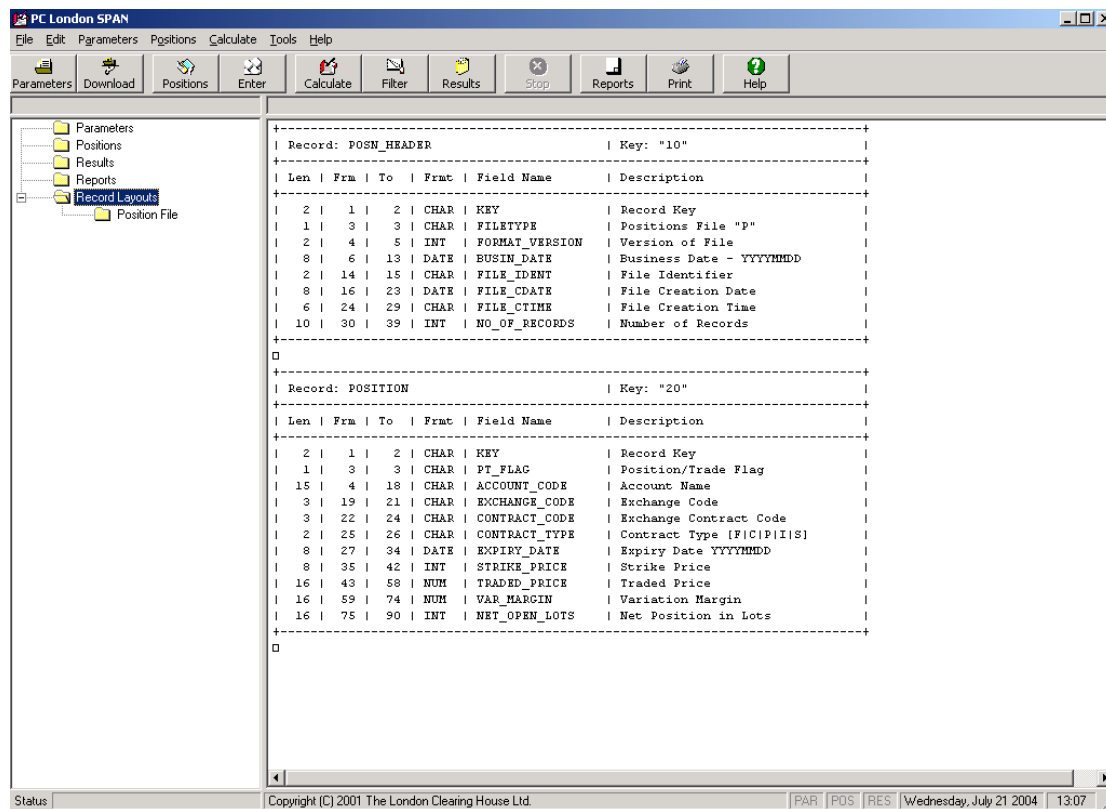
- **Understanding London SPAN** – Available under Risk Management > LCH.Clearnet Ltd > London SPAN for Exchanges > Margining Guides.
- **SPAN Version 4 TIP** - Available under Risk Management > LCH.Clearnet Ltd > London SPAN for Exchanges > Technical Specifications.
- **SPAN Version 4 Parameter File Format** - Available under Risk Management > LCH.Clearnet Ltd > London SPAN for Exchanges > Technical Specifications.

5.2 Support

If you encounter any problems with the installation of PC London SPAN, please contact the LCH.Clearnet Limited Service Desk on +44 (0) 20 7426 7200.

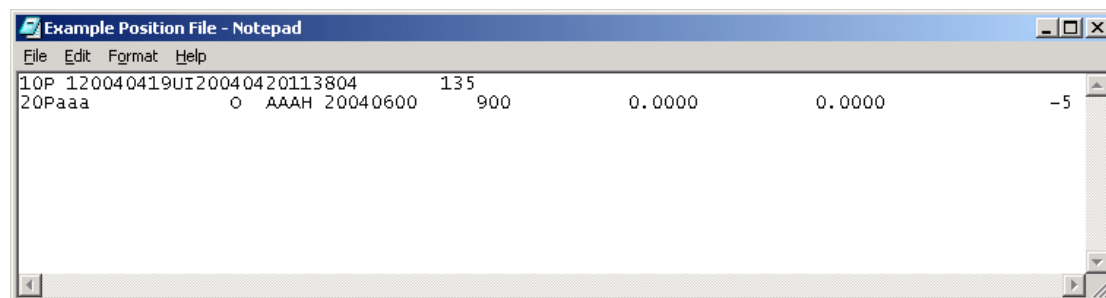
If you have any enquiries on the use of PC London SPAN, please contact the LCH.Clearnet Limited Risk Management Department on +44 (0) 20 7426 7520.

Appendix A - Position File Layout



There are two Records that you will need to insert; Record 10 (POSN_HEADER) and Record 20 (POSITION). There will only ever be one Record 10. Each position you wish to enter will have its own Record 20. The Record Layout you see in PC London SPAN shows all the fields that may need to be entered and the order that is required. It shows the length of each Field. If the data you wish to enter under any one Field does not use up the full length of the Field then you should enter spaces to use up the remaining length.

Below is an example of a Position File.



Appendix B - SPAN Contract Codes

Exchange	Contract	SPAN Code	Exchange	Contract	SPAN Code
LIFFE*	Euribor	I	LME**	Copper	CA
	Euribor Mid Curve Option	K		Mini Copper 'A' Grade	MCD
	Eurodollar	ED		Aluminium Alloy	AA
	Eurodollar Mid Curve Option	EM		Aluminium High Grade	AH
	Eonia 1 Month	EON		Mini Aluminium HG	MAD
	Eonia 3 Month	EO3		NASAAC	NA
	Short Sterling	L		Tin	SN
	Short Sterling Mid Curve	M		Zinc	ZS
	Euroswiss	S		Mini Zinc	MZD
	Long Gilt	R		Nickel	NI
	Euroyen Tibor	J		Lead	PB
	JGB	N		LMEX	MX
	2 Year EUR Swapnote	TWS		Polyethylene	LL
	5 Year EUR Swapnote	O		Polypropylene	PP
	10 Year EUR Swapnote	P			
	2 Year USD Swapnote	USW	EnClear	OTC UK Power Baseload (Forward/Physical)	UB
	5 Year USD Swapnote	USO		OTC UK Power Peakload (Forward/Physical)	UP
	10 Year USD Swapnote	USP		OTC NBP Nat Gas Forward (Forward/Physical)	UN
	FTSE 100	Z		Certified Emissions Reduction	CER
	FTSE 100 Options	ESX/FLX		EU Emissions Allowances	EUA
	FTSE 250	Y		Baltic Dry Index	BDI
	FTSE Eurotop 100	Q		Dry Timecharter Basket Route CTC	CTC
	FTSEurofirst 300	FOT		Dry Timecharter Basket Route PTC	PTC
	MSCI Euro	MCU		Dry Timecharter Basket Route STC	STC
	MSCI Pan-Euro	MCP		Dry Timecharter Basket Route HTC	HTC
	FTSEurofirst 100	EFP		Dry Trip Timecharter Route P2A	P2A
	FTSEurofirst 80	EFE		Dry Trip Timecharter Route P3A	P3A
	CAC 40	ZCC		Dry Voyage Route C3	C3
	AEX	ZAX		Dry Voyage Route C4	C4
	BEL 20	ZBL		Dry Voyage Route C5	C5
	PSI 20	ZPS		Dry Voyage Route C7	C7
	Cocoa	C		Tanker Voyage Route TD3	TD3
	Coffee	D		Tanker Voyage Route TD5	TD5
	Robusta Coffee	RC		Tanker Voyage Route TD7	TD7
	White Sugar	W		Tanker Voyage Route TC2	TC2
	Raw Sugar	RSU		Tanker Voyage Route TC4	TC4
	Wheat	T		Tanker Voyage Route TC5	TC5

*SPAN Codes for LIFFE individual Equity Options and Universal Stock Futures are available on the LIFFE Margin Rate Circular. Please see worksheet G-LTO

Appendix C - Locating Strike Prices

You can find out details of valid strike prices for each contract using the Parameter File. Click on the Parameter File you have saved. If this does not automatically open then we recommend that the file is opened using Notepad. The example below is that of the LIFFE Parameter File.

Record	Contract	Type	Quantity	Strike Price	Maturity	Option	Strike Price	Option	Strike Price	Option	Strike Price	Option
50200712000	OF	1	95690	1.0000	0	0	-83	-83	83	83	-167	-167
50200803000	OF	1	95610	1.0000	0	0	-83	-83	83	83	-167	-167
50200806000	OF	1	95525	1.0000	0	0	-83	-83	83	83	-167	-167
50200809000	OF	1	95455	1.0000	0	0	-83	-83	83	83	-167	-167
50200812000	OF	1	95385	1.0000	0	0	-83	-83	83	83	-167	-167
50200903000	OF	1	95315	1.0000	0	0	-83	-83	83	83	-167	-167
401	OTTHREE MONTH EURO (EUEUR 1000 5				2.50000	1.00	3	1000	2502			
50200405000	95500C	1	2435	1.0000	0	0	-83	-83	83	83	-167	-167
60	95500P	1	0	0.0000	0	0	0	0	0	0	0	0
60	95625C	1	2310	1.0000	0	0	-83	-83	83	83	-167	-167
60	95625P	1	0	0.0000	0	0	0	0	0	0	0	0
60	95750C	1	2185	1.0000	0	0	-83	-83	83	83	-167	-167
60	95750P	1	0	0.0000	0	0	0	0	0	0	0	0
60	95875C	1	2060	1.0000	0	0	-83	-83	83	83	-167	-167
60	95875P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96000C	1	1935	1.0000	0	0	-83	-83	83	83	-167	-167
60	96000P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96125C	1	1810	1.0000	0	0	-83	-83	83	83	-167	-167
60	96125P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96250C	1	1685	1.0000	0	0	-83	-83	83	83	-167	-167
60	96250P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96375C	1	1560	1.0000	0	0	-83	-83	83	83	-167	-167
60	96375P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96500C	1	1435	1.0000	0	0	-83	-83	83	83	-167	-167
60	96500P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96625C	1	1310	1.0000	0	0	-83	-83	83	83	-167	-167
60	96625P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96750C	1	1185	1.0000	0	0	-83	-83	83	83	-167	-167
60	96750P	1	0	0.0000	0	0	0	0	0	0	0	0
60	96875C	1	1060	1.0000	0	0	-83	-83	83	83	-167	-167

Move down to the Contract you are interested in, in this case it is Euribor (I). The record numbers are the first two numbers on each line. The Strike Prices are all listed under record 60, split twice, once for Calls (C) and once for Puts (P). For details of the record layouts you need to look in the SPAN Version 4 Parameter File Format, as detailed above.

Appendix D - Report Descriptions

- **Option Value Losses**

This report breaks down the Scanning Risk calculation for all Options, giving the results for all 16 scenarios.

- **Summary Value Losses**

This breaks down the Scanning Risk calculation for all Futures and Options per contract, giving the results for all 16 scenarios. The results of the delivery month are the summed for each contract. The Options values are summarised from the Option Value Losses report.

- **Summary Scanning Risk**

This gives the final results for each contract, split into the 16 scenarios. It also identifies the Largest Loss Scenario and the resultant Scanning Risk.

- **Combined Contract Tier Details**

This shows the Net Delta in each Intercommodity Tier for each contract.

- **Strategy Spread Charges**

This breaks down the charges for any Strategies within the list of positions.

- **Intermonth Spread Charges**

This breaks down the Intermonth Charges for the positions held.

- **Spot Month Charges**

This explains any Spot Month Charges on any of the contracts in the portfolio. The Spot Month Charge is calculated separately to the Scanning Risk.

- **Expiry Group Delta**

For certain contracts this report will provide a breakdown of the Delta for each Expiry Group.

- **Inter-contract Spread Credit**

This report gives the breakdown of any Intercommodity Spread Credits you may receive for you portfolio.

- **Summary by Combined Contract**

This gives the summary of all the charges by contract.

- **Net Margin by Combined Contract**
This shows the Net Margin by contract.
- **Summary by Margin Group**
This gives the summary of all the charges by Exchange.
- **Net Margin by Margin Group**
This shows the Net Margin by Exchange.
- **Discount Variation Margin**
This shows details of Discounted Variation Margin when you are using LME positions.
- **Net Liquidation Value**
This report shows the calculation of any NLV you may have on any Long Positions in Premium Paid Up Front Options.
- **Contingent Variation Margin**
This shows details of Contingent Variation Margin when you are using LME positions.