Overview of VaR Margin Calculation Software

Japan Securities Clearing Corporation
October 31, 2024 Version 3.0.1
(Effective Date: May 26, 2025)

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JAPAN SECURITIES
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Change History

#	Date	Effective Date	Version	Section	Description
1	Jun 24, 2022	Nov. 6, 2023	1.0	-	Initial version
2	Nov 1, 2022	Nov. 6, 2023	1.1	6. Supported OS and Java	Added complement about supported OS and Java
3				7. Performance	Added the process time is benchmark. Updated the process time
4	Mar 15, 2023	Nov. 6, 2023	1.2	1. VaR Margin Calculation Software	Changed the way to get the CLI and API version. Updated "How to Sign Up".
5				4. Input Data	Added the URL for VPF, BPF and APF.
6				8. Types of API Agreements and Usage Fees	Updated the procedure to use the API version.
7	Jan 30, 2024	Jun. 10, 2024	2.0	2. Margin Calculation Mode	Updated the description for calculation items under calculation mode units
8				6.Supported OS and Java	Changed supported operating systems.
9	May 17, 2024	Nov. 5, 2024	2.1	4. Input Data	Changed distribution time of BPF and APF associated with trading hour revisions at OSE/TOCOM/ODE
10	Jun 28, 2024	May 26, 2025	3.0	2. Margin Calculation Mode	Added SAM
11				3. Usage Flow	Added SPF
12				4. Input Data	Added SPF
13				7. Performance	Added SPF
14	Oct 31, 2024	May 26, 2025	3.0.1	2. Margin Calculation Mode	The item description for 3. Margin Requirement in the table below has been further elaborated.

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1. VaR Margin Calculation Software

- **This software is used for the calculation of VaR margin and Add-on Charge.**
- **It is developed by Tokyo Stock Exchange, Inc. and is provided by JSCC with their permission.**
- **The software covers listed derivatives products tradable at Osaka Exchange, Inc. (OSE), Tokyo Commodity Exchange, Inc. (TOCOM) and Osaka Dojima Exchange, Inc. (ODEX).**
- **3 types of software are provided as shown below.**

#	Type	Materials to be Provided	How to Use	Available via	How to Sign Up	Usage Charge
1	GUI Version	• Jar file (GUI) • GUI specifications	• Download the jar file for GUI to a terminal for use. • The screen opens automatically after the application activation. Specify input files, etc. and run margin calculation.	JSCC Website	Agreement to Terms of Usage	Free
2	CLI Version	• Jar file (CLI) • CLI Instruction Manual	• Incorporate the jar file for CLI into your system and implement the application by command line. • JSCC provides a command line instruction manual.	JSCC Website[*1]	Agreement to Terms of Usage	Free
3	API Version	• Jar file (API) • API Application Specifications • JSON schema	• Integrate the jar file into your system. • JSCC provides the API specifications.	JSCC Website[*1]	Agreement to Terms of Usage	Chargeable

(*1) URL for CLI and API version is informed to target users only.

2. Margin Calculation Mode

- **The software offers a different selection of margin calculation mode.**
  - ➤ **Users can select the most suitable types of software taking their usage, calculation components required, etc. into account.**
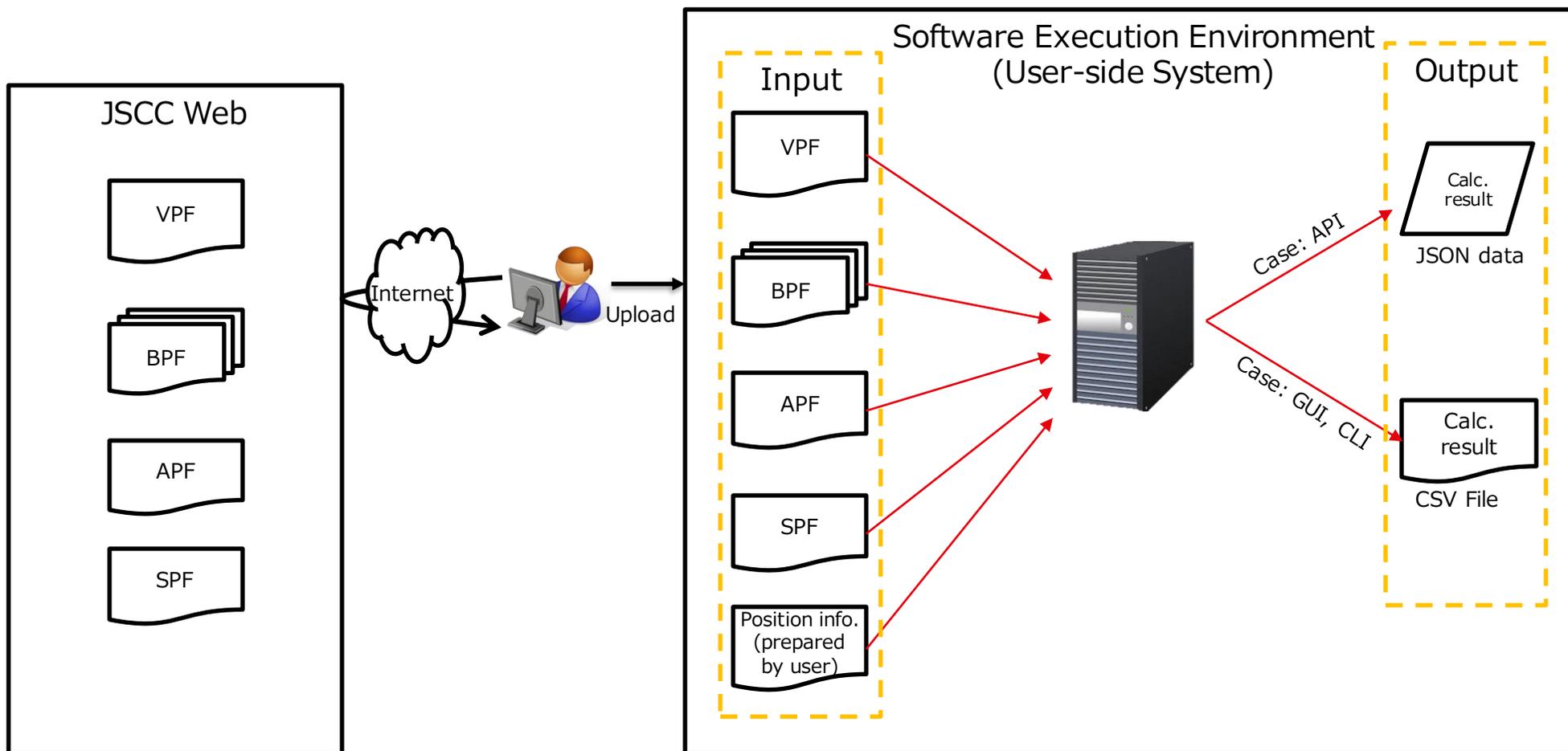 - ➤ **The calculation items differ depending on the selected calculation mode.**

#	Calculation Mode	Calculation Item							Software Type		
		VaR Margin	Add-on Charge	Margin Requirement	Ref_VaR Margin With Sign	Ref_NetOption Value	VaR Risk	SAM	GUI	CLI	API
①	All (excluding SAM)	○	○	○ (excl. SAM)	○	○	○	×	○	○	○
②	VaR Margin	○	×	×	×	×	×	×	○	○	○
③	Add-on Charge	×	○	×	×	×	×	×	×→○	×→○	○
④	VaR Risk	○	×	×	○	○	○	×	×→○	×→○	○
⑤	All	○	○	○	○	○	○	○	○	All	○

- **Description of each calculation item is as follows.**

#	Calculation Item	Description
①	VaR Margin	The margin using the VaR calculation method(the VaR Risk that takes Net Option Values into account)
②	Add-on Charge	The margin add-on based on the level of position concentration
③	Margin Requirement	Total amount of ①VaR Margin, ②Add-on Charge and ⑦SAM (Where All (excluding SAM) is selected as Calculation Mode, total amount of ①VaR Margin and ②Add-on Charge)
④	Ref_VaR Margin With Sign	The margin using the VaR calculation method (even in negative, the value should not be 0-floored)
⑤	Ref_Net Option Value	Total value of Call option - total value of Put option
⑥	VaR Risk	The value equivalent to assumed loss calculated by the VaR method
⑦	SAM	Initial Margin Add-on based on the stressed risk amount (hereafter, SAM)

3. Usage Flow

- **For calculation, input of VPF, BPF, APF, SPF and position information is required. (See Point 4. for details.)**

- **VPF, BPF, APF and SPF should be downloaded from JSCC HP.**

- **A CSV file is created as output for GUI and CLI versions. In the API version, calculation results are returned to the sender of request.**

4. Input Data

- **The following input data is required for calculation.**
  - ➢ **See the Attachments of Connection Specifications for detailed specifications.**

Input Data	Description	How to Prepare
VaR parameter file (VaR Parameter File (VPF))	Parameters (confidence level, etc.) necessary for VaR margin calculation are included.	Download from JSCC Website
Scenario PL file(s) (Base IM Parameter File (BPF))	Input data necessary for margin calculation such as instrument, settlement price and scenario PL is included.	https://jscc-h.jpx.co.jp/jscc/listed-derivatives/weekday/index.html
File for Add-on Charge calculation (Add-on charge Parameter File (APF))	Input data necessary to calculate liquidity and concentration charge is included.	
Stress scenario PL file (Stress risk Parameter file (SPF))	Input data necessary to calculate SAM is included.	
Position information	Per-account, per-instrument position information (Upload in file format for GUI and CLI versions, direct input into a request for API version)	Preparation by users

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● **VPF, BPF and APF become available at the following time points.**

	File	Note	Available from JSCC Website (*1)
BPF	File for JGB Futures/Options calculation		Around 11:30(Intraday margin/every business day) Around 13:30(Emergency margin/only when triggered) Around 15:45(EOD margin/every business day)
	File for Index Futures/Options calculation	Excl. Flex instruments (Futures/Options) and RN Prime Index Futures	Around 11:30(Intraday margin/every business day) Around 13:30(Emergency margin/only when triggered) Around 16:15(EOD margin/every business day)
	File for Securities Options calculation	Excl. Flex Options instruments	
	File for Commodity Futures/Options calculation	Incl. Commodity Futures/Options instruments listed at OSE or TOCOM	
	File for ODEX Commodity Futures calculation	Incl. Futures/Options instruments listed at ODEX	
	File for specific instruments calculation	Incl. Flex instruments (Futures/Options) and RN Prime Index Futures	Around 11:30(Intraday margin/every business day) Around 13:30(Emergency margin/only when triggered) Around 16:30(EOD margin/every business day)
	File for Next Day (*2)	Available only to parties with an agreement on a paid-for basis	Around 18:30(every business day)
VPF		Generation of File for Next Day is out of scope	Around 11:30(Intraday margin/every business day) Around 13:30(Emergency margin/only when triggered) Around 15:45(EOD margin/every business day)
APF		Generation of File for Next Day is out of scope	Around 11:30(Intraday margin/every business day) Around 13:30(Emergency margin/only when triggered) Around 17:00(EOD margin/every business day)
SPF		Generation of File for Next Day is out of scope	Around 17:00(EOD margin/every business day)

(*1) Note that the time points of availability are provided as a guide based on the current average time and they may be delayed depending on the market situation, etc.
(*2) Added instruments are new futures and option instruments due to contract month rollover or the price level changes of underlying products. Note however that instruments added due to business rule changes or new product listings are not included.

4. Input Data

- **Files required for calculation of components are shown below.**
  - ➢ **BPF is created and made available per product category. It is not necessary to obtain and import BPF(s) for the product categories that are not found in the positions to be calculated.**
  - ➢ **As described in "7. Performance", processing time for file reading can be reduced proportionally to the number of instruments when unnecessary BPF is not read.**

#	Calculation Component	VPF	BPF	APF	SPF
①	All (excluding SAM)	○	○	○	×
②	VaR Margin	○	○	×	×
③	Add-on Charge	×	×	○	×
④	VaR Risk	○	○	×	×
⑤	All	○	○	○	○

(○ : Required, × : Not required)

5. Output Data

- **The amounts of selected calculation components are output per account and per silo (clearing qualification type) as defined in input position data.**

- **A CSV file is created as output for GUI and CLI. In the API version, results are returned in JSON format.**

  - ➢ **See the Attachments of Connection Specifications for detailed specifications.**

6. Supported OS and Java

- **The OS and Java versions in the table below are supported.**
- **A supported version of Java needs to be installed in the OS for software activation.**

OS/Java		Version	GUI	CLI	API
OS	Windows Client Enterprise	Windows10 （64bit） (*1)	○	○	○
		Windows11	○	○	○
	Windows Server Standard	Windows Server 2016	×	○	○
		Windows Server 2019	×	○	○
		Windows Server 2022	×	○	○
	Red Hat Enterprise Linux	RHEL7	×	○	○
		RHEL8	×	○	○
		RHEL9	×	○	○
Java	JRE	8 （64bit） (*2)	○	○	○
		11	○	○	○
		17	○	○	○

(*1) Windows 10 Enterprise(32bit) is not supported
(*2) JRE 8(32bit) is not supported

(○: Supported, ×: Not supported)

- **The table below shows the approximate time required for processing of listed actions on condition that the data volume is as provided.**

- **The process time differs depending on the environment and the usage thus please treat it as a rough indication.**

- **Processing time of VPF, BPF, APF and SPF reading is generally proportional to the number of instruments.**

- **Processing time required for margin calculation is generally proportional to the number of HS-VaR position instruments.**

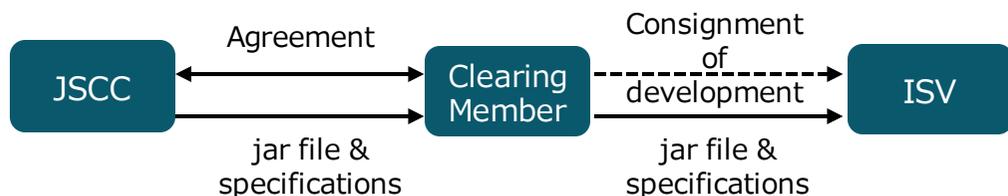| Process Type	Data Volume	Process Time [*1]
Batch process in GUI/CLI versions • VPF, BPF, APF and SPF reading • Position data reading • Margin calculation	• VPF, BPF, APF and SPF: 15,000 instruments • Position: HS-VaR 6 instruments x 30,000 customers	5.5 min.
Batch process in API versions • Position data reading • Margin calculation	• Position: HS-VaR 6 instruments x 30,000 customers	4.5 min.
VPF, BPF, APF and SPF reading in API version	• 15,000 instruments	1 min.
Real-time calculation in API version • Position data reading • Margin calculation	• HS-VaR 50 instruments x 1 account	90 ms
Real-time calculation in API version • Position data reading • Margin calculation	• AS-VaR 50 instruments x 1 account	30 ms

(*1) The spec for the hardware where the test was conducted is:
  • Amazon EC2 instance t2.large
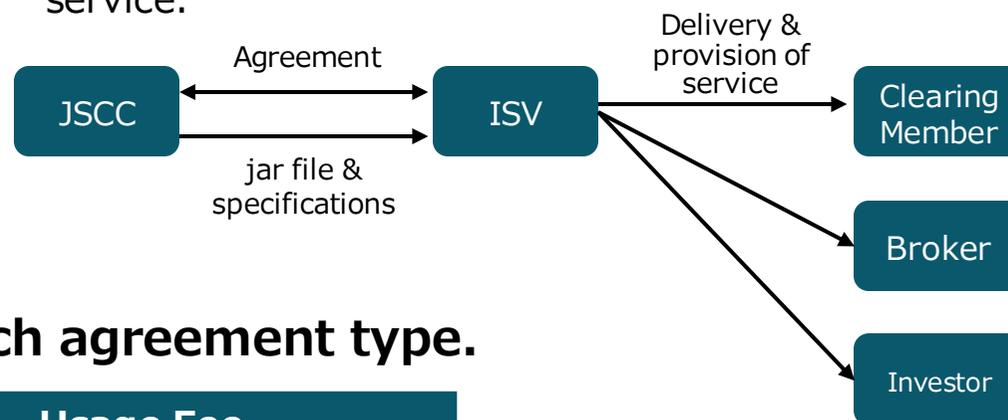   (CPU: 2Core@2.4GHz Memory: 8GiB)
  • Disk: SSD

8. Types of API Agreements and Usage Fees

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- **Parties submitting the application of API version are provided with the jar file and API Application Specifications on a paid-for basis. JSCC prepares an individual agreement for clearing members and a comprehensive agreement for ISVs.**
  - ➤ **The agreement for ISVs is a comprehensive agreement covering all service receivers and service types.**
  - ➤ **If you are currently using an ISV service, please consult the ISV about the agreement type. (No individual agreement is required when you use the API through your ISV's comprehensive agreement.)**

① The **Clearing Member** concludes an agreement with JSCC and conducts in-house development or consignment of development to ISV

② The **ISV** concludes an agreement with JSCC to carry out development for a specific clearing member or to provide multiple clearing members, etc. a particular service.

- **The usage fee is differently priced for each agreement type.**

#	Type of Agreement	Usage Fee
1	Agreement with Clearing Member (individual agreement)	(Monthly, tax excluded) 100,000 yen
2	Agreement with ISV (comprehensive agreement)	(Monthly, tax excluded) 300,000 yen

9. Disclaimer

- This document serves as a guide for users of the VaR margin calculation software and provides its overview. We do not take any responsibility for the contents of the document, which are subject to change without notice.

- We do not guarantee that the VaR margin calculation software functions, etc. (including results of the VaR margin calculation) are accurate, current or appropriate, nor suitable to the purpose of users' usage or their environment in use.

  ➢ If there is a difference between the margin requirement amount which we notify clearing members of and that resulting from the VaR margin software calculation, users are required to use the amount notified by us.

- We do not accept any responsibility for any cost suffered by or any damage, etc. caused to users or third parties through the use of or due to an impossibility of the use of the VaR margin calculation software.

- We do not accept any responsibility for any disagreement, dispute, etc. among users or between users and third parties caused by the use of the VaR margin calculation software.

- We do not accept any responsibility for any damage caused by modification or duplication of the VaR margin calculation software.