Web Services 1.0 Documentation

Updated -Mar 07- 2014

Contents

Introduction 3
Available Services 3
Login Service 4
login 4
logout 4
Screener Service 5
systemScreenerData 5
cndlPatternScreenerData 8
Custom Screener Service 9
screenerList 9
screenerData 10
OptionCalculatorService 11
calculateOptionPrice 11
calculateOptionDelta 12
calculateOptionTheta 13
calculateOptionGamma 14
calculateOptionVega 14
calculateOptionRho 15

VerticalSpreadCalculatorService 16
calculateDebitSpread 16
calculateCreditSpread 17
AnalyzerService 18
analyzeScreenerData 19
System Service 20
isInMaintenance 20
Error Reporting 21
Appendix 22
Location Details 22
Strategy Short Name Details 22
Calculated Properties for Stock 23
Calculated Properties for Option 23
Calculated Properties for Strategy 23
X-Axis Plot Types for Analyzer 23
Y-Axis Plot Types for Analyzer 24
Candle Stick Pattern types 24

Introduction

Avasaram RESTful Web Services help applications and websites to communicate with Avasaram platform easily. The APIs provide access to screeners, analyzers and calculators.

Base URL for Webservices Access: http://webservices.avasaram.com

Available Services

- Login Service
- Screener Service
- Custom Screener Service
- Option Calculator Service
- Vertical Spread Calculator Service
- Analyzer Service

```
//First step is to establish session with the server. Successfull login will return a
//userKey which will be used for all other subsequent requests

userKey = Call LoginService.login

Call ScreenerService.screenerData

Call OptionCalculatorService.calculateOptionPrice

Call CustomScreenerService.screenerList

Call CustomScreenerService.screenerData

.

//Finally ..Disconnect from server

Call LoginService.logout
```

Login Service

This service controls access to the Avasaram platform.

Available Methods

- login
- logout

login

This is the first call that has to be made to establish a connection. Successful completion of this results in return of a **user code**. This code has to be used with all the subsequent webservice request. There should only be one login request call per session.

Service Access Details	
Url	/LoginService/login
Method	POST

Service Input Parameters

Name	Description	Required	Example
userId	The user Id of the user. Usually the registration userId.	Yes	"demoxxx"
password	Password for the user	Yes	"********"
location	The location code for appropriate location. See **appendix** for the list of available location code.	Yes	"1" The default location code is "1" which corresponds to USA.

Service Output (Type=XML)

Name	Description	Always Present	Notes
LoginOutPut	Top level tag	Yes	
+userKey	Returns a valid user key as a string.	Yes	

logout

This method is used to sign out from the system. It is highly recommended to end the session by calling this method. This will ensure that all the cached data is removed.

Service Access Details	
Url	/LoginService/logout
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	“yeqqupnfxm”

Service Output (Type=TEXT)

Name	Description	Always Present	Notes
Returns “ true” or “false” indicating whether the operation was successful.			

Screener Service

This service is used to access data of different screeners provided by the system.

<u>Available Methods</u>

- systemScreenerData
- cndlPatternScreenerData

systemScreenerData

This method is used to access various screener data.

Service Access Details	
Url	/ScreenerService/systemScreenerData
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	“yeqqupnfxm”
strategyType	The type of strategy for which the data will be retrieved. See **appendix** for the list of available strategy types.	Yes	“COV-CALL”
maxDataLimit	The maximum number of entries returned.	No	Default is 500. Allowed values 1 to 2000

Service Output (Type=XML)

Tag Name	Description	Always Present (Number)	Notes/Example
DataList	Top level tag	Yes (1)	
+StrategyData	The data representing the strategy. Contains all the information about the strategy.	Yes (1..n)	This data element could repeat multiple times to the maximum of 2000
++key	The unique key which represents this strategy data	Yes (1)	
++location	The location code	Yes (1)	“1” The location code associated with the location(USA/CANADA/INDIA) See appendix for the complete list.
++strategyShortName	A short name representing the strategy	Yes(1)	“COV-CALL”. See Appendix for the complete list of available strategy short name.
++createTime	Time when the strategy data is created	Yes(1)	“2012-08-14T16:55:09.495-04:00”
++StockData	The data elements for the underlying stock	Yes(1)	
+++ticker	The ticker for the stock	Yes(1)	“MSFT”
+++last	The last traded price	Yes(1)	“20.1”
+++stockName		Yes(1)	“Microsoft”

+++CalculatedProperties	The list of calculated properties for the stock. This will contain a list of property elements.	Yes(1)	
++++Property	The property container having name value pair.	Optional(0..n)	
+++++name	Name of the property	Yes(1)	"PUTCALLRATIO"
+++++value	Value of the property	Yes(1)	"0.8"
++StrategyLegs	This element contains the option legs for the strategy	Yes(1)	
+++OptionData	The option leg for the strategy.	Yes(1..4)	This data element could repeat multiple times to the maximum of 4
++++optionSymbol	The option symbol for the leg.	Yes(1)	
++++optionType	The type of option. Call or Put	Yes(1)	"C" or "P" C represents Call and P represents Put
++++ITM	In The Money or Not. This is a boolean field	Yes(1)	"true" or "false". true means this an ITM option
++++tradeSide	The trade side of leg. The long side or short side.	Yes(1)	"L" or "S". "L" represent long side "S" represents short side.
++++strike	The strike price of option.	Yes(1)	"17.5"
++++expiry	The option expiry date.	Yes(1)	"22Sep2012"
++++bid	The bid price of option.	Yes(1)	"1.05"
++++ask	The ask price of option.	Yes(1)	"1.10"
++++last	The last traded price of option.	Yes(1)	"1.0"
++++volume	The traded volume.	Yes(1)	"100"
++++openInterest	The open Interest.	Yes(1)	"500"
++++impliedVolatility	The implied volatility of option	Yes(1)	"50.09"
++++CalculatedProperties	The calculated properties for this option leg.	Yes(1)	
+++++Property	The property container having name value pair.	Optional(0..n)	
++++++name	Name of the property	Yes(1)	"DELTA"
++++++value	Value of the property	Yes(1)	"0.56009"
++CalculatedProperties	The calculated properties for this strategy data.	Yes(1)	

+++Property	The property container having name value pair.	Optional(0..n)	
++++name	Name of the property	Yes(1)	"MAX_RETURN"
++++value	Value of the property	Yes(1)	"1.05"

cndlPatternScreenerData

This method is used to access various candle stick patterns.

Service Access Details	
Url	/ScreenerService/ cndlPatternScreenerData
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	"yeqqupnfxm"
patternId	The type of candle stick pattern for which the data will be retrieved. See **appendix** for the list of available patterns and the Ids.	Yes	"1" Takes a value between 1 to 61.
noOfDays	The maximum number of days up to which the pattern will be searched.	No	Default is 300. Allowed 1 to 300
maxDataLimit	The maximum number of entries returned.	No	Default is 500. Allowed values 1 to 2000

Service Output (Type=XML)

Tag Name	Description	Always Present (Number)	Notes/Example
DataList	Top level tag	Yes (1)	
+CndlPattern	The data representing the patetrn. Contains all the information about the pattern.	Yes (1..n)	This data element could repeat multiple times to the maximum of 2000

++ticker	The ticker symbol for the underlying.	Yes (1)	"MSFT"
++occurances	The bullish or bearish occurances for this pattern. This is a comma separated field which has a bullish or bearish indicator with the event date. The indicator and the date is separated by a colon ":" An indicator of "1" means this is a bullish event. An indicator of "0" means this is bearish event.	Yes (1)	"1:13May2013,0:14Jan2014" The above string indicates there was a bullish event of this pattern which occurred on 13th May and a bearish event of this pattern occurred in 14th January.

Custom Screener Service

This service is used to access data of different screeners created by the user.

Available Methods

- screenerList
- screenerData

screenerList

This method is used to access the list of screeners created by the user.

Service Access Details	
Url	/CustomScreenerService/screenerList
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	"yeqqupnfxm"

Service Output (Type=XML)

Tag Name	Description	Always Present (Number)	Notes/Example
DataList	Top level tag	Yes (1)	
+CustomScreener	The data representing the screener created by user. Contains all the information about the Screener.	Yes (1..n)	This data element could repeat multiple times
++screenerId	The unique key which represents this screener	Yes (1)	The id of this screener which is used to run this screener.
++location	The location code	Yes (1)	“1” The location code associated with the location(USA/CANADA/INDIA) See appendix for the complete list.
++screenerName	The name of the screener	Yes(1)	“My First Screener”
++Strategy	The data representing the strategy	Yes(1)	
+++strategyName	The name of the strategy	Yes(1)	“Covered Call ”
+++strategyShortName	The short name for the strategy	Yes(1)	“COV-CALL”

screenerData

This method is used to access the screener data.

Service Access Details	
Url	/CustomScreenerService/screenerData
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	“yeqqupnfxm”
screenerId	The ID of the screener	Yes	

Service Output (Type=XML)

Tag Name	Description	Always Present (Number)	Notes/Example
Output XML is of same form as the output of the system screener.			

OptionCalculatorService

A service for calculating option prices and option greeks.

Available Methods

- calculateOptionPrice
- calculateOptionDelta
- calculateOptionTheta
- calculateOptionGamma
- calculateOptionVega
- calculateOptionRho

calculateOptionPrice

This method is used to calculate the option price based on black schole's model.

Service Access Details	
Url	/OptionCalculatorService/calculateOptionPrice
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	"yeqqupnfxm"
optionType	The type of option. "C" for call option and "P" for put option	No	"C" The default value for optionType is "C" (Call)
stockPrice	The stock price.	Yes	"10.59"
strikePrice	The strike price of the option	Yes	"12.5"

interestRate	The risk free interest rate.	Yes	"2.5"
volatility	Volatility of the underlying	Yes	"30.5"
expiryDays	Days left to expiry	Yes	"15"

Service Output (Type=TEXT)

Name	Description	Always Present	Notes
	Returns option price	Yes	

calculateOptionDelta

This method is used to calculate the option greek delta.

Service Access Details	
Url	/OptionCalculatorService/calculateOptionDelta
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	"yeqqupnfxm"
optionType	The type of option. "C" for call option and "P" for put option	No	"C" The default value for optionType is "C" (Call)
stockPrice	The stock price.	Yes	"10.59"
strikePrice	The strike price of the option	Yes	"12.5"
interestRate	The risk free interest rate.	Yes	"2.5"
volatility	Volatility of the underlying	Yes	"30.5"
expiryDays	Days left to expiry	Yes	"15"

Service Output (Type=TEXT)

Name	Description	Always Present	Notes
	Returns option delta	Yes	

calculateOptionTheta

This service is used to calculate the option greek theta.

Service Access Details	
Url	/OptionCalculatorService/calculateOptionTheta
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	"yeqqupnfxm"
optionType	The type of option."C" for call option and "P" for put option	No	"C" The default value for optionType is "C" (Call)
stockPrice	The stock price.	Yes	"10.59"
strikePrice	The strike price of the option	Yes	"12.5"
interestRate	The risk free interest rate.	Yes	"2.5"
volatility	Volatility of the underlying	Yes	"30.5"
expiryDays	Days left to expiry	Yes	"15"

Service Output (Type=TEXT)

Name	Description	Always Present	Notes
	Returns option theta	Yes	

calculateOptionGamma

This method is used to calculate the option greek theta.

Service Access Details	
Url	/OptionCalculatorService/calculateOptionGamma
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	"yeqqupnfxm"
stockPrice	The stock price.	Yes	"10.59"
strikePrice	The strike price of the option	Yes	"12.5"
interestRate	The risk free interest rate.	Yes	"2.5"
volatility	Volatility of the underlying	Yes	"30.5"
expiryDays	Days left to expiry	Yes	"15"

Service Output (Type=TEXT)

Name	Description	Always Present	Notes
	Returns option gamma	Yes	

calculateOptionVega

This method is used to calculate the option greek vega.

Service Access Details	
Url	/OptionCalculatorService/calculateOptionVega
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	“yeqqupnfxm”
stockPrice	The stock price.	Yes	“10.59”
strikePrice	The strike price of the option	Yes	“12.5”
interestRate	The risk free interest rate.	Yes	“2.5”
volatility	Volatility of the underlying	Yes	“30.5”
expiryDays	Days left to expiry	Yes	“15”

Service Output (Type=TEXT)

Name	Description	Always Present	Notes
	Returns option vega	Yes	

calculateOptionRho

This method is used to calculate the option greek rho.

Service Access Details	
Url	/OptionCalculatorService/calculateOptionRho
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	“yeqqupnfxm”
optionType	The type of option. ”C” for call option and “P” for put option	No	“C” The default value for optionType is “C” (Call)

stockPrice	The stock price.	Yes	“10.59”
strikePrice	The strike price of the option	Yes	“12.5”
interestRate	The risk free interest rate.	Yes	“2.5”
volatility	Volatility of the underlying	Yes	“30.5”
expiryDays	Days left to expiry	Yes	“15”

Service Output (Type=TEXT)

Name	Description	Always Present	Notes
	Returns option rho	Yes	

VerticalSpreadCalculatorService

A Service to calculate vertical spread details.

Available Methods

- calculateDebitSpread
- calculateCreditSpread

calculateDebitSpread

This method is used to calculate the spread value of vertical debit spread, (Bull Call Spread and Bear Put Spread).

Service Access Details	
Url	/VerticalSpreadCalculatorService/calculateDebitSpread
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	“yeqqupnfxm”

optionType	The type of option. "C" for call option and "P" for put option	No	"C" The default value for optionType is "C" (Call)
stockPrice	The stock price.	Yes	"10.59"
longLegStrike	The strike price of the long option	Yes	"10.5"
shortLegStrike	The strike price of the short option	Yes	"12.5"
longLegPremium	The price of the long option	Yes	"2.5"
shortLegPremium	The price of the short option	Yes	"1.5"
qty	The number of contracts.	Yes	"1"
commission	The brokerage commission.	Yes	"20"

Service Output (Type=XML)

Tag Name	Description	Always Present (Number)	Notes/Example
VSpreadCalcOutput	Top level tag	Yes (1)	
+capital	The required capital for the spread	Yes (1)	"6030.0"
+profitPcnt	The profit as percentage	Yes (1)	"66.33"
+maxProfit	The maximum profit	Yes (1)	"4000.0"
+bePoint	The break even point	Yes (1)	"13.0"
+maxRisk	The maximum risk for the spread.	Yes (1)	"6030.0"

calculateCreditSpread

This method is used to calculate the spread value of vertical debit spread, (Bear Call Spread and Bull Put Spread).

Service Access Details	
Url	/VerticalSpreadCalculatorService/calculateCreditSpread
Method	POST

Service Input Parameters

Name	Description	Required	Example

userKey	The userKey returned from the system as a result of a successful login.	Yes	“yeqqupnfxm”
optionType	The type of option. ”C” for call option and “P” for put option	No	“C” The default value for optionType is “C” (Call)
stockPrice	The stock price.	Yes	“10.59”
longLegStrike	The strike price of the long option	Yes	“10.5”
shortLegStrike	The strike price of the short option	Yes	“12.5”
longLegPremium	The price of the long option	Yes	“2.5”
shortLegPremium	The price of the short option	Yes	“1.5”
qty	The number of contracts.	Yes	“1”
commission	The brokerage commission.	Yes	“20”

Service Output (Type=XML)

Tag Name	Description	Always Present (Number)	Notes/Example
VSpreadCalcOutput	Top level tag	Yes (1)	
+capital	The required capital for the spread	Yes (1)	“0”
+profitPcnt	The profit as percentage	Yes (1)	“37.5”
+maxProfit	The maximum profit	Yes (1)	“6000”
+bePoint	The break even point	Yes (1)	“13.0”
+maxRisk	The maximum risk for the spread.	Yes (1)	“6030.0”

AnalyzerService

This service is used to analyze a strategy.

Available Methods

- analyzeScreenerData

analyzeScreenerData

Analyzes data retrieved from the screener.

Service Access Details	
Url	/AnalyzerService/analyzeScreenerData
Method	POST

Service Input Parameters

Name	Description	Required	Example
userKey	The userKey returned from the system as a result of a successful login.	Yes	"yeqqupnfxm"
dataKey	The key of screener data. This will be available when "key" element of screener data.	yes	"12455789"
strategyType	The type of strategy for which the data will be retrieved. See **appendix** for the list of available strategy types.	Yes	"COV-CALL"
ticker	The ticker symbol of the underlying.	Yes	"MSFT"
xPlotType	The plot type for the X axis. The default type is "**PRICE**". See **appendix** for the complete list of available plots.	No	"PRICE"
yPlotType	The plot type for the Y axis. The default type is "**PL**" i.e. Profit and Loss. See **appendix** for the complete list of available plots.	No	"PL"

Service Output (Type=XML)

Tag Name	Description	Always Present (Number)	Notes/Example
AnalyzerOutput	Top level tag	Yes (1)	
+MaximumProfit	The maximum profit coordinates	Yes (1)	
++xVal	The X coordinate of the maximum profit.	Yes (1)	“66.33”
++yVal	The Y coordinate of the maximum profit	Yes (1)	“4000.0”
+MaximumLoss	The maximum loss coordinates	Yes (1)	
++xVal	The X coordinate of the maximum loss.	Yes (1)	“56.30”
++yVal	The Y coordinate of the maximum loss	Yes (1)	“-300.0”
+steps	The interval for X axis.	Yes (1)	“0.05”
+Series	The plot for the requested type. The xValues and yValues will be comma separated.	Yes (1)	
++xVal	The X coordinates of the series.	Yes (1)	“56.0,57.0,58.0”
++yVal	The Y coordinates of the series	Yes (1)	“100.0, 112.0,320.0”

System Service

This service is used to access information regarding the system.

Available Methods

- isInMaintenance

isInMaintenance

Checks if the system is in maintenance mode.

Service Access Details	
Url	/SystemService/isInMaintenance
Method	POST

Service Input Parameters

Name	Description	Required	Example
None			

Service Output (Type=Text)

Tag Name	Description	Always Present (Number)	Notes/Example
	true or false	Yes (1)	“true” or “false”

Error Reporting

The errors are reported back as an XML.

Example error sample.

```
<?xml version='1.0' ?>

<WSError>

 <errorDescription>Invalid User !</errorDescription>

 <errorId>0</errorId>

</WSError>
```

Appendix

Location Details

Location Code	Description
1	USA
2	INDIA
3	CANADA

Strategy Short Name Details

Short Name	Description
BEAR-CALL	Bear Call Spread
BEAR-PUT	Bear Put Spread
BULL-CALL	Bull Call Spread
BULL-PUT	Bull Put Spread
CAL-CALL	Calendar Call Spread
CAL-PUT	Calendar Put Spread
COLLAR	Collar Spread
COV-CALL	Covered Call Spread
COV-PUT	Covered Put Spread
DIAGONAL-CALL	Diagonal Call Spread
DIAGONAL-PUT	Diagonal Put Spread
LONG-CALL-BFLY	Long Call Butterfly Spread
LONG-CALL-CONDOR	Long Call Condor Spread
LONG-IRON-BFLY	Long Iron Butterfly Spread
LONG-IRON-CONDOR	Long Iron Condor Spread
LONG-PUT-BFLY	Long Put Butterfly Spread
LONG-PUT-CONDOR	Long Put Condor Spread
MARRIED-CALL	Married Call Spread
MARRIED-PUT	Married Put Spread
NAKED-CALL	Naked Call Spread
NAKED-PUT	Naked Put Spread
REVERSE-COLLAR	Reverse Collar Spread
SHORT-CALL-BFLY	Short Call Butterfly Spread
SHORT-CALL-CONDOR	Short Call Condor Spread

SHORT-IRON-BFLY	Short Iron Butterfly Spread
SHORT-IRON-CONDOR	Short Iron Condor Spread
SHORT-PUT-BFLY	Short Put Butterfly Spread
SHORT-PUT-CONDOR	Short Put Condor Spread

Calculated Properties for Stock

Property Name	Description
PUTCALLRATIO	The ratio of put volume to call volume
PUTVOLUME	The total put volume for this stock
CALLVOLUME	The total call volume for this stock

Calculated Properties for Option

Property Name	Description
DELTA	The delta for the option
THETA	The theta for the option
VEGA	The vega for the option
GAMMA	The gamma for the option
RHO	The rho for the option

Calculated Properties for Strategy

Property Name	Description
MAX_RETURN_PCNT	The maximum return percentage for the strategy
MAX_RETURN	The maximum return for the strategy
RETURN_PCNT_ONEXERCISE	The return percentage when the option is exercised. Typically used in case of covered calls.
MAX_RETURN_PROBABILITY	The probability of attaining maximum return.
ANY_RETURN_PROBABILITY	The probability of attaining any positive return.
TIME_VAL_PCNT	The time value of the option as percentage.
MAX_RISK	The maximum risk associated with the strategy.
MAX_RISK_PCNT	The maximum risk percentage associated with the strategy
PROTECTION_PCNT	The protection percentage.
NET_IMPLIED_VOLATILITY	The net implied volatility.
BREAK_EVEN_POINTS	The break even points for the strategy. If there are more than one, the value will be comma separated.

X-Axis Plot Types for Analyzer

Name	Description
PRICE	The price of the underlying.
TIME	The time in days.

VOLATILITY	The volatility of underlying.

Y-Axis Plot Types for Analyzer

Name	Description
PL	The profit/loss for the strategy

Name	Description
PL	The profit/loss for the strategy

Candle Stick Pattern types

Pattern Name	Pattern Id
Two Crows	1
Three Black Crows	2
Three Inside Up/Down	3
Three Line Strike	4
Three Outside Up/Down	5
Three Stars In The South	6
Three Advancing White Soldiers	7
Abandoned Baby	8
Advance Block	9
Belt Hold	10
Breakaway	11
Closing Marubozu	12
Concealing Baby Swallow	13
Counterattack	14
Dark Cloud Cover	15
Doji	16
Doji Star	17
Dragon Fly Doji	18
Engulfing	19
Evening Doji Star	20
Evening Star	21
Up/Down Gap Side-By-Side White Lines	22
Gravestone Doji	23
Hammer	24
Hanging Man	25
Harami	26
Harami Cross	27

High Wave	28
Hikkake	29
Hikkake Modified	30
Homing Pegion	31
Identical Three Crows	32
In Neck	33
Inverted Hammer	34
KIcking	35
Kicking - bull/bear determined by the longer marubozu	36
Ladder Bottom	37
Long Legged Doji	38
Long Line Candle	39
Marubozu	40
Matching Low	41
Mat Hold	42
Morning Doji Star	43
Morning Star	44
On Neck	45
Piercing	46
Rickshaw Man	47
Rising/Falling Three Methods	48
Separating Lines	49
Shooting Star	50
Short Line	51
Spinning Top	52
Stalled Pattern	53
Stick Sandwich	54
Takuri	55
Tasuki Gap	56
Thrusting	57
Tristar	58
Unique Three River	59
Upside Gap Two Crows	60
Upside/Downside Gap Three Methods	61