

BotPlatform SDK Protocol 3.0

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1 Protocol Summary

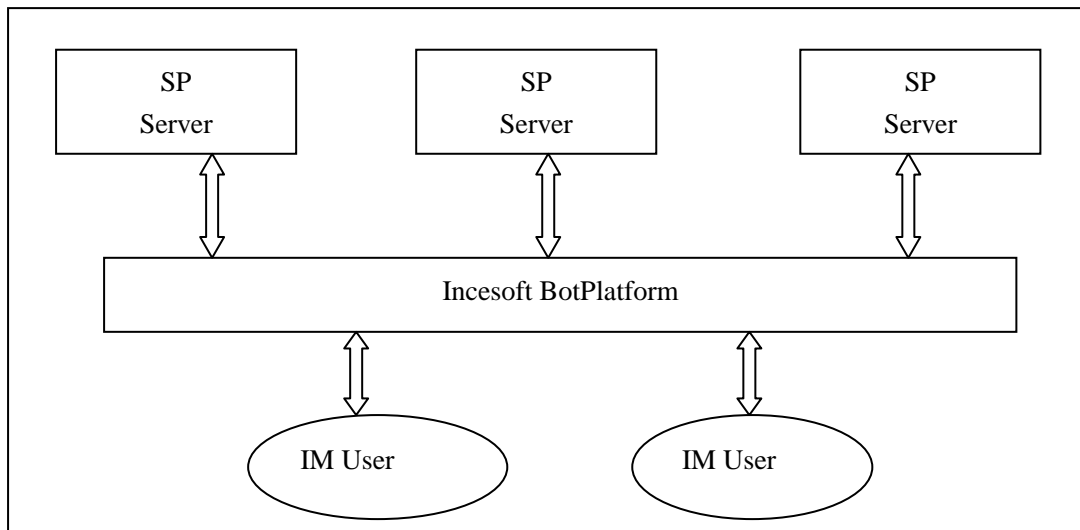
1.1 About

BotPlatform SDK protocol is a extended specification proposed by Incesoft ,which describes the format of transmitting data between third part SP and BP server. It is based on the standard TCP/IP protocol.

1.2 Concept

| ShortCut | Name | Description |
|----------|----------------------------|---|
| SP | Service Provider | Who want to use SDK to provide special service |
| SPID | Service Provider ID | Id of SP |
| SPPWD | Service Provider Password | Password of SP |
| FLAP | Frame Layer Protocol | Protocol header |
| JSON | JavaScript Object Notation | Protocol using JSON as data transmitting format |

1.3 Network architecture



As shown above, BotPlatform is a middleware between different IM client(sp is also a IM client). BotPlatform make it transparent for SP to communicate to other IM client, who want to use the SP's service(such as weather-info-query,memo-alert,etc.)

1.4 Protocol Stack

| SP |
|--------------------------------|
| SDK Protocol |
| TCP |
| IP |
| Underlining Transport protocol |

| botplatform |
|--------------------------------|
| SDK Protocol |
| TCP |
| IP |
| Underlining Transport protocol |

1.5 Transport

Packets in transport are using SDK Protocol.

Each packet first starts with a header of 6 bytes binary data (FLAP-- Frame Layer Protocol), and then followed by the body(UTF-8 encoded bytes from a JSON string). Messages are transmitted on one single TCP connection between SP and botplatform, and should be kept alive by sending keep-alive message before client closing or errors occurred.

1.5.1 FLAP Header

The flap header has 4 part,all parts are of little-endian byte order.

There are 2 kinds of part-length: 1 byte - **BYTE** ; 2 byte - **WORD**.

See following for header detail:

```
|-----startMarker-----|-----frameType-----|
|-----sequenceNumber-----|
|-----payloadLength-----|
```

01: startMarker(**BYTE**) ----- header start flag,value is 0x69 (character 'i' in ASCII)

02: frameType(**BYTE**) ----- frame type, see following for detail :

| Name | Value | Notes |
|------------|-------|--|
| SIGNON | 1 | Initialize the FLAP connection |
| DATA | 2 | Messages using the FLAP connection, usually a JSON message |
| ERROR | 3 | A FLAP error - rare |
| SIGNOFF | 4 | Close down the FLAP connection gracefully |
| KEEP_ALIVE | 5 | Send a heartbeat to server to help keep connection open |

03: sequenceNumber(**WORD**) ----- sequence number to detect packet transmission error. (eg: sp developers may send some message whose payloadLength is not the actual message length which leads to the next message reading error). SequenceNumber is initialized by a random number, and then increasing 1 for each message. SequenceNumber is bound to a TCP connection and data transmission direction(SP to BotPlatform and BotPlatform to SP).Once sequenceNumber is out of order, BotPlatform'll close current connection.

04: payloadLength(**WORD**) ----- length of message body, excluding FLAP header length

1.5.2 Packet Body

Packet body is of JSON format, encoded by 'UTF-8'.

Check <http://www.json.org/> to see more about JSON.

2 Message Definition

Message is a JSON object:

| FieldName | FieldType | Description |
|------------------|---|---|
| robotId | String | Robot identity(the robot's IM account) |
| userId | String | User identity(the user's IM account) |
| sessionId | String | Session ID (if null indicating that the message was sent without session. eg:change IM signature message) |
| type | String | Message type, null means no message body. |
| body | Object | customized object |
| <i>Example:</i> | <code>{"robotId":"incetest3004@hotmail.com","userId":"erika_mid4@hotmail.com","sessionId":"5257573032547832134","type":"msg","body":...}</code> | |

2.1 Non-Session Message

2.1.1 Login Message

| | | | |
|----------------------|--|--------|--|
| type | Login | | |
| Body type | Object | | |
| Body Type Definition | Name | Type | Description |
| | spid | String | SP identity(issued by BotPlatform) |
| | version | String | SDK client version, sth like: java: java-*** com: com-*** (*** is the SDK version you are using,the prefix is the client language/platform) |
| | token | String | token for authentication. It's encrypted by algorithm(returned by BP server in LoginResponseMessage .) with challenge,spid,connId and sppwd as plain text |
| | state | int | 0 - first login, 1 - redirect login |
| <i>Example:</i> | <code>{"spid":"SP000126","version":"java-3.0","token":"c3000413221837150ca71d48cf04ef88","state":0}</code> | | |

2.1.2 Redirect Message

| | |
|-----------|------------------------|
| type | redirect |
| Body type | String[] |
| Body Type | IP address string list |

| | |
|------------|------------------------|
| Definition | |
| Example | ["192.168.1.174:6602"] |

2.1.3 Login Response Message

| | | | |
|----------------------|---|--------|--|
| type | loginresp | | |
| Body type | Object | | |
| Body Type Definition | field | type | description |
| | status | int | Authentication status, value: 1- authentication succeed 2- redirect login(client should compute the login token to re-login, see 2.1.1) 3- authentication failed. |
| | connId | String | Unique id of current connection assigned by botplatform |
| | challenge | String | challenge to use in re-login,see 2.1.1. Null when login successfully |
| | algorithm | String | Encryption algorithm |
| Example | {"status":2,"connId":"192.168.1.44:1902","challenge":"DIUqzmdsRatBe kHj","algorithm":"MD5"} | | |

2.1.4 Update Robot Message

| | | | |
|----------------------|---|--------|--|
| type | updaterobot | | |
| Body type | Object | | |
| Body Type Definition | Name | Type | Description |
| | status | int | bot online status(-1 ignored) |
| | displayName | String | bot display name(null ignored) |
| | personalMessage | String | bot personal message(null ignored) |
| | displayPicture | String | bot display picture name(null ignored) |
| | largePicture | String | Bot large picture name (null ignored) |
| | scene | String | Bot scene (null ignored) |
| | colorScheme | int | Bot color scheme,int color value(-1 ignored) |
| Example | {"status":-1,"displayName":"testName","colorScheme":-1} | | |

2.1.5 User Updated Message

| | | | |
|----------------------|---------------|-----------|--------------------|
| type | userupdated | | |
| Body Type | Object (User) | | |
| Body Type Definition | FieldName | FieldType | Description |
| | id | String | userId(IM account) |
| | friendlyName | String | User friendly name |
| | status | int | User online status |
| | clientId | int | User client id |

| | |
|---------|---|
| Example | <code>{"id":"erika_mid4@hotmail.com","friendlyName":"Fred","status":"BSY","clientID":2789003308}</code> |
|---------|---|

2.1.6 User Personal Message Updated Message

| | |
|----------------------|-------------------------|
| type | psmupdated |
| Body Type | String |
| Body Type Definition | Personal message string |
| Example | "Test PSM" |

2.1.7 User DisplayPicture Updated Message

| | | | |
|----------------------|--|-----------|----------------------|
| type | dpupdated | | |
| Body Type | Object (ResourceObject) | | |
| Body Type Definition | Field Name | FieldType | Description |
| | name | String | Resource name |
| | digest | String | Resource digest |
| | size | int | Resource object size |
| Example | <code>{"digest":"FPyuiKOy0G+s39ugWfYbDWrRkjY\u003d","name":"Winter","size":26470}</code> | | |

2.1.8 User Scene Updated Message

| | | | |
|----------------------|--|-----------|----------------------|
| type | sceneupdated | | |
| Body Type | Object (ResourceObject) | | |
| Body Type Definition | Field Name | FieldType | Description |
| | name | String | Resource name |
| | digest | String | Resource digest |
| | size | int | Resource object size |
| Example | <code>{"digest":"RSgzjltJVqNTuVILxbFzIVm6dA\u003d","name":"Sunset","size":446687}</code> | | |

2.1.9 User Scene Color Updated Message

| | |
|----------------------|-----------------|
| type | Colorupdated |
| Body Type | int |
| Body Type Definition | int color value |
| Example | -14075910 |

2.1.10 User Added Message

| | |
|------|-----------|
| type | useradded |
|------|-----------|

| | |
|----------------------|-------------|
| Body Type | null |
| Body Type Definition | |
| Example | |

2.1.11 User Removed Message

| | |
|----------------------|-------------|
| type | userremoved |
| Body Type | null |
| Body Type Definition | |
| Example | |

2.1.12 PUSH Message

| | |
|----------------------|--|
| type | push |
| Body Type | String |
| Body Type Definition | String IM message sending to user(offline-message/email/other-kine-of-message determined by botplatform) |
| Example | "Hello World" |

2.1.13 Get Friends/User List Message

| | |
|----------------------|-------------|
| type | getuserlist |
| Body Type | null |
| Body Type Definition | |
| Example | |

2.1.14 Get Friends/User List Response Message

| | |
|----------------------|----------|
| type | userlist |
| Body Type | User[] |
| Body Type Definition | see |
| Example | //to do |

2.1.15 Get User Resource Message

| | | | |
|----------------------|-------------|-----------|----------------------|
| type | getresource | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | name | String | Resource name |
| | digest | String | Resource digest |
| | size | int | Resource object size |

| | | | |
|---------|---------|--------|---|
| | saveUrl | String | url to save resource(SP should provide this url if SP need access to date of users' resource object. BotPlatform'll post the resource data to this url,then notify SP client) |
| Example | | | |

2.1.16 Get User Resource Response Message

| | | | |
|----------------------|-----------|-----------|----------------------|
| type | resource | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | name | String | Resource name |
| | digest | String | Resource digest |
| | size | int | Resource object size |
| | saveUrl | String | url resource saved |
| Example | | | |

2.2 Session Message

2.2.1 Session Open Message

| | | | |
|----------------------|--|-----------|--|
| type | sessionopened | | |
| Body Type | Object | | |
| Body Type Definition | FieldNa me | FieldType | Description |
| | mode | int | A session is an abstraction of a chat window(user<->robot) of IM client. SDK Session open mode: 0 - Unknown 1 - User open chat window 2 – Botplatform reconnection after chat window timeout 3 – robot open chat window |
| | user | Object | See User |
| Example | {"mode":2,"user":{"id":"erika_mid4@hotmail.com","friendlyName":"Fred","status":"NLN","clientID":2789003308}} | | |

2.2.2 Session Closed Message

| | | | |
|----------------------|---------------|--|--|
| type | sessionclosed | | |
| Body Type | null | | |
| Body Type Definition | | | |

| | |
|---------|--|
| Example | |
|---------|--|

2.2.3 User joined Message

| | | | |
|----------------------|--|-----------|--------------------|
| type | join | | |
| Body Type | Object (User) | | |
| Body Type Definition | FieldName | FieldType | Description |
| | id | String | User id |
| | friendlyName | String | User fiendlyname |
| | status | int | User online status |
| | clientId | int | User client id |
| Example | {"id":"wooisson@hotmail.com","friendlyName":"Brian","status":"FLN","clientID":0} | | |

2.2.4 User Part Session Message

| | |
|----------------------|-------------|
| type | part |
| Body Type | null |
| Body Type Definition | |
| Example | |

2.2.5 Invite Message

| | |
|----------------------|---------|
| type | invite |
| Body Type | String |
| Body Type Definition | User id |
| Example | |

2.2.6 Create Session Message

| | |
|----------------------|---------------|
| type | createsession |
| Body Type | null |
| Body Type Definition | |
| Example | |

2.2.7 Close Session Message

| | |
|----------------------|--------------|
| type | closesession |
| Body Type | null |
| Body Type Definition | |
| Example | |

2.2.8 Text Message(send or receive)

| | | | |
|----------------------|--|-----------|--|
| type | msg | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | signature | String | Message signature(eg:'Floyd' of 'Floyd said:' in LiveMessenger) |
| | fontStyle | int | Font style |
| | fontName | String | Font name |
| | fontColor | int | Font color |
| | text | String | Text content |
| | emoticons | Map | Customized emoticon |
| Example | {"fontStyle":0,"fontName":"Microsoft YaHei ","fontColor":0,"text":"hello world"} | | |

2.2.9 Nudge Message (send or receive)

| | |
|----------------------|-------------|
| type | nudge |
| Body Type | null |
| Body Type Definition | |
| Example | |

2.2.10 Typing Message(send or receive)

| | |
|----------------------|-------------|
| type | typing |
| Body Type | null |
| Body Type Definition | |
| Example | |

2.2.11 Ink Message(send or receive)

| | |
|----------------------|--|
| type | inkmsg |
| Body Type | String |
| Body Type Definition | Base64encoded data |
| Example | "AEwcA4CABB0DugEKAwRIEUvkGRQyCACAFIAACBCMwgAwAAAg QhWrqtNBq6rTQQAAAD4AAFY+\r\nHgMCBDQKbgEJSYAHVgoGAQI2AA dY" |

2.2.12 Wink Message

| | |
|------|------|
| type | wink |
|------|------|

| | | | |
|----------------------|--|-----------|--|
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | location | String | Resource name/alias(uploaded through the BP administrator website) |
| | stamp | | Digital signature of resource |
| Example | {"location":"test1","stamp":"MIIIngYJKoZIhvcNAQ....."} | | |

2.2.13 Wink Event Message

| | | | |
|----------------------|--|-----------|---|
| type | winkevent | | |
| Body Type | Object (Resource object) | | |
| Body Type Definition | FieldName | FieldType | Description |
| | name | String | Resource name |
| | digest | String | Resource digest(to retrieve the resource) |
| | size | int | Resource object size |
| Example | {"digest":"OxIFvKTDqxjyj7+6Obz0DdN678\u003d","name":"Shining star","size":30900} | | |

2.2.14 VoiceClip Message

| | | | |
|----------------------|------------------------------|-----------|--|
| type | voiceclip | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | name | String | Friendly name |
| | location | String | Resource name/alias(uploaded through the BP administrator website) |
| Example | {"location":"voiceclip.wav"} | | |

2.2.15 VoiceClip Event Message

| | | | |
|----------------------|--------------------------|-----------|----------------------|
| type | voicelipevent | | |
| Body Type | Object (Resource object) | | |
| Body Type Definition | FieldName | FieldType | Description |
| | name | String | Resource name |
| | digest | String | Resource digest |
| | size | int | Resource object size |
| Example | | | |

2.2.16 APP Message

| | | | |
|----------------------|-----------|-----------|---|
| type | appmsg | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | id | String | App id(if id is null,BP'll choose a default App,which providea web page display |

| | | | |
|---------|--|--------|--|
| | | | function(in default APP,data should be the page SP want to show in app window) |
| | name | String | App name |
| | data | String | In App, SP and user can communicate using data |
| Example | {"name":"INCE SP HOME PAGE","data":"http://www.xiaoi.com"} | | |

2.2.17 APP Event Message

| | | | |
|----------------------|--|--|--|
| type | appevent | | |
| Body Type | String | | |
| Body Type Definition | String value: Accept – user accept Bot’s invitation Reject - user reject Bot’s invitation Ready - App is ready Close - user closed app | | |
| Example | "accept" | | |

2.2.18 File Transfer Message

| | | | |
|----------------------|----------------------|-----------|--|
| type | file | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | name | String | File name |
| | location | String | Resource name/alias(uploaded through the BP administrator website) |
| Example | {"location":"1.txt"} | | |

2.2.19 File Transfer Control Message

| | | | |
|----------------------|------------|-----------|---|
| type | filecmd | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | cmd | String | Value: accept – accept user file transfer invitation reject – reject user file transfer invitation cancel – cancel user file transfer invitation |
| | transferId | String | File transfer indentity |
| | saveUrl | String | url to save resource(SP should provide this url if SP need access to date of users’ resource object. BotPlatform’ll post the resource data to this url,then notify SP client) |
| Example | | | |

2.2.20 File Transfer Event Message

| | | | |
|----------------------|--|-----------|---|
| type | fileevent | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | event | String | value = invite - user send file transfer invitation accept - user accept file transfer invitation reject - user reject file transfer invitation close - file transfer closed cancel - user cancel file transfer error - error occurred in file transfer receive - file received and saved to the 'saveUrl' |
| | transferId | String | Transfer identity |
| | name | String | File name |
| | size | long | File size |
| | thumbnail | String | Base64 encoded thumb data (only available when event is 'invite') |
| | saveUrl | String | url that resource saved to (only available when event is 'receive') |
| Example | { "event": "accept", "size": 11319, "name": "baih111u.png" } | | |

2.2.21 WebCam(Camera) Message

| | | | |
|----------------------|-----------|-----------|--------------------------------|
| type | webcam | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | host | String | IP of Webcam resource server |
| | port | int | Port of Webcam resource server |
| | rid | int | Server authentication info |
| | wid | int | Server authentication info |
| Example | | | |

2.2.22 WebCam Event Message

| | | | |
|----------------------|--|--|--|
| type | webcamevent | | |
| Body Type | String | | |
| Body Type Definition | Value: | | |
| | accept – user accepted the webcam invitation reject - user rejected the webcam invitation close - user closed the webcam invitation error – error occurred in webcam invitation | | |
| Example | | | |

2.3 Error Message

| | | | |
|-------------------------|--|-----------|----------------------|
| type | error | | |
| Body Type | Object | | |
| Body Type Definition | FieldName | FieldType | Description |
| | code | String | Error code |
| | message | int | Description of error |
| Example | {"code":102,"message":"Invalid SP ID [spid\u003dSP0001263213123]}" | | |

Error code list:

| code | Description |
|------|--|
| 101 | The SPID exceed the max connection limits |
| 102 | SPID illegle |
| 103 | Server error |
| 104 | IM account not bound |
| 105 | Too much request |
| 201 | Server not available |
| 301 | Resource not found |
| 401 | Not authorized |
| 501 | Failed to invite user to join session |
| 502 | Failed to create session |
| 503 | Create too many sessions |
| 504 | Text message exceed the message length limit (eg: ink message) |
| 601 | Function not available for Provisioned account |