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Introduction

Goal

This user guide describes the product *Twitter4i*.

Version and release notes

This book contains information compatible with the **V2R0M0** version.

Related publications

[1]

http://www.jetlab.com/downloads/r400/R400-V4R0M0-Installation_Configuration-ENG.pdf

It describes the procedure of installation and setup of the *R400Core* runtime, on which the product *Twitter4i* is based.

Conventions

Here is the list of the conventions used in this user guide:

The name *Twitter4i* and its components are written in red, Times New Roman, bold-italic.

“r4” is an abbreviation for Raptor400.

Source codes and System commands are written in `Courier New`.

PC stands for Personal Computer Windows.

Where to find updated information

At www.jetlab.com you can find the latest version of the reference book and software updates.

Your comments

Your comments are welcomed! Send them to developer@jetlab.com

General description

Twitter is a social network particularly suitable to be used by software application in order to distribute information of business projects.

In any business project there is the need of communicating the progress to different kind of addressees.

Twitter is the perfect tool to manage and send these kind of communications.

Suppose this set:

Create a Twitter user which represents the application "ORDERS".

By using *Twitter4i* make the application System i, which registers a purchase order, send a Tweet in the ORDERS user timeline.

All the people who are interested in this information, so who wants to be informed every time a new order is registered, just have to become Follower of the ORDINI user and they will receive the information in their timeline.

This guide does not show how to use Twitter, but how does the integration between Twitter and *Twitter4i* work.

These are the services offered by *Twitter4i* :

- Send a Tweet in a timeline
- Send a Tweet directly to a Twitter user
- Search for Tweets related to a particular topic
- List Followers and Following of a Twitter user
- List the Tweets of a Twitter user
- Ask to a Twitter user the permission to be his Follower.

Requirements

Before you proceed, some information must be collected to complete the procedure.

These are the necessary information that must be verified or requested to the IBM i administrator:

- Verify that OS400 is V5R4M0 or superior.
- Get the password of the QSECOFR user or of a user who has the same authorizations (*SECADM class with special *ALLOBJ authorizations).
- Verify that these Server Host are active on the system:
*SIGNON *FILE *SVRMAP
If not, activate them with this command:
STRHOSTSVR SERVER(*SIGNON *FILE *SVRMAP) RQDPCL(*TCP)
- Write-down the System i IP address.
- Check if the outgoing port 10000 is used (Write-down a free outgoing port).
- Check if the outgoing port 10099 is used (Write-down a free outgoing port).
- VMJava 1.6 or superior installed on IBM i.

Following is the list of the Vm supported by version OS400.

V5R4

Option	JDK	java.home	java.version
10	1.6	/QIBM/ProdData/Java400/jdk6/	1.6 // delivered in SI26746
11	IBM Technology for Java 6.0 32-bit	/QOpenSys/QIBM/ProdData/JavaVM/jdk60/32bit	1.6 // delivered in SI30432

V6R1

Option	JAVA_HOME	java.version
Option 10 - Classic 6	/QIBM/ProdData/Java400/jdk6	1.6
Option 11 - IBM Technology for Java 6 32-bit	/QOpenSys/QIBM/ProdData/JavaVM/jdk60/32bit	1.6

Option 12 - IBM Technology for Java 6 64-bit /QOpenSys/QIBM/ProdData/JavaVM/jdk60/64bit 1.6

V7R1

5761-JV1 options	JAVA_HOME	java.version
Option 11 - IBM Technology for Java 6 32-bit	/QOpenSys/QIBM/ProdData/JavaVM/jdk60/32bit	1.6
Option 12 - IBM Technology for Java 6 64-bit	/QOpenSys/QIBM/ProdData/JavaVM/jdk60/64bit	1.6
Option 14 - Java SE 7 32 bit	/QOpenSys/QIBM/ProdData/JavaVM/jdk70/32bit	1.7
Option 15 - Java SE 7 64 bit	/QOpenSys/QIBM/ProdData/JavaVM/jdk70/64bit	1.7

Installation and setup

This chapter describes the installation and setup procedures of the product *Twitter4i*; also, the installation of the *R400* runtime is briefly described.

___ Step 1

Connect to IBM i with a *SECOFR class user.

___ Step 2

Check if the runtime *R400* is already installed on IBM i.

If on IBM i the JTJT040000 library exists, it means that the runtime used by *Twitter4i* is already installed.

In this case run the following command

```
ADDLIBLE LIB(JTJT040000)
```

and go to step 4, otherwise proceed with the following step

___ Step 3

Install the R400 runtime

Download the file

<http://www.jetlab.com/downloads/r400/JTJT040000.zip>

The content of the file JTJT040000.zip is a save file called JTJT040000.SAVF.

The file must be uploaded on IBM i in a save file.

Reactivate the library JTJT040000 from the save file previously loaded.

```
RSTLIB SAVLIB(JTJT040000) DEV(*SAVF) SAVF(QGPL/JTJT040000)
```

(the command assumes that the save file has been loaded on the library QGPL)

Run the setup command to complete the installation

```
ADDLIBLE LIB(JTJT040000)
```

```
CONFIG LANGID(ITA) IP(<IP>) PORT(10000)
```

where

LANGID is the runtime primary language,

IP is the IBM i system IP address,

PORT is the number of a free port. 10000 is the number of a port which is generally free.

___ Step 4

Install Twitter4i

Download the file

<http://www.jetlab.com/downloads/twitter4i/R4TW020000.zip>

The content of the file R4TW020000.zip is a save file called R4TW020000.SAVF.

The file must be uploaded on IBM i in a save file.

Install the product *Twitter4i* running the following command

```
ADDR4MOD SAVE(QGPL/R4TW020000) LIB(*SAVLIB) LANGID(ITA)
```

(the command assumes that the save file has been loaded on the library QGPL)

where

`SAVE` is the parameter indicating the save file previously loaded,

`LIB` is the reactivation library. Assuming the name R4TW020000,

`LANGID` is the primary language of the product *Twitter4i*.

Setup

The requirements for *Twitter4i* to use the Twitter functionalities are the following:

- The name of the application that will use the Twitter services must be known and registered by Twitter
- You can only access Twitter with a Twitter account which must have accepted that the application can use its credentials to use Twitter

This chapter describes the registration procedure of an application name, and the procedure for its acceptance.

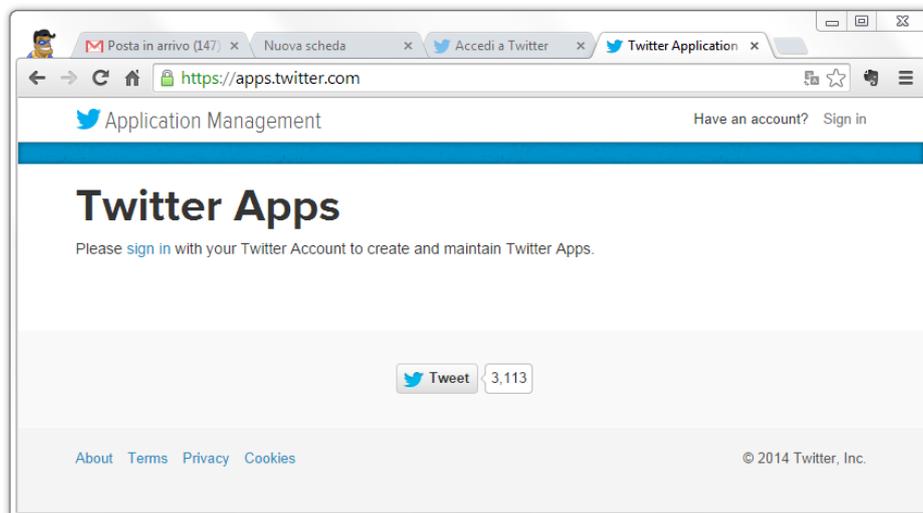
Register a Twitter application

Here are the steps to register a new Twitter application:

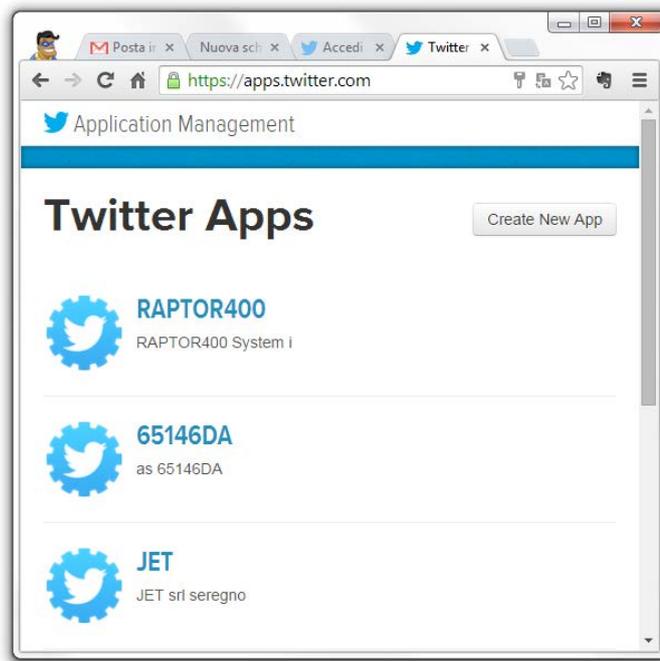
— **Step 1:**

Create a Twitter application

Connect to <https://apps.twitter.com/>



Log in with your Twitter account. A screen similar to the following will be shown:



press "Create New App".

Create an application

Application details

Name *

Your application name. This is used to attribute the source of a tweet and in user-facing authorization screens. 32 characters max.

Description *

Your application description, which will be shown in user-facing authorization screens. Between 10 and 200 characters max.

Website *

Your application's publicly accessible home page, where users can go to download, make use of, or find out more information about your application. This fully-qualified URL is used in the source attribution for tweets created by your application and will be shown in user-facing authorization screens. (If you don't have a URL yet, just put a placeholder here but remember to change it later.)

Callback URL

Where should we return after successfully authenticating? OAuth 1.0a applications should explicitly specify their oauth_callback URL on the request token step, regardless of the value given here. To restrict your application from using callbacks, leave this field blank.

Developer Rules of the Road

Last Update: July 2, 2013.

Twitter maintains an open platform that supports the millions of people around the world who are sharing and discovering what's happening now. We want to empower our ecosystem partners to build valuable businesses around the information flowing through Twitter. At the same time, we aim to strike a balance between encouraging interesting development and protecting both Twitter's and users' rights.

So, we've come up with a set of Developer Rules of the Road ("Rules") that describes the policies and philosophy around what type of innovation is permitted with the content and information shared on Twitter.

The Rules will evolve along with our ecosystem as developers continue to innovate and find new, creative ways to use the Twitter API, so please check back periodically to see the current version. Don't do anything prohibited by the Rules and talk to us if you think we should make a change or give you an exception.

If your application will eventually need more than 1 million user tokens, or you expect your [embedded Tweets](#) and [embedded timelines](#) to exceed 10 million daily impressions, you will need to talk to us directly about your access to the Twitter API as you may be subject to additional terms. Furthermore, applications that attempt to replicate Twitter's core user experience (as described in Section I.5 below) will need our permission to have more than 100,000 user tokens and are subject to additional terms.

Yes, I agree

Create your Twitter application

Write in the required fields only and press "Create your Twitter application"

Your application has been created. Please take a moment to review and adjust your application's settings.

MyAppTwitter4i

Details Settings API Keys Permissions



MyAppTwitter4i Description

<http://www.jetlab.com>

Organization

Information about the organization or company associated with your application. This information is optional.

Organization	None
Organization website	None

Application settings

Your application's API keys are used to **authenticate** requests to the Twitter Platform.

Access level	Read-only (modify app permissions)
API key	[REDACTED] (manage API keys)
Callback URL	None
Sign in with Twitter	No
App-only authentication	https://api.twitter.com/oauth2/token
Request token URL	https://api.twitter.com/oauth/request_token
Authorize URL	https://api.twitter.com/oauth/authorize
Access token URL	https://api.twitter.com/oauth/access_token

Select "modify app permission" and "Read Write and Access direct messages"

MyAppTwitter4i

Test OAuth

Details Settings API Keys Permissions

Access

What type of access does your application need?

[Read more about our Application Permission Model.](#)

- Read only
- Read and Write
- Read, Write and Access direct messages

Note:

Changes to the application permission model will only reflect in access tokens obtained after the permission model change is saved. You will need to re-negotiate existing access tokens to alter the permission level associated with each of your application's users.

Update settings

Press Update settings and press API Keys.

R400 runtime activation

The product *Twitter4i* uses the R400 runtime functionalities in order to activate its services on the IBM i system through the use of locally activated devices, or on remote PCs Windows through the use of remotely activated devices.

This chapter shows how to activate the server.

Step 1

Activate the R400 runtime

Activate the runtime with the following command

```
ADDLIBLE JTJT040000
```

```
STRR4SBS
```

Add the command STRR4SBS at the IBM i QSTRUP procedure in order to activate the *R400Core* to the IPL of IBM i.

The following libraries must be inserted in *LIBL:

```
JTJT040000
```

before the command activation.

Device distribution

The product *Twitter4i* uses the R400 runtime functionalities in order to activate its services on the IBM i system through the use of locally activated devices, or on remote PCs Windows through the use of remotely activated devices.

The acceptance procedure of the application previously registered must be accomplished through a remote device.

For this reason this chapter briefly shows the procedure to install the remote device.

Look at user guide [1] to have more details on the creation, distribution and local or remote activation of new devices.

Step 1

Install R400RemoteController

After the activation of the runtime R400, enter this website

`http://<IP>:10099`

Install on your PC the program *R400RemoteController* which is necessary to activate remote devices.

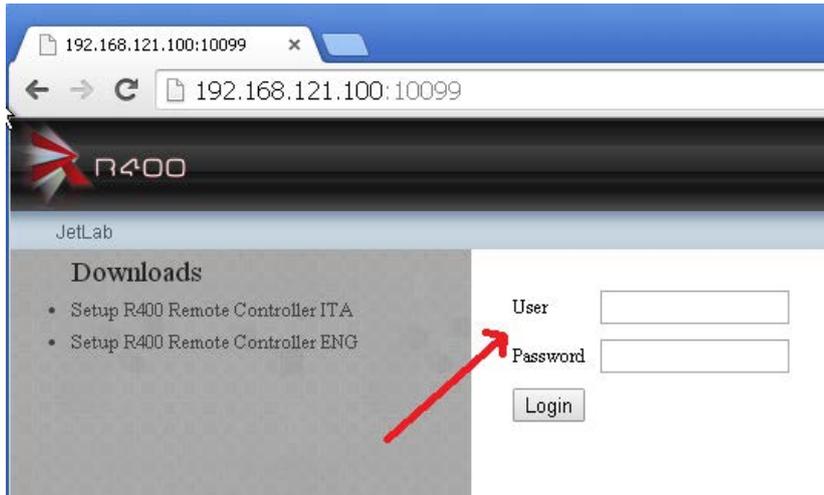


Follow the guided installation procedure.

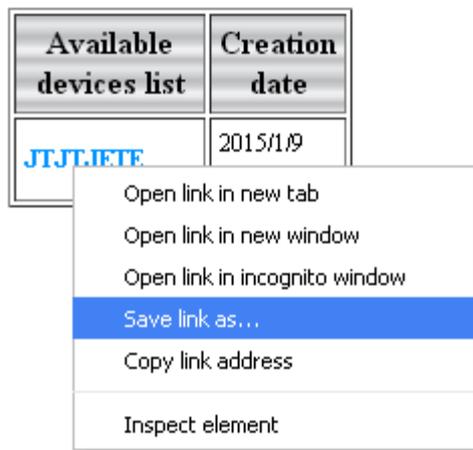
Step 2

Install the device in R400RemoteController

Access to the IBM i system furnishing a user name and a password.



A list of the devices created in the *R400* runtime is shown.



Proceed with the device download, then activate the downloaded file.

The following screen will be shown:



Messages could be “The device had already been installed” or “The device has been installed successfully”.

Pressing OK the device will be activated by *R400RemoteController*.

When the *R400Device* is active, a green icon will appear in the accessory bar.



Device activation

Follow the sequent steps to activate a device, after the R400 runtime activation, the *R400RemoteController* installation on a PC and the distribution of the device.

_ Step 1

Activate a remote device

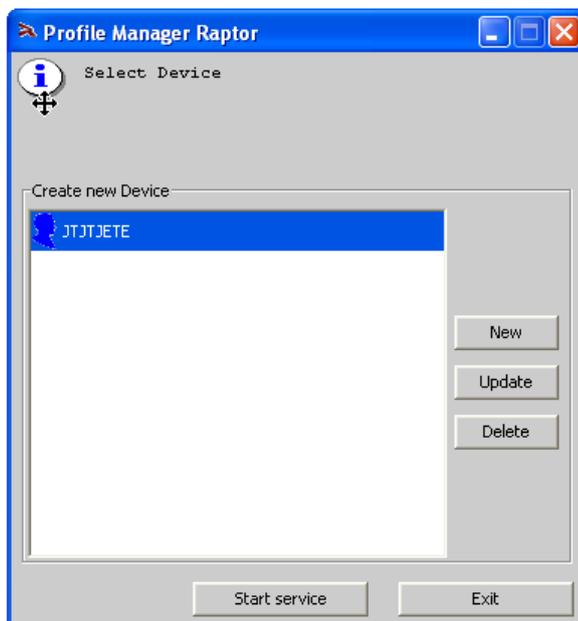
Activate the program *R400RemoteController*:

Start/All programs/R400 Remote Controller/R400 Remote Controller

or

click on the icon on the desktop

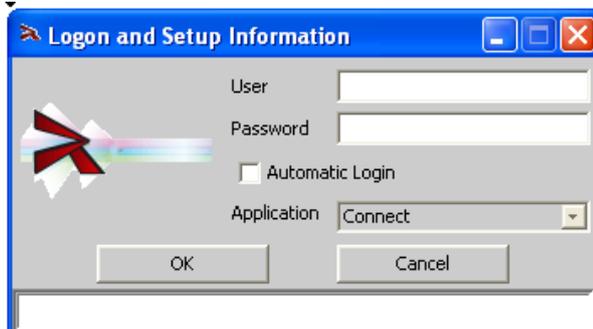
the following window is shown:



_ Step 2:

Select the *R400Device* which you want to activate and press "Activate the service".

The following screen is shown:



If it is unable to connect or the cancel button is clicked then the *R400Device* icon will be red, or not active.

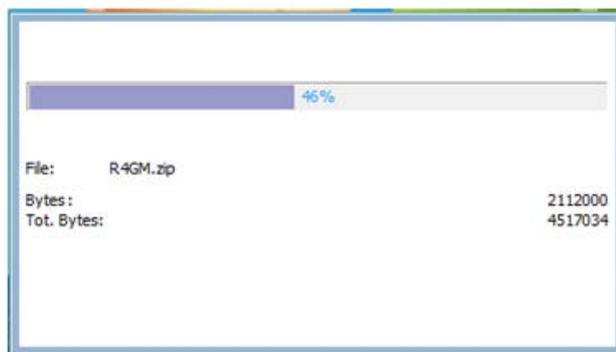


However, after successfully logging in, the *R400Device* will be green, or active:



Upon running the *R400Device* for the first time, the most recent *R400Module* will be installed.

In this case, a window similar to the following appears.



Let this procedure finish.

Enable a Twitter user for the use of Twitter4i

This step is necessary in order to allow Twitter to accept all the requests (coming from one of its accounts) which are not done through the portal but from a software application.

Follow the sequent steps to register to *Twitter4i* a user, after the R400 runtime activation and the device remote activation.

___ Step 1:

Login with user JTJT040000.

Connect to the system IBM i with the user JTJT040000.

Then add to the list the library *Twitter4i*

```
ADDLIB R4TW010000
```

___ Step 2:

Ask a Twitter user to accept the registered application

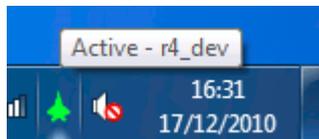
Run the following commands

```
ADDTWUSR DEVICE(JTJT040000) TIMEOUT(010)  
APPL('MyAppTwitter4i')
```

This is the meaning if the inserted parameters:

JTJT040000

Indicate the name of the activated *R400Device*:



010

indicates the number of seconds of maximum waiting for a *R400Device* reply

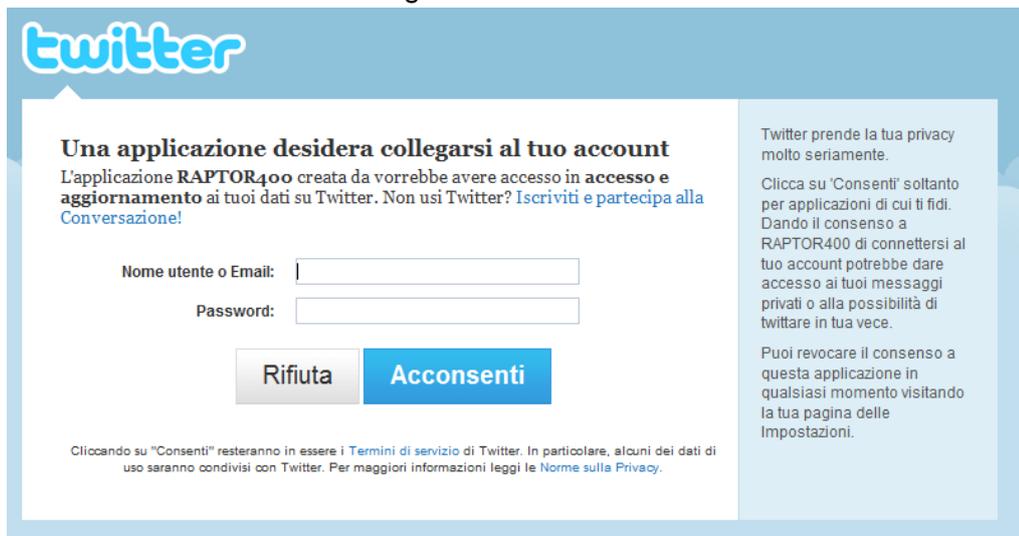
RAPTOR400

Indicate the name of the application registered in Twitter. 'MyAppTwitter4i' is the one proposed in the related chapter.



Click on "View Twitter page".

A screen similar to the following will be shown



Insert the user name or email of the Twitter account which you want to register in **Twitter4i**, and press Consent.

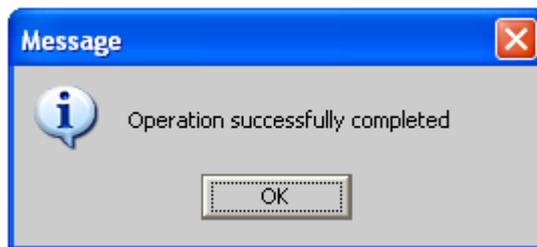
A screen similar to this one will be shown:



Copy the code (7540933) and press Send PIN:



After some seconds the following screen will be shown:



Pressing OK the 5250 application regains control.

From this moment the *Twitter4i* commands will be able to use the registered Twitter accounts to use the Twitter functions.

Commands

In this chapter the *Twitter4i* commands are described.

All the possible *ESCAPES messages have been grouped up in the chapter *ESCAPE Messages; all the common parameters have been grouped in the chapter Parameters Common to all Commands.

All *Twitter4i* services can be activated on *R400Device*, remotely or locally.

The ADDTWUSR service can be activated only on Remote *R400Device*.

In order to carry out the local device activation procedure, name the chapter about the local device activation in the user guide [1].

In order to use *Twitter4i* services on local *R400Device*, IBM i must be connected to internet (port number 80).

*ESCAPE Messages

These are the possible messages of *ESCAPE sent by the following commands.

ID messaggio	Testo messaggio
TWE0001	Operation successfully completed
TWE0002	Uncontrolled Error
TWE0003	Error Raptor400 &1
TWE0010	Error when creating the variables container
TWE0011	Impossible to delete file &1/&2
TWE0012	Error while compiling the source file *LIBL/&1(&2) in &3/&4
TWE0015	Twitter user and application are not listed in archive (See WRKTWUSR command)
TWE0016	Libraries Raptor400 are not listed
TWE0017	Error while inserting &1parameter
TWE0018	Parameter &1 not furnished
TWE0019	Application &1 is not registered in archive (See WRKTWAPPL command)
TWE0020	Parameter &1 not returned
TWE0021	Error while registering the application &1 for user &2
TWE0022	Error &1 file opening
TWE0100	Error while logging in Twitter
TWE0200	Message too long
TWE0404	Not recognized function
TWE0501	User not furnished
TWE0502	Enabled app name not furnished
TWE0503	Message not furnished
TWE0504	Error while sending message
TWE0505	Error while sending direct message
TWE0506	Error while recovering direct message
TWE0507	Error while recovering Timeline
TWE0508	Error while searching in Twitter
TWE0509	Not furnished function
TWE0510	Error while recovering followers
TWE0511	It is not possible to follow the user
TWE0512	Error while deleting the message
TWE0513	Error while recovering token
TWE0514	Error while recovering url
TWE0515	Error while recovering approval

Parameters common to all commands

Following, is the description of parameters common to all commands described in the user guide.

Device Raptor400 (DEVICE)

Identifies the name of the *R400Device* to which the service has to be requested.

These are the possible values:

***USER**

It is the default value and indicates that the service must be activated in the *R400Device* which is called as the user connected to System i.

name

Name of the *R400Device* on which the service has to be activated.

Waiting time (TIMEOUT)

Determines the number of seconds that you have to wait for an answer by the *R400Device*.

These are the possible values:

010-120

From 10 seconds to 2 minutes.

User registered in Twitter (USER)

Represents a user enabled by Twitter to use its functions through the application indicated in the APPL parameter.

This user must be registered in *Twitter4i* through the command `ADDTWUSR`.

To view the list of users already registered and modify the default user, consult command `WRKTWUSR`.

***DEFAULT**

Default user.

name

Insert a name of an enabled user.

Name enabled application (APPL)

Is the name of an application accepted by Twitter in order to use its services without using its portal.

To view the list of apps already registered or to register new ones, consult command `WRKTWAPPL`.

These are the possible value:

RAPTOR400

Default application, registered in *Twitter4i* and accepted by Twitter.

name

Insert the name of an application registered in *Twitter4i* and accepted by Twitter.

Message sending (ADDTWMSG)

Sends a direct Tweet or a Tweet in a user timeline.

Required parameters

All parameters described in the chapter “Parameters common to all commands” plus all the following ones:

Addressee (TO)

Insert a Twitter user name if you want to send a direct message.

*ALL to post a Tweet in the USER user’s timeline.

These are the possible values:

ALL

The Tweet is posted in the timeline of the Twitter user provided in the USER parameter.

name

Name of the Twitter user to which send a direct message.

Message to be sent (MESSAGE)

Message to be sent.

Register a Twitter user (ADDTWUSR)

The requirements requested by Twitter to *Twitter4i* to be able to use its functionalities are:

The name of the application that will use the Twitter services must be known and registered by Twitter.

You can only access Twitter with a Twitter account which must have accepted that the application can use its credentials to use Twitter.

So this command registers a Twitter user in *Twitter4i*.

If it is the first registered user, this will become the default user.

See command `WRKR4USR` to consult the list of registered users and to change the default one.

Required parameters

Device Raptor400 (DEVICE)

Identifies the name of the *R400Device* to which the service has to be requested.

These are the possible values:

*USER

It is the default value and indicates that the service must be activated in the *R400Device* which is called as the user connected to System i.

name

Name of the *R400Device* on which the service has to be activated.

Waiting time (TIMEOUT)

Determines the number of seconds that you have to wait for an answer by the *R400Device*.

These are the possible values:

010-120

From 10 seconds to 2 minutes.

Name enabled application (APPL)

Is the name of an application accepted by Twitter in order to use its services without using its portal.

To view the list of apps already registered or to register new ones, consult command `WRKTWAPPL`.

These are the possible value:

RAPTOR400

Default application, registered in *Twitter4i* and accepted by Twitter.

name

Insert the name of an application registered in *Twitter4i* and accepted by Twitter.

Become follower (FLWTWUSR)

Required parameters

All parameters described in the chapter “Parameters common to all commands” plus all the following ones:

Addressee (TO)

Insert the Twitter user name of who you want to follow.

Follower list (LSTTWFLW)

The list of the followers of a Twitter user is written in a file.

Required parameters

All parameters described in the chapter “Parameters common to all commands” plus all the following ones:

Users of whom you want the list (WHOFLW)

Insert the name of the Twitter user of whom you want know the list of followers.

Output File (OUTPUT)

Name the file where you want to put the followers list.

These are the possible values for the Output File:

LSTTWFLW

Default value.

Name of the file where you want to list the Followers.

name

Name of the file where you want to list the Followers.

These are the possible values for the library:

QTEMP

In the QTEMP library

***CURLIB**

In the current library

name

Insert a library name

Twitter messages receiving (LSTTWMSG)

The list of timeline messages or researched Tweets is reported in a file.

Required parameters

All parameters described in the chapter “Parameters common to all commands” plus all the following ones:

Message query parameter (QUERY)

Represents the search query on Twitter.

These are the possible values:

***TIMELINE**

Default value.

The tweets in the timeline of the Twitter account furnished with the USER parameter are listed.

character-value

Query to process

Refer to Twitter documentation:

<http://search.twitter.com/operators>

Output File (OUTPUT)

Name the file where you want to put the tweets list.

These are the possible values for Output File:

LSTTWMSG

Default value.

Name of the file where you want to list the tweets.

name

Name of the file where you want to list the tweets.

These are the possible values for the library:

QTEMP

In the QTEMP library

***CURLIB**

In the current library

name

Insert a library name

Delete message (RMVTWMSG)

Deletes a message from timeline

Required parameters

All parameters described in the chapter “Parameters common to all commands” plus all the following ones:

Message identification (ID)

Represents the identification of the tweet received with the `LSTTWMSG` command.

It is the content of the `TWID` field.

Twitter application list (WRKTWAPPL)

Manages the applications accepted by Twitter.

Twitter user list (WRKTWUSR)

Manages the Twitter accounts enabled to use the *Twitter4i* functions.