## How to setup squid v3.5.20 for Windows as Reverse Accelerator Proxy

This is a supplemental document of <u>"Using content caching proxies for Jazz Source</u> <u>Control"</u> article on jazz.net. Why this document is written is because this article uses a little bit old RTC and Squid and the content of squid.conf is slightly out-of-date. Topology

The topology we are going to setup is as follows.



### Prerequisite Software

- 1. squid You can download Windows installer from <u>squid-cache wiki</u>. In this document, version 3.5(3.5.20) is used
- openssl, curl openssl is necessary to generate a certificate for SSL communication. curl is an option. However, in this document, curl is used to verify squid runs correctly. Both can be installed from <u>Cygwin</u>.

## Installation

- 1. squid
  - Download squid.msi from <u>squid-cache wiki</u> (version 3.5) ( The direct link is <u>http://squid.diladele.com/</u>)
  - 2. Select squid.msi, open its context menu and select "Install".
  - 3. The install option you need to decide is the install location. The default is C:¥Squid and it is suggested to use this default location.
  - 4. squid is installed as Windows Service, and you can start/stop it from the toolbar's squid's icon tray



- 5. If squid's icon tray isn't in the toolbar, you can start it by Services control panel or "net" command.
  - Services: You can start/stop squid service from Services control panel. Please see below.

🔕 Services (Local)					
Squid for Windows	Name 🔺	Description	Status	Startup Type	Log On As
	🎑 Secondary Logon	Enables st		Manual	Local System
Start the service	🎑 Secure Socket Tun	Provides s		Manual	Local Service
	🔍 Security Accounts	The startu	Started	Automatic	Local System
Description:	🎑 Server	Supports fil	Started	Automatic	Local System
Reduces bandwidth and improves	🎑 Shell Hardware Det	Provides n	Started	Automatic	Local System
response times by caching and reusing	🎑 Smart Card	Manages a		Manual	Local Service
requenciy-requested web pages.	🔍 Smart Card Remov	Allows the		Manual	Local System
	🎑 SNMP Trap	Receives tr		Manual	Local Service
	🔍 Software Protection	Enables th		Automatic (D	Network S
	🤹 Special Administrati	Allows adm		Manual	Local System
	🧟 SPP Notification Ser	Provides S		Manual	Local Service
	Squid for Windows	Reduces b		Automatic	Local System
	🖾 SSDP Discoverv	Discovers		Disabled	Local Service

• Command line : You can start/stop squid service by the commands below Start: net start squidsrv

Stop: net stop squidsrv

- 6. Just after the installation is done, squid should be automatically started. Let's stop it now by squid's icon tray or Windows Services or net command.
- 2. openssl/curl
  - Download the installer from <u>Cygwin</u> and start downloaded "setup-x86.exe" (32-bit installation. The direct link is <u>https://www.cygwin.com/setup-x86.exe</u>) or "setup-x86\_64.exe" (64-bit installation. The direct link is

https://www.cygwin.com/setup-x86\_64.exe).

2. Select "Install from internet" in "Choose Installation Type" panel.

AND THE REPORT OF THE PARTY	
R Cygwin Setup - Cl	hoose Installation Type
Choose A Downl	oad Source
R Choose whethe a local directory	r to install or download from the internet, or install from files in
5	
/	
1	Install from Internet
t	downloaded files will be kept for future re-use
	O Download Without Installing
	Install from Local Directory
	< <u>B</u> ack <u>N</u> ext > Cancel

3. Default is okay in "Choose Installation Directory" panel.

rocesst volorer	2006004014-17738	Hie folder	
, 💽 Cygwin Setup - Choose Install	ation Directory		
Select Root Install Directory Select the directory where you installation parameters.	want to install Cygwin. Also cho	ose a few	E
Root Directory			
C:\cygwin64		Bro	owse
Install For All Users (RECOMMENDED)	users of the sustem		
<ul> <li>Just Me</li> <li>Cygwin will still be available to diff</li> </ul>	all users, but Desktop Icons, Cy vailable to the current user. Only	gwin Menu Entries, and im y select this if you lack	iportant
Administrator privileges of if yo	u nave specific needs.	<u>N</u> ext >	Cancel

4. Specify the directory where setup will store the installation files in "Select Local Package Directory" panel. Default may be okay.

🗲 Cygwin Se	tup - Select Local Package Directory		_ 🗆 🗵
Select Lo	cal Package Directory		F
Select - downlo	a directory where you want Setup to store the installation files it ads. The directory will be created if it does not already exist		
Local Paci	kage Directory		
C:¥RE	PO		Browse
	< <u>B</u> ack	<u>N</u> ext >	Cancel

5. Select your preferred network connection in "Select Connection Type" panel. If you can access Internet directly, "Direct Connection" should be okay. Or if you need to use Proxy, you can select either IE Proxy settings or you can specify your own proxy.

Cyawin Satur	- Select Connection Type	
cygwin Secup	- Select connection rype	
Select Your Ir Setup need: the appropri	nternet Connection s to know how you want it to connect to the internet. Choose ate settings below.	E
	Direct Connection	
	O Use Internet Explorer Proxy Settings	
	O Use HTTP/FTP Proxy:	
	Proxy Host	
	Por <u>t</u> 80	
	< <u>B</u> ack <u>N</u> ext >	Cancel

6. Specify the nearest download site in "Choose Download Site(s)" panel. In the example below, "<u>ftp://ftp.jaist.ac.jp</u>" is selected. If your network can't access ftp, then you can try http ( for example, "<u>http://ftp.jaist.ac.jp</u>")

	2000 B-00040	A 12158	ena comar	
🗲 Cygwin Setup	- Choose Download Site(s)			
Choose A Do Choose a s	<b>wnload Site</b> ite from this list, or add your own sites to	o the list		E
	Available Download Sites:			
	http://cygwin.asis.io ftp://bo.mirror.garr.it http://bo.mirror.garr.it ftp://ftp.jaist.ac.jp http://ftp.yz.yamagata-u.ac.jp http://ftp.yz.yamagata-u.ac.jp ftp://ftp.iij.ad.jp http://ftp.iij.ad.jp ftp://ftp.kaist.ac.kr ftp://ftp.kaist.ac.kr ftp://ftp.kaist.ac.kr ftp://ftp.snt.utwente.nl			
User URL:				Add
		< <u>B</u> ack	<u>N</u> ext >	Cancel

7. After some files are downloaded, you will see "Select Packages" panel.

Cygwin Setup - Select Packages		
Select Packages Select packages to install		E
Search Clear	O <u>K</u> eep ⊙ <u>C</u> urr O E <u>x</u> p	View Category
Category New	Bin? Src? Size	Package 🔺
🖂 All 😯 Default		
🕀 Accessibility 😯 Default		
🖽 Admin 😯 Default		
🖽 Archive 😯 Default		
🖽 Audio 💔 Default		
🖽 Base 💔 Default		
🖽 Database 💔 Default		
🖽 Debug 🚯 Default		
🖽 Devel 💔 Default		
		•
🔽 <u>H</u> ide obsolete packages		
	( Deals No	ut a Connect

8. Type "openssl" in "Search" and open "Base" category, so you will see something

like

Select Se	t Packa lect pack	<b>ses</b> ages to install				
Search	h openss	<u>Clear</u>				C Keep 📀 Qurr C ExpYew Category
Cate	eory	New	Bin?	Src?	Size	Package
	ll 🚯 Defa	ault				
	Base 🚯	Default				
		🚱 1.0.2h=1	$\times$		1,018k	libopenss1100: A general purpose cryptography toolkit with TLS implementation (runtir
		🚯 1.0.2h=1	$\times$		566k	openssl: A general purpose cryptography toolkit with TLS implementation
Ð	Debug 🍕	🕽 Default				
Ð	Devel 🚯	🛚 Default				
Ð	Libs 🚯 I	Default				
Ð	Net 🚯 🛛	Default				
Ð	Perl 🚯 I	Default				
Ð	Python 4	🕑 Default				

If both has a check mark in "Bin?" column like above, openssl will be installed. However, if you will see "n/a" like

Cygwin Setup - Select Pa	ickages					
Select Packages Select packages to insta	all					E
Search openss	<u>C</u> lear	O <u>K</u> eep	⊙ <u>C</u> urr	С Е <u>х</u> р	iewCa	ategory
Category New		Bin?	Src? 9	Size	Package	<u> </u>
🗆 All 😌 Default						
🗆 Base 💔 Default						
🚯 Skip		ηία	n/a	1,018k	libopenssl1(	00:Ag
🚯 Skip		ηία	n/a	566k	openssl: A g	general
🕀 Debug 🕀 Default						
🕀 Devel 🕀 Default						
🖽 Libs 🚯 Default						
🖽 Net 💔 Default						
⊞ Perl 💔 Default						
•						
✓ Hide obsolete packages						
			< <u>B</u> ack	Nex	t>	Cancel

you need to click  ${}^{\bigodot {\rm Skip}}$  icon so that "Bin?" will be a checkmark.

9. Type "curl" in "Search" and open "Net" category, then do the same steps above.

Select Packages Select packages to install						
Search Curl Clear						ОК
Category New	Bin?	Src?	Size		Package	
🗆 All 😌 Default						
표 Debug 🚯 Default						
표 Devel 🚯 Default						
표 Doc 🚯 Default						
표 Libs 🚯 Default						
🖃 Net 🚯 Default						
7.49.1-1	$\times$		27	78k	curl: Multi-protocol file transfer tool	
표 Perl 🚯 Default						
🕀 PHP 🚯 Default						

- 10. You can add other packages as you like. (But for this Proxy, openssl and curl are enough.)
- 11. Click "Next" and the download starts. Once it is completed, click "Finish".
- 12. Add a path to Cygwin's bin directory to your PATH environment variable.

Configuration of squid

- 1. Port number: You need to decide the proxy's port number. It is recommended to use the same port number of RTC on WAS. If you want to use the different port number, please follow this <u>technote</u>.
- 2. Directories for Certificate, Cache and Coredump files
  - Three directories are necessary. For example,
    - ➢ Certificate: C:¥Squid¥certs
    - Cache: C:\[Squid\]cachedir (Note: The size of cache files will be huge, so you need to decide it carefully.)
    - Coredump: C:\U00e4Squid\u00e4coredump
- 3. Certificate for SSL: The certificate is needed since this Proxy uses SSL to connect to both RTC SCM client and server. Here is an instruction.
  - Make sure that cygwin's bin directory is in your PATH environment variable.
  - Create Certificates at Certificate directory. For example:
    - openssl req -x509 -sha256 -newkey rsa:2048 -keyout /cygdrive/C/Squid/certs/privkey.pem -out /cygdrive/C/Squid/certs/server.pem -days 1000 -nodes
    - Note: The notation of Windows's path for Cygwin is as follows:
    - /**cygdrive**/*<windows drive name*>*folder name1*/*folder name2*/..../*file name* "cygdrive" is a fixed name here.
  - Example

-	
C:¥Squid¥certs>openssl req -x509 -sha256 -newkey rsa:2048 -keyout	One line
/cygdrive/C/Squid/certs/privkey.pem -out /cygdrive/C/Squid/certs/server.pem -days 1000 -nodes	
Generating a 2048 bit RSA private key	
+++	
unable to write 'random state'	
writing new private key to '/cygdrive/C/Squid/certs/privkey.pem'	
You are about to be asked to enter information that will be incorporated	
into your certificate request.	
What you are about to enter is what is called a Distinguished Name or a DN.	
There are quite a few fields but you can leave some blank	
For some fields there will be a default value,	
If you enter '.', the field will be left blank.	
Country Name (2 letter code) [AU]:JP	
State or Province Name (full name) [Some-State]:Tokyo	
Locality Name (eg, city) []:Chuoku	
Organization Name (eg, company) [Internet Widgits Pty Ltd]:MyCompany	
Organizational Unit Name (eg, section) []:MyGroup	
Common Name (e.g. server FQDN or YOUR name) []:proxy.mycompany.com	
Email Address []:jtsadmin@rtcserver.mycompany.com	

# 4. squid Cache: You need to initialize squid cache by

- Stop squid if it runs
- Open "Squid Terminal" on the desktop. ( Note: Please don't use a command prompt window )



• Run "squid -z"

Note: If you want to clean up the cache, 1) Stop squid 2) Delete Cache directory 3) Create Cache directory again and 4) "squid -z".

- 5. squid.conf
  - Update squid.conf (For example, C:\Squid\etastatic squid.conf) accordingly.

(See <u>squid doc</u> in detail.)

• Example

$\frac{https_port < proxy server port number> cert=< path to a certificate(pem)> accel key=< path to a private}{>} One line$	;
key(pem)>	
cache_peer < <i>rtc server name</i> > parent < <i>rtc server port number</i> > 0 no-query originserver	
name=httpsAccel ssl login=PASSTHRU sslflags=DONT_VERIFY_PEER	
cache_peer_access httpsAccel allow all	
cache_replacement_policy heap GDSF	
memory_replacement_policy heap GDSF	
cache_dir aufs <pre>cache directory&gt; <max (mbytes)="" cache="" directory="" size=""> 256 256</max></pre>	
cache_mem <max cache="" memory="" size=""> MB</max>	
cache_store_log none	
coredump_dir <i><path a="" coredump="" directory="" to=""></path></i>	
acl localnet src <ip accept="" address="" can="" squid="" which=""></ip>	
http_access allow localnet	
http_access allow localhost	
refresh_pattern. 0 20% 4320	
cachemgr_passwd disable all	
maximum_object_size 1024 MB	
maximum_object_size_in_memory 16 MB	
buffered_logs on	
visible_hostname <proxy name="" server=""></proxy>	
#cache_effective_user squid	
#cache_effective_group wheel	
#debug_options ALL,2	
max_filedescriptors 3200	
logfile_rotate 7	

- <proxy server port number> Proxy server's port number. For example, 9443
- cpath to a certificate(pem)>: Path to a certificate file. For example, /cygdrive/C/Squid/certs/server.pem
- cpath to a private key(pem)>: Path to a private key file. For example, /cygdrive/C/Squid/certs/privkey.pem
- <rtc server name> RTC server name. For example rtcserver.mycompany.com This server name must be DNS-aware name. If this server name isn't registered to DNS, you can use IP address

instead.

- <rtc server port number RTC Server port number. For example 9443</p>
- > cache directory> Path to a cache directory. For example, /cygdrive/C/Squid/cachedir
- <max directory cache size (Mbytes)>: Max directory cache size in Mbytes. For example, 200000
- ➤ <max memory cache size > Max memory cache size. For example, 4096 MB
- cpath to a coredump directory>: Path to a coredump directory. For example /cygdrive/C/Squid/coredump
- <IP address which squid can accept> IP address this proxy can accept. For example, 192.168.0.0/16
- > <proxy server name> Proxy server name. For example, proxy.mycompnay.com
- Actual squid.conf sample (You can start to edit squid.conf by copy & paste-ing the following squid.conf example.

https_port 9443 cert=/cygdrive/D/Squid/certs/server.pem accel key=/cygdrive/D/Squid/certs/privkey.pem
cache_peer rtcserver.mycompany.com parent 9443 0 no-query originserver name=httpsAccel ssl login=PASSTHRU sslflags=DONT_VERIFY_PEER
#cache_peer 192.168.43.10 parent 9443 0 no query originserver name=httpsAccel ssl login=PASSTHRU sslflags=DONT_VERIFY_PEER
cache_peer_access httpsAccel allow all
cache_replacement_policy heap GDSF
memory_replacement_policy heap GDSF
cache_dir aufs/cygdrive/D/Squid/cachedir 30000 256 256
cache_mem 100 MB
cache_store_log none
coredump_dir /cygdrive/D/Squid/coredump
acl localnet src 192.0.0.0/8
http_access allow localnet
http_access allow localhost
refresh_pattern . 0 20% 4320
cachemgr_passwd disable all
maximum_object_size 4096 MB
maximum_object_size_in_memory 2 MB
buffered_logs on
visible_hostname localhost
max_filedescriptors 3200
logfile_rotate 7

Installation Verification of squid

- 1. Start RTC server if it doesn't run
- 2. Start squid by its icon tray in the toolbar.
- 3. Make sure that cygwin's bin directory is in your PATH environment variable.
- 4. Run curl as follows
  - curl -k <u>https://<proxy</u> server>:<proxy port number>/ccm/service -v -u <rtc user</li>
     id>
  - For example, curl -k <u>https://proxy.mycompany.com:9443/ccm/service</u> -v -u jtsadmin
  - If you will see either 40x or 302 as the response code, your proxy works as being expected.
- 5. When you will see the access log file ( for example, C:\Squid\sum var\log\squid\sum access.log), you might see something like:

```
      ...

      1469093176.730
      69 192.168.43.10 TCP_MISS/200 2548 POST ...

      1469093176.783
      1 192.168.43.10 TCP_MEM_HIT/200 710 ...

      ...
```

6. You can check Squid request status in the access.log For example,

TCP\_MISS: The data isn't in the cache

TCP\_HIT: The data is in the directory cache

TCP\_MEM\_HIT: The data is in the memory cache.

As for Squid request status please see this wiki.

As for access.log format, please see <u>this doc</u>.

 The size of the log files (access.log and cache.log) might be getting huge, so you can rotate the log files by "squid -k rotate". In detail, please see <u>this wiki</u>.

### RTC SCM URL

RTC Eclipse client and SCM Command line tool need to use the following URL for RTC SCM URL.

• https://*<proxy server name*>:*<proxy server port number*>/ccm/