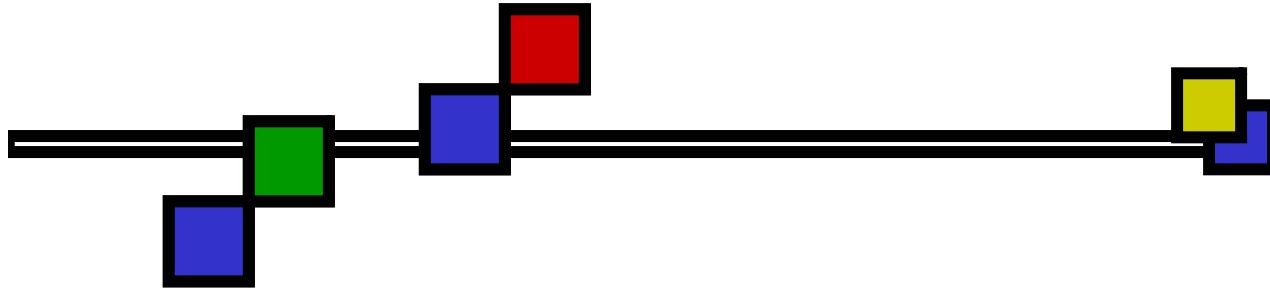


Z39.50 for INNOPAC and Millennium

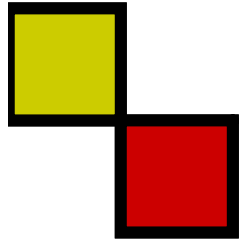
Z39.50 server and database


Suchon Kaeopratum
(suchol@lib.ru.ac.th)
December 15, 2003

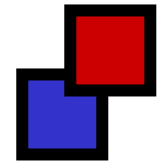
Ramkhamhaeng University Library



Z39.50 server and database



- *Limiting Access to the Web OPAC*
- *Z39.50 Server*
- *Adding a server to the Z39.50 servers file*
- *Z39.50 Database Options*
- *Z39.50 Client*



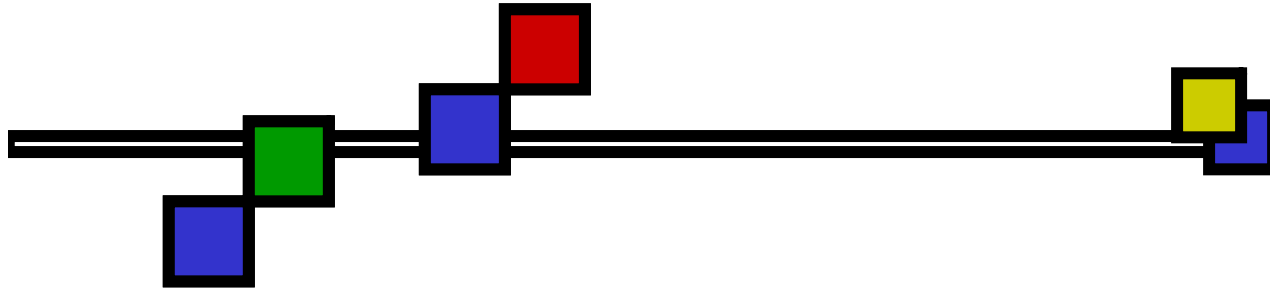


Limiting Access to the Web OPAC

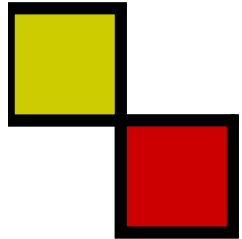
```
NETWORK ACCESS ADMINISTRATION
1 > TELNET : Remote Login using TELNET
2 > LOGIN : Remote Login
3 > 239
4 > IIIFTP
5 > WWW(211):239
6 > HTTP
7 > List access attempts rejected
8 > List non-local access attempts allowed

239 ACCESS ADMINISTRATION
REMOTE HOST      ACCESS?      LOGIN NAME      SERVICE LEVEL
1 > all          Yes          search          0

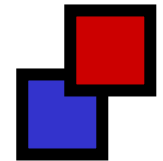
WWW(211):239 ACCESS ADMINISTRATION
REMOTE HOST      ACCESS?      LOGIN NAME      SERVICE LEVEL
1 > all          Yes          search          0
```

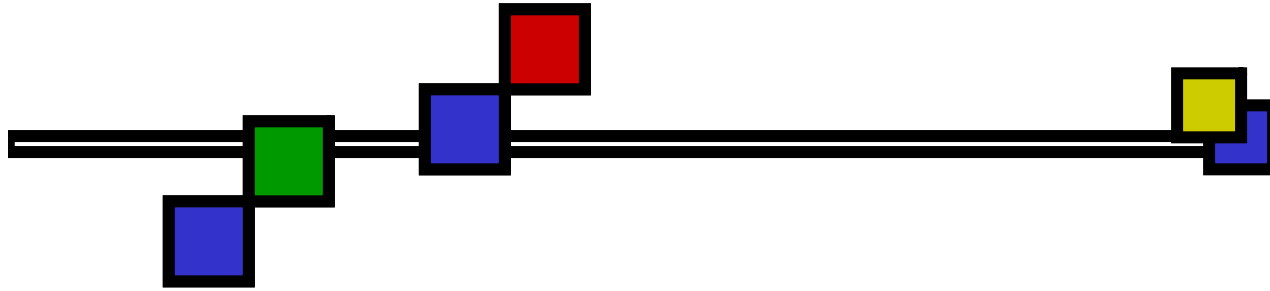


Z39.50 Server

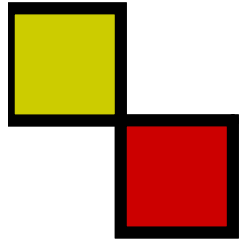


- Supported Features of the Z39.50 Server
- Library Setup
- Server Information Needed by Remote Z39.50 Clients
- Search Attributes for the Z39.50 Server

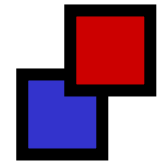


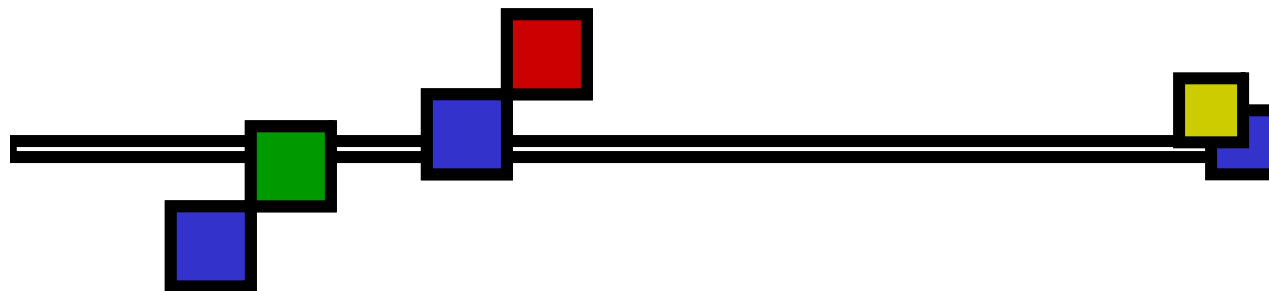


Supported Features of the Z39.50 Server

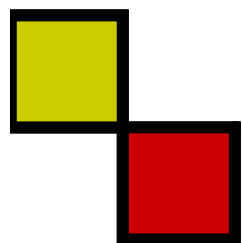


- Z39.50 Protocol version 2,3
- Only Query Types 0 and 1 are supported
- Initialization, Scan, Search, and Present are supported
- Result Set Naming is supported
- Resource Control, Passwords, and Authentication are not supported
- returns bibliographic and holdings information only.
- ISO Latin-1 character set is supported by default.
- MARC 21 record format are supported by default.
- Bath Profile – Level 0 are supported.





Library Setup



- A > ADDITIONAL system functions
 - A > ALTER system parameters
 - L > LOGIN names & parameters
 - Z > Z39.50 server file

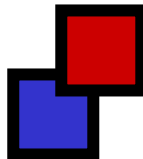
```
                Z39.50 SERVERS

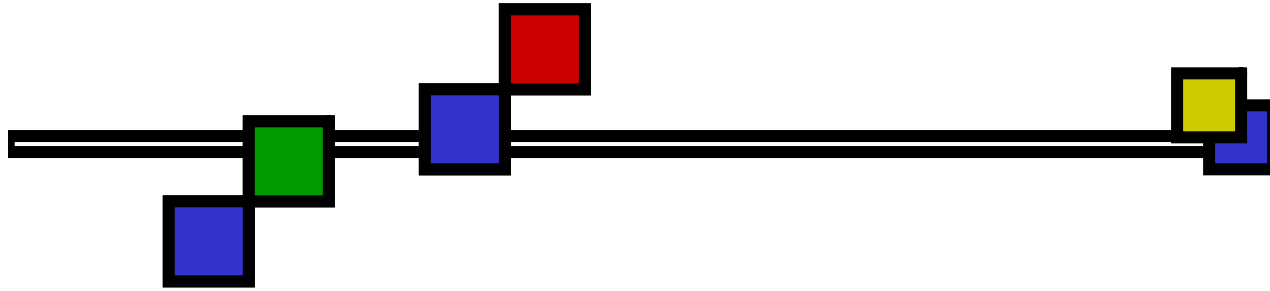
1 > Library of Congress
2 > Union Catalog of Thailand
3 > Khon kaen University Central Library
4 > Mahasarakham University, Academic Resource Center
5 > LIT, Shinawatra University
6 > Z39.50 Access to RU Library Catalog

-----
|Select server to edit or          Z > Z39.50 Server          Q > QUIT
|A > ADD server
|D > DELETE server                M > MOVE line
|Choose one (1-6,A,D,Z,M,Q) █
|-----
```

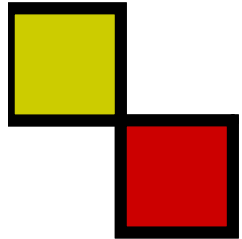
Use ISO Latin I character set (Y/N): █

Save changes? (y/n) █ Y





Server Information Needed by Remote Z39.50 Clients



- IP Address

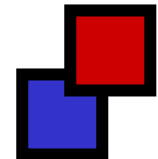
The IP address of your INNOPAC

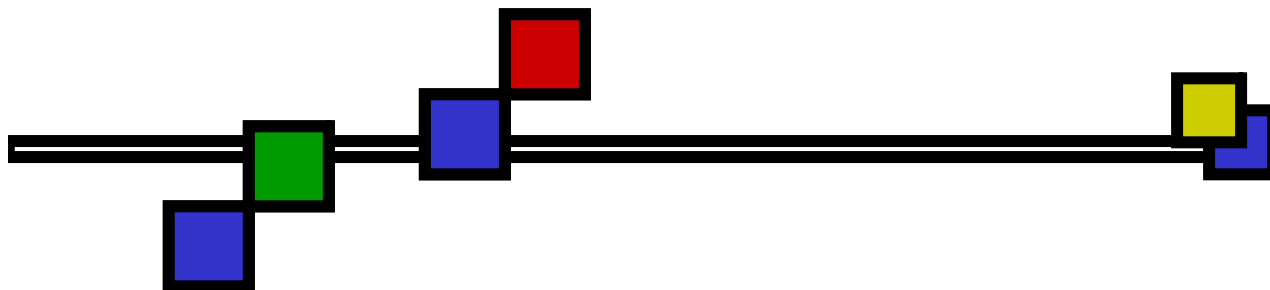
- Port Number

210,211

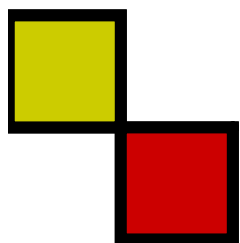
- Database Name

INNOPAC

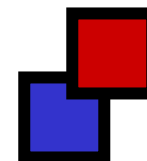


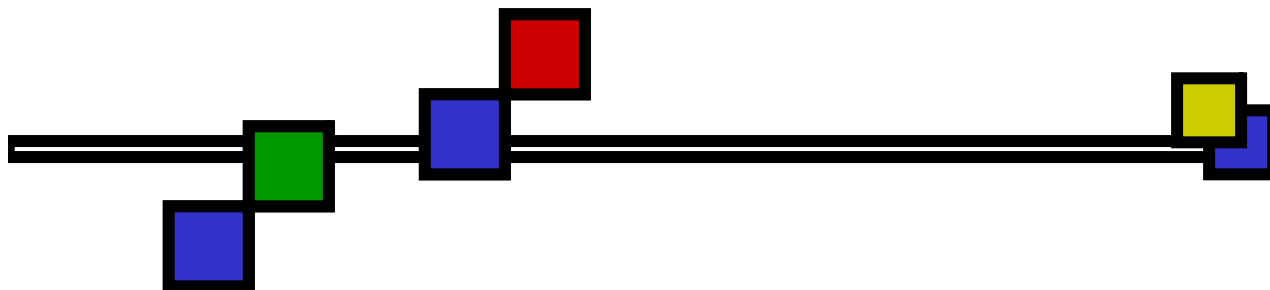


Search Attributes for the Z39.50 Server

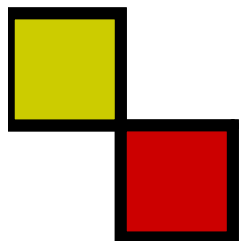


- The Z39.50 server supports the diagnostic messages specified in the Bib-1 Diagnostics set.
- default values for each search attribute
- INNOPAC index tags to which supported Use attribute values map
- core searches formed by using supported search attributes

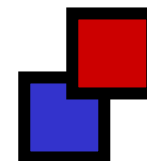


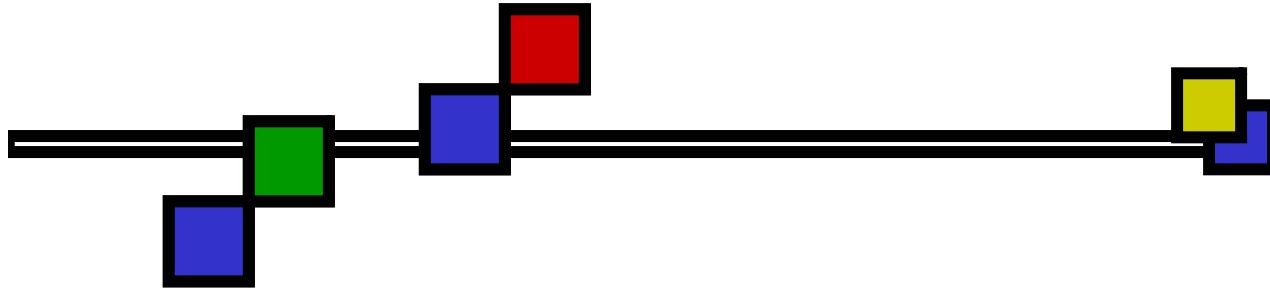


Search Attributes for the Z39.50 Server (continue)

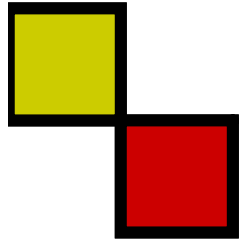


- Search Attributes
 - Use Field Attribute
 - Relation Attribute
 - Position Attribute
 - Structure Attribute
 - Truncation Attribute
 - Completeness Attribute





Search Attributes for the Z39.50 Server (continue)

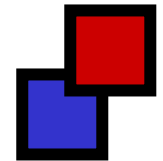


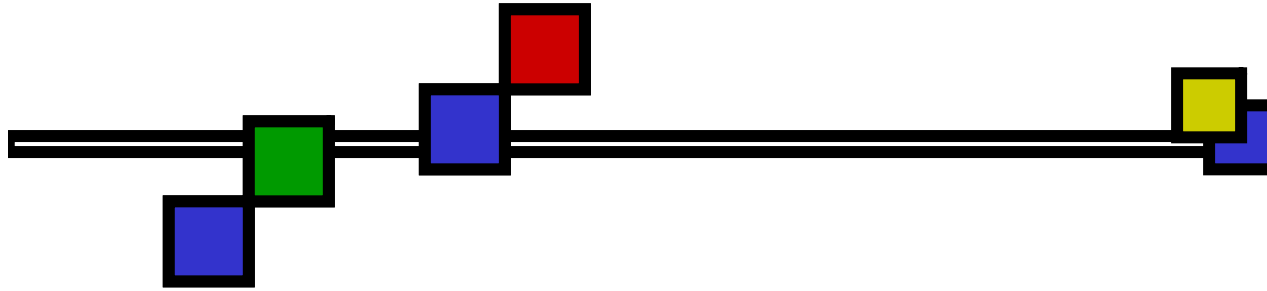
- Use Field Attribute

The Z39.50 server maps Z39.50 **Use Field** attributes to specific INNOPAC index tags.

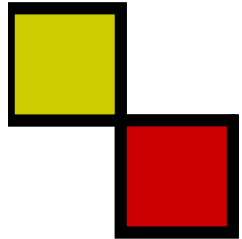
Example:

Author	a
Title	t
Subject	s
Word	w
ISBN	i





Search Attributes for the Z39.50 Server (continue)



- Relation Attribute

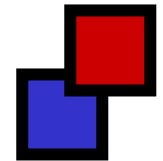
supports only value 3 (Equal)

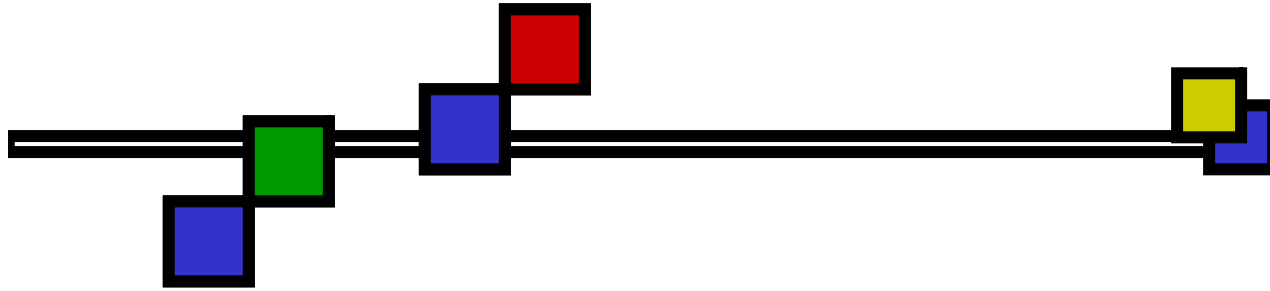
- Position Attribute

*supports values 1 (First in field) and 3 (Any position in field)
(default to 1)*

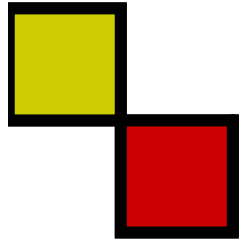
- Structure Attribute

*supports values 1 (Phrase), 2 (Word), and 6 (Word list)
(default to 1)*





Search Attributes for the Z39.50 Server (continue)

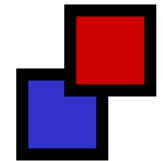


- Truncation Attribute

*supports values 1 (Right truncation) and 100 (No truncation)
(default to 1)*

- Completeness Attribute

supports value 1 (Incomplete subfields)



Search Attributes for the Z39.50 Server (continue)

■ Core Searches

- Phrase searches
- Keyword searches

Phrase Searching		
Search Type	Search Attributes	Phrase Search Settings
Author or Creator	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Author – 1003 Equal – 3 First in field – 1 Phrase – 1 Right truncation – 1 Incomplete subfield – 1
Title	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Title – 4 Equal – 3 First in field – 1 Phrase – 1 Right truncation – 1 Incomplete subfield – 1
Subject	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Subject – 21 Equal – 3 First in field – 1 Phrase – 1 Right truncation – 1 Incomplete subfield – 1
Word or Any	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	N/A N/A N/A N/A N/A N/A
ISBN	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	ISBN – 7 Equal – 3 First in field – 1 Phrase – 1 No truncation – 100 Incomplete subfield – 1
ISSN	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	ISSN – 8 Equal – 3 First in field – 1 Phrase – 1 No truncation – 100 Incomplete subfield – 1
INNOPAC Bibliographic Record Number	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Record number – 12 Equal – 3 First in field – 1 Phrase – 1 No truncation – 100 Incomplete subfield – 1

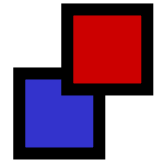
Keyword Searching			
Search	Attributes	Keyword Search Settings	Advanced Keyword Searching Required
Author or Creator	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Author – 1003 Equal – 3 Any position in field – 3 Word – 2 No truncation – 100 Incomplete subfield – 1	Yes
Title	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Title – 4 Equal – 3 Any position in field – 3 Word – 2 No truncation – 100 Incomplete subfield – 1	No. If your library has acquired the Advanced Keyword Searching feature, this search will search through the title segment of the index. If your library has not acquired this feature, this search will search throughout the entire keyword index.
Subject	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Subject – 21 Equal – 3 Any position in field – 3 Word – 2 No truncation – 100 Incomplete subfield – 1	Yes
Word or Any	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	Any – 1016 Equal – 3 Any position in field – 3 Word – 2 No truncation – 100 Incomplete subfield – 1	No
ISBN	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	N/A N/A N/A N/A N/A N/A	N/A
ISSN	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	N/A N/A N/A N/A N/A N/A	N/A
INNOPAC Bibliographic Record Number	1. Use Field: 2. Relation: 3. Position: 4. Structure: 5. Truncate: 6. Completeness:	N/A N/A N/A N/A N/A N/A	N/A



Adding a server to the Z39.50 servers file



Example: [Ramkhamhaeng University Library](#)

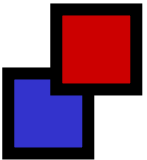
1. From “Main Menu”
 - A > ADDITIONAL system functions
 - A > ALTER system parameters
 - L > LOGIN names & parameters
 - Z > Z39.50 server file
 - A > ADD server
 2. Enter a **unique** internal code, no more than 10 characters” → Enter “**RU**”
- 



Adding a server to the Z39.50 servers file



Example: [Ramkhamhaeng University Library](#)

3. Enter a display name, no more than 50 characters.
→ Enter “**Z39.50 Access to RU Library Catalog**”
 4. Enter the ip address of the server.
→ Enter “**203.155.171.1**”
 5. Enter Port No. → Enter “**210**”
 6. Enter “Authentication/Password.”
→ Press the **<ENTER>** key to accept none.
 7. Enter “character set”. → Enter “**ala**”
 8. Enable SCAN Facility? → Enter “**y**”
- 



Adding a server to the Z39.50 servers file



Example: [Ramkhamhaeng University Library](#)

SERVER - Z39.50 Access to RU Library Catalog

E > Edit server information

Q > QUIT

A > ADD database

M > MOVE line

Choose one (E,A,M,Q)



Adding a server to the Z39.50 servers file

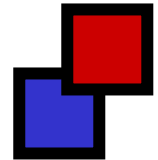


Example: Ramkhamhaeng University Library

E > Edit server information

SERVER INFORMATION

1 > Internal code for server:	RU
2 > Display name for server:	Z39.50 Access to RU Library Catalog
3 > IP address of server:	203.155.171.1
4 > Port:	210
5 > Authentication/Password:	
6 > Character Set:	ala
7 > Enable SCAN Facility?	YES



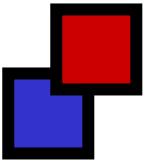


Adding a server to the Z39.50 servers file



Example: Ramkhamhaeng University Library

A > ADD database

1. Enter a code. → Enter “**INNOPAC**”
 2. Enter a display name. → Enter “**RU Library Catalog**”
 3. Enter a type of query. → Press the **<ENTER>** key to accept “**1**”
 4. Do you want to input information to display on the search menu now?
(y/n) → Enter “**n**”
- 



Adding a server to the Z39.50 servers file

Example: Ramkhamhaeng University Library

SERVER -: Z39.50 Access to RU Library Catalog

DATABASE - RU Library Catalog

01 > Code for database: INNOPAC
02 > Display name for database: RU Library Catalog
03 > Type of query: 1
04 > Data Format: MARC 21
05 > Type Of Updating: NONE

Default

Searches allowed:

Key a number or

A > ADD new type of search

E > EDIT information on search menu

D > DELETE type of search

Q > QUIT

Choose one (1-10,A,D,E,Q)



Adding a server to the Z39.50 servers file

Example: Ramkhamhaeng University Library

A > ADD new type of search

1. Enter Search tag: → Enter "a" for author. Press the <ENTER> key to accept the label "AUTHOR"
2. Change search attributes
 - 1) Use Field 1003 Author
 - 2) Relation 3 Equal
 - 3) Position 1 First in field
 - 4) Structure 1 Phrase
 - 5) Truncate 1 Right truncation
 - 6) Completeness 1 Incomplete subfield
3. Select "q" to quit and then select the ADD new type of search menu option



Adding a server to the Z39.50 servers file

Example: Ramkhamhaeng University Library

A > ADD new type of search

1. Enter Search tag: → Enter "t" for **t**itler. Press the <ENTER> key to accept the label "TITLE"
2. Change search attributes
 - 1) Use Field 4 Title
 - 2) Relation 3 Equal
 - 3) Position 1 First in field
 - 4) Structure 1 Phrase
 - 5) Truncate 1 Right truncation
 - 6) Completeness 1 Incomplete subfield
3. Select "q" to quit
4. Quit until prompted to save changes" (y/n) → Answer "y".



Adding a server to the Z39.50 servers file

Example: Ramkhamhaeng University Library

```
SERVER -: Z39.50 Access to RU Library Catalog
DATABASE - RU Library Catalog
01 > Code for database:      INNOPAC
02 > Display name for database:  RU Library Catalog
03 > Type of query:        1
04 > Data Format:          MARC 21
05 > Type OF Updating      NONE

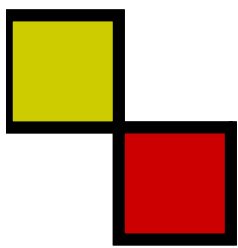
Searches allowed:
06 > AUTHOR (a):          1:1003, 2:3, 3:1, 4:1, 5:1, 6:1
07 > TITLE (t):           1:4, 2:3, 3:1, 4:1, 5:1, 6:1
08 > SUBJECT (s):         1:21, 2:3, 3:1, 4:1, 5:1, 6:1
09 > WORD (w):            1:1016, 2:3, 3:3, 4:2, 5:100, 6:1
10 > ISBN (i):           1:7, 2:3, 3:1, 4:1, 5:100, 6:1

+-----+
|Key a number or
|A > ADD new type of search      E > EDIT information on search menu
|D > DELETE type of search      Q > QUIT
|Choose one (1-10,A,D,E,Q) █
+-----+
```

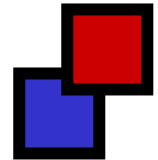


Adding a server to the Z39.50 servers file

Example: Thailand Union Catalog



```
SERVER INFORMATION
1 > Internal code for server: UC
2 > Display name for server: Thailand Union Catalog
3 > IP address of server: 202.28.18.229
4 > Port: 1111
5 > Authentication/Password:
6 > Character Set: utf8
7 > Enable SCAN Facility? YES
```



```
SERVER -: Thailand Union Catalog
DATABASE - default
1 > Code for database: default
2 > Display name for database: default
3 > Type of query: 1
4 > Data Format: MARC 21
5 > Type OF Updating NONE

Searches allowed:
6 > AUTHOR (a): 1:1003, 2:3, 3:3, 4:1, 5:100, 6:1
7 > TITLE (t): 1:4, 2:3, 3:3, 4:1, 5:1, 6:1
8 > WORD (w): 1:4, 2:3, 3:3, 4:2, 5:100, 6:1
9 > ISBN (i): 1:7, 2:3, 3:1, 4:1, 5:100, 6:1
```



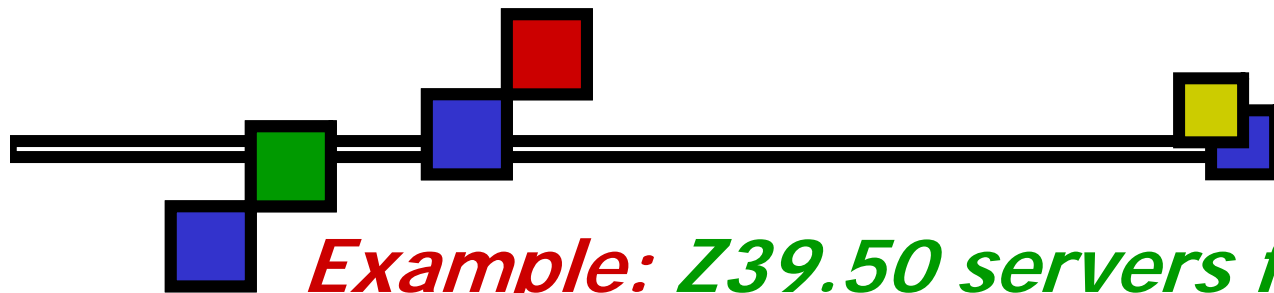
Adding a server to the Z39.50 servers file

Example: LIT, Shinawatra University

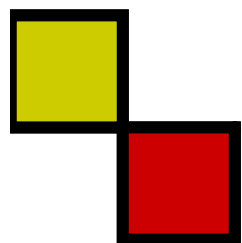
```
SERVER INFORMATION
1 > Internal code for server: SHIN
2 > Display name for server: LIT, Shinawatra University
3 > IP address of server: 203.170.175.34
4 > Port: 210
5 > Authentication/Password:
6 > Character Set: win1252
7 > Enable SCAN Facility? YES
```

```
SERVER -: LIT, Shinawatra University
DATABASE - HORIZON
1 > Code for database: horison
2 > Display name for database: HORIZON
3 > Type of query: 1
4 > Data Format: MARC 21
5 > Type Of Updating NONE

Searches allowed:
6 > AUTHOR (a): 1:1003, 2:3, 4:1, 5:1
7 > TITLE (t): 1:4, 2:3, 4:1, 5:1
8 > SUBJECT (s): 1:21, 2:3, 4:1, 5:1
9 > WORD (w): 1:1035, 2:3, 4:2, 5:100
```

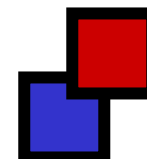
*Example: Z39.50 servers file of
Ramkhamhaeng University Library*

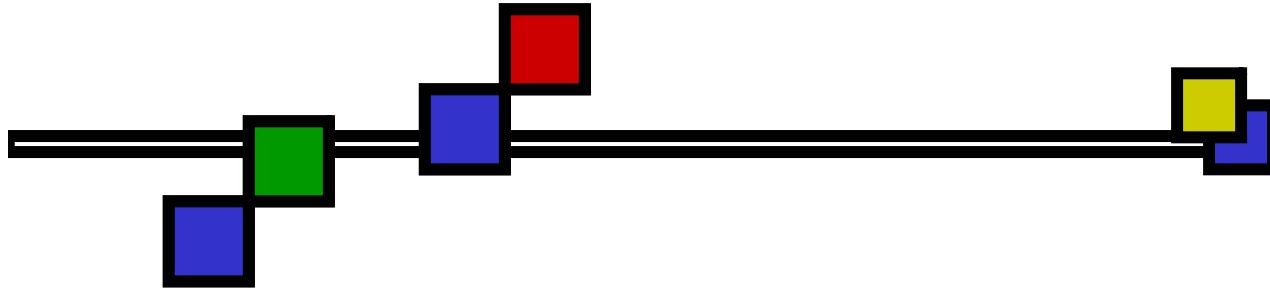


```
                Z39.50 SERVERS

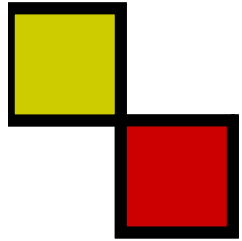
1 > Library of Congress
2 > Thailand Union Catalog
3 > Khon kaen University Central Library
4 > Mahasarakham University, Academic Resource Center
5 > LIT, Shinawatra University
6 > Z39.50 Access to RU Library Catalog

-----
|Select server to edit or
|A > ADD server           Z > Z39.50 Server           Q > QUIT
|D > DELETE server       M > MOVE line
|Choose one (1-6,A,D,Z,M,Q) █
|-----
```

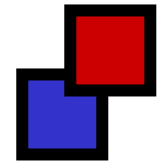


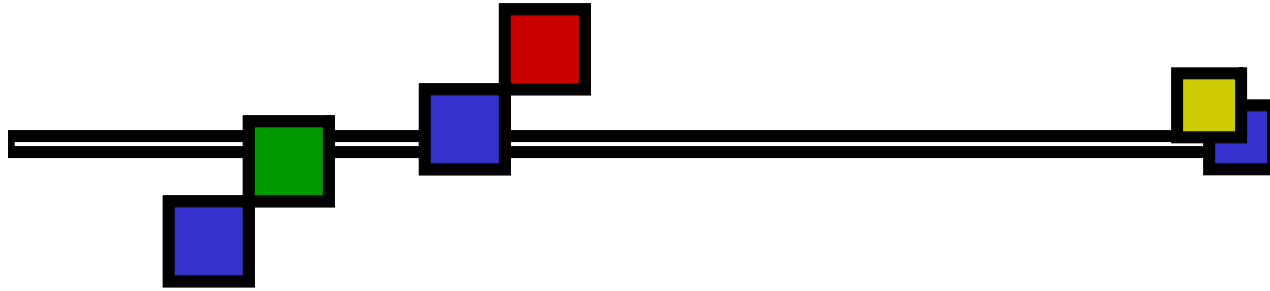


Z39.50 Database Options

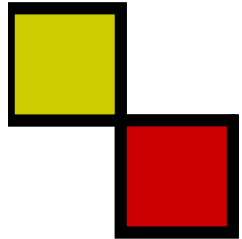


- The following options control its presentation in the Web OPAC. (**WWWOPTIONS** file)
- The client browser to **port 211** by default connects.





Z39.50 Database Options (Cont.)



- Z39PORT

Format : Z39PORT=<s_port>:<z39_port>

Example: **Z39PORT=80:211**

URL : <http://<Web OPAC Server name or ip>:211/screens/z39menu.html>

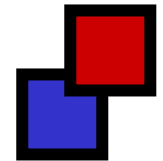
- Z39RESTRICT
Z39IPOK

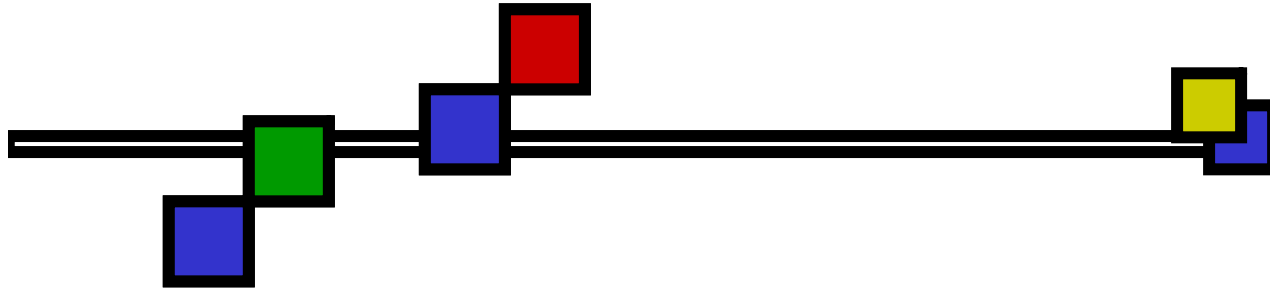
Format: Z39RESTRICT=<server>/<database>

Z39IPOK=**255.255.255.***

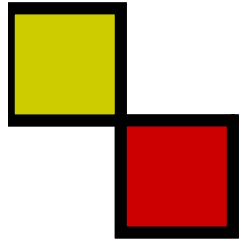
Example: **Z39RESTRICT=UC/default;KKU/INNOPAC**

Z39IPOK=255.255.255.* ;202.202.202.*





Z39.50 Database Options (Cont.)



- Z39SEARCH

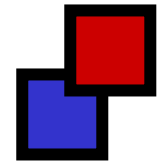
Format:

Z39SEARCH=<server>:<database>,[<server>:<database> >...]

Example:

Z39SEARCH=UC:default;KKU:INNOPAC

BUT_Z39SEARCH=/screens/z39search.gif



- Z39MULTI

Format:

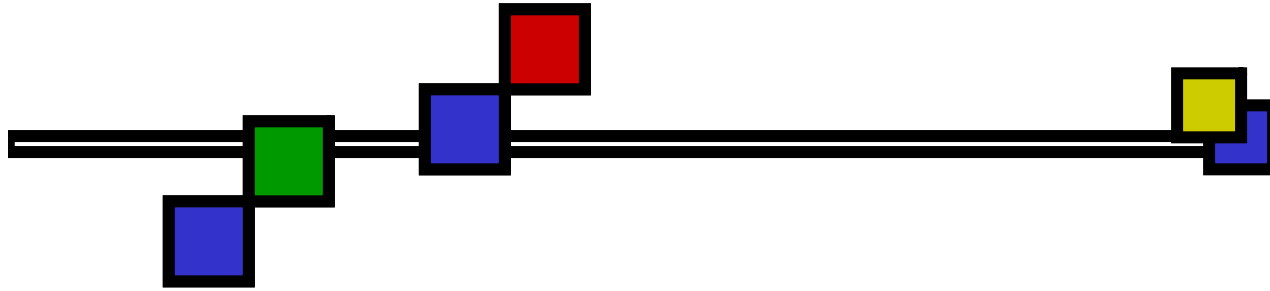
Z39MULTI=<Max All>:<Max One>

Example:

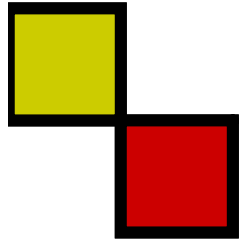
Z39MULTI=500:100

URL :

http://<Web OPAC Server name or ip>:211/z39m



Z39.50 Database Options (Cont.)

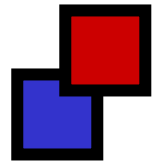


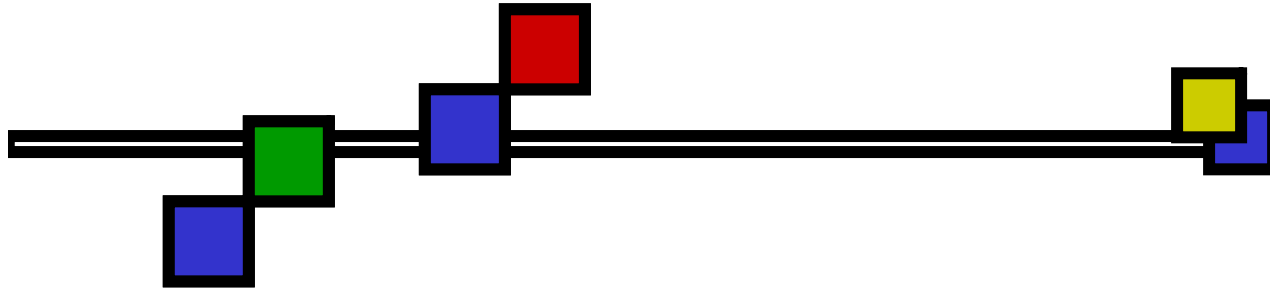
- Z39BROADCAST[_lang]

Format: Z39BROADCAST=<Title Text>:<Instruction Text>

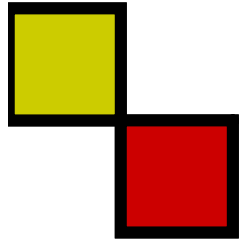
Z39BROADCAST_tha=<Thai Title Text>:<Thai Instruction Text>

Example: Z39BROADCAST=Z39.50 Broadcast Search:Please
select the Z39.50 servers to which you want to send your search

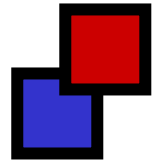




Z39.50 Client

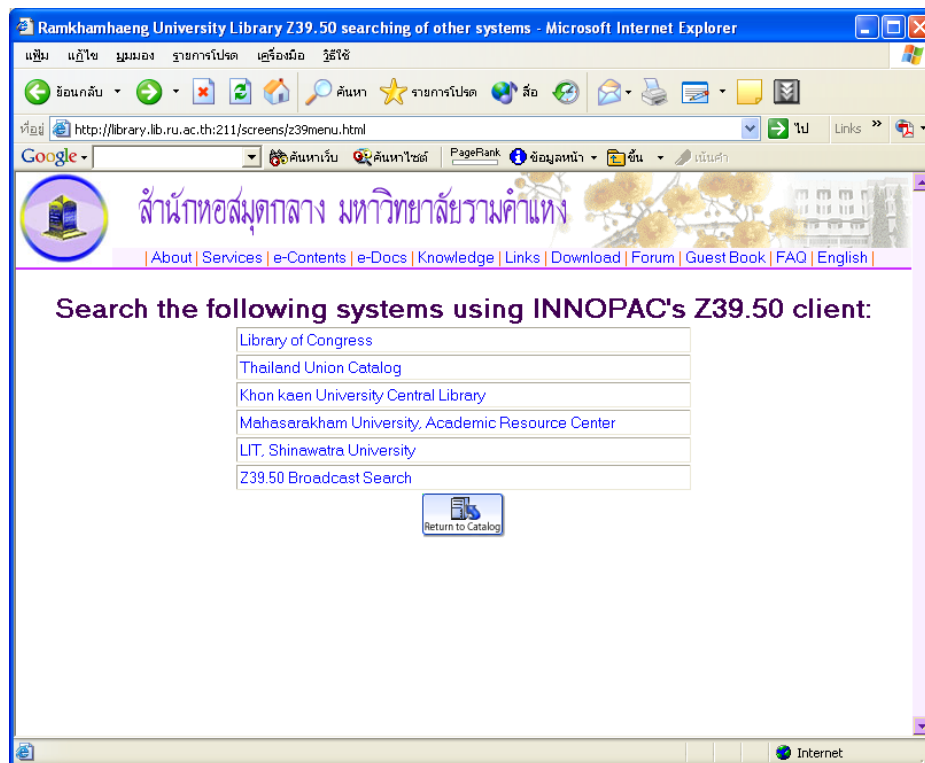


- Z39.50 client services are available in both the **Web OPAC** and the **character-based OPAC**.
- An HTML file called **z39menu.html** in Web OPAC.



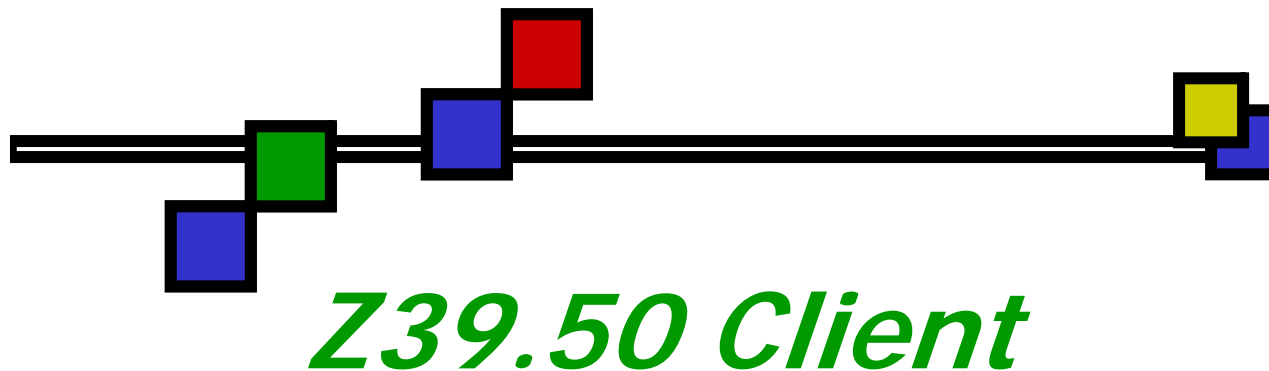


Z39.50 Client



<http://library.lib.ru.ac.th:211/z39/z39menu.html>





[Library of Congress](http://library.lib.ru.ac.th:211/z39/Voyager/VOYAGER)

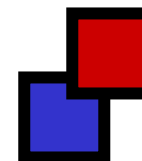
[Thailand Union Catalog](http://library.lib.ru.ac.th:211/z39/UC/default)

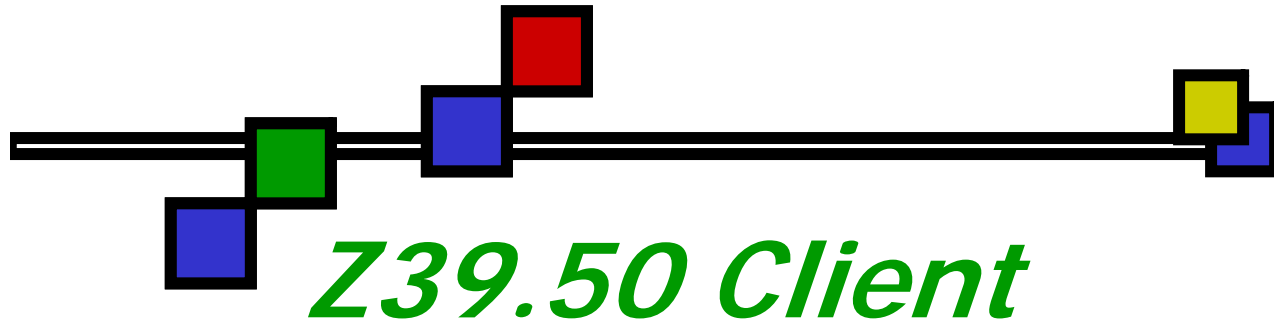
[Khon kaen University Central Library](http://library.lib.ru.ac.th:211/z39/KKU/INNOPAC)

[Mahasarakham University, Academic Resource Center](http://library.lib.ru.ac.th:211/z39/MSU/INNOPAC)

[LIT, Shinawatra University](http://library.lib.ru.ac.th:211/z39/SHIN/horison)

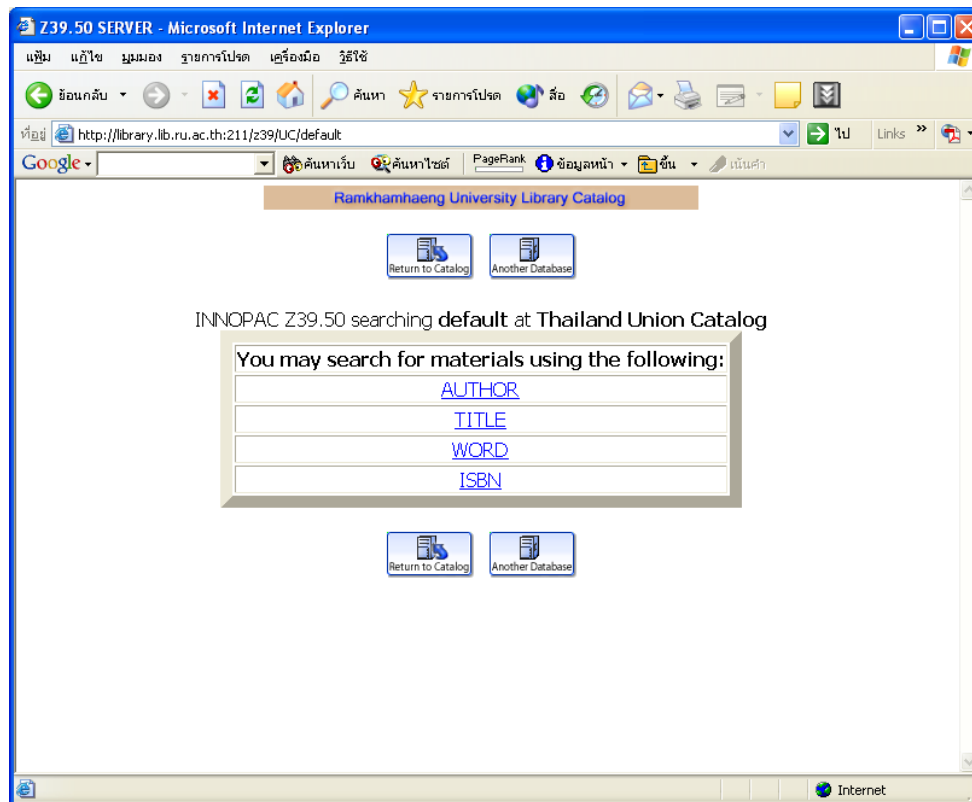
[Z39.50 Broadcast Search](http://library.lib.ru.ac.th:211/z39m)

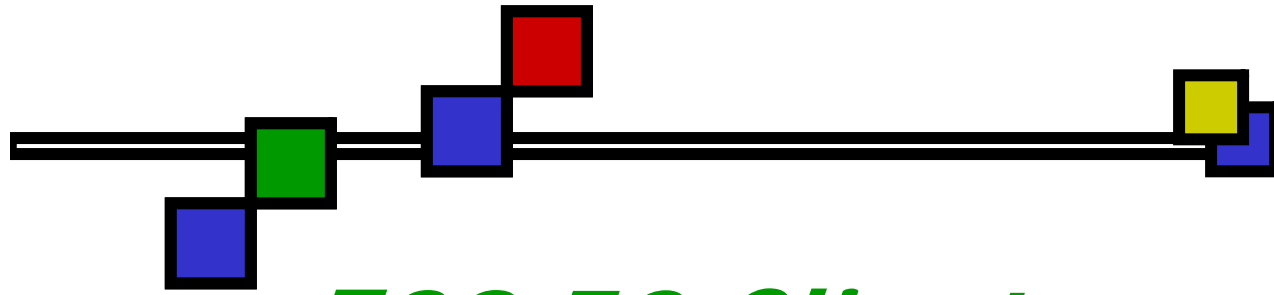




Z39.50 Client

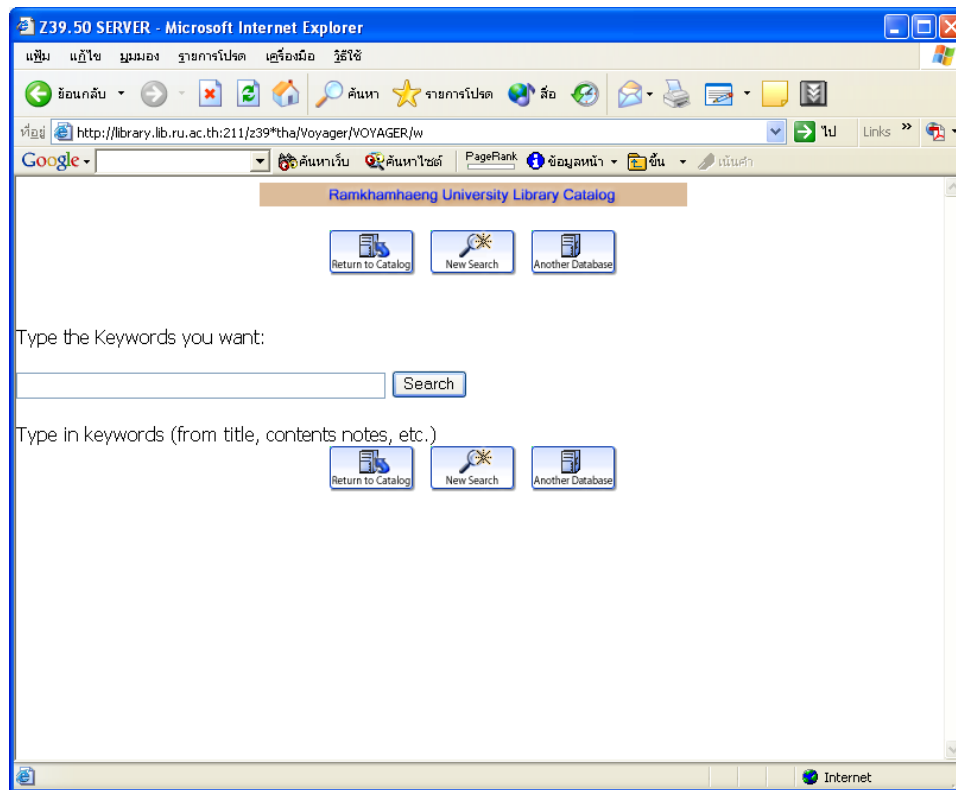
Search screen of Thai Union Catalog





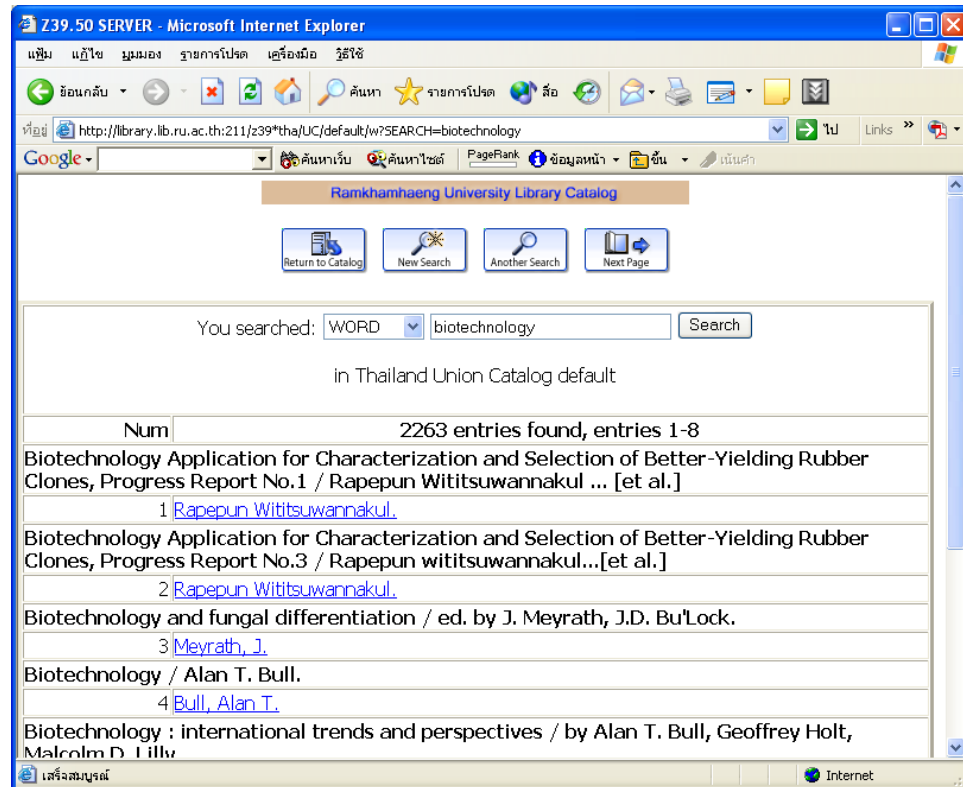
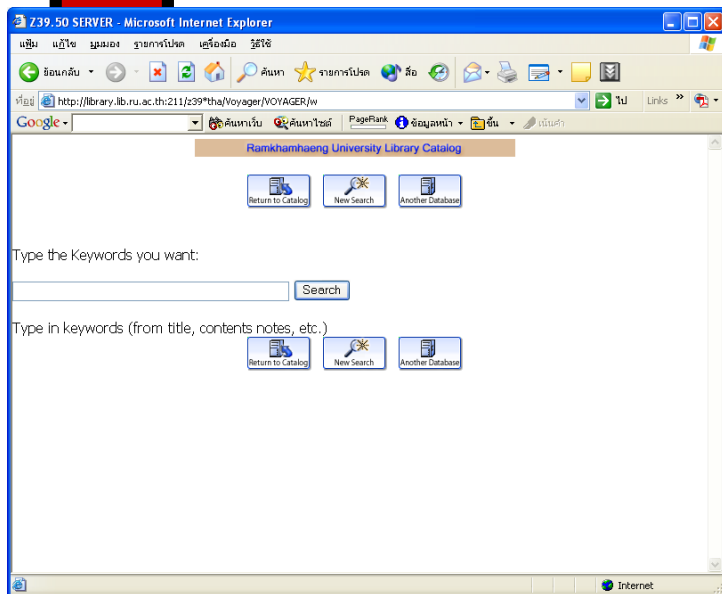
Z39.50 Client

Search by Word



Z39.50 Client

Search by Word = “biotechnology”

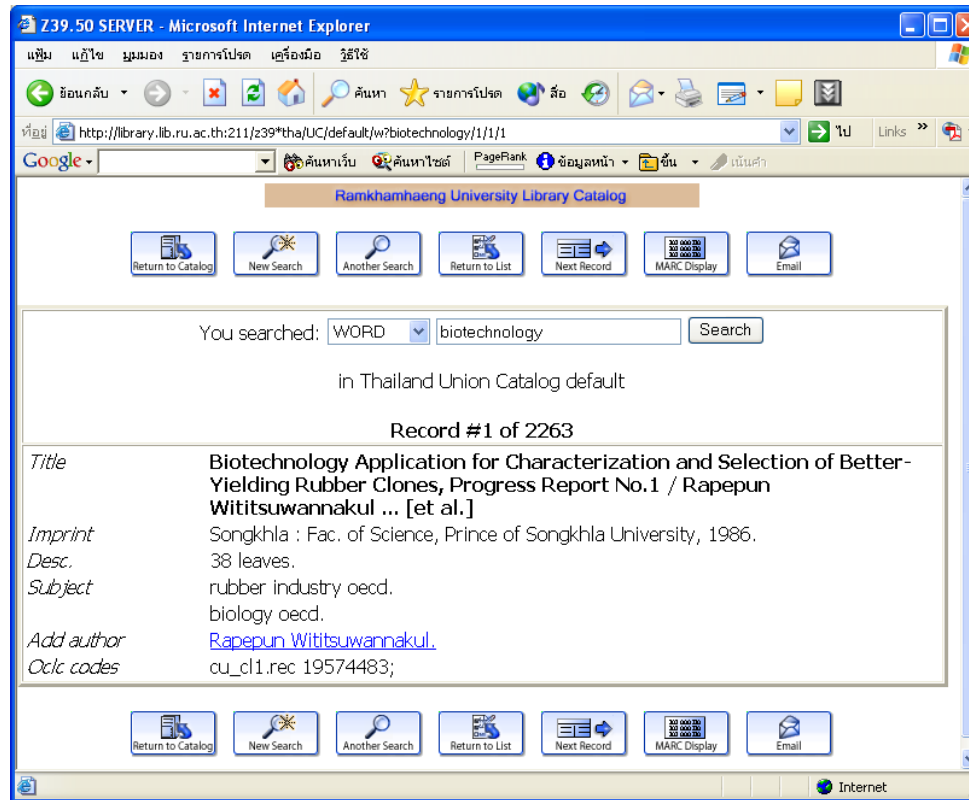




Z39.50 Client



Example record form browse list



Microsoft Internet Explorer window titled "Z39.50 SERVER - Microsoft Internet Explorer". The address bar shows the URL: http://library.lib.ru.ac.th:211/z39*tha/UC/default/w?biotechnology/1/1/1. The page content includes:

Ramkhamhaeng University Library Catalog

Navigation buttons: Return to Catalog, New Search, Another Search, Return to List, Next Record, MARC Display, Email.

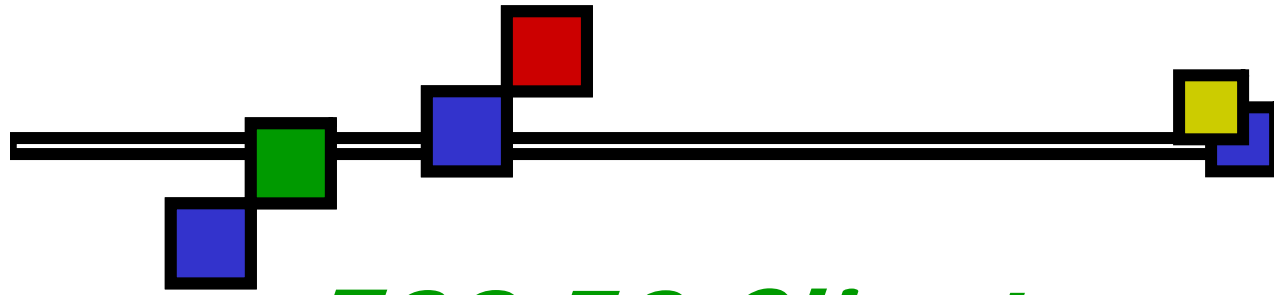
You searched: WORD biotechnology Search

in Thailand Union Catalog default

Record #1 of 2263

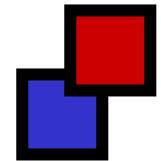
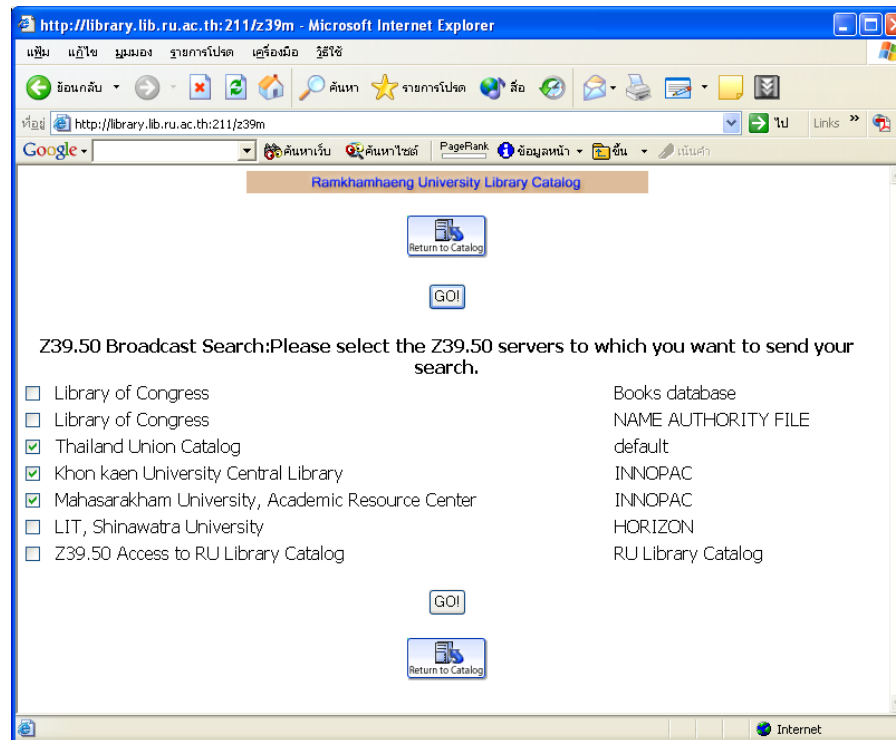
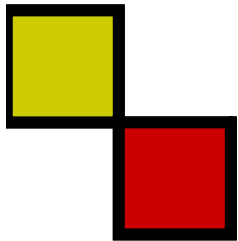
<i>Title</i>	Biotechnology Application for Characterization and Selection of Better-Yielding Rubber Clones, Progress Report No.1 / Rapepun Wititsuwannakul ... [et al.]
<i>Imprint</i>	Songkhla : Fac. of Science, Prince of Songkhla University, 1986.
<i>Desc.</i>	38 leaves.
<i>Subject</i>	rubber industry oecd. biology oecd.
<i>Add author</i>	Rapepun Wititsuwannakul.
<i>Oclc codes</i>	cu_cl1.rec 19574483;

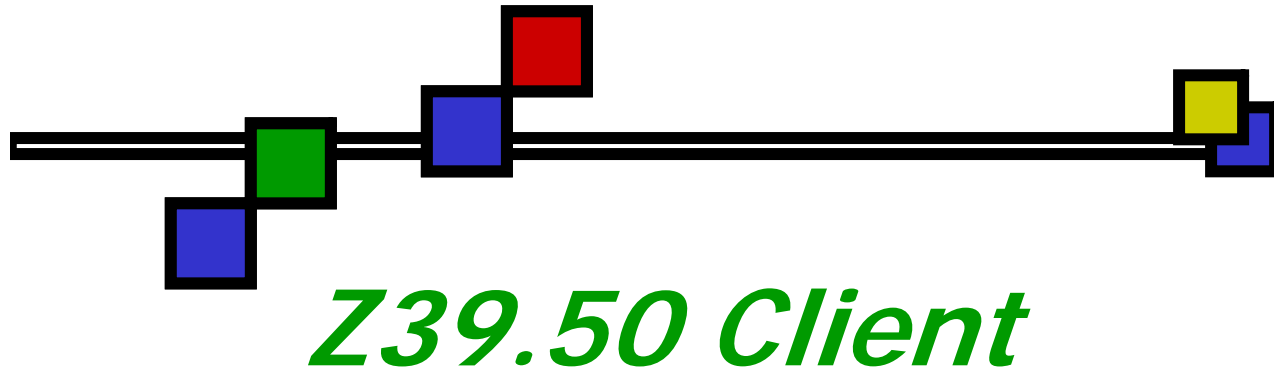
Navigation buttons: Return to Catalog, New Search, Another Search, Return to List, Next Record, MARC Display, Email.



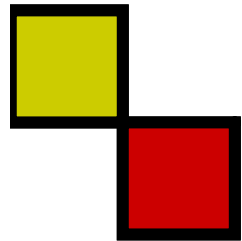
Z39.50 Client

Z39.50 Broadcast Search

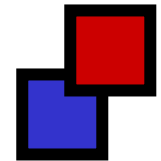
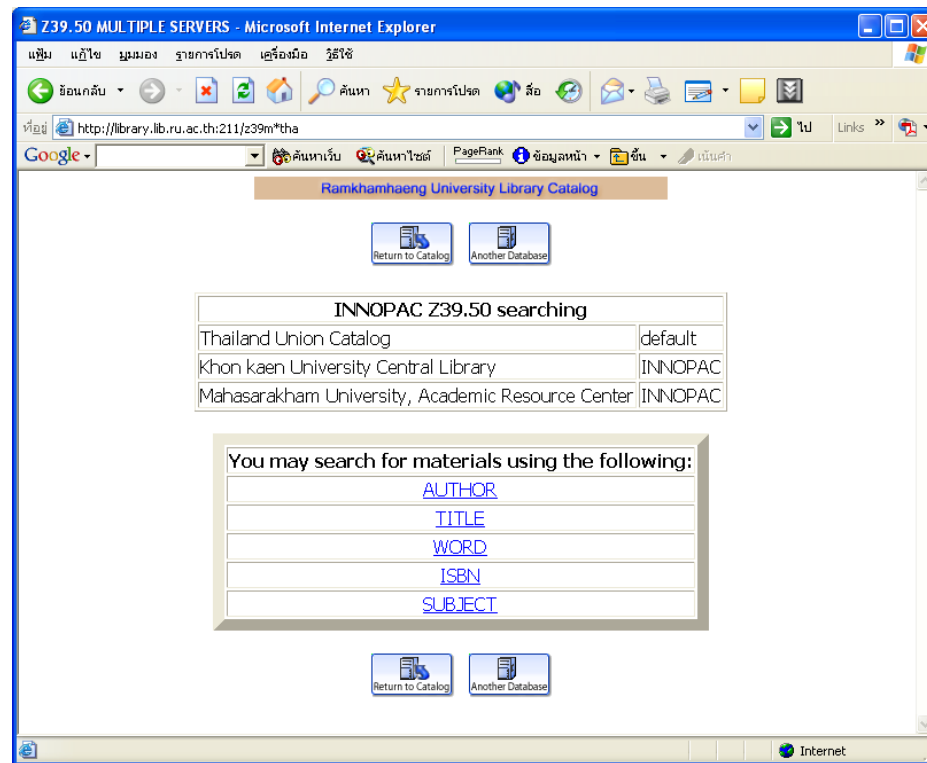


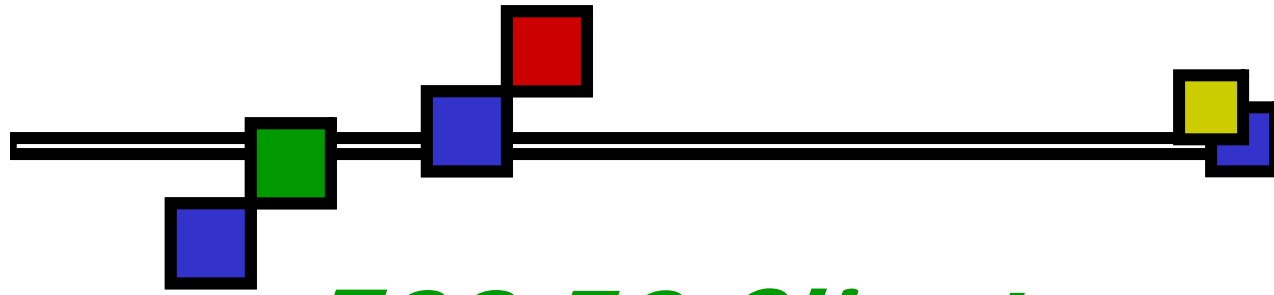


Z39.50 Client

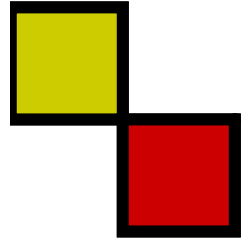


Z39.50 Broadcast Search





Z39.50 Client

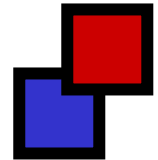


Z39.50 Broadcast Search

Microsoft Internet Explorer window titled "Z39.50 MULTIPLE SERVERS". The address bar shows the URL: http://library.lib.ru.ac.th:211/z39m*tha/UC.default%2CCKKU:INNOPAC%2CMSU:INNOPAC/?SEARCH=technology. The page content includes the "Ramkhamhaeng University Library Catalog" header and a search results table.

INNOPAC Z39.50 searching TITLE technology			
Thailand Union Catalog	default	10 records (out of 22802)	In progress
Khon kaen University Central Library	INNOPAC	10 records (out of 101)	In progress
Maharakham University, Academic Resource Center	INNOPAC	10 records (out of 52)	In progress

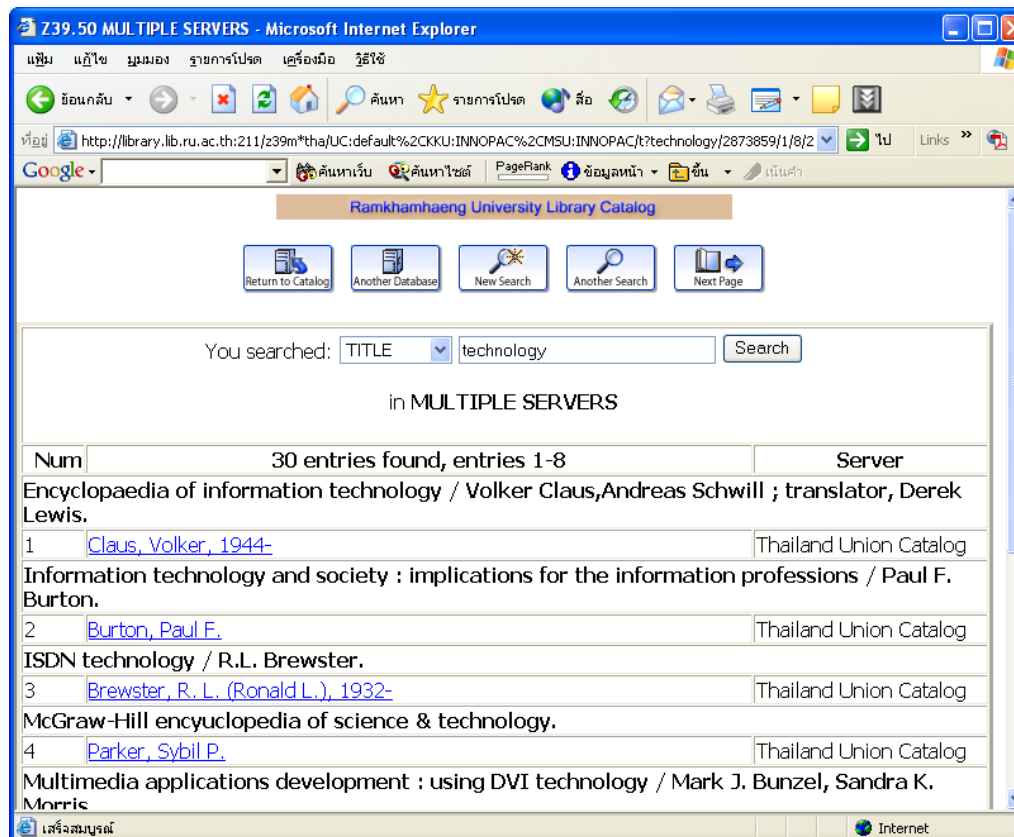
Below the table is a red link: [View search results](#). Navigation buttons include "Return to Catalog", "Another Database", "New Search", and "Another Search".





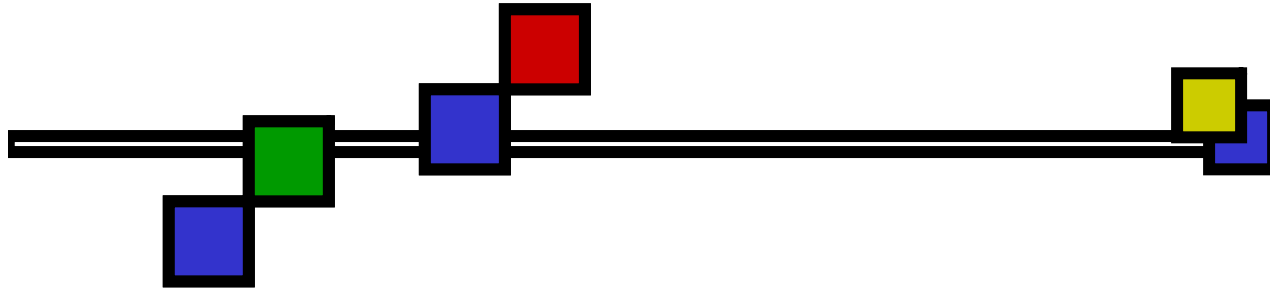
Z39.50 Client

Z39.50 Broadcast Search



Microsoft Internet Explorer window titled "Z39.50 MULTIPLE SERVERS". The address bar shows the URL: http://library.lib.ru.ac.th:211/z39m*tha/UC:default%2CCKKU:INNOPAC%2CMSU:INNOPAC/t?technology/2873859/1/8/2. The search results are displayed in a table format.

Num	30 entries found, entries 1-8	Server
	Encyclopaedia of information technology / Volker Claus, Andreas Schwill ; translator, Derek Lewis.	
1	Claus, Volker, 1944-	Thailand Union Catalog
	Information technology and society : implications for the information professions / Paul F. Burton.	
2	Burton, Paul F.	Thailand Union Catalog
	ISDN technology / R.L. Brewster.	
3	Brewster, R. L. (Ronald L.), 1932-	Thailand Union Catalog
	McGraw-Hill encyclopedia of science & technology.	
4	Parker, Sybil P.	Thailand Union Catalog
	Multimedia applications development : using DVI technology / Mark J. Bunzel, Sandra K. Morris	

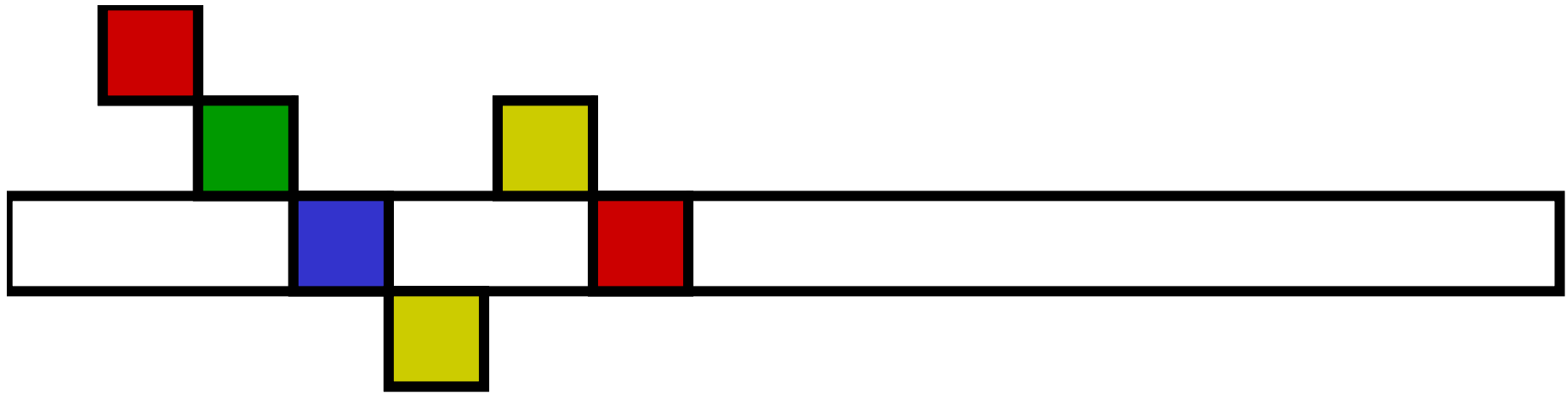


Source:

- INNOPAC User Manual Release 2002 Phase 3

More Information:

- **Bath Profile** : <http://www.nlc-bnc.ca/bath/tp-bath2-e.htm>
- **Z39.50 standard** : <http://www.loc.gov/z3950/agency/>
- **Bib-1 Attribute Set** : <http://lcweb.loc.gov/z3950/agency/defns/bib1.html>



Z39.50 for INNOPAC and Millennium

Z39.50 server and database


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December 15, 2003

Ramkhamhaeng University Library