

# Profile of the SBN Z39.50 server

This text provides technical information for configuring and connecting an external client to SBN Z39.50 server.

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## SBN server Z39.50

### 1. General Information

1.1 Contact Information: [d.roveri@iccu.sbn.it](mailto:d.roveri@iccu.sbn.it)

1.2 Server's Internet Address: opac.sbn.it port 2100

1.3 Hours of Availability: 0-24

1.4 Profiles supported: Z39.50 over TCP

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### 2. Target Information

#### 2.1 Z39.50 Services Supported

- Init
- Search
- Present
- Scan
- Sort
- Delete
- Close

#### 2.2 Service Constraints

##### 2.2.1 Init

- Z39.50 1995 (ISO23950), versions 3, 2, implemented
- Options supported:
  - Search
  - Present
  - Scan
  - Sort
  - Delete
  - named-result-sets
- Preferred message size: it accepts Client proposal if it is different from 0; in this case it sets the value to default
- Exceptional record size: same as Preferred message size above
- **Id Authentication: Accepts everything (not yet supported the parameter)**
- Other-information: this features is not implemented by the server

##### 2.2.2 Search

- Result-set-name: the server maintains any number of named result sets during the Z-association
- Database-names: "nopac". The requested database is searched

- Element-set-names: Full, Brief (default, if client does not specify)
- Format returned: SUTRS
- Query Types and Attributes: Type-1 and Type-101 queries are accepted
- Attribute Set Id: Bib-1 is supported; specific database extensions are supported
- Operand: the Result Set Id can be used in the Operand (for qualifying searches)
- Operators supported: AND, OR, AND-NOT, Prox

For what regards the proximity operator ("prox") in a Type-101 query, now its use is limited to operands of the type Attribute+ List+Term

- Other-information: this features is not implemented by the server

### 2.2.3 Present:

- Result-set-id: the server attempts to find the named result set. If the result set is not found, the server returns an error 30.
- Other-information: this features is not implemented by the server

### 2.2.4 Scan:

- Database-names: "nopac". The requested database is browsed
- Other-information: this features is not implemented by the server

### 2.2.5 Sort:

- Other-information: this features is not implemented by the server

### 2.2.6 Result-set-Delete:

- Delete-msg: this feature is not implemented by the server
- Other-information: this features is not implemented by the server

All other fields behave exactly as prescribed by the standard.

## 3. Details of Target Implementation

3.1 Restricted Access: None

3.2 Multiple Database Searching: No

3.3 Record Syntaxes Supported: If no Preferred Record Syntax is supplied, the server defaults to SUTRS.

3.4 Bib-1 Attribute Set

3.4.1 Use Attributes Supported

<b>BIB-1 Use</b>	<b>Value</b>	<b>Acces type(1)</b>	<b>Struttura</b>
Personal name	1	I	6
Corporate name	2	I	6
Conference name	3	I	6

Title	4	I	6
Title series	5	I	6
Title uniform	6	I	6
ISBN	7	I	6
ISSN	8	I	6
Dewey Classification	13	E	1
Local classification	20	E	1
Subject heading	21	I	6
Local subject index	29	I	6
Date	30	DATA	5
Data of publication	31	NUM	4
Title parallel	35	I	6
Title other variant	41	I	6
Title former	42	I	6
No. National bibliography	48	I	6
No. music publisher	51	I	6
Code language	54	E	1
Code geographic area	55	E	1
Name and title	57	I	6
Place publication	59	I	6
Note	63	I	6
Author-title	1000	I	6
Record type	1001	E	1
Name	1002	I	6
Author	1003	I	6
Author-name personal	1004	I	6
Author-name corporate	1005	I	6
Author-name conference	1006	I	6
Identifier-standard	1007	I	6
Date/time added to db	1011	DATA	5
Date/time last modified	1012	DATA	5
Any	1016	I	6
Publisher	1018	I	6

Bib-level	1021	E	1
Music key	1025	E	1
Related-periodical	1026	I	6
Doc-id	1032	E	1
Host-item	1033	I	6
Content-type	1034	E	1
Anywhere	1035	I	6
Author, title, subject	1036	I	6

### 3.4.2 Access point in extension

<b>Access point in extension</b>	<b>Use</b>	<b>Access type (1)</b>	<b>Structure</b>
Code bibliographic level SBN	3000	E	1
ISMN	3004 ( it will turn in 1092)	I	6
Thematic catalogue number	3006	I	6
Finger print	3008	I	6
Date of musical composition	3010	E	1
Country of publication	3012	I	6
Musical form	3014	E	1
medium of performance	3016	I	6
Medium of performance (analytic list)	3018	I	6
Medium of performance (synthetic list)	3020	I	6
Elaboration. medium of performance (analytic list)	3022	I	6
Elaboration. medium of performance (synthetic list)	3024	I	6
Parts. medium of performance (synthetic list)	3026	I	6
Title proper	3028	I	6
Title proper by another author	3030	I	6
Uniform title (former part)	3032	I	6
Title of section or part	3034	I	6
Variant title: appellativo	3038	I	6
Variant title: Incipit letterario	3040	I	6
Musical incipit	3041	I	6
Variant title: alternativo	3042	I	6
Variant title: Titolo opera letteraria desunta	3044	I	6
Variant title: Titolo opera parafrasata	3046	I	6
Characters and performers	3050	I	6
Relator code	3056	I	6
Edition statement	3072	I	6

Publication	3074	I	6
Title and statement of responsibility	3086	I	6
Publisher's device	3087	I	6
Directory of Italian libraries code	3088 (it will turn in 1044)	E	1
Musical performance	3089	I	6
Music specific statement	3090	I	6
Segnature	3091	I	6
Dewey Decimal Classification (key word)	4014	I	6
Publisher (Relator code=650)	4051	I	6

(1) I means Inclusive access (i.e. access to a textual index); E means Exact access (i.e. access to an exact index); NUM means Numeric access; DATA means access as a date.

### 3.4.3 Relation Attributes Supported

Less than 1

Less than or equal 2

Equal 3

Greater or equal 4

Greater than 5

Not equal 6

### 3.4.4 Position Attributes Supported

First in field 1

First in subfield 2

Any position in field 3

### 3.4.5 Structure Attributes Supported

Phrase 1

Word 2

Year 4

Date (normalized) 5

Word list 6

String 108

### 3.4.6 Truncation Attributes Supported

Right truncation 1

Do not truncate 100

### 3.4.7 Completeness Attributes Supported

Incomplete subfield 1

Complete field 3

### 3.4.8 Attribute Defaults

The Use attribute is REQUIRED.

For the other attributes, if an attribute type and value are not supplied by the client, as in the case of the access via the Web interface (at least for Bib-1 Position, Structure, Completeness attribute types), the following defaults are applied:

- Relation: equal
- Position: if inclusive access => anyposition  
  
exact (and date, numeric) access => firstinfield
- Structure: if inclusive access => wordlist  
  
exact access => phrase (date, numeric access => year, date norm.)
- Truncation: none
- Completeness: if inclusive access => incomplete subfield

exact (and date, numeric) access => complete field

### 3.4.9 Attribute Combinations

The following are indications for the ZServer behaviour.

#### 1 - Relation

- the Use numeric values (e.g. Date, Year) support all foreseen values (1-6)
- the Use character values (e.g. Title) support only Equal (3) value and Not equal (6)

#### 2 - Position

See the tables after

#### 3 - Structure

- the Use numeric values (e.g. Date, Year) are treated automatically by the server
- the Use character values support:
  - Phrase which is resolved forcing the query into the form "phrase is..." for inclusive access, and into the form "=" for exact access
  - Word list which for inclusive access is resolved forcing the query into the form "phrase words ..." (logic AND among the single terms)
  - Word which for inclusive access is resolved forcing the query into the form "inc", and for exact access into the form "="

- String which for inclusive access is resolved forcing the query into the form "inc", and for exact access into the form "="

#### 4 - Truncation

- The Use character values support (right) truncation only when are qualified by structure value "word" or "phrase" or "string" or "wordlist" (this one only for inclusive access).
- Numeric Use (e.g. Date, Year) values never admit truncation.

#### 5 - Completeness

See the tables after

Unsupported Bib-1 attributes values related to the kind of access:

- Relation: if inclusive access => not equal
- Position: if inclusive access => firstinfield, firstinsubfield

exact access => anyposition

- Structure: if exact access => wordlist

inclusive access => date, year

- Truncation: none
- Completeness: if inclusive access => completefield

exact access => incomplete subfield

Now it is provided some tables with all the supported attribute combinations, depending on the BIB1 Structure values. The bolded values are default values.

#### ***BIB1 attributes combination (inclusive access)***

<i>Relation = 2</i>	<i>Position = 3</i>	<i>Structure = 4</i>	<i>Truncation = 5</i>	<i>Completeness = 6</i>
<b>Equal = 3</b>	<b>Any position = 3</b>	Phrase = 1	Right Trunc. = 1	<b>Incomplete sub. = 1</b>
		<b>WordList = 6</b>	<b>No Trunc = 100</b>	
		Word = 2		
		String = 108		

#### ***BIB1 attributes combination (exact access)***

<i>Relation = 2</i>	<i>Position = 3</i>	<i>Structure = 4</i>	<i>Truncation = 5</i>	<i>Completeness = 6</i>
<b>Equal = 3</b>	<b>First in Field = 1</b>	<b>Phrase = 1</b>	Right Trunc. = 1	<b>Complete field = 3</b>
Not Equal = 6	First in Sub = 2	Word = 2	<b>No Trunc = 100</b>	
		String = 108		

**BIB1 attributes combination (for date, numeric access)**

<i>Relation = 2</i>	<i>Position = 3</i>	<i>Structure = 4</i>	<i>Truncation = 5</i>	<i>Completeness = 6</i>
Less Than = 1	<b>First in Field = 1</b>	Year = 4	<b>No Trunc = 100</b>	<b>Complete field = 3</b>
Less or Equal = 2		Date (Norm.) = 5		
<b>Equal = 3</b>				
Greater or Equal = 5				
Greater Than = 5				
Not Equal =6				

**Notes:**

- The Incomplete Subfield value of Completeness attribute type is ignored when associated with Structure= Year, Date
- The Complete Field value of Completeness attribute type is ignored when associated with Truncation = Right Trunc.
- The Any Position and First in SubField values of Position attribute type are ignored when associated with Structure= Year, Date
- For all unsupported combination of attribute values, the target returns the surrogate diagnostic 123, i.e. Unsupported attribute combination
- The Not Equal relation is always applied only to the begin of a record (for an exact index), independently from the given position attribute.

3.5 Proximity Parameters Supported: see 2.2.2

3.6 Other Information about the Target

The Z39.50 server uses a configuration file containing all the Z39.50 target configuration information. The parameters inserted in the configuration file may be modified at runtime from the command line at Zserver startup.

3.7 Diagnostic set and conditions used

The diagnostic set Bib-1 is supported.

Diagnostic Conditions supported:

**code Meaning**

1 permanent system error

2 temporary system error

3 unsupported search

4 Terms only exclusion (stop) words

5 Too many argument words

6 Too many boolean operators

7 Too many truncated words

8 Too many incomplete subfields

- 9 Truncated words too short
- 10 Invalid format for record number (search term)
- 11 Too many characters in search statement
- 12 Too many records retrieved
- 13 Present request out-of-range
- 14 System error in presenting records
- 15 Record not authorized to be sent intersystem
- 16 Record exceeds Preferred-message-size
- 17 Record exceeds Exceptional-record-size
- 18 Result set not supported as a search term
- 19 Only single result set as search term supported
- 20 Only ANDing of a single result set as search term
- 21 Result set exists and replace indicator off
- 22 Result set naming not supported
- 23 Specified combination of databases not supported
- 24 Element set names not supported
- 25 Specified element set name not valid for specified database
- 26 Only generic form of element set name supported
- 27 Result set no longer exists - unilaterally deleted by target
- 28 Result set is in use
- 29 One of the specified databases is locked
- 30 Specified result set does not exist
- 31 Resources exhausted - no results available
- 32 Resources exhausted - unpredictable partial results available
- 33 Resources exhausted - valid subset of results available
- 100 (unspecified) error
- 102 Challenge required, could not be issued - operation terminated
- 103 Challenge required, could not be issued - record not included

- 104 Challenge failed - record not included
- 105 Terminated at origin request
- 106 No abstract syntaxes agreed to for this record
- 107 Query type not supported
- 108 Malformed query
- 109 Database unavailable
- 110 Operator unsupported
- 111 Too many databases specified
- 112 Too many result sets created
- 113 Unsupported attribute type
- 114 Unsupported Use attribute
- 115 Unsupported term value for Use attribute
- 116 Use attribute required but not supplied
- 117 Unsupported Relation attribute
- 118 Unsupported Structure attribute
- 119 Unsupported Position attribute
- 120 Unsupported Truncation attribute
- 121 Unsupported Attribute Set
- 122 Unsupported Completeness attribute
- 123 Unsupported attribute combination
- 124 Unsupported coded value for term
- 125 Malformed search term
- 126 Illegal term value for attribute
- 127 Unparsable format for un-normalized value
- 128 Illegal result set name
- 129 Proximity search of sets not supported
- 130 Illegal result set in proximity search
- 131 Unsupported proximity relation

132 Unsupported proximity unit code

201 Proximity not supported with this attribute combination

202 Unsupported distance for proximity

203 Ordered flag not supported for proximity

205 Only zero step size supported for Scan

206 Specified step size not supported for Scan

207 Cannot sort according to sequence

208 No result set name supplied on Sort

209 Generic sort not supported (database-specific sort only supported)

210 Database specific sort not supported

211 Too many sort keys

212 Duplicate sort keys

213 Unsupported missing data action

214 Illegal sort relation

215 Illegal case value

216 Illegal missing data action

227 No data available in requested record syntax

228 Scan: malformed scan

229 Term type not supported

230 Sort: too many input results

231 Sort: incompatible record formats

232 Scan: term list not supported

233 Scan: unsupported value of position-in-response

234 Too many index terms processed

235 Database does not exist

236 Access to specified database denied

237 Sort: illegal sort

238 Record not available in requested syntax

239 Record syntax not supported

240 Scan: Resources exhausted looking for satisfying terms

241 Scan: Beginning or end of term list

243 Present: additional-ranges parameter not supported

244 Present: comp-spec parameter not supported

245 Type-1 query: restriction ('resultAttr') operand not supported

246 Type-1 query: 'complex' attributeValue not supported

247 Type-1 query: 'attributeSet' as part of AttributeElement not supported

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#### **4. Per-Database Information**

See project documentation "Progetto Accessibilita' - Documento di Definizione dei dati OPAC\_INDICE".

**5. User Fees:** None

#### **6. Other Comments**

6.1 Character Sets used

ISO 646 + ISO 8859-1