

BIBLINK Workspace Functional Specification (BW FS)

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Abstract	This document is a functional specification for the BIBLINK Workspace (BW). The BW provides a joint repository and working environment for publishers and bibliographic agencies to create and enhance bibliographic records of electronic publications in various stages of maturity.
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PART II

DOCUMENT CONTROL

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0.1	17/11/97	First internal draft of contributions for UKOLN, BL and Level-7 review (this document)
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0.3	22/01/98	Working Draft for partner comment
0.4	13/02/98	Working Draft for partner comment
0.5	04/03/98	Working Draft for UKOLN and BL comment
1.0	06/03/98	Initial Developer Release
1.1	12/06/98	UKOLN working draft for partner comment
2.0	22/06/98	Final Developer Release

EXECUTIVE SUMMARY

This document is a functional specification of the BIBLINK Workspace (BW), a shared storage facility containing bibliographic records in various stages of maturity.

The primary audience for this document is any organisation planning to develop the BIBLINK Workspace System. The document may also be useful for organisations responsible for administering a Workspace in the BIBLINK Demonstrator environment.

SCOPE STATEMENT

The functional specification of the BIBLINK Workspace is derived from D8.1 BIBLINK Demonstrator User Requirements Specification. The Functional Specification uses the user requirements to derive detailed function requirements needed to design the BIBLINK Workspace (BW). The functional requirements are expressed in terms of what the BW system is required to do but not how it is to be constructed. The functional specification expresses the relationships between functional components, data structures and policies including control procedures, security and bibliographic record lifecycle requirements.

As well as defining the interface and internal system requirements, the functional specification also provides the baseline for acceptance of the BW. This document only describes the functionality of the Publisher or NBA systems implicitly in terms of the supported BW interfaces.

The functional specification is intended to provide enough information to enable development of the BW without the need for further consultation with the users. It is also intended as a suitable basis for starting a competitive tendering procedure for development of the BW.

TECHNICAL SUMMARY

The function specification includes descriptions of the interfaces between components, including both internal and external interfaces. It is independent of any specific system architecture or product, although, where necessary, some examples of specific types of system have been included.

PART III

GLOSSARY

BIBLINK Core (BC)

A set of metadata elements forming the basis of the BIBLINK Workspace Record. BC is a super-set of the Dublin Core element set.

BIBLINK Demonstrator (BD)

A multi-national demonstrator developed as part of the BIBLINK project, which provides an environment for the development of bibliographic records of electronic publications.

BIBLINK Workspace (BW)

Co-operative working environment forming the core of the BIBLINK demonstrator for the creation and editing of bibliographic records.

BIBLINK Workspace Agent (BWA)

An authorised user or application at an NBA, PUB, BW or other third party.

BIBLINK Workspace Profile (BWP)

A data structure associated with a BWA that specifies the permissions associated with that BWA and what events, actions and information concern that BWA.

BIBLINK Workspace Record (BWR)

A data structure containing one or more groups of bibliographic data elements held in different formats.

BIBLINK Workspace View (BWV)

The presentation and behaviour of the BW according to a user's BWP.

Dublin Core (DC)

A metadata element set primarily intended for describing Internet resources.

DC-dot

A Web based tool for generating Dublin Core metadata in a variety of formats.

DOI

Digital Object Identifier - a standard for assigning a globally unique identifier to a digital object.

HTML

HyperText Markup Language - a standard for writing Web pages.

HTTP

HyperText Transfer Protocol - a standard for Web clients and servers to exchange commands and messages.

MARC

MAchine Readable Cataloguing - a format conforming to the ISO 2709 standard for the exchange of bibliographic information, e.g. USMARC.

MIME

Multipurpose Internet Mail Extensions (MIME) - a standard for encoding different application content types so they can be transferred using Internet protocols such as SMTP and HTTP.

<NatMARC>

Term used in this document to represent any national MARC format.

NBA

National Bibliographic Agency

RDF

Resource Description Framework – a framework for providing metadata on the Web, under development by the W3C. RDF is normally encoded using XML.

SGML DTD

Standard Generalised Markup Language (SGML) Document Type Definition.

SMTP

Simple Mail Transfer Protocol (SMTP) - a standard for Internet email.

USEMARCON

Software utility to convert between MARC formats using UNIMARC as an intermediate format.

XML

Extensible Markup Language - a lightweight version of SGML, specifically designed for use on the Web.

1. INTRODUCTION

This Functional Specification is intended for technical readers who will be involved in the design and implementation of the BIBLINK Workspace (BW). This document should provide all the necessary information to support the development of the BW and its use in the BIBLINK Demonstrator (BD). Readers are expected to be familiar with *D8.1 BIBLINK Demonstrator User Requirements Specification*¹. Requirements expressed in this Functional Specification are either refinements of requirements expressed in the URS or additional requirements.

1.1 How to use this document

This document is structured according to the processes and data objects supported by different components of the BW. As far as possible, a layered structure has been adopted, which means that an individual can specify and design one part of the BW without needing to know a great deal about how the other parts are constructed.

1.2 Document Structure

Section 2 of Part III provides a general background description of the functionality of the BIBLINK WorkSpace.

Section 3 provides details regarding the functional components and processing aspects of the BW. It specifies the requests invoked by different users of the BW and the possible service responses from the BW. It includes the syntax of the requests and the ways of transferring requests/responses between a user and the BW. It also includes security and management aspects of the BW.

Section 4 provides details regarding the record formats and conversions supported by the BW. This covers the specification of bibliographic records in various formats such as BIBLINK Core and UNIMARC.

Section 5 provides an overview of the BW system development schedule, expected BW deliverables and requirements for acceptance of the BW system.

Section 6 provides a mapping between requirements identified in the User requirements Specification and requirements specified in this Functional Specification.

Annexes 1 and 2 provide examples of SMTP Interface Messages and Event/Action Configuration respectively. Annex 3 provides the Events/Actions for the first scenario described in the URS.

1.3 Assumptions

1. The BW will be an 'open system' accessible from different hardware/software platforms using standard unmodified Web and email clients.
2. The BW is intended to be an automatic system that requires minimal administration and maintenance.
3. The BW is not intended to support the maintenance of relationships between different records in the BW.
4. The development of the BW should allow for incremental future development. For example, to increase the number of formats supported or to support operations on collections of records at one time.

¹ Note that requirements expressed in the URS are assumed to apply a priori.

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5. The development of the BW is expected to involve the use of industry standard programming languages and scripting technologies. It may also involve the use of public domain and Commercial Off The Shelf (COTS) software.
6. The BW will provide a profiling mechanism to configure interfaces, views and permissions etc. for the different users and administrators of the system.
7. Users of the BW system are expected to ensure that their email and web browser software supports the necessary features identified in this Functional Specification (for example, the MIME standard [15]).
8. The system will support BIBLINK Core records expressed in different formats such as HTML, RDF, two SGML DTDs and various national MARC record formats. National MARC formats will only be supported when the relevant UNIMARC mappings and conversion rules have been supplied by interested participants.

2. OVERVIEW OF THE BIBLINK WORKSPACE

The BIBLINK Demonstrator (BD) is an environment consisting of a number of BIBLINK Workspaces (BWs) and the people, organisations and software that interact with them. This section provides an overview of the expected functionality of the BW².

A BW is a shared facility for storing and manipulating BIBLINK Workspace Records (BWRs).

Each BWR contains a number of fields. These include the BIBLINK Core (BC) fields containing text values; two fields containing SMGL records; a field containing a UNIMARC record; fields containing various national MARC records; some fields for BW administrative purposes.

Some fields in the BWR are mandatory but most fields are optional. This will be configurable by the BW administrator.



Figure 1 BIBLINK WorkSpace

People and organisations participating in the BD are known as participants. Participants include publishers, NBAs and other third parties, for example ISBN, ISSN and DOI agencies, and different organisations hosting a BIBLINK Workspace. Participants are registered with a BW as BIBLINK WorkSpace Agents (BWAs). Each participant may register as more than one BWA if appropriate. Other BWAs include internal BW processes and the system administrator.

² An example of a workspace type, collaborative environment is provided by BSCW. A demo of BSCW is available at <http://biblink.ukoln.ac.uk/pub/english.cgi/0/12?op=rmail>

Depending on the role of a particular BWA, appropriate access permissions will be specified in a BIBLINK Workspace Profile (BWP). The BWP specifies which operations can be carried out on the BWRs such as read, create and modify. Access permissions may be applied at the system, record and field level.

Each BWR will have different 'views' associated with it depending on the type of BWA accessing the BW and BWR. A BIBLINK Workspace View (BWV) is determined by a BWA's profile (BWP). The BWP constrains the format and the amount of information presented to the BWA. The BWP also specifies the notification method, e.g. an email message and/or a Web based alert.

There will be two interfaces to the BW. A Web-based interface will include methods to create, view, update, delete and search BWRs. An email-based interface will provide a similar level of functionality. This will be achieved by inserting commands into email messages.

The BW will be event driven. Events will be generated at various points in the life-cycle of a BWR or at certain times during the operation of the BW. Events will include 'record created', 'record modified', 'field modified', 'time expired', etc.

Actions will be associated with an event. Each event may trigger several actions. The actions will include 'notify a BWA about an event', 'update a BWR field from another BWR field', 'mark a BWR field as out of date', etc.

There are dependencies between the various fields in a BWR. For example, if a publisher uploads a new SGML record to the BW then some or all of the BC fields in the newly created BWR will need to be updated. Similarly, if some of the BC fields are updated then the UNIMARC field will need to be updated. This will be achieved using mappings between the different fields and conversion software. Because a complete set of mappings and conversion software may not be available there needs to be some mechanism to flag BWR fields as being 'out of date' in some way.

The following gives a brief example scenario of the way in which a BW is expected to be used.

- 1) A publisher will create a new BWR describing a publication. The publisher can do this in several ways:
 - by using a Web browser or email to upload an HTML or SGML view of the BWR;
 - by entering details directly into the BW using the Web interface;
 - by sending a set of commands to the BW using email.
- 2) A third party identification agency may add an identifier to the BWR using either a Web browser or email.
- 3) The NBA will enhance the record. Typically, this will be done by downloading a national MARC view of the BWR to their local systems for editing, using either a Web browser or by having the view sent to them as an email message. After loading the record into their local database and enhancing it they will upload a national MARC view of the enhanced record to the BW, again using a Web browser or email. Alternatively, the NBA may choose to download, enhance and upload an HTML view of the BWR.
- 4) The publisher will receive a view of the enhanced BWR, for use within their own internal systems.

3. BW SYSTEM COMPONENTS

3.1 Introduction

This section provides an overview of BW system components and interfaces. Figure 2 is used to illustrate the logical components of the BW and is not intended to imply any particular physical system.

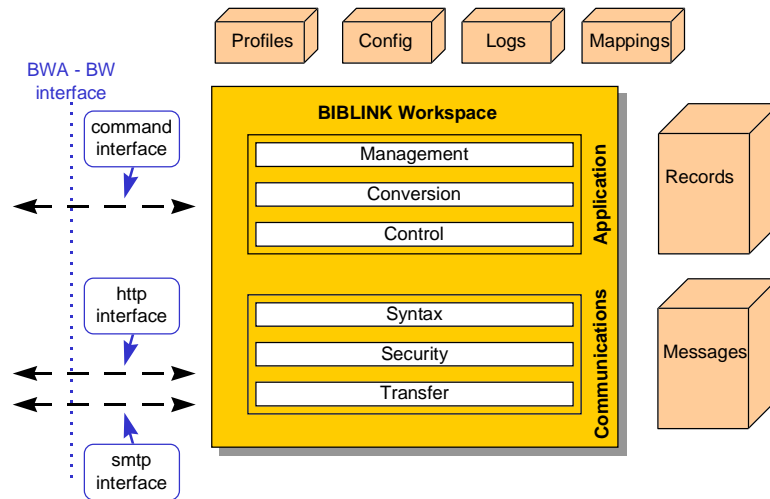


Figure 2 - BW Components and Interfaces

1. The BWA-BW Interface provides a reliable communications channel to carry the various types of metadata, and commands between the BWAs and BW.
2. The Records Database (see Section 4.1) contains the BWRs operated on by BWAs.
3. The Profiles Database (see Section 4.4) contains BWP for each BWA.
4. The Configuration Database (see Section 4.5) contains BW communications information required for BWA identification and authentication. It also contains default rules concerning events and actions.
5. The Mappings Database (see Section 4.3) contains mapping tables and rules used by the conversion component during BWR conversion.
6. The Messages Database (see Section 4.7) contains all the messages exchanged between BWAs and the BW.
7. The Logs Database (see Section 4.6) contains a log of all events, actions and accesses to the BW by BWAs.

The following sub-sections describe each of the components in the Communication and Application subsystems.

3.2 Transfer Component

This section specifies the underlying transport mechanisms that allow a BWA to communicate with the BW.

1. There must be two transfer interfaces between a BWA and the BW (see Figure 2). The two transfer interfaces must carry commands, responses, alerts and 'views' of BWRs in both directions.
2. One interface must use the Simple Mail Transfer Protocol (SMTP) [13, 14], the other must use the Hyper Text Transfer Protocol (HTTP) [16, 17].
3. In both cases, views of BWRs must be encoded prior to transmission using Multipurpose Internet Mail Extensions (MIME) [15] as specified in section 3.4.3 below.

3.2.1 SMTP Interface

1. The BW must be able to send and receive email messages using SMTP. The message syntax must be as specified in section 3.4.1.
2. Messages from a BWA to the BW may contain one or more commands. Commands must be contained in the main text of a single part message or in the first part of a multipart MIME message.
3. Messages from the BW to a BWA must be either a response (for example an error message) or an alert.
4. Responses and alerts will be contained in the main text of a single part message or in the first part of a multipart MIME message.
5. Messages in either direction may also comprise additional MIME body-parts each containing a single view of a BWR.
6. There must be no limit on the size of email messages supported by the BW, other than that imposed by the communications channel and hardware on which the BW is run.

3.2.2 HTTP Interface

1. The BW must be accessible using an industry standard Web browser.
2. The BW must support HTTP 1.0 and may optionally support HTTP 1.1.
3. BWR views must be uploaded to the BW using the HTTP PUT method. BWR views must be downloaded from the BW using the HTTP GET method. In both cases MIME should be used to transfer the views.

3.3 Security Component

1. The security component must protect the BW from the threat of unauthorised use of the BW system.
2. The BW system must only accept HTTP and SMTP type connections.
3. The BW must only offer two types of service: a BW registration service and BW user services.
4. Candidate users must be registered as authorised BWAs before they can use BW user services.
5. The registration service must support the exchange of registration-type messages to enable users to be established as BWAs.
6. Candidate users must identify themselves by means of a valid SMTP address during the registration service.
7. The registration service must be capable of collecting the following contact information about BWAs: name, email address, affiliation, telephone number, fax number.
8. The BW system must email a welcome message (optionally containing the user name and password) and to any user that is successfully registered as a valid BWA.
9. All non-registration message exchanges must be monitored to ensure they originate from BWAs. The BW must send a response message to non-BWAs in the case of exceptions.
10. All non-registration message exchanges must be in accordance with the BWP of the BWA. The BW must send a response message to BWAs in the case of exceptions.
11. BWAs must identify themselves by means of a valid SMTP address [13] to access BW user services using the SMTP interface.
12. BWAs must identify themselves by means of HTTP Basic Authentication [16] to access BW user services using the HTTP interface.

3.4 Syntax Component

The syntax component provides detailed requirements for the syntax used in the messages between BWAs and the BW. It includes the messages exchanged in HTTP and SMTP transfers specified in 3.4.1 and 3.4.2, and the MIME Interchange specification in 3.4.3.

The syntax component defines the commands and responses that the BW must support across the SMTP interface and describes the functionality of the HTTP interface. It also describes the encodings that must be supported in order to transmit and receive the various metadata records supported by the system.

1. Each interface must support the following actions:
 - create a new BWR
 - modify an existing BWR
 - delete an existing BWR
 - display one or more views of an existing BWR
2. The 'modify' action must provide mechanisms for marking a BWR as complete (and hence locked against further changes) and for rejecting a BWR (because the NBA decides it is not suitable for inclusion in the National Bibliography).
3. Each interface must reject BWRs that are invalid (because they do not contain mandatory fields).
4. Each interface should validate (where possible) the contents of BWR fields as they are created or modified. A list of possible validation checks for each field will be maintained at [<URL:http://hosted.ukoln.ac.uk/biblink/wp8/fs/bwr-validation/>](http://hosted.ukoln.ac.uk/biblink/wp8/fs/bwr-validation/).

3.4.1 SMTP Message Syntax

1. Each SMTP message from a BWA to the BW must contain one or more commands (defined below) and, optionally, one MIME body part containing one view of a BWR.
2. Each SMTP message from the BW to a BWA must contain one or more responses or alerts (defined below) and, optionally, one or more MIME body parts containing alternate views of a BWR.

Annex 1 gives some examples of valid SMTP messages.

3.4.1.1 SMTP Message Commands

1. SMTP message commands must be one per line.
2. The BW must parse incoming SMTP messages, reading each command in turn and acting on it before going on to the next.
3. Processing a set of commands ends when either, the end of the message is reached or the **end** command is read.
4. The BW should ignore any unrecognised lines in the SMTP message.
5. The list of commands to be supported includes:

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- create
 - set <BWR_id> <field> [SCHEME=<scheme>] [LANGUAGE=<language>]
[<content>]
 - add <BWR_id> <field> [SCHEME=<scheme>] [LANGUAGE=<language>]
[<content>]
 - delete <BWR_id>
 - get <BWR_id>
 - help
 - end
6. The exact format of the <BWR_id> is implementation dependent but must be an alphanumeric string that uniquely identifies each BWR in the BW.
 7. The <BWR_id> can be set to the literal string, **this**, to refer to the new record created by an earlier **create** command in the same SMTP message.
 8. The <field> must include any item from the BIBLINK Core (see 4.1.1)
 9. If <field> is one of SGML1, SGML2, UNIMARC, CatMARC, IberMARC, InterMARC, NorMARC, UKMARC or PICA+ the associated metadata record should be supplied as a MIME body part in the same SMTP message.
 10. Some fields in a BWR are repeatable. For repeatable fields the **add** command must be used to add a new field variant. For the SGML1, SGML2, UNIMARC, CatMARC, IberMARC, InterMARC, NorMARC, UKMARC and PICA+ fields the **add** command is not applicable.
 11. The **set** command must be used to modify the first field variant.
 12. Note that the SMTP interface is not expected to support a mechanism for modifying field variants other than the first.
 13. The <scheme> must be one of the allowable values for BC field **Scheme** (see section 4.1.1).
 14. The <language> must be one of the allowable values for BC field **Language** (see section 4.1.1).
 15. The <content> is the **value** of the specified field. If <content> needs to be split over multiple lines in the SMTP message, each subsequent line must start with a '+' (plus) character. The BW must remove any such '+' characters from the <content> prior to adding the field to the BWR and storing the BWR in the BW.
 16. The component parts of each command may be separated with one or more spaces or tabs as required.
 17. The **get** command returns one or more views of a BWR according to the BWA profile. BWR views are defined in section 4.2.
 18. The commands and the <field> must be case-insensitive. The <content> must be case-sensitive.
 19. The SMTP interface must not allow a new BWR to be created if mandatory fields within that BWR are missing.

3.4.1.2 SMTP Message Responses

Responses take the form of text messages sent from the BW to a BWA as a result of commands initiated by that BWA.

1. Responses must include the following:
 - Record <BWR_id> created
 - Record <BWR_id>: added field <field>, content set to <content>
 - Record <BWR_id>: modified field <field>, content set to <content>
 - Record <BWR_id> marked as complete
 - Record <BWR_id> deleted
 - <help_message>
 - Record not created: mandatory fields missing
 - Record not created: field content missing
 - Processing complete
2. In all cases, the text of the responses must be configurable by a suitably authorised BWA.

3.4.1.3 SMTP Message Alerts

Alerts take the form of text messages sent from the BW to a BWA. An alert can be sent to any BWA and may be the result of commands initiated by another BWA.

1. A candidate list of alert messages is given in section 4.7.2.
2. An alert message may also contain one or more additional body parts containing different views of the BWR.
3. In all cases, the text of the alerts must be configurable by a suitably authorised BWA.

3.4.2 HTTP Message Syntax

1. The HTTP Interface must support the following BW operations:
 - create a new BWR
 - browse through the list of BWRs in the BW
 - edit fields in an existing BWR
 - delete an existing BWR
 - download a view of a BWR
 - mark an existing BWR as complete
 - reject a BWR

- view the administrative fields in a BWR
2. A simple search facility must also be provided to find a particular BWR or a field within a BWR.
 3. This functionality must be provided by one or more Web pages using a combination of text, buttons, menus and editable text boxes³.
 4. The HTTP Interface must provide a way of updating the fields and associated attributes in a BWR.
 5. Editing the text BC and Administration fields in a BWR may be done using an HTML text box.
 6. The SGML and MARC based fields must be uploaded by prompting the user for the name of a local file and sending it using the HTTP PUT method.
 7. The HTTP Interface must provide a way of automatically populating BC fields with data based on existing metadata (or other information) embedded in the resource being described.
 8. The HTTP Interface must not rely on the use of Java at the client. However, an enhanced user-interface may be provided using Java.
 9. The HTML used in the design of HTTP Interface Web pages must conform to HTML 4.0 [10]. Strong consideration should also be given to the use of CSS1 [18].
 10. The HTTP Interface must provide access to the same set of responses and alerts as described for the SMTP Interface in section 3.4.1.
 11. The HTTP Interface must not allow a new BWR to be created if mandatory fields in that BWR are missing.
 12. Appropriate help pages must also be made available.

3.4.3 MIME Interchange

This section specifies the way in which one or more 'views' of a BWR must be encoded in MIME messages prior to transmission across the SMTP or HTTP interfaces.

Messages must be constructed in such a way that the data format of each view (see Section 4.2) can be determined by the receiving end. This is achieved using MIME (Multipurpose Internet Mail Extensions) [15].

MIME defines a format that allows SMTP and HTTP, to carry multipart textual and non-textual messages. Each message part is assigned a 'Content-Type' header that allows MIME processing software to determine the format of data that is contained in that part. A Content-Type is made up of two parts; a general 'type', for example 'text', and a more specific 'sub-type', for example 'html'. Such a Content-Type is represented in the form text/html. To allow for multipart messages there is a special type of 'multipart'. Associated with the 'multipart' type are several sub-types including 'alternative' and 'mixed'. Where binary data is being transferred using SMTP, the body part is assigned a 'Content-Transfer-Encoding' header which allows the data to be encoded as plain text for transmission. A 'Content-Transfer-Encoding' header is not required when using HTTP. MIME supports the use of multiple character sets for the 'text' Content-Types using the 'charset' parameter.

MIME defines a format that allows SMTP and HTTP, to carry multipart textual and non-textual messages. Each message part is assigned a 'Content-Type' header that allows MIME processing software to determine the

³ DC-dot, a Dublin Core editor, provides an *example* of some of the functionality that should be provided by the HTTP interface. <URL:http://www.ukoln.ac.uk/metadata/dc-dot/>.

format of data that is contained in that part. A Content-Type is made up of two parts; a general 'type', for example 'text', and a more specific 'sub-type', for example 'html'. Such a Content-Type is represented in the form `text/html`. To allow for multipart messages there is a special type of 'multipart'. Associated with the 'multipart' type are several sub-types including 'alternative' and 'mixed'. Where binary data is being transferred, the body part is assigned a 'Content-Transfer-Encoding' header which allows the data to be encoded as plain text for transmission using email. MIME supports the use of multiple character sets for the 'text' Content-Types using the 'charset' parameter.

1. MIME Content-Types are registered with IANA. Currently there are Content-Types registered for HTML (`text/html`) SGML (`text/sgml`) and MARC (`application/marc`) [21,20,19]. It should be noted that there is also an `application/sgml` Content-Type. However, the SGML metadata transmitted to the BW is likely to be intelligible to human readers and for this reason the `text/sgml` Content-Type must be used.
2. It should also be noted that the `application/marc` Content-Type refers to the harmonised USMARC/CANMARC specification. No other MARC related Content-Types are currently registered. For this reason the MARC Content-Types using a sub-type prefixed by 'x-' (indicating experimental), for example `application/x-ukmarc` must be used.
3. In some cases commands and alerts will be placed into the first part of a multipart MIME message. If this happens they must be assigned a Content-Type of `text/plain`.
4. A Text view of a BWR must be assigned a Content-Type of `text/plain`. If necessary the `charset` parameter must be used to indicate the character set in use.
5. An HTML view of a BWR should be assigned a Content-Type of `text/html`. If necessary the `charset` parameter must be used to indicate the character set in use.
6. An RDF view of a BWR should be assigned a Content-Type of `text/rdf`. If necessary the `charset` parameter must be used to indicate the character set in use.
7. An SGML1 or SGML2 view of a BWR must be assigned a Content-Type of `text/sgml`. If necessary the `charset` parameter must be used to indicate the character set in use. In both cases the DTD being used must be defined at the top of the SGML file.
8. A UNIMARC view of a BWR must be assigned a Content-Type of `application/x-unimarc`.
9. A CatMARC view of a BWR must be assigned a Content-Type of `application/x-catmarc`.
10. An IberMARC view of a BWR must be assigned a Content-Type of `application/x-ibermarc`.
11. An InterMARC view of a BWR must be assigned a Content-Type of `application/x-intermarc`.
12. A NorMARC view of a BWR must be assigned a Content-Type of `application/x-normarc`.
13. A UKMARC view of a BWR must be assigned a Content-Type of `application/x-ukmarc`.
14. A PICA+ view of a BWR must be assigned a Content-Type of `application/x-pica`.
15. Where an SMTP Interface message contains multiple body parts the `multipart/mixed` Content-Type must be used.
16. It should be noted that all MARC format records may contain long lines and/or arbitrary octet values. Therefore `base64` Content-Transfer-Encoding must be used for these views of a BWR when transfers

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across the SMTP Interface. This does not apply across the HTTP Interface where HTTP MIME-like messages are used and binary data can be carried directly.

3.5 Control Component

The BW is event driven. The scope of this BW component is to determine attempted operations from BWA requests, to trigger events and start associated actions.

1. Events may be internal (e.g. time based) or external (e.g. caused by the receipt of commands from a BWA). Associated with each event is an action or group of actions.
2. The association of events and actions must be configurable.

3.5.1 Events

There are two classes of events. Those associated with a BWR and those associated with the fields in a BWR.

1. The **BWR_created** event must occur on receipt of a valid **create** command at the SMTP Interface or the equivalent at the HTTP Interface.
2. The **BWR_modified** event must occur when any of the fields in a BWR except `BWR.LastModified` and `BWR.LastModifiedBy` are updated.
3. The **BWR_deleted** event must occur on receipt of a valid **delete** command at the SMTP Interface or the equivalent at the HTTP Interface.
4. The **BWR_expired** event must occur when the time indicated in the `BWR.ExpiryDate` field is reached.
5. The **BWR_<field.parameter>_updated** event must occur when a particular field or field parameter is updated. The `<field.parameter>` is any valid field or field parameter in a BWR (see Section 4) except `BWR.LastModified` and `BWR.LastModifiedBy` are updated. BWR field events occur on receipt of **set** or **add** commands at the SMTP Interface or their equivalents at the HTTP Interface.
6. There must also be some events associated with changes to the value of the `BWR.Status` field. A candidate list follows:

- **BWR.Status_set_to_NBA-complete**
- **BWR.Status_set_to_Publisher-complete**
- **BWR.Status_set_to_NBA-accepted**
- **BWR.Status_set_to_NBA-rejected**
- **BWR.Status_set_to_<identifier>-requested**
- **BWR.Status_set_to_<identifier>-rejected**
- **BWR.Status_set_to_<identifier>-assigned**
- **BWR.Status_set_to_deleted**

where `<identifier>` is one of the allowable values for for the `SCHEME` attribute of the `DC.Identifier` field.

3.5.2 Actions

Associated with each event are one or more actions. There are three classes of actions. Alerting actions, format conversion actions and housekeeping actions.

1. All actions must have at least three parameters, the <BWR_id> of the BWR associated with them, the name of the event that caused the action to take place and the name of the BWA that triggered that event.
2. Actions may also have other parameters. For example, an alerting action will have a parameter that identifies the BWA to which the alert must be sent. (The sections below only list any additional parameters required by each alert).
3. There may be more than one action associated with each event. All actions should be complete before any events triggered by the current actions are dealt with.

3.5.2.1 Alerting actions

Alerting actions result in an email based alert in the SMTP Interface or a Web page message in the HTTP Interface.

1. The list of alerting actions must include the following notifications:
 - **Notify** BWR-modified
 - **Notify** BWR-accepted
 - **Notify** BWR-rejected
 - **Notify** BWR-complete
 - **Notify** BWR-identifier-requested
 - **Notify** BWR-identifier-assigned
 - **Notify** BWR-identifier-rejected
2. All alerting actions must have one additional parameter, the target of the alert (i.e. the <BWA-id>).

3.5.2.2 Format conversion actions

Format conversion actions result in one field in a BWR being updated based on one or more other fields in the same BWR.

This updating requires conversion between formats. Conversions are described in more detail in section 4

1. The list of format conversion actions must include the following conversion update actions:
 - **Update** UNIMARC **from** <BC>
 - **Update** <NatMARC> **from** UNIMARC
 - **Update** UNIMARC **from** <NatMARC>
 - **Update** <BC> **from** UNIMARC

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- **Update** <BC> **from** SGML1
- **Update** <BC> **from** SGML2

In this list, BC is a collective term for the BIBLINK Core data fields as specified in section 4.

3.5.2.3 Housekeeping actions

Housekeeping actions update various BW maintained fields within each BWR.

1. The list of housekeeping actions must include the following:

- **Set** BWR.SGML1.Status
- **Set** BWR.SGML2.Status
- **Set** BWR.UNIMARC.Status
- **Set** BWR.<NatMARC>.Status
- **Set** BWR.Status
- **Set** BWR.LastModified
- **Set** BWR.LastModifiedBy
- **Set** BWR.Publisher
- **Purge**

2. The **Set** *.Status actions have one additional parameter, a value which must be valid for that field.

3. The **Set** BWR.LastModified action must set the value of the field to the current date and time.

4. The **Set** BWR.LastModifiedBy action must set the value of the field to the name of the BWA that triggered the event associated with this action.

5. The **Set** BWR.Publisher action must set the value of the field to the name of the BWA that triggered the event associated with this action.

6. The **Purge** action removes any BWRs that have a BWR.Status of **deleted**.

3.5.3 Event/Action Configuration

1. There must be an event/action configuration tool in the HTTP Interface to allow both the system administrator and authorised BWAs to associate actions with events. System administrator configuration is known as system-wide configuration whereas BWA configuration is part of the BWA profile. The tool must allow zero, one or more actions to be associated with each event.

2. System-wide configuration must apply to every BWR in the BW. A BWA profiles must take precedence over the system-wide configuration provided the system administrator allows it to.

Annex 2 gives an example system-wide event/action configuration table.

3.6 Conversion Component

Section 3.5.2.2 specifies several format conversion actions that require conversion of fields within a BWR. This section describes those conversions in more detail. Figure 3 shows the field conversions that are required.

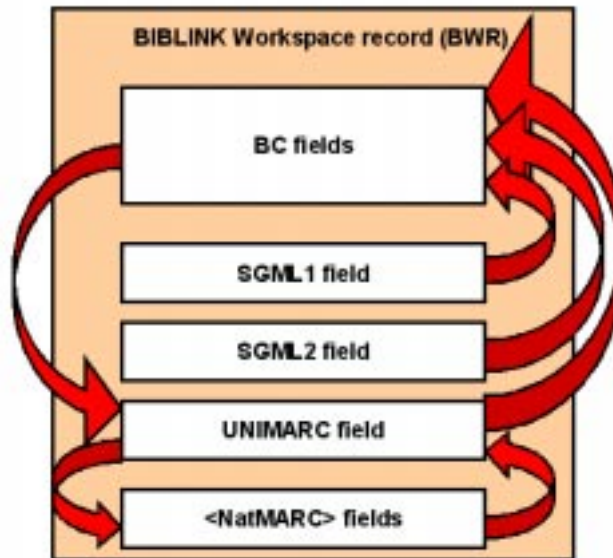


Figure 3 - BIBLINK Workspace Record (BWR) field conversions

Field conversions are based on mapping tables and conversion rules (see Section 4). Field conversions are carried out within individual BWRs. They are not carried out between different BWRs.

1. The BW must be able to convert from the BC fields to the UNIMARC field.
2. The BW must be able to convert from the UNIMARC field to the BC fields.
3. The BW must be able to convert from the SGML1 field to the BC fields.
4. The BW must be able to convert from the SGML2 field to the BC fields.
5. The BW must be able to convert from the UNIMARC field to each of the <NatMARC> fields (assuming that the appropriate mapping tables have been provided by the NBA).
6. The BW must be able to convert from each of the <NatMARC> fields to the UNIMARC field (assuming that the appropriate mapping tables have been provided by the NBA).

Note: <NatMARC> is short for CatMARC, IberMARC, InterMARC, NorMARC, UKMARC and PICA+.

3.7 Management Component

1. The management component must provide a set of services for BW administrators to configure, start, stop, monitor, transfer and audit services and resources including:
 - the BW registration service;
 - BWA services;
 - databases for logs, profiles, mappings, configuration details, records and messages;
 - BW system resources.
2. The management component must provide timestamps and persistent storage for details of all:
 - HTTP and SMTP connections;
 - HTTP and SMTP messages;
 - All BW operations together with a success or failure attribute;
 - BW configuration settings;
 - BWA profiles.
3. The management component must provide for alarm reporting in the case of certain conditions. Each alarm reported must indicate the cause of the alarm, the time at which the alarm occurred and the seriousness of the condition.
4. The management component must support privilege levels which determine the ability of different administrators to control and monitor parts of the BW system.
5. The management component must support version control for records in each of the databases.

3.8 Design Constraints

1. The BW system must be able to execute on both Windows™ and POSIX [24] compliant operating systems.
2. It is highly desirable that the BW system recovery action on failure is automatic so that minimal reduction in service occurs.
3. Messages and commands must not be lost in the event of a single point of BW system failure.
4. It is desirable that the BW system should be able to recover and continue any message transfers that are incomplete at the time of a failure.
5. It is highly desirable that, with appropriate UPS hardware, the BW system can be closed down automatically in the event of a loss of power supply.
6. If any manual intervention is required to administer the BW, the precise activities must be described along with the expected skill level of the administrator.
7. The user interfaces to the BW must be configurable by the system administrator.
8. The user interfaces to the BW must support 8-bit single byte coded graphic character sets conforming to [25].
9. It is desirable that the user interfaces to the BW should support graphic character sets conforming to the ISO Universal Character Set [26] or UNICODE [27].
10. The user interfaces to the BW must support the use of the U.K. English Language.
11. It is highly desirable that the user interfaces to the BW should support the Catalan, Dutch, French, Norwegian and Spanish languages.
12. It is desirable that the user interfaces to the BW should also support other Western European languages.
13. It is desirable that any passwords used within the system for access control should be 6 or more characters long, should not be displayed and be stored in an encrypted form.
14. It must be possible to modify the HTML code used in the design of the HTTP interface so that administrators can integrate the BW with other local services.
15. It must be possible to display the text of all messages in alternate languages.
16. It must be possible to add new fields and field parameters to each BWR.
17. It must be possible to add new events and actions to the BW.
18. It must be possible to add new mapping tables to the BW.
19. It must be possible to add new messages to the BW.
20. The BW must provide on-screen documentation in accordance with the design constraints expressed in [23].
21. The BW system must be "Year 2000" compliant.
22. The BW system must support simultaneous access by multiple BWAs.
23. The BW system must be based on an Oracle database.

4. BW DATA STRUCTURES

This section specifies requirements for each of the databases identified in Section 3. These include:

- BWR Database (see Section 4.1)
- BWA Views (see Section 4.2)
- BWR Field Mappings Database (see Section 4.3)
- BWA Profiles Database (see Section 4.4)
- BW Configuration Database (see Section 4.5)
- BW Logs Database (see Section 4.6);
- BW Messages Database (see Section 4.7)

4.1 BWR Database

1. The BW system must provide a database of records, each of which is known as a BWR.
2. Each BWR comprises a number of fields. The following sections specify the fields that must be supported in each BWR of the BWR Database.
3. There should be no limit on the number of records stored in the BWR database other than that imposed by the resources (disk and memory) available on the system on which it is run.
4. Some method of access control (for example an Access Control List) must be associated with each BWR in the BWR database and with each field in each BWR. This must provide read/write access control for BW users.

4.1.1 BIBLINK Core Fields

The BIBLINK Core fields are a set of simple text fields. Together they are known as the BC fields.

1. The BC fields are:
 - BIBLINK.Checksum
 - BIBLINK.Edition
 - BIBLINK.Extent
 - BIBLINK.Frequency
 - BIBLINK.PlacePublication
 - BIBLINK.Price
 - BIBLINK.SystemRequirements
 - DC.Creator
 - DC.Creator.Organization
 - DC.Contributor
 - DC.Contributor.Organization
 - DC.Date
 - DC.Description
 - DC.Format
 - DC.Identifier
 - DC.Language
 - DC.Publisher

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- DC.Rights
 - DC.Source
 - DC.Subject
 - DC.Title
 - DC.Title.Alternate
2. Each BC Field must have a text **Value**.
 3. Each BC field must have a **Language** associated with it indicating the language of the **Value**. **Language** should be chosen from one of the language codes defined in [28].
 4. Each BC field must have a **Scheme** associated with it. For the DC.Identifier field, **Scheme** must be empty or one of the following [DOI, ISBN, ISSN, SICI]. For the DC.Subject field, **Scheme** must be empty or one of the following [LCSH, DDC, UDC, LCC]. (Note that if no **Scheme** is associated with a DC.Identifier field, it is assumed to contain a URI and if no **Scheme** is associated with a DC.Subject field, it is assumed to contain comma separated free-text keywords).
 5. **Scheme** and **Language** are known as BWR field attributes.
 6. Each BC field must be repeatable. Repeated BC fields are known as variants.

4.1.1.1 Semantics of the BC Fields

BC Field	Semantics
BIBLINK.Checksum	An MD5 message digest (checksum) generated from the resource. (The algorithm for calculating the MD5 message digest is described elsewhere).
BIBLINK.Edition	A text string indicating the version or edition of the resource.
BIBLINK.Extent	The 'size' of the resource – in bytes, number of files or number of CD-ROMs for example.
BIBLINK.Frequency	The frequency of publication if a serial publication.
BIBLINK.PlacePublication	Geographic location of publisher.
BIBLINK.Price	A simple, retail price. More complex licensing information should be provided using the DC.Rights field.
BIBLINK.SystemRequirements	Hardware or software requirements for the system needed to view the resource. For example '386SX or higher with 4MB ram' or 'Adobe Acrobat version nnn'.
DC.Creator	The person primarily responsible for creating the intellectual content of the resource. For example, authors in the case of written documents, artists, photographers, or illustrators in the case of visual resources.

BC Field	Semantics
DC.Creator.Organization	The name of an institution or corporation primarily responsible for creating the intellectual content of the resource.
DC.Contributor	A person not specified in the DC.Creator field who has made significant intellectual contributions to the resource but whose contribution is secondary to any person or organisation specified in the DC.Creator field (for example an editor, transcriber, or illustrator).
DC.Contributor.Organization	An institution or corporation that has made significant intellectual contributions to the resource but whose contribution is secondary to any person or organisation specified in the DC.Creator and DC.Creator.Organization fields.
DC.Date	A date associated with the creation or availability of the resource. The date format should conform to ISO 8601 that includes (among others) dates of the forms YYYY and YYYY-MM-DD.
DC.Description	A textual description of the content of the resource, including abstracts in the case of document-like objects or content descriptions in the case of visual resources.
DC.Format	The data format of the resource.
DC.Identifier	A string or number used to uniquely identify the resource - a URL, ISBN, ISSN, DOI or SICI.
DC.Language	The language of the intellectual content of the resource. Where practical, the content of this field should coincide with RFC 1766; examples include en, de, es, fi, fr, ja, th, and zh.
DC.Publisher	The entity responsible for making the resource available in its present form, such as a publishing house, a university department, or a corporate entity.
DC.Rights	A rights management statement, an identifier that links to a rights management statement, or an identifier that links to a service providing information about rights management for the resource.
DC.Source	Information about a second resource from which the present resource is derived.
DC.Subject	The topic of the resource. Subject can be expressed as keywords or phrases that describe the subject or content of the resource. Alternatively, use may be made of one of the following formal classification schemes - LCSH, DDC, UDC or LCC.
DC.Title	The main title or name given to the resource, usually by the creator or publisher.

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<i>BC Field</i>	<i>Semantics</i>
DC.Title.Alternate	A title other than the main title; including subtitle, translated title, series title, vernacular name, etc.

Table 1 - BIBLINK Core Semantics

4.1.2 SGML and MARC based Fields

The SGML and MARC based fields are all special in that the **value** of each field is a complete or partial record in SGML or MARC format.

1. The SGML and MARC based fields must include:
 - SGML1
 - SGML2
 - UNIMARC
 - CatMARC
 - IberMARC
 - InterMARC
 - NorMARC
 - UKMARC
 - PICA+
2. The SGML or MARC format fields must not be repeatable.
3. The **value** of the SGML1 and SGML2 fields is the text based SGML record supplied by the publisher. The **value** of the other fields is binary data.

More detail about each of the formats in these fields is given in the sections below.

4.1.2.1 SGML1

A detailed description of the SGML record contained in this field is under development and will be made available at <URL:<http://hosted.ukoln.ac.uk/biblink/wp8/fs/sgml-formats/>>.

4.1.2.2 SGML2

A detailed description of the SGML record contained in this field is under development and will be made available at <URL:<http://hosted.ukoln.ac.uk/biblink/wp8/fs/sgml-formats/>>.

4.1.2.3 UNIMARC

The UNIMARC field contains a valid ISO 2709 record formatted according to the UNIMARC standard⁴ and may contain any of the data fields outlined in [2].

In practice, only those fields required for the conversion process into BC fields will be used in BW. The following fields and sub-fields will be able to be dealt with by the conversion process although it is unlikely that any single UNIMARC record will contain all of these fields.

<i>Field</i>	<i>Description</i>
001	Record Identifier

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<i>Field</i>	<i>Description</i>
010	International Standard Book Number \$a
011	International Standard Serial Number \$a
014	Article Identifier \$a with \$2doi
014	Article Identifier \$a with \$2sici
020	National Bibliography Number \$a Country Code \$b Number
021	Legal Deposit Number \$a Country Code \$b Number
022	Government Publication Number \$a Country Code \$b Number
101	Language of the Item \$a
200	Title and Statement of Responsibility \$a Title Proper \$e Other Title Information
205	Edition Statement \$a
210	Publication, Distribution, etc. \$a Place of Publication, Distribution, etc. \$c Name of Publisher, Distributor, etc. \$d Date of Publication, Distribution, etc.
215	Physical Description \$a Specific Material Designation and Extent of Item \$c Other Physical Details \$d Dimensions
225	Series \$a Series Title \$h Number of a Part \$i Name of a Part \$v Volume Designation.
230	Material Specific Area: Computer File Characteristics \$a Designation and extent of file
307	Notes Pertaining to Physical Description \$a
326	Frequency Statement Note (Serials) \$a Frequency
327	Contents Note \$a Text of Note
328	Dissertation (Thesis) Note \$a Text of Note
330	Summary or Abstract \$a Text of Note
336	Type of Computer File (provisional) \$a Text of Note
337	Technical Details Note (Computer Files) (provisional) \$a Text of Note
500	Uniform Title \$a Uniform Title
501	Collective Uniform Title \$a Collective Uniform Title
510	Parallel Title Proper \$a Parallel Title
512	Cover Title \$a Cover Title
517	Other Variant Titles \$a Variant Title
540	Additional Title Supplied by Cataloguer \$a Additional Title

<i>Field</i>	<i>Description</i>
600	Personal Name Used as Subject \$a Entry Element \$b Part of Name Other than Entry Element \$c Additions to Name Other than Dates \$d Roman Numerals \$f Dates
601	Corporate Body Name Used as Subject \$a Entry Element \$b Subdivision
602	Family Name Used as Subject \$a Entry Element \$f Dates \$x Topical Subdivision \$y Geographical Subdivision \$z Chronological Subdivision.
605	Title Used as Subject \$a Entry Element \$x Topical Subdivision \$y Geographical Subdivision \$z Chronological Subdivision
606	Topical Name Used as Subject \$a Entry Element \$x Topical Subdivision \$y Geographical Subdivision \$z Chronological Subdivision.
607	Geographical Name Used as Subject \$a Entry Element \$x Topical Subdivision \$y Geographical Subdivision \$z Chronological Subdivision.
610	Uncontrolled Subject Terms \$a Subject Term
675	Universal Decimal Classification \$a Number
676	Dewey Decimal Classification \$a Number
680	Library of Congress Classification \$a Class number
686	Other Class Numbers \$a Class number
700	Personal Name - Primary Intellectual Responsibility \$a Entry Element \$b Part of Name \$c Additions \$d Roman Numerals \$f Dates \$g Expansion of Initials
701	Personal Name- Alternative Intellectual Responsibility
702	Personal Name - Secondary Intellectual Responsibility
710	Corporate Body Name - Primary Intellectual Responsibility \$a Entry Element \$b Subdivision
711	Corporate Body Name - Alternative Intellectual Responsibility
712	Corporate Body Name - Secondary Intellectual Responsibility
9--	National Use Block. Defined field for Checksum (hash value)
9--	National Use Block. Defined field for Price [?]
9--	National Use Block. Defined field for Terms and Conditions [?]
9--	National Use Block. Defined field for URL in absence of equivalent to USMARC 856 in UNIMARC

Table 2 - Enhanced UNIMARC

4.1.2.4 CatMARC

The CatMARC field contains a valid ISO 2709 record formatted according to the CatMARC standard⁴.

4.1.2.5 IberMARC

The IberMARC field contains a valid ISO 2709 record formatted according to the IberMARC standard⁴.

4.1.2.6 InterMARC

The InterMARC field contains a valid ISO 2709 record formatted according to the InterMARC standard⁴.

4.1.2.7 NorMARC

The NorMARC field contains a valid ISO 2709 record formatted according to the NorMARC standard⁴.

4.1.2.8 UKMARC

The UKMARC field contains a valid ISO 2709 record formatted according to the UKMARC standard [3]⁴.

4.1.2.9 PICA+

The PICA+ field contains a valid PICA+ record⁴.

4.1.3 Administrative Fields

The Administrative fields are used to maintain information about the status of a BWR.

1. The Administrative fields are:

- BWR.status
- BWR.LastModified
- BWR.LastModifiedBy
- BWR.Expires
- BWR.Publisher
- BWR.AccessDetails
- BWR.SGML1.Status
- BWR.SGML2.Status
- BWR.UNIMARC.Status
- BWR.CatMARC.Status

⁴ Depending on the quality of the metadata supplied in the BIBLINK Core fields, the MARC based fields may not always contain a MARC record that is strictly valid according to the applicable national MARC standard.

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- BWR.IberMARC.Status
 - BWR.InterMARC.Status
 - BWR.NorMARC.Status
 - BWR.UKMARC.Status
 - BWR.Pica+.Status
2. Each Administrative field has a simple text **Value**.
 3. The BWR.Status field is used to record the current status of a BWR. Legal values for this field must include one of the following: [**NBA-complete, Publisher-complete, NBA-accepted, NBA-rejected, <identifier>-requested, <identifier>-rejected, <identifier>-assigned, deleted**] where <identifier> is one of the allowable schemes for the DC.Identifier field.
 4. An empty BWR.Status field must be used to indicate a new BWR.
 5. The BWR.SGML1.Status, BWR.SGML2.Status, BWR.UNIMARC.Status, BWR.CatMARC.Status, BWR.IberMARC.Status, BWR.InterMARC.Status, BWR.NorMARC.Status, BWR.UKMARC.Status and BWR.Pica+.Status field values must either be empty or include one of the following: [**Out-of-date**]
 6. Setting the BWR.Status field to **NBA-complete** should lock the record against further changes by all users.
 7. The Administrative fields must not be repeatable.

4.2 BWR Views

Each BWR has an associated set of ‘views’. Each view is constructed from one or more fields in the BWR. BWR views are used to transfer information to and from the BW. This section defines these views and details how they are constructed from fields in a BWR.

1. The BW must support the following views:
 - Text
 - HTML
 - RDF
 - SGML1
 - SGML2
 - UNIMARC
 - CatMARC
 - IberMARC
 - InterMARC
 - NorMARC
 - UKMARC
 - Pica+
2. All views except the Text view may be sent from the BW to a BWA and from a BWA to the BW.
3. The Text view will only be sent from the BW to a BWA.

More detail about each of these views is given in the following sections.

4.2.1 Text View

The Text view must be a simple piece of text that shows the field name, the **Value**, the **Scheme** and the **Language** for the BC fields in a BWR. Which BC fields are shown in this view depends on the value of Field-preference in the user profile.

Any BC fields whose **Value** is empty may be ignored.

The Text view is intended for human consumption. It need not be structured in such a way that it can be easily post-processed by machine.

4.2.1.1 Example Text view

DC.Creator:

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Jacques Paul Migne

DC.Title:

Patrologia Latina Database

DC.Date:

1993

DC.Language:

la

DC.Format:

CD-ROM

BIBLINK.Extent:

2 computer laser optical disks; 4 3/4 in

DC.Description:

The Patrologia Latina Database is an electronic version of the 221 volumes of the first edition of Jacques-Paul Migne's Patrologia Latina which was published between 1844 and 1865. The Patrologia Latina comprises the works of the Church Fathers from Tertullian in 200 AD to the death of Pope Innocent III in 1216. The database is fully searchable.">

BIBLINK.SystemRequirements:

Multimedia PC 486x or higher, 8mb memory, CD-ROM drive, sound card, SVGA 256-colour monitor, Windows 95 or Windows 3.1

DC.Subject: SCHEME=LCSH

Christian literature, Early -- Latin authors - Texts

DC.Identifier: SCHEME=ISBN

0-89887-113-1

BIBLINK.PlacePublication:

Cambridge

DC.Publisher:

Chadwyck-Healey

4.2.2 HTML View

The HTML view is based on the BC fields in a BWR. It comprises the field name, the **Value**, the **Scheme** and the **Language** for the BC fields in a BWR embedded into HTML <META> tags. Which BC fields are shown in this view depends on the value of Field-preference in the user profile.

D8.2 BIBLINK Workspace Functional Specification

The HTML <META> tags must be structured according to the HTML 4.0 DTD.

The <META> tag NAME attribute must be set to the name of the BC field.

The <META> tag CONTENT attribute must be set to the BC field **Value**.

The optional <META> tag SCHEME attribute must be set to the BC field **Scheme** (if it is not empty).

The optional <META> tag LANG attribute must be set to the BC field **Language** (if it is not empty).

4.2.2.1 Example HTML view

```
<META NAME="DC.Creator" CONTENT="Jacques Paul Migne">
```

```
<META NAME="DC.Title" CONTENT="Patrologia Latina Database">
```

```
<META NAME="DC.Date" CONTENT="1993">
```

```
<META NAME="DC.Language" CONTENT="la">
```

```
<META NAME="DC.Format" CONTENT="CD-ROM">
```

```
<META NAME="BIBLINK.Extent" CONTENT="2 computer laser optical disks; 4 3/4 in">
```

```
<META NAME="DC.Description" CONTENT="The Patrologia Latina Database is an electronic version of the 221 volumes of the first edition of Jacques-Paul Migne's Patrologia Latina which was published between 1844 and 1865. The Patrologia Latina comprises the works of the Church Fathers from Tertullian in 200 AD to the death of Pope Innocent III in 1216. The database is fully searchable.">
```

```
<META NAME="BIBLINK.SystemRequirements" CONTENT="Multimedia PC 486x or higher, 8mb memory, CD-ROM drive, sound card, SVGA 256-colour monitor, Windows 95 or Windows 3.1">
```

```
<META NAME="DC.Subject" SCHEME="LCSH" CONTENT="Christian literature, Early -- Latin authors - Texts">
```

```
<META NAME="DC.Identifier" SCHEME="ISBN" CONTENT="0-89887-113-1">
```

```
<META NAME="BIBLINK.PlacePublication" CONTENT="Cambridge">
```

```
<META NAME="DC.Publisher" CONTENT="Chadwyck-Healey">
```

4.2.2.2 A note on HTML validation

In processing an HTML view of a BWR the BW may need to validate it against the HTML 4.0 DTD. This will require that certain HTML tags are added around the <META> tags as follows:

```
<HTML>
<HEAD>
<TITLE></TITLE>
... meta tags here ...
</HEAD>
<BODY></BODY>
```

</HTML>

4.2.3 RDF View

The RDF view of a BWR is a valid XML document formatted according to the 'Resource Description Framework – Model and Syntax' working draft [6]. A detailed description of the RDF view is under development and will be made available at <URL:http://hosted.ukoln.ac.uk/biblink/wp8/fs/rdf-view/>.

An example RDF view is provided below.

4.2.3.1 Example RDF view

```
<?xml:namespace href="http://www.w3c.org/RDF/" as="RDF"?>
<?xml:namespace href="http://purl.oclc.org/RDF/DC/" as="DC"?>
<?xml:namespace href="http://purl.oclc.org/LCSH/" as="LCSH"?>
<?xml:namespace href="http://hosted.ukoln.ac.uk/biblink/wp8/fs/bc-
semantics.html" as="BIBLINK"?>

<RDF:RDF>

  <RDF:Description RDF:HREF="urn:isbn:0-89887-113-1">

    <DC:Creator>Jacques Paul Migne</DC:Creator>

    <DC:Title>Patrologia Latina Database</DC:Title>

    <DC>Date>1993</DC>Date>

    <DC:Language>la</DC:Language>

    <DC:Format>CD-ROM</DC:Format>

    <BIBLINK:Extent>2 computer laser optical disks; 4 ¾
in</BIBLINK:Extent>

    <DC:Description>The Patrologia Latina Database is an electronic
version of the 221 volumes of the first edition of Jacques-Paul Migne's
Patrologia Latina which was published between 1844 and 1865. The
Patrologia Latina comprises the works of the Church Fathers from
Tertullian in 200 AD to the death of Pope Innocent III in 1216. The
database is fully searchable.</DC:Description>

    <BIBLINK:SystemRequirements>Multimedia PC 486x or higher, 8mb
memory, CD-ROM drive, sound card, SVGA 256-colour monitor, Windows 95 or
Windows 3.1</BIBLINK:SystemRequirements>

    <DC:Subject>

      <RDF:Description>

        <LCSH:Heading>Christian literature, Early -- Latin authors
- Texts</LCSH:Heading>

      </RDF:Description>

    </DC:Subject>

    <BIBLINK:PlacePublication>Cambridge</BIBLINK:PlacePublication>
```

```
<DC:Publisher>Chadwyck-Healey</DC:Publisher>
```

```
</RDF:Description>
```

```
</RDF:RDF>
```

4.2.4 SGML1

An SGML1 view is the **value** of the SGML1 field in the BWR.

4.2.5 SGML2

An SGML2 view is the **value** of the SGML2 field in the BWR.

4.2.6 UNIMARC View

A UNIMARC view is the **value** of the UNIMARC field in the BWR.

4.2.7 CatMARC View

A CatMARC view is the **value** of the CatMARC field in the BWR.

4.2.8 IberMARC View

An IberMARC view is the **value** of the IberMARC field in the BWR.

4.2.9 InterMARC View

An InterMARC view is the **value** of the InterMARC field in the BWR.

4.2.10 NorMARC View

A NorMARC view is the **value** of the NorMARC field in the BWR.

4.2.11 UKMARC View

A UKMARC view is the **value** of the UKMARC field in the BWR.

4.2.12 PICA+ View

A PICA+ view is the **value** of the PICA+ field in the BWR.

4.3 BWR Field Mappings Database

1. The BW system must provide a database containing all the mappings information required to convert between different fields of a BWR. This Field Mappings database must only be accessible by BWAs with administrator privilege level.
2. The Field Mappings database must be stored in a format suitable for viewing and updating by a Web based tool.
3. The format of the mapping tables required by the conversion component of the BW must be specified.

Further details of the following mappings are described in D8.2.1 BIBLINK Core Mapping Tables:

- BC Fields to UNIMARC
- UNIMARC to BC Fields
- SGML1 to BC Fields
- SGML2 to BC Fields
- UNIMARC to <NatMARC>
- <NatMARC> to UNIMARC

UNIMARC to <NatMARC> and <NatMARC> to UNIMARC mappings will be provided by an NBA wishing to use a particular national MARC format.

4.4 BWA Profiles Database

1. The BW system must provide a database containing profile information for each BWA.
2. The Profiles Database must only be accessible by BWAs with administrator privilege level⁵.
3. The contents of a BWA profile must have a default set of values.
4. The contents of a BWA profile may have some elements that are configurable by the BWA.
5. The Profiles Database must be stored in a format suitable for viewing and updating by a Web based tool.
6. The contents of each profile in the Profiles Database must include the information in the table below. It may also contain any other information necessary to operate the BW system.

<i>BWA Profile Field</i>	<i>Description</i>
User	Unique organisation identifier.
Contact-details	Set of name, address, phone, fax, email contact details
BWA-type	One of a set of BWA types (e.g. NBA, Publisher, Administrator etc.)
Privilege-level	Choice of high, medium, low privilege
Action-list	Set of events and BWA-preferred associated actions.
View-preference	BWR view (or list of views).
Field-preference	A list of BIBLINK Core fields that comprise a Text or HTML view – default ALL .
Language	Choice of language supported by the BW.
Alerting-preference	Email or Web

Table 5 – BWA Profile Fields

⁵ Note that the information used to complete BWA profiles may be obtained from the BWA registration service.

4.5 BW Configuration Database

1. The BW system must provide a database containing all the configuration information required to manage the BW system. This configuration database must only be accessible by BWAs with administrator privilege level.
2. The configuration database must be stored in a format suitable for viewing and updating by a Web based tool.
3. The configuration database must contain the BW default event and action pairs used as a basis for each BWA's profile.
4. The configuration database must contain all details of address and routing information for BWA communication.
5. The configuration database must contain all the information necessary to start, stop, backup and monitor the BW system.
6. The configuration database must contain a list of the BWR mandatory fields (the list must always contain `DC.Title` and `DC.Publisher`).

4.6 BW Logs Database

1. The BW system must provide a database containing all the log information required to audit the BW system. This logs database must only be accessible by BWAs with administrator privilege level.
2. The logs database must be stored in a format suitable for viewing and updating by a Web based tool.
3. The contents of the logs database must include reports of all email messages sent/received to BWA;
4. The contents of the logs database must include reports of non-delivered email messages;
5. The contents of the logs database must include reports of all connections at supporting TCP/IP layers;
6. The contents of the logs database must include reports of all HTTP connections and associated message transfers;
7. The contents of the logs database must include reports of disk space utilisation;
8. The contents of the logs database must include reports of system performance data.
9. All message and connection reports must include details of message/connection identifier;
10. All message and connection reports must include details of time of message/connection submission;
11. All message and connection reports must include details of message size;
12. All message and connection reports must include details of message/connection originator/recipient;
13. All message and connection reports must include details of message content type

4.7 BW Messages Database

1. The BW system must provide a database containing all the messages communication to and from the BW system. This messages database must only be accessible by BWAs with administrator privilege level.
2. The messages database must be stored in a format suitable for viewing and updating by a Web based tool.
3. A candidate list of messages that can be sent from the BW to a BWA is provided in the following sections.

4.7.1 Response Messages

1. Response messages must include the following:

- Record <BWR_id> created
- Record <BWR_id>: added field <field>, content set to <content>
- Record <BWR_id>: modified field <field>, content set to <content>
- Record <BWR_id> marked as complete
- Record <BWR_id> deleted
- <help_message>
- Record not created: mandatory fields missing
- Record not created: field content missing
- Processing complete

4.7.2 Alert Messages

1. Alert messages must include the following:

- Record <BWR_id> modified by <BWA>
- Record <BWR_id> rejected by <BWA>
- Record <BWR_id> marked as complete by <BWA>
- Record <BWR_id>: identifier requested by <BWA>
- Record <BWR_id>: identifier assigned by <BWA>
- Record <BWR_id>: identifier request rejected by <BWA>

4.7.3 System Exceptions

1. System Exception messages must include the following:

- Operation invalid <details>

5. DEVELOPMENT OVERVIEW

5.1 Development Schedule

A detailed development schedule will be agreed with the developer based on the information supplied concerning the proposed software methodologies and technical approach. Development should take place within the overall constraints outlined below. Development work is due to start on 17 April 1998. There will be three releases of the software integrated with the testing schedule

1. First Alpha release - testing at UKOLN site, date to be supplied.
2. First Beta releases - testing at NBA, publisher and third party sites, date to be supplied.
3. Final release - date to be supplied.
4. Acceptance testing will take place after the Beta release.

5.2 Deliverables

The content and format of each deliverable associated with each release shall be as follows:

5.2.1 Alpha releases

For each nth incrementally improved Alpha release, in accordance with the acceptance criteria, the following must be supplied:

1. DEL01.n - Executable software uploaded to BIBLINK FTP site with installation and help file for system administrators including details of operational environment and necessary modifications.
2. DEL02.n - Documentation for BW administrators.
3. DEL03.n - Documentation for users.

5.2.2 Beta Releases

For each nth incrementally improved Beta release, in accordance with the acceptance criteria, the following must be supplied:

1. DEL04.n - Executable software uploaded to BIBLINK FTP site with installation and help file for system administrators including details of operational environment and necessary modifications.
2. DEL05.n - Documentation for BW administrators
3. DEL06.n - Documentation for users

5.2.3 Final Release

1. DEL07 - Executable software and information as above and on disc or tape (medium and format tba) for physical delivery to EC. This will include the source code (by agreement with developer).
2. DEL08 - Technical manual for system administrators including maintenance documentation.
3. DEL09 - BW administrators manual.
4. DEL10 - BW User manual.

5.3 Overview of Acceptance Testing

1. The acceptance testing consists of a number of acceptance tests carried out at various stages in the BW development lifecycle (see Section 5.1). The alpha and beta releases will be tested and the results fed back to the developer for corrective action. The final release will be used throughout the demonstrator phase, and the use of the demonstrator will be the test of this release. Feedback to the developer on problems with the final release and any agreed remedial action will take place as part of the support offered during the demonstrator phase.
2. Acceptance testing does not include system testing which is carried out by the supplier and is their responsibility.
3. Acceptance testing will take place on the alpha and beta releases. The final release will be tested by usage during the demonstrator. A detailed acceptance plan to cover alpha and beta release testing (D10.1 Detailed acceptance test plan) will be drawn up as part of WP10: Testing and Verification. A validation plan for the demonstrator phase (D10.3 Demonstrator Validation Plan) will also be drawn up as part of WP10. The validation process will be carried out within WP11: Demonstration and Validation.
4. During the alpha and beta test phases problem reports will be directed to the acceptance test manager who will liaise with the developer.
5. Test reports will be produced during the alpha and beta release phases (D10.2a,b Consolidated Test reports). The test report on the final release (D10.2c) will take the form of a technical report at the conclusion of the demonstrator phase. This will be a complementary report to D11.3: Consolidated Report showing results of the Demonstrator.
6. Acceptance testing must provide for extensive user involvement to ensure the interface requirements are adequately supported. The alpha test release will be installed at UKOLN. Beta release will be installed by selected partners and will involve a number of publishers. Project partners will be involved in drawing up the test scripts.
7. Sample metadata for system and alpha testing will be gathered from a variety of sources, in preference from publishers but otherwise sample data will be obtained from elsewhere. Beta test data will be supplied by participating publishers.
8. The acceptance tests must be designed to demonstrate that all of the user and functional requirements expressed in D8.1 BIBLINK User Requirements Specification and this Functional Specification have been satisfied. The acceptance testing process will ensure that the demonstrator supports the diversity of the participating publishers and the differing local practices of the national bibliographic agencies.
9. Acceptance testing is expected to be carried out successfully according to test cases matching each of the functional requirements identified in this document.
10. Note that System Test Reports must be available before delivery of any releases of the BW system as a prerequisite for the start of acceptance testing.
11. All acceptance tests should cross-reference the requirements in this functional specification.
12. All acceptance tests should be cross-checked against the supplier's statement of compliance to this functional specification.

6. MAPPING BETWEEN USER REQUIREMENTS AND FUNCTIONAL SPECIFICATION

The following table shows the correspondence between identified user requirements and requirements specified in the Functional Specification.

<i>Identified URS Requirement</i>	<i>Related clauses in the Functional Specification</i>
General-1	4.3
General-2	3.8 (17,18,19,20)
General-3	No mapping required
General-4	No mapping required
General-5	No mapping required
General-6	3.2 (1)
Event-1	3.5.1 (1)
Event-2	3.5.1 (3)
Event-3	3.5.1 (2)
Event-4	3.5.1 (4)
Action-1	3.5.2.1
Action-2	3.2.1 (5), 3.4.1 (2)
Action-3	3.5.2.2
Action-4	3.5.2.3 (1), 4.1.3 (5)
Action-5	3.5.2.3 (6)
Format-1	4.1.1 (6), 4.1.1 (4)
Format-2	4.1.2.1, 4.1.2.2
Format-3	4.1.2.3
Format-4	4.1.2.5, 4.1.2.6, 4.1.2.7, 4.1.2.8, 4.1.2.9
Map-1	3.6 (1), D8.2.1 BIBLINK Core Mapping Tables
Map-2	3.6 (1), D8.2.1 BIBLINK Core Mapping Tables
Map-3	3.6 (5), D8.2.1 BIBLINK Core Mapping Tables
Map-4	3.6 (6), D8.2.1 BIBLINK Core Mapping Tables

<i>Identified URS Requirement</i>	<i>Related clauses in the Functional Specification</i>
Map-5	3.6 (2), D8.2.1 BIBLINK Core Mapping Tables
Map-6	4.1.3 (3,4,5)
Map-7	4.1 (4)
Map-8	3.5.2.1
Map-9	4.1.3 (1)
New-1	3.3 (4), 4.1 (4)
New-2	3.4.1.1 (19), 3.4.2 (11), 3.4 (3)
New-3	3.2 (1,2)
New-4	3.4.1.1 (5, 9), 3.4 (1)
New-5	3.4.1.1 (9)
New-6	Not support
New-7	4.1.3 (1) (See BWR .AccessDetails)
New-8	3.8 (9,10)
New-9	3.2 (2), 3.2 (3), 3.4.2, 4.2.2, 4.2.3
Edit-1	3.4.2 (10)
Edit-2	SMTP: 3.4.1.1 (5,8,11,12) HTTP: 3.4.2 (1,4,5)
Edit-3	4.4 (6)
Edit-4	3.5.1 (2,4,5,6), 3.5.2.1, 3.5.3
Edit-5	4.5 (3), 4.4 (6)
Edit-6	4.4, 3.3(4,9)
Edit-7	3.5.1 (3)
Edit-8	4.1.3 (6)
Search-1	3.4.2 (1,2,3)
Search-2	3.4.2 (2)
Search-3	3.4.2 (2) – note Search-2 and Search-3 now combined
Search-4	Email search interface not required

<i>Identified URS Requirement</i>	<i>Related clauses in the Functional Specification</i>
Retrieve-1	3.4 (1), 3.4.1.1 (5), 4.2.6
Retrieve-2	3.4 (1), 3.4.1.1 (5), 4.2.7, 4.2.8, 4.2.9, 4.2.10, 4.2.11, 4.2.12
Retrieve-3	3.4 (1), 3.4.1.1 (5), 4.2.4, 4.2.5
Retrieve-4	3.4 (1), 3.4.1.1 (5), 4.2.2, 4.2.3
Retrieve-5	3.4 (1), 3.4.1.1 (5), 4.2.1
Retrieve-6	3.4 (1), 3.4.1.1 (5)
Admin-1	3.3, 4.4 (1)
Admin-2	3.3 (3,5)
Admin-3	3.3 (3,5,6,7,8)
Admin-4	3.3 (3,5)
Admin-5	4.4
Admin-6	4.4 (6)
Admin-7	4.4 (6)
Admin-8	3.5.3 (1)
Admin-9	4.5 (6)
Admin-10	3.3 (9,10,11,12)
Admin-11	4.6
Admin-12	3.4.1.3, 3.4.2 (10), 4.6.2 (1)
Admin-13	4.7.1
Admin-14	3.7 (1)
Admin-15	3.4 (4)
Profile-1	4.4 (6)
Profile-2	4.4 (6)
Profile-3	4.4 (6)
Profile-4	4.4 (6)
Profile-5	Access rights are associated with each BWR in the BWR database.

<i>Identified URS Requirement</i>	<i>Related clauses in the Functional Specification</i>
Profile-6	4.4 (6)
Profile-7	4.4 (6)
Profile-8	Same as Profile-6
Profile-9	4.4 (6)
Profile-10	4.4 (6)
Interface-1	3.8 (11,12)
Interface-2	3.8 (9,10,11,12)
Interface-3	1.3(1), 3.4.2 (3,8,9), 3.2.2
Interface-4	3.8 (7)
Interface-5	3.4.2 (12)
Interface-6	No mapping required
Systems-1	3.8 (1)
Systems-2	3.8 (33)
Systems-3	3.8 (1), 1.3 (4,5)
Systems-4	4.1 (3)

Table 6 - Mapping between BIBLINK Workspace User and Functional Requirements

ANNEX 1. EXAMPLES OF SMTP INTERFACE MESSAGES

This section gives some examples of the messages that flow across the BW SMTP Interface during the life-cycle of a particular BWR.

1. A message is sent by the publisher to the BW, creating a new record and entering information about the new publication into some of the BWR fields.

```
Date: Thu, 5 Feb 1998 16:45:24 +0000 (GMT)
From: Andy Powell <a.powell@ukoln.ac.uk>
To: BIBLINK Workspace <biblink@ukoln.ac.uk>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

create

set this DC.Title Ariadne

set this DC.Creator.CorporateName University of Abertay, Dundee

set this DC.Creator.CorporateName UKOLN, University of Bath

set this DC.Creator.Address ariadne@ukoln.ac.uk

set this DC.Subject Ariadne, magazine, journal, e-zine, e-journal,
+magazine, elib, electronic libraries, digital libraries, networking,
+libraries, librarians, Web, IT, higher education, reviews, news,
features,
+interviews, UKOLN, Abertay, electronic libraries programme, JISC,
+information science

set this DC.Description A Web and print magazine of Internet issues
for
+librarians and information specialists.

set this DC.Format text/html

set this DC.Identifier http://www.ariadne.ac.uk/

set this BWR.status ISSN-requested

end
```

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2. The BW sends an 'alert' message to the ISSN Agency, notifying them about the new publication. The message contains two body parts. The first containing the response message (text/plain), the second containing a text view of the BWR (text/plain).

Date: Thu, 5 Feb 1998 16:53:05 +0000 (GMT)

From: BIBLINK Workspace <biblink@ukoln.ac.uk>

To: ISSN Agency <request@issn.co.uk>

Subject: Record 1234-567: identifier requested by UKOLN

MIME-Version: 1.0

Content-Type: MULTIPART/MIXED; BOUNDARY="-559023410-1143741253-86697585=:18445"

This message is in MIME format. The first part should be readable text, while the remaining parts are likely unreadable without MIME-aware tools.

Send mail to mime@docserver.cac.washington.edu for more info.

---559023410-1143741253-886697585=:18445

Content-Type: TEXT/PLAIN; charset=US-ASCII

An identifier is requested for record 1234-567 by UKOLN.

---559023410-1143741253-886697585=:18445

Content-Type: TEXT/PLAIN; charset=US-ASCII; name=1234-567.txt

Content-Transfer-Encoding: BASE64

Content-ID: <Pine.GSO.3.95.980205165305.18445m@lamin>

Content-Description:

```
REMuVG10bGUNCglBcmlhZG51OiBBIFd1YiBhbmQgcHJpbnQgbWFnYXppbmUg
b2YgSW50ZXJuzXQNCglpc3N1ZXMGZm9yIGxpYnJhcmlhbnMgYW5kIGluZm9y
bWF0aW9uIHNVZWNpYWxpc3RzDQpEQy5DcmVhdG9yLkNvcnBvcnF0ZU5hbWUN
CglVbml2ZXJzaXR5IG9mIEFifiZXJ0YXksiIERlbnRlZQ0KREMuQ3JlYXRvci5D
b3Jwb3JhdGVOYW11dQoJVUtPTE4sIFVuaXZlcnNpdHkgb2YgQmF0aA0KREMu
```

D8.2 BIBLINK Workspace Functional Specification

Q3JlYXRvci5BZGRyZXNzDQoJYXJpYWZURU1a29sbi5hYy5law0KREMuU3Vi
amVjdA0KCUFyaWFkbmUsIG1hZ2F6aW5lLCBqb3VybmFsLCBlLXppbmUsIGUt
am91cm5hbCwNCgltYWdhemluZSwgZWxpYiwgZWxlY3Ryb25pYyBsaWJyYXJp
ZXMsIGRpbz2l0YWwgbGlicmFyaWVzLCBuZXR3b3JraW5nLA0KCWxpYnJhcml1
cywgbGlicmFyaWFucywgV2ViLCBJVCwgaGlnaGVyIGVkdWNhdGlvbiwgcmV2
aWV3cywgbmV3cywNCg1mZWZ0dXJlcywgaW50ZXJ2aWV3cywgVUtPTE4sIEFi
ZXJ0YXksIGVsZWN0cm9uaWMgbGlicmFyaWVzIHByb2dyYW1tZSwNCg1KSVD
LCBpbmZvcmlhdGlvbiBzY2l1bmN1DQpEQy5EZjNjcmlwdGlvbG0KCUEgV2Vi
IGFuZCBwcm1udCBtYWdhemluZSBvZiBJbnRlcm5ldCBpc3N1ZXMgZm9yDQoJ
bGlicmFyaWFucyBhbmQgaW5mb3JtYXRpb24gc3BlY2lhbG1zdHMuDQpEQy5G
b3JtYXQNCg10ZXh0L2h0bWwNCkRDLk1kZW50aWZpZXINCg1odHRwOi8vd3d3
LmFyaWFkbmUuYWMudWsvDQo=
---559023410-1143741253-886697585=:18445--

D8.2 BIBLINK Workspace Functional Specification

3. The ISSN Agency assigns an ISSN to the publication and sends back a message to the BW, adding a new DC.Identifier to the BWR for that publication.

Date: Thu, 5 Feb 1998 16:54:30 +0000 (GMT)

From: ISSN Agency <request@issn.co.uk>

To: BIBLINK Workspace <biblink@ukoln.ac.uk>

MIME-Version: 1.0

Content-Type: TEXT/PLAIN; charset=US-ASCII

```
add 1234-567 DC.Identifier SCHEME=ISSN 1361-3200
```

```
set 1234-567 BWR.Status ISSN-assigned
```

```
end
```


D8.2 BIBLINK Workspace Functional Specification

aWJyYXJpYW5zIGFuZCBpbmZvcmlhdGlvbiBzcGVjaWFsaXN0cx8wMB5hdGV4
dC9odG1sHzAwHmFUaGUgVUsgT2ZmaWNlIGZvciBMaWJyYXJ5IGFuZCBJbmZv
cm1hdGlvbiBOZXR3b3JraW5nIChVS09MTikgYW5kIHRoZSBVbml2ZXJzaXR5
IExpYnJhcnkgb2YgdGhlIFVuaXZlcnNpdHkgb2YgQWJlcnRheSBhdCBEdW5k
ZWUgaGF2ZSBiZWVuIGZ1bmRlZCB0byBwdWJsaXNoIGEgbWFnYXppbmUgaW4g
aGFyZCBjb3B5IGFuZCB1bGVjdHJvbmljIGZvcmlhdCBmb3IgdXNlIG92ZXIgd
dGhlIFdvcmxkIFdpZGUgV2ViLiBUaGUgbWFnYXppbmUgaXMgYWltZWQgaW5p
dG1hbGx5IGF0IHN1YmplY3QgbGlicmFyaWFucyBhbmQgb3RoZXIgd29ya2lu
ZyBsaWJyYXJpYW5zIGluIGFjYWRlbWljIGxpYnJhcml1cywgdGhvdWdoIG1h
bnkgcGVvcGxlIGluIHRoZSBnbG9iYWwgSGlnaGVyIEVkdWNhdGlvbiBhbmQg
TElTIGNvbW11bml0aWVzIHdpcGwgZmluZCBpdGVtcyBvZiBpbnRlcmVzdCB3
aXRoaW4gaXQuHzAwHmFBcm1hZG5lLCBtYWdhemluZSwgam91cm5hbCwgZS16
aW5lLCBlLWpvdXJuYWwsIG1hZ2F6aW5lLCBlbGliLCBlbGVjdHJvbmljIGxp
YnJhcml1cywgZGlnaXRhbCBsaWJyYXJpZXMsIG5ldHdvcmtpbmcsIGxpYnJh
cm11cywgbGlicmFyaWFucywV2ViLCBJVCwgaGlnaGVyIGVkdWNhdGlvbiwg
cmV2aWV3cywgbmV3cywgZmVhdHVyZXMsIGludGVydmlld3MsIFVLT0xOLCBB
YmVydGF5LCBjb250cm92ZXJzeSwgZGVlYXRlLCBlbGVjdHJvbmljIGxpYnJh
cm11cyBwcm9ncmFtbWUsIEpJU0MsIGluZm9ybWF0aW9uIHNjaWVuY2UfNzAe
dWh0dHA6Ly93d3cuYXJpYWRuZS5hYy51ay8fHQ==
---559023410-1143741253-886697585=:18445--

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5. The NBA enhances the record and sends an updated UKMARC record back to the BW and marks the BWR as being complete. The message contains two body parts. The first containing the BW commands (text/plain), the second containing the UKMARC record (application/x-ukmarc).

Date: Thu, 5 Feb 1998 20:37:58 +0000 (GMT)

From: British Library <biblink-new@bl.uk>

To: BIBLINK Workspace <biblink@ukoln.ac.uk>

MIME-Version: 1.0

Content-Type: MULTIPART/MIXED; BOUNDARY="-559023410-1254324197-86711078=:23627"

Content-ID: <Pine.GSO.3.95.980205203704.23627H@lamin>

This message is in MIME format. The first part should be readable text, while the remaining parts are likely unreadable without MIME-aware tools.

Send mail to mime@docserver.cac.washington.edu for more info.

---559023410-1254324197-886711078=:23627

Content-Type: TEXT/PLAIN; CHARSET=US-ASCII

Content-ID: <Pine.GSO.3.95.980205203431.23627E@lamin>

set 1234-567 UKMARC

set 1234-567 BWR.Status NBA-complete

end

---559023410-1254324197-886711078=:23627

Content-Type: APPLICATION/X-UKMARC; NAME="new1234-567.ukmarc"

Content-Transfer-Encoding: BASE64

Content-ID: <Pine.GSO.3.95.980205203526.23627F@bl.uk>

Content-Description:

MDEwMTgwICAgIDIyMDAwOTcgICA0NTAwMTEwMDAyMTAwMDAwMjQ1MDEwMDAw

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MDIxNTE2MDAxNDAwMTIxNTIwMDQ1MzAwMTM1NjUzMDMwMjAwNTg4ODU2MDAz
MDAwODkwHjAwHmFLaXJyaWVtdWlyLCBkb2huHzAwHmFBcm1hZG5lOiBBIFdl
YiBhbmQgcHJpbnQgbWFnYXppbmUgb2YgSW50ZXJuZXQgaXNzdWVzIGZvciBs
aWJyYXJpYW5zIGFuZCBpbmZvcmlhdGlvbiBzcGVjaWFsaXN0cx8wMB5hdGV4
dC9odG1sHzAwHmFUaGUgVUsgT2ZmaWNlIGZvciBMaWJyYXJ5IGFuZCBJbmZv
cm1hdGlvbiBOZXR3b3JraW5nIChVS09MTikgYW5kIHRoZSBVbml2ZXJzaXR5
IExpYnJhcnkgb2YgdGhlIFVuaXZlcnNpdHkgb2YgQWJlcnRheSBhdCBEdW5k
ZWUgaGF2ZSBiZWVuIGZ1bmRlZCB0byBwdWJsaXNoIGEgbWFnYXppbmUgaW4g
aGFyZCBjb3B5IGFuZCB1bGVjdHJvbmljIGZvcmlhdCBmb3IgdXNlIG92ZXIga
dGhlIFdvcmxkIFdpZGUgV2ViLiBUaGUgbWFnYXppbmUgaXMgYWltZWQgaW5p
dG1hbGx5IGF0IHN1YmplY3QgbGlicmFyaWFucyBhbmQgb3RoZXIgd29ya2lu
ZyBsaWJyYXJpYW5zIGluIGFjYWRlbWljIGxpYnJhcml1cywgdGhvdWdoIG1h
bnkgcGVvcGxlIGluIHRoZSBnbG9iYWwgSGlnaGVyIEVkdWNhdGlvbiBhbmQg
TElTIGNvbWl1bml0aWVzIHdpbGwgZmluZCBpdGVtcyBvZiBpbnRlcmVzdCB3
aXRoaW4gaXQuHzAwHmFBcm1hZG5lLCBtYWdhemluZSwgam91cm5hbCwgZS16
aW5lLCBlLWpvdXJuYWwsIG1hZ2F6aW5lLCBlbGliLCBlbGVjdHJvbmljIGxp
YnJhcml1cywGZGlnaXRhbCBsaWJyYXJpZXMsIG5ldHdvcmtpbmcsIGxpYnJh
cm11cywgbGlicmFyaWFucywV2ViLCBJVCwgaGlnaGVyIGVkdWNhdGlvbiwg
cmV2aWV3cywgbmV3cywGZmVhdHVyZXMsIGludGVydmlld3MsIFVLT0xOLCBB
YmVydGF5LCBjb250cm92ZXJzeSwgZGVlYXRlLCBlbGVjdHJvbmljIGxpYnJh
cm11cyBwcm9ncmFtbWUsIEpJU0MsIGluZm9ybWF0aW9uIHNjaWVuY2UfNzAe
dWh0dHA6Ly93d3cuYXJpYWRuZS5hYy51ay8fHQ==
---559023410-1254324197-886711078=:23627--

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6. Finally, the BW sends two views of the BWR, an HTML view (text/html) and a UKMARC view (application/x-ukmarc) back to the publisher.

Date: Thu, 5 Feb 1998 20:46:23 +0000 (GMT)
From: BIBLINK Workspace <biblink@ukoln.ac.uk>
To: Andy Powell <a.powell@ukoln.ac.uk>
Subject: Record 1234-567 marked as complete by BRITISH-LIBRARY
MIME-Version: 1.0
Content-Type: MULTIPART/MIXED; BOUNDARY="-559023410-342241519-886711583=:23627"

This message is in MIME format. The first part should be readable text, while the remaining parts are likely unreadable without MIME-aware tools.

Send mail to mime@docserver.cac.washington.edu for more info.

---559023410-342241519-886711583=:23627

Content-Type: TEXT/PLAIN; charset=US-ASCII

Record 1234-567 has been marked as complete by BRITISH-LIBRARY

---559023410-342241519-886711583=:23627

Content-Type: TEXT/html; name="1234-567.html"

Content-Transfer-Encoding: BASE64

Content-ID: <Pine.GSO.3.95.980205204623.23627J@lamin>

Content-Description:

PEhUTUw+DQo8SEVBRD4NCjxUSVRMRT4NCkFyaWFkbmUNCjwvVELUTEU+DQo8
TUVUQSBOQU1FPSJEQy5UaXRzZSIgQ09OVEVOVD0iQXJpYWRuZSI+DQo8TUVU
QSBOQU1FPSJEQy5DcmVhdG9yLkNvcnBvcnF0ZU5hbWUiIENPTlRFTlQ9IlVu
aXZlcnNpdHkgb2YgQWJlcnRheSwgRHVuzGVlIj4NCjxNRVRBIE5BTUU9IkRD
LkNyZWFOb3IuQ29ycG9yYXRlTmFtZSIgQ09OVEVOVD0iVUtPTE4sIFVuaXZl
cnNpdHkgb2YgQmF0aCI+DQo8TUVUQSBOQU1FPSJEQy5DcmVhdG9yLkFkZHZJl

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c3MiIENPTlRFTlQ9ImFyaWFkbmVAdWtVbG4uYWMudWsiPg0KPE1FVEEgTkFN
RT0iREMuU3ViamVjdCIgQ09OVEVOVD0iQXJpYWZSwgbWFnYXppbmUsIGpv
dXJuYWwsIGUtemluZSwgZS1qb3VybmFsLCBtYWdhemluZSwgZWxpYiwgZWxl
Y3Ryb25pYyBsaWJyYXJpZXMsIGRpZ2l0YWwgbGlicmFyaWVzLCBuZXR3b3Jr
aW5nLCBsaWJyYXJpZXMsIGxpYnJhcmlhbnMsIFdlYiwgSVQsIGhpZ2hlciBl
ZHVjYXRpb24sIHJldmllZ3MsIG5ld3MsIGZlYXR1cmVzLCBpbmRlcncpZXdz
LCBVS09MTiwgQWJlcnRheSwgZWxlY3Ryb25pYyBsaWJyYXJpZXMsIGhpZ2hlciBl
bW1lLCBKSVDNLCBpbmZvcmlhdGlvbiBzY2llbmNlIj4NCjxNRVRBIE5BTUU9
IkrDLkRlc2NyaXB0aW9uIiBDT05URU5UPSJBIFdlYiBhbmQgcHJpbnQgbWFn
YXppbmUgb2YgSW50ZXJpZXQgaXNzdWVzIGZvciBsaWJyYXJpYW5zIGFuZCBp
bmZvcmlhdGlvbiBzZGVjaWFsaXN0cy4iPg0KPE1FVEEgTkFNRT0iREMuRm9y
bWF0IiBDT05URU5UPSJ0ZXh0L2h0bWwiPg0KPE1FVEEgTkFNRT0iREMuSWRl
bnRpZmlldmllciGQ09OVEVOVD0iaHR0cDovL3d3dy5hcmlhZG5lLmFjLnVrLyI+
DQo8TUVUQSBOQU1FPSJEQy5JZGVudGlmawVvyIiBTQ0hFTUU9IklTU04iIENP
TlRFTlQ9IjEzZnJEtMzIwMCI+DQo8L0hFQUQ+DQo8L0hUTUw+DQo=
---559023410-342241519-886711583=:23627

Content-Type: APPLICATION/X-UKMARC; NAME="1234-567.ukmarc"

Content-Transfer-Encoding: BASE64

Content-ID: <Pine.GSO.3.95.980205203526.23627F@lamin>

Content-Description:

MDEwMTgwICAgIDIyMDAwOTcgICA0NTAwMTEwMDAyMTAwMDAwMjQ1MDEwMDAw
MDIxNTE2MDAxNDAwMTIxNTIwMDQ1MzAwMTM1NjUzMDMwMjAwNTg4ODU2MDAz
MDAwODkwHjAwHmFLaXJyaWVtdWlyLCBkb2huHZAuHmFBcm1hZG5lOiBBIFdl
YiBhbmQgcHJpbnQgbWFnYXppbmUgb2YgSW50ZXJpZXQgaXNzdWVzIGZvciBs
aWJyYXJpYW5zIGFuZCBpbmZvcmlhdGlvbiBzZGVjaWFsaXN0cx8wMB5hdGV4
dC9odG1sHzAwHmFUaGUgVUsgT2ZmaWNlIGZvciBMAWJyYXJ5IGFuZCBJbmZv
cm1hdGlvbiBOZXR3b3JraW5nIChVS09MTikgYW5kIHRoZSBVbml2ZXJzaXR5
IExpYnJhcncgb2YgdGhlIFVuaXZlcnNpdHkgb2YgQWJlcnRheSBhdCBEdW5k
ZWUgaGF2ZSBiZWVuIGZlbnRlZCB0byBwdWJsaXNoIGEgbWFnYXppbmUgaW4g
aGFyZCBjb3B5IGFuZCB1bGVjdHJvbnRlIGZvcm1hdCBmb3IgdXNlIG92ZXIga

D8.2 BIBLINK Workspace Functional Specification

dGhlIFdvcmxkIFdpZGUgV2ViLiBUaGUgbWFnYXppbmUgaXMgYWltZWQgaW5p
dG1hbGx5IGF0IHN1YmplY3QgbGlicmFyaWFucyBhbmQgb3RoZXIgd29ya2lu
ZyBsaWJyYXJpYW5zIGluIGFjYWRlbWljIGxpYnJhcml1cywgdGhvdWdoIG1h
bnkgcGVvcGxlIGluIHRoZSBnbG9iYWwgSGlnaGVyIEVkdWNhdGlvbiBhbmQg
TElTIGNvbWl1bml0aWVzIHdpbGwgZmluZCBpdGVtcyBvZiBpbnRlcmVzdCB3
aXRoaW4gaXQuHzAwHmFBcmlhZG5lLCBtYWdhemluZSwgam91cm5hbCwgZS16
aW5lLCBlLWpvdXJuYWwsIG1hZ2F6aW5lLCBlbGliLCBlbGVjdHJvbmljIGxp
YnJhcml1cywGZGlnaXRhbCBsaWJyYXJpZXMsIG5ldHdvcmtpbmcsIGxpYnJh
cml1cywgbGlicmFyaWFucywgV2ViLCBlbGVkaGVkdWNhdGlvbiwg
cmV2aWV3cywgbmV3cywGZmVhdHVyZXMsIGludGVydmlld3MsIFVLT0xOLCBB
YmVydGF5LCBjb250cm92ZXJzeSwgZGVlYXRlLCBlbGVjdHJvbmljIGxpYnJh
cml1cyBwcm9ncmFtbWUsIEpJU0MsIGluZm9ybWF0aW9uIHNjaWVuY2UfNzAe
dWh0dHA6Ly93d3cuYXJpYWRuZS5hYy51ay8fHQ==
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ANNEX 2. EXAMPLE EVENT/ACTION CONFIGURATION

This table provides an example system-wide event/action configuration.

<i>Event</i>	<i>Action(s)</i>
BWR_created	Set BWR.Publisher
BWR_modified	Set BWR.LastModified Set BWR.LastModifiedBy
BWR_deleted	Notify BWR-deleted(BWR.Publisher)
BWR_BIBLINK.Checksum_updated	Update UNIMARC from <BC>
BWR_BIBLINK.Edition_updated	Update UNIMARC from <BC>
BWR_BIBLINK.Extent_updated	Update UNIMARC from <BC>
BWR_BIBLINK.Frequency_updated	Update UNIMARC from <BC>
BWR_BIBLINK.PlacePublication_updated	Update UNIMARC from <BC>
BWR_BIBLINK.Price_updated	Update UNIMARC from <BC>
BWR_BIBLINK.SystemRequirements_updated	Update UNIMARC from <BC>
BWR_DC.Creator_updated	Update UNIMARC from <BC>
BWR_DC.Creator.CorporateName_updated	Update UNIMARC from <BC>
BWR_DC.Contributor_updated	Update UNIMARC from <BC>
BWR_DC.Contributor.PersonalName_updated	Update UNIMARC from <BC>
BWR_DC.Date_updated	Update UNIMARC from <BC>
BWR_DC.Description_updated	Update UNIMARC from <BC>
BWR_DC.Format_updated	Update UNIMARC from <BC>
BWR_DC.Identifier_updated	Update UNIMARC from <BC>
BWR_DC.Language_updated	Update UNIMARC from <BC>
BWR_DC.Publisher_updated	Update UNIMARC from <BC>
BWR_DC.Rights_updated	Update UNIMARC from <BC>
BWR_DC.Source_updated	Update UNIMARC from <BC>
BWR_DC.Subject_updated	Update UNIMARC from <BC>
BWR_DC.Title_updated	Update UNIMARC from <BC>

<i>Event</i>	<i>Action(s)</i>
BWR_DC.Title.Alternate_updated	Update UNIMARC from <BC>
BWR_SGML1_updated	Update <BC> from SGML1
BWR_SGML2_updated	Update <BC> from SGML2
BWR_UNIMARC_updated	Update <NatMARC> from UNIMARC, or Update <BC> from UNIMARC
BWR_<NatMARC>_updated	Update UNIMARC from <NatMARC>
BWR.Status_set_to_NBA-complete	Notify BWR-complete(BWR.Publisher)
BWR.Status_set_to_Publisher-complete	Notify BWR-complete(NBA)
BWR.Status_set_to_NBA-accepted	Notify BWR-accepted(BWR.Publisher)
BWR.Status_set_to_NBA-rejected	Notify BWR-rejected(BWR.Publisher)
BWR.Status_set_to_<identifier>-requested	Notify BWR-identifier-requested
BWR.Status_set_to_<identifier>-rejected	Notify BWR-identifier-rejected(BWR.Publisher)
BWR.Status_set_to_<identifier>-assigned	Notify BWR-identifier-assigned(BWR.Publisher) Set BWR.Status(Publisher-complete)
BWR.Status_set_to_deleted	

Table 6 - Sample Actions for typical BW Events

Notes on Table 6:

- <BC> is short-hand for all the DC.* and BIBLINK.* fields in a BWR.
- Multiple actions associated with an event are listed one per line in the 'Action(s)' column.

ANNEX 3. BIBLINK WORKSPACE USAGE SCENARIO

D8.1 BIBLINK User Requirements Specification gave three example scenarios of the way in which the BW may be used to share metadata between publishers, NBAs and third parties using the BW. This section lists the BW events and actions that are associated with each step in the first of the scenarios.

	<i>Event</i>	<i>Action(s)</i>
1. Publisher-X makes the Web pages for a new publication available on their Web server in the normal way.		
2. The publisher uses the BW Web form to create a new BIBLINK Workspace Record (BWR). When finished the publishers sets the BWR.Status field to 'Publisher-complete'.	BWR_created BWR_modified	Set BWR.Publisher Set BWR.LastModified Set BWR.LastModifiedBy
3. The BW converts the BC fields into a UNIMARC record and stores it into the UNIMARC field in the new BWR.	BWR_<BC>_updated	Update UNIMARC from <BC>
4. The BW converts the UNIMARC record into a <NatMARC> record, and stores it into the <NatMARC> field in the BWR.	BWR_UNIMARC_updated	Update <NatMARC> from UNIMARC
5. The BW sends an email message to the NBA containing a text view and a <NatMARC> view of the BWR (as defined in the NBA's BWP).	BWR.Status_set_to_Publisher-complete	Notify BWR-complete(NBA)
6. The NBA loads the <NatMARC> record into their local MARC based database and enhances it.		
7. The NBA uses email to send the enhanced version of the <NatMARC> record back to the BW. The NBA also sets the BWR.Status field to 'NBA-complete'.		
8. The BW stores the enhanced <NatMARC> record into the <NatMARC> field of the BWR.		
9. The BW converts the enhanced <NatMARC> record into an enhanced UNIMARC record using the minimal mapping supplied by the NBA.	BWR_<NatMARC>_updated	Update UNIMARC from <NatMARC>

10. The BW updates some or all of the BC fields based on the enhanced UNIMARC record.	BWR_UNIMARC_updated	Update <BC> from UNIMARC
11. The BW sends an email message to Publisher-X containing an HTML view of the BWR (as defined in the publisher's BWP).	BWR.Status_set_to_NBA-complete	Notify BWR-complete(BWR.Publisher)
12. The BW locks the BWR so that no further updates can be made to it.		
13. Publisher-X copies the HTML META tags from the email message and embeds them into the HEAD section of the publication's Web page.		

Table 7 - Events and associated Actions for URS Scenario

Notes on Table 7:

- <BC> is short-hand for all the BC fields in a BWR.
- Multiple actions associated with an event are listed one per line in the 'Action(s)' column.

PART IV

7. BIBLIOGRAPHY

D8.1 BIBLINK User Requirements Specification - BIBLINK Project, February 1998

D8.2.1 BIBLINK Core Mapping Tables

D10.1 BIBLINK Detailed Acceptance Test Plan - BIBLINK Project

D10.3 BIBLINK Demonstrator Validation Plan - BIBLINK Project

8. REFERENCES

1. BIBLINK Demonstrator - Outline of Work Package 8: Functional Specification - BIBLINK Technical Annex, September 1997
2. The UNIMARC Manual Bibliographic Format 2nd edition with Update 1. IFLA UBCIM Publications – New Series Vol. 14. München: K.G. Saur, 1996. ISBN 3-598-11212-2.
3. The UKMARC Exchange Record Format. Boston Spa: The British Library National Bibliographic Record Service, 1997. ISBN: 0-7123-1086-X
4. BIBLINK - LB 4034 D4.1 Format Conversion Feasibility, Issue 2.0, 15 September 1997
5. Ragett, D., HTML 3.2 Reference Specification: W3C Recommendation, 14-Jan-1997. REC-html32. <http://www.w3.org/TR/REC-html32.html>
6. Resource Description Framework (RDF) Model and Syntax, W3C Working Draft 16 Feb 1998. <http://www.w3.org/TR/WD-rdf-syntax/>
7. Beckett, D. Proposed Encodings for Dublin Core metadata. DRAFT V04, 3 December 1996. <http://www.hensa.ac.uk/pub/metadata/dc-encoding.html>
8. Weibel, S., Iannella, R. and Cathro, W., The 4th Dublin Core Metadata Workshop Report. D-Lib Magazine, June 1997. <http://www.dlib.org/dlib/june97/metadata/06weibel.html>
9. Miller, P., Dublin Core Sub-elements: Summary of work prior to and during DC5, and an outline of issues still to be resolved, 20 October 1997. <http://www.mailbase.ac.uk/lists/dc-subelements/files/helsinki.html>
10. World Wide Web Consortium, HTML 4.0 Specification: W3C Proposed Recommendation, 7 November 1997. PR-HTML40-971107. <http://www.w3.org/TR/PR-html40/>
11. Weibel, S., Kunze, J. and Lagoze, C., Dublin Core Metadata for Simple Resource Discovery. Internet-Draft, 27 August 1997. <ftp://ds.internic.net/internet-drafts/draft-kunze-dc-01.txt>
12. Dublin Core Metadata Element Set: Reference Description 2 November 1997. http://purl.oclc.org/metadata/dublin_core_elements
13. Postel, J., "Simple Mail Transfer Protocol", STD 10, RFC 821, USC/Information Sciences Institute, August 1982.

14. Crocker, D., "Standard for the Format of ARPA Internet Text Messages", STD 11, RFC 822, UDEL, August 1982.
15. Borenstein, N., and N. Freed, "Multipurpose Internet Mail Extensions", RFC 1521, Bellcore, Innosoft, June 1992.
16. Berners-Lee, T., Fielding, R., and H. Nielsen, "Hypertext Transfer Protocol -- HTTP/1.0", RFC 1945, May 1996.
17. R. Fielding, J. Gettys, J. Mogul, H. Frystyk, T. Berners-Lee "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2068, January 1997
18. Håkon W. Lie and Bert Bos, World Wide Web Consortium, Cascading Style Sheets level 1, 17 December 1996,. REC-CSS1-961217. <http://www.w3.org/TR/REC-CSS1/>
19. R. Guenther, "The Application/MARC Content-type", RFC 2220, October 1997
20. E. Levinson, " SGML Media Types", RFC 1874, December 1995
21. T. Berners-Lee and D. Connolly, "Hypertext Markup Language - 2.0", RFC 1866, November 1995
22. Dave Raggett, Arnaud Le Hors and Ian Jacobs, World Wide Web Consortium, HyperText Markup Language version 4.0, 18 December 1997,. REC-html40-971218. <http://www.w3.org/TR/REC-html40/>
23. BS 7830, Guide to the design and preparation of on-screen documentation for users of application software. British Standards Institute, 1996
24. ISO 9945, Portable Operating System Interface (IEEE/UNIX) (open computer environment) POSIX, International Standards Organisation, 1996
25. ISO 8859, 8-bit single byte coded graphic character sets, International Standards Organisation, 1987
26. ISO 10646, Universal coded character set, International Standards Organisation, 1993
27. The Unicode Standard, Version 2.0, Addison Wesley Publisher, 1996
28. ISO 639, Code for the representation of names of languages, International Standards Organisation, 1988