

The COUNTER Code of Practice for Articles

Release 1

Appendix D – Protocols for Repositories

General information

This appendix provides specifications that will allow non-COUNTER-compliant repositories to record and report usage statistics at the individual item level that are credible, compatible and consistent.

The protocols described in this Appendix are designed for the transmission and sharing of *raw* usage data.

The two protocols recommended are:

- The 'Tracker' protocol to support Scenario A
- The 'OAI-PMH' protocol to support Scenario B

They are intended for use by Institutional Repositories (and other services) to allow them to transmit their raw usage data to third-party services capable of producing COUNTER-compliant statistics on their behalf.

One such third-party service - a COUNTER-approved model for a secondary clearing house currently under development - is IRUS-UK, a national clearing house for UK Institutional Repository statistics, which is actively employing the Tracker protocol.

The following sections provide guidance on implementation of the two protocols and a description of IRUS-UK.

The Tracker protocol

When a user clicks on a link to (downloads) a file from a Repository with the tracker protocol in operation, an OpenURL log entry is sent to a remote server for further processing.

Constructing the OpenURL log entry Generation

The OpenURL log entry should be based on a subset of the NISO OpenURL 1.0 standard *KEV ContextObject Format*. The OpenURL string must be URL encoded, with key-value pairs separated by &.

Element	OpenURL Key	OpenURL Value (example)	Notes
OpenURL version	url_ver	Z39.88-2004	Identifies data as OpenURL 1.0. String constant: Z39.88-2004 (Mandatory)
Usage event timestamp	url_tim	2010-10-17T03%3A04%3A42Z	Date/time of usage event (Mandatory)

Client IP address	req_id	urn:ip:138.250.13.161	IP Address of the client requesting the article (Mandatory)
UserAgent	req_dat	Mozilla%2F4.0+%28compatible%3B+MSIE+7.0%3B+Windows+NT+5.1%3B+Trident%2F4.0%3B+GoogleT5%3B+.NET+CLR+1.0.3705%3B+.NET+CLR+1.1.4322%3B+Media+Center+PC+4.0%3B+IE+MB3%3B+InfoPath.1%3B+.NET+CLR+2.0.50727%3B+IEMB3%29	The UserAgent is used to identify and eliminate, by applying COUNTER rules, accesses by robots/spiders (Mandatory)
Item OAI identifier	rft.artnum	oai:dspace.lib.cranfield.ac.uk:1826/936	(Mandatory)
MIMEtype	svc_format	application%2Fpdf	(Mandatory)
Source repository	rfr_id	dspace.lib.cranfield.ac.uk	(Mandatory)

Eliminating robots

Information about Robot downloads need not be transmitted to the remote server. Before attempting to transmit the OpenURL, a check should be carried out to eliminate robots as defined in the COUNTER official list, available as a series of user-agent regexes in a text file at:

http://www.projectcounter.org/r4/COUNTER_Robots_list_Jan2014.txt

Checking against these regexes should be case insensitive.

OpenURL Transmission

Once the OpenURL has been constructed, it will need to be transmitted to a remote server where it will be stored and processed.

If the transmission is successful the remote server will return a 200 OK code.

If the transmission is *not* successful, e.g. a 4xx or 5xx code is returned, the OpenURL string should be queued for processing later, e.g. appended to a file held on the local server. A script, that can be scheduled to run periodically, should check if there are queued entries and, if there are, re-transmit them.

OAI-PMH

The Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) “provides an application-independent interoperability framework based on metadata harvesting. There are two classes of participants in the OAI-PMH framework: Data Providers administer systems that support the OAI-PMH as a means of exposing metadata; and Service Providers use metadata harvested via the OAI-PMH as a basis for building value-added services.”¹

Although intended for metadata harvesting, it is possible to re-purpose and use this protocol as the mechanism for harvesting usage events. In this context, the OAI-PMH acts as the transmission protocol wrapped around OpenURL Context Objects.

¹ <http://www.openarchives.org/OAI/openarchivesprotocol.html>

For detailed information on implementing OAI-PMH to share usage data, please refer to the Knowledge Exchange² 'Guidelines to facilitate the exchange of usage statistics' available at <http://www.knowledge-exchange.info/Default.aspx?ID=395>, which offer extensive information on how to make usage data available from a repository to a central server by using OAI-PMH and OpenURL Context Objects.

IRUS-UK – a national clearing house for UK Institutional Repository statistics

The IRUS-UK service is a PIRUS-approved model for a secondary clearing house which consolidates COUNTER-compliant statistics for UK Institutional Repositories. Its main functions are to:

- Gather raw download usage data for all items held in UK repositories using the PIRUS 'tracker' protocol
- provide a central source of validated, consolidated IRUS-UK usage statistics for individual items
- transmit COUNTER-compliant statistics back to the originating repositories for inclusion in their own services
- facilitate comparable, standards-based measurements
- provide an evidence base for repositories to develop policies and initiatives to help support their objectives
- provide consistent and comprehensive statistics, presenting opportunities for benchmarking at a national level
- *supply the PIRUS Central Clearing House with Article Reports on behalf of participating UK repositories*

IRUS-UK has commissioned tools which enable them to gather raw usage data from repositories based on DSpace and Eprints software:

- DSpace – patches have been developed for DSpace 1.8.0, 1.8.1 and 1.8.2, which make it possible to transmit raw usage to the IRUS-UK server employing the 'tracker' protocol, or to expose usage data via OAI-PMH
- Eprints – an add-on has been developed, which make it possible to transmit raw usage to the IRUS-UK server employing the 'tracker' protocol

Other services interested in finding out more about the tools developed for IRUS-UK, or wishing to use them, should contact irus@mimas.ac.uk, in the first instance.

For further information about IRUS-UK, please visit the web site at <http://www.irus.mimas.ac.uk/>.

² <http://www.knowledge-exchange.info/>