A Tool for Defining the Semantics of Prescriptive Tags

Jon Iturrioz
Computer Science Faculty, University of the Basque Country
Pª Manuel Lardizabal, 1
20018 San Sebastián, Spain
jon.iturrioz@ehu.es

Oscar Díaz
Computer Science Faculty, University of the Basque Country
Pª Manuel Lardizabal, 1
20018 San Sebastián, Spain
oscar.diaz@ehu.es

Iker Azpeitia
Computer Science Faculty, University of the Basque Country
Pª Manuel Lardizabal, 1
20018 San Sebastián, Spain
iker.azpeitia@ehu.es

ABSTRACT

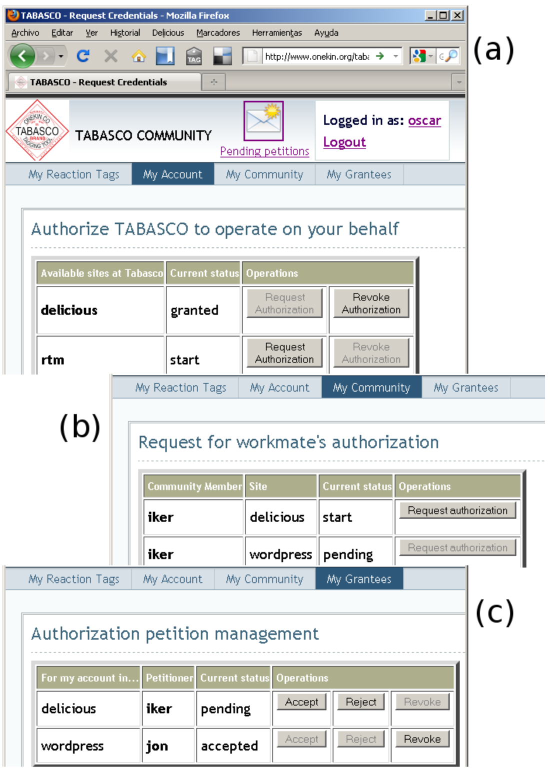
The most common role of tags is descriptive. However, this work focuses on "prescriptive tags" that have associated some implicit behaviour in the user's mind. We introduce the notion of "reactive tags" as a means for tagging to impact sites other than the tagging site itself. The operational semantics of reactive tags is defined through event-condition-action rules. The specification of this behaviour semantics is hidden through a graphical interface that permits users with no programming background to easily associate "reactions" to the act of tagging. This contribution presents a demo on TABASCO, a tool that supports the specification and enactment of reactive tags.

1. MOTIVATION

Tags can serve a broad range of purposes [1]. This work focuses on tags that serve to annotate the user's intentions on the resource being tagged. While descriptive tags are passive, prescriptive tags convey some associated behaviour (*"toDo"*, *"toRead"*, *"toDownload"*, etc). So far, no way exists for the user to define and automate this behaviour. Additionally, this behaviour tends to surpass the tagging site to impact other places, and might affect other users.Prescriptive tags enables the binding of disperse communities through the tagging sites members of the community use.

As a running example, consider an end user, *Oscar* who tags with *"toread"* interesting papers in his *Delicious* account. However, *Delicious* is not a scheduling tool. Hence, *Oscar* keeps a *"myReadingList"* folder in *Remember The Milk (RTM)*. *RTM* provides means to monitor, schedule or share to-do tasks. To keep both lists in synchrony and avoid manually recording data twice, *Oscar* decides to make *"toread"* reactive. The operational semantics can be read as follows: *"on tagging toread at Oscar's Delicious, do create a task in the* myReadingList *folder on Oscar's* RTM*"*. Finally, *RTM* permits to assign priorities to tasks. This priority can not be derived from the bookmark but it can be provided as a tag parameter (e.g. *"toread:3"*).

This contribution presents a demo on TABASCO, a *TAg-BASed, inter-site COmmunication* platform[1], permits users to communicate seamlessly through heterogeneous websites. Users are represented through their website accounts. Tasks are those set by the websites themselves, and normally avail-


TABASCO - Request Credentials - Mozilla Firefox
Archivo Editar Ver Historial Delicious Marcadores Herramientas Ayuda
http://www.onekin.org/tab
TABASCO - Request Credentials
TABASCO COMMUNITY
Pending petitions
Logged in as: oscar
Logout
My Reaction Tags
My Account
My Community
My Grantees
(a)
(b)
(c)

Authorize TABASCO to operate on your behalf

Available sites at Tabasco	Current status	Operations	
delicious	granted	Request Authorization	Revoke Authorization
rtm	start	Request Authorization	Revoke Authorization

Request for workmate's authorization

Community Member	Site	Current status	Operations
iker	delicious	start	Request authorization
iker	wordpress	pending	Request authorization

Authorization petition management

For my account in...	Petitioner	Current status	Operations		
delicious	iker	pending	Accept	Reject	Revoke
wordpress	jon	accepted	Accept	Reject	Revoke

Figure 1: TABASCO tabs: a) granting TABASCO access to your accounts; b) requesting authorization on someone else's account; and c) managing authorization petitions on your accounts.

able through an API. Tags are the means to denote the message that enacts the associated task in the target account (hereafter referred to as "reactive tags"). Messages are originated in *the sender website* and impact on *the receiver website*. Finally, web resources (e.g. bookmarks, blog posts, etc) stand for message parameters.

2. TABASCO AT WORK

This section outlines the main TABASCO GUIs that go with creating a collaboration space through prescriptive tags.

Registration (*"My Account"* tab: Figure 1(a)). Users first indicate whether their accounts will participate in this TABASCO installation. So far, accounts are limited to *Delicious, WordPress* and *RTM*. The process goes as follows: (1)

[1]Available on *http://www.onekin.org/tabasco*

Copyright is held by the author/owner(s).
The 22nd ACM Hypertext Conference, Posters and Demos.
HT'11, June 6–9, 2011, Eindhoven, The Netherlands.

the user selects the website (e.g. *Delicious*), (2) TABASCO asks *Delicious* to authenticate the current user, (3) the user is re-directed to *Delicious* where the user identifies himself, and if granted, (4) *Delicious* will provide "an authorization token" to TABASCO to work on *this* user account. It is most important to note that TABASCO does not hold the username and password of the account but just an authorization token granted by *Delicious* on behalf of the user. This is accomplished by using *OAuth* (Open Authorization).

Authorization request (*"My Community"* tab: Figure 1(b))**.** Even if TABASCO holds an authorization, this does not imply that any registered user can enjoy this authorization. Rather, defining reactive tags over a user account requires authorization privileges upon this account. The petition lifecycle goes along the following stages: start, pending, accepted/rejected and revoked.

Authorization grantee (*"My Grantees"* tab: Figure 1(c))**.** Authorization petitions are managed by account owner themselves. Petitions are notified through the *"mail"* icon, and handled through the *"My Grantees"* tab. If granted, TABASCO extends the credential to the petitioner so that he can now define reactive tags on this account.

Reactive Tag Definition (*"My Reaction Tags"* tab: Figure 2)**.** Tag definition includes (1) the source node, (2) the target node, (3) the label and (4), the operational semantics. The left-hand side panel provides available nodes according to the authorizations hold by the current user. Source nodes are restricted to accounts own by the user. Target nodes correspond to accounts the user is authorized to operate upon. This includes his own accounts plus those he has been granted authorization. Through drag&drop, the user initializes the middle canvas with the desired nodes. Standing for user accounts, nodes are depicted as a blend of the user picture and the website icon. Edges can now be drawn between user accounts, and in so doing, setting the operational semantics of tags.

The operational semantics describes how a reactive tag is interpreted as sequences of computational steps. These sequences then *are* the meaning of the tag. As an attempt to find a compromise between expressiveness and usability, this operational semantics is restricted to be "transformational". That is, websites are regarded as silos of items (bookmarks for *Delicious*, tasks for *RTM*, posts for *WordPress*). The semantics indicates how an item of the target site can be obtained from an item of the source site.

The semantics of the *toread* tag can be textually described as *"on tagging toread at Oscar's Delicious, do create a task in the* myReadingList *folder on Oscar's* RTM*"*. TABASCO specifies such semantics as an arc between two nodes that stands of user accounts (see Figure 2). The type of both items (i.e. *Bookmark* and *Vtodo*) is set by the participating websites. The properties and structure of these items are being described along the SIOC ontology initiative (refer to [2]) for implementation details).

Since, item types are known in advance, TABASCO already sets partial transformation for all possible combinations. These mappings are already engineered in TABASCO. From this perspective, edges are envisioned as pipes that push items along the *Collaboration Space*.

However, some properties of the target item might not be obtained from the source item. For instance, *Vtodo* properties include *"categories"* and *"priority"* which can not be obtained from a *Bookmark*. However, two other source of

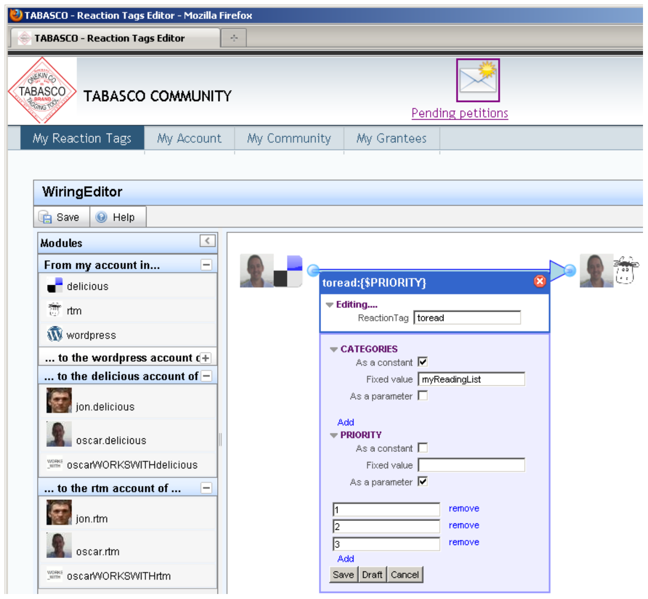


Figure 2: Reactive Tag running examples:*"toread:{$PRIORITY}"*.

data are possible (pop-up form in Figure 2). First, the semantics of the tag can provide some properties as constants. For instance, *toread* implies the so-created tasks to be located at the *myReadingList* folder. Another option is for properties to be set at tagging time. *"Priority"* is a case in point. Now, *"priority"* becomes a parameter of the reactive tag (e.g. *toread:priority*), and hence, it is provided by the user when tagging (e.g. *1,2,3*).

3. CONCLUSION

TABASCO envisages prescriptive tags as functions (i.e. $tagname(inputItem) \rightarrow outputItem$) where tag semantics is specified as a transformation between website resources. Parameters of the *outputItem* can be obtained from (1) the *inpuItem*, (2) a tag's constant, or (3) a tag's parameter provided by the user at tagging time. Such simplicity permits the semantics to be graphically specified and hence, to be easily provided by the end user himself. *TABASCO* does not require any plugin on participating sites. Sender sites need to provide tagging capabilities. Receiver sites should support an API to programmatically interact with the site (e.g. adding a resource). The specifics of both senders and receivers are encapsulated using a driver-like mechanism. Once the driver is on place, *TABASCO* can monitor the tagging behaviour (for sender sites), and enact the desired functionality (for receiver sites). The same site can play both roles: sender and receiver. So far, reactive tags only operate on creating new entries on tagging sites.

4. REFERENCES

[1] S. A. Golder and B. A. Huberman. Usage patterns of collaborative tagging systems. *J. Inf. Sci.*, 32:198–208, April 2006.

[2] J. Iturrioz, O. Díaz, and I. Azpeitia. Reactive tags: Associating behaviour to prescriptive tags. In *Proceedings of the 22nd ACM conference on Hypertext and hypermedia*, HT '11. ACM, 2011.