                      Serverside Subscriptions
              draft-ietf-calext-serverside-subscriptions-01

Abstract

   This specification provides a mechanism whereby subscriptions to
   external resources can be handled by the server.

   This specification updates [RFC4791] to add new properties for the
   MKCOL request.

Status of This Memo

   This Internet-Draft is submitted in full conformance with the
   provisions of BCP 78 and BCP 79.

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1. Introduction

   The motivation for this specification was initially to handle
   external subscriptions to calendar data. However, any resource which
   allows subscriptions might make use of this specification.

   Currently subscriptions to calendar feeds are handled by calendar
   clients. There are a number of disadvantages to this approach: users
   have to subscribe from multiple devices and the subscription cannot
   affect scheduling handled by the server.

   This specification defines a mechanism whereby the server will
   subscribe to the feed and make it visible in the user's home.

   The advantages are popular feeds can be cached by the server and the
   user only has to make a single subscription.

1.1. Conventions Used in This Document

   The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
   "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and
   "OPTIONAL" in this document are to be interpreted as described in
   [RFC2119].

2. CalDAV Subscriptions

2.1. Request

   A client will subscribe to a URL by performing a MKCOL request with
   resource type elements of at least DAV:collection and
   DAV:subscription. For a calendar subscription there will also be a
   caldav calendar element.

   This is an example of the MKCOL request and response from a server
   that supports extended MKCOL.

    >> Request <<

    POST /caldav/user/mike/calendars/parrots HTTP/1.1
    Host: example.com
    Content-Type: text/calendar; component=VEVENT; method=REQUEST
    Content-Length: xxxx

    <?xml version="1.0" encoding="utf-8" ?>
    <D:mkcol xmlns:D="DAV:"
             xmlns:C="urn:ietf:params:xml:ns:caldav">
      <D:set>
        <D:prop>
          <D:resourcetype>
            <D:collection/>
            <C:calendar/>
            <D:subscription/>
          </D:resourcetype>
          <D:displayname>Parrot Events</D:displayname>
          <D:subscription-href>http://example.org/parrot-events.ics</D:subsc
ription-href>
          <D:subscription-deletions-suppressed>true</D:subscription-deletion
s-suppressed>
          <D:subscription-suggested-refresh-interval>PT1H</D:subscription-su
ggested-refresh-interval>
        </D:prop>
      </D:set>
    </D:mkcol>

    >> Response <<

    HTTP/1.1 200 OK

3. New DAV and CALDAV properties

3.1. DAV:subscription

   Name: subscription

   Namespace: DAV

   Purpose: To indicate that the resource is a subscription to an
      external resource which is managed by the server.

   Conformance: When this is specified the request MUST also contain at
      least a DAV:subscription-href element as defined in this
      specification.

   Description: The DAV:specification resource type element is used to
      indicate a collection that is a subscription. A subscription MUST
      report the DAV:subscription XML element in the value of the DAV:
      resourcetype property.

   Definition:

           <!ELEMENT subscription empty>

3.2. DAV:subscription-href

   Name: subscription-href

   Namespace: DAV

   Purpose: Provides the url for the external subscription.

   Conformance: This property MUST be defined on any collection which
      has a resource-type containing a DAV:subscription element.

   Definition:

           <!ELEMENT vpoll-max-items (#PCDATA)>
           PCDATA value: a url

   Example:

           <D:subscription-href xmlns:D="DAV"
           >https://example.com/events.ics</D:subscription-href>

3.3. DAV:subscription-deletions-suppressed

   Name: subscription-deletions-suppressed

   Namespace: DAV

   Purpose: To indicate that resources that no longer appear in the
      feed should be retained by the server.

   Conformance: This property MAY be defined on any subscription.

   Description: Many feeds provide only the current active set of
      resources. For example, a calendar feed may only contain events
      from the current date onwards - while many subscribers would like
      to retain a copy of all events received over time.

      This property indicates that the server SHOULD retain resources
      that disappear from the feed. Services MAY define some mechanism
      to indicate that a particular resource SHOULD be removed. For
      example this specification suggests setting a status of DELETED on
      a calendar event.

   Definition:

          <!ELEMENT subscription-deletions-suppressed empty>

3.4. DAV:subscription-disabled

   Name: subscription-disabled

   Namespace: DAV

   Purpose: To indicate that subscription has been disabled.

   Conformance: This property MUST be reported for any disabled
      subscription.

   Description: A server MAY choose to disable a subscription if there
      is an excessive number of errors when attempting to synchronize
      with the target This property indicates to the client that the
      subscription has been disabled.

      There is no explicit action that can be taken to reenable a
      subscription. However, on subsequent requests a client may
      indicate a refresh is desired which MAY have the effect of
      reenabling the subscription.

   Definition:

```
        <!ELEMENT subscription-enabled empty>
```

3.5. DAV:subscription-next-refresh-interval

   Name: subscription-next-refresh-interval

   Namespace: DAV

   Purpose: To indicate the time interval till the next refresh of a
      subscription.

   Conformance: This property MUST be reported for any active
      subscription.

   Description: This provides a time period to the next refresh. It
      uses the period format defined in [RFC3339].

   Definition:

```
        <!ELEMENT subscription-next-refresh-interval (#PCDATA)>
        PCDATA value: a duration value
```

   Example:

```
        <D:subscription-next-refresh-interval xmlns:D="DAV"
        >PT30M</D:subscription-next-refresh-interval>
```

4. DAV:subscription-suggested-refresh-interval

   Name: subscription-suggested-refresh-interval

   Namespace: DAV

   Purpose: To indicate the desired time interval between refreshes of
      a subscription.

   Conformance: This property MUST be reported for any active
      subscription.

   Description: This provides a suggested time period between refresh.
      It uses the period format defined in [RFC3339].

   Definition:

```
<!ELEMENT subscription-suggested-refresh-interval (#PCDATA)>
PCDATA value: a duration value
```

Example:

```
<D:subscription-suggested-refresh-interval xmlns:D="DAV"
>PT30M</D:subscription-suggested-refresh-interval>
```

5. Refreshing and Reenabling the subscription

When creating the subscription the client may indicate to the server
a desired refresh interval using the a refresh of the data is desired
by using the PROPPATCH method to set the subscription-next-refresh-
interval to 0, e.g. "PT0S".

The client may indicate to the server that a refresh of the data is
desired by using the PROPPATCH method to set the subscription-next-
refresh-interval to 0, e.g. "PT0S".

A server MAY choose to always ignore the attempted refresh or to
ignore the patch if it appears too often.

If the server decides to initiate a refresh it MAY choose to respond
with a 102 HTTP status indicating that it is still waiting for the
data or a 202 HTTP status to indicate the request was accepted.

6. Response Delays

Implementations of this feature may have an outboard or background
process handling the actaul synchronization of the data. The target
may be hosted on a slow service or the data may be very large

All these factors may lead to a significant delay in having data
ready for delivery to the client.

The following approaches are more or less appropriate for handling
requests:

Return with available data: This is the normal behavior. The
   subscription looks like a regular collection so the server can
   respond to the normal requests with whatever data is available.

Wait for completion: If the synchronization process is active the
   server may just choose to wait. This risks a request timeout if
   the data synchronization takes a significant amount of time.

Return 102 status(es): The server may choose to wait but
   periodically send a 102 response to keep the connection alive.

Return 202 status: This is probably the best response. There is no
   need to indicate where the client should go to retrieve the data.
   All it needs to do is retry the operation after an appropriate
   delay.

7. CalDAV service Considerations

As mentioned above, this feature is particularly useful for CalDAV
servers and clients. There are some specific considerations.

7.1. Deleted events

If subscription-deletions-suppressed is specified then the server
SHOULD retain all events. However, the server MAY choose to remove
old events once they become older than the CALDAV:min-date-time
property as specified in [RFC4791] section 5.2.6.

7.2. CalDAV restrictions

A server SHOULD apply all appropriate restrictions on events obtained
from a subscription. In particular the CALDAV:min-date-time and
CALDAV:max-date-time properties as specified in [RFC4791] sections
5.2.6 and 5.2.7 SHOULD be applied.

Additionally the CALDAV:max-resource-size property restricts the size
of events and the CALDAV:max-instances property the number of
instances.

7.3. Invitations in Subscriptions

Any reason not to allow them?

8. Security Considerations

Servers implementing this feature need to be aware of the risks
entailed in using the URIs provided as values to subscription-href.
See [RFC3986] for a discussion of the security considerations
relating to URIs.

9. Privacy Considerations

Properties with a "URI" value type can expose their users to privacy
leaks as any network access of the URI data can be tracked. Clients
SHOULD NOT automatically download data referenced by the URI without
explicit instruction from users. This specification does not

introduce any additional privacy concerns beyond those described in
[RFC5545].

10. IANA Considerations

11. Acknowledgements

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...

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Appendix A. Open issues

   invitations: Any reason not to allow them?

Appendix B. Change log

   v00 2018-06-26 MD

   o First pass

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