CPSC Recalls Retrieval

Web Services Programmers Guide

UNITED STATES OF AMERICA
CONSUMER PRODUCT
SAFETY COMMISSION

Version 1.3
October 31, 2017

Table of Contents

Overview

The Recall Retrieval Web Services are part of the CPSC Recall Database project. The services are implemented as REST web services and provide access to the Recall Central database.

- The Recall Retrieval Web Services are co-located with the saferproducts.gov public website, so that retrieval is available to the general public. The root URI is https://www.saferproducts.gov/RestWebServices/Recall

This document contains a description of available parameters, instructions on how to construct the URL to get the desired resulting data set and sample code for processing the resulting data set.

Available Recall Retrieval Search Parameters

The Recall retrieval web services perform a case insensitive search for any or all of the following fields using a wildcard search. Data is returned as XML, or optionally as JSON:

RecallID	RecallDescription	Retailer
RecallNumber	ProductName	Importer
RecallDateStart	ProductDescription	Distributor
RecallDateEnd	ProductModel	ManufacturerCountry
LastPublishDateStart	ProductType	UPC
LastPublishDateEnd	InconjunctionURL	Hazard
RecallURL	ImageURL	Remedy
RecallTitle	Injury	RemedyOption
ConsumerContact	Manufacturer	

In addition, a non-field parameter is available:
format: determines the output format. Possible values are XML or JSON. The default value is XML .

Desired search parameters are to be appended to the root URI in the form of HTML query strings, as in the following example, which is an URI to retrieve recalls such that the title contains the string "child" and the description contains the string "metal":
https://www.saferproducts.gov/RestWebServices/Recall?RecallTitle=child&RecallDescription=metal

Note that neither "child" nor "metal" need be an actual word in the respective fields. For instance, a recall had the proper noun Fairchild in the title and the qualifier non-metallic in the description would be a match for the above request.

The following URI will retrieve the same result set as above in Json format:

https://www.saferproducts.gov/RestWebServices/Recall?format=json&RecallTitle=Child&RecallDescription=metal

The results of the above queries may be seen in most browsers by entering the respective URI into the browser address bar. One should be aware of the fact that different browsers have different ways in which format the XML result, while JSON result may not be displayed, but downloaded to a local text file.

Data Returned by the Recall Retrieval Service

Each record in a Recall retrieval web service result set contains the following single-valued fields:
- RecallID
- RecallNumber
- RecallDate
- Description
- URL
- Title
- ConsumerContact
- LastPublishDate

In addition, the following collections are available:
- Products
  - Product
    - Name
    - Description
    - Model
    - Type
    - CategoryID
    - NumberOfUnits
- Inconjunctions
  - Inconjunction
    - URL
- Images
  - Image
    - URL
- Injuries
  - Injury
    - Name
- Manufacturers
  - Manufacturer
    - Name
    - CompanyID
- Retailers
  - Retailer
    - Name
    - CompanyID
- Importers
  - Importer
    - Name
    - CompanyID
- Distrinbutors
  - Distributor
    - Name

- ▪ CompanyID
- • ManufacturerCountries
  - o ManufacturerCountry
    - ▪ Country
- • ProductUPCs
  - o ProductUPC
    - ▪ UPC
- • Hazards
  - o Hazard
    - ▪ Name
    - ▪ HazardType
    - ▪ HazardTypeID
- • Remedies
  - o Remedy
    - ▪ Name
- • RemedyOptions
  - o RemedyOption
    - ▪ Option

Example Search URIs and Resulting Data

The URL to get a list of all recalls with title containing the pattern "stroller" and hazard containing "pinch" in XML format is:

https://www.saferproducts.gov/RestWebServices/Recall?RecallTitle=stroller&Hazard=pinch

The URL to get the same list as above but in Json format is:

https://www.saferproducts.gov/RestWebServices/Recall?RecallTitle=stroller&Hazard=pinch &format=Json

An example of one record of the resulting data in XML format for the above query is:

```xml
<Recall>
  <RecallID>7938</RecallID>
  <RecallNumber>17057</RecallNumber>
  <RecallDate>2014-09-30</RecallDate>
  <Description>
    This recall involves the gb Qbit lightweight stroller for children up to 50 pounds. The recalled strollers have 4 sets
    of two wheels, a five-point harnessed restraint system, a full-sized reclining seat, a storage basket, a removable cup
    holder and a travel storage bag. The strollers can also be used as a travel system with infant carriers. The strollers
    are mostly black with an accent color. The "gb" red box logo is printed on the harness and on both sides of the
    stroller legs and "Qbit" is printed in white on the stroller legs. The model number and date of manufacture are
    printed on a sticker on the rear leg of the stroller, directly above the wheels, next to the storage basket. Model
    Number Accent Color Date of Manufacture 10AW1G-AQU2U aqua March 25, 2015 through March 9, 2016 The date of manufacture
    is formatted as YYYY|MM|DD. 10AW1G-RAS2U raspberry 10AW1G-WHT2U white 10AW1G-CHA4U charcoal 10AW1G-CIR5U citrus lemon
  </Description>
  <URL>
    https://www.cpsc.gov/Recalls/2017/Aria-Child-Recalls-Strollers
  </URL>
  <Title>
    Aria Child Recalls Strollers Due to Laceration and Fall Hazards
  </Title>
  <ConsumerContact>
    Aria Child toll-free at 888-591-5540 from 8 a.m. to 5 p.m. ET Monday through Friday or online at www.ariachild.com and
    click on "Qbit Lightweight Stroller Voluntary Recall Information" for more information.
```

```xml
    </ConsumerContact>
    <LastPublishDate>2016-12-20</LastPublishDate>
    <Products>
      <Product>
        <Name>Qbit strollers</Name>
        <Description/>
        <Type/>
        <CategoryID/>
        <NumberOfUnits>About 29,400</NumberOfUnits>
      </Product>
    </Products>
    <Inconjunctions/>
    <Images>
      <Image>
        <URL>
          https://www.cpsc.gov/s3fs-public/QBIT Raspberry-c.jpg
        </URL>
      </Image>
      <Image>
        <URL>
          https://www.cpsc.gov/s3fs-public/QBIT aqua-c.jpg
        </URL>
      </Image>
      <Image>
        <URL>
          https://www.cpsc.gov/s3fs-public/QBIT Charcoal-c.jpg
        </URL>
      </Image>
      <Image>
        <URL>
          https://www.cpsc.gov/s3fs-public/QBIT Citrus-c.jpg
        </URL>
      </Image>
      <Image>
        <URL>
          https://www.cpsc.gov/s3fs-public/QBIT White-c.jpg
        </URL>
      </Image>
    </Images>
    <Injuries>
      <Injury>
        <Name>
          The firm has received five reports of consumers being pinched by the stroller hinge mechanism, resulting in four
          consumers needing stitches for cuts. In addition, there were 71 reports of the stroller unexpectedly folding
          during use, resulting in 12 minor bumps or bruises to a child or caregiver and one fractured wrist and elbow to an
          adult due to a fall.
        </Name>
      </Injury>
    </Injuries>
    <Manufacturers/>
    <Retailers>
      <RecallFirm>
        <Name>
          Babies R US and other retail stores nationwide and Albeebaby.com, Amazon.com, Dmartstores.com, Medbroad.com and
          other online retailers from May 2015 through November 2016 for about $180.
        </Name>
        <CompanyID/>
      </RecallFirm>
    </Retailers>
    < Importers>
      <RecallFirm>
        <Name> Aria Child Inc. of Dedham, Mass.</Name>
        <CompanyID/>
      </RecallFirm>
    </Importers>
    <Distributors/>
    <ManufacturerCountries>
      <ManufacturerCountry>
        <Country>China</Country>
      </ManufacturerCountry>
    </ManufacturerCountries>
    <ProductUPCs/>
```

```xml
    <Hazards>
      <Hazard>
        <Name>
          A gap in the stroller's folding side hinge can pinch a caregiver's hand during unfolding, posing a laceration
          hazard. In addition, the stroller can fold unexpectedly during use, posing an injury and fall hazard to the
          caregiver and child.
        </Name>
        <HazardTypeID/>
      </Hazard>
    </Hazards>
    <Remedies>
      <Remedy>
        <Name>
          Consumers should immediately stop using the recalled strollers and contact Aria Child for a free replacement
          stroller.
        </Name>
      </Remedy>
    </Remedies>
    <RemedyOptions>
      <RemedyOption>
        <Option>Replace</Option>
      </RemedyOption>
    </RemedyOptions>
</Recall>
```

The same recall record in JSON format results in:

```json
{"RecallID":7938,"RecallNumber":"17057","RecallDate":"2016-12-20T00:00:00","Description":"This recall involves the gb
Qbit lightweight stroller for children up to 50 pounds. The recalled strollers have 4 sets of two wheels, a five-point
harnessed restraint system, a full-sized reclining seat, a storage basket, a removable cup holder and a travel storage
bag. The strollers can also be used as a travel system with infant carriers. The strollers are mostly black with an
accent color. The "gb" red box logo is printed on the harness and on both sides of the stroller legs and "Qbit" is
printed in white on the stroller legs. The model number and date of manufacture are printed on a sticker on the rear
leg of the stroller, directly above the wheels, next to the storage basket. Model Number Accent Color Date of
Manufacture 10AW1G-AQU2U aqua March 25, 2015 through March 9, 2016 The date of manufacture is formatted as YYYY|MM|DD.
10AW1G-RAS2U raspberry 10AW1G-WHT2U white 10AW1G-CHA4U charcoal 10AW1G-CIR5U citrus
lemon","URL":"https://www.cpsc.gov/Recalls/2017/Aria-Child-Recalls-Strollers","Title":"Aria Child Recalls Strollers
Due to Laceration and Fall Hazards","ConsumerContact":"Aria Child toll-free at 888-591-5540 from 8 a.m. to 5 p.m. ET
Monday through Friday or online at www.ariachild.com and click on "Qbit Lightweight Stroller Voluntary Recall
Information" for more information.","LastPublishDate":"2016-12-20T00:00:00","Products":[{"Name":"Qbit
strollers","Description":"","Model":"","Type":"","CategoryID":"","NumberOfUnits":"About
29,400"}],"Inconjunctions":[],"Images":[{"URL":"https://www.cpsc.gov/s3fs-public/QBIT Raspberry-
c.jpg"},{"URL":"https://www.cpsc.gov/s3fs-public/QBIT aqua-c.jpg"},{"URL":"https://www.cpsc.gov/s3fs-public/QBIT
Charcoal-c.jpg"},{"URL":"https://www.cpsc.gov/s3fs-public/QBIT Citrus-c.jpg"},{"URL":"https://www.cpsc.gov/s3fs-
public/QBIT White-c.jpg"}],"Injuries":[{"Name":"The firm has received five reports of consumers being pinched by the
stroller hinge mechanism, resulting in four consumers needing stitches for cuts. In addition, there were 71 reports of
the stroller unexpectedly folding during use, resulting in 12 minor bumps or bruises to a child or caregiver and one
fractured wrist and elbow to an adult due to a fall."}],"Manufacturers":[],"Retailers":[{"Name":"Babies R US and other
retail stores nationwide and Albeebaby.com, Amazon.com, Dmartstores.com, Medbroad.com and other online retailers from
May 2015 through November 2016 for about $180.","CompanyID":""}],"Importers":[{"Name":"Aria Child Inc. of Dedham,
Mass.","CompanyID":""}],"Distributors":[],"SoldAtLabel":null,"ManufacturerCountries":[{"Country":"China"}],"ProductUPC
s":[],"Hazards":[{"Name":"A gap in the stroller's folding side hinge can pinch a caregiver's hand during unfolding,
posing a laceration hazard. In addition, the stroller can fold unexpectedly during use, posing an injury and fall
hazard to the caregiver and child.","HazardType":"","HazardTypeID":""}],"Remedies":[{"Name":"Consumers should
immediately stop using the recalled strollers and contact Aria Child for a free replacement
stroller."}],"RemedyOptions":[{"Option":"Replace"}]}
```

JavaScript Example Code to Access the Recall Retrieval Web Services

The code excerpt below demonstrates accessing the Recall Retrieval Web Services using JavaScript, with the inclusion of jQuery (e.g., jquery-1.7.1.min.js). It could be part of a web page, where the operators could input values from some of the various search parameters above, for instance (as in the above example) a search pattern of "stroller" for title and "pinch" for hazard:

```javascript
        var titlePatt = ''; //search pattern for Recall Title
        var hazardPatt = ''; //search pattern for Hazard

        //before calling SearchRecalls() other code would fill the variables above with the respective search patterns

        function SearchRecalls() {
            var restURI = "https://www.saferproducts.gov/RestWebServices/";
            restURI += "/Recall?RecallTitle=" + titlePatt + "&Hazard=" + hazardPatt
            restURI += "&format=json";

            $.ajax({
                url: restURI, type: 'GET', datatype: 'json',
                error: function (jqXHR, textStatus, errorThrown) {
                    var whatError = errorThrown; alert(whatError);
                },
                success: function (recCollection) {
                    if (recCollection != null) {
                        if (recCollection.length > 0) {
                            // display the first recall of the collection in a div with id='displayDiv'
                            var displayText = 'Recall ID = ' + recCollection[0].RecallID;
                            displayText += '<br />Recall Number = ' + recCollection[0].RecallNumber;
                            displayText += '<br />Recall Title = ' + recCollection[0].Title;
                            displayText += '<br />Recall URL = ' + recCollection[0].URL;
                            //and so on ...
                            $('#displayDiv').html(displayText);
                        }
                    }
                }
            });
        }
```

C# Example Code to Access the Recall Retrieval Web Services

The code below demonstrates using C# to retrieve recall data via Recall Web Services. It makes use of the following `Recall` class, which, in turn, makes use of the various classes immediately following:

```csharp
public class Recall {
    public int RecallID { get; set; }
    public string RecallNumber { get; set; }
    public DateTime? RecallDate { get; set; }
    public string Description { get; set; }
    public string URL { get; set; }
    public string Title { get; set; }
    public string ConsumerContact { get; set; }
    public DateTime? LastPublishDate { get; set; }
    public List<Product> Products { get; set; }
    public List<InConjunction> Inconjunctions { get; set; }
    public List<Image> Images { get; set; }
    public List<Injury> Injuries { get; set; }
    public List<RecallFirm> Manufacturers { get; set; }
    public List<RecallFirm> Retailers { get; set; }
    public List<RecallFirm> Importers { get; set; }
    public List<RecallFirm> Distributors { get; set; }
    public List<ManufacturerCountry> ManufacturerCountries { get; set; }
    public List<ProductUPC> ProductUPCs { get; set; }
    public List<Hazard> Hazards { get; set; }
    public List<Remedy> Remedies { get; set; }
    public List<RemedyOption> RemedyOptions { get; set; }
}

public class Product {
    public string Name { get; set; }
    public string Description { get; set; }
    public string Model { get; set; }
    public string Type { get; set; }
    public string CategoryID { get; set; }
```

```csharp
        public string NumberOfUnits { get; set; }
}

public class InConjunction {
        public string URL { get; set; }
}

public class Image {
        public string URL { get; set; }
}

public class Injury {
        public string Name { get; set; }
}

public class RecallFirm {
        public string Name { get; set; }
        public string CompanyID { get; set; }
}

public class ManufacturerCountry {
        public string Country { get; set; }
}

public class ProductUPC {
        public string UPC { get; set; }
}

public class Hazard {
        public string Name { get; set; }
        public string HazardType { get; set; }
        public string HazardTypeID { get; set; }
}

public class Remedy {
        public string Name { get; set; }
}

public class RemedyOption {
        public string Option { get; set; }
}
```

The following code fragment illustrates a method that will retrieve all recalls up to a certain date, and choices of wild card matches for Recall Number (e.g. "1103" would match FY11 recalls with recall number between, 11-030 and 11-039, as well as recalls 01-103, 01-103, and 81-103, if they exist), Product Name and Firm Name (either manufacturer, retailer, importer or distributor):

```csharp
// needed for WebClient, StringBuilder and JavaScriptSerializer
using System.Net;
using System.Text;
using System.Web.Script.Serialization;

const string SERVICE_ROOT = " https://www.saferproducts.gov/RestWebServices/Recall";

public static List<Recall> GetRecall(string recallNumber, DateTime recallDateEnd, string productName,
        string firmName) {

    StringBuilder uriBuilder = new StringBuilder(SERVICE_ROOT);

    // definitely want JSON
    uriBuilder.Append("?format=json");

    // add supplied search terms to URI
    if (!String.IsNullOrEmpty(recallNumber)) {
        uriBuilder.AppendFormat("&RecallNumber={0}", recallNumber);
    }
```

```csharp
        if (!String.IsNullOrEmpty(recallDateEnd)) {
            uriBuilder.AppendFormat("&DateEnd={0:yyyy-MM-dd}", recallDateEnd);
        }

        if (!String.IsNullOrEmpty(productName)) {
            uriBuilder.AppendFormat("&ProductName={0}", productName);
        }

        if (!String.IsNullOrEmpty(firmName)) {
            uriBuilder.AppendFormat("&RecallFirm={0}", firmName);
        }

        // of course, other elements would possible, for instance,
        // if (!String.IsNullOrEmpty(lastPublishDateStart)) {
        //   uriBuilder.AppendFormat("&LastPublishDateStart={0}", lastPublishDateStart);
        // }

        // and so on...

        List<Recall> recList = null;

        using (WebClient getClient = new WebClient()) {
            try {
                // ensure desired encoding is used
                getClient.Encoding = Encoding.UTF8;
                string jsonResult = getClient.DownloadString(uriBuilder.ToString());
                JavaScriptSerializer javaSer = new JavaScriptSerializer();
                javaSer.MaxJsonLength = jsonResult.Length;
                recList = javaSer.Deserialize<List<Recall>>(jsonResult);
            }
            catch (Exception ex) {
                string errorMessage = ex.Message;
            }
        }
        return recList;
}
```

Additional Retrieval Service

A variation of the Recall Retrieval Web Service, in which the recall object has no collections, is available at this root URI:

- https://www.saferproducts.gov/RestWebServices/RecallDelimited

Each of the above collections is replaced by one or more pipe-separated set of quote-delimited values, as many strings are there are fields in said collection members. Quotes are used as delimiters to allow individual strings to include the pipe symbol "|", which is used as separator. Following a common escape method standard procedure (as in, *e.g.*, Microsoft Excel), any quotation mark within a string will be doubled. To recall that convention, let us consider the case of a recall having a Manufacturers collection that consists of two members:

Name	Company ID
Ann | Bob	1299
We "R" Tools	W457

Now each member of the Manufacturer collection has two attributes, name and CompanyID. When retrieved by the RecallDelimited service, that Manufacturers collection will be replaced by the following two strings:

```
Manufacturer = "Ann | Bob"|"We ""R"" Tools "
Manufacturer_CompanyID = "1299"|"W457"
```

The available parameters are the same as the ones for the full recall retrieval service. The only change in the URI submitted to the service is replacing "Recall" with "RecallDelimited" in the root URL, as shown above. In order to

download a list of RecallDelimited to an object, one needs a different class, where the collections are replaced with strings as follows:

Collection	String(s)
Products	ProductNames
	ProductDescriptions
	ProductModels
	ProductTypes
	ProductCategoryIDs
	NumberOfUnits
Inconjunctions	InconjunctionURLs
ImageURLs	ImageURLs
Injuries	Injuries
ManufacturerCountries	ManufacturerCountries
ProductUPCs	UPCs
Hazards	Hazards
	HazardTypes
	HazardTypeIDs
Manufacturers	Manufacturers
	ManufacturerCompanyIDs
Retailers	Retailers
	RetailerCompanyIDs
Importers	Importers
	ImporterCompanyIDs
Distributors	Distributors
	DistributorCompanyIDs
Remedies	Remedies
Retailers	Retailers
	RetailerCompanyIDs

And one may use the following class and essentially the same code example as above (with a modified constant SERVICE_ROOT), to consume the RecallDelimited service option:

```
public class RecallDlimited {
    public int RecallID { get; set; }
    public string RecallNumber { get; set; }
    public DateTime? RecallDate { get; set; }
    public string Description { get; set; }
    public string URL { get; set; }
    public string Title { get; set; }
    public string ConsumerContact { get; set; }
    public DateTime? LastPublishDate { get; set; }
    public string ProductNames { get; set; }
    public string ProductDescriptions { get; set; }
    public string ProductModels { get; set; }
    public string ProductTypes { get; set; }
    public string ProductCategoryIDs { get; set; }
    public string NumberOfUnits { get; set; }
    public string Inconjunctions { get; set; }
    public string Images { get; set; }
    public string Injuries { get; set; }
    public string Manufacturers { get; set; }
    public string ManufacturerCompanyIDs { get; set; }
    public string ManufacturerCountries { get; set; }
    public string ProductUPCs { get; set; }
    public string Hazards { get; set; }
```

```csharp
        public string HazardTypeIDs { get; set; }
        public string Remedies { get; set; }
        public string Retailers { get; set; }
        public string RetailerCompanyIDs { get; set; }
}
```