CPSC Recalls Retrieval

Web Services Programmers Guide

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CONSUMER PRODUCT
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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 http://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:

RecallNumber	RecallDescription	Manufacturer
RecallDateStart	ProductName	ManufacturerCountry
RecallDateEnd	ProductDescription	UPC
LastPublishDateStart	ProductModel	Hazard
LastPublishDateEnd	ProductType	Remedy
RecallURL	RecallInconjunctionCountry	Retailer
RecallTitle	ImageURL	
ConsumerContact	Injury	

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":
http://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:

http://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
- SoldAtLabel

In addition, the following collections are available:
- Products
  - Product
    - Name
    - Description
    - Model
    - Type
    - CategoryID
    - NumberOfUnits
- Inconjunctions
  - Inconjunction
    - Country
- Images
  - Image
    - URL
- Injuries
  - Injury
    - Name
- Manufacturers
  - Manufacturer
    - Name
    - CompanyID
- ManufacturerCountries
  - ManufacturerCountry
    - Country
- ProductUPCs
  - ProductUPC
    - UPC
- Hazards
  - Hazard
    - Name
    - HazardTypeID
- Remedies
  - Remedy
    - Name
- Retailers

- o   Retailer
    - ▪   Name
    - ▪   CompanyID

Example Search URIs and Resulting Data

You can view the results of the queries below by clicking the links, or entering into a browser URL.

The URL to get a list of all recalls with title "Child" and description contains "metal" in XML format is:

http://www.saferproducts.gov/RestWebServices/Recall?Title=Child&RecallDescription=metal

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

http://www.saferproducts.gov/RestWebServices/Recall?Title=Child&RecallDescription=metal&format=Json

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

```xml
<Recall>
  <RecallID>1773</RecallID>
  <RecallNumber>14284</RecallNumber>
  <RecallDate>2014-09-30</RecallDate>
  <Description>
    A small metal eyelet in the upper can detach from the inside of First Impressions high-top sneakers.
  </Description>
  <URL>
    http://www.cpsc.gov/en/Recalls/2014/Trimfoot-Recalls-Childrens-Soft-Soled-Sneakers/
  </URL>
  <Title>
    Trimfoot Recalls Children's Soft-Soled Sneakers Due to Choking Hazard; Sold exclusively at Macy's
  </Title>
  <ConsumerContact>
    Trimfoot at (800) 325-6116 from 8 a.m. to 4:30 p.m. Monday through Friday, or online at www.trimfootco.com, then click
on Recall on left side of the page for more information.
  </ConsumerContact>
  <LastPublishDate>2015-01-09</LastPublishDate>
  <Products>
    <Product>
      <Name>Children's soft-soled shoes</Name>
      <Description>
        The recall involves First Impressions high-top, soft-soled sneakers for infants that are crawling or standing. The
recalled shoes have blue denim soles and uppers, brown canvas tongues, tan shoe laces and white polyurethane toes. Each
upper has eight 3/16 inch eyelets for the laces. The shoes came in sizes 0, 1, 2 and 3. Style number 42090 is on a cloth
tag inside of shoe.
      </Description>
      <Type>Clothing (Children)</Type>
      <CategoryID>1887</CategoryID>
      <NumberOfUnits>5,300</NumberOfUnits>
    </Product>
  </Products>
  <Inconjunctions/>
  <Images>
    <Image>
      <URL>
        http://www.cpsc.gov/Global/Images/Recall/2014/14284/1-14284-TrimfootSneakersLARGE.jpg
      </URL>
    </Image>
    <Image>
      <URL>
        http://www.cpsc.gov/Global/Images/Recall/2014/14284/2-14284-TrimfootSneakersDetachedLARGE.jpg
      </URL>
    </Image>
```

```
      </Images>
      <Injuries>
        <Injury>
          <Name>None reported.</Name>
        </Injury>
      </Injuries>
      <Manufacturers>
        <RecallFirm>
          <Name>Trimfoot</Name>
          <CompanyID>1</CompanyID>
        </RecallFirm>
      </Manufacturers>
      <Retailers>
        <RecallFirm>
          <Name>
            Macy's stores nationwide from February 2014 to August, 2014 for about $17.
          </Name>
          <CompanyID>2</CompanyID>
        </RecallFirm>
      </Retailers>
      <ManufacturerCountries>
        <ManufacturerCountry>
          <Country>China</Country>
        </ManufacturerCountry>
      </ManufacturerCountries>
      <ProductUPCs/>
      <Hazards>
        <Hazard>
          <Name>
            A small metal eyelet can detach from the inside of the sneaker, posing a choking hazard to infants.
          </Name>
          <HazardTypeID>40</HazardTypeID>
        </Hazard>
      </Hazards>
      <Remedies>
        <Remedy>
          <Name>
            Consumers should immediately take the recalled shoes away from children and return the shoes to Macy's or contact
Trimfoot for a full refund.
          </Name>
        </Remedy>
      </Remedies>
</Recall>
```

The same recall record in JSON format results in:

```
[{"RecallID":1773,"RecallNumber":"14284","RecallDate":"2014-09-30T00:00:00","Description":"A small metal eyelet in the
upper can detach from the inside of First Impressions high-top
sneakers.","URL":"http://www.cpsc.gov/en/Recalls/2014/Trimfoot-Recalls-Childrens-Soft-Soled-
Sneakers/","Title":"Trimfoot Recalls Children's Soft-Soled Sneakers Due to Choking Hazard; Sold exclusively at
Macy's","ConsumerContact":"Trimfoot at (800) 325-6116 from 8 a.m. to 4:30 p.m. Monday through Friday, or online at
www.trimfootco.com, then click on Recall on left side of the page for more information.","LastPublishDate":"2015-01-
09T00:00:00","Products":[{"Name":"Children's soft-soled shoes","Description":"The recall involves First Impressions
high-top, soft-soled sneakers for infants that are crawling or standing. The recalled shoes have blue denim soles and
uppers, brown canvas tongues, tan shoe laces and white polyurethane toes. Each upper has eight 3/16 inch eyelets for
the laces. The shoes came in sizes 0, 1, 2 and 3. Style number 42090 is on a cloth tag inside of
shoe.","Model":null,"Type":"Clothing
(Children)","CategoryID":"1887","NumberOfUnits":"5,300"}],"Inconjunctions":[],"Images":[{"URL":"http://www.cpsc.gov/Gl
obal/Images/Recall/2014/14284/1-14284-
TrimfootSneakersLARGE.jpg"},{"URL":"http://www.cpsc.gov/Global/Images/Recall/2014/14284/2-14284-
TrimfootSneakersDetachedLARGE.jpg"}],"Injuries":[{"Name":"None
reported."}],"Manufacturers":[{"Name":"Trimfoot","CompanyID":"1"}],"Retailers":[{"Name":"Macy's stores nationwide from
February 2014 to August, 2014 for about $17.","CompanyID":"2"}],"Importers":[],"Distributors":[],"SoldAtLabel":"Sold
exclusively at","ManufacturerCountries":[{"Country":"China"}],"ProductUPCs":[],"Hazards":[{"Name":"A small metal
eyelet can detach from the inside of the sneaker, posing a choking hazard to
infants.","HazardType":null,"HazardTypeID":"40"}],"Remedies":[{"Name":"Consumers should immediately take the recalled
shoes away from children and return the shoes to Macy's or contact Trimfoot for a full
refund."}],"RemedyOptions":[{"Option":"Refund"}]}]
```

JavaScript Example Code to Access the Recall Retrieval Web Services

The code below demonstrates accessing the Recall Retrieval Web Services using JavaScript:

```javascript
// search recalls
function SearchRecalls() {

    // CPSCDomain
    var CPSCDomain = "http://www.saferproducts.gov/RestWebServices";

    // recalls URL
    var URL = CPSCDomain + "/Recall" + "?format=json";

    // add filters
    for (var i = 0; i < fieldNames.length; i++) {
        fieldValue = GetFieldValue(fieldNames[i]);
        if (fieldValue != null && fieldValue.trim() != "")
            URL += "&" + fieldNames[i] + "=" + fieldValue.trim();
    }

    // get recalls
    $.ajax({
        url: URL,
        type: 'GET',
        datatype: 'json',
        headers: { 'Access-Control-Allow-Origin': '*' },
        error:
        function (jqXHR, textStatus, errorThrown) {
            var whatError = errorThrown;
            alert(whatError);
        },
        success: function (data) {
            if (data != null) {
                displayRecallsTable(data);
            }
        }
    });

}
```

C# Example Code to Access the Recall Retrieval Web Services

The code below demonstrates the Recall Retrieval Web Services using C#. It makes use of the following `Recall` class, which, in turn, makes use of the various classes immediately following (said class set can be used to access the recall retrieval service):

```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<Manufacturer> Manufacturers { 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<Retailer> Retailers { 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; }
    public string NumberOfUnits { get; set; }
}

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

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

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

public class Manufacturer {
    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 HazardTypeID { get; set; }
}

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

public class Retailer {
    public string Name { get; set; }
    public string CompanyID { 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 all FY11 recalls, 11-030 and higher, as well as any FY01 recall 01-103 and higher), Product Name and Firm Name (either manufacturer or retailer):

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

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

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

    StringBuilder uriBuilder = new StringBuilder(SERVICE_ROOT);
```

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

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

    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);
    }

    // other elements are possible, e. g.
    // 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 delimited variation of the Recall Retrieval Web Service is available at this root URI:

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

Each of the above collections is transformed into one or more pipe-delimited strings, depending on the number of fields in each collection member. For example, suppose a recall has for Manufacturers the collection:
[{"Name":"ACME Industries","CompanyID":1299},{"Name":"Widgets Inc.","CompanyID":457}]

When, retrieved via the RecallDelimited service, the Manufacturers collection is replaced by the following two strings:
    Manufacturer = "ACME Industries|Widgets Inc."
    Manufacturer_CompanyID = "1299|457"

The available parameters do not change from 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
InconjunctionCountries	InconjunctionCountries
ImageURLs	ImageURLs
Injuries	Injuries
Manufacturers	Manufacturers
	ManufacturerCompanyIDs
ManufacturerCountries	ManufacturerCountries
UPCs	UPCs
Hazards	Hazards
	HazardTypeIDs
Remedies	Remedies
Retailers	Retailers
	RetailerCompanyIDs

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

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