SERVICE MANUAL
MILJÖDATA MVM

Introduction

Miljödata MVM supplies open API:s and other services that make it possible for applications to access data and functionality in the system. The services are offered mainly as REST and SOAP services and data can be downloaded in JSON or XML formats.

For more information, click on the link below or navigate to the page "Öppet API" in the web application.

https://miljodata.slu.se/mvm/OpenAPI

General view

The system offers the following web services

- ObservationsService.svc : site information, observations and measurement values
- DomainDefinitionsService.svc : system values such as units and parameters
- SecureTokenService.svc : handles authentications and provision of security tokens

The web services supports SOAP 1.1, REST JSON and POST JSON calls.

Instructions

Permissions and security

All web methods require a security token. There are two types of security tokens available as defined in the below table.

Because many of the web methods accept a so-called "public ticket", most clients should not need to call SecureTokenService.

Type of token	Description	How do I get this token?
Public ticket	A static access token that can be assigned to several users and is rarely changed.	Create an account in Artdatabanken's UserAdmin (* link below). Sign in to Miljödata MVM. Navigate to the site "Mina sidor" and sign up as web service user. You will then get this security token. No approval is required.
Dynamic, private token	A private token that's assigned to logged in users.	Create an account in Artdatabanken's UserAdmin (* link below). Order the role Service consumer. The role needs to be approved. Log in to Miljödata MVM. Call the web service SecurityTokenService with your authentication details.

* The Artdatabanken's UserAdmin:
https://useradmin.artdatabanken.se

ObservationsService supports both HTTPS (SSL) and HTTP.

Error-handling

In the case of error the web methods throw a FaultExeption with a message that describes the error.

The method SecureTokenService.Login() always returns a string, even in the case of invalid information and permissions. In the cases where the user account has incorrect account information or permissions, the text "401 Unauthorized" will be returned.

Web service specification

All web services include two standard web methods that don't require a token or https. These are **AreYouThere** and **GetServiceVersion**.

ObservationsService

Service WSDL
https://miljodata.slu.se/mvm/ws/ObservationsService.svc?wsdl

XSD schemas
https://miljodata.slu.se/mvm/ws/ObservationsService.svc?xsd=xsd0

See WSDL for more XSD resources.

```
/// <summary>
/// Returns the observed sample matching the criteria defined by the sample id.
/// Returns associated comment and metadata information if applicable.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="id">An integer sample id.</param>
/// <returns>
/// Extended sample information.
/// </returns>
public ObservationCollection GetFullSample(string token, int id)...
```

```
/// <summary>
/// Returns all samples for a given site limited to the specified years.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="siteid">A site id.</param>
/// <param name="fromYear">The oldest year to get samples for.</param>
/// <param name="toYear">The most recent year to get samples for.</param>
/// <returns>A list of samples.</returns>
public IList<ObservationCollection> GetSamplesBySite(string token, int siteid, int fromYear, int toYear)...
```

```
/// <summary>
/// Returns a sampling site.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="siteid">An integer site Id.</param>
/// <returns>A sampling site.</returns>
public SiteFeature GetSite(string token, int siteid)...
```

```
/// <summary>
/// Returns a list of sampling sites with the specified EU Id.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="euid">An EU Id string.</param>
/// <returns>A list of sampling sites.</returns>
public IList<SiteFeature> GetSitesByEuId(string token, string euid)...
```

```
/// <summary>
/// Returns a list of sampling sites by name.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="name">A site name string.</param>
/// <returns>A list of sampling sites.</returns>
public IList<SiteFeature> GetSitesByName(string token, string name)...
```

DomainDefinitionsService

Service WSDL
https://miljodata.slu.se/mvm/ws/DomainDefinitionsService.svc?wsdl

XSD scheman
https://miljodata.slu.se/mvm/ws/DomainDefinitionsService.svc?xsd=xsd0

See WSDL for more XSD resources.

Methods

```
/// <summary>
/// Returns information about the parameter with the specified parameter code.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="parameterCode">A parameter code.</param>
/// <returns>
/// A parameter or null if no matching parameter was found.
/// </returns>
public WebParameter GetParameter(string token, string parameterCode)...
```

```
/// <summary>
/// Returns a list of all matching parameters.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="parameterCategory">A category to filter with: kemi, fysik, DynTaxa, ALL.</param>
/// <param name="onlyMenuParameters">A parameter code.</param>
/// <returns>
/// A list of parameters or null if no matching parameters were found.
/// </returns>
public IList<Property> GetParameterList(string token, string parameterCategory, bool onlyMenuParameters)...
```

```
/// <summary>
/// Returns all unit of measures.
/// </summary>
/// <param name="token">A security token.</param>
/// <returns>
/// A list of all unit of measures.
/// </returns>
public IList<UnitOfMeasureType> GetUnits(string token)...
```

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```
/// <summary>
/// Returns a unit of measure.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="unitId">A unique, integer unit of measure Id.</param>
/// <returns>
/// A unit of measure or null if no matching unit.
/// </returns>
public UnitOfMeasureType GetUnit(string token, int unitId)...
```

```
/// <summary>
/// Returns a unit of measure.
/// </summary>
/// <param name="token">A security token.</param>
/// <param name="name">A unit name.</param>
/// <returns>
/// A unit of measure or null if no matching unit.
/// </returns>
public UnitOfMeasureType GetUnitByName(string token, string name)...
```

SecureTokenService

```
/// <summary>
/// Method will return a token if the login is successful.
/// </summary>
/// <param name="userName">The name of the user</param>
/// <param name="password">The password</param>
/// <returns>A token if the login is successful.</returns>
public string Login(string userName, string password)
```

```
/// <summary>
/// Checks if a given token is valid or not.
/// </summary>
/// <param name="token">The token to be validated.</param>
/// <returns>Returns a value indicating whether the token is valid or not.</returns>
public bool IsValidToken(string token)
```

```
/// <summary>
/// Invalidates a token.
/// </summary>
/// <param name="token">The token to logout</param>
public void LogOut(string token)
```

Examples

Change the text [token] in the below examples with a public ticket or a dynamic security token.

REST calls

DomainDefinitionsService GetServiceVersion

https://miljodata.slu.se/mvm/ws/DomainDefinitionsService.svc/rest/GetServiceVersion

DomainDefinitionsService GetParameter

https://miljodata.slu.se/mvm/ws/DomainDefinitionsService.svc/rest/GetParameter?token=[token]&parameterCode=Ca

DomainDefinitionsService GetParameterList

https://miljodata.slu.se/mvm/ws/DomainDefinitionsService.svc/rest/GetParameterList?token=[token]&parameterCategory=Kemi

DomainDefinitionsService GetUnitByName

https://miljodata.slu.se/mvm/ws/DomainDefinitionsService.svc/rest/GetUnitByName?token=[tkoen]&name=m

DomainDefinitionsService GetUnits

https://miljodata.slu.se/mvm/ws/DomainDefinitionsService.svc/rest/GetUnits?token=[token]

ObservationsService GetServiceVersion

https://miljodata.slu.se/mvm/ws/ObservationsService.svc/rest/GetServiceVersion

ObservationsService GetSitesByName

https://miljodata.slu.se/mvm/ws/ObservationsService.svc/rest/GetSitesByName?token=[token]&name=Havgårdssjön

ObservationsService GetSitesByEUId

https://miljodata.slu.se/mvm/ws/ObservationsService.svc/rest/GetSitesByEUId?token=[token]&euid=SE6 15365-134524

ObservationsService GetSite

https://miljodata.slu.se/mvm/ws/ObservationsService.svc/rest/GetSite?token=[token] &siteid=145

ObservationsService GetSamplesBySite

https://miljodata.slu.se/mvm/ws/ObservationsService.svc/rest/GetSamplesBySite?token=[token]&siteid=145&fromYear=2011&toYear=2014

ObservationsService GetFullSample
https://miljodata.slu.se/mvm/ws/ObservationsService.svc/rest/GetFullSample?token=[token]&id=28006

SOAP client code

Below we provide some sample code in c#.net that calls the web method
DomainDefinitionsService.GetServiceVersion over SOAP. MDMvmDomainDefinitionsService_QA in this
example is a service reference to the web service DomainDefinitionsService in the MVM test
environment.

```csharp
        /// <summary>
        /// Retrieves the web service version.
        /// Calls the GetServiceVersion method of the DomainDefinitionsService.
        /// </summary>
        /// <returns>A string representation of the service version.</returns>
public string GetServiceVersion()
        {
            MDMvmDomainDefinitionsService_QA.DomainDefinitionsServiceClient serviceRef =
new MDMvmDomainDefinitionsService_QA.DomainDefinitionsServiceClient();

try
{
                string result = serviceRef.GetServiceVersion();
serviceRef.Close();                    return result;
            }
            catch (Exception ee)
            {
                serviceRef.Abort();
throw;
            }
}
```

Service reference example to SecureTokenService (Note "soap11" in the end of the web service
address).

```xml
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <system.serviceModel>
   <bindings>
    <basicHttpBinding>
     <binding name="BasicHttpBinding_ISecureTokenService">
      <security mode="Transport" />
     </binding>
    </basicHttpBinding>
   </bindings>
   <client>
    <endpoint address="https://miljodata.slu.se/mvm/ws/SecureTokenService.svc/soap11"
binding="basicHttpBinding" bindingConfiguration="BasicHttpBinding_ISecureTokenService"
```

```
contract="MDMvmSecureTokenService_QA.ISecureTokenService"
name="BasicHttpBinding_ISecureTokenService" />
    </client>
  </system.serviceModel>
</configuration>
```

FAQ

Which technical protocols and standards are supported?

The web services support SOAP 1.1, REST JSON, and POST JSON calls.

What can the web services be used for?

You can search for observations and measurements that are of interest, retrieve site information, and look up reference data such as parameters and units for measure.

Is authentication required to use the web services?

A security token is needed, and there are two types of tokens. One requires authentication through the web service *SecureTokenService*, while the other can be activated by logging in to the Miljödata MVM web application. For further information see section *Permissions and Security* of this manual.

How do I create an account in The Swedish Species Information Center (Artdatabanken) UserAdmin? Will I get an account right away, or will I have to be approved by someone first?

Using a web browser, navigate to the below URL and follow the instructions to create a personal user account. Approval is not needed to create the account itself, but in order to acquire additional roles/permissions they need to be approved and assigned by an administrator.

https://useradmin.artdatabanken.se

Which coordinate system is used for geographical data?

SWEREF 99 TM

Is there a description of the data contents in the system?

Yes. A summary of the data contents is presented on the Innehåll/Data contents page: https://miljodata.slu.se/mvm/DataContents

A list of studies (projects) and survey programs can be found on the page Innehåll/Data contents - Undersökningar/Studies: https://miljodata.slu.se/mvm/DataContents/Studies

What is a site? What is a SiteFeature?

A site or SiteFeature can be described as a monitoring station or other area of interest to monitor or study.

Is there a list of the sites/stations in the system?

Yes. You can find the list on of sites on the page Innehåll/Data contents - Stationer/Sampling sites: https://miljodata.slu.se/mvm/DataContents/SamplingSites

What is an ObservationCollection. What is a Sample?

An ObservationCollection is a set of related observations and measurement values. It's the result of a sampling event.

Is there a list of the samples in the system?

No. You can, however, use the search tool in order to find samples of interest.

What is a parameter? What is a property?

A parameter/property is an attribute that has been observed or analysed. Temperature and pH are examples.

Is there a list of the parameters in the system?

Yes, on the page Innehåll/Data contents - Parametrar/Properties: https://miljodata.slu.se/mvm/DataContents/Properties

What is a UnitOfMeasureType?

A UnitOfMeasureType is a unit of measurement, such as meter or mg/l.

Is there a list of the units in the system?

Yes, on the page Innehåll/Data contents - Enheter/Units: https://miljodata.slu.se/mvm/DataContents/Units

Is documentation of the information in the system available?

No. Above we explain the most important object types. For additional information from the data host of lakes and watercourses visit https://www.slu.se/sv/institutioner/vatten-miljo/datavardskap/

For additional help regarding the response objects, or the information model, please contact a system administrator.

What is an index calculation?

An index calculation is a calculated value derived from the measured values of a sample and is used to further describe the sample.

For a complete list of descriptions, please visit https://miljodata.slu.se/mvm/DataContents/CalculatedIndexes