Bentley Web Services Gateway

Commercial Release (v01.02.01.xx)

Setup Guide

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Bentley Web Services Gateway Configuration

Installing and Deploying Bentley Web Services Gateway

Bentley Web Services Gateway is the server that enables mobile application users to connect with Bentley enterprise services.

A standalone Bentley Web Services Gateway installation package can be downloaded from Bentley's SELECT downloads website.

No license is required for Bentley Web Services Gateway; however, a corresponding license may be required for each user connecting to enterprise services, such as Bentley ProjectWise or eB Insight services.

Preparing to Install and Deploy Bentley Web Services Gateway

- Supported operating systems:
    a. 64-bit Windows Server 2008 R2 SP1, IIS 7.5 with ASP.NET configured
    b. 64-bit Windows Server 2012, IIS 8 with ASP.NET configured
- Make sure there is .NET framework 4.0 installed. Microsoft .NET Framework 4 (Web Installer) can be downloaded from http://www.microsoft.com/en-us/download/details.aspx?id=17851
- Make sure you are an administrator of the computer.
- In Server Manager, make sure the Web Server (IIS) role is installed along with the following role services:
    a. Application Development
        - ASP.NET
        - .NET Extensibility
        - ISAPI Extensions
        - ISAPI Filters
    b. Performance
        - Dynamic Content Compression
- In Server Manager, make sure the .NET Framework feature is installed. To install it, right-click Features and select Add Features, then turn on the .NET Framework 4.0 Features option in the Add Features Wizard. (Bentley Web Services Gateway also requires .NET Framework.)
- Enable SSL for your website using the following steps:
    a. Open IIS Manager and go to Connections > computer_name > Sites.
    b. Right-click the website you plan to deploy Bentley Web Services Gateway to and select Edit Bindings.
    c. In the Site Bindings dialog, click Add.
    d. In the Add Site Bindings dialog, change Type to https, select an SSL certificate from the list, and click OK.
    e. Click Close to close the Add Site Binding dialog.

f. Add the SSL port 443 to the Windows Firewall exception list on this computer. Contact your IT department if you need help obtaining an official SSL certificate. To create a self-signed certificate, see the following Microsoft topic: http://technet.microsoft.com/en-us/library/cc753127(v=ws.10).aspx

- Make sure prerequisites required by the providers are installed:
  a. If you are planning to use ProjectWise Provider:
     Bentley ProjectWise Explorer SS3 (08.11.09.122) or SS4 (08.11.11.111) or SS4 RU (08.11.11.559).
  b. If you are planning to use eB Insight Provider:
     Bentley eB Insight Director or Management Console 15.4.1.325 or 15.05.01.236. Please see Bentley eB Insight provider chapter for the configuration details.

Bentley Web Services Gateway side by side installation

Bentley Web Services Gateway 01.00.01.xx, 01.01.00.xx and 01.02.01.xx versions can be installed and run on the same server. Installation is possible only if all plugin versions have exactly the same dependencies (for example the same Bentley ProjectWise or eB Insight version).

Redirecting requests from specific clients

If the same URL must be used for accessing both the new 01.02.01.xx version and any earlier versions of Bentley Web Services Gateway, you can configure redirection rules using the standard URL Rewrite module for IIS (can be downloaded from http://www.iis.net/downloads/microsoft/url-rewrite). Redirection code examples can be found in the web.config file, located in the root of the deployed application (for example C:\inetpub\wwwroot\ws).

To Install Bentley Web Services Gateway

1. Download the Bentley Web Services Gateway installation package. Web Services Gateway and providers are delivered as separate installers and are installed by launching each installer. For installing all required features at once, launch Setup program.
2. When the product selection page opens, select the required providers and click Install.
3. When the Bentley Web Services Gateway Setup Wizard opens, click Next.
4. When the License Agreement page opens, accept the agreement and click Next.
5. When the Destination Folder page opens, accept the default installation location or click Change to change it, then click Next. The default installation location is “C:\Program Files\Bentley\Bentley Web Services Gateway 01.02”.
6. On the final page of the wizard click Install. When the Web Services Gateway installation is completed, the wizard closes and Setup program continues installing the selected providers.
7. When all providers installations are completed click Finish.
8. To deploy installed products, launch the Deployment Wizard from the Start menu or C:\Program Files\Bentley\ Bentley Web Services Gateway 01.02 folder.
9. The Deployment Wizard opens to help you deploy Bentley Web Services Gateway to an IIS website. See the next procedure for details about deploying.

10. The Product Activation Wizard can be launched from C:\Program Files\Bentley\Bentley Web Services Gateway 01.02\Server\bin folder. Please use “Run as administrator” option when launching the Activation Wizard.
11. In the Product Activation Wizard enter Select information and finish the wizard.

To Deploy Bentley Web Services Gateway

1. Launch the Deployment Wizard from the Start menu or C:\Program Files\Bentley\Bentley Web Services Gateway 01.02 folder.
2. In the Deployment Wizard, select the “Deploy Bentley Web Services Gateway” option and click Next.
3. Select the website where Bentley Web Services Gateway should be deployed and click Next.
4. In next page you can choose the web application name for Bentley Web Services Gateway. This name appears in all URLs when you use Bentley Web Services Gateway. Choose the name and click Next.
5. Select providers for Bentley Web Services Gateway and click Next. Only the selected providers are configured in the deployed site.
6. Depending on the selected providers, a configuration page might open. Enter the required information for each provider and click Next. Detailed information about the parameters can be found in the Bentley Web Services Gateway configuration chapter.
7. Select Working Directory for Bentley Web Services Gateway and click Deploy. This directory is used for storing temporary and log files.
8. When the deployment completes, click Finish to close the wizard.

To Test Your Deployment

1. Enter your website’s address into a web browser. For example:
   https://localhost/ws
   Where ws is the name of the web application name entered in step 4 of the previous deployment procedure.
2. A default Bentley Web Services Gateway page displays. You can rerun the Deployment Wizard if you need to deploy another instance, re-deploy Web Services Gateway, or to un-deploy Bentley Web Services Gateway from a particular website. Rerun the Deployment Wizard as needed from the Start menu or C:\Program Files\Bentley\Bentley Web Services Gateway 01.02 folder.
3. Bentley Web Services Gateway writes to a log file into the working directory that is selected during deployment.

Configuring Bentley Web Services Gateway

Bentley Web Services Gateway is designed using provider architecture, where access to enterprise servers is implemented in a standalone provider that can be delivered and configured separately. Default installation delivers the Bentley InspectTech, Bentley ProjectWise, eB Insight and SharePoint providers. Provider configuration is separate for each deployment and can be edited using the Deployment Wizard.

Bentley ProjectWise provider

The ProjectWise provider is used to access ProjectWise data sources. To configure the data sources for the Bentley ProjectWise provider, use the ProjectWise V8i Network applet in Control Panel. It is recommended you use the "Prevent UDP" option in the ProjectWise V8i Network applet to increase server discovery performance.

Bentley eB Insight provider

The eB Insight provider is used to access eB Insight data sources. The Deployment Wizard allows you to edit the following parameters:

- eB Insight version, installed in the server machine. The Deployment Wizard automatically detects the versions of installed eB Insight products. If a different version must be used, the parameter value can be edited manually.
- Backend servers – list of eB Insight server names to connect to.
- Document creation defaults – list of parameters for each eB Insight data source:
    a. Name of the template to be used when creating new documents.
    b. Relationships to be used for linking new created documents.
- EC Schema generation defaults – Snapshot template for each eB Insight data source.

Bentley SharePoint provider

The SharePoint provider is used to access the contents of Microsoft SharePoint sites. Each site is represented as a separate data source. You can use the Deployment Wizard to specify SharePoint servers' or sites' URLs.

Bentley SharePoint provider 01.02.01.xx supports Microsoft SharePoint 2010 and Microsoft SharePoint 2013.

Additional SharePoint configuration is required in some cases:

- In order to create new version for documents, versioning for the library must be enabled under Library Settings → Versioning Settings → "Create major versions" or "Create major and minor (draft) versions".
- In order to list sub-sites from Bentley Web Services Gateway, "Browse Directories" permission must be enabled under Site Settings → Site Permissions → Permission Levels → choose the level.
- In order to query by property "Title", the "Title" column must be selected for the default view of a library under Library Settings → Views → choose the default view.
- If SharePoint site is configured to not have redirection from http://site.domain.com:port to http://site:port (or vice versa, if site is http://site.domain.com:port), SharePoint sub-site browsing might not work without additional mapping configuration:
    1. Go to SharePoint Central Administration (you can also find it through IIS Manager, check Sites, click on SharePoint Central Administration, Browse Web Site).
    2. Find "Configure alternate access mappings" under "System Settings" - here you can see URLs that are currently active.
    3. Click "Add Internal URLs".

4. Check if Alternate Access Mapping Collection is correctly set to the site you want to configure (e.g. site:port is specified the same way it is called in IIS).
5. Enter URL you want to map to your site (e.g. http://site.domain.com:port) and save the configuration.

Bentley InspectTech server provider

The InspectTech provider is used to access InspectTech data sources. The Deployment Wizard allows you to edit the following parameters:

- Connection string to the main database of the data source.
- Connection string provider - type of database connection.

To Test Your Data source Connection Configuration

Enter your website's address into a web browser. For example:

https://localhost/ws/v1.3/DataSources

A Save As dialog opens for you to save the data source list information to a text file. When you open this file, it will list the data sources to which your users can connect.

To Deploy Bentley Web Services Gateway from the command line

Bentley Web Services Gateway delivers a command line tool for automatic web application deployment, re-deployment and un-deployment with settings, provided in the configuration file. Bentley.Mas.DeploymentTool.exe can be found in Bentley Web Services Gateway installation folder, typically C:\Program Files\Bentley\Bentley Web Services Gateway 01.02.

Possible command line parameters:

- To deploy the application into the site(s):
  Bentley.Mas.DeploymentTool.exe –d configuration.file
- To re-deploy the application into the site(s):
  Bentley.Mas.DeploymentTool.exe –r configuration.file
- To un-deploy the specified deployments:
  Bentley.Mas.DeploymentTool.exe –u configuration.file
- To un-deploy all deployments:
  Bentley.Mas.DeploymentTool.exe –u –all

Configuration file format

The configuration file must be XML format and can describe multiple applications in the multiple sites.

General file syntax is:

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <configSections>
    <section name="deployment.params"
type="Bentley.Mas.DeploymentTool.DeploymentParamsSection, Bentley.Mas.DeploymentTool" />
  </configSections>
```

```
  <deployment.params>
    <deployments>
      <deployment>
       …
      </deployment>
      <deployment>
       …
      </deployment>
    </deployments>
  </deployment.params>
</configuration>
```

Each `<deployment>` section describes one Bentley Web Services Broker deployment, for example following section describes deployment in application named ws in Default Web Site, using D:\tempWorkDirs\ws as a working folder:

```
<deployment>
  <applicationName>ws</applicationName>
  <siteName>Default Web Site</siteName>
  <workingDir>D:\tempWorkDirs\ws</workingDir>
  <providers.section>
   …
  </providers.section>
</deployment>
```

Each `<providers.section>` section describes all Bentley Web Services Broker providers to be deployed. This section appears in the web.config file in the deployed application folder. As parameter amount and names are different for each provider, it is recommended to perform the first deployment using the Deployment Wizard, test if all providers work properly and then copy all `<providers.section>` from web.config to your configuration file. The location parameters for the startup repositories for EC Providers are written to an ecom.config file in the deployed application folder and do not appear in web.config after completing the wizard. This section must be added manually to your configuration file. See the Bentley.ECOM.SharePointProvider settings in the example below.

`<providers.section>` example, where RealConnectionString, eBInsightServer1, eBInsightServer2, ds1, ds2, ds3, DocumentTemplateName1, DocumentTemplateName2, DocumentTemplateName3 should be replaced with the real values:

```
<providers.section>
    <providers>
      <provider assembly="Bentley.Mas.Provider.EC">
        <supplementalSchemas>
          <supplementalSchema name="Bentley_SP_Supplemental_WSGConfig.01.00">
            <applyTo>
              <item datasourceId="*" userName="*" schemaName="Bentley_SP.01.00" />
            </applyTo>
          </supplementalSchema>
        </supplementalSchemas>
      </provider>
      <provider assembly="Bentley.Mas.InspectTechProvider">
```

```
    <Settings xmlns="InspectTech_settings_schema.01.00">
      <CurrentMode>ONLINE</CurrentMode>
      <ConnStringProvider>System.Data.SqlClient</ConnStringProvider>
      <ConnString>RealConnectionString</ConnString>
    </Settings>
  </provider>
  <provider assembly="Bentley.Mas.Provider.eB">
    <Settings xmlns="eB_settings_schema.01.00">
      <eBVersion>15.5.1.236</eBVersion>
      <BackendServers>
        <string>eBInsightServer1</string>
        <string>eBInsightServer2</string>
      </BackendServers>
      <DocumentCreationDefaultsList>
        <DocumentCreationDefaults>
          <Relationships>
            <string>IR-DOC_VITEMGROUP</string>
            <string>IR-DOCUMENT_PROJECTS_SHARED</string>
            <string>IR-VITEM_DOCUMENTS</string>
          </Relationships>
          <Server>eBInsightServer1</Server>
          <DataSource>ds1</DataSource>
          <TemplateName>DocumentTemplateName</TemplateName>
        </DocumentCreationDefaults>
        <DocumentCreationDefaults>
          <Relationships>
            <string>IR-DOC_VITEMGROUP</string>
            <string>IR-DOCUMENT_PROJECTS_SHARED</string>
            <string>IR-VITEM_DOCUMENTS</string>
          </Relationships>
          <Server>eBInsightServer2</Server>
          <DataSource>ds2</DataSource>
          <TemplateName>DocumentTemplateName2</TemplateName>
        </DocumentCreationDefaults>
        <DocumentCreationDefaults>
          <Relationships>
            <string>IR-DOC_VITEMGROUP</string>
            <string>IR-DOCUMENT_PROJECTS_SHARED</string>
            <string>IR-VITEM_DOCUMENTS</string>
          </Relationships>
          <Server>eBInsightServer2</Server>
          <DataSource>ds3</DataSource>
          <TemplateName>DocumentTemplateName3</TemplateName>
        </DocumentCreationDefaults>
      </DocumentCreationDefaultsList>
      <DynamicSchemaDefaultsList>
        <DynamicSchemaDefaults>
          <Server>eBInsightServer1</Server>
          <DataSource>ds1</DataSource>
          <TemplateName>SnapsotTemplateName1</TemplateName>
        </DynamicSchemaDefaults>
        <DynamicSchemaDefaults>
          <Server>eBInsightServer2</Server>
          <DataSource>ds3</DataSource>
          <TemplateName>SnapsotTemplateName2</TemplateName>
        </DynamicSchemaDefaults>
      </DynamicSchemaDefaultsList>
    </Settings>
```

```
    </provider>
    <provider assembly="Bentley.Mas.Provider.PW">
      <Settings xmlns="PW_settings_schema.01.00" />
    </provider>
    <provider assembly="Bentley.ECOM.SharePointProvider">
      <Settings>
        <locations>
            <string>MyLocation1</string>
            <string>MyLocation2</string>
        </locations>
      </Settings>
    </provider

  </providers>
</providers.section>
```