



## KB001240 – K2 Services Recommended Configuration Update

The configuration options for K2 Services reside in IIS configuration for the virtual directory and three main sections of the K2 Services virtual directory web.config – `<services>`, `<bindings>` and `<basicAuthentication>`. Details on the web.config location and the options available for each section can be found in the product documentation under the breadcrumb: Developer Reference > Services Reference > K2 Services > Configuration (<http://help.k2.com/helppages/k2blackpearlDevRef4.6.5/webframe.html#Configuration.html>).

This article will provide more information on the relationship between the sections and their settings.

### Authentication Modes

K2 Services supports two primary authentication modes – Windows (NTLM or Negotiate) and Basic. The authentication mode being used will be based on a combination of the service end points `<services>` and the authentication binding for that endpoint `<bindings>` and IIS Authentication options. Additionally, when the binding is configured to allow Basic authentication, and a Basic request is sent from the client, the basic configuration will also be applied `<basicAuthentication>`. To ensure support for the K2 security label, K2 has implemented the Basic authentication rather than relying on the IIS implementation.

### Services and Bindings

The `<services><service>` section contains the default configuration for the endpoints provided by K2 Services. The default configuration provides Task, Identity and Core services at the SyncREST.svc and SyncWCF.svc endpoints along with Worklist, Process, Identity and Core services at the REST.svc and WCF.svc endpoints.

Each endpoint defines an associated `<binding>` via the `bindingConfiguration` attribute. This allows each endpoint to support a different security binding allowing for the mixing of authentication and SSL requirements for the same virtual directory. The REST endpoints are associated with `<webHttpBinding>` bindings while WCF/SOAP endpoints are associated with `<basicHttpBinding>` bindings. For example, the default `bindingConfiguration` for the Task service at SyncREST.svc endpoint is `SourceCode.Services.SyncRestBinding+HTTPS` found in the `<bindings><webHttpBinding><binding name="SourceCode.Services.SyncRestBinding+HTTPS">` section.

```
<endpoint address="Task" behaviorConfiguration="SourceCode.Services.RestBehavior"
binding="webHttpBinding" bindingConfiguration="SourceCode.Services.SyncRestBinding+HTTPS"
contract="SourceCode.Services.ServiceContracts.ITaskService" />
```

The `<bindings>` section contains the configuration details for each binding. The two main configuration elements related to K2 Services bindings are `<security>` and `<transport>`.



The `<security mode="">` element/attribute defines whether or not SSL is supported. Although **None** \*should\* allow IIS to manage the binding requirements this is not the case with WCF. Unfortunately, WCF will not allow both SSL (HTTPS) and non-SSL (HTTP) support on the same endpoint. Therefore, K2 Services must have multiple endpoints and mappings to multiple bindings to support both SSL (HTTPS) and non-SSL (HTTPS) for the same service. Example configurations for these have been provided in comments in the web.config and the product documentation.

K2 recommends setting `<security mode="TransportCredentialOnly">` for standard non-SSL (HTTP) support and `<security mode="Transport">` to enable SSL (HTTPS) support. Remember that when bindings are enabled, an associated service endpoint must also be enabled.

The `<transport clientCredentialType=""/>` element/attribute defines what credential types will be supported by client requests headers. `<transport clientCredentialType="None"/>` allows for the greatest flexibility by allowing the client application to provide the appropriate supported header – Basic, Windows (NTLM or Negotiate) or Ntlm. Changing this value to Windows or Ntlm will force the endpoint to require a Windows-based request thus disabling Basic authentication.

K2 recommends setting `<transport clientCredentialType="None"/>` to enable support for Basic and Windows (NTLM or Negotiate) depending on the client request header. Remember that when bindings are enabled, an associated service endpoint must also be enabled.

### IIS Authentication

K2 Services authentication support depends on the appropriate settings in IIS Authentication. The default configuration for K2 Services on a new site will enable Anonymous Authentication and Windows Authentication with the Windows Providers set to NTLM and Negotiate. When an upgrade is performed, K2 Configuration Analysis will recommend enabling Anonymous Authentication and Windows Authentication with the Windows Providers set to NTLM and Negotiate but will require manually clicking the “Repair” option for any changes to happen to an existing site. This is to ensure that K2 doesn’t automatically change something that was configured a specific way by design.

The IIS Authentication type **Anonymous** must be enabled for Basic authentication to work. If this authentication type is disabled, K2 Services will only support *Windows-based* authentication.

The IIS Authentication type **Windows** must be enabled for Windows authentication to work. If this authentication type is disabled, K2 Services will only support *Basic -based* authentication. When Windows authentication is enabled, the type of Windows header passed between the client request and IIS will be can vary depending on the Windows environmental configuration. It is recommended to enable both Providers (**NTLM** and **Negotiate**) to ensure proper challenge/response and client request header creation regardless of the environmental configuration. The providers can be reduced to only NTLM or Negotiate if the challenge/response and client request header can be guaranteed to match in your environment.



## IIS Bindings

K2 Services requires IIS bindings for SSL (HTTP) and non-SSL (HTTPS) support. Details on configuring bindings in IIS and the associated entries in web.config and can be found in the product documentation, including troubleshooting information for multiple bindings and SPN support.

### Default Configuration (*Recommended*)

K2 recommends the following default configuration for K2 Services.

#### REST.svc (Non-SSL)

- Recommended Client Authentication Header: Windows or Basic
- Service Endpoint

```
<service behaviorConfiguration="SourceCode.Services.RestBehavior"
name="SourceCode.Services.Rest">
  <endpoint address="Process"
behaviorConfiguration="SourceCode.Services.RestBehavior" binding="webHttpBinding"
bindingConfiguration="SourceCode.Services.RestBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.IProcessNavigationService" />
  <endpoint address="Worklist"
behaviorConfiguration="SourceCode.Services.RestBehavior" binding="webHttpBinding"
bindingConfiguration="SourceCode.Services.RestBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.IWorklistNavigationService" />
  <endpoint address="Identity"
behaviorConfiguration="SourceCode.Services.RestBehavior" binding="webHttpBinding"
bindingConfiguration="SourceCode.Services.RestBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.IIdentityService" />
  <endpoint address="Core"
behaviorConfiguration="SourceCode.Services.RestBehavior" binding="webHttpBinding"
bindingConfiguration="SourceCode.Services.RestBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.ICoreService" />
</service>
```

- Binding

```
<webHttpBinding>
  <binding name="SourceCode.Services.RestBinding+HTTP">
    <security mode="TransportCredentialOnly">
      <transport clientCredentialType="None" />
    </security>
  </binding>
</webHttpBinding>
```

- Basic Settings

```
<sourceCode.services>
  <basicAuthentication requireSSL="True" enabled="True" cachingEnabled="True"
cachingDuration="15" defaultSecurityLabel="K2" />
  <inclusions userExtendedProperties="False" hiddenFields="False"
maxWorklistItems="0" processDataFields="False" processXmlFields="False"
activityDataFields="False" activityXmlFields="False">
  </inclusions>
```

```
</sourceCode.services>
```

- IIS Authentication

```
Anonymous Authentication = Enabled
Windows Authentication = Enabled
  • Providers: NTLM and Negotiate
```

## WCF.svc (Non-SSL)

- Service Endpoint

```
<service behaviorConfiguration="SourceCode.Services.SoapBehavior"
name="SourceCode.Services.Wcf">
  <endpoint address="Process"
behaviorConfiguration="SourceCode.Services.SoapBehavior"
binding="basicHttpBinding"
bindingConfiguration="SourceCode.Services.WcfBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.IProcessNavigationService" />
  <endpoint address="Worklist"
behaviorConfiguration="SourceCode.Services.SoapBehavior"
binding="basicHttpBinding"
bindingConfiguration="SourceCode.Services.WcfBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.IWorklistNavigationService" />
  <endpoint address="Identity"
behaviorConfiguration="SourceCode.Services.SoapBehavior"
binding="basicHttpBinding"
bindingConfiguration="SourceCode.Services.WcfBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.IIdentityService" />
  <endpoint address="Core"
behaviorConfiguration="SourceCode.Services.SoapBehavior"
binding="basicHttpBinding"
bindingConfiguration="SourceCode.Services.WcfBinding+HTTP"
contract="SourceCode.Services.ServiceContracts.ICoreService" />
</service>
```

- Binding

```
<basicHttpBinding>
  <binding name="SourceCode.Services.WcfBinding+HTTP">
    <security mode="TransportCredentialOnly">
      <transport clientCredentialType="None"/>
    </security>
  </binding>
</basicHttpBinding>
```

- Basic Settings

```
<sourceCode.services>
  <basicAuthentication requireSSL="True" enabled="True" cachingEnabled="True"
cachingDuration="15" defaultSecurityLabel="K2" />
  <inclusions userExtendedProperties="False" hiddenFields="False"
maxWorklistItems="0" processDataFields="False" processXmlFields="False"
activityDataFields="False" activityXmlFields="False">
  </inclusions>
</sourceCode.services>
```

- IIS Authentication

Anonymous Authentication = Enabled  
 Windows Authentication = Enabled

- Providers: NTLM and Negotiate

## SyncREST.svc (SSL)

- Service Endpoint

```
<service behaviorConfiguration="SourceCode.Services.RestBehavior"
name="SourceCode.Services.SyncRest">
  <endpoint address="Task"
behaviorConfiguration="SourceCode.Services.RestBehavior" binding="webHttpBinding"
bindingConfiguration="SourceCode.Services.SyncRestBinding+HTTPS"
contract="SourceCode.Services.ServiceContracts.ITaskService" />
  <endpoint address="Identity"
behaviorConfiguration="SourceCode.Services.RestBehavior" binding="webHttpBinding"
bindingConfiguration="SourceCode.Services.SyncRestBinding+HTTPS"
contract="SourceCode.Services.ServiceContracts.IIdentityService" />
  <endpoint address="Core"
behaviorConfiguration="SourceCode.Services.RestBehavior" binding="webHttpBinding"
bindingConfiguration="SourceCode.Services.SyncRestBinding+HTTPS"
contract="SourceCode.Services.ServiceContracts.ICoreService" />
</service>
```

- Binding

```
<webHttpBinding>
  <binding name="SourceCode.Services.SyncRestBinding+HTTPS">
    <security mode="Transport">
      <transport clientCredentialType="None" />
    </security>
  </binding>
</webHttpBinding>
```

- Basic Settings

```
<sourceCode.services>
  <basicAuthentication requireSSL="True" enabled="True" cachingEnabled="True"
cachingDuration="15" defaultSecurityLabel="K2" />
  <inclusions userExtendedProperties="False" hiddenFields="False"
maxWorklistItems="0" processDataFields="False" processXmlFields="False"
activityDataFields="False" activityXmlFields="False">
  </inclusions>
</sourceCode.services>
```

- IIS Authentication

Anonymous Authentication = Enabled  
 Windows Authentication = Enabled

- Providers: NTLM and Negotiate



## SyncWCF.svc (SSL)

- Service Endpoint

```
<service behaviorConfiguration="SourceCode.Services.SoopBehavior"
name="SourceCode.Services.SyncWcf">
  <endpoint address="Task"
behaviorConfiguration="SourceCode.Services.SoopBehavior"
binding="basicHttpBinding"
bindingConfiguration="SourceCode.Services.SyncWcfBinding+HTTPS"
contract="SourceCode.Services.ServiceContracts.ITaskService" />
  <endpoint address="Identity"
behaviorConfiguration="SourceCode.Services.SoopBehavior"
binding="basicHttpBinding"
bindingConfiguration="SourceCode.Services.SyncWcfBinding+HTTPS"
contract="SourceCode.Services.ServiceContracts.IIdentityService" />
  <endpoint address="Core"
behaviorConfiguration="SourceCode.Services.SoopBehavior"
binding="basicHttpBinding"
bindingConfiguration="SourceCode.Services.SyncWcfBinding+HTTPS"
contract="SourceCode.Services.ServiceContracts.ICoreService" />
</service>
```

- Binding

```
<basicHttpBinding>
  <binding name="SourceCode.Services.SyncWcfBinding+HTTPS">
    <security mode="Transport">
      <transport clientCredentialType="None" />
    </security>
  </binding>
</basicHttpBinding>
```

- Basic Settings

```
<sourceCode.services>
  <basicAuthentication requireSSL="True" enabled="True" cachingEnabled="True"
cachingDuration="15" defaultSecurityLabel="K2" />
  <inclusions userExtendedProperties="False" hiddenFields="False"
maxWorklistItems="0" processDataFields="False" processXmlFields="False"
activityDataFields="False" activityXmlFields="False">
  </inclusions>
</sourceCode.services>
```

- IIS Authentication

Anonymous Authentication = Enabled  
Windows Authentication = Enabled

- Providers: NTLM and Negotiate



**KB001290 BUG:** The `<security>` node was incorrectly configured as `mode="None"` for each binding in the 1290 web.config. Please configure the `<security mode="">` values in the bindings section to reflect the following recommended default configuration. The next update

will set these values by default.

```
<bindings>
  <webHttpBinding>
    <binding name="SourceCode.Services.RestBinding+HTTP">
      <security mode="TransportCredentialOnly">
        <transport clientCredentialType="None" />
      </security>
    </binding>
    <binding name="SourceCode.Services.SyncRestBinding+HTTPS">
      <security mode="Transport">
        <transport clientCredentialType="None" />
      </security>
    </binding>
  </webHttpBinding>
  <basicHttpBinding>
    <binding name="SourceCode.Services.WcfBinding+HTTP">
      <security mode="TransportCredentialOnly">
        <transport clientCredentialType="None"/>
      </security>
    </binding>
    <binding name="SourceCode.Services.SyncWcfBinding+HTTPS">
      <security mode="Transport">
        <transport clientCredentialType="None" />
      </security>
    </binding>
  </basicHttpBinding>
</bindings>
```