



Building Security into Your System

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Setting up SSL Certificates and Trusts

Server Certificates and Trust Stores



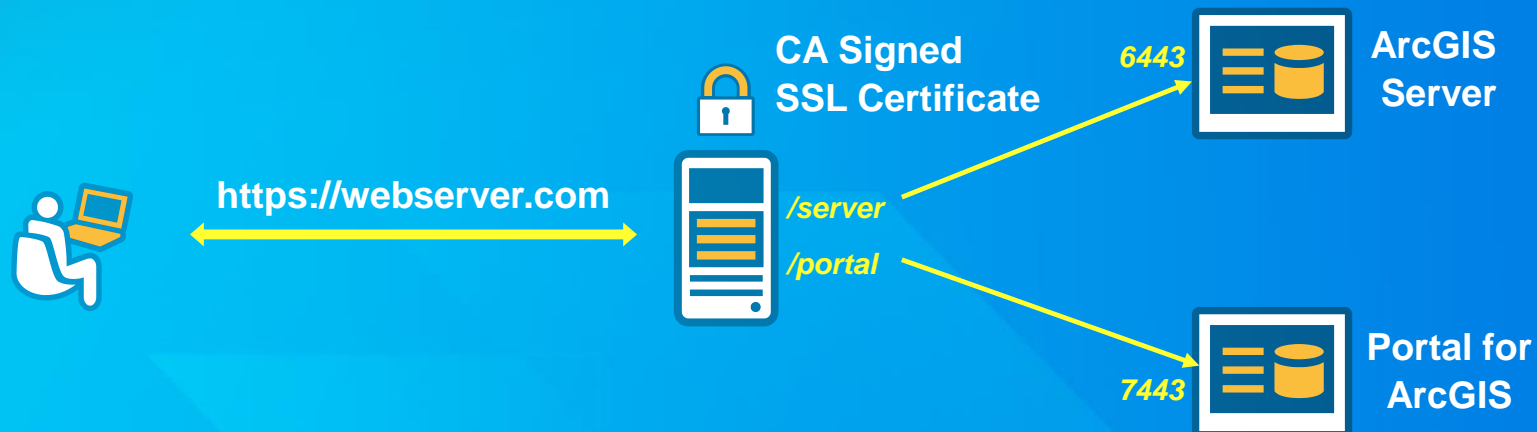
- **Secure Socket Layer (SSL)** - standard security technology for establishing an encrypted link between a web server and a browser
 - TLS v 1.2
- **Most organizations have strict SSL requirements for security compliance.**
- **Certificate Authorities digitally sign server certificates for server identification and issuing user certificates for client identification (i.e. Public Key Infrastructure).**
- **Public key/private key pairing for encrypted communication**
- **Adjustments needed to configure Portal and ArcGIS Server to work properly in these types of environments**

Setting up SSL Certificates and Trusts

Server Certificates and Trust Stores



- Portal for ArcGIS and ArcGIS Server install self-signed certificates to support ports 7443 and 6443, respectively.
- Consuming services from self-signed certificates can be untrustworthy.
- Install separate Web Adaptors for Portal and ArcGIS Server and SSL-enable your web server.
- Users only communicate with Web Server over default HTTPS (i.e. 443)



Setting up SSL Certificates and Trusts

Updating Server Certificates

- Some organizations mandate no HTTP(S) ports without using a properly signed server certificate. Users must update the self-signed certificates with CA signed certificates.
- Portal Administrator Directory provides tools to generate a new Certificate Signing Request and ability to import Intermediate or Root certificates for trust.
- ArcGIS Server Administrator Directory provides identical interface.

Portal Administrator Directory

[Home](#) > [Security](#) > [SSLCertificates](#)

SSL Certificates

- [portal](#)
- [sam1cert](#)

Web Server SSL Certificate: portal

Supported Operations: [Update](#) [Generate](#) [Import Root or Intermediate](#) [Import Existing Server Certificate](#)

Supported Interfaces: [REST](#)

ArcGIS Server Administrator Directory Logge

[Home](#) > [machines](#) > [BMAJOR3.ESRI.COM](#) > [sslcertificates](#)

SSL Certificates

- [bmajor3_ss](#)
- [selfsignedcertificate](#)

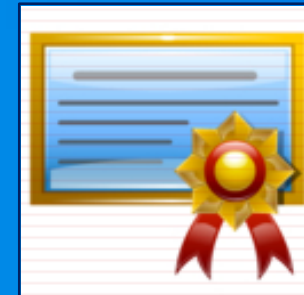
Supported Operations: [generate](#) [importRootOrIntermediate](#) [importExistingServerCertificate](#)

Supported Interfaces: [REST](#)

Setting up SSL Certificates and Trusts

Establishing Trust to PKI resources

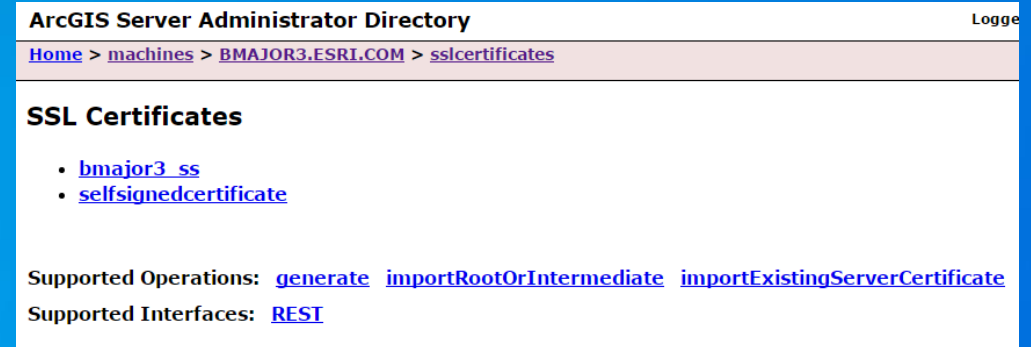
- In order to consume services from other SSL enabled web servers, proper “trust” must be created in ArcGIS Server and Portal.
- Importing CA Root and Intermediate certificates for external server certificates allows ArcGIS Server and Portal to “trust” the server SSL certificate being presented
 - This trust established proper encryption channel
- Example scenarios:
 - Adding an HTTPS Map Service to Portal from an external organization.
 - Using ArcGIS Server Print Service to generate thumbnails for Portal for ArcGIS, using HTTPS Map Services.



Setting up SSL Certificates and Trusts

Importing Certificates to establish Trust

- In ArcGIS Server, use the Administrator Directory.
- On the Server, import the CA Root and Intermediate certificates into the OS Trust Store (needed for GP Services).
- In Portal for ArcGIS, help topic: [Configuring the portal to trust certificates from your certifying authority](#)



ArcGIS Server Administrator Directory Logge

[Home](#) > [machines](#) > [BMAJOR3.ESRI.COM](#) > [sslcertificates](#)

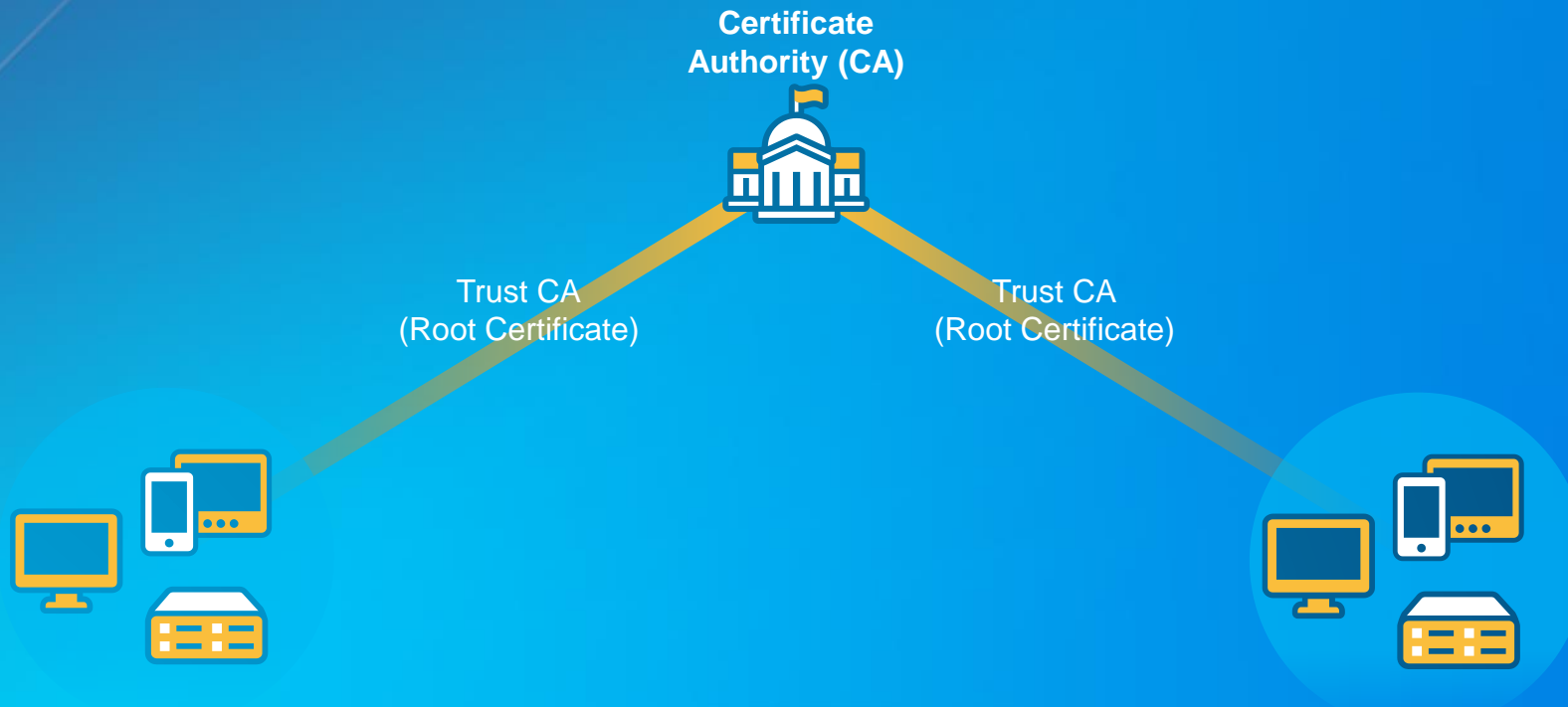
SSL Certificates

- [bmajor3_ss](#)
- [selfsignedcertificate](#)

Supported Operations: [generate](#) [importRootOrIntermediate](#) [importExistingServerCertificate](#)

Supported Interfaces: [REST](#)

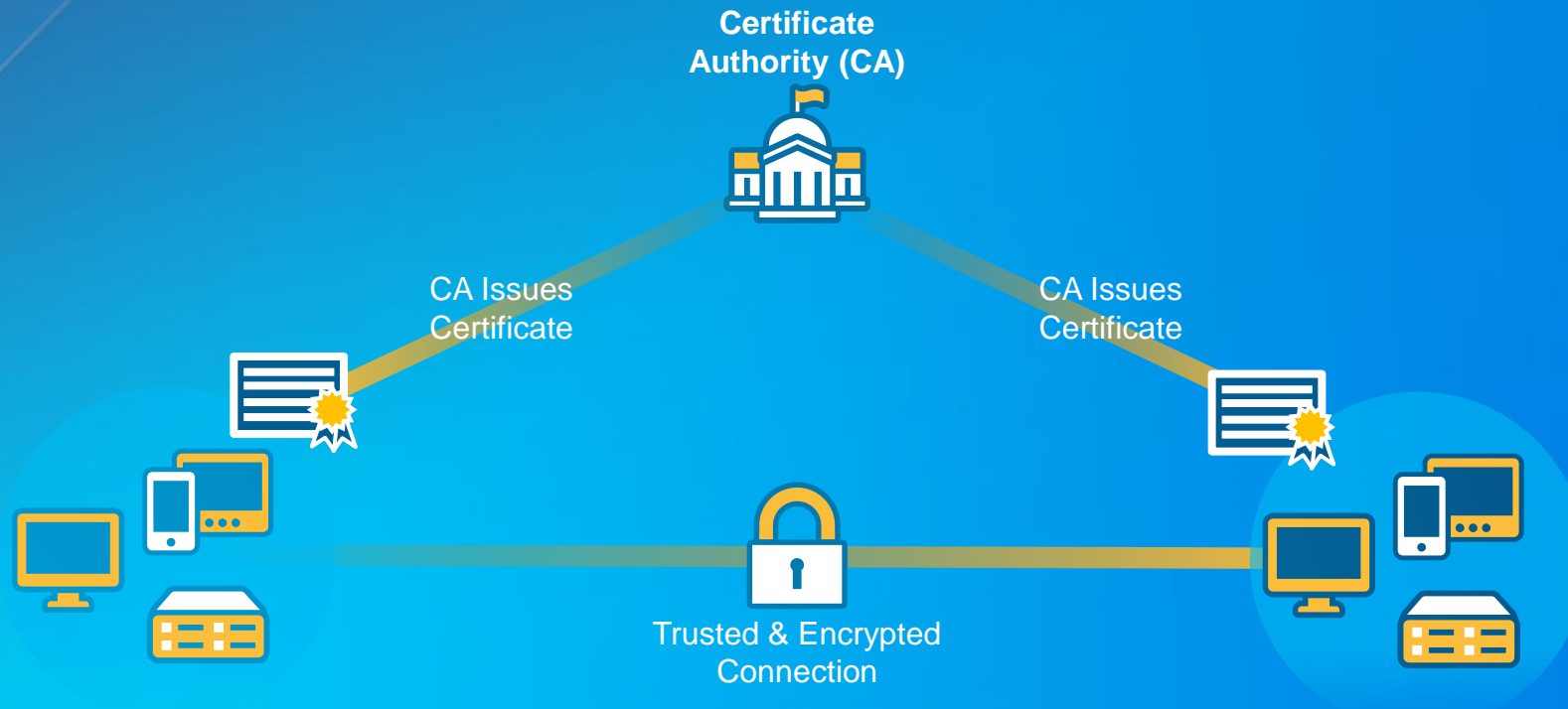
PKI Fundamentals



✘ Manage Trust Carefully!

Trust, Encrypt, Communicate

PKI Fundamentals



✘ Manage Certificate Revocation

Trust, Encrypt, Communicate

Implement Encryption

Server Certificates

✗ Avoid Outdated Protocols (SSL)



ArcGIS Server



Web Adaptor (IIS)

ArcGIS Server Administrator Directory

Home > security > config

Security/Config

Security Configuration

Protocol: **HTTP And HTTPS**

Security for virtual directories enabled: false

Server Certificates

Use this feature to request and manage certificates that the Web server can use with websites configured on this server.

Filter: [Go] Show All | Group by: No Grouping

Name	Issued To	Issued by
server.contoso.com	server.contoso.com	contoso-DC1-CA
WMSvc	WMSvc-SERVER	WMSvc-SERVER

Edit Site Binding

Type: https | IP address: All Unassigned | Port: 443

Host name:

Require Server Name Indication

SSL certificate: server.contoso.com

Select... View... OK Cancel

Web Help: Portal for ArcGIS

<http://server.arcgis.com/en/portal/latest/administer/windows/enable-https-on-your-web-server-portal-.htm>

Web Help: ArcGIS for Server

<http://server.arcgis.com/en/server/latest/administer/windows/enabling-ssl-on-arcgis-server.htm>

SSL, TLS, HTTPS

Authenticate Using PKI

Client Certificates

✗ Anonymous Access



Web Adaptor (IIS)

```
PS C:\Users\Administrator.CONTOSO> Add-WindowsFeature Web-Client-Auth
```

Success	Restart Needed	Exit Code	Feature Result
True	No	NoChangeNeeded	{}

Name	Status	Response Type
Active Directory Client Certificate Authentication	Enabled	HTTP 401 Challenge
Anonymous Authentication	Disabled	
ASP.NET Impersonation	Disabled	
Basic Authentication	Disabled	
Forms Authentication	Disabled	
Windows Authentication	Disabled	

Require SSL:

Client certificates:

- Ignore
- Accept
- Require

Portal for ArcGIS PKI Web Help:

<http://server.arcgis.com/en/portal/latest/administer/windows/using-windows-active-directory-and-pki-to-secure-access-to-your-portal.htm#GUID-D71BB3A0-6921-43B0-A79F-1F20149E43A5>

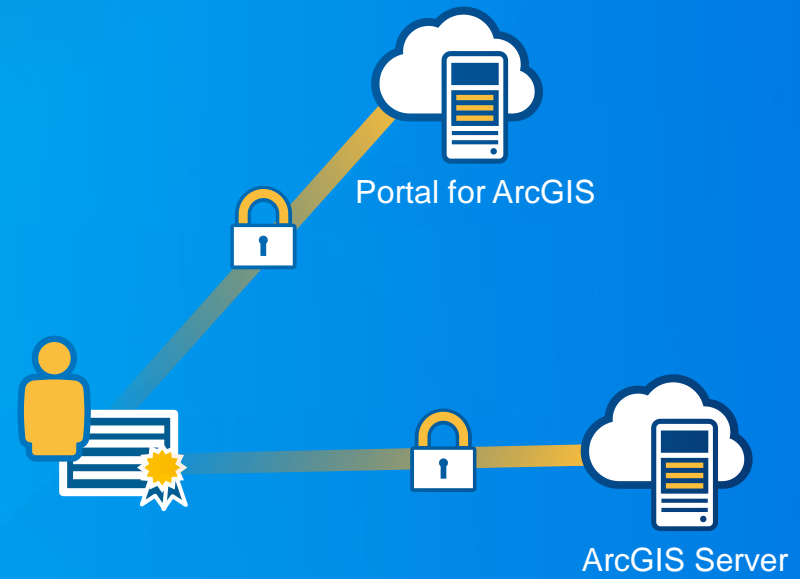
ArcGIS for Server PKI Web Help:

<http://server.arcgis.com/en/server/latest/administer/windows/securing-web-services-with-integrated-windows-authentication.htm>

Smartcard, Certificate Authentication, MFA

Demo

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Questions?

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Understanding our world.