ArcGIS Enterprise Security: An Introduction

Gregory Ponto & Jeff Smith
Agenda

• ArcGIS Enterprise Security Model
• Portal for ArcGIS
• Authentication
• Authorization
• Building the Enterprise
• Encryption
• Collaboration
• Summary
ArcGIS Enterprise
Logical Architecture

Focus

ArcGIS Web Adaptor
ArcGIS Web Adaptor
Portal for ArcGIS
ArcGIS Server
ArcGIS Data Store
(relational + tile cache)
ArcGIS Enterprise Security Model

Protect your assets
Control access and set permissions
ArcGIS Enterprise Security Model

token
ArcGIS Enterprise Security Model

The token is your access key into...
ArcGIS Enterprise Security Model

The **token** is your access key into... ArcGIS Enterprise
OK. So what is a token?
ArcGIS Enterprise Security Model

aCegUO1QCUFHMzg2xcR4I0vy49POH5Qk6OvFw16
ArcGIS Enterprise Security Model

wRNA4XtMrqHFdf97H74ofngkrKufBacsL9ii-H1BY34
ArcGIS Enterprise Security Model

1AyZcQDO6xJjtWyycn206filCznGfxoNjlJEep8bQip0
Confused? That’s ok.
ArcGIS Enterprise Security Model

a token, represents your login

(1AyZcQDO6xJjtWyycn206fIICzn)

is a key that must be passed with any request for secured content
ArcGIS Enterprise Security Model

Good news...

...ArcGIS Enterprise handles this transparently for you
Quick Demo
Token
ArcGIS Enterprise Security Model

Let's see how this works...
ArcGIS Enterprise Security Model

1. User requests access to Service
ArcGIS Enterprise Security Model

1. User requests access to Service
2. Service sends user to Token Service
1. User requests access to Service
2. Service sends user to Token Service
3. User Authenticates to Token Service
ArcGIS Enterprise Security Model

1. User requests access to Service
2. Service sends user to Token Service
3. User Authenticates to Token Service
4. Token Service issues Token to User
ArcGIS Enterprise Security Model

1. User requests access to Service
2. Service sends user to Token Service
3. User Authenticates to Token Service
4. Token Service issues Token to User
5. User passes Token to Service
ArcGIS Enterprise Security Model

1. User requests access to Service
2. Service sends user to Token Service
3. User Authenticates to Token Service
4. Token Service issues Token to User
5. User passes Token to Service
6. Service grants access
Now let's put this into context.
ArcGIS Enterprise Security Model

User

Service

Token Service
ArcGIS Enterprise Security Model

You

Service

Token Service
ArcGIS Enterprise Security Model

You

ArcGIS Server

Token Service
ArcGIS Enterprise Security Model

You

ArcGIS Server

Federation

Portal for ArcGIS
ArcGIS Enterprise Security Model

Another look, with context...
1. User requests access to Service
ArcGIS Enterprise Security Model

1. User requests access to Service
2. Service sends user to Token Service
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1. User requests access to Service
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ArcGIS Enterprise Security Model

But what about...
All authentication methods ultimately deliver a token...
...the token is your key into... ArcGIS Enterprise
Portal for ArcGIS

ArcGIS Enterprise includes Portal for ArcGIS, helping you create and share maps and apps in just a few minutes. Portal for ArcGIS also gives you Web AppBuilder for ArcGIS, so you can build intuitive and focused web apps that run anywhere, on any device—without writing a single line of code. Your portal provides tools for keeping your geographic assets secure as well as a set of authoritative (and beautiful) world basemaps.

Learn more about Portal for ArcGIS

Portal for ArcGIS

Foundation of the ArcGIS Enterprise
content
user -> group -> access
How is Security Set?

- Portal for ArcGIS
  - Permissions set by item owner
  - Can be changed by administrators

- ArcGIS Server
  - Permissions can be set by *any* publisher/administrator
Flexible Security Options with ArcGIS Enterprise

ArcGIS Enterprise Supports...

- Enterprise Groups
- Built-In Accounts
- Smart Cards
- Certificates
- PKI
- Active Directory
- Kerberos
- Custom Roles
- SAML
- IWA
- Single Sign On
- OAuth
- NTLM
- CAC Cards
- Forms Auth
- HTTP Auth
Flexible Security Options with ArcGIS Enterprise

Gets you into everything
Single Web Sign On through SAML

(Security Assertion Markup Language)
SAML login User Experience

- With SAML authentication enabled, user will be prompted by IDP to login
- Use IDP login or built-in login
SAML – Conceptual Workflow

1. User attempts to login
2. Redirected to IDP
3. User sends login credentials to IDP
4. IDP authenticates user and sends SAML response to browser
5. Browser sends SAML response to Portal
6. Portal verifies SAML response and user is logged in
But what about the token?!
1. User attempts to login
2. Portal redirects client to IDP
3. User sends login credentials to IDP
4. IDP authenticates user and sends SAML response to browser
5. Browser sends SAML response to Portal
6. Portal verifies SAML response and user is logged in

ArcGIS Enterprise

Identity Provider (IDP) 3rd party

Client

Token

You

ArcGIS Server

Token
Demo

SAML Authentication
Groups vs Roles
Groups

user → group → access
Roles are privileges

As an administrator I can ...

As a user I can ...

As a publisher I can ...

As a viewer I can ...
Roles

- Permissions for Portal users defined by roles
- 4 default roles
  1. Administrator
  2. Publisher
  3. User
  4. Viewer
Portal for ArcGIS: Custom Roles

- Provide more flexibility to enable fine grained control on what members can do

- My Organization page > Edit Settings > Roles > Create Role
Enterprise Groups

Enabled when Portal is configured with Windows Active Directory or LDAP
Enterprise Groups in ArcGIS Enterprise

Windows Active Directory or LDAP

Exploration Group

ArcGIS Enterprise

E - Group: Exploration
Demo

Enterprise Groups
Building the Enterprise

1. Registering services
2. Federating a Server
Building the Enterprise
Portal for ArcGIS + ArcGIS Server

Portal for ArcGIS

Item A

Registered web service

ArcGIS Server
site 1

Identity Store

Identity Store
Demo

Registering a Service
Building the Enterprise
Portal for ArcGIS + ArcGIS Server

Portal for ArcGIS

ArcGIS Server
site 1

Registered
web service

Identity Store

Item A
Demo

ArcGIS Server Federation
Encryption and HTTPS
Securing communication protocols
WHY HTTPS / WHAT IS IT USED FOR?
ADD WEB ADAPTOR ARCHITECTURE DISCUSSION
How do you set up a Security Certificate?

1. Generate a Certificate Signing Request (CSR)
2. Send CSR for signing
   - By a domain or well-known Certificate Authority
3. Import signed certificate
Collaboration
Security Considerations
What is it?
Collaboration
Collaboration
As an Administrator what do I need to know?

- Collaborating…Service
  - Low Risk

![Diagram showing ArcGIS Enterprise Service and Data connections]
Collaboration
As an Administrator what do I need to know?

- **Collaborating…Feature Layer**
  - Moderate Risk
Collaboration
As an Administrator what do I need to know?

- Collaborating…Data Items
  - Moderate Risk
Collaboration
As an Administrator what do I need to know?

- Transitive Trust
  - **High Risk**
Collaboration
As an Administrator what do I need to know?

- **Recommended Practices**
  - Limit Collaborations to Trusted Partners
  - Collaborate Layers by Reference
  - Establish New Groups for Collaboration
Summary

- Tokens are the Foundation of the ArcGIS Enterprise Security Model
- ArcGIS Enterprise Supports many Authentication Options
- Use SAML if you can
- HTTPS Everywhere – Use CA Signed Certificates
- Federate Server with Portal to Fully Enable the ArcGIS Enterprise
- Consider security risks prior to using Collaboration
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