Troubleshoot Like an Esri Support Pro: ArcGIS Enterprise
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Concepts to know: ArcGIS Enterprise

ArcGIS Enterprise is Esri’s on-premise web GIS platform
Concepts to know: ArcGIS Server Account

As ArcGIS Server does its work, it needs to start and stop processes, read and write data, and communicate between machines.

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Concepts to know: ArcGIS Server Account

This is an operating system account specified during installation.
Concepts to know: Instances

An instance is a worker process that completes requests issued to a service.

Each instance corresponds with an ArcSOC.exe process on the server machine.
Our story

- Publish a service
- Consume in a web map
- Configuration/maintenance
- Performance
Publish a service

Consume in a web map

Configuration/maintenance

Performance
When publishing a map service...

...how do we address this warning?
We have two options

Proceed anyway:
If we want to maintain a separate copy of the data outside the database

Register the data source:
We want a dynamic link between our web map and database, and we are concerned about disk space on the server
Register the data source

24011 Layer's data source is not registered with the server.

Right click

Register Data Source With Server
- Open Manage Data Stores Pane
- Help
- Select Layer In The Contents Pane
Registering success!

Share As Web Layer

Sharing Golf Courses As A Web Layer

General | Configuration | Content | Messages

Search Analyzer Results

0 1

4 Golf Courses

24011 Layer’s data source is not registered with the server and data will be copied to the server
Data are registered, time to publish!

...where do we go from here?
Publishing services: Troubleshooting tip #1

Is PublishingTools started?

- No
  - Start the service from Server Manager

If start fails, consult logs

Check permissions on:
- C:\Python27
- C:\\arcgisserver
- C:\Program Files\ArcGIS\Server
- Consult logs
Publishing services: Troubleshooting tip #1

Is PublishingTools started?

No

Start the service from Server Manager

If start fails, consult logs

C:\Python27

C:\arcgisserver

C:\Program Files\ArcGIS\Server

Yes

Check permissions on system folders

Consult logs
001369: Failed to create the service.

Description

The creation of the service failed. This is a generic error. Many different conditions could cause this failure. Check the server logs for the specific issue.
Publishing services: Troubleshooting tip #2

Three things to check

- Permissions
- Grant ArcGIS Server user Full Control
Publishing services: Troubleshooting tip #2

Three things to check

Permissions
- Grant ArcGIS Server user Full Control

Data Connections
- Create new map/project
- Check database client on server
Publishing services: Troubleshooting tip #2

Three things to check

- **Permissions**: Grant ArcGIS Server user Full Control
- **Data Connections**: Create new map/project, Check database client on server
- **Server resources**: Check memory/CPU, Check # ArcSOC processes, Check disk space
Granted ArcGIS Server Account full control on C:\Python27

Publishing succeeded!
Consume in a web map
When opening a map service in a web map, how do we address this error?
Issues could originate at any of these levels:

- Application
- Web Map
- Services
- Data
Issues could originate at any of these levels
Consuming services: Troubleshooting tip #1

Can I open the REST endpoint of my service?

No
Can I reach the web server?

No
Issue lies with the web server

Yes
Issue lies with the web service

Remove port/web adaptor portion of URL

- Is the service started?
- Sharing/permissions?
- Is web adaptor accessible?
Consuming services: Troubleshooting tip #1
Can I open the REST endpoint of my service?

Check web adaptor

Internal web adaptor
External web adaptor

Not sure which to use? Check the service URLs in other web maps
Consuming services: Troubleshooting tip #1

Can I open the REST endpoint of my service?

Yes

Are there certificate errors?

Your connection is not private
Consuming services: Troubleshooting tip #1

Can I open the REST endpoint of my service?

Yes

Are there certificate errors?

Yes

Look at browser provided messaging

Your connection is not private

Attacks might be trying to steal your information from wrong.host.badssl.com (for example, passwords, messages, or credit cards). Learn more

NET::ERR_CERT_COMMON_NAME_INVALID
Consuming services: Troubleshooting tip #1
Can I open the REST endpoint of my service?

Yes

Are there certificate errors?

Yes

Look at browser provided messaging
Consuming services: Troubleshooting tip #1

Can I open the REST endpoint of my service?

Yes

Are there certificate errors?

Yes

Look at browser provided messaging

Your connection is not private

Attacks might be trying to steal your information from self-signed.badssl.com (for example, passwords, messages, or credit cards). Learn more

NET::ERR_CERT_AUTHORITY_INVALID
Consuming services: Troubleshooting tip #1

Can I open the REST endpoint of my service?

Yes
- Are there certificate errors?
  - Yes
    - Look at browser provided messaging
  - No
    - Continue troubleshooting with developer tools

No
- Continue troubleshooting with developer tools
Browser developer tools

ArcGIS Enterprise

Deliver industry-leading mapping and analytics to your infrastructure and the cloud.
Consuming services: Troubleshooting tip #2

What does developer tools say?

What to look for?

Certificate errors

Not secure
Consuming services: Troubleshooting tip #2

What does developer tools say?

What to look for?

- Certificate errors
- Mixed Content errors

⚠️ Mixed Content:
Consuming services: Troubleshooting tip #2

What does developer tools say?

- **Certificate errors**
- **Mixed Content errors**
- **Cross-Origin Resource Sharing errors**

ArcGIS Online web map settings can now fix mixed content errors with a click of a button.
Changed service URL to use HTTPS...

Service loads!
Publish a service
Consume in a web map
Configuration/maintenance
Performance
After some time the service becomes unresponsive...

...how do we address this issue?
Service maintenance: Troubleshooting tip #1

*Things to try:*

- Are other published services affected?
- Check system resources
- Check file permissions
- Check firewall/port accessibility
- Does the service(s) stop but will not start?
- Check error/ArcGIS Server logs
Service maintenance: Troubleshooting tip #1

Things to try:

- Are other published services affected?
- Check system resources
- Check file permissions
- Check firewall/port accessibility
- Does the service(s) stop but will not start?
- Check error/ArcGIS Server logs
The service stops and fails to start...

...how do we address this error?

Service failed to start
GolfCourses.MapServer: SERVER.DOMAIN.COM
Service startup timeout.
Service maintenance: Troubleshooting tip #2

Three things to check

- **Ports**
  - Consult documentation for required ports

- **Data Connections**
  - Validate database connection
  - Check database client on server

- **Server resources**
  - Check memory/CPU
  - Check DEBUG logs
  - Check file permissions
Service maintenance: Troubleshooting tip #2

Three things to check

- **Ports**
  - Consult documentation for required ports

- **Data Connections**
  - Validate database connection
  - Check database client on server

- **Server resources**
  - Check memory/CPU
  - Check DEBUG logs
  - Check file permissions
Service maintenance: Troubleshooting tip #2

*Three things to check*

- **Ports**
  - Consult documentation for required ports
  - Validate database connection
  - Check database client on server
  - Check memory/CPU
- **Data Connections**
  - Check DEBUG logs
- **Server resources**
  - Check file permissions
Permissions on the file GDB were applied…

The service loads once again!
The features are loading slowly...
Troubleshooting process

1. Gather background information
2. Reproduce with additional logging
3. Analyze logs for patterns and issues
4. Make changes to address problem
Here's what we see in the logs...

<table>
<thead>
<tr>
<th>Level</th>
<th>Time</th>
<th>Message</th>
<th>Source</th>
<th>Time Elapsed</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFO</td>
<td>Jun 11, 2018, 4:47:11 PM</td>
<td><strong>Extent</strong>: -135.226807, 29.360907, -102.773193, 43.275434; <strong>Size</strong>: 1477,790; <strong>Scale</strong>: 9244648.87</td>
<td>GolfCourses.MapServer</td>
<td></td>
</tr>
<tr>
<td>VERBOSE</td>
<td>Jun 11, 2018, 4:47:11 PM</td>
<td><strong>Beginning of layer draw: GolfCourses</strong></td>
<td>GolfCourses.MapServer</td>
<td></td>
</tr>
<tr>
<td>VERBOSE</td>
<td>Jun 11, 2018, 4:47:11 PM</td>
<td><strong>Execute Query</strong></td>
<td>GolfCourses.MapServer</td>
<td>0.642344</td>
</tr>
<tr>
<td>VERBOSE</td>
<td>Jun 11, 2018, 4:47:11 PM</td>
<td><strong>Symbolizing</strong></td>
<td>GolfCourses.MapServer</td>
<td>0.052321</td>
</tr>
<tr>
<td>VERBOSE</td>
<td>Jun 11, 2018, 4:47:11 PM</td>
<td><strong>Symbol Drawing</strong></td>
<td>GolfCourses.MapServer</td>
<td>4.266151</td>
</tr>
<tr>
<td>VERBOSE</td>
<td>Jun 11, 2018, 4:47:11 PM</td>
<td><strong>Number of features drawn: 1251</strong></td>
<td>GolfCourses.MapServer</td>
<td>0.000000</td>
</tr>
</tbody>
</table>
Three common causes of slow performance

Map Design

Data Access

High Usage
Three common causes of slow performance

Map Design
Data Access
High Usage
Performance: Troubleshooting tip #1

Tips for optimizing map design

Symbology

- Simplify the symbols
- Scale-dependent visibility
Performance: Troubleshooting tip #1
Tips for optimizing map design

- **Symbology**
  - Simplify the symbols
  - Scale-dependent visibility

- **Layers**
  - Remove unused layers
  - Use consistent map projection
Performance: Troubleshooting tip #1

Tips for optimizing map design

- **Symbology**
  - Simplify the symbols
  - Scale-dependent visibility

- **Layers**
  - Remove unused layers
  - Use consistent map projection

- **Type of service**
  - Cached
  - Dynamic
Three common causes of slow performance

- Map Design
- Data Access
- High Usage
Performance: Troubleshooting tip #2
Tips for optimizing data access

Data source

File vs. enterprise geodatabase

Network latency
Performance: Troubleshooting tip #2

Tips for optimizing data access

Data source
- File vs. enterprise geodatabase
- Network latency
- Update statistics
- Compress geodatabase
- Upgrade geodatabase

Database maintenance
Three common causes of slow performance

- Map Design
- Data Access
- High Usage
Performance: Troubleshooting tip #3
Tips for optimizing high usage

Tune services
- Increase instances on popular services
- Decrease instances on other services
Performance: Troubleshooting tip #3

Tips for optimizing high usage

- **Tune services**
  - Increase instances on popular services
  - Decrease instances on other services

- **Machine resources**
  - Monitor memory and CPU
  - Allocate additional resources
  - Regular server maintenance
We changed the service to cached…

…The service loads quickly!
Let’s recap

- Publish a service
- Consume in a web map
- Configuration/maintenance
- Performance
Issues with ArcGIS Enterprise could originate at any of these levels…
Summary

Correct permissions

Data integrity

Network latency

Application

Web Map

Services

Data
Summary

Web server access

Sharing and permissions

System resources

Certificates

Application

Web Map

Services

Data
Summary

Cross-Origin Resource Sharing (CORS)

Access to web server

Mixed content

Developer tools

Application

Web Map

Services

Data
Check out these resources for more information

Esri Support Services: https://support.esri.com/en/
GeoNet: https://community.esri.com/community/gis/enterprise-gis
Please Take Our Survey on the App

Download the Esri Events app and find your event

Select the session you attended

Scroll down to find the feedback section

Complete answers and select “Submit”