



# Troubleshooting Replication and Geodata Services

Liz Parrish & Ben Lin

# AGENDA:

## Troubleshooting Replication and Geodata Services

**Overview**

**Demo**

**Troubleshooting**

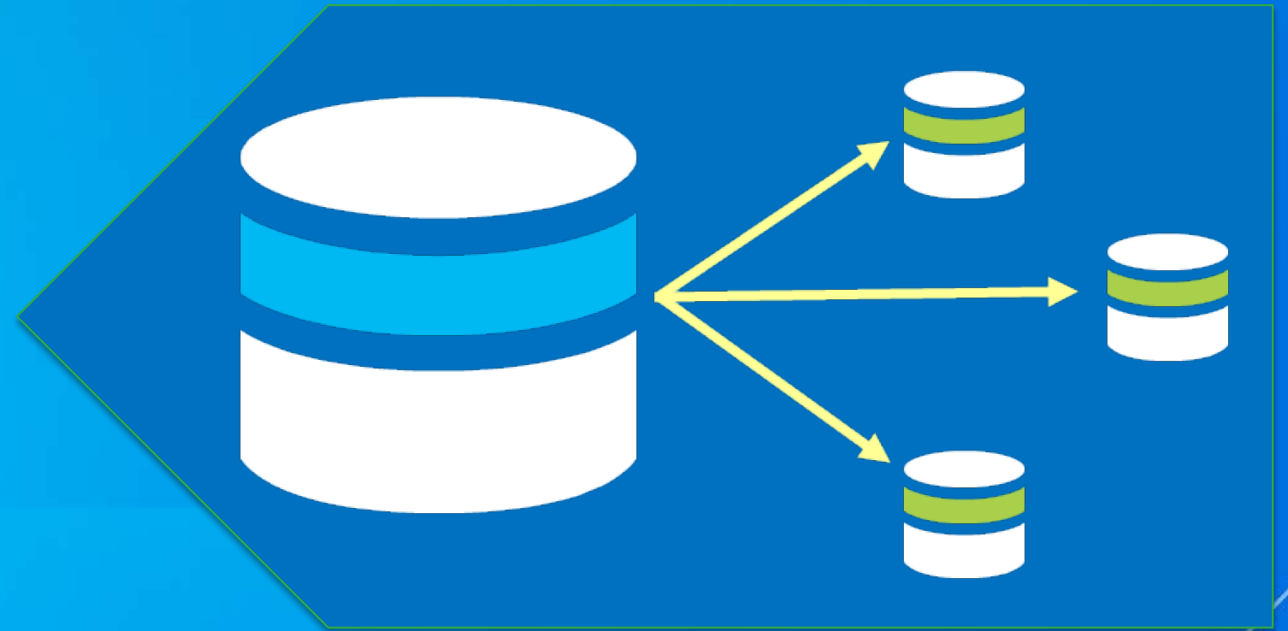
**Q & A**

# Overview of Replication

Liz Parrish

# What is Geodatabase Replication?

- Extends the multi-editor versioning structure
- Parent / Child relationship
  - Copies of data are distributed
  - Changes can be synchronized
  - Connected or disconnected



# Geodatabase Replication Types

- **One-Way**



- **Two-Way**



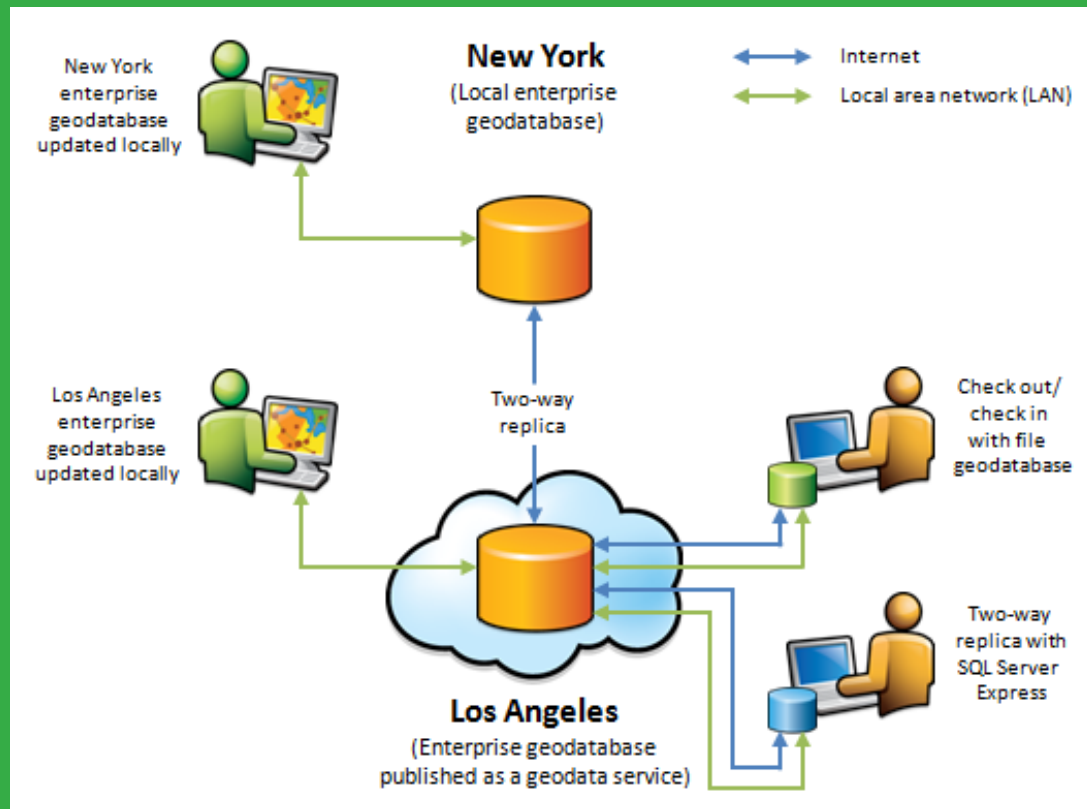
- **Check-out / Check-in**



**\*\*Child geodatabase must ALWAYS be at the same or higher release of ArcSDE as the Parent.**

# Overview of Geodata Services

# Geodatabase Replication Types



Facilitates a connection to work with geodatabases

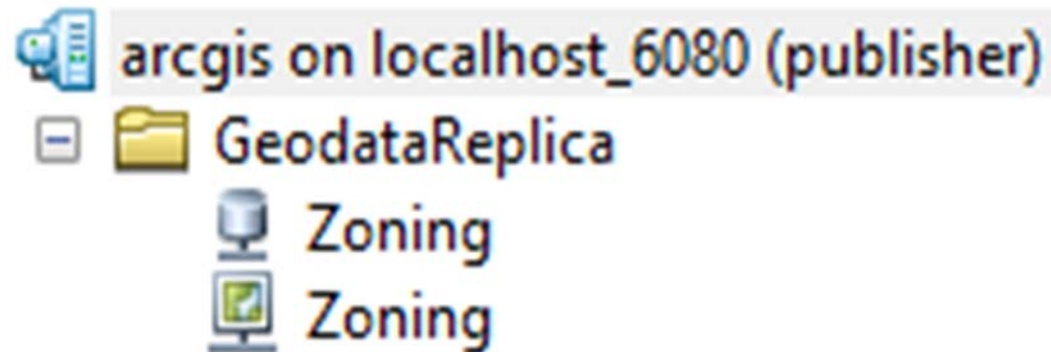
- ArcGIS Server service
- Access via:
  - Local or Wide Area Networks
  - Internet Protocol (IP)



# Geodata Service Requirements

ArcGIS for Server  
'Admin' or 'Publisher'

Map Service with same name



MXD layers contain no alias



# When to use a Geodata Service with Replication

- Disconnected distribution
- Work around firewalls
- Alleviate overhead



# Troubleshooting: Common Issues

# Troubleshooting Common Issues

...Standalone tables are empty in Child

...Some data does not replicate

...Schema Changes

...Disabled 'Create Replica' button

...DBMS connectivity

# Troubleshooting: Empty Standalone Tables

Show Advanced Options

Show advanced options for overriding replica defaults when I click Next

Choose which items you want to check out

Include	Data	Target Name	Type	Check Out	Use Spa ^
<input checked="" type="checkbox"/>	KENG2012.GISADMIN.P	Parcels	Feature Class	All Features	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	KENG2012.GISADMIN.O	Owners	Table	Schema Only	
<input checked="" type="checkbox"/>	KENG2012.GISADMIN.O	Ownership	Table	Schema On v	
<input checked="" type="checkbox"/>	KENG2012.GISADMIN.P	ParcelsToOwnership	Relationship CI	Schema Only	
<input checked="" type="checkbox"/>	KENG2012.GISADMIN.O	OwnersToOwnership	Relationship CI	All Records	

Include All

Exclude All

Reset All

Tables 'Schema Only'  
By Default

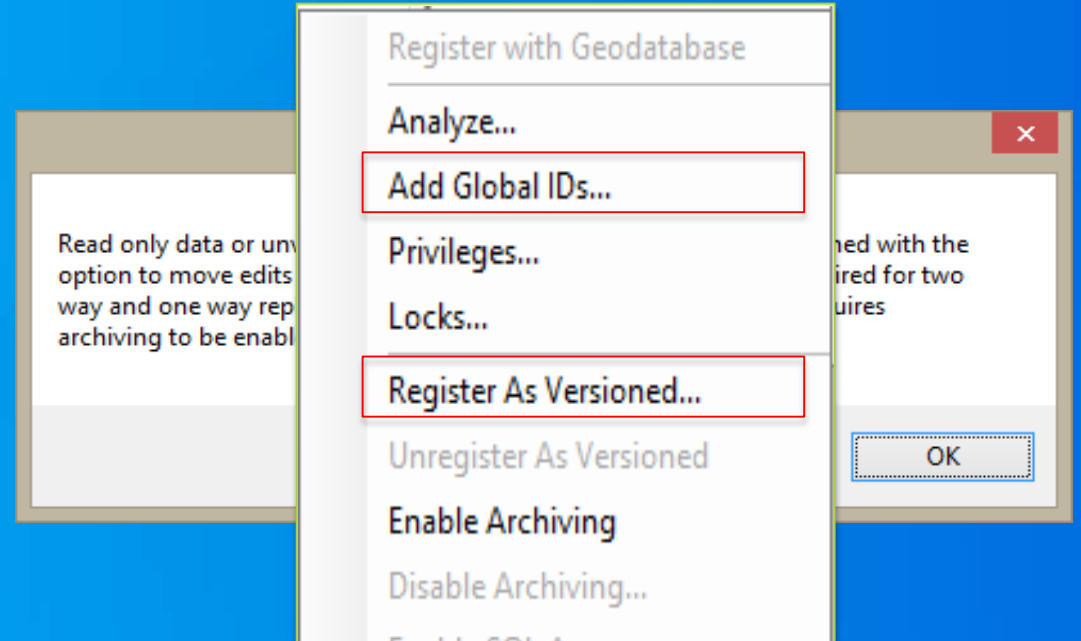
# Troubleshooting: Data Does Not Replicate

## Check for Prerequisites

Versioned (without move edits to base)  
GlobalIDs  
Stored as High Precision

## Replica Creation Model

Full model vs Simple Model  
Geodatabase objects  
Simple feature classes and tables



# Troubleshooting: Schema Changes

## Issues:

- ... Edits may not sync
- ... Invalid values introduced
- ... Synchronization errors

KB# 34654

## How to Resolve:

- Compare Replica Schema
- Import Replica Schema
- Sync Changes

```
</SchemaChangeInfo>
- <SchemaChangeInfos xsi:type="esri:ArrayOfSchemaChangeInfo">
  - <SchemaChangeInfo xsi:type="esri:SchemaChangeInfo">
    <SchemaChangeType>esriSchemaChangeTypeDeleteField</SchemaChangeType>
    <ApplySchemaChange>>false</ApplySchemaChange>
    - <ToSchemaObject xsi:type="esri:Field">
      <Name>New_Field</Name>
      <Type>esriFieldTypeString</Type>
      <IsNullable>>true</IsNullable>
      <Length>50</Length>
      <Precision>0</Precision>
      <Scale>0</Scale>
      <AliasName>New_Field</AliasName>
      <ModelName>New_Field</ModelName>
    </ToSchemaObject>
  </SchemaChangeInfo>
</SchemaChangeInfos>
</SchemaChangeInfo>
```

# Troubleshooting: 'Create Replica' Button Disabled

Distributed Geodatabase

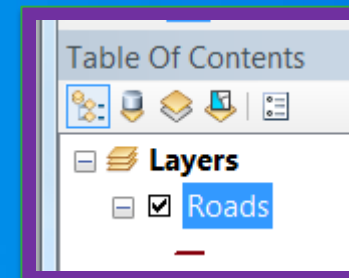
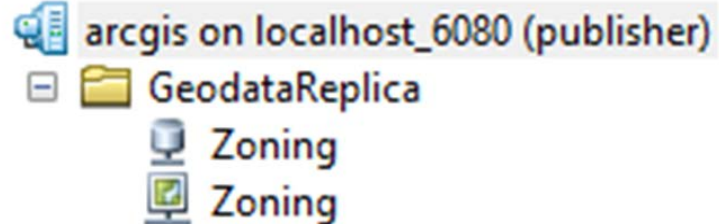


## Geodata & Map Services:

- Identical names
- Same services folder

## Layers in MXD:

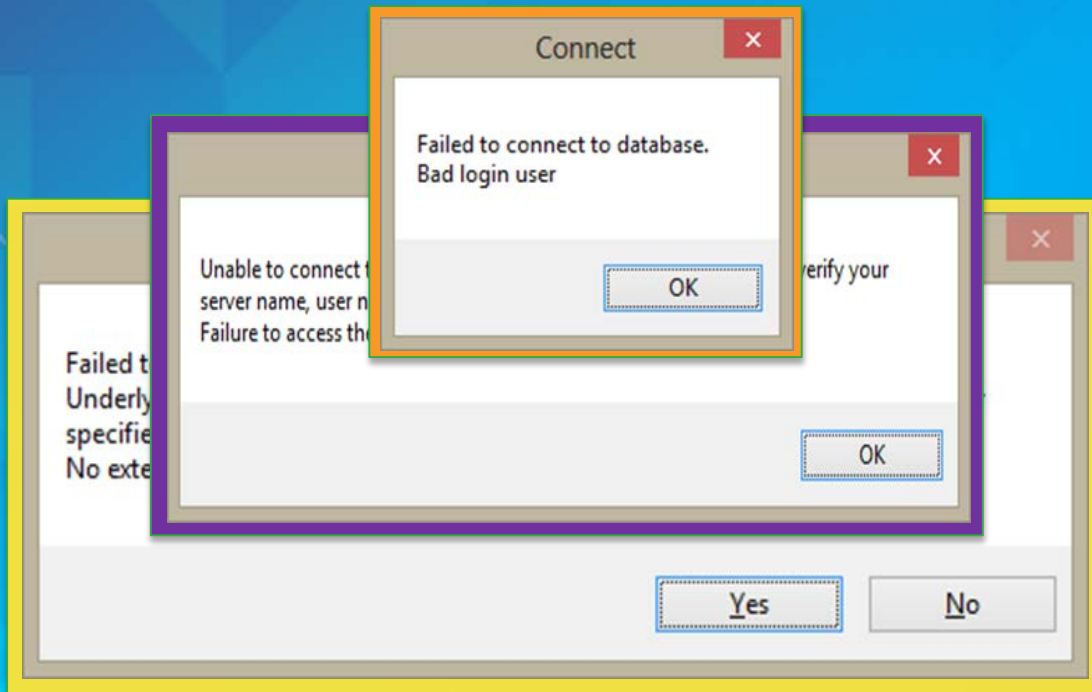
- Match feature class
- No alias



Manhattan.GISOWNER.Signposts\_Streets  
Manhattan.GISOWNER.Streets  
Manhattan.GISOWNER.Streets\_Patterns



# Troubleshooting: Geodata Service Connectivity



## Check this:

SDE connection file > permissions

Geodatabase connection properties

Can ArcGIS Desktop connect directly?

Manual Disconnected Sync

- which side has issue?

Client and database tracing

# Troubleshooting: Tools & Methods

# Troubleshooting Tools

Replica Logs

Replica Manager

Disconnected  
Manual Sync

DBMS traces

Identify underlying  
cause of issue

SDE Intercept

DBMS Alert Logs

ArcGIS Crash Dump

ArcGIS Server Logs

# Troubleshooting Tools: Replica Manager

## List of Replicas

Replica Manager (sde - LIZP)

Replica types listed:

All Types

Name	Owner	Type	Role	Status	Conflicts	Version	Date Created
MyReplica	SDE	Two way	Parent	Data Sender	No	sde.DEFAULT	6/5/2015 4:34:15 PM

Replica Properties

General Description Advanced

Replicated Data:

Data	Type	Replicate
PARENT1031.SDE.BLOCKS	Feature Class	All Features

Related features and rows are replicated

Replicated features in layers that use geometry must INTERSECT th

Replica Properties

General Description Advanced

This Replica

Current Generation 1

Last Acknowledged Generation 1

Relative Replica

Generation (based on last received message) 2

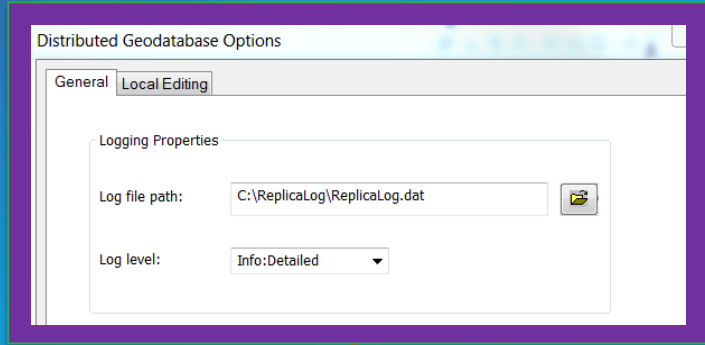
Relative Replica Connection

.DEFAULT;DATABASE=Child1031;USER=sde;PASSWORD=\*\*\*\*\*

Persist user name and password

## More Details

# Troubleshooting Tools: Replica Logs

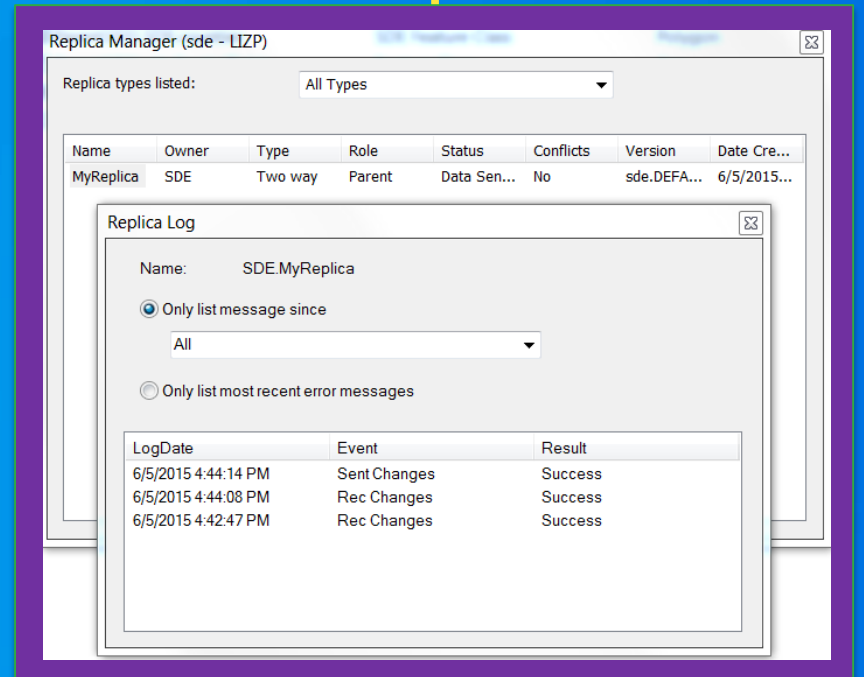


ArcMap Distributed  
Geodatabase Toolbar

Replica Activity Log:  
... set file path  
... set log level

Replica Manager

Replica Log:  
... Date, Event & Result



# Troubleshooting Tools: Replica Activity Log

Operations

GlobalIDs

Time

```
<ReplicaMsg time='7/10/2015 5:05:10 PM' type='LOG_MESSAGE_TYPE_INFO3' code=''  
elapsed='0.015000 seconds' method='TransferringDelete'  
objectClassName='Child1031.SDE.Blocks' replicaName=''></ReplicaMsg>
```

```
<ReplicaMsg time='7/10/2015 5:05:10 PM' type='LOG_MESSAGE_TYPE_DEBUG' code=''  
elapsed='0.094000 seconds' method='TransferringDelete'  
objectClassName='Child1031.SDE.Blocks' replicaName=''>Deleting  
{4C7BDFE7-3DCA-41AA-B1B1-6B1B9466B80E} feature</ReplicaMsg>
```

```
<ReplicaMsg time='7/10/2015 5:05:10 PM' type='LOG_MESSAGE_TYPE_INFO3' code=''  
elapsed='0.062000 seconds' method='ReplicaDataSynchronizer::TransferDelete'  
objectClassName='' replicaName=''>Finished deleting for dataset:  
Child1031.SDE.Blocks. Number of features deleted: 1</ReplicaMsg>
```

```
<ReplicaMsg time='7/10/2015 5:05:10 PM' type='LOG_MESSAGE_TYPE_INFO3' code=''  
elapsed='0.062000 seconds' method='ReplicaDataSynchronizer::TransferChanges'  
objectClassName='' replicaName=''>Finished transferring deletes.</ReplicaMsg>
```

# Troubleshooting Tools: SDE Intercept Manual Sync

Export Data Changes:  
... inspect delta geodatabase

Import Message:  
... verify data changes

Export Acknowledgement Message:  
... XML verifies data changes received

Import Message:  
... Confirm sync with relative



# Troubleshooting Tools: SDE Intercept

```
=====  
[W 17:05:11.493] Command:      VersionGetList  
[W 17:05:11.493] Dynamic_Str:  "parent_owner = 'SDE' AND parent_name = 'SYNC_SEND_16_2'"  
[R 17:05:11.493] Long:        0  
[R 17:05:11.493] Long:        0  
=====  
[W 17:05:11.493] Command:      VersionDelete  
[W 17:05:11.493] NString:     "SDE.SYNC_SEND_16_2"  
[R 17:05:11.509] Long:        0  
=====  
[W 17:05:11.509] Command:      VersionGet  
[W 17:05:11.509] NString:     "SDE.SYNC_SEND_16_1"  
[R 17:05:11.509] Long:        -126  
=====  
[W 17:05:11.509] Command:      GetConnectionError  
[R 17:05:11.509] Long:        0  
=====  
[W 17:05:11.509] Command:      VersionGet  
[W 17:05:11.509] NString:     "SDE.SYNC_SEND_16_0"  
[R 17:05:11.509] Long:        -126  
=====  
[W 17:05:11.509] Command:      GetConnectionError  
[R 17:05:11.509] Long:        0  
=====  
[W 17:05:11.524] Command:      QueryWithInfo  
[W 17:05:11.524] Long:        1  
[W 17:05:11.524] Query Info:  
  Num Columns:  3  
  Columns:     "ObjectID", "UUID", "Type"  
  SQL Construct: [1]  
  Tables:      "Parent1031.sde.GDB_Items"  
  WhereClause: "PhysicalName = 'PARENT1031.SDE.GDB_REPLICALOG' AND Type IN  
( '{70737809-852C-4A03-9E22-2CECEA5B9BFA}' )"  
  Query Type:  4  
  Num Hints:   0  
  Num Parameter markers: 0  
  Logfile:     <null>  
[R 17:05:11.524] Long:        0  
[R 17:05:11.524] Col_Defines: [3]  
-----  
Name                               Type      Width nDec  NULL?  RowID  
-----  
ObjectID                           SE_INT32   10  0  NOT NULL  SDE  
UUID                                 SE_UUID   38  0  NOT NULL  
Type                                 SE_UUID   38  0  NOT NULL  
-----
```

## SDE Intercept:

- Any ArcSDE command from ArcGIS
- Queries
- Time

KB #35704

# Troubleshooting Tools: DBMS Traces

SQL Server Profiler

Oracle – Level 12

... queries  
... time

EventClass	TextData	ApplicationName	NTUserNa...	LoginName	CPU	Reads	Writes	Duration	ClientProcessID	SPID	StartTime	EndTime	BinaryData
RPC:Completed	exec sp_unprepare 86	SDE:9196:3812		sde	0	0	0	0	9196	55	2015-06-01 17:11:47...	2015-06-01 17:11:47...	0x00000...
SQL:BatchStarting	SET TRANSACTION ISOLATION LEVEL RE...	SDE:9196:3812		sde					9196	54	2015-06-01 17:11:47...		
SQL:BatchCompleted	SET TRANSACTION ISOLATION LEVEL RE...	SDE:9196:3812		sde	0	0	0	0	9196	54	2015-06-01 17:11:47...	2015-06-01 17:11:47...	
RPC:Starting	declare @p1 int set @p1=NULL exec...	SDE:9196:3812		sde					9196	55	2015-06-01 17:11:47...	2015-06-01 17:11:47...	0x00000...
RPC:Completed	declare @p1 int set @p1=87 exec s...	SDE:9196:3812		sde	0	6	0	0	9196	55	2015-06-01 17:11:47...	2015-06-01 17:11:47...	0x00000...
RPC:Starting	exec sp_unprepare 87	SDE:9196:3812		sde					9196	55	2015-06-01 17:11:47...		0x00000...
RPC:Completed	exec sp_unprepare 87	SDE:9196:3812		sde	0	0	0	0	9196	55	2015-06-01 17:11:47...	2015-06-01 17:11:47...	0x00000...
SQL:BatchStarting	SET TRANSACTION ISOLATION LEVEL RE...	SDE:9196:3812		sde					9196	54	2015-06-01 17:11:47...		

```
declare @p1 int
set @p1=NULL
exec sp_preexec @p1 output, NULL, N'select ObjectID, UID, Type, Name, PhysicalName, Path, Datasetsubtype1, Datasetsubtype2, DatasetInfo1, DatasetInfo2, URL, Definition, Properties, Shape from
dms.sde.GDB_Items where (dms.sde.GDB_Items.Type = '{F3783E6F-65CA-4514-8315-CE3985DAD3B1}' AND NOT EXISTS (SELECT * FROM dms.sde.GDB_ItemRelationships WHERE dms.sde.GDB_ItemRelationships.DestID =
dms.sde.GDB_Items.UUID))'
select @p1
```

## Troubleshooting Tools: Crash Dump File

Critical Errors:

C:\Users\yourname\AppData\Local\ESRI\ErrorReports

Please enter valid email address and choose option to send report to Esri

Send crash dump file if contacting Esri Technical Support

# Demo

Ben Lin

## Tips & Tricks:

Check Data Preparation  
& Workflows first

Use Logs & Traces

Manually transfer large datasets  
> Register existing data only

Contact Esri Technical Support  
888-377-4575

# Want to learn more?

- **Documentation**

- [KB Articles 45136](#)
- [Geodatabase replicas](#)
- [Geodata Services](#)

- **Related Esri Training and Tutorials**

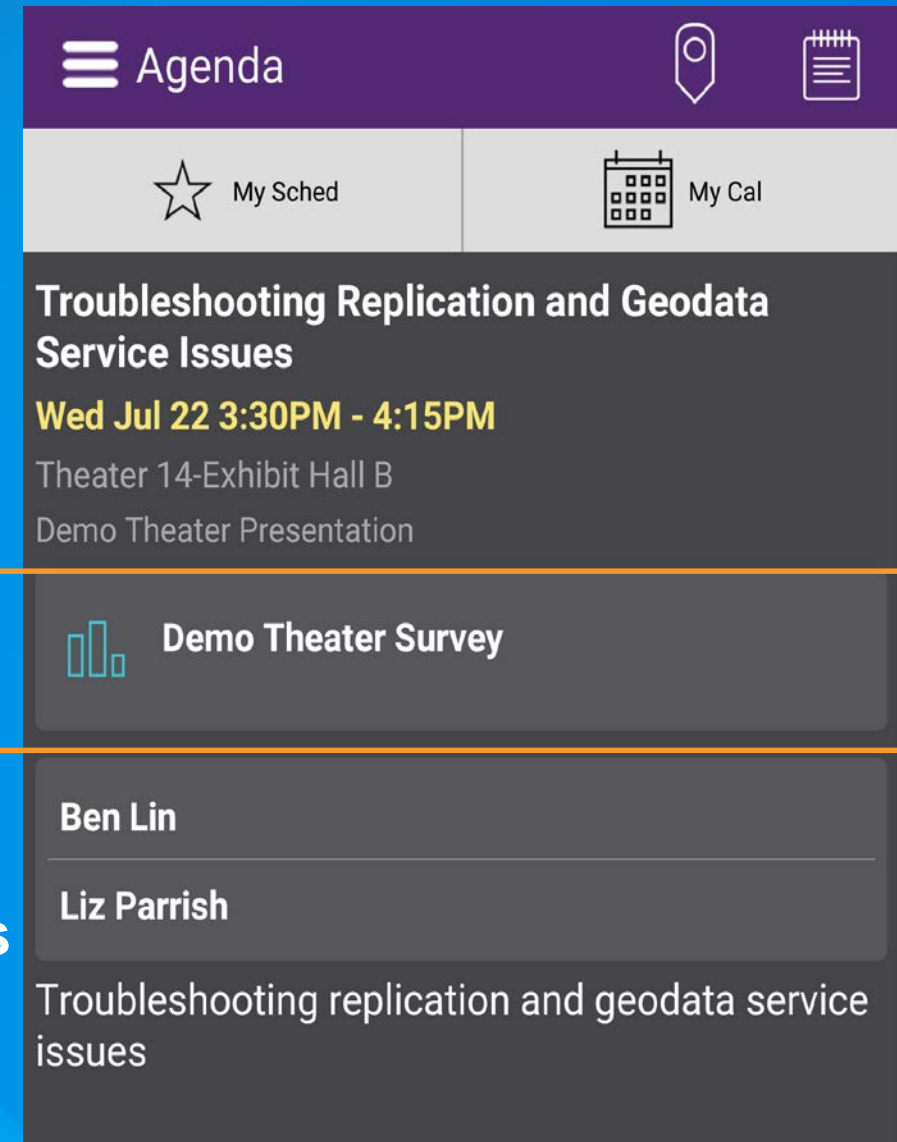
- [Distributing Data Using Geodatabase Replication \(Instructor Led\)](#)
- [ArcGIS for Server: Site Configuration and Administration \(Instructor Led\)](#)

- **Additional Resources**

- **ESRI Technical Support 888-377-4575**

# Thank you...

- Please fill out the session survey in your mobile app
- Select Troubleshooting Replication and Geodata Services in the Mobile App
  - Use the Search Feature to quickly find this title
- Click “Demo Theater Survey”
- Answer a few short questions and enter any comments





The background features a vibrant blue gradient. On the left side, there are several overlapping geometric shapes in shades of purple and yellow. One yellow shape contains a faint, light-colored map of a region, possibly a state or county. The overall design is modern and abstract.

**Questions?**