CGN: Content Portal 6.0.0 Windows Server Upgrade Guidance Note

This document provides high-level guidance to customers that undertake their own hosting and management of Jadu Content Portal software running on a WISP (Windows Server 2016, SQL Server, IIS 10, PHP 7.2) server software stack and wish to undertake an upgrade to Windows Server 2019, SQL Server 2019, IIS 10, PHP 7.4.

This document provides guidance to system administrators, and is not intended as a universal step by step guide - if such a level of support is required, please contact Jadu for a professional services quotation.

Overall Approach

In order to upgrade your platform, you will need a new server running Windows Server 2019.

The upgrade will copy the database and some of the file systems from the old server to the new server. Some amount of service downtime is expected during the migration process.

Note: At the time this document was created (September 2021) Jadu Content Portal software does not support PHP versions above 7.4, SQL Server versions above 2019 or Windows versions above 2019.

1. Setup new servers

Setting up a server and installing Jadu Content Portal on Windows 2019

This document describes the process of installing the Jadu CP in a Windows 2019 environment. The following things are covered in this document:

- System requirements
- Setting up the server
- Installing the Jadu CP application
- Load balancer

System requirements

Required

- Windows Server 2019
- SQL Server 2019
- PHP 7.4
- IIS 10
- ClamAV

- SMTP server
- IIS URL Rewrite
- Memurai (optional for single server setup and mandatory for load balancing arch)
- Java Runtime Environment (JRE) version 8

PHP modules to enable/install

- Php-fpm
- Bcmath
- Enchant
- Curl
- Zip
- XML
- XMl-RPC
- Opcache
- Mbstring
- sqlsrv
- Ldap
- FileInfo
- Intl
- Soap
- OpenSSL

Note: the wincache extension, if present, must be disabled.

Setting up Windows 2019 server

Jadu CP requires the following prerequisite software:

- SQL Server 2019
- Microsoft® SQL Server® 2016 Native Client
- Microsoft ODBC Driver 13.1 64bit
- IIS 10
- An SMTP server
- Microsoft C++ Redistributable 2017 64bit
- PHP 7.4 with Microsoft Drivers for PHP for SQL Server
- .Net framework 4

Microsoft SQL Server 2019

Installing SQL Server 2019

Install Microsoft SQL Server 2019 according to Microsoft documentation. In the Feature Selection pane of the SQL Server 2019 Setup, check the following features:

- Database Engine Services
    - SQL Server Replication
    - Full-text Search

During the installation of SQL Server you will need to select which system accounts you wish to use.

The Account Name for the following Services should be "NT AUTHORITY\NETWORK SERVICE":

- SQL Server Agent

- SQL Server Database Engine

The Account Name for the following Services should be "NT AUTHORITY\LOCAL SERVICE":

- SQL Full-text Filter Daemon Launcher
- SQL Server Browser

You will need to set the startup type of the following services to 'Automatic' for the following services:

- SQL Server Agent
- SQL Server Database Engine
- SQL Server Browser

The following service can be left in "Manual" startup:

- SQL Full-text Filter Daemon Launcher

On the Database Engine Configuration screen, choose "Mixed Mode Authentication", and provide a strong password for the user "sa". Make a note of this password.

You will also need to provide at least one Windows user account, in the "Specify SQL Server administrators box".

Install Reporting Service

In older versions, the SQL Server installation allows a reporting service to be installed as an extra feature.

But in the latest version, you have to install them separately. You can find the Microsoft SQL Server 2019 Reporting Services from Microsoft website and install them.

Installing Management studio

In older versions, the SQL Server installation allows you to install Management Studio as an extra feature.

But in the latest version, you have to install them separately. You can find the latest version on the Management Studio that support SQL Server 2019 from Microsoft website and install them.

Enable MS SQL for Remote Access

In the SQL Server Configuration Manager, under protocols for MSSQLSERVER, enable:

- Shared memory
- Named pipes
- TCP/IP

These changes will require restarting SQL Server. To do this, open "Services.msc" (this can be found by clicking "Start" and then typing "Services.msc" in the search box on the Start Menu). Locate "SQL Server (MSSQLSERVER)", right-click it and select "Restart".

IIS 10.0

1. Open Windows Server Manager and click "Add Roles & Features" from the Quick start section in the main panel.
2. Click "Next" to begin selecting roles for the server.
3. When prompted to select an installation type select "Role-based or Feature-based" and click "Next".
4. You will now need to select the server to install the roles on. Make sure the "Select a server from the server pool" is selected and then choose the server you are connected to from the box below it and click "Next".

5. Check "Web Server (IIS)" from the list and add any features that it shows are required.
6. Make sure to check the following services are enabled under Web Server, and click "Next":
    - Common HTTP Features - include all sub items
    - Performance - include all sub items
    - Health and Diagnostics
        - HTTP Logging
        - ODBC
        - Request Monitor
    - Security
        - Request Filtering
        - Digest Authentication
        - URL Authorization
        - IP and Domain Restrictions
    - Application Development
        - .NET Framework 4.6
        - ASP .NET 4.6
        - CGI
    - FTP Server
    - Management Tools
        - IIS Management Console
        - IIS 6 Management Compatibility, including all sub items
7. Check that everything required is listed and click "Install".

SMTP Server

An SMTP server is required for email originating from Jadu CMS. This can be a remote SMTP server or you can configure the local server to act as an SMTP server.

To set up a local SMTP server:

1. Open Windows Server Manager and click "Add Roles & Features" from the Quick start section in the main panel.
2. Choose "Role-based or feature based installation" and click "Next"
3. Select the "Select a server from the server pool" option and then choose the current server from the list and click "Next"
4. Click "Next" to move on to the feature selection page.
5. Within the Feature selection window, check the box next to "SMTP Server".
6. You may be prompted to add required role services and features, in which case these should be added. Click "Add Features".
7. Click "Next" to be taken to the confirmation page.
8. Check that everything required is listed and then click "Install"

IIS URL Rewrite

Install IIS Url rewrite IIS extension from the Microsoft site

PHP

Before installing php on your system please install the following

- Microsoft ODBC Driver 13.1 64bit Required by Microsoft Drivers for PHP for SQL Server
- Microsoft C++ Redistributable 2017 64bit or any higher version Required for php to run

Windows builds of PHP can be downloaded from http://windows.php.net/download/. For use with IIS and FastCGI the x64 Non Thread Safe version of PHP 7.4 should be downloaded.

1. Extract the downloaded zip to a folder of your choice. For example C:\PHP\.
2. Open the folder you extracted PHP to and make a copy of php.ini-production and rename it to php.ini
3. Open this php.ini file and ensure the extension_dir setting is set to the ext folder within your php installation.
4. Open the Control Panel, click System and Security, click System, and then click Advanced system settings.
5. In the System Properties window, select the Advanced tab, and then click Environment Variables.
6. Select Path under System Variables and click Edit.
7. Add the path to where you extracted PHP onto the end. For example ;C:\PHP. Click OK.
8. Open IIS Manager. Select the hostname of your server and double-click Handler Mappings.
9. Click Add Module Mapping in the Action panel.
10. Enter *.php in the Request Path. Select FastCgiModule from the Module menu.
11. Type the full path to Php-cgi.exe into the Executable box. For example C:\PHP\Php-cgi.exe
12. Enter a suitable name into the Name box and click OK
13. Return to the main screen for hostname.
14. Double click Default Document.
15. Click Add in the Action panel and enter `index.php into the Name box then click OK
16. Return to the main screen for hostname.
17. Double click MIME Type
18. Click "Add" from the right hand menu
19. In the dialog box that opens specify .webmanifest in the filename extension box and application/manifest+json in the MIME type box

Microsoft Drivers for PHP for SQL Server

Microsoft Drivers version 5.8 for PHP 7.4 and SQL Server 2019 can be downloaded from Microsoft Github repository

1. Download the Windows 7.4 zip file, extract the file
2. Copy the x64 versions of DLL to the location of the php extension directory. For example C:PHP\ext\
3. Add the lines below to the end of the php.ini file:

```
extension=php_pdo_sqlsrv_74_nts.dll
extension=php_sqlsrv_74_nts.dll
```

APCu

Can be downloaded from https://pecl.php.net/package/APCu

1. Download the x64 Non Thread Safe version of PHP 7.4 and extract the files.
2. Copy the DLL to the location of the php extension directory. For example C:PHP\ext\
3. Add the lines below to the end of the php.ini file:

```
extension=php_apcu.dll
apc.enabled=1
apc.shm_size=32M
apc.ttl=7200
apc.enable_cli=1
```

Enable PHP modules

Add the lines below to the end of the php.ini file:

```
extension=php_curl.dll
extension=php_enchant.dll
extension=php_gd2.dll
extension=php_ldap.dll
extension=php_mbstring.dll
zend_extension=php_opcache.dll
opcache.enable=On
opcache.enable_cli=On
extension=php_xmlrpc.dll
extension=intl
extension=openssl
extension=soap
extension=fileinfo
extension=php_ftp.dll (only if using cluster syncing)
```

Note: the wincache extension, if present, must be disabled.

You will now need to restart the server to allow the changes made to the PATH variable to take effect.

Antivirus

On Windows systems, clam can be installed by downloading a zip file from http://oss.netfarm.it/clamav/ - the mingw version should be selected.

1. Extract the downloaded zip to C:\ClamAV\
2. Create two empty folders named db and tmp inside the C:\ClamAV\ directory
3. Using the Windows command prompt, navigate to C:\ClamAV and run:

```
> clamd --install
> freshclam
```

4. Open services.msc, set the Clam service to have a startup type of Automatic
5. Make sure clamd.log has write/modify permissions for users (i.e users group)

Web statistics

The default field settings for IIS logging will result in no results being shown in the CMS web statistics report. For the CMS to correctly parse IIS log files, IIS' field settings must be adjusted as follows:

- date
- time
- s-sitename
- s-ip
- cs-method
- cs-uri-stem
- cs-uri-query
- s-port
- cs-username

- c-ip
- cs(User-Agent)
- cs(Referer)
- cs-host
- sc-status
- sc-substatus
- sc-win32-status
- sc-bytes

Setting up Database users

Jadu Application requires 3 different database users to run the application. We recommend to create 3 users with the following names.

- jadu
- jaduGM
- jaduGU

Make sure the password for these users strictly adheres to the organization policy.

Note: The privilege of the users will be altered using installation.

Updating the PHP configuration

As standard, Jadu make a few changes to the distribution PHP configuration file to improve security and prevent common errors from being raised:

In php.ini we need to:

- Disable .user.ini by uncommenting the line
- Disable exposing of PHP
- Allow MySQL reconnections
- Set the level of error logging
- Set an appropriate time zone
- Increase the maximum number of input variables

By changing the following lines:

```
user_ini.filename =
expose_php = Off
mysqli.reconnect = On
error_reporting = E_ALL & ~E_NOTICE
date.timezone = Europe/London
max_input_vars = 1250
```

Installing Jadu CMS

Main installation

Download the installation package from Jadu. This archive package will contain:

- jadu.zip , the application code archive

- Installer.phar - PHP Archive that helps you install the application.
- params.yml-LINUX - A linux example params.yml
- params.yml-WINDOWS - A windows example params.yml

During the installation we will set up the apache which requires the SSL certificate. Hence we need the SSL certificate for the file on the server.

During the installation you have to specify the following:

1. Installation path
2. Package path
3. IIS user and guest
4. Jadu svc username and password
5. Jadu IIS admin svc username and password
6. Hostname
7. Database host, port and driver name
8. Database name for the application (we recommend jadudb)
9. Database root username and password
10. Database jadu username and password
11. Database jaduGU username and password
12. Database jaduGM username and password

The above details will be asked during the installation if the params.yml is not provided.

We highly recommend the installation path to be `D:\inetpub\wwwroot\jadu`

Before you install it is highly recommended to run the `check-setup` command.

```
$ php installer.phar check-setup
```

Running the above command will check for some mandatory modules, make sure all the checks pass. If any of the checks fails then you will not be able to proceed with installation unless the failure is fixed.

To install the application use the install command

```
$ php installer.phar install
```

If you want verbose debugging messages to be shown during the installation then you can use `-v`, `-vv` or `-vvv` options.

Post Installation task

Mandatory manual task post installations are

- Updating php.ini
- Setting up IIS site

Updating php.ini

Post installation we have to update the following php configurations assuming the install path was `D:\inetpub\wwwroot\jadu`

Configuration	Proposed value
include_path	D:\inetpub\wwwroot\jadu\jadu
error_log	D:\inetpub\wwwroot\jadu\logs\php_log
session.save_path	D:\inetpub\wwwroot\jadu\var\sessions
upload_tmp_dir	D:\inetpub\wwwroot\jadu\var\tmp

Setting up the IIS site

The site requires SSL and hence you have to import your SSL certificate to the IIS and update the binding of the site so that you will be able to access the site using the right domain name from the browser.

Hopefully everything goes right during the installation. You should be able to visit the site **{hostname}/jadu** and start setting up the application.

Installing Jadu XFP

1. Download the installation package from Jadu.
2. Extract the archive package
3. Open command prompt as an Administrator user and change to the extracted installer directory

```
cd /path/to/xfp-installer/
```

4. Run the installer

```
./install.bat -d /path/to/jadu/
```

   You will be prompted if you want to install XFP as a standalone product, entering y at this prompt will disable the publishing capabilities of the CMS.

```
Do you want to install standalone XForms Professional? [y/N]:
```

Patch Jadu XFP

1. Stop IIS (if running)
2. Download the release package from Jadu.
3. Extract the release package (replace {patch-version-number} with the version number of release package)

```
unzip {patch-version-number}.zip
```

4. Now change to the extracted release package directory

```
cd {patch-version-number}
```

5. Apply the patch by running the Meteor command

```
php -d memory_limit=512M meteor.phar patch:apply --path=/path/to/jadu/
```

Once complete, the server will contain a working copy of XFP.

Installing Jadu CP

1. Download the installation package from Jadu. ***NOTE: If using the "jcp-6.1.0-installer.zip", you must patch with an XFP 8+ package first in order to install JCP.***
2. Extract the archive package
3. Open command prompt as an Administrator user and change to the extracted installer directory

```
cd /path/to/jcp-{VERSION}-installer/
```

4. Run the installer

```
./install.bat -d /path/to/jadu/
```

Update Jadu CP

1. Stop IIS (if running)
2. Download the release package from Jadu.
3. Extract the release package (replace {patch-version-number} with the version number of release package)

```
unzip {patch-version-number}.zip
```

4. Now change to the extracted release package directory

```
cd {patch-version-number}
```

5. Apply the patch by running the Meteor command

```
php -d memory_limit=512M meteor.phar patch:apply --path=/path/to/jadu/
```

6. Manually clear cache (although Meteor does also clear caches)
7. Warm caches using the following 2 CLI commands via command prompt, run from the jadu install directory e.g. C:\inetput\wwwroot\jadu)

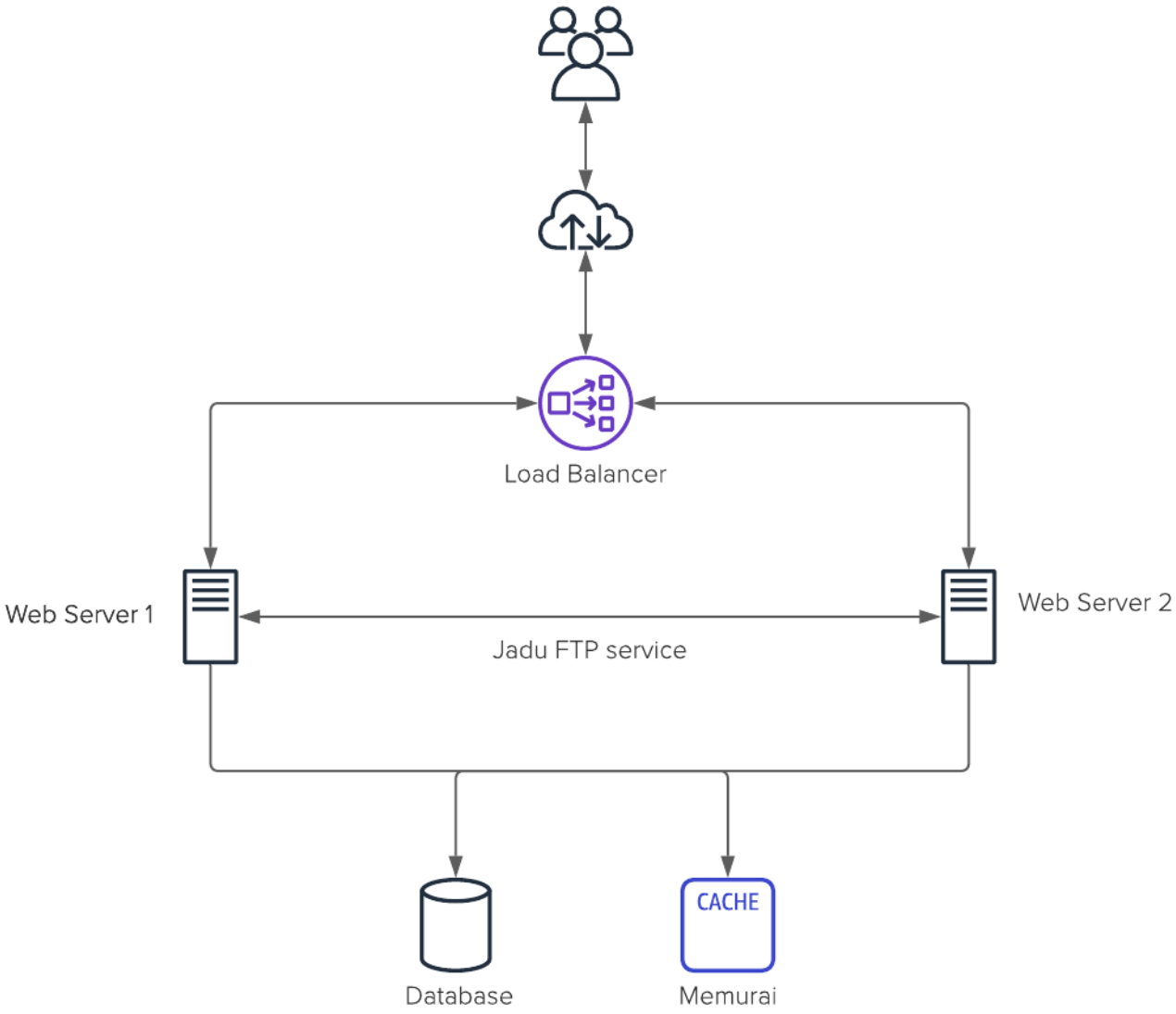
```
php cli.php cache:warmup --kernel=frontend
php cli.php cache:warmup --kernel=cc
```

8. Start IIS

Load balancer

Setting up server

Basic load balancer setup architecture is show as below



For the load balance Memurai is a mandatory component as we will be using Memurai for the sessions and cache management. You can have any number of web servers. Install all the prerequisites on all the web servers. It is good to have the database and Memurai separated from the web server. The database and Memurai can be on the same server or can be separated too.

Installing Jadu for load balancing

The installation process is similar to the installation of Jadu on a single server, except for a few extra steps. The installation steps for Jadu (described in full above in this document) will be the same on all nodes, except where noted below on the main vs. secondary servers/nodes.

Steps involved:

1. Install Memurai on the DB or Cache Server
2. Run prerequisites check on node 1 (main node)
3. Install the Jadu Application on node 1 (main node)
4. Run prerequisites check on other nodes
5. Install the Jadu Application on other nodes
6. Disable few schedule tasks from Task Manager

7. Setup Jadu Cluster sync
8. Setting up application cache and session

Install Memurai on the DB or Cache Server

1. Install Memurai using their documentation: https://docs.memurai.com/en/installation.html
2. Be sure to check out the notes regarding the Configuration File. Values of particular note are:
    a. **protected_mode** (by default this is 'on' which is localhost-only)
    b. **maxmemory-policy** (typically this is set to 'allkeys-lru')
    c. **maxmemory** (if undefined, this will error if it hits the memory heap max for the Windows server)

Running prerequisites check on main server

3. Download the installer from Jadu
4. Upload the TLS file into the server
5. Create params.yml from params.yml-WINDOWS and populate the values
6. Run the prerequisites check command

```
$ php installer.phar check:setup
```

Running installation

You will be running the install command on main node as

```
$ php installer.phar install
```

Run prerequisites check on other nodes

1. Download the installer from Jadu into all web servers
2. Create params.yml from params.yml-WINDOWS and populate the values you can exclude tls file configuration here

```
$ php installer.phar install --application-only
```

Install the Jadu Application on other nodes

You will be running the install command on other node as

```
$ php installer.phar install --application-only
```

Disable few schedule task from Task Manager

The main schedule tasks are supposed to run only on the main node. So follow the step on all other nodes:

1. Go to Task Scheduler
2. Select Jadu from the left pane list, this should show all the Jadu related scheduled task
3. Select all the task other than JaduIISConfigupdater and disable them

Setting up Jadu Cluster sync

The following steps should be done all web nodes

1. Create a new 'jadu_ftp' user
2. Go to IIS and select the main server
3. Select FTP Firewall Support
4. Set Data Channel port range to 2000-2100
5. Apply the changes by clicking the apply on the right pane
6. Go back to main server and right click and select Add FTP Site
7. In Add FTP Site dialog box, give a unique name to the site like wincms_ftp for FTP Site Name and Select the Jadu install path on the Physical Path and click Next
8. In Binding and SSL setting page, select Allow SSL and select your SSL certificate for the site and leave all others as

it is and click Next

9. In Authentication and Authorization information dialog select Basic Authentication type. Under Authorization select Allow access to Specific Users and in the below text box specify the jadu_ftp user . Select both Read and Write permissions and click Finish
10. Now you can see a new FTP site on your IIS
11. Select the Jadu base installation path and add permission to the folder so that jadu_ftp user has access to read, write and modify. **(Alternatively, add "jadu_ftp" user to the IIS_USRS group on the server)**
12. Go to your PHP.ini file, and ensure that the FTP extension is enabled: 'extension = php_ftp.dll'
13. Now go to config directory of the installation path and make a copy of clustersync.xml.example file and name it as clustersync.xml in the same directory.
14. Restart 'Microsoft FTP Services' in Services.msc
15. Edit the "clustersync.xml" file and ensure that the XFP lines below are present at the bottom.

```
<path name="xfp-form-attachments" write="1" delete="1">#^<config:constant
name="XFORMS_USER_FORM_FILE_UPLOAD_DESTINATION_DIRECTORY" />/#i</path>
<path name="xfp-pdf-forms" write="1" delete="1">#^<config:constant name="XFORMS_PDF_FORMS_DIRECTORY"
/>#i</path>
<path name="xfp-form-email-attachments" write="1" delete="1">#^var/form_email_attachments/#i</path>
<path name="xfp-file-output" write="1" delete="1">#^var/xfp_file_output/#i</path>
<path name="received-pdf-form-files" write="1" delete="1">#^var/received_pdf_form_files/#i</path>
<path name="xfp-data-export" write="1" delete="1">#^var/xfp_data_export/#i</path>
```

16. Update the serverAddress to the IP address of current node
17. Update the servers with list of the all webnode IPs with the ftp username and password appropriately
18. The attribute multimedia should be set to 1 only for the main node where the scheduled task is set to run

Setting up application cache and session

Setting session to use Memurai

To set the application to use Memurai for the session, update the php.ini file

```
session.save_handler = redis
session.save_path    = tcp://{redis-host}:{redis-port}
```

Setting cache to use Memurai

To set the application to use Memurai for the cache, update the node cache_data_store in config/system.xml to use Memurai instead of files.

```
<cache_data_store>redis</cache_data_store>
```

In `config/datastore.xml`, update the connection details in the server node of the redis block:

```
<?xml version="1.0" encoding="utf-8" ?>
<datastore xmlns:config="http://www.jadu.co.uk/schema/config">
  <memcached>
     <servers>
        <server host="1.2.3.4" port="11211"/>
     </servers>
  </memcached>
  <redis>
     <servers>
        <server host="1.2.3.4" port="6379"/>
     </servers>
```

```
  </redis>
</datastore>
```

Copy the constants.xml to all Web Servers

1. Edit the "<driiveletter>:\inetpub\wwwroot\jadu\config\constants.xml" from the "main" Web serve.
2. Ensure it has a value in the 'csrf_token_salt' value. By default this is not populated, so it can be any hash value but it needs to be the same on all synced web servers.
3. Copy the entirely of the "Main" Web server's constants.xml file and paste into the secondary servers (it should match identically between all servers).

Installing Jadu XFP

1. Download the installation package from Jadu.
2. Extract the archive package
3. Open command prompt as an Administrator user and change to the extracted installer directory

```
cd /path/to/xfp-installer/
```

4. Run the installer

```
./install.bat -d /path/to/jadu/ --skip-database
```

Patch Jadu XFP

1. Stop IIS (if running)
2. Download the release package from Jadu.
3. Extract the release package (replace {patch-version-number} with the version number of release package)

```
unzip {patch-version-number}.zip
```

4. Now change to the extracted release package directory

```
cd {patch-version-number}
```

5. Apply the patch by running the Meteor command

```
php -d memory_limit=512M meteor.phar patch:apply --path=/path/to/jadu/
```

Once complete, the server will contain a working copy of XFP.

Installing Jadu CP

1. Download the installation package from Jadu. ***NOTE: If using the "jcp-6.1.0-installer.zip", you must patch with an XFP 8+ package first in order to install JCP.***
2. Extract the archive package
3. Open command prompt as an Administrator user and change to the extracted installer directory

```
cd /path/to/jcp-installer/
```

4. Run the installer

```
./install.bat -d /path/to/jadu/
```

Update Jadu CP

1. Stop IIS (if running)
2. Download the release package from Jadu.
3. Extract the release package (replace {patch-version-number} with the version number of release package)

   ```
   unzip {patch-version-number}.zip
   ```

4. Now change to the extracted release package directory

   ```
   cd {patch-version-number}
   ```

5. Apply the patch by running the Meteor command

   ```
   php -d memory_limit=512M meteor.phar patch:apply --path=/path/to/jadu/
   ```

6. Manually clear cache (although Meteor does also clear caches)
7. Warm caches using the following 2 CLI commands via command prompt, run from the jadu install directory e.g. C:\inetput\wwwroot\jadu)

   ```
   php cli.php cache:warmup --kernel=frontend
   php cli.php cache:warmup --kernel=cc
   ```

8. Start IIS

Ensure you can log into the control centre after installation.

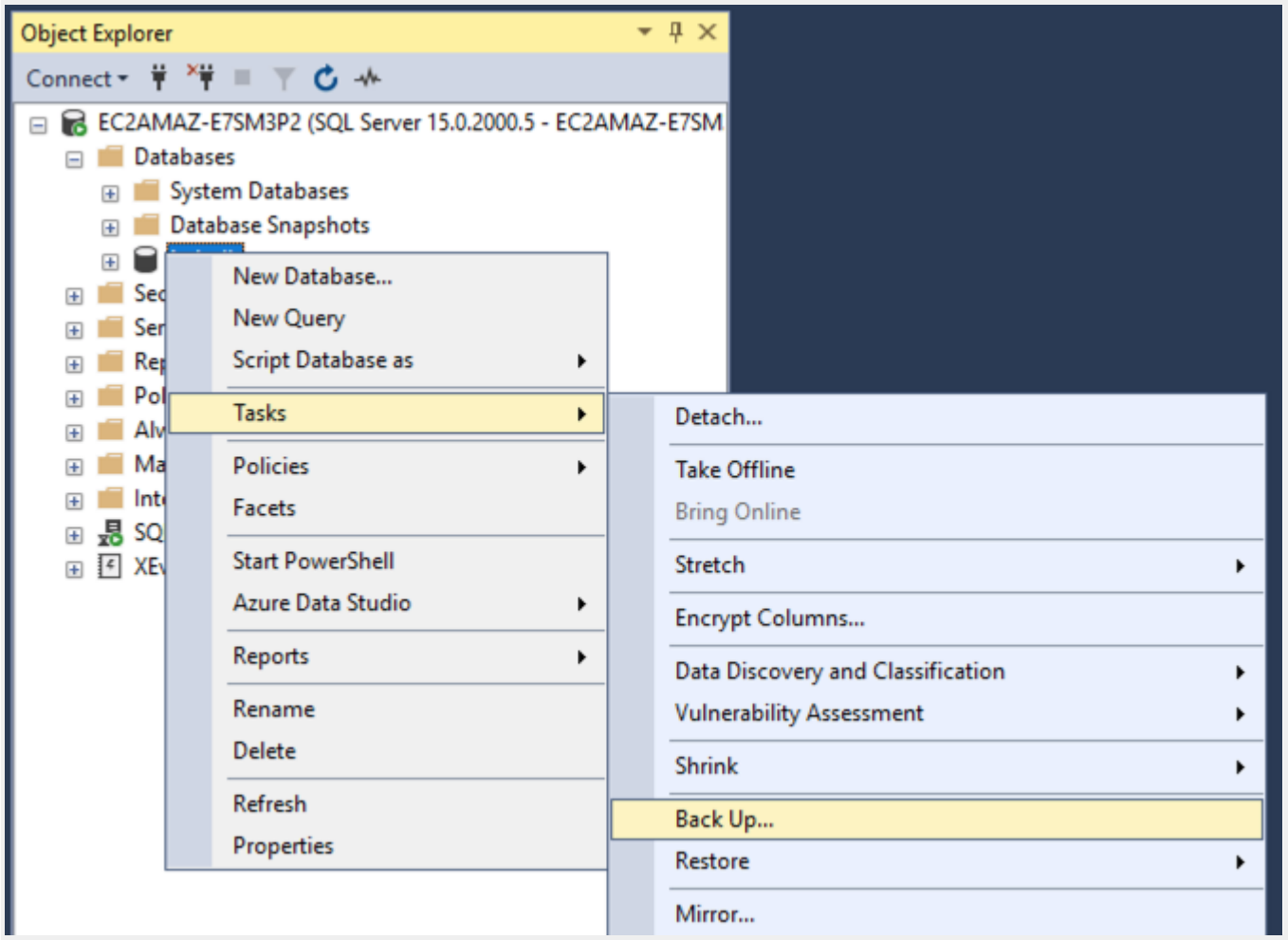
2. Backup content from old Windows Server

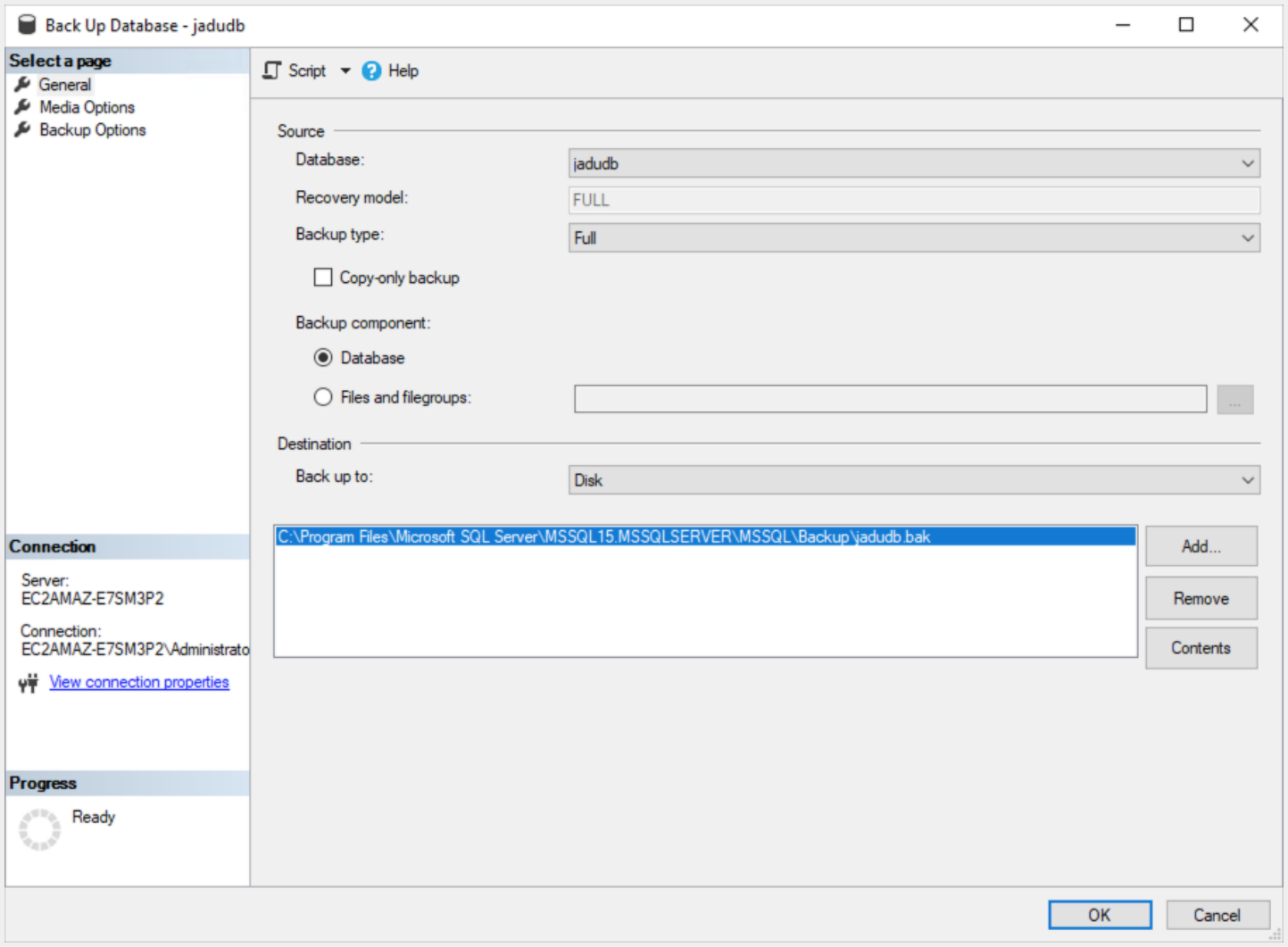
2a. Backup databases

Log into the old database server and take a backup of the database(s).

You will need to take backups of the main Jadu database (typically called `jadudb` or `jadu`).

Use SQL Management Studio to take the backups


Object Explorer
Connect
EC2AMAZ-E7SM3P2 (SQL Server 15.0.2000.5 - EC2AMAZ-E7SM
Databases
System Databases
Database Snapshots
New Database...
New Query
Script Database as
Tasks
Policies
Facets
Start PowerShell
Azure Data Studio
Reports
Rename
Delete
Refresh
Properties
Detach...
Take Offline
Bring Online
Stretch
Encrypt Columns...
Data Discovery and Classification
Vulnerability Assessment
Shrink
Back Up...
Restore
Mirror...



Make a note of the backup destination.

2b. Backup directories

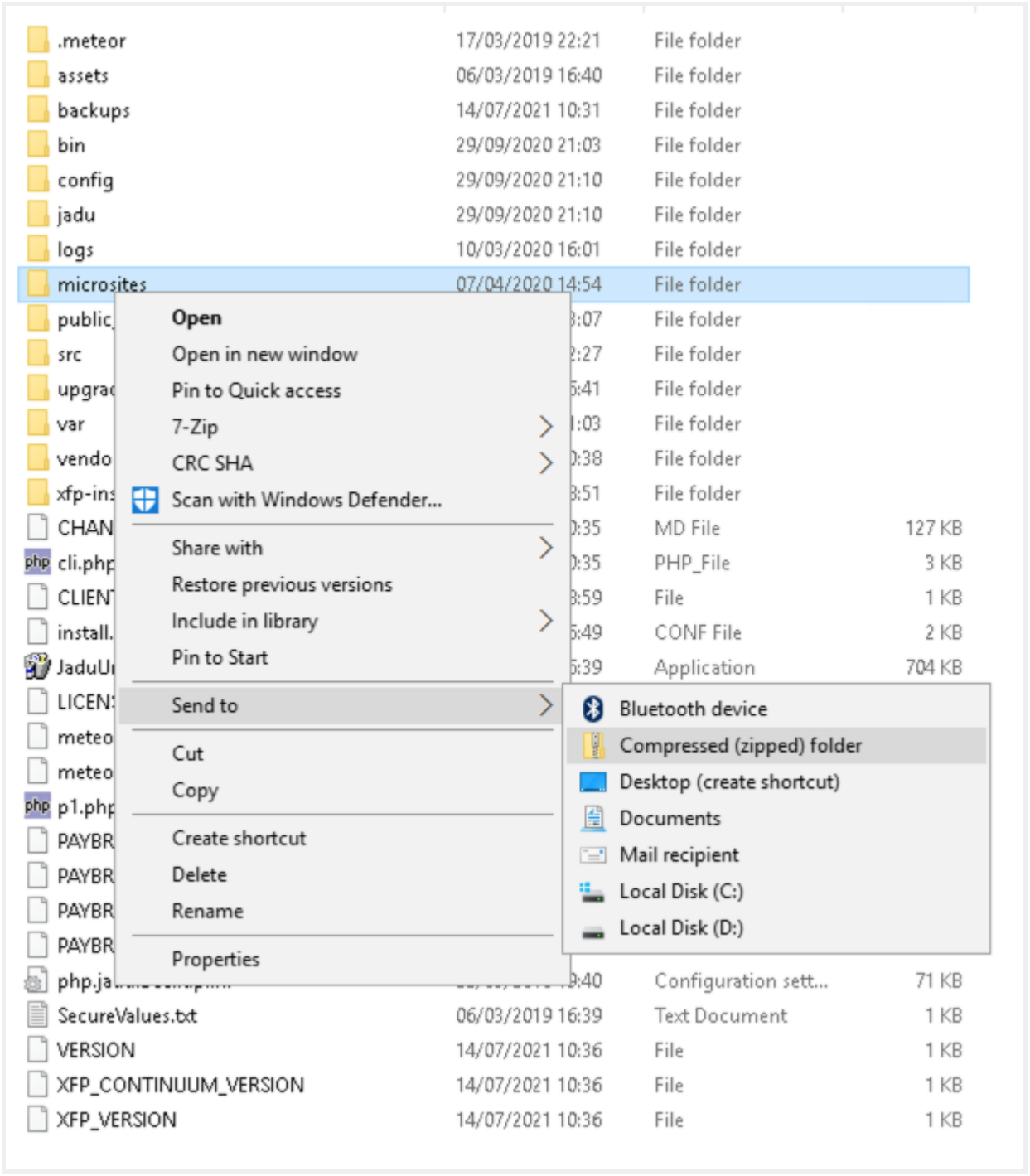
Along with the database, some content is stored on the file system. Compress the following directories into zip files for easy transfer.

Replace /path/to/jadu with the root directory of your jadu installation, this is typically `C:/inetpub/wwwroot/jadu`.

Directory	Notes
/path/to/jadu/public_html	Contains the web accessible scripts and content
/path/to/jadu/var	Contains non web accessible content.
/path/to/jadu/config	Contains the site configuration files
/path/to/jadu/jadu/custom	Contains custom code (if exists)
/path/to/jadu/src	Contains site code
/path/to/jadu/jadu/PayBridge/PSP/Adapter	PayBridge PSP adapters (if using PayBridge)

/path/to/jadu/PAYBRIDGE_*	PayBridge adapter version files (if using PayBridge)
/path/to/jadu/.meteor/file-migrations	Contains history of file migrations run by patching

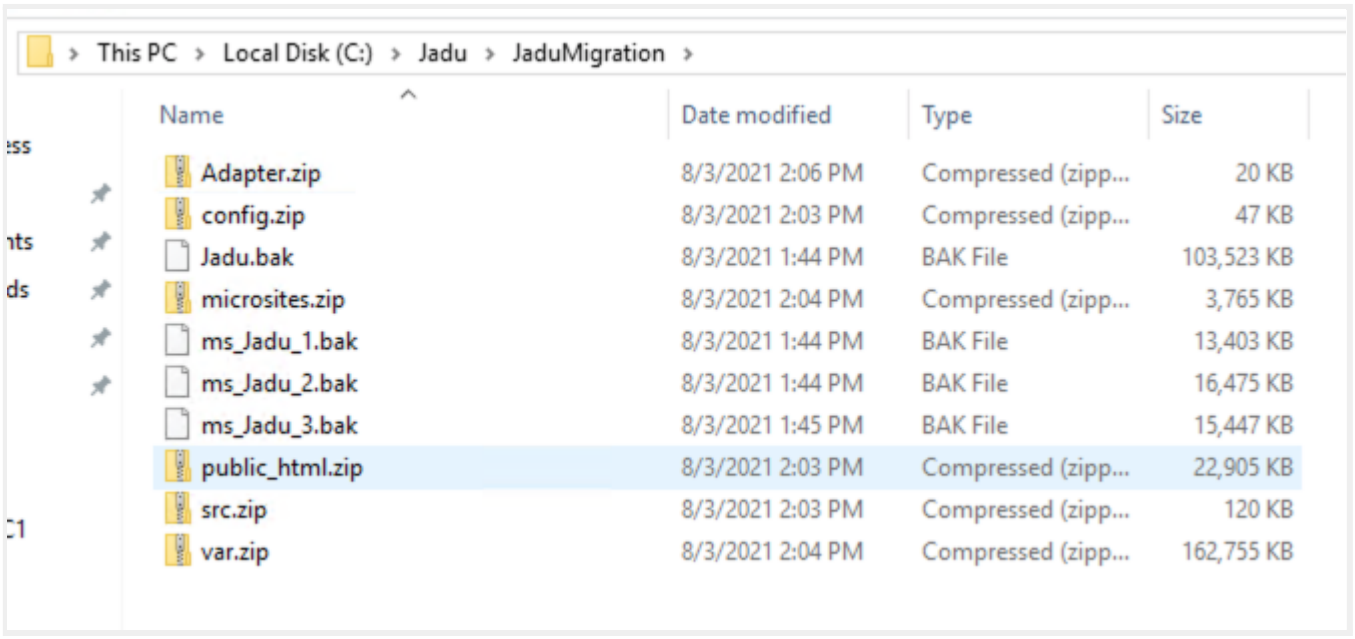
Either use built in windows compressed zip functionality to backup the directories or your preferred compression software.



3. Copy content to new server

Download the backups from the source server and transfer to a directory on the new server outside of the Jadu root

installation directory e.g. `C:/JaduMigration` and extract to this directory.

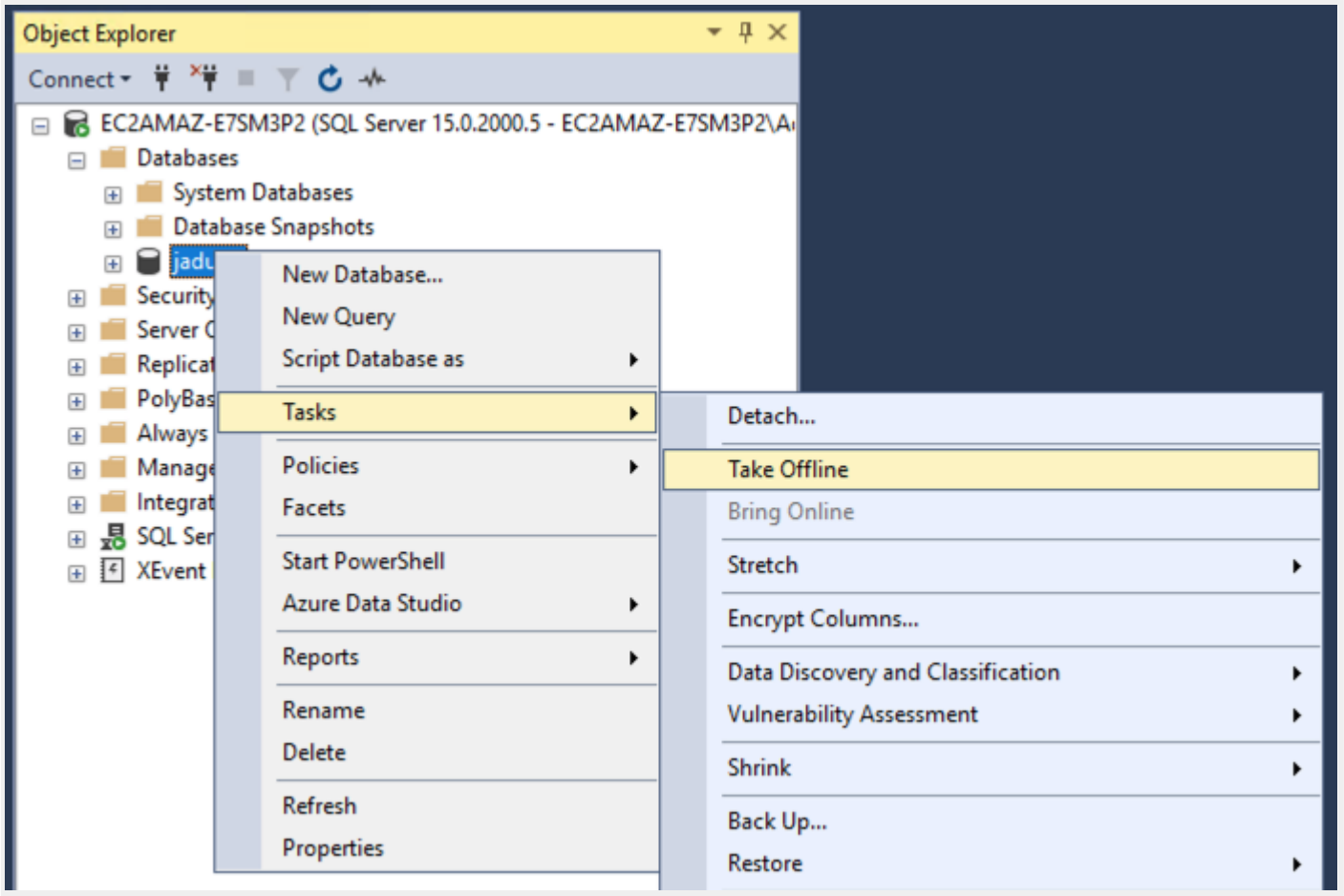


4. Update Database

Open SQL Server Management Studio on the new server.

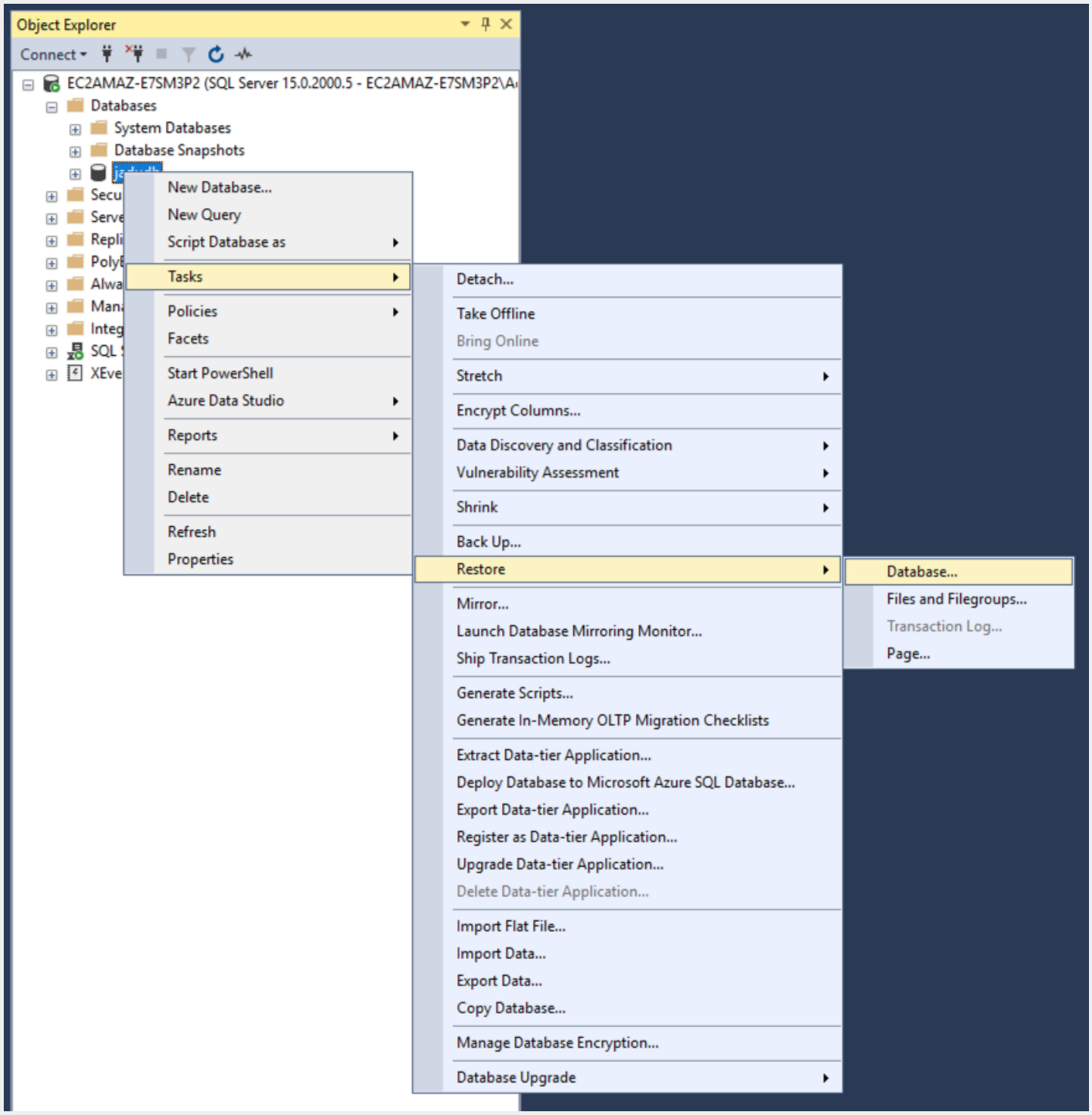
4a. Take the jadudb database offline.

The database needs to be taken offline to restore.

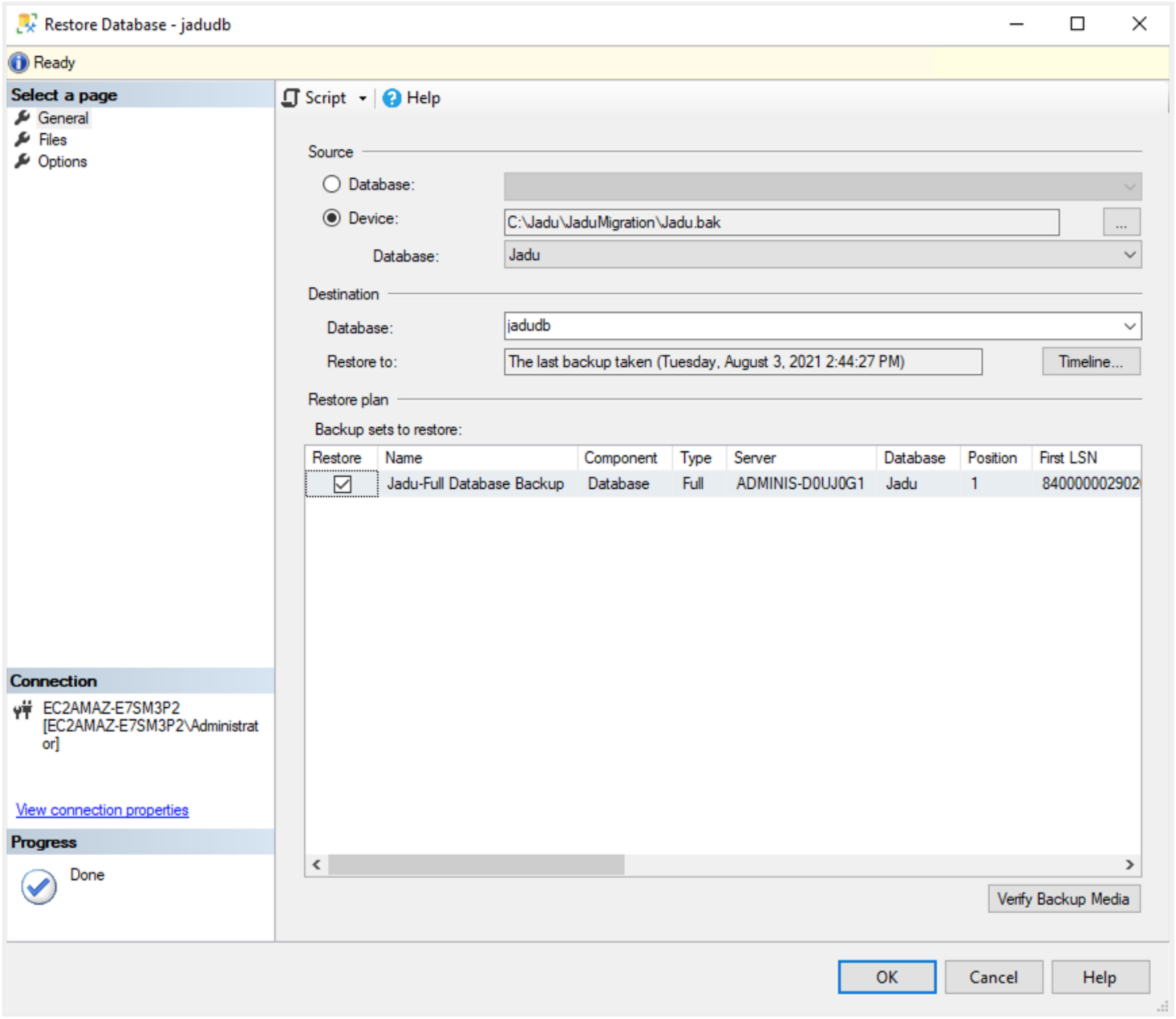


4b. Restore jadudb database from the backup.

Once the database is offline, restore it from the backup.



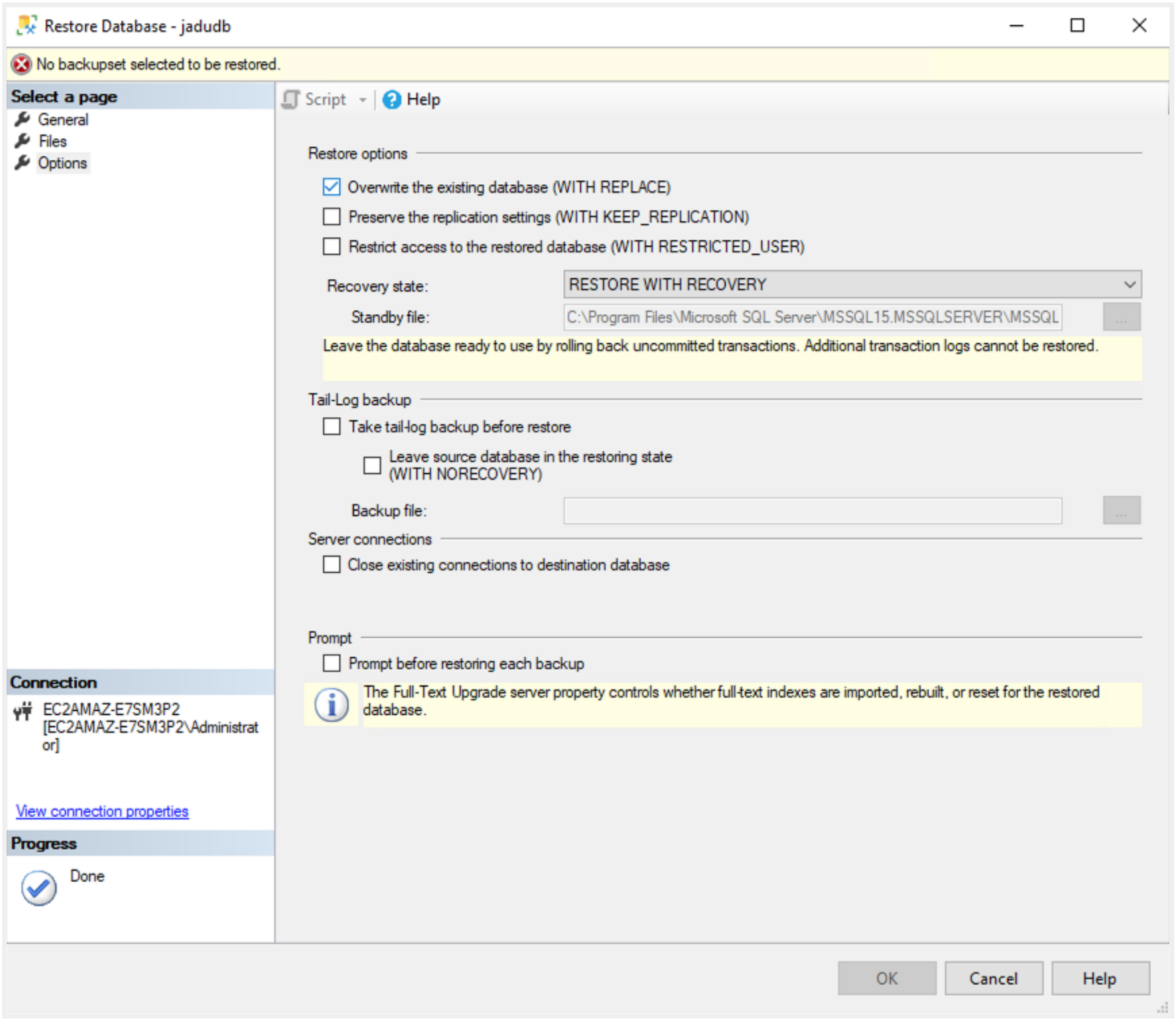
Under the `General` page, choose `Device` under source and select the database backup file you copied to the server.



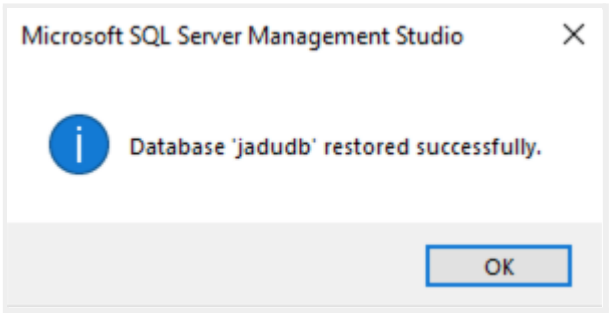
Under the `Options` page, tick `Overwrite the existing database (WITH REPLACE)` option under Restore options.

NOTE: The Target Database Name (as it appears in MSSQL), should be identical to the Source Database Name. There are encryption values (see step 7a) that rely on this. The database can be renamed to be identical to Source's DB Name after the Restore, if needed - this is required before moving on to Step 5.

Ex: Before proceeding to Step 5, if the Source DB was "Jadu", the Target DB should also be named "Jadu". If the Source DB was named "jadudb", the Target DB should be "jadudb".

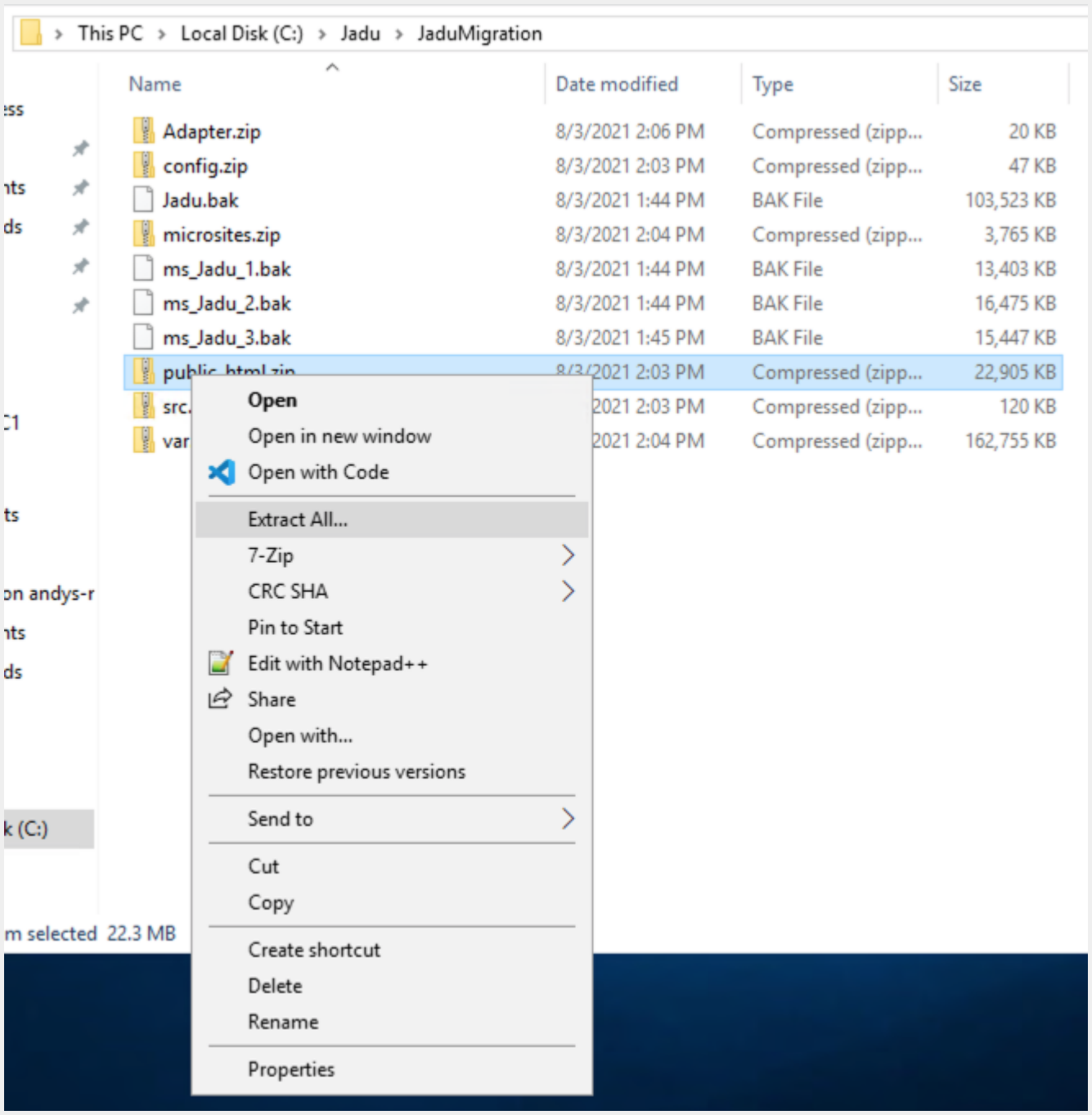


Click Ok to restore the database



5. Update File System Content

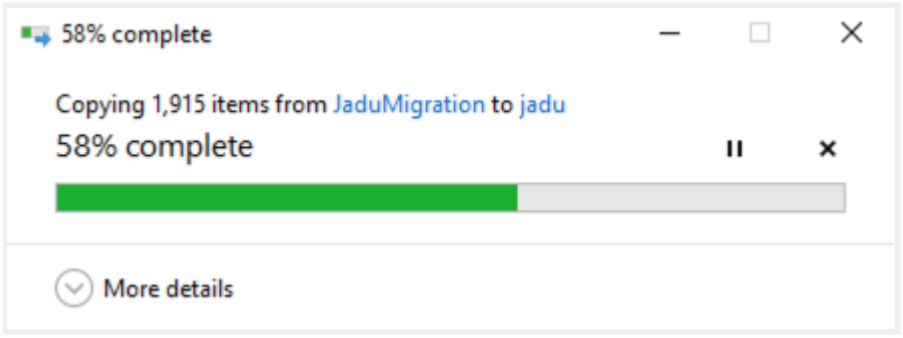
Restore the file system content by unzipping the zipped folders exported from the source server.



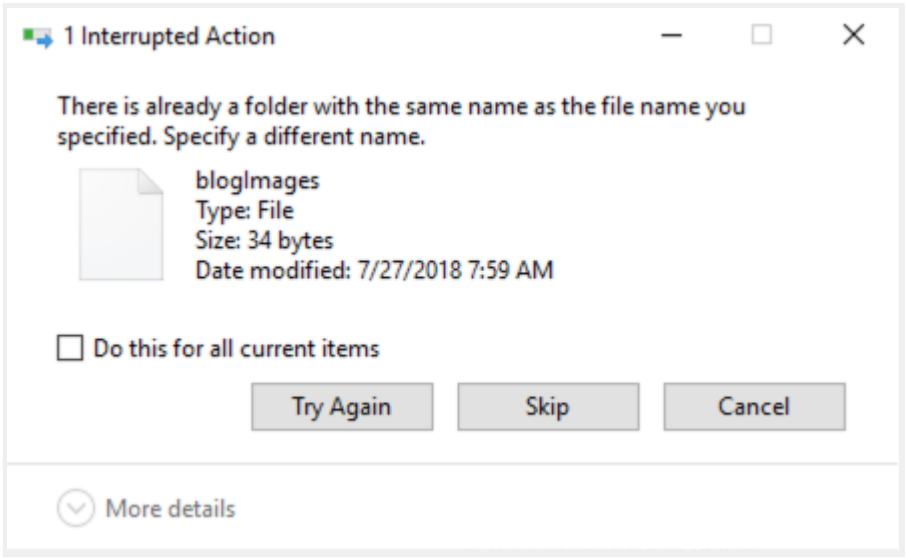
Copy the unzipped folders **(except config)** into the corresponding locations in the jadu installation directory.

Folder	Destination
public_html	/path/to/jadu/public_html
var	/path/to/jadu/var
custom	/path/to/jadu/jadu/custom
src	/path/to/jadu/src
Adapter	/path/to/jadu/jadu/PayBridge/PSP/Adapter

PAYBRIDGE_*	/path/to/jadu
file-migrations	/path/to/jadu/.meteor

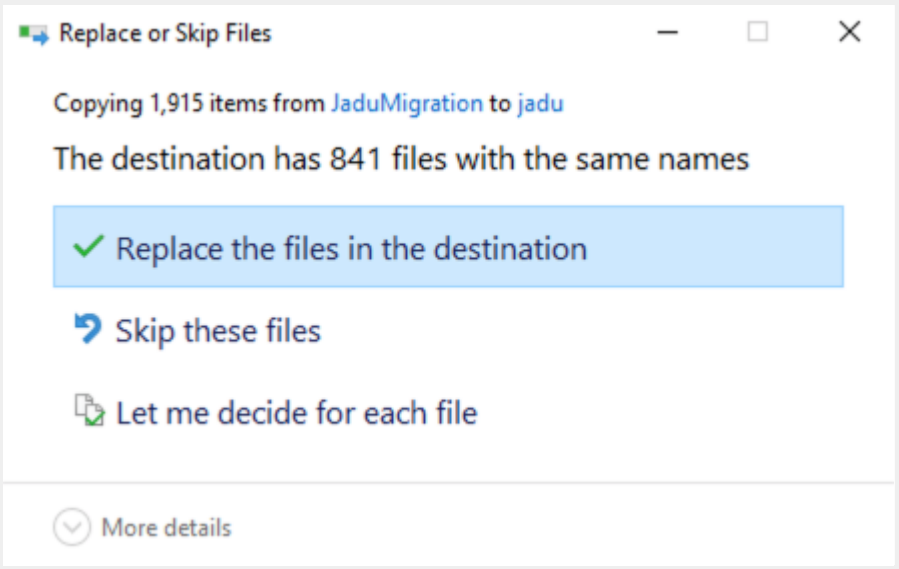


When copying `public_html` you'll be warned that there is a folder with the same name as the file name you specified related to `blogImages`.



Skip the file and continue the copy.

When prompted to `Replace or Skip Files`, choose to `Replace the files in the destination`.



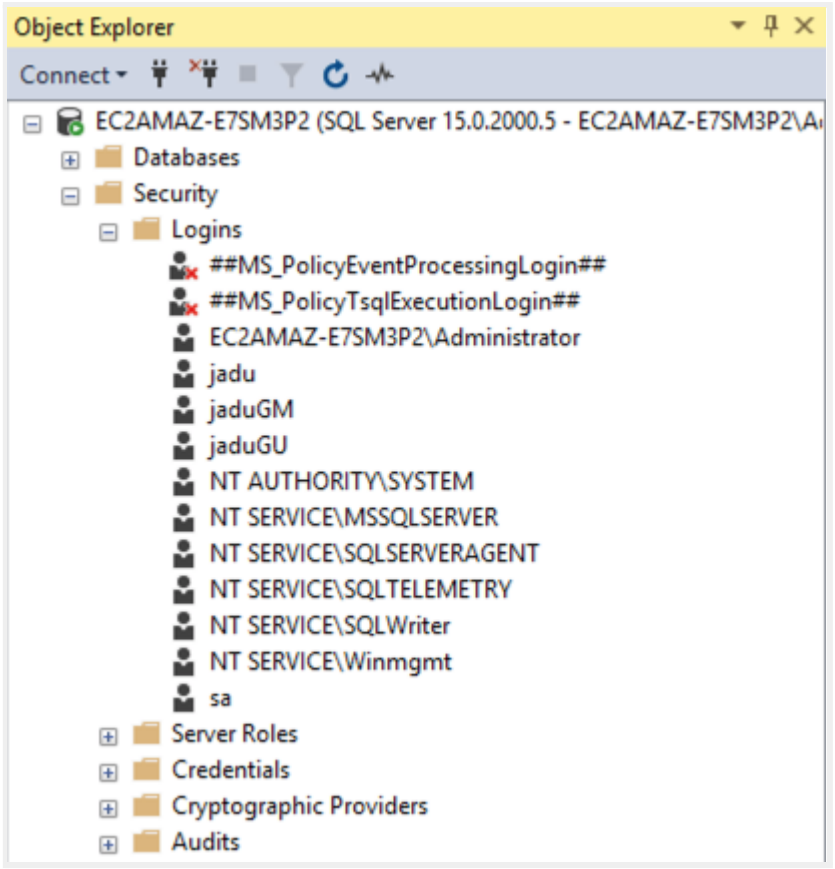
If you have installed PHP on the new server in a different location to where it was installed on the old server you will need to update the paths to the PHP executable in the batch files under `var/scheduled_tasks/` to the new path of the PHP executable.

6. Update database permissions

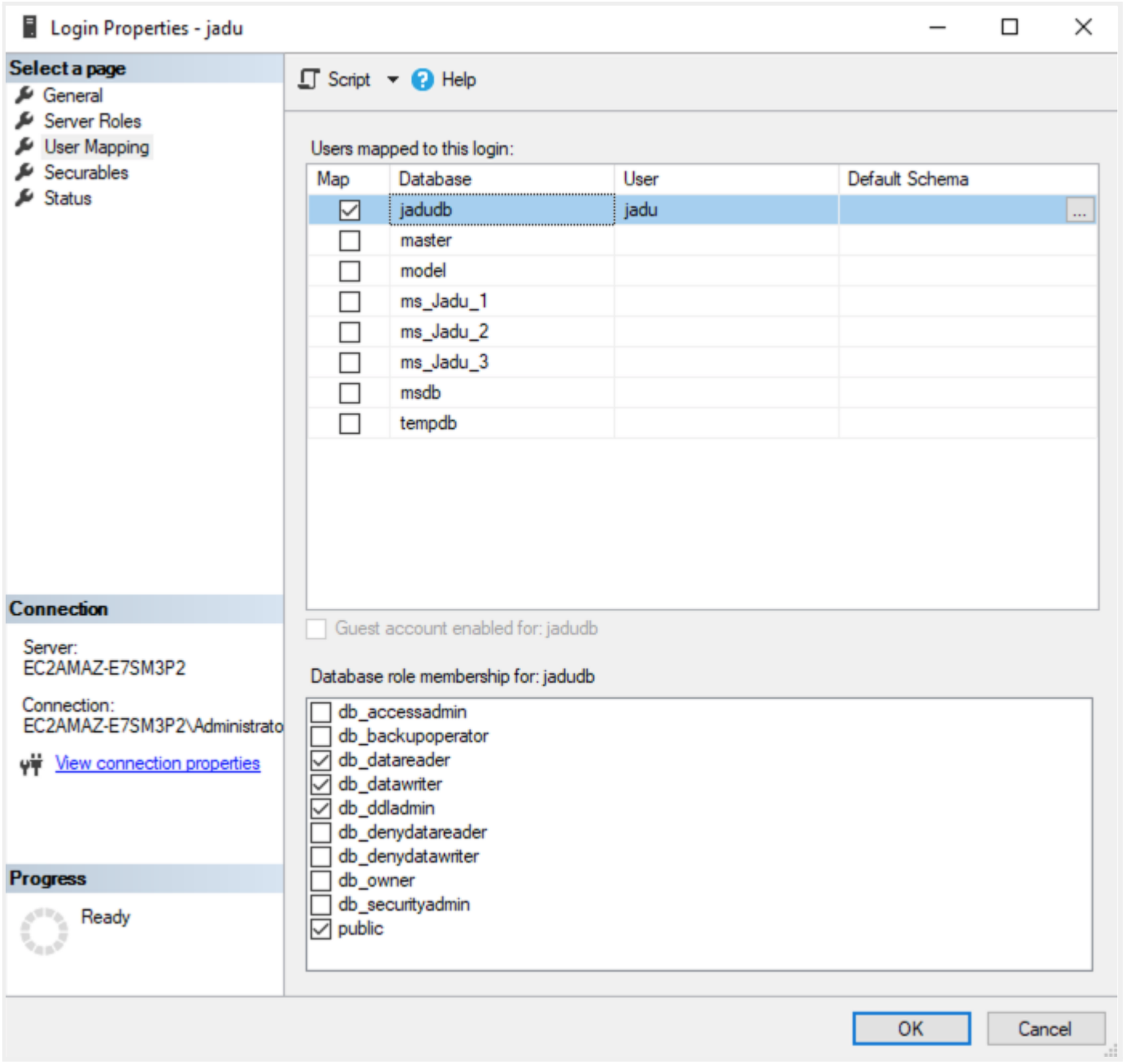
Open SQL Server Management Studio on the new server.

6a. Add database users

Under `Security > Logins` find the `jadu`, `jaduGM` and `jaduGU` users.



Right click and choose `Properties` on the jadu user. Under `User Mapping` select the jadudb and enable database roles `db_datareader`, `db_datawriter`, `db_ddladmin` and `public`.



Click OK to save.

Repeat updating the user mapping for both the `jaduGM` and `jaduGU` users.

`jaduGM` should be given the following roles:

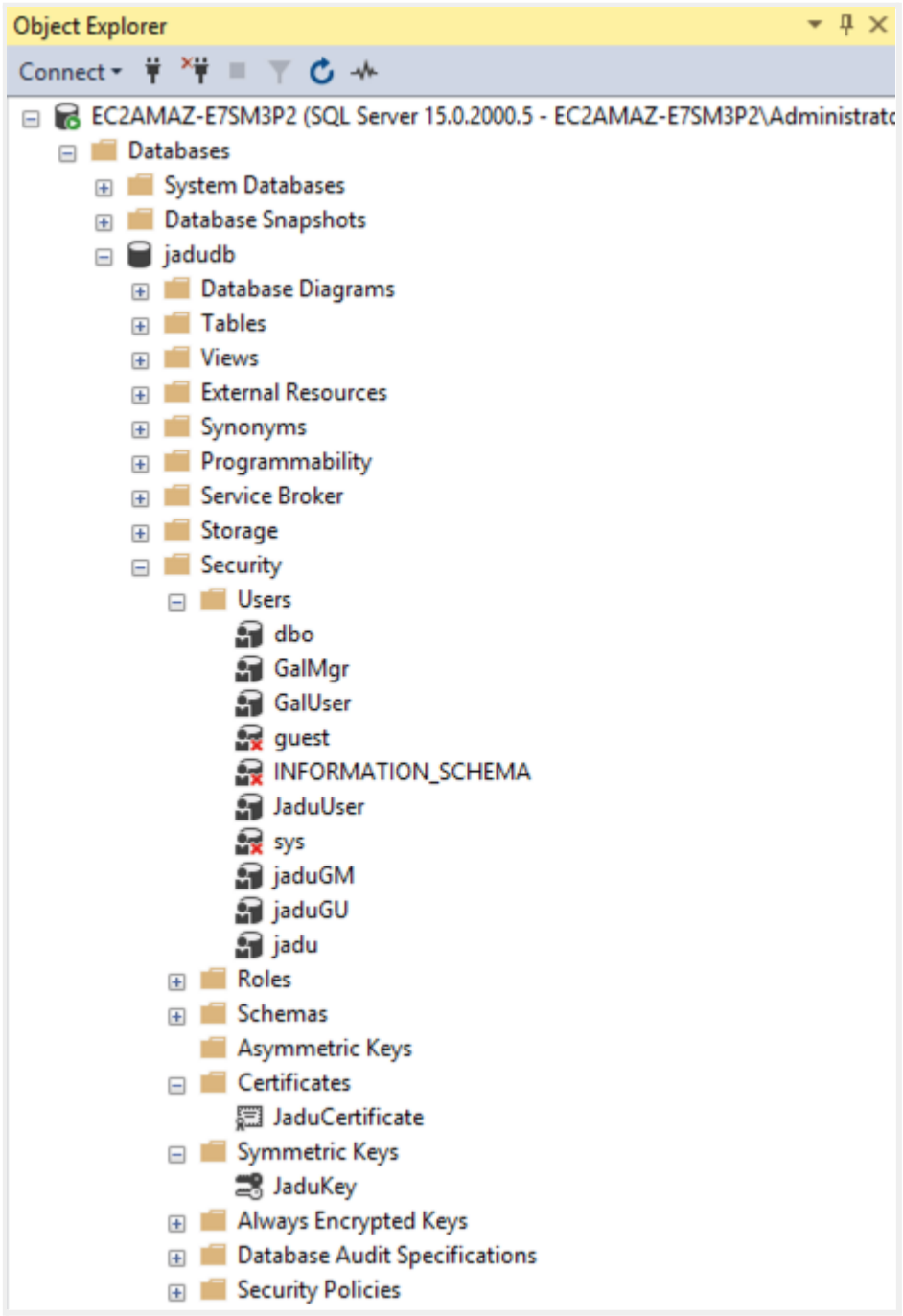
Database	Roles
jadudb	db_datareader db_datawriter db_ddladmin public

`jaduGU` should be given the following roles:

Database	Roles
jadudb	db_datareader db_datawriter db_ddladmin public

6b. Remove imported database users

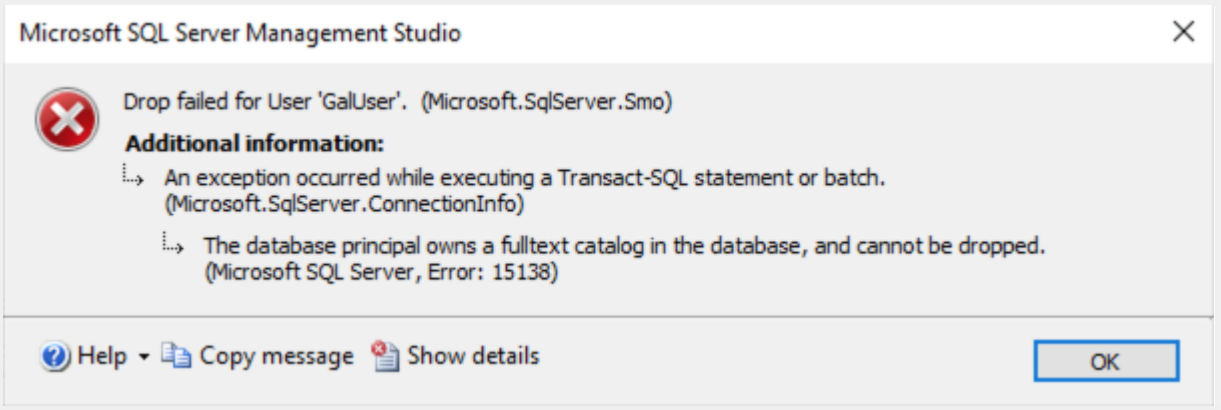
When the database was imported it imported the database users from the source server. Remove these users by navigating to `Databases` > `jadudb` > `Security` > `Users`.



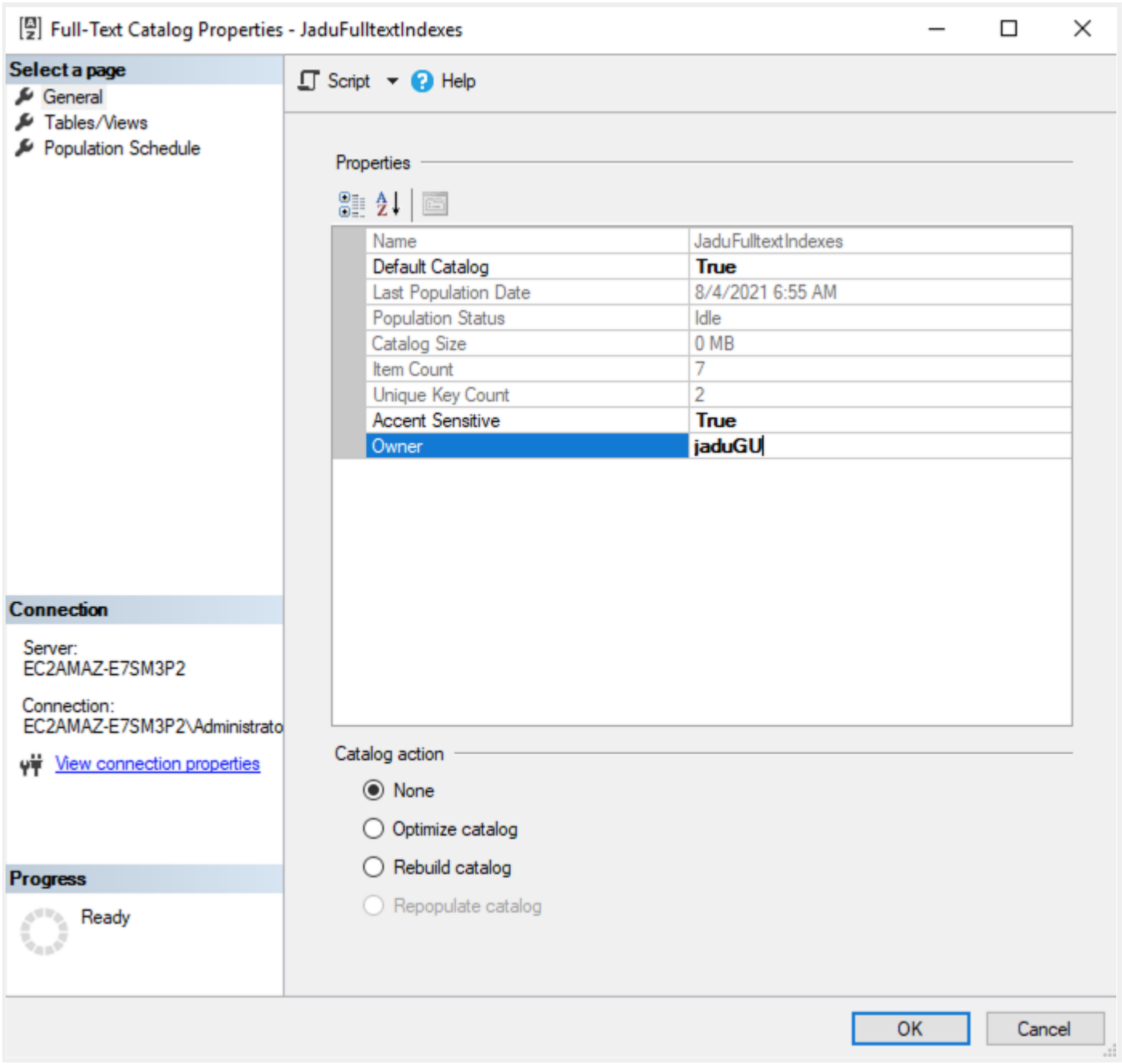
The new site will use users `jadu`, `jaduGM` and `jaduGU`. Remove the imported users `JaduUser`, `GalMgr` and `GalUser` by right clicking and choosing delete.

If you are unsure which users to delete you can check the usernames against the source database.

You should also remove the users from the `ms_*` databases (if any) using the same process. When removing the `GalUser` from the galaxies site database you may encounter an error where the user cannot be removed because *The Database Principal Owns A Fulltext Catalog In the Database, and Cannot Be Dropped*.



To resolve this, navigate to `Storage > Full Text Catalogs` on the ms_ database and open the properties of the indexes. Check the owner property of the index and update the owner to `jaduGU` and save.



Now you should be able to delete the user.

6c. Update permissions on Certificates and Keys

We now need to grant permission on the Jadu Certificate and Jadu Key to the updated database users.

Run the SQL statements to update the permissions on the certificate and key on the `jadudb` database.

```
-- Grant View
GRANT VIEW DEFINITION ON CERTIFICATE::JaduCertificate TO jadu
GRANT VIEW DEFINITION ON SYMMETRIC KEY::JaduKey TO jadu
GRANT VIEW DEFINITION ON CERTIFICATE::JaduCertificate TO jaduGM
GRANT VIEW DEFINITION ON SYMMETRIC KEY::JaduKey TO jaduGM
GRANT VIEW DEFINITION ON CERTIFICATE::JaduCertificate TO jaduGU
GRANT VIEW DEFINITION ON SYMMETRIC KEY::JaduKey TO jaduGU
```

```
-- Grant Control
GRANT CONTROL ON CERTIFICATE::JaduCertificate TO jadu
GRANT CONTROL ON CERTIFICATE::JaduCertificate TO jaduGM
GRANT CONTROL ON CERTIFICATE::JaduCertificate TO jaduGU
```

For each ms_* database run the SQL statements

```
-- Grant View
GRANT VIEW DEFINITION ON CERTIFICATE::JaduCertificate TO jaduGM
GRANT VIEW DEFINITION ON SYMMETRIC KEY::JaduKey TO jaduGM
GRANT VIEW DEFINITION ON CERTIFICATE::JaduCertificate TO jaduGU
GRANT VIEW DEFINITION ON SYMMETRIC KEY::JaduKey TO jaduGU

-- Grant Control
GRANT CONTROL ON CERTIFICATE::JaduCertificate TO jaduGM
GRANT CONTROL ON CERTIFICATE::JaduCertificate TO jaduGU
```

7. Update configuration

You now need to update the site configuration. In step 5 we extracted the config directory but didn't copy the contents of the extracted directory over the existing config directory. Instead only specific configuration values from Source will be copied into Target.

It is recommended to backup the configuration file within the jadu installation directory before making changes to it.

7a. system.xml

Copy the configuration values from the backed up `config/system.xml` file into the `config/system.xml` file of the jadu installation.

- db_name
- secure_key
- des_encryption_mssql_cert_pass

7b. constants.xml

Copy the configuration values from the backed up `config/constants.xml` file into the `config/constants.xml` file of the jadu installation.

- csrf_token_salt
- hash_salt
- encryption_key

7c. mail.xml

If your original server has a custom mail setup, replace the `config/mail.xml` file in the jadu installation directory with the one from the source server.

7d. datastore.xml

If you've setup non file based caching for the site, update `config/datastore.xml` with the values from the backup (if applicable). If you have setup non file based caching you will need to update `cache_data_store` in system.xml to the correct cache type.

7e. ckeditor.xml

Copy the entire file from the backup up `config/ckeditor.xml` to the jadu config directory `config/`.

7f. xfp/constants.xml

Copy the entire file from the backup up `config/xfp/constants.xml` and replace it in the jadu installation directory `config/xfp/`.

7g. bundles.xml

Copy any `<items>` from the backup file `config/bundles.xml` and add them to the file in the jadu installation directory `config/`. It is not recommended to copy and replace the existing file, instead you should only add the missing entries.

8. Clear Cache

Delete all the contents under the `/path/to/jadu/var/cache` directory.

9. Patch to latest Jadu

Finally patch to the latest Jadu version. This will update your site to the version of Jadu that supports the new stack (minimum version CP 6.0.0).

1. Turn off forms, this needs to be done directly in the database. Open up SQL Management Studio and run the SQL query:

   ```
   UPDATE JaduXFormsConfiguration SET value = 'false' WHERE name =
   'forms_online';
   ```

2. Stop IIS.
3. Install JCP 6.0.x template package via Meteor (see below steps)
4. Install JCP 6.0.x core package via Meteor (same process as above)
5. Manually clear cache (although Meteor does also clear caches)
6. Warm caches using the following 2 CLI commands via command prompt, run from the jadu install directory e.g. C:\inetput\wwwroot\jadu)

   ```
   php cli.php cache:warmup --kernel=frontend
   php cli.php cache:warmup --kernel=cc
   ```

7. Start IIS
8. Turn on forms via XForms Pro > Settings in the control centre
9. Manually Verify the upgrade / connectivity of the system
10. Reapply your front end templates (where customisations have taken place - ideally from version control)

Note: Front end template files will be replaced as part of applying step 3 above. Your team may therefore need to reapply

manually any front end customisations previously made as a final step, as these changes will have been overwritten during the patching process. See Git Version control section for how you version control such changes better.

10. Update DNS entries

The site is now ready to test. As the site has been migrated from the source site, update your hosts file to the IP address of the new server and test the site using the original domain.

Additional Nodes

For each additional web node repeat steps 5, 7, 8 and 9 on each web node.