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Supplement to Orchestration Server Deployment Guide

Configuring FIPS for ORS on Windows

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With the newer OpenSSL 3.x that comes supported with ORS 8.1.401.11+, in addition to setting the option **scxml/fips-enabled**, additional configuration steps are necessary to enable FIPS.

In ORS 8.1.401.11 and later versions, FIPS related modules/tools are located as follows:

- **fips.dll** is located in **<ORS_installation_folder>\fips\fips.dll**
- **openssl.exe** is located in **<ORS_installation_folder>\tools\openssl.exe**

To enable FIPS, follow these steps:

Important

The sample commands given in this procedure are based on the following assumptions which can vary depending on the user environments:

- ORS installation path - **C:\GCTI\ORS_8.1.401.11**
- Custom path for FIPS related config files - **C:\GCTI\ORS_FIPS_CFG**

1. Create an FIPS module configuration file, **fipsmodule.cnf** using the openssl utility:

```
openssl fipsinstall -out C:\GCTI\ORS_FIPS_CFG\fipsmodule.cnf -module C:\GCTI\
ORS_8.1.401.11\fips\fips.dll
```

2. Create an OpenSSL configuration file, **openssl.cnf** that includes **fipsmodule.cnf**, in the **C:\GCTI\ORS_FIPS_CFG** folder.

```
config_diagnostics = 1
openssl_conf = openssl_init

.include C:/GCTI/ORS_FIPS_CFG/fipsmodule.cnf

[openssl_init]
providers = provider_sect

[provider_sect]
fips = fips_sect
base = base_sect

[base_sect]
activate = 1
```

Important

When mentioning the path for **fipsmodule.cnf**, you must use forward slashes, for example, **C:/GCTI/ORS_FIPS_CFG/fipsmodule.cnf**.

3. Set the OPENSSL_CONF environment variable that points to the location and filename of **openssl.cnf**.

```
set OPENSSL_CONF=C:\GCTI\ORS_FIPS_CFG\openssl.cnf
```

4. Set the OPENSSL_MODULES environment variable that points to the folder with **fips.dll**.

```
set OPENSSL_MODULES=C:\GCTI\ORS_8.1.401.11\fips
```

5. (Optional) You can verify that FIPS is configured properly using the `openssl list -providers` command before starting ORS.

```
openssl list -providers
Providers:
  base
    name: OpenSSL Base Provider
    version: 3.0.10
    status: active
  fips
    name: OpenSSL FIPS Provider
    version: 3.0.10
    status: active
```

6. Start ORS only after the variables OPENSSL_CONF and OPENSSL_MODULES are set.