



# Co-Processing Toolkit

for z/OS | Launcher : Dataset Pipes : Batch : SFTP

An Introduction To

## **Co:Z Dataset Pipes: z/OS Remote Services**

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## Co:Z Toolkit Use Cases

- Co:Z Toolkit supports several use cases:
  - ✓ z/OS Enabled SFTP
  - ✓ z/OS Unix Batch Integration
  - ✓ z/OS Hybrid Batch
  - ✓ **z/OS Remote Services**
- **z/OS Remote Services** enables z/OS services and data to be incorporated into standard workloads running on AIX, Linux, or Windows.

## Use Case: z/OS Remote Services

- Uses the **Co:Z DatasetPipes** component of Co:Z
  - ✓ First component developed for the toolkit
  - ✓ Originally designed to support streaming z/OS datasets to/from linux and windows servers (**fromdsn/todsn**)
  - ✓ Provides general z/OS utilities: **wto**, **catsearch**, etc
  - ✓ Supports the z/OS Hybrid Batch use case
  - ✓ Also supports z/OS Unix local only mode
- A basic z/OS Remote Service:

```
fromdsn -ssh user@host //HLQ.MY.DATA > mydata.txt
```

## z/OS Remote Services

- New Co:Z DatasetPipes command: **cozcontrol**
  - ✓ Co:Z Co-Processing Toolkit release 4.5.0, or later
  - ✓ Co:Z Target System Toolkit 1.3.0, or later
- Enables a user or script on a remote server to start/stop a durable connection supporting multiple Co:Z DatasetPipes commands
  - ✓ Opposite of z/OS Hybrid Batch which allows a batch job to run a set of commands remotely on a linux/windows server
- Supported Co:Z DatasetPipes commands:
  - ✓ **fromdsn/todsn** – read/write a z/OS data set
  - ✓ **fromfile/tofile** – read/write a z/OS Unix file
  - ✓ **cozclient** – run z/OS Unix command

## z/OS Remote Services - Data Security

- Uses OpenSSH for network security
- z/OS user's normal RACF permissions used to access resources
- Single command
  - ✓ data transfer encrypted over SSH
- Durable connection
  - ✓ By default, Co:Z DatasetPipes commands operate over a socket connection
  - ✓ Can be tunneled over the SSH connection

# z/OS Remote Services – Hello World

- Simple example illustrating z/OS Remote Services processing
  - ✓ Similar to the [z/OS Hybrid Batch Hello World](#) example
- Execute a script on a Linux server
  - ✓ Write a message to stdout
  - ✓ In a pipeline:
    - Read the contents of a dataset from z/OS
    - Compress the contents using the Linux gzip command
    - Write the compressed data to the z/OS Unix file system
- Try it: no installation keys or registration required
  - ✓ Commercial support licenses are available
  - ✓ Quick Start Installation:  
[http://dovetail.com/docs/dspipes/dsp-install.html#dsp\\_quickstart\\_remote\\_dspipes](http://dovetail.com/docs/dspipes/dsp-install.html#dsp_quickstart_remote_dspipes)

# Hello World Linux Script

```
#!/bin/bash
export COZ_LOG=I
cozcontrol start -ssh user@host
echo "Hello $(cozclient uname)!"
fromdsn //HLQ.MY.DATA' | gzip -c | tofile -b /tmp/out.gz
cozcontrol stop
```

## Linux Script Output

```
cozcontrol(4698) [I]: version: 1.3.0 2017-07-24
...
Hello OS/390!
...
fromdsn(HLQ.MY.DATA) [N]: n records/n bytes read; n bytes written...
tofile(/tmp/out.gz) [N]: n bytes read; n bytes written in n milliseconds.
...
cozcontrol(4698) [I]: cozcontrol stop received. Exiting...
```

# Hello World Linux Script (Tunneled)

```
#!/bin/bash
export COZ_LOG=I
cozcontrol start -t -ssh user@host
echo "Hello $(cozclient uname)!"
fromdsn 'HLQ.MY.DATA' | gzip -c | tofile -b /tmp/out.gz
cozcontrol stop
```

- -t option, tunnels over SSH so that data is encrypted
- Requires OpenSSH 5.6 or later
- Not supported on Windows



## More Examples...

- Simple file transfer

```
cozcontrol start -ssh user@host
...
fromdsn //HLQ.MY.DATA > out.file
...
todsn -x 'recfm(v,b) lrecl(1028) new catalog' //HLQ.NEW.DSN < in.file
...
cozclient wto -r 11 -d 12 "File sync complete on linux $(hostname)"
cozcontrol stop
```

## More Examples...

- Load data extract using SQLLDR

```
cozcontrol start -ssh user@host
...
sqlldr control=load.ctl \
    data=<( fromdsn //HLQ.CUSTDATA ) \
    log=>( todsn -x 'sysout(h) recfm(v) lrecl(255)' //sysout )
...
cozclient wto "Customer data load complete"
cozcontrol stop
```

- Bash process substitution - makes a command (or pipeline) appear as a file:

```
<(cmd) - "cmd" appears as a readable /dev/fd/nn
>(cmd) - "cmd" appears as a writable /dev/fd/nn
```

- ✓ fromdsn is used to pass dataset data to the sqlldr command
- ✓ todsn is used to send the import log back to a z/OS spool file

## For More Information

- Visit our website: <http://dovetail.com>
  - ✓ General Information  
<http://dovetail.com/solutions.html>
  - ✓ Dataset Pipes Documentation  
[http://dovetail.com/docs/coz/coz\\_index.html](http://dovetail.com/docs/coz/coz_index.html)
  - ✓ Additional Examples  
<http://dovetail.com/docs/dspipes/dsp-xmp.html>  
<http://dovetail.com/docs/dspipes/dsp-xmp2.html>
  - ✓ Downloads  
<http://dovetail.com/downloads/coz/>
  - ✓ Introduction to z/OS Hybrid Batch video  
[http://www.youtube.com/embed/WIZbN\\_vs7us](http://www.youtube.com/embed/WIZbN_vs7us)
- Or, email us at: [info@dovetail.com](mailto:info@dovetail.com)

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