

# Troubleshooting Sling Content Distribution

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# Agenda

- Use cases

Quick overview of Apache Sling Content Distribution

- Configurations

Best practices for configuring Sling Content Distribution

- Troubleshooting

How to investigate and resolve issues

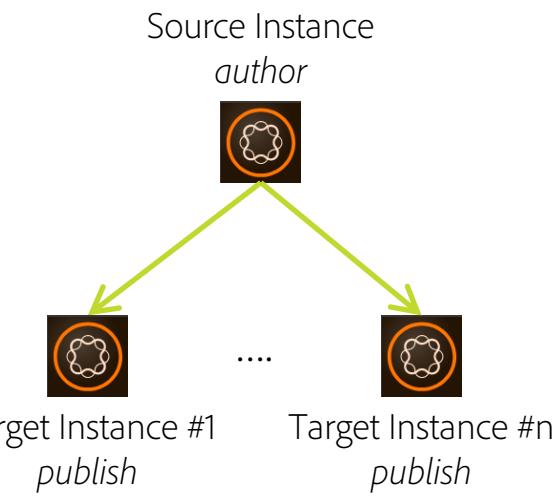
- Q & A

# Use cases

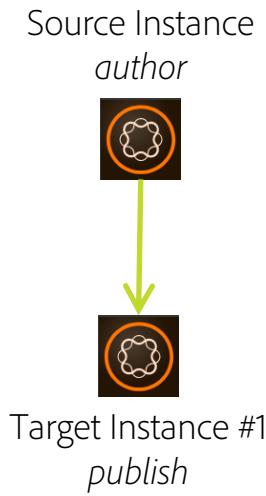
Quick overview of Apache Sling Content Distribution

# Use cases

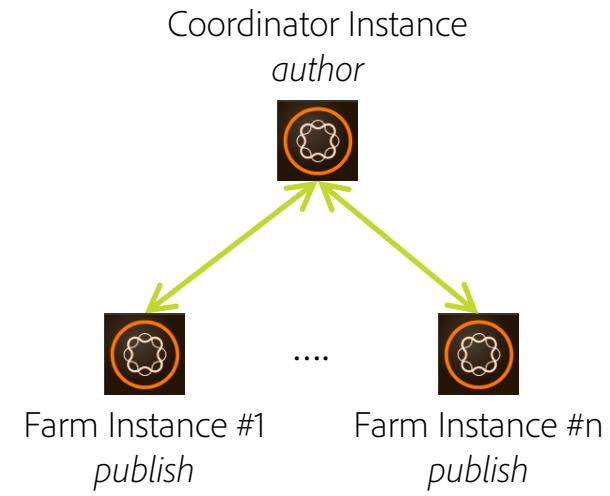
Forward distribution



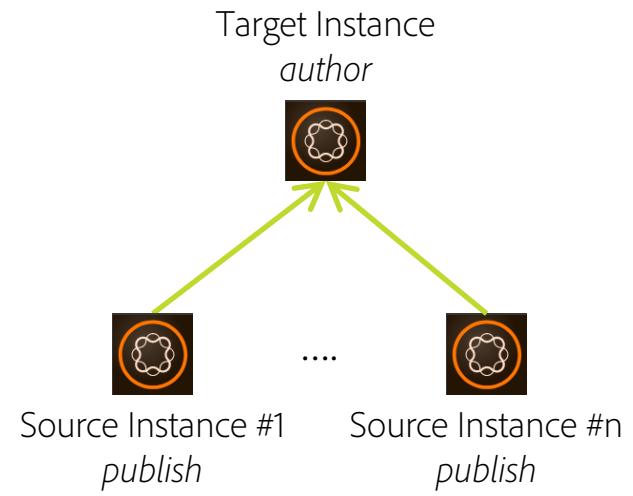
Proxy WCM activations



Sync distribution



Reverse distribution



Push resources to n instances

Push resources to 1 instance as  
transport for AEM Replication agent

Pull resources from n instances  
Push them to n-1 instances

e.g. User Sync

# Configurations

Best practices for configuring Sling Content Distribution

# Configurations // Forward distribution

Source Instance

127.0.0.1:4502



OSGi configuration

`org.apache.slingdistribution.agent.impl.ForwardDistributionAgentFactory`

`packageImporter.endpoints=[“endpoint0=http://127.0.0.1:4503/libs/sling/distribution/services/importers/default”]`



OSGi configuration

`org.apache.slingdistribution.packaging.impl.importer.LocalDistributionPackageImporterFactory`

`name=“default”`

Target Instance #0

127.0.0.1:4503

# Configurations // Proxy WCM activations

1. Configure Forward distribution (author and publish)
2. Configure a Replication agent (author) that proxies to the author Forward distribution agent

The image displays two side-by-side 'Agent Settings' dialog boxes from a software interface. Both dialogs have tabs for 'Settings', 'Transport', 'Proxy', 'Extended', 'Triggers', and 'Batch'.  
  
Left Dialog (Settings Tab):

- Name: Default Agent
- Description: Agent that replicates to the default publish instance.
- Enabled: checked
- Serialization Type: Distribution (highlighted with a green box)
- Retry Delay: 60000
- Agent User Id: (empty)
- Log Level: Info
- Use for reverse replication: unchecked
- Alias update: unchecked

  
Right Dialog (Transport Tab):

- URI: distribution://publish (highlighted with a green box and a yellow arrow points to it from the placeholder text 'distribution://<forwardAgentName>')
- User: admin
- Password: (redacted)
- NTLM Domain: (empty)
- NTLM Host: (empty)
- SSL:
  - Allow expired certs: unchecked
  - Enable to accept expired SSL certificates in Relaxed SSL mode.

# Configurations // Sync distribution

Coordinator Instance

127.0.0.1:4502



`org.apache.slingdistribution.agent.impl.SyncDistributionAgentFactory`

`packageExporter.endpoints=[“http://127.0.0.1:4503/libs/sling/distribution/services/exporters/sync-reverse”]`

`packagelimporter.endpoints=[endpoint0=“http://127.0.0.1:4503/libs/sling/distribution/services/importers/sync”]`

OSGi configuration



Farm Instance #0

127.0.0.1:4503

`org.apache.slingdistribution.agent.impl.QueueDistributionAgentFactory`

`name=“sync-reverse”`

OSGi configuration

`org.apache.slingdistribution.packaging.impl.importer.LocalDistributionPackagelimporterFactory`

`name=“sync”`

OSGi configuration

# Configurations // Binaryless distribution

Supported for vault package builder and shared data store deployments

1. Setup a shared data store

<https://docs.adobe.com/docs/en/aem/6-3/deploy/platform/data-store-config.html>

2. Set the **useBinaryReferences** property to **true** in the **VaultDistributionPackageBuilderFactory** OSGi configuration referenced by the agent configuration



# Configurations // Retry strategy

Suitable for scenarios which don't require strict distribution order

1. Set the agent's retry strategy to **errorQueue**
2. Configure the maximum number of attempts before moving a failing item to the error queue

Retry Strategy	<b>errorQueue</b>
<p><span style="color: red;">⚠</span> The strategy to apply after a certain number of failed retries. (retry.strategy)</p>	
Retry attempts	<b>100</b>
<p><span style="color: red;">⚠</span> The number of times to retry until the retry strategy is applied. (retry.attempts)</p>	

Retry strategy	Behaviour
none	Block the queue & retry forever
errorQueue	Block the queue & retry <b>retry.attempts</b> times (configurable) After <b>retry.attempts</b> failing attempts, move the blocking queue item to the error queue and process the remaining items

Queues 1 Item Pending			
	Queue	Status	Last Item Processed
<input type="checkbox"/>	endpoint0	<span style="color: green;">✓</span> Running	dstrpck-2017-8-17-12--6-80621699-4c37-49ba-946f-775921c1e488_565 Aug 17 2017 12:06:34 CEST ADD
<input type="checkbox"/>	error-endpoint0	<span style="color: green;">✓</span> Passive	0



Queues 1 Item Pending			
	Queue	Status	Last Item Processed
<input type="checkbox"/>	endpoint0	<span style="color: green;">✓</span> Idle	0
<input type="checkbox"/>	error-endpoint0	<span style="color: green;">✓</span> Passive	dstrpck-2017-8-17-12--6-80621699-4c37-49ba-946f-775921c1e488_566 Aug 17 2017 12:06:47 CEST ADD

# Configurations // Filter distributed content

Configure properties and nodes to be filtered upon export (Jackrabbit FileVault feature)

Factory PID

`org.apache.sling.distribution.serialization.impl.vlt.VaultDistributionPackageBuilderFactory`

Package Node  
Filters

`/home/users|-.*/.tokens`



`/home/users|-.*/.rep:cache`



The package node path filters. Filter format: path|+include|-exclude (package.filters)

Package Property  
Filters

`/|-^.*/cq:lastReplicated|-^.*/cq:lastReplicatedBy|-^.*/cq:lastReplicationAction`



The package property path filters. Filter format: path|+include|-exclude (property.filters)

## Configurations // User session

### Session exporting packages

The session is associated to either

- the caller resource resolver or
- the service user configured in the agent configuration (property **serviceName**)

### Session importing packages

The session is associated to the transport user configured in the transport secret provider (**DistributionTransportSecretProvider**)

# Configurations // Priority path Queue

Suitable for scenarios which require to prioritize one or more subtrees

Configure the agent's Priority queue prefix and path matcher

Queues 0 Items Pending			
<input type="checkbox"/> Queue	Status	Last Item Processed	Items Pending
<input type="checkbox"/> endpoint0	Idle		0
<input type="checkbox"/> french-endpoint0	Idle		0

Priority queues

french=/content/fr.\*



List of priority queues that should be used for specific paths. The selector format is {queuePrefix}[]|{mainQueueMatcher}|={pathMatcher}, e.g. french=/content/fr.\* (priorityQueues)

# Configurations // Processing queues in parallel

Suitable for scenarios which don't require strict distribution order and for which throughput is an issue and the root cause analysis identified the queue type as the bottleneck

1. Set the queue type to Parallel

**Apache Sling Job Queue Configuration**  
The configuration of a job processing queue.

Name	org/apache/sling/distribution/queue/{0}	The name of the queue. If matching is used the token {0} can be used to substitute the real value. (queue.name)
Topics	org/apache/sling/distribution/queue/*	This value is required and lists the topics processed by this queue. The value is a list of strings. If a string ends with a dot, all topics in exactly this package match. If the string ends with a star, all topics in this package and all subpackages match. If the string neither ends with a dot nor with a star, this is assumed to define an exact topic. (queue.topics)
Type	Parallel	The queue type. (queue.type)
Maximum Parallel Jobs	-1	<p>⚠ The maximum number of parallel jobs started for this queue. A value of -1 is substituted with the number of available processors. Positive integer values specify number of processors to use. Can be greater than number of processors. A decimal number between 0.0 and 1.0 is treated as a fraction of available processors. For example 0.5 means half of the available processors. For ordered queue types this value is ignored (always enforced to be 1). (queue.maxparallel)</p>
Maximum Retries	-1	The maximum number of times a failed job slated for retries is actually retried. If a job has been retried this number of times and still fails, it is not rescheduled and assumed to have failed. The default value is 10. (queue.retries)
Retry Delay	2000	⚠ The number of milliseconds to sleep between two consecutive retries of a job which failed and was set to be retried. The default value is 2 seconds. This value is only relevant if there is a single failed job in the queue. If there are multiple failed jobs, each job is retried in turn without an intervening delay. (queue.retrydelay)
Priority	Norm	⚠ The priority for the threads used by this queue. Default is norm. (queue.priority)
Keep History	<input type="checkbox"/>	⚠ If this option is enabled, successful finished jobs are kept to provide a complete history. (queue.keepJobs)
Prefer Creation Instance	<input type="checkbox"/>	⚠ If this option is enabled, the jobs are tried to be run on the instance where the job was created. (queue.preferRunOnCreationInstance)
Thread Pool Size	0	⚠ Optional configuration value for a thread pool to be used by this queue. If this is value has a positive number of threads configuration, this queue uses an own thread pool with the configured number of threads. (queue.threadPoolSize)
Ranking	0	⚠ Integer value defining the ranking of this queue configuration. If more than one queue matches a job topic, the one with the highest ranking is used. (service.ranking)
<b>Configuration Information</b>		
Persistent Identity (PID)	org.apache.sling.event.jobs.QueueConfiguration.e4ab1b54-0e7b-4c5d-b6df-5a9f125c4108	
Factory Persistent Identifier (Factory PID)	org.apache.sling.event.jobs.QueueConfiguration	
Configuration Binding	Unbound or new configuration	

**Buttons:** Cancel | Reset | Delete | Unbind | Save

# Configurations // Agent Queue Provider

Suitable for scenarios for which throughput is an issue and the root cause analysis identified the queue throughput as the bottleneck and data loss is acceptable

1. Set the agent's queue provider implementation to **In-file**
2. Implement ad-hoc operation process

Queue Provider	Comment
Sling Jobs	<p>Default queue implementation backed by Sling Jobs</p> <p>Pro: Stored in the repository as content (simple operations)</p>
In-file	<p>In memory with check points to File system</p> <p>Pro: Fast</p> <p>Cons: Non check pointed entries may be lost in case of crash</p> <p>Cons: Not stored in the repository (non standard operations)</p>



# Troubleshooting

How to investigate and resolve issues

# Tools

## AEM Content Distribution UIs

<http://<host:port>/libs/granite/distribution/content/distribution.html>

- Observe status of agent queues
- Observe agent logs
- Manage the queue
- Test the connection

This screenshot shows the 'endpoint0' queue page. At the top, it displays 'RUNNING' with 319 items pending. Below this, a message indicates the 'Last Item Processed' was on Jul 12 2017 at 11:15:57 CEST. A log entry 'dstrpck-2017-7-12--11-15-db27296c-3a4f-41a3-bf85-fe926973fd0f\_432' is shown. The main part of the page is a table listing five pending items, each with a checkbox, timestamp ('Jul 12 2017 11:15:57 CEST'), status ('QUEUED'), action ('ADD'), path ('/content/projects'), user ID ('admin'), and attempts ('0').

	Time	Status	Action	Path	User ID	Attempts
<input type="checkbox"/>	Jul 12 2017 11:15:57 CEST	QUEUED	ADD	/content/projects	admin	0
<input type="checkbox"/>	Jul 12 2017 11:15:57 CEST	QUEUED	ADD	/content/projects	admin	0
<input type="checkbox"/>	Jul 12 2017 11:15:57 CEST	QUEUED	ADD	/content/projects	admin	0
<input type="checkbox"/>	Jul 12 2017 11:15:57 CEST	QUEUED	ADD	/content/projects	admin	0
<input type="checkbox"/>	Jul 12 2017 11:15:57 CEST	QUEUED	ADD	/content/projects	admin	0

This screenshot shows the 'publish' page. At the top, there are buttons for 'Edit', 'Disable', 'Pause', 'Test Connection', and 'Refresh'. Below this, a section labeled 'Publish Agent (publish - forward)' has a green 'Enabled' button. A note says 'Publish agent to push data from author to publishers'. The 'Status' tab is selected, showing the 'Publish Agent' is enabled. The 'Logs', 'Settings', and 'Distribute' tabs are also present. Below this, a 'Queues' section shows 15 items pending. It includes a table with columns 'Queue', 'Status', 'Last Item Processed', and 'Items Pending'. One item in the queue is listed: 'endpoint0' is 'Running' (status checked), with the last processed item being 'dstrpck-2017-7-12--11-15-db27296c-3a4f-41a3-bf85-fe926973fd0f\_430' on Jul 12 2017 at 11:15:57 CEST, and 15 items pending.

Queue	Status	Last Item Processed	Items Pending
endpoint0	Running	dstrpck-2017-7-12--11-15-db27296c-3a4f-41a3-bf85-fe926973fd0f_430 Jul 12 2017 11:15:57 CEST ADD	15

# Tools

## AEM Content Distribution JMX MBean and HealthCheck

Coordinates	Description
domain: org.apache.slingdistribution type: distributionpackage	MBean which provides the status (paths, processing time, identifier) of the last X distribution packages
domain: org.apache.slingdistribution type: agent	MBean which provides each agent configuration
domain: org.apache.slingdistribution type: queue	MBean which provides each queue status (state, type of queue, queue size, current head)
hc.name: SlingDistributionQueueHC domain: org.apache.slingdistribution type: queue	Health check for the queues

# Tools

## Observe the logs

Observe per agent logs in the UI

A screenshot of a web browser window titled "localhost". The URL bar shows "publish". The page content area displays a log entry:

```
2017/07/12 11:16:09:224 - INFO - REQUEST-START DSTRQ888: ADD paths=[/content/projects], user=admin
2017/07/12 11:16:18:335 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ434: ADD paths=[/content/projects], importTime=28ms, executeTime=21095ms, size=4495B
2017/07/12 11:16:21:977 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ433: ADD paths=[/content/projects], importTime=29ms, executeTime=24740ms, size=4493B
2017/07/12 11:16:22:020 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ437: ADD paths=[/content/projects], importTime=24ms, executeTime=24780ms, size=4493B
2017/07/12 11:16:22:064 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ435: ADD paths=[/content/projects], importTime=28ms, executeTime=24825ms, size=4492B
2017/07/12 11:16:22:165 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ440: ADD paths=[/content/projects], importTime=43ms, executeTime=24915ms, size=4493B
2017/07/12 11:16:22:221 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ436: ADD paths=[/content/projects], importTime=34ms, executeTime=24981ms, size=4494B
2017/07/12 11:16:22:272 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ439: ADD paths=[/content/projects], importTime=28ms, executeTime=25022ms, size=4493B
2017/07/12 11:16:22:320 - INFO - [endpoint0] PACKAGE-DELIVERED DSTRQ444: ADD paths=[/content/projects], importTime=24ms,
```

Capture all SCD logs by creating a Logger at DEBUG level for the package `org.apache.slingdistribution`

A screenshot of the "Apache Sling Logging Logger Configuration" dialog. The configuration is set up as follows:

- Log Level:** Debug
- Log File:** logs/scd.log
- Message Pattern:** {0,date,dd.MM.yyyy HH:mm:ss.SSS} \*{4}\* [{2}] {3} {5}
- Logger:** org.apache.slingdistribution
- Additivity:**

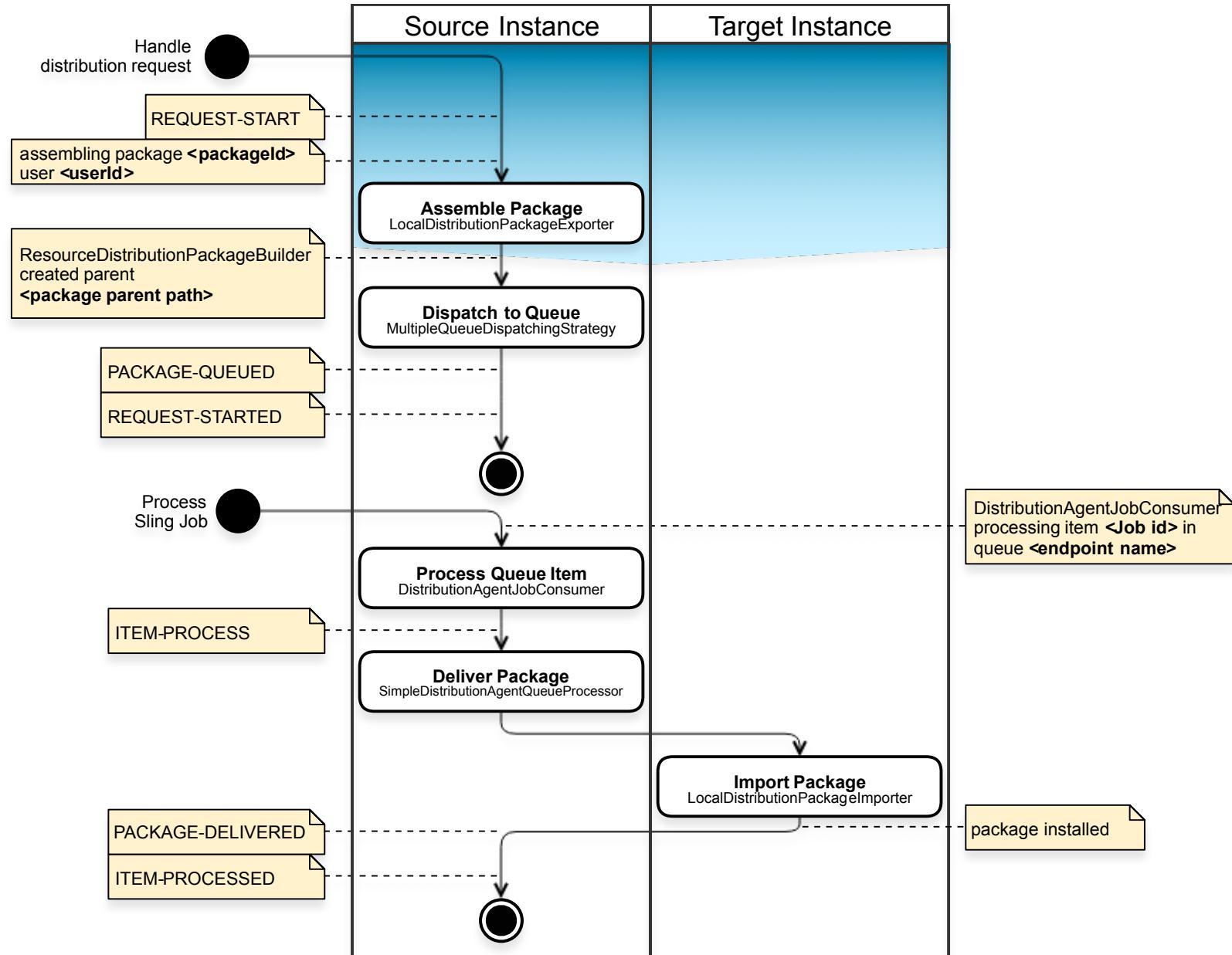
The "Configuration Information" section includes:

- Persistent Identity (PID): org.apache.slingcommons.log.LogManager.factory.config.0986c534-5d64-4022-b60f-3a78c9df909e
- Factory Persistent Identifier (Factory PID): org.apache.slingcommons.log.LogManager.factory.config
- Configuration Binding: slinginstall:org.apache.slingcommons.log-5.0.0.jar
- Apache Sling SLF4J Implementation (Logback) (org.apache.slingcommons.log), Version 5.0.0

At the bottom right are buttons for Cancel, Reset, Delete, Unbind, and Save.

# Making sense of the logs

## Forward Distribution Processing Flow

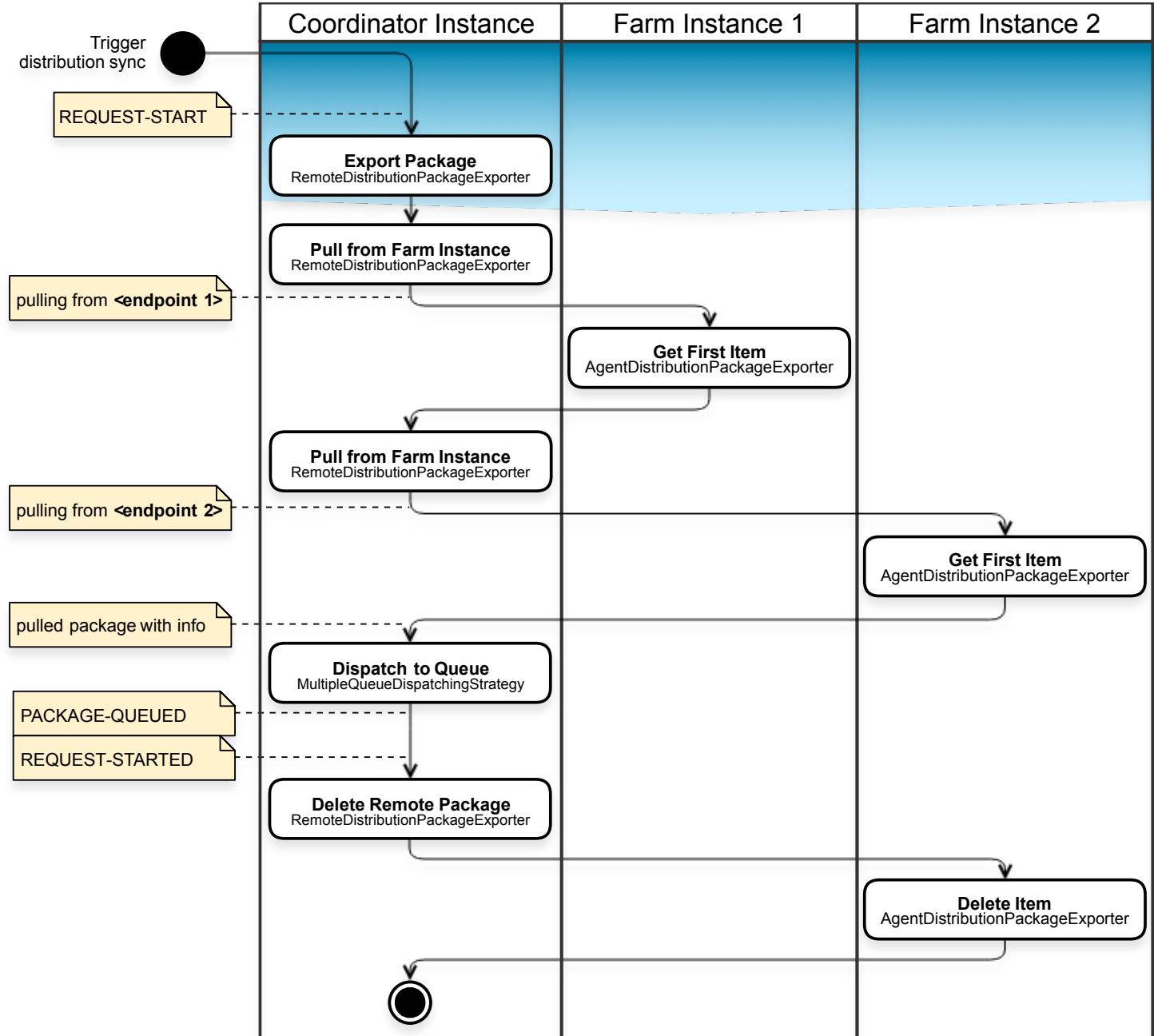


# Making sense of the logs

## Sync Distribution Processing Flow

Phase 1/2

Fetching packages from farm instances

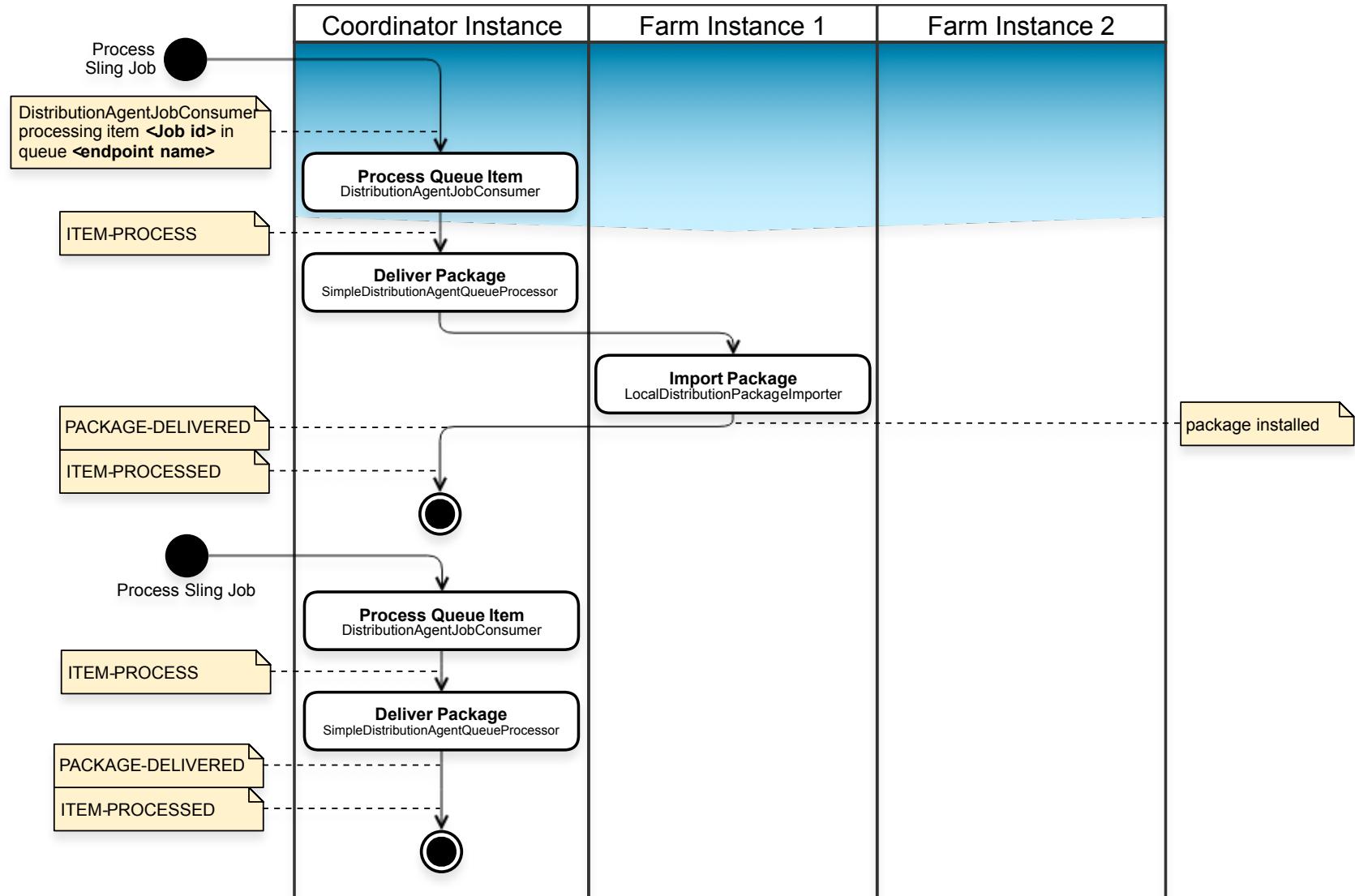


# Making sense of the logs

## Sync Distribution Processing Flow

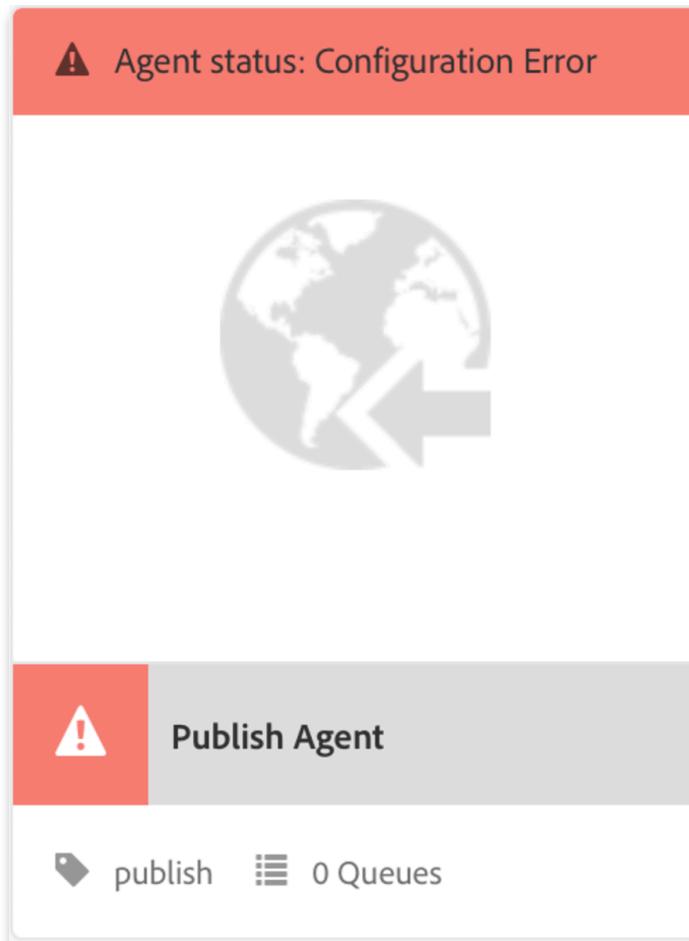
Phase 2/2

Export packages to farm instances



# Common Issue // Agent Configuration Error

## Symptoms



Status   Logs   Settings   Distribute

**Publish Agent (publish - forward)**

Publish agent to push data from author to publishers

**⚠️ CONFIGURATION ERROR** An error occurred while attempting to start the agent. Please check the agent configuration.

On source instance

```
*ERROR* [127.0.0.1 [1490738408180] POST /libs/sling/distribution/services/exporters/socialpubsync-reverse HTTP/1.1]
org.apache.sling.servlets.post.impl.operations.ModifyOperation Exception during response
processing java.lang.UnsupportedOperationException: create 'socialpubsync-reverse' at
/libs/sling/distribution/services/exporters
```

# Common Issue // Agent Configuration Error

## Cause

- Distribution Agent implemented as OSGi service referencing other services  
*Transport Secret Provider, Package Builder, Trigger, Request Authorization Strategy*
- Service references targets (typically matching on **name** property)

Transport Secret Provider (name=default)  
The target reference for the DistributionTransportSecretProvider used to obtain the credentials used for accessing the remote endpoints, e.g. use target=(name=...) to bind to services by name.  
(transportSecretProvider.target)

- Agent components are activated only when all service references are satisfied

# Common Issue // Agent Configuration Error

## Investigation & Resolution

- Find the unresolved service references via the OSGi Components Web Console
- Configure the target to match an existing service or configure the missing service

The screenshot shows two browser windows of the OSGi Components Web Console.

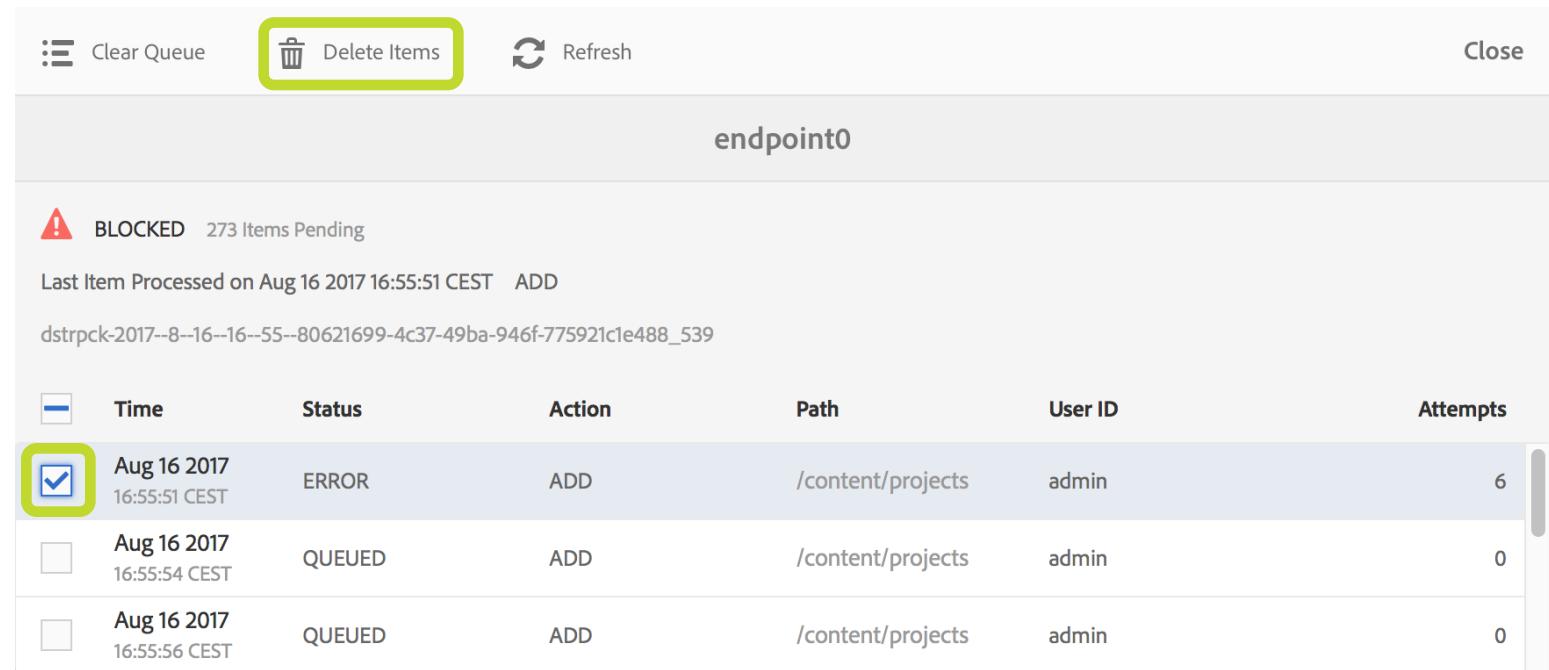
**Top Window:** A search results page for "distribution". It lists three components with their PIDs and names. The second component, org.apache.sling.distribution.agent.impl.ForwardDistributionAgentFactory (PID 2892), is highlighted with a yellow box and circled with a blue number 1. To its right, under "Status", it says "unsatisfied (reference)".

PID	Name	Use case	Deployed on
org.apache.sling.distribution.agent.impl.ForwardDistributionAgentFactory	Forward distribution	Source instance	
org.apache.sling.distribution.agent.impl.QueueDistributionAgentFactory	Sync distribution	Farm instance	
org.apache.sling.distribution.agent.impl.SyncDistributionAgentFactory	Sync distribution	Coordinator instance	

**Bottom Window:** A detailed view of the component with PID 2892. The "Status" field shows "unsatisfied (reference)". The "Reference triggers" section shows a "Satisfied" entry for "org.apache.sling.distribution.trigger.DistributionTrigger". The "Reference packageBuilder" section is highlighted with a green box and circled with a blue number 3. It shows an "Unsatisfied" entry for "org.apache.sling.distribution.packaging.DistributionPackageBuilder".

# Common Issue // Queue Blocked

1. Investigate common and known issues
2. If business & technical requirements permit
  - Backup the blocking package(s) for reporting then delete the blocking package(s)
  - Consider leveraging error strategy for the queue



The screenshot shows a user interface for managing a queue. At the top, there are buttons for 'Clear Queue', 'Delete Items' (which is highlighted with a green box), and 'Refresh'. To the right is a 'Close' button. The main area is titled 'endpoint0'. A red warning icon indicates the queue is 'BLOCKED' with '273 Items Pending'. Below this, it says 'Last Item Processed on Aug 16 2017 16:55:51 CEST ADD' followed by a long ID. A table lists the pending items:

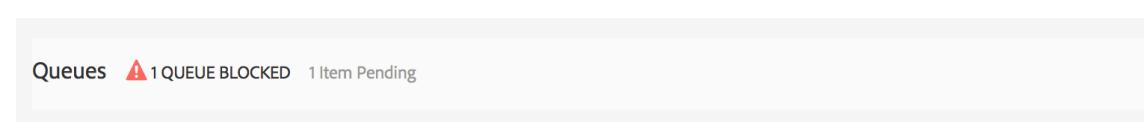
Time	Status	Action	Path	User ID	Attempts
Aug 16 2017 16:55:51 CEST	ERROR	ADD	/content/projects	admin	6
Aug 16 2017 16:55:54 CEST	QUEUED	ADD	/content/projects	admin	0
Aug 16 2017 16:55:56 CEST	QUEUED	ADD	/content/projects	admin	0

# Common Issue // Queue Blocked // Endpoint not available

## Investigation



## Symptoms



**⚠ ERROR** An error has occurred while attempting to deliver test package.  
[org.apache.sling.distribution.common.RecoverableDistributionException:  
endpoint not available  
<http://localhost:4503/libs/sling/distribution/services/importers/default>]

On source instance

```
org.apache.sling.distribution.agent.impl.SimpleDistributionAgent
[agent][publish] [endpoint0] PACKAGE-FAIL DSTREQ2: could not deliver
dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99,
endpoint not available
http://localhost:4503/libs/sling/distribution/services/importers/default
```

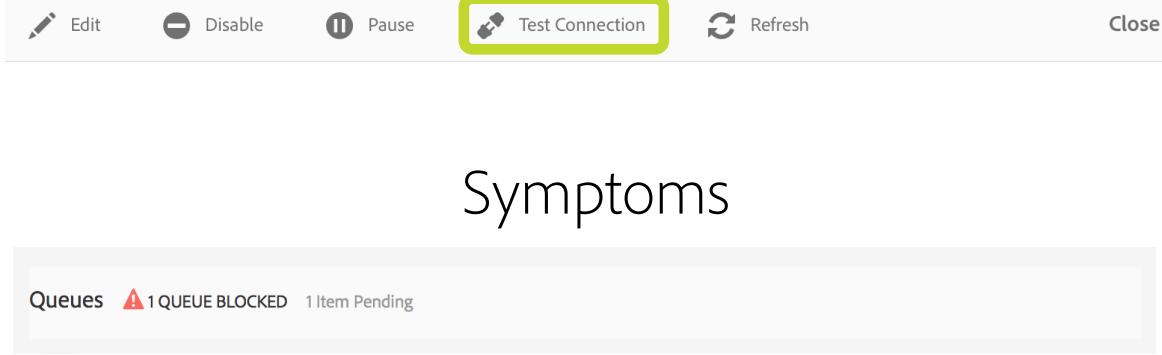
## Cause

Target instance is not reachable

## Resolution

- Configure the agent endpoints on source instances to point to existing target instances
- Check/fix any network issues (Routing, FW, etc.)

# Common Issue // Queue Blocked // Wrong or partial setup

Investigation	Cause
	Target instance is reachable but authentication/authorization fail or target agent component does not exist
 <p>An error has occurred while attempting to deliver test package. [org.apache.sling.distribution.common.DistributionException: org.apache.http.client.HttpResponseException: Server Error]</p> <p>*ERROR* [127.0.0.1 [1502890522312] POST /libs/sling/distribution/services/importers/default HTTP/1.1] org.apache.sling.engine.impl.SlingMainServlet service: Uncaught Problem handling the requestorg.eclipse.jetty.io.RuntimeIOException: org.eclipse.jetty.io.EofException</p> <p>On target instance</p>	<ul style="list-style-type: none"><li>Check/fix transport user credentials on agent configuration on <u>source</u> instance (<a href="#">DistributionTransportSecretProvider</a>)</li><li>Create transport user on <u>target</u> instance and give it access to the resources to be distributed (ACL, group membership)</li><li>Check/fix endpoint configuration on <u>source</u> instance to match existing importer/exporter OSGi component on <u>target</u> instance</li><li>Make sure the importer/exporter OSGi component on the <u>target</u> instance is active</li></ul>

# Common Issue // Content partially distributed

## Symptom

- Packages are distributed successfully but only partial content is distributed

## Causes & Resolution

- The vault package builder is filtering out the missing content or the session exporting the package does not have sufficient authorization to access the missing content

## Investigation & Resolution

- Check/fix **VaultDistributionPackageBuilderFactory** filter configuration
- Check/grant access to the missing content to the session exporting packages

# Common Issue // Queue Blocked // Package could not be installed

## Symptoms

The screenshot shows the 'Publish Agent (publish - forward)' configuration. It is enabled and set to push data from authors to publishers. Under 'Queues', there is 1 queue blocked and 1 item pending. The table lists one queue entry:

Queue	Status	Last Item Processed	Items Pending
endpoint0	Blocked	dstrpck-2017-8-10-16--39--e0a23772-c0f4-4244-9635-0b848375f50a_37 Aug 10 2017 16:39:19 CEST ADD	1

On source instance

```
org.apache.slingdistribution.agent.impl.SimpleDistributionAgentQueueProcessor could not deliver package [dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99, endpoint1] from queue
{org.apache.slingdistribution.common.DistributionException:
org.apache.http.client.HttpResponseException: Server Error}
```

On target instance

```
javax.jcr.nodetype.ConstraintViolationException:
OakConstraint0022: Authorizable property rep:principalName may
not be altered after user/group creation.
```

## Causes & Resolution

Apache Oak constraint is violated upon import  
<https://wiki.apache.org/jackrabbit/OakErrorCodes>

Cause	Resolution
Distributed content package does not contain required content	Grant enough access rights to the session installing the package (on target instance)  Configure the Vault Distribution Package Builder filters to not exclude required content. PID o.a.s.d.s.i.v.VaultDistributionPackageBuilderFactory properties package.filters & property.filters
Session importing content package does not have sufficient access rights	Grant enough access rights to the session creating the package (on source instance)

# Common Issue // Queue Blocked // Package could not be installed

## Investigation

Where is the content package blocking the queue ?

The diagram illustrates the investigation process for a blocked package in CRXDE Lite, showing three panels and a summary message.

- Summary Message:** "could not deliver package [dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99, endpoint0]" with a yellow box around the package ID.
- Queue Status:** A separate window titled "BLOCKED 1 Item Pending" shows the last item processed on Aug 10 2017 at 16:39:19 CEST, which is the same package ID (dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99).
- CRXDE Lite Node View:** The first panel shows the node path /var/eventing/jobs/assigned/e0a23772-c0f4-4244-9635-0b848375f50a/org.apache.slingdistribution.queue.publish.endpoint0/2017/8/10/16/39/e0a23772-c0f4-4244-9635-0b848375f50a\_37. A green arrow points from the package ID in the summary to this node.
- CRXDE Lite Properties View:** The second panel shows properties for the node e0a23772-c0f4-4244-9635-0b848375f50a\_37, including:
  - distribution.package.size: Long, 4493
  - distribution.item.id: String, dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99 (highlighted with a yellow box)
  - distribution.internal.request.user: String, adminA green arrow points from the package ID in the properties to the same node in the node view.
- CRXDE Lite Content View:** The third panel shows the content of the package node dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99, specifically the jcr:content binary file. A green arrow points from the package ID in the content view to the same node in the node view.

# Common Issue // Queue Blocked // Package could not be installed

## Investigation

Inspect queues using the HTTP API <http://localhost:4502/libs/sling/distribution/services/agents/<agentName>/queues.json>

List queues for the agent **publish**

```
http://<host:port>/libs/sling/distribution/services/agents/publish/queues.json
```

```
{  
    sling:resourceType: "sling/distribution/service/agent/queue/list",  
    - items: [  
        "endpoint0"  
    ]  
}
```

Get state of the **endpoint0** queue for the agent **publish**

```
http://<host:port>/libs/sling/distribution/services/agents/publish/queues/endpoint0.json
```

```
{  
    sling:resourceType: "sling/distribution/service/agent/queue",  
    state: "RUNNING",  
    - items: [  
        "dstrpck-2017--8--16--12--4--80621699-4c37-49ba-946f-775921cle488_3"  
    ],  
    itemsCount: 332,  
    empty: false  
}
```

# Common Issue // Queue Blocked // Package could not be installed

## Investigation

Package Id > Path

```
http://<host:port>/bin/querybuilder.json?path=/var/sling/distribution/packages&nodename=dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99
{
  success: true,
  results: 1,
  total: 1,
  more: false,
  offset: 0,
  - hits: [
    - {
      path: "/var/sling/distribution/packages/default/data/dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99",
      excerpt: "",
      name: "dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99",
      title: "dstrpck-1502375959688-b52c4e39-3dda-4335-9d32-26a449b01c99",
      created: "2017-08-10 16:39:19"
    }
  ]
}
```

Job Id > Path

```
http://<host:port>/bin/querybuilder.json?path=/var/eventing/jobs&nodename=e0a23772-c0f4-4244-9635-0b848375f50a\_37
{
  success: true,
  results: 1,
  total: 1,
  more: false,
  offset: 0,
  - hits: [
    - {
      path: "/var/eventing/jobs/assigned/e0a23772-c0f4-4244-9635-0b848375f50a/org.apache.slingdistribution.queue.publish.endpoint0/2017/8/10/16/39/e0a23772-c0f4-4244-9635-0b848375f50a_37",
      excerpt: "",
      name: "e0a23772-c0f4-4244-9635-0b848375f50a_37",
      title: "e0a23772-c0f4-4244-9635-0b848375f50a_37",
      created: "2017-08-10 16:39:19"
    }
  ]
}
```

# Known Fixed Issues

Symptom	Resolution
Some distribution packages are not cleaned up under /var/sling/distribution/packages	Deploy org.apache.slingdistribution.core-0.2.0 or greater version. HF NPR-15154
An agent can't connect to a remote agent over HTTPS	Deploy org.apache.slingdistribution.core-0.2.0 or greater version. HF NPR-16474
Inconsistent packages upon sync	Deploy org.apache.slingdistribution.core-0.2.0 or greater version. HF NPR-14989
Distribution stops over a slow/instable network	Deploy org.apache.slingdistribution.core-0.2.8 or greater version. HF NPR-16083

Search latest issues at <https://issues.apache.org/jira/browse/SLING> (component **Content Distribution**)

# References

- Apache Sling Content Distribution  
<https://sling.apache.org/documentation/bundles/content-distribution.html>
- User Synchronization  
<https://docs.adobe.com/docs/en/aem/6-3/administer/security/security/sync.html>
- Data Replication in Sling  
<https://www.slideshare.net/teofili/data-replication-in-sling>

# Q & A



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