

IPP Finishing 2.1: Orientation and Feed Orientation Extensions

Smith Kennedy
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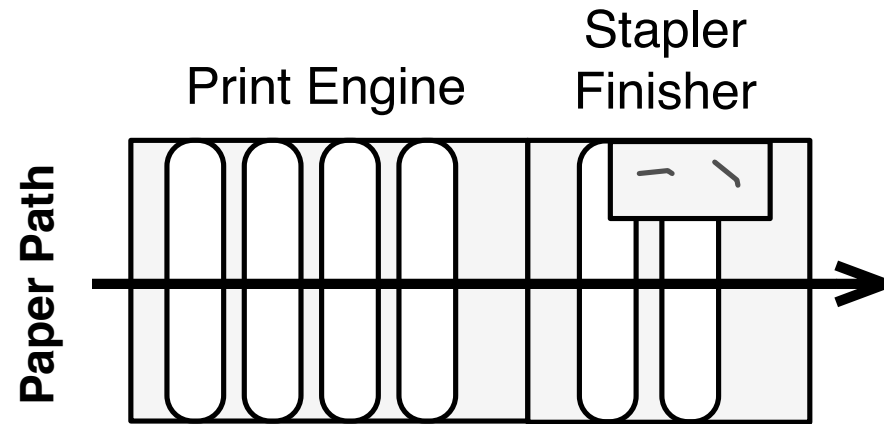
IPP Finishing 2.1: Orientation and Feed Orientation Extensions

Use Case 3.2.17 Finishing with Finisher Fidelity Restrictions:

“Jane is printing an eight-page brochure booklet. Using software on her Client device, she specifies finishing intent to first impose the pages from her Document onto folded sheets, then staple the sheets along the midline, fold the sheets along the midline, and finally shrink-wrap each booklet. The Client assists Jane with making the appropriate choices given the page orientations of Jane's booklet and the Printer's finishing location limitations and currently configured input sources and page orientations. Jane submits the print request, and the output accurately matches her expectations.”

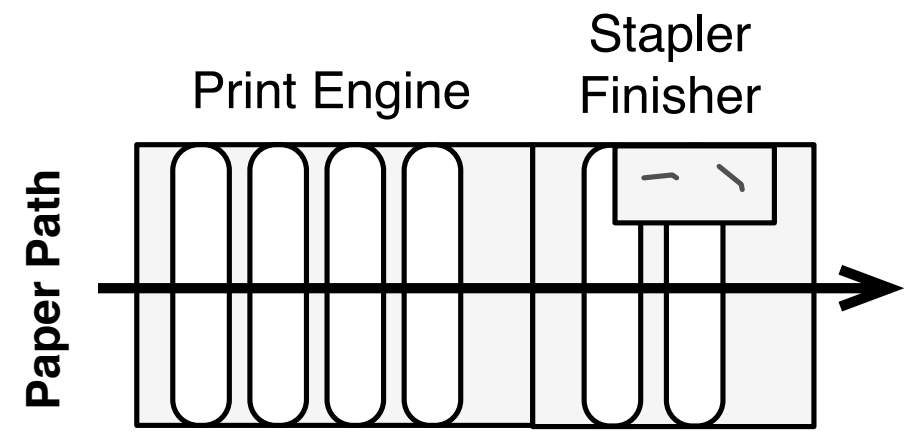
Printer Capabilities

- A3 size printer
- Has a "stitcher" that uses staples
- Stitcher is fixed in one location, on one side of the output rollers



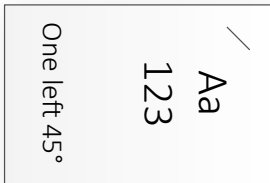
Client Job Scenarios

Media Size: A4
Media Type: stationery
Stapling: Top Left (user orientation)

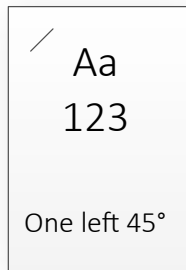


Portrait

1. Short Edge Feed

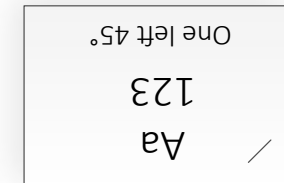
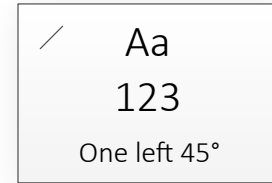


2. Long Edge Feed

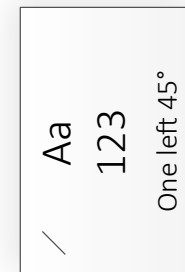
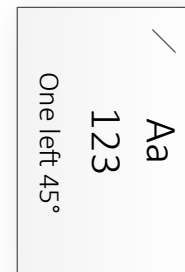


Landscape

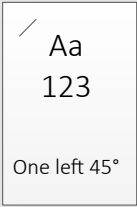
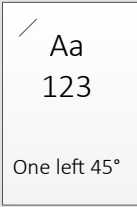
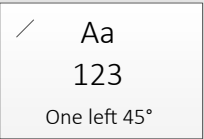
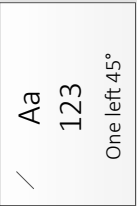
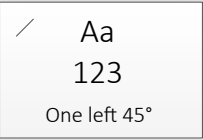
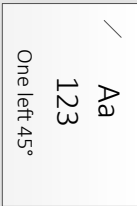
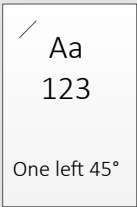
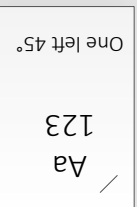
3. Short Edge Feed (and Reverse Landscape)



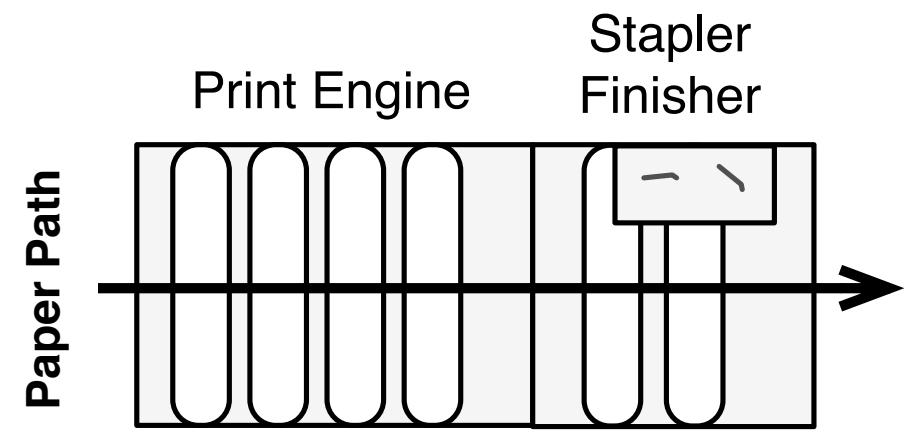
4. Long Edge Feed (and Reverse Landscape)



IPP and User Job Orientations

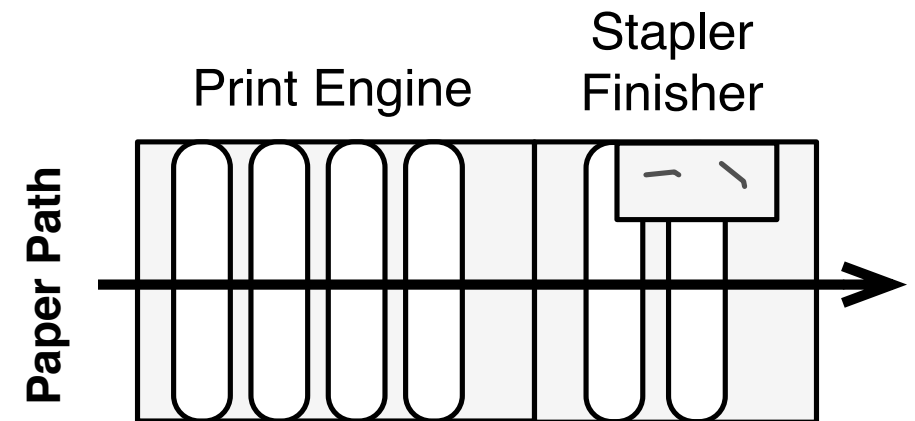
Content facing up orientation	Always Portrait Orientation	Rotation*	orientation	finishings
		0°	portrait	staple-top-left
		90°	landscape	staple-bottom-left
		270° (-90°)	reverse-landscape	staple-top-right
		180°	reverse-portrait	staple-bottom-right

* (positive == counter-clockwise)



Printer Description Attributes: media-col-ready

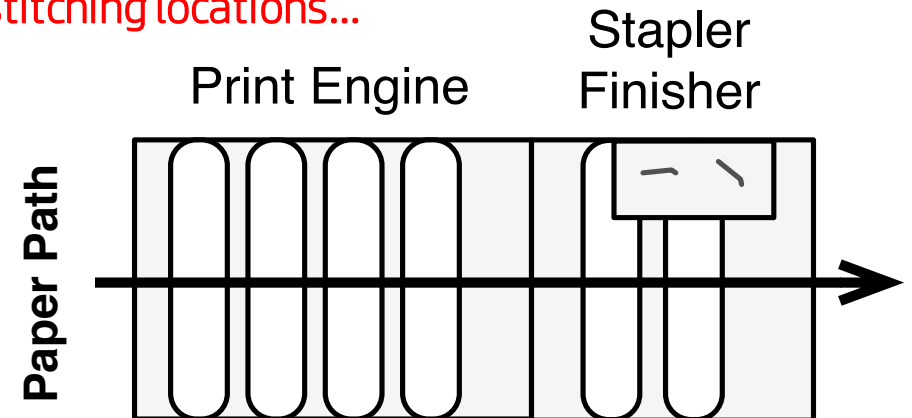
```
{
  media-size={x-dimension=21000 y-dimension=29700}
  media-source=tray-5
  media-source-properties=
  {
    media-source-feed-direction=long-edge-first
    media-source-feed-orientation=4 # landscape
  }
},
{
  media-size={x-dimension=21000 y-dimension=29700}
  media-source=tray-6
  media-source-properties=
  {
    media-source-feed-direction=short-edge-first
    media-source-feed-orientation=3 # portrait
  }
}
```



Printer Description Attributes: finishings-col-ready

```
finishings-col-ready=  
{  
  finishing-template=staple-top-left  
  media-size-name=iso_a4_210x297mm  
  media-size={x-dimension=21000 y-dimension=29700}  
  orientation-requested=portrait  
  feed-orientation=long-edge-first  
},  
{  
  finishing-template=staple-top-right  
  media-size-name=iso_a4_210x297mm  
  media-size={x-dimension=21000 y-dimension=29700}  
  orientation-requested=reverse-landscape  
  feed-orientation=long-edge-first  
},  
{  
  finishing-template=staple-top-right  
  media-size-name=iso_a4_210x297mm  
  media-size={x-dimension=21000 y-dimension=29700}  
  orientation-requested=portrait  
  feed-orientation=short-edge-first  
},  
  {  
    finishing-template=staple-top-left  
    media-size-name=iso_a4_210x297mm  
    media-size={x-dimension=21000 y-dimension=29700}  
    orientation-requested=landscape  
    feed-orientation=short-edge-first  
  },  
  ...  
}
```

One possible way to convey connection between orientation and supportable stitching locations...



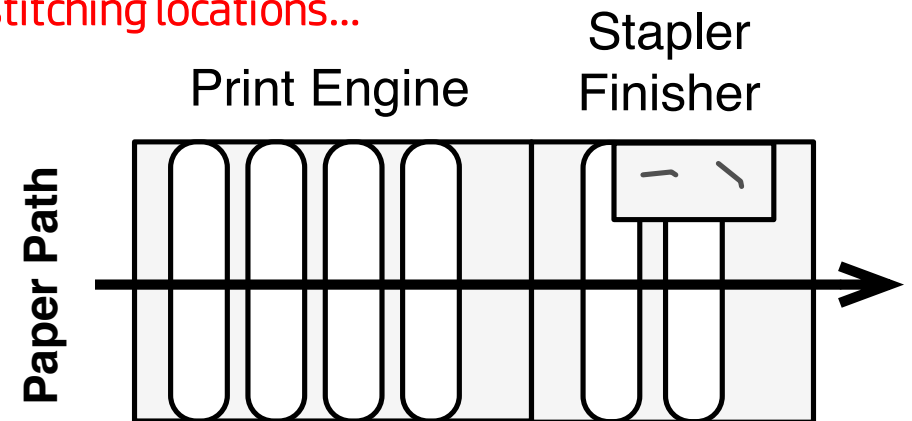
Printer Description Attributes: Others

```
orientation-requested-supported=portrait,landscape,reverse-landscape
stitching-angle-supported=45,90
stitching-locations-supported=0-42000
stitching-method-supported=wire
stitching-offset-supported=0-2000
stitching-reference-edge-supported=left
```

```
job-constraints-supported=
{
  resolver-name="A"
  finishings-col { finishing-template=staple-top-left }
  finishings=staple-top-left
  orientation-requested="portrait"
  media-col= { media-source-feed-direction="long-edge-first" }
}

job-resolvers-supported=
{
  resolver-name="A"
  media-col= { media-source-feed-direction="short-edge-first" }
  finishings-col= { stitching { stitching-angle=90 } }
  finishings-col= { stitching { stitching
```

Another possible way to convey connection between orientation and supportable stitching locations...



Scenario Analysis

For each following scenario, evaluate whether supporting this requires:

1. Constraints
2. finishings-col additions

Scenario 1 – media-source NOT explicitly specified → No Problem

Job Orientation: Portrait

Media Size: A4

Feed: Not specified

Staple: Top Left

Media Type: stationery

Job Ticket:

```
orientation-requested=portrait
```

```
media-col=
```

```
{
```

```
  media-size={x-dimension=21000 y-dimension=29700}
```

```
}
```

```
finishings-col=
```

```
{
```

```
  finishing-template=staple-top-left
```

```
  media-size-name=iso_a4_210x297mm
```

```
  media-size={x-dimension=21000 y-dimension=29700}
```

```
  stitching=
```

```
{
```

```
  stitching-angle=45
```

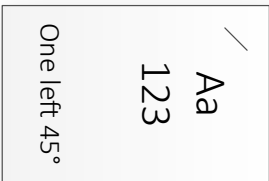
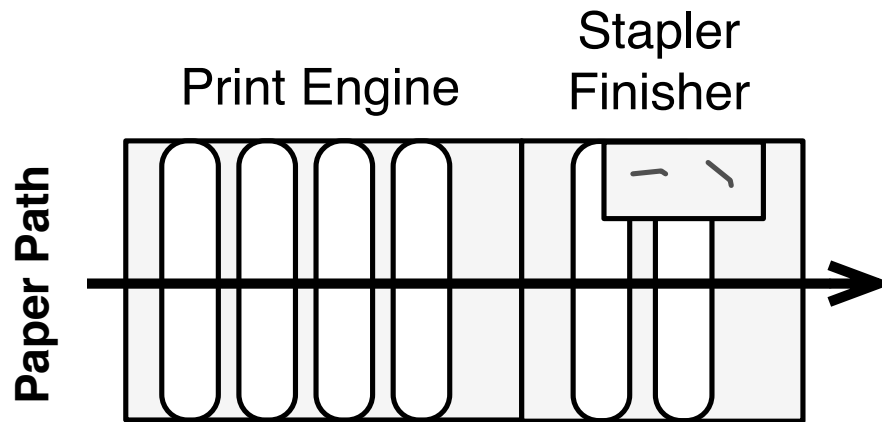
```
  stitching-locations=1100
```

```
  stitching-offset=1000
```

```
  stitching-reference-edge=left
```

```
}
```

```
}
```



Scenario 2 – media-source NOT explicitly specified → PROBLEM?

Job Orientation: Portrait

Media Size: A4

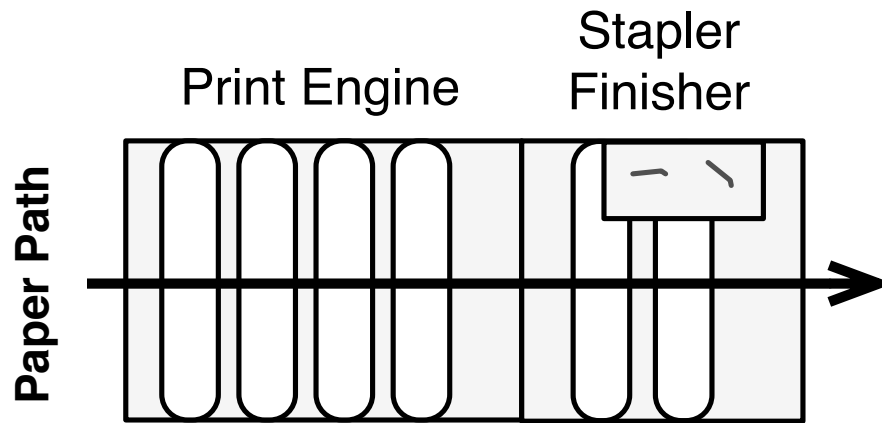
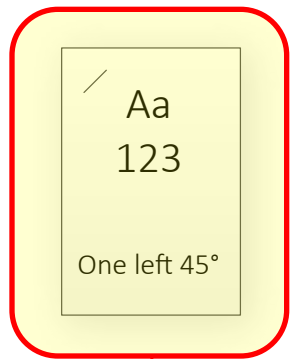
Feed: Not specified

Staple: Top Left

Media Type: stationery

```
orientation-requested=portrait
media-col=
{
  media-size={x-dimension=21000 y-dimension=29700}
}

finishings-col=
{
  finishing-template=staple-top-left
  media-size-name=iso_a4_210x297mm
  media-size={x-dimension=21000 y-dimension=29700}
  stitching=
  {
    stitching-angle=45
    stitching-locations=1100
    stitching-offset=1000
    stitching-reference-edge=left
  }
}
```



Rotation for long edge feed orientation not supported.

What to do?

1. fail the job
2. stitch with 90° staple?

Job submitted short-edge feed (Client unaware of feed orientation).

→ Printer must rotate pages +90° to align with feed orientation for the media source it chooses (long-edge feed) so as to satisfy job intent.

Scenario 1 – media-source explicitly specified → No Problem

Job Orientation: Portrait

Media Size: A4

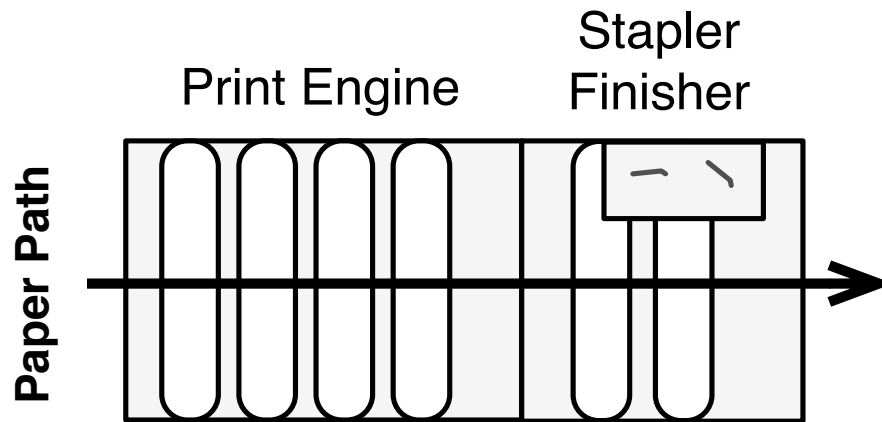
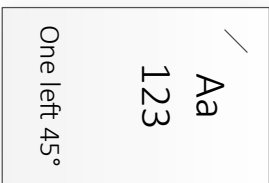
Feed: Short Edge

Staple: Top Left

Media Type: stationery

Job Ticket:

```
orientation-requested=portrait
media-col=
{
  media-size={x-dimension=21000 y-dimension=29700}
  media-source=tray-6
}
finishings-col=
{
  finishing-template=staple-top-left
  media-size-name=iso_a4_210x297mm
  media-size={x-dimension=21000 y-dimension=29700}
  stitching=
  {
    stitching-angle=45
    stitching-locations=1100
    stitching-offset=1000
    stitching-reference-edge=left
  }
}
```



Scenario 2 – media-source explicitly specified → PROBLEM

Job Orientation: Portrait

Media Size: A4

Feed: Long Edge

Staple: Top Left

Media Type: stationery

Job Ticket:

```
orientation-requested=portrait
```

```
media-col=
```

```
{
```

```
media-size={x-dimension=21000 y-dimension=29700}
```

```
media-source=tray-5
```

```
}
```

```
finishings-col=
```

```
{
```

```
finishing-template=staple-top-left
```

```
media-size-name=iso_a4_210x297mm
```

```
media-size={x-dimension=21000 y-dimension=29700}
```

```
stitching=
```

```
{
```

```
stitching-angle=45
```

```
stitching-locations=1100
```

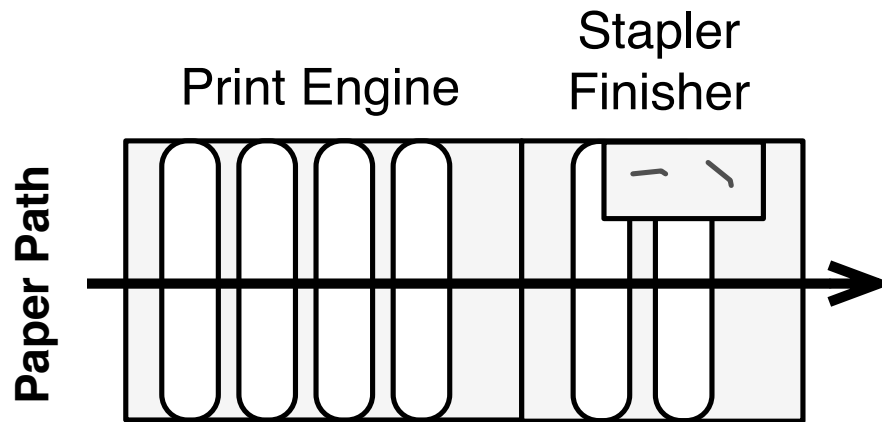
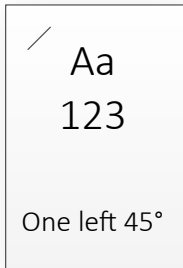
```
stitching-offset=1000
```

```
stitching-reference-edge=left
```

```
}
```

```
}
```

Not possible with long edge feed orientation



Scenario 3 – media-source NOT explicitly specified → PROBLEM?

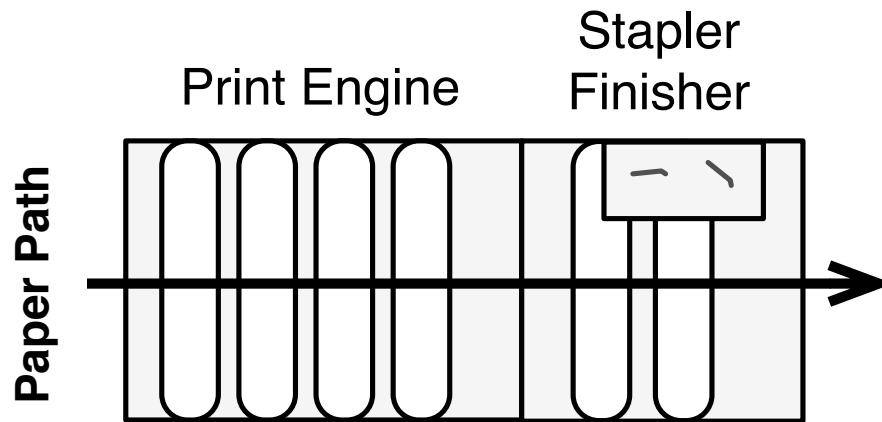
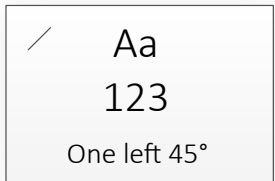
Job Orientation: Landscape

Media Size: A4

Feed: Not specified

Staple: Top Left

Media Type: stationery



Job Ticket:

```
orientation-requested=landscape
```

```
media-col=
```

```
{
```

```
  media-size={x-dimension=21000 y-dimension=29700}
```

```
}
```

```
finishings-col=
```

```
{
```

```
  finishing-template=staple-bottom-left
```

```
  media-size-name=iso_a4_210x297mm
```

```
  media-size={x-dimension=21000 y-dimension=29700}
```

```
  stitching=
```

```
{
```

```
  stitching-angle=45
```

```
  stitching-locations=[1000]
```

```
  stitching-offset=1000
```

```
  stitching-reference-edge=left
```

```
}
```

```
}
```

staple-top-left rotated +90° =
staple-bottom-left



Rotation for short edge feed
orientation not supported.

What to do?

1. fail the job
2. stitch with 90° staple?

Scenario 3 – media-source explicitly specified → PROBLEM?

Job Orientation: Landscape

Media Size: A4

Feed: Not specified

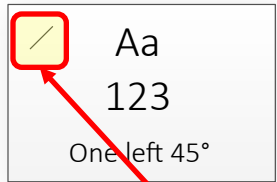
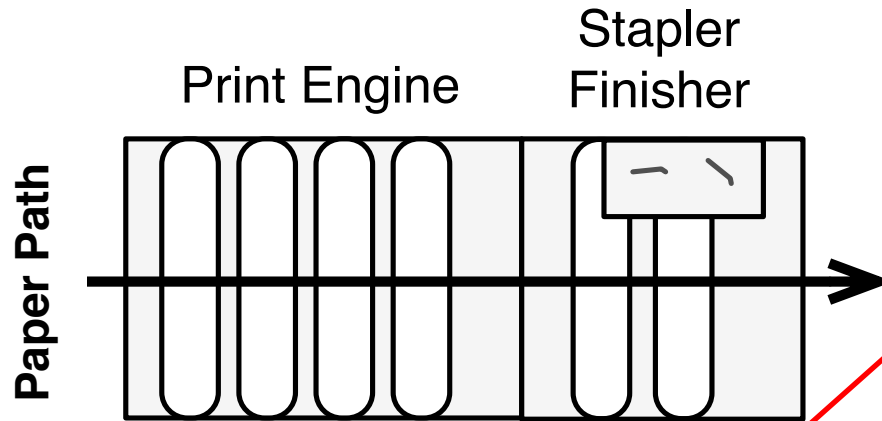
Staple: Top Left

Media Type: stationery

Job Ticket:

```
orientation-requested=landscape
media-col=
{
  media-size={x-dimension=21000 y-dimension=29700}
  media-source=tray-6
}
finishings-col=
{
  finishing-template=$staple-bottom-left
  media-size-name=iso_a4_210x297mm
  media-size={x-dimension=21000 y-dimension=29700}
  stitching=
  {
    stitching-angle=90
    stitching-locations=[1000]
    stitching-offset=1000
    stitching-reference-edge=left
  }
}
```

staple-top-left rotated +90° =
staple-bottom-left



Must explicitly set to 90° staple?
Or accept a -45° (315°) staple?

Scenario 4 – media-source NOT explicitly specified → No Problem

Job Orientation: Landscape

Media Size: A4

Feed: Not specified

Staple: Top Left

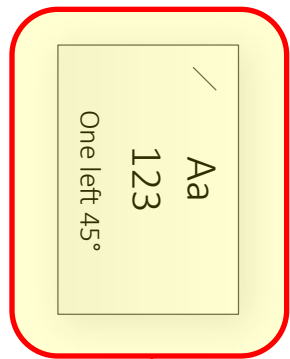
Media Type: stationery

Job Ticket

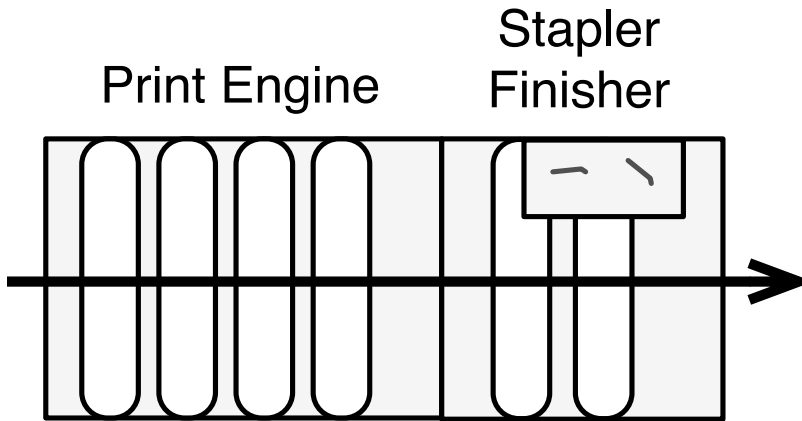
```
orientation-requested=landscape
media-col=
{
  media-size={x-dimension=21000 y-dimension=29700}
}
finishings-col=
{
  finishing-template=staple-bottom-left
  media-size-name=iso_a4_210x297mm
  media-size={x-dimension=21000 y-dimension=29700}
  stitching=
  {
    stitching-angle=45
    stitching-locations=[1000]
    stitching-offset=1000
    stitching-reference-edge=left
  }
}
```

staple-top-left rotated +90° =
staple-bottom-left

Not a problem so long as
pages are rotated -90°
clockwise to pull from long
edge feed



Paper Path



Job submitted short-edge feed (Client unaware of feed orientation).
→ Printer must rotate pages -90° to align with feed orientation for the media source it chooses (long-edge feed) so as to satisfy job intent.

Scenario 4 – media-source explicitly specified → No Problem?

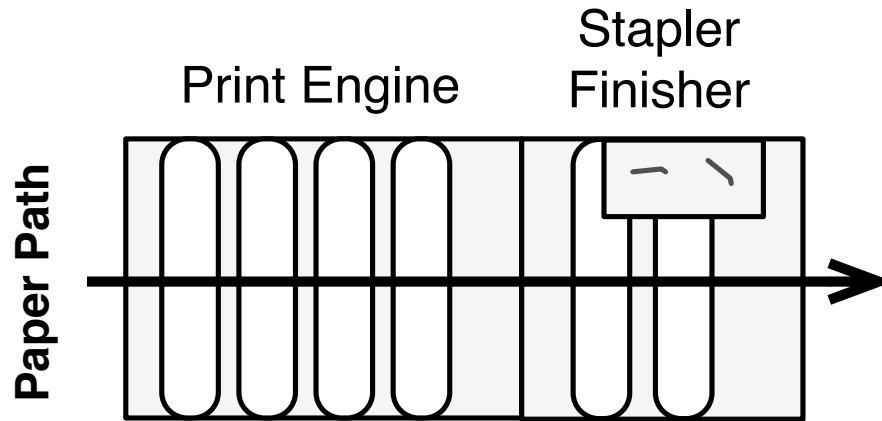
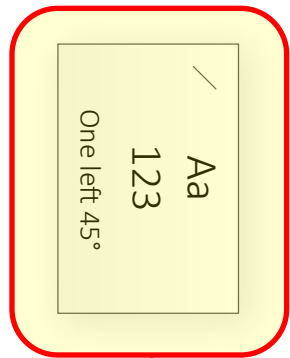
Job Orientation: Landscape

Media Size: A4

Feed: Long Edge

Staple: Top Left

Media Type: stationery



Job Ticket

```
orientation-requested=landscape
media-col=
{
  media-size={x-dimension=21000 y-dimension=29700}
  media-source=tray-5
}
finishings-col=
{
  finishing-template=staple-bottom-left
  media-size-name=iso_a4_210x297mm
  media-size={x-dimension=21000 y-dimension=29700}
  stitching=
  {
    stitching-angle=45
    stitching-locations=[1000]
    stitching-offset=1000
    stitching-reference-edge=left
  }
}
```

doesn't directly cause transforms or otherwise influence job processing?

staple-top-left rotated +90° = staple-bottom-left

Not a problem so long as pages are rotated -90° clockwise to pull from long edge feed

Job submitted short-edge feed (Client unaware of feed orientation).

→ Printer must rotate pages -90° to align with feed orientation for the media source it chooses (long-edge feed) so as to satisfy job intent.