

IPP Finishing 2.1: Orientation and Feed Orientation Extensions

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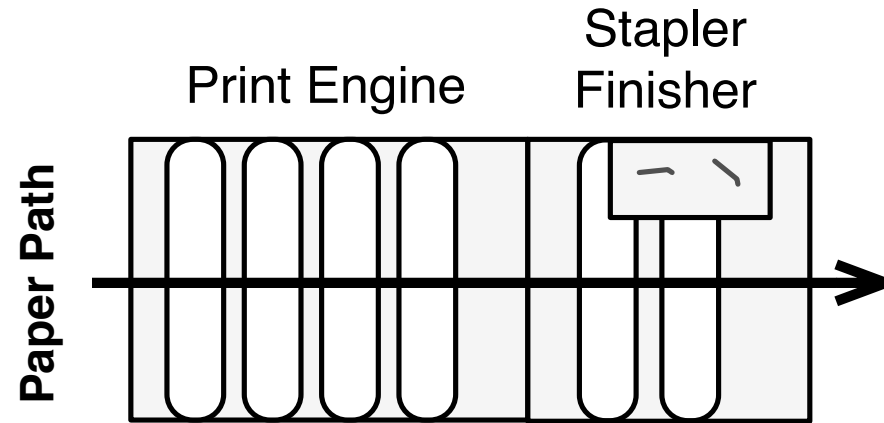
IPP Finishing 2.1: Orientation and Feed Orientation Extensions

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

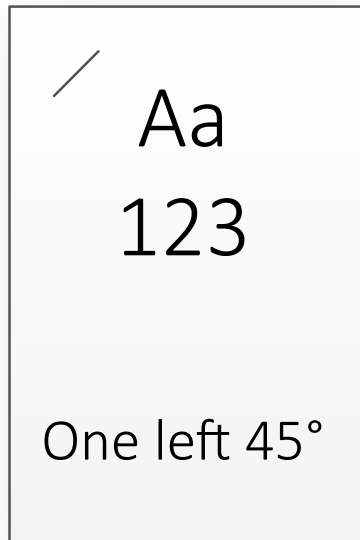


User Intent

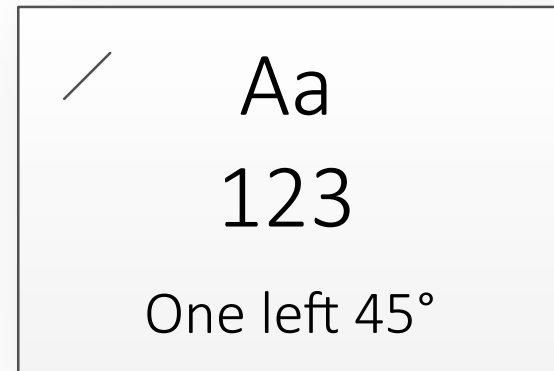
This is what the user wants to see:

- Media Size: A4
- Media Type: stationery
- Stapling: Top Left

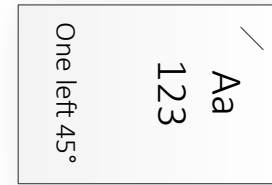
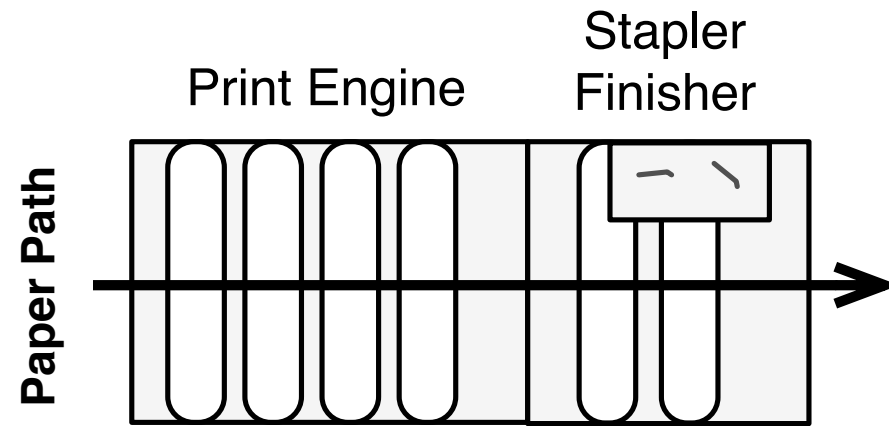
Portrait



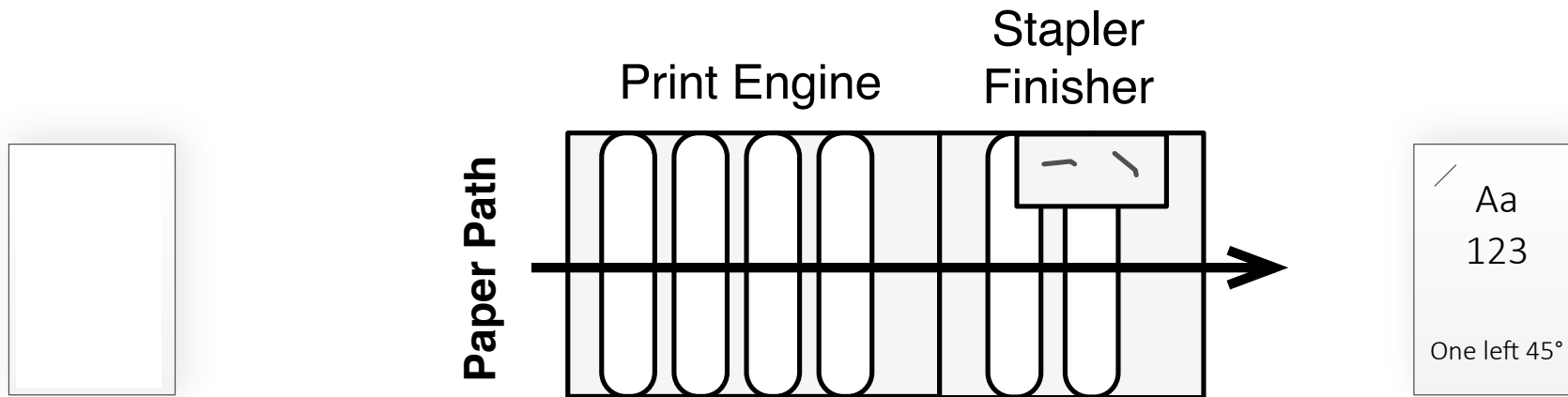
Landscape



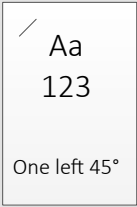
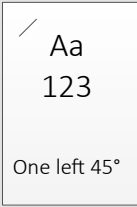
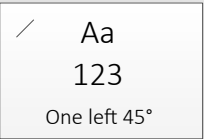
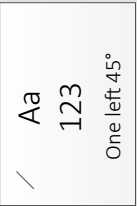
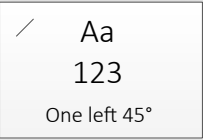
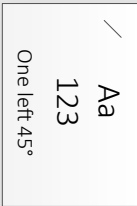
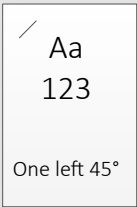
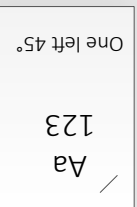
Portrait Output – Short Edge Feed



Portrait Output – Long Edge Feed



User-held vs. IPP Job Orientations

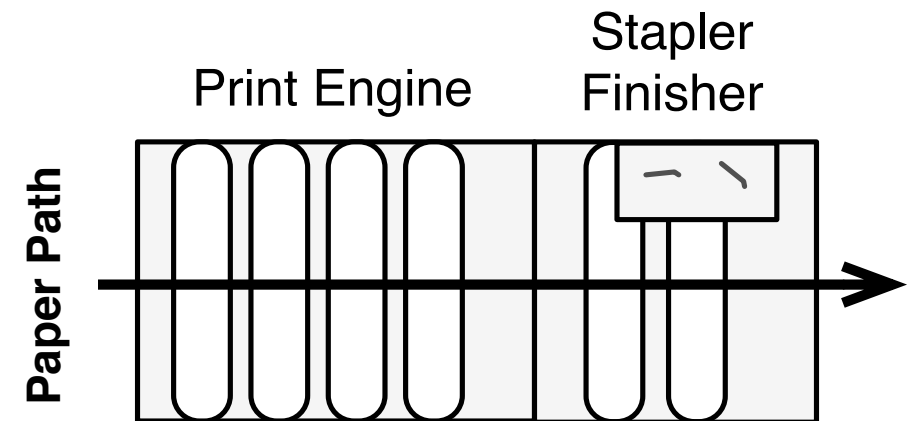
User-held orientation	IPP (Always Portrait) Orientation	Rotation*	orientation	finishings
 <p>Aa 123 One left 45°</p>	 <p>Aa 123 One left 45°</p>	0°	portrait	staple-top-left
 <p>Aa 123 One left 45°</p>	 <p>Aa 123 One left 45°</p>	90°	landscape	staple-bottom-left
 <p>Aa 123 One left 45°</p>	 <p>Aa 123 One left 45°</p>	270° (-90°)	reverse-landscape	staple-top-right
 <p>Aa 123 One left 45°</p>	 <p>Aa 123 One left 45°</p>	180°	reverse-portrait	staple-bottom-right

* (positive == counter-clockwise)



Printer Description Attributes: media-col-ready

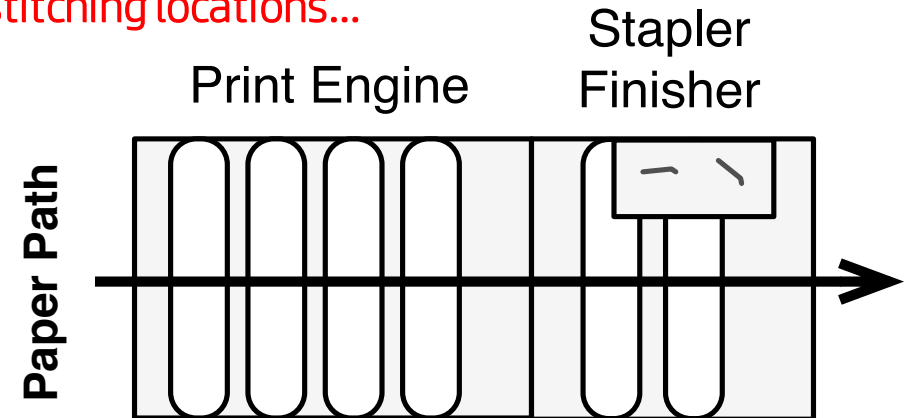
```
{
  media-size={x-dimension=21000 y-dimension=29700}
  media-source=tray-5
  media-source-properties=
  {
    media-source-feed-direction=long-edge-first
    media-source-feed-orientation=4 # landscape
  }
},
{
  media-size={x-dimension=21000 y-dimension=29700}
  media-source=tray-6
  media-source-properties=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



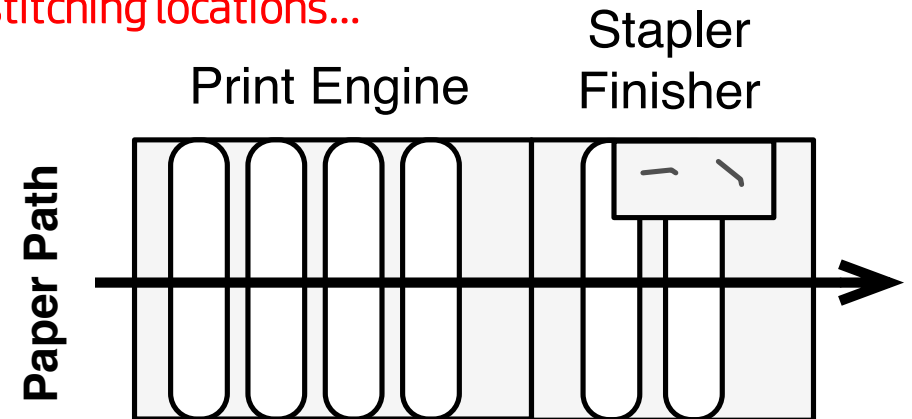
Printer Description Attributes: Others

```
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-angle=45 } }
}
```

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

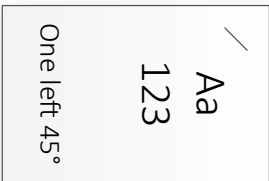
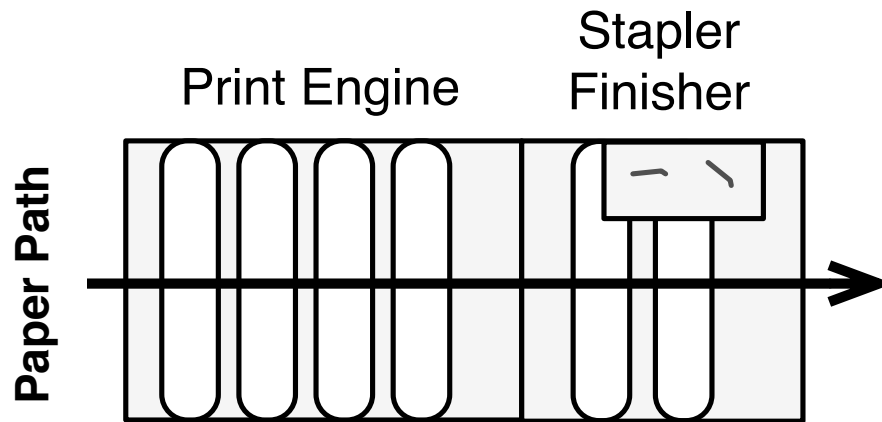
Staple: Top Left

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
  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

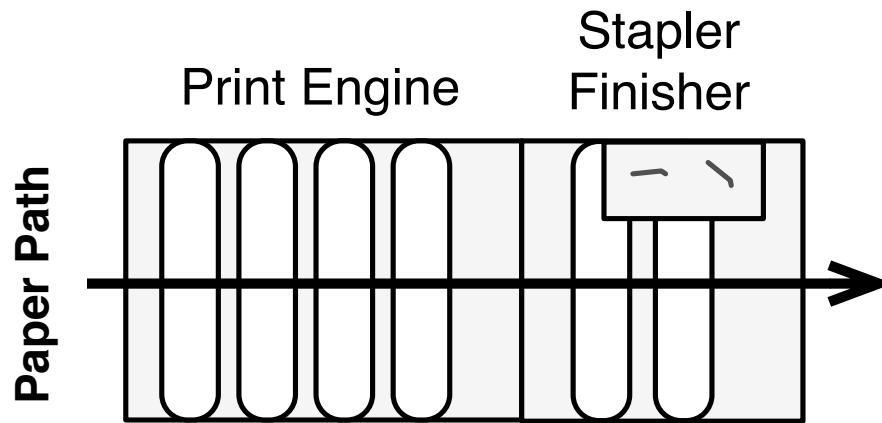
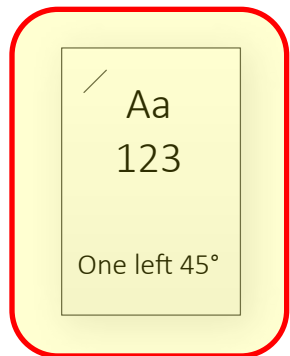
Feed: Not specified

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
  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?

If "ipp-attribute-fidelity" = 'true' then fail the job

Job submitted with no feed intent specified.

→ Printer must rotate pages +90° (90° counter-clockwise) to align with feed orientation for the media source it chooses (long-edge feed) so as to satisfy job intent. (Forms or envelopes or other media types that have an explicit or implied orientation may not be safely rotated.)

Scenario 1 – media-source explicitly specified → No Problem

Job Orientation: Portrait

Media Size: A4

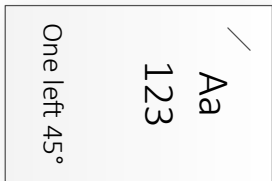
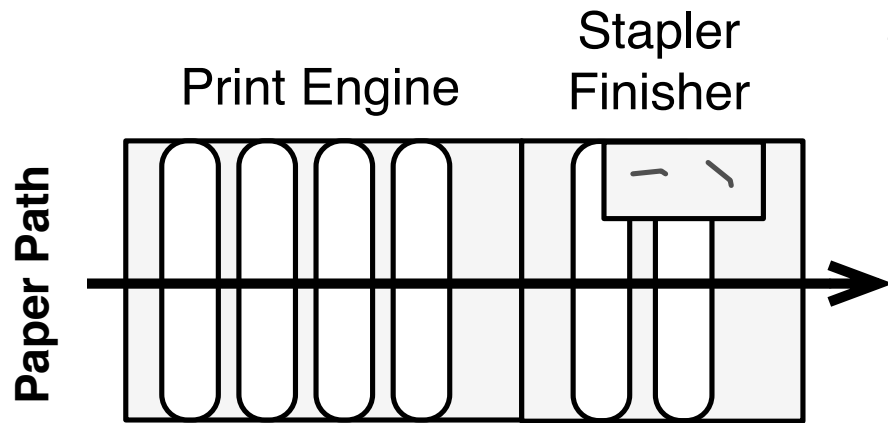
Feed: Short Edge

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
  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
```

```
stitching=
```

```
{
```

```
stitching-angle=45
```

```
stitching-locations=1100
```

```
stitching-offset=1000
```

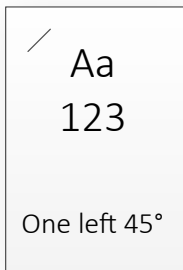
```
stitching-reference-edge=left
```

```
}
```

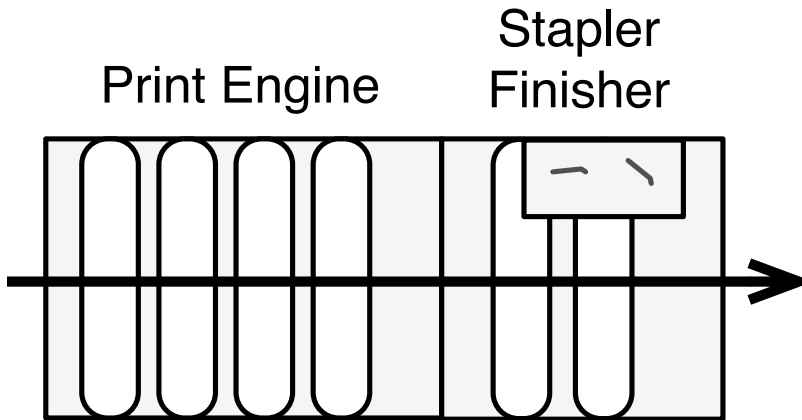
```
}
```

Not possible with long edge feed orientation

Constraints and resolvers could prevent this condition from occurring. In the absence of the Client preventing this, the Printer could fix the staple angle assuming fidelity = false



Paper Path



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
```

```
stitching=
```

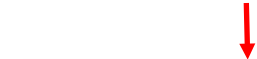
```
{
  stitching-angle=45
```

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

```
stitching-offset=1000
```

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

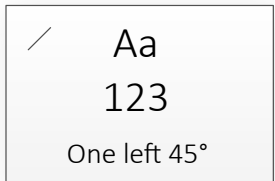
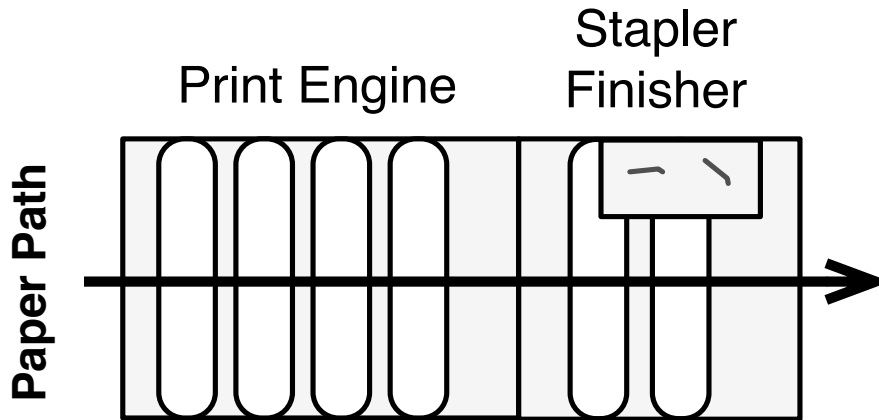
staple-top-left rotated +90° =
staple-bottom-left



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]
```

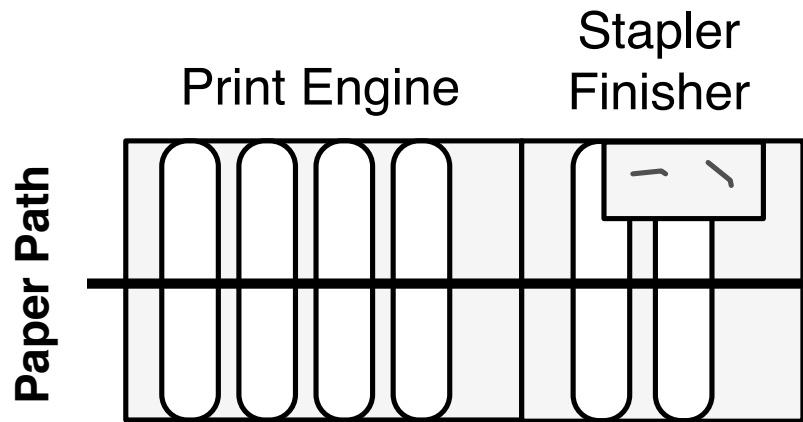
```
  stitching-offset=1000
```

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

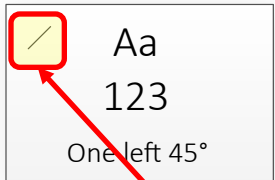
```
}
```

```
}
```

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

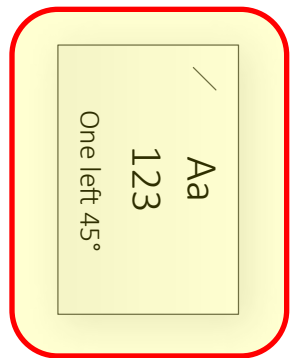
Media Type: stationery

Job Ticket

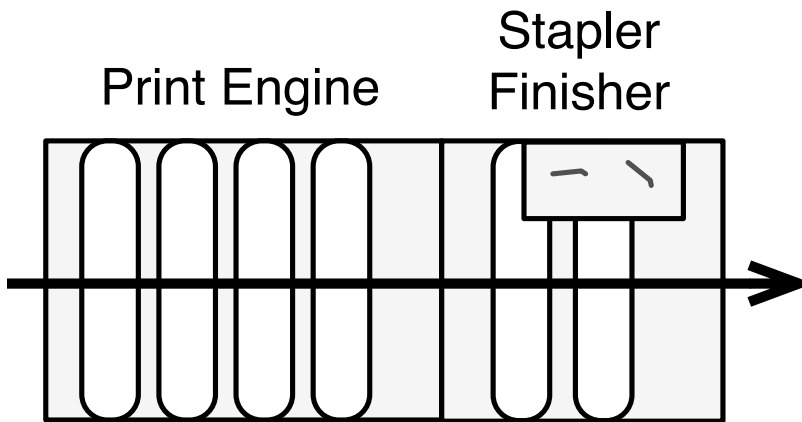
```
orientation-requested=landscape
media-col=
{
  media-size={x-dimension=21000 y-dimension=29700}
}
finishings-col=
{
  finishing-template=staple-bottom-left
  media-size-name=iso_a4_210x297mm
  media-size={x-dimension=21000 y-dimension=29700}
  stitching=
  {
    stitching-angle=45
    stitching-locations=[1000]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

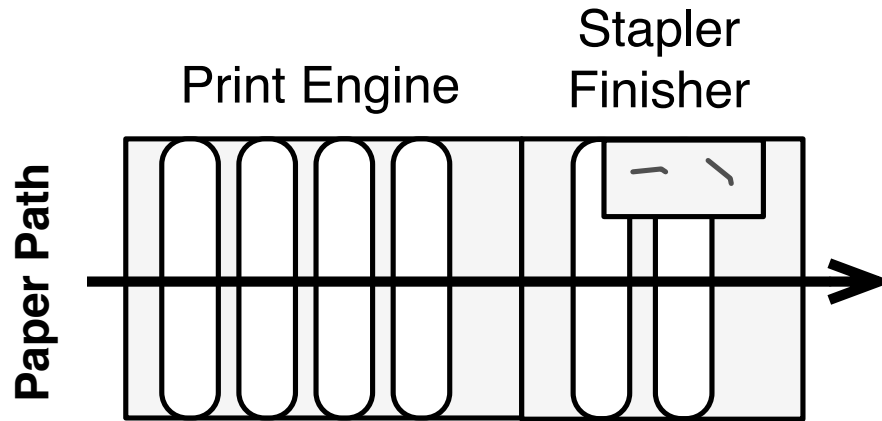
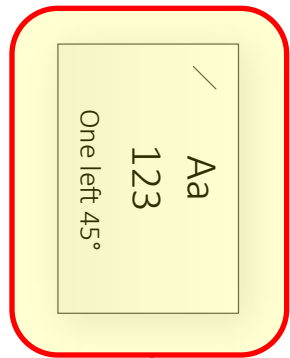
Job Orientation: Landscape

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.