

EFI Metrix Tech Note:  
MXML 2.0 Changes



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## MXML Changes

There are several changes to the MXML file format to support Digital Cutting. The ones to define a Digital Cutting Machine or Cutter Alignment Mark Groups are in their specific Tech Note documents.

### MXML Changes for Components related to Digital Cutting

Attribute / Sub Element	Use	Description
<i>Name</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The name displayed in the Metrix user interface to identify this digital cutting machine.
<i>CutterOperations</i>	Optional	Contains a list of Contour elements that define what each Contour from the content file should be used for.
<i>PathComplexity</i>	Optional default=0	When using digital cutting machine, this parameter defines the speed reduction factor for the cutting machine. Complexity changes with nature of substrate and shape complexity of cutting impression, value may be 0 (no speed reduction) to 0.95 (slows it down a LOT)
<i>PathPerimeter</i>	Optional default = 0	The value represents the perimeter of component to be considered for digital cutting cost calculation

### MXML for Contours

Attribute / Sub Element	Use	Description
<i>Name</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The name displayed in the Metrix user interface to identify this digital cutting machine.
<i>CutterOperation</i>	Optional	Cutter Operation to use if available from the Digital Cutting Machine
<i>Name</i>	Required	Spot Color Name that was used to draw the Contour in the content file.
<i>Path</i>	Required	Full definition of the exact path for this Contour.
<i>Perimeter</i>	Optional	Distance around the outer Perimeter of the contour

#### Example:

```
<Component Active="true"PathComplexity="0.0" PathPerimeter="27.632993"
FinishedGrain="Either"...
  <CutterOperations>
    <Contour CutterOperation="Cutting" Name="All" Path="m -29.0 463.665985 1 -56.0
... " Perimeter="55.80163"/>
    <Contour CutterOperation="Creasing" Name="Crease Line" Path="m 229.666992
246.332001 1 52.999985 ..." Perimeter="22.395392"/>
  </Component>
```

### MXML Changes for Project Import

Metrix has always Exported the Marks for a Layout. Now Metrix will import Marks that are defined in a Layout. (MXML 2.0)

## MXML Tags for Cutter Alignment Mark Groups

Cutter Alignment Mark Groups are supported in Metrix Automation via MXML.

### Automatic Cutter Alignment Mark Group MXML command:

```
<AddCutterAlignmentMarks Name="Add Cutter Alignment Marks"/>
```

### Database Mode:

You must first define a Cutter Alignment Mark Group in the Metrix database, and then refer to that group in the input project MXML:

```
<ResourcePool>
<CutterAlignmentMarkGroup Name="find by name" MIS_ID="find by MIS ID"/>
</ResourcePool>
```

(OR)

### Memory Only Mode:

Provide the entire definition:

```
<CutterAlignmentMarkGroup CutterAlignmentInnerSize="0.2" CutterAlignmentOuterSize="0.3"
CutterAlignmentSpotBlack="true" CutterAlignmentSpotWhite="true"
CutterAlignmentType="WhiteCircleOnBlackSquare" GapMax="3.937008" GapMin="1.574803" ID="Ref_46"
MIS_ID="10046" Name="DemoCAM_WCBS" Orientation="BottomLeft" TrimOffset="0.15"/>
```

### Fields / Attributes Table:

MXML Tag → CutterAlignmentMarkGroup

MXM Attribute Name =sample value	UI Mapping	Description
Name="DemoCAM_WCBS"	Name	Name of Cutter Alignment Mark Group resource
CutterAlignmentInnerSize="0.2"	Inner Size	Size of Inner Portion of Mark
CutterAlignmentOuterSize="0.3"	Outer Size	Size of Outer Portion of Mark
CutterAlignmentSpotBlack="true"	Spot Black	Toggle selection to mention Spot Black or Process Black
CutterAlignmentSpotWhite="true"	Spot White	Toggle selection to mention Spot White or Process White
CutterAlignmentType="WhiteCircleOnBlackSquare"	Alignment Mark Type	Type of Alignment Mark as per possible values
GapMax="3.937008"	Maximum Distance Between Marks	Maximum Distance Between Marks around each product instance on layout
GapMin="1.574803"	Minimum Distance Between Marks	Minimum Distance Between Marks around each product instance on layout
ID="Ref_46"	N/A	ID reference needed by MXML tag
MIS_ID="10046"	N/A	MIS_ID reference needed by MXML tag for integrations
TrimOffset="0.15"	Offset from Trim	Offset of mark placement from the product trim
Orientation="BottomLeft"	Orientation Mark Placement	Positions two dots to indicate the orientation of the sheet

## MXML Tags for Digital Cutting Machines

Parent: Root/Resource Pool

Attribute / Sub Element	Use	Description
<i>Name</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The name displayed in the Metrix user interface to identify this digital cutting machine.
<i>DeviceID</i>	Required	Unique identifier for the element. The ID attribute can be used as a referenced to the element form elsewhere in the MXML document. Up to 255 characters.
<i>Description</i>	Optional	Optional, and only read when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True ). Optional field used in some exported JDF.
<i>Manufacturer</i>	Optional	Optional, and only read when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True ). Optional field used in some exported JDF.
<i>Speed</i>	Required	Linear Units Per Hour. Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The number of linear units (inches or millimeters) that can be cut per hour. Used to calculate the cutting costs and time to produce.
<i>HourlyRate</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The hourly rate for this cutting machine. Used to calculate the layout and project costs.
<i>MakeReadyPerPosition</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The hours (or fractions of hours) required to complete makeready for each positioning of the cutter. Used to calculate the layout cost and time to produce.
<i>MakeReadyPerSheet</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The hours (or fractions of hours) required to complete makeready for each sheet to be cut.
<i>MinHeight</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The minimum height of a sheet for this cutting machine.
<i>MaxHeight</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The maximum height of a sheet for this cutting machine.
<i>MinWidth</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The minimum width of a sheet for this cutting machine.
<i>MaxWidth</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The maximum width of a sheet for this cutting machine.
<i>MinThickness</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The minimum thickness of a sheet for this cutting machine.
<i>MaxThickness</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The maximum thickness of a sheet for this cutting machine.
<i>DigitalCuttingTool CutterOperation</i>	Required	Required when running in memory-only mode (i.e., when the root MetrixXML /@MemoryOnly = True). The cutter operation performed by the cutting tool, as well as the Description and Name.

**Example:**

```
<DigitalCuttingMachine Description="digicut description" DeviceID="digicut" HourlyRate="100"
ID="Ref_0" MakeReadyPerPosition="0.01" MakeReadyPerSheet="0.1"
Manufacturer="digi manufacturer" MaxHeight="100" MaxThickness="6" MaxWidth="100" MinHeight="3" MinThicknes
s="0.001" MinWidth="3" Name="digicut" Speed="1000">
  <DigitalCuttingTool CutterOperation="Cutting" Description="00 blade" Name="Knife"/>
  <DigitalCuttingTool CutterOperation="Perfing" Description="perforator" Name="Perfer"/>
  <DigitalCuttingTool CutterOperation="Creasing" Description="creases" Name="Creaser"/>
</DigitalCuttingMachine>
```