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## Reference Guide

Plant Manager Messaging XML API - (Plant Manager to MIS)  
June / 2025



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 Auto-Count | *Plant Manager Messaging XML API Reference Guide*

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## Introduction

This document describes the message types used in the Plant Manager XML API used between the Plant Manager database and the MIS system. This guide is intended for Auto-Count version 19.1.

## Contact Information

### Support

<b>Web Site</b>	<a href="https://customer.efi.com/support">https://customer.efi.com/support</a>
<b>US Phone:</b>	1.855.EFI.4HLP
<b>US E-mail:</b>	<a href="mailto:dmi.support@efi.com">dmi.support@efi.com</a>
<b>UK Phone:</b>	+44 (0) 800.783.2737
<b>EU Phone</b>	+49.2102.745.4500 (+ is your international access code {011 in US})

Regular Service Desk hours are 8:00 AM to 5:00 PM Eastern Time, Monday – Friday. Outside of these hours, you may leave a voice mail message and an on-call support representative will be paged. Response time is based on the severity of the issue.

**Note** For problems involving infrastructure (i.e., computers, networks, operating systems, backup software, printers, third-party software, etc.), contact the appropriate vendor. ePS cannot support these types of issues.

# XML

## Encoding

XML messages will be encoded using UTF-8 and specify the encoding in the XML declaration using:

```
<?xml version="1.0" encoding="UTF-8"?>
```

## DateTime Values

Where a field is specified as a DateTime field these values are passed in ISO 8601 format, e.g. "2002-10-10T12:00:00-05:00". See the W3C link for details: <http://www.w3.org/TR/xmlschema-2/#dateTime>

The time zone part of the date/time string (e.g. "-05:00") is required.

## Logical Values

Where a field is marked as "logical", valid values are; "true", "false", "1", "0".

## Casing

All elements and attributes use Pascal case, e.g. MessageDateTime.

## Namespace

All elements and attributes belong to the namespace "com.efi.monarch.dmi". Messages should have the xmlns attribute as shown below.

```
xmlns="com.efi.monarch.dmi"
```

# Data Fields

## ID Fields

Fields marked as ID fields; PlantId, AutoCountId, etc. must not contain spaces (or any whitespace) or control characters.

## Length, Width, Weight

All lengths, widths and weights are expected to be in metric; mm, KG. All fields should specify the expected units.

## Data Types and Size

Each attribute specified for an element specifies its data type and size. These are subject to change in the future but will not normally be made more restrictive than specified.

# Root Node (command/query/signal/response)

Name	Data Type	Validate	Required	Description
MessageId	Character		Yes	Reference Number. A sequential number for the sequence of each message. It would be best to use a DB sequence with leading zeros.
MessageType	Character		Yes	Signal Command Query Response
MessageVersion	Integer		Yes	Version. Sequence (1)
MessageDateTime	Date \ Time		No	Optional reference data (ISO inc. TZ)



MessagePriority	Integer		No	0 = Normal, >0 Higher
Sender	Character		No	Optional reference data
SenderVersion	Character		No	PLM / MIS version
[Data]	Element		Yes	One or more

```
<xxx MessageId="123" MessageDateTime="2007-11-16T20:14:06.3Z"
  MessageVersion="1" MessageType="Signal" Sender="PLM"
  SenderVersion="2011.1.1.1">
  <message>...</message>
</xxx>
```

## Signal

These message types use the standard root node structure defined above.

DMI Signal - Modeled after the JMF Signal message. A Signal is a "fire and forget" messages. They are used to send updates to devices and never require (or allow) a Response.

```
<xxxSignal MessageId="123" MessageDateTime="2007-11-16T20:14:06.3Z"
  MessageVersion="1" MessageType="Signal" Sender="PLM"
  SenderVersion="2011.1.1.1">
  <message>...</message>
</xxxSignal>
```

## Command

These message types use the standard root node structure defined above.

DMI Command - Modeled after the JMF Command message. A Command is a message which causes a state change in the target device. Commands always require a Response. In this API all Commands generate an AcknowledgementResponse defined later.

```
<xxxCommand MessageId="123" MessageDateTime="2007-11-16T20:14:06.3Z"
  MessageVersion="1" MessageType="Command" Sender="PLM"
  SenderVersion="2011.1.1.1">
  <message>...</message>
</xxxCommand>
```

If it is impossible to honor the DeleteRecord flag of a command, due to foreign key constraints for example, then the record will be flagged as inactive.

## Query

These message types use the standard root node structure defined above.

DMI Query - Modeled after the JMF Query message. A Query is a message that retrieves information from a device without changing the state of the device; it's the SQL equivalent of a select. A Query always requires a Response.

```
<xxxQuery MessageId="123" MessageDateTime="2007-11-16T20:14:06.3Z"
  MessageVersion="1" MessageType="Query" Sender="PLM"
  SenderVersion="2011.1.1.1">
  <message>...</message>
</xxxQuery>
```

## Response

Response type messages extend the root node with three extra attributes.

Name	Data Type	Validate	Required	Description
RefId	Character		Yes	Reference Number. A sequential number for the sequence of each message. It would be best to use a DB sequence with leading zeros.
ReturnCode	Integer		Yes	A value of zero or the attribute not existing indicates success. For non-zero values the ErrorText should be supplied.
ErrorText	Character		No	A human readable error message.

DMI Response - Modeled after the JMF Response message. A Response is always sent in response to a Query or Command message. The ReturnCode and ErrorText attributes can be used to indicate failures. No ReturnCode or a ReturnCode value of zero indicates success.

```
<xxxResponse MessageId="123" MessageDateTime="2007-11-16T20:14:06.3Z"
  MessageVersion="1" MessageType="Response" Sender="PLM"
  SenderVersion="2011.1.1.1" RefId="122" ReturnCode="1" ErrorText"ID
  not found">
  <message>...</message>
</xxxResponse>
```

If an exception occurs processing the command, the message details each record that failed and why.

Return Code	Token	Description
-1	Unprocessed	Used internally to signal the message needs action.
0	Success	
1	InvalidXml	The xml supplied in the message is not valid.
2	XsdValidationError	The xml does is not valid according to the Plant Manager Connector xml schema definition.
3	InvalidId	An invalid external database ID was supplied. For example, an invalid PlantId (PlantNumber internally). Also returned if an ID contains whitespace or control characters.
4	DBValidationError	Database referential integrity errors
5	ProcessingError	
6	SendError	Errors occurred sending the outgoing message.
7	Expired	Message expired before it could be sent.

## Message Flow

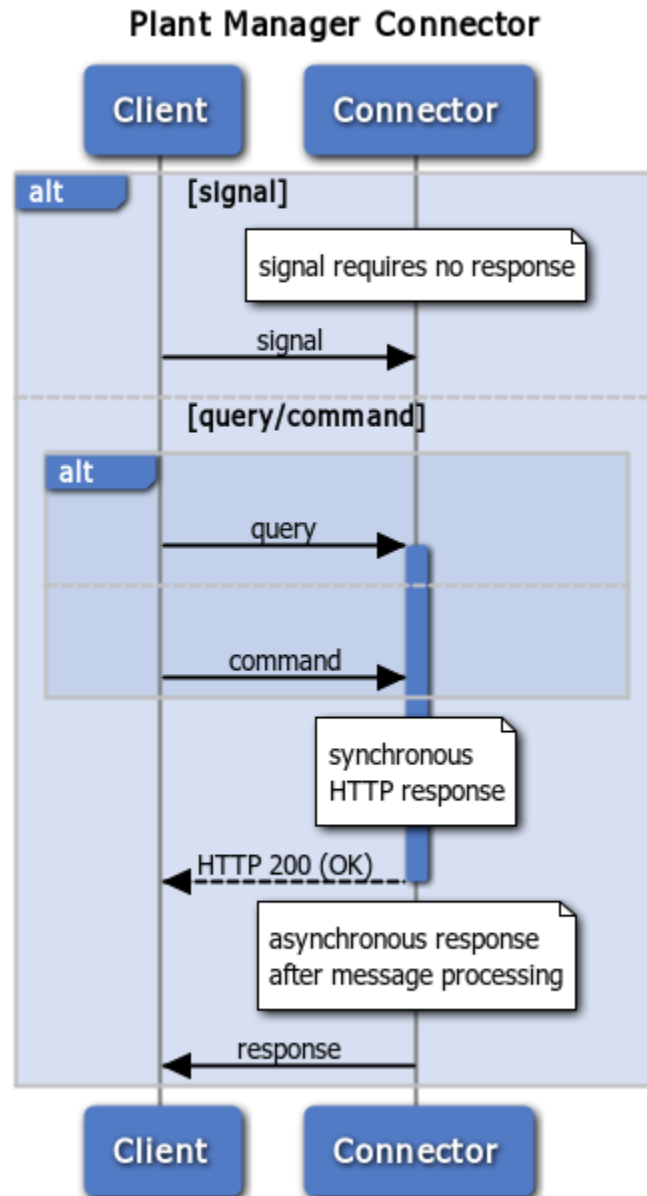
Plant Manager will receive messages at one listening URI and send messages to one remote URI. Both should be configured or possibly discovered using UDP.

Message types are handled differently depending on the type of message. **Signals** are one way messages and do not require a response. **Query** messages have defined responses. **Command** messages always require an "AcknowledgementResponse" no matter which command was sent.

When a message is posted via HTTP to the Connector the Connector will reply with a simple **HTTP status 200 OK** message. If the message received contains invalid XML or fails the XML Schema validation the Connector will still reply with a **HTTP status 200 OK**. Any error information should be posted back asynchronously. This

makes determining the cause of transport errors simpler. In both cases the message is queued to be processed asynchronously.

After the message has been processed asynchronously a response is posted directly to the remote URI. The following sequence diagram illustrates this.



Some messages are initiated from the Connector. In these cases the above diagram would be reversed.

If the remote URI does not reply or returns an error when a message is sent from the Connector, the message will be retried at increasing intervals; 1, 2, 4, 8, 16, 32 seconds etc. This doubling of the retry time is currently capped at 512 seconds, i.e. it will retry at least every 8 and half minutes.

# General Messages

## PingQuery (to/from)

A simple "ping" to confirm the other end of the connection is alive.

No added attributes or elements.

```
<PingQuery MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Query" Sender="Sender1" SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi" />
```

## PingResponse (to/from)

A simple message to confirm we are alive.

No added attributes or elements.

```
<PingResponse MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Response" Sender="Sender1" SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi" />
```

## AcknowledgementResponse

This will be returned to acknowledge receipt of any command message.

In a success situation, it does not extend the basic Response message but simply populates the ReturnCode and ErrorText properties.

If an exception occurs processing the command, the message details each record that failed and why.

Name	Data Type	Validate	Required	Description
Error	Element		No	Zero or more

### Error

Name	Data Type	Validate	Required	Description
ReturnCode	Integer		Yes	A value of zero or the attribute not existing indicates success. For non-zero values the ErrorText should be supplied.
ErrorText	Character		No	A human readable error message.
SourceXml	Element		No	Zero or one

### SourceXml

Name	Data Type	Validate	Required	Description
? – This could be the name of any record that caused the error, e.g. CostCode, Employee, etc.	Element		No	The element will replicate the record that was being processed that caused the exception to occur.

```

<AcknowledgementResponse MessageType="Response" RefId="RefId1" ReturnC
ode="1" ErrorText="ErrorText1" MessageId="MessageId1" MessageDateTim
e="1753-01-
01T00:00:00+00:00" MessageVersion="1" Sender="Sender1" SenderVersion
="SenderVersion1" xmlns="com.efi.monarch.dmi">
  <Error ReturnCode="1" ErrorText="ErrorText1">
    <SourceXml>
      <any_element>anyType</any_element>
    </SourceXml>
  </Error>
  <Error ReturnCode="-2147483647" ErrorText="ErrorText2">
    <SourceXml>
      <any_element>anyType</any_element>
    </SourceXml>
  </Error>
  <Error ReturnCode="2147483647" ErrorText="ErrorText3">
    <SourceXml>
      <any_element>anyType</any_element>
    </SourceXml>
  </Error>
</AcknowledgementResponse>

```

## DiagnosticsQuery (to PLM)

Configuration Validation Query

Name	Data Type	Required	Description
MISVersion	Character	Yes	MIS version

```

<DiagnosticsQuery MisVersion="MisVersion1" MessageId="MessageId1"
MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1"
MessageType="Query" Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi" />

```

## DiagnosticsResponse (from PLM)

Returns a list of all plants, active or not.

Name	Data Type	Required	Description
PlantMangerVersion	Character	Yes	PLM version
Plant	Element		<b>Zero</b> or more

### Plant

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
IsActive	Boolean	Yes	

```

<DiagnosticsResponse PlantManagerVersion="PlantManagerVersion1"
  RefId="RefId1" ReturnCode="1" ErrorText="ErrorText1"
  MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00"
  MessageVersion="1" MessageType="Response" Sender="Sender1"
  SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi">
  <Plant PlantId="PlantId1" IsActive="true" />
  <Plant PlantId="PlantId2" IsActive="false" />
  <Plant PlantId="PlantId3" IsActive="true" />
</DiagnosticsResponse>

```

## Signals

### MachineStatusSignal (from PLM)

PLM will send a signal at user defined intervals and not so often that the signals would overwhelm the messaging system. The status of all machines is included in one signal. A minimum time between signals of at least ten seconds would not be unreasonable. It may be wise to make it at least on minute.

PLM will have a setting for the interval of these messages.

Name	Data Type	Description
<b>MachineStatus</b>	Element	One or more

### MachineStatus

When a Machine Status Signal is sent to the MIS there will be one Machine Status element per Auto-Count per Product.

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
AutoCountId	Character (20)	Yes	
AutoCountConfigurationId	Character (20)	Yes	
RunStartDateTime	Date / Time		Start Date / Time
EmployeeId	Character (50)		
EmployeeName	Character (50)		
ShiftDate	Date		
ShiftId	Character (15)		
WorkCenterId	Character (10)		
CostCodeId	Character (5)		
ProductIndex	Integer		
JobId	Character (63)		
TaskId	Character (63)		
FormId	Character (63)		User entered Run Form Number
FormDescription	Character (2000)		
RunId	Character (20)		
MachineSummaryId	Long		Current summary transaction id.

GrossQuantity	Double		<p>Current gross count for this product for this run. This is the gross count for the product since the start of the run. The unit varies and it is common for gross to be in a different unit than net and waste. The NumberUp field is the ratio between gross and net count units.</p> <p>* previously integer, double from v16.1</p>
NetQuantity	Double		<p>Current net count for this product for this run. This is the net count for the product since the start of the run. The unit varies and it is common for gross to be in a different unit than net and waste. The NumberUp field is the ratio between gross and net count units.</p> <p>* previously integer, double from v16.1</p>
WasteQuantity	Double		<p>Current waste count for this product for this run. This is the waste count for the product since the start of the run. The unit varies but is always the same unit as the NetCount. The NumberUp field is the ratio between gross and net/waste count units.</p>
GrossTxnQuantity	Double		<p>Gross count for this product for the current transaction. This is the gross count for the product since the start of the current transaction. The unit varies and it is common for gross to be in a different unit than net and waste. The NumberUp field is the ratio between gross and net count units.</p>
NetTxnQuantity	Double		<p>Net count for this product for the current transaction. This is the net count for the product since the start of the current transaction. The unit varies and it is common for gross to be in a different unit than net and waste. The NumberUp field is the ratio between gross and net count units.</p>
WasteTxnQuantity	Double		<p>Waste count for this product for the current transaction. This is the waste count for the</p>

			product since the start of the current transaction. The unit varies but is always the same unit as the NetCount and NetTxnCount. The NumberUp field is the ratio between gross and net/waste count units.
NumberUp	Integer		Number of net products produced per gross machine cycle for this product. Gross may be in a different unit than Net and Waste counts. To convert multiply gross by the NumberUp to convert the gross into net and waste count units. Gross * NumberUp = Net + Waste.
ElapsedSeconds	Integer		Duration of the current transaction in seconds.
RemainingQuantity	Double		Remaining count until this product is complete for this run. The unit is the same as the NetCount. * previously integer, double from v16.1
QuantityUnits	Character (20)		Impressions, Pieces, Signatures, Sheets, Books, Labels, Length
RemainingTime	Integer		
Rate	Double		* previously integer, double from v16.1
Opcodeld	Character (63)		
Opcodedescription	Character (50)		
Opcodestartdatetime	Date/Time		
Dmicategoryid	Integer		
IsMetric	Logical		Required for length conversions.

```
<?xml version="1.0" encoding="utf-8"?>
<MachineStatusSignal MessageType="Signal" MessageId="MessageId1"
  MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <MachineStatus PlantId="PlantId1" AutoCountId="AutoCountId1"
    AutoCountConfigurationId="AutoCountConfigurationId1"
    RunStartDateTime="1753-01-01T23:59:59.999+00:00"
    EmployeeId="EmployeeId1" EmployeeName="EmployeeName1"
    ShiftDate="1753-01-01" ShiftId="ShiftId1"
    WorkCenterId="WorkCenterId1" WorkType="WorkType1" ProductIndex="1"
    JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
```



```

FormDescription="FormDescription1" RunId="RunId1" GrossQuantity="1"
NetQuantity="1" RemainingQuantity="1" QuantityUnits="Impressions"
RemainingTime="1" Rate="1" OpcodeId="OpcodeId1"
OpcodeDescription="OpcodeDescription1" OpcodeStartDateTime="1753-01-
01T23:59:59.999+00:00" DmiCategoryId="1" IsMetric="true"
MachineSummaryId="1" WasteQuantity="1" GrossTxnQuantity="1"
NetTxnQuantity="1" WasteTxnQuantity="1" ElapsedSeconds="1"
NumberUp="1" />
<MachineStatus PlantId="PlantId2" AutoCountId="AutoCountId2"
AutoCountConfigurationId="AutoCountConfigurationId2"
RunStartDateTime="9999-12-31T00:00:00+00:00"
EmployeeId="EmployeeId2" EmployeeName="EmployeeName2"
ShiftDate="9999-12-31" ShiftId="ShiftId2"
WorkCenterId="WorkCenterId2" WorkType="WorkType2" ProductIndex="-
2147483647" JobId="JobId2" TaskId="TaskId2" FormId="FormId2"
FormDescription="FormDescription2" RunId="RunId2" GrossQuantity="-
1.7976931348623157E+308" NetQuantity="-1.7976931348623157E+308"
RemainingQuantity="-1.7976931348623157E+308" QuantityUnits="Pieces"
RemainingTime="-2147483647" Rate="-1.7976931348623157E+308"
OpcodeId="OpcodeId2" OpcodeDescription="OpcodeDescription2"
OpcodeStartDateTime="9999-12-31T00:00:00+00:00" DmiCategoryId="-
2147483647" IsMetric="false" MachineSummaryId="-9223372036854775807"
WasteQuantity="-1.7976931348623157E+308" GrossTxnQuantity="-
1.7976931348623157E+308" NetTxnQuantity="-1.7976931348623157E+308"
WasteTxnQuantity="-1.7976931348623157E+308" ElapsedSeconds="-
2147483647" NumberUp="-2147483647" />
<MachineStatus PlantId="PlantId3" AutoCountId="AutoCountId3"
AutoCountConfigurationId="AutoCountConfigurationId3"
RunStartDateTime="1753-02-02T23:59:59.999+00:00"
EmployeeId="EmployeeId3" EmployeeName="EmployeeName3"
ShiftDate="1753-02-02" ShiftId="ShiftId3"
WorkCenterId="WorkCenterId3" WorkType="WorkType3"
ProductIndex="2147483647" JobId="JobId3" TaskId="TaskId3"
FormId="FormId3" FormDescription="FormDescription3" RunId="RunId3"
GrossQuantity="1.7976931348623157E+308"
NetQuantity="1.7976931348623157E+308"
RemainingQuantity="1.7976931348623157E+308"
QuantityUnits="Signatures" RemainingTime="2147483647"
Rate="1.7976931348623157E+308" OpcodeId="OpcodeId3"
OpcodeDescription="OpcodeDescription3" OpcodeStartDateTime="1753-02-
02T23:59:59.999+00:00" DmiCategoryId="2147483647" IsMetric="true"
MachineSummaryId="9223372036854775807"
WasteQuantity="1.7976931348623157E+308"
GrossTxnQuantity="1.7976931348623157E+308"
NetTxnQuantity="1.7976931348623157E+308"

```

```
WasteTxnQuantity="1.7976931348623157E+308"
ElapsedSeconds="2147483647" NumberUp="2147483647" />
</MachineStatusSignal>
```

## MachineStatusQuery\* (to PLM)

An MIS could query for the current status of one or all machines.

Name	Data Type	Description
PlantId	Character (20)	Optional
AutoCountId	Character (20)	Optional

```
<MachineStatusQuery PlantId="PlantId1" AutoCountId="AutoCountId1"
  MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00"
  MessageVersion="1" MessageType="Query" Sender="Sender1"
  SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi" />
```

## MachineStatusResponse (from PLM)

Name	Data Type	Description
MachineStatus	Element	<b>Zero</b> or more

```
<MachineStatusResponse RefId="RefId1" ReturnCode="1"
  ErrorText="ErrorText1" MessageId="MessageId1" MessageDateTime="1900-
  01-01T01:01:01+00:00" MessageVersion="1" MessageType="Response"
  Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <MachineStatus PlantId="PlantId1" AutoCountId="AutoCountId1"
    AutoCountConfigurationId="AutoCountConfigurationId1"
    RunStartDateTime="1900-01-01T01:01:01+00:00"
    EmployeeId="EmployeeId1" ShiftDate="1900-01-01"
    WorkCenterId="WorkCenterId1" WorkType="WorkType1" ProductIndex="1"
    JobId="JobId1" TaskId="1" FormId="Form1" RunId="1" GrossQuantity="1"
    NetQuantity="1" RemainingQuantity="1" QuantityUnits="Impressions"
    Metric="true" />
  <MachineStatus PlantId="PlantId2" AutoCountId="AutoCountId2"
    AutoCountConfigurationId="AutoCountConfigurationId2"
    RunStartDateTime="0001-01-01T00:00:00+00:00"
    EmployeeId="EmployeeId2" ShiftDate="0001-01-01"
    WorkCenterId="WorkCenterId2" WorkType="WorkType2" ProductIndex="-
    2147483647" JobId="JobId2" TaskId="-2147483647" FormId="Form2"
    RunId="-2147483647" GrossQuantity="-2147483647" NetQuantity="-
    2147483647" RemainingQuantity="-2147483647" QuantityUnits="Pieces"
    Metric="false" />
  <MachineStatus PlantId="PlantId3" AutoCountId="AutoCountId3"
    AutoCountConfigurationId="AutoCountConfigurationId3"
    RunStartDateTime="9999-12-31T23:59:59.9999999+00:00"
```

```
EmployeeId="EmployeeId3" ShiftDate="9999-12-31"  
WorkCenterId="WorkCenterId3" WorkType="WorkType3"  
ProductIndex="2147483647" JobId="JobId3" TaskId="2147483647"  
FormId="Form3" RunId="2147483647" GrossQuantity="2147483647"  
NetQuantity="2147483647" RemainingQuantity="2147483647"  
QuantityUnits="Signatures" Metric="true" />  
</MachineStatusResponse>
```

---

## Commands

### CostCodeCommand (to PLM)

Plant Manager Cost Codes are similar to Monarch Work Types.

A Cost Code is similar to a MIS "Work Type". In Monarch there are a fixed number of Work Types which are used for accounting functions. There are ten Non-Job related Work Types and five Job related Work Types. The five Non-Job Work Types are all Non-Chargeable. The five Job related Work Types are a mixture of Chargeable and Non-Chargeable.

Name	Data Type	Description
CostCode	Element	One or more

See Note on [Work Type](#)

### CostCode

In a Cost Code Header there would be one Cost Center element for each Record

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
CostCodeId	Character (5)	Yes	
CostCodeDescription	Character (50)	Yes	
JobRelated	Logical		If Job Related = No, then Chargeable must be No
PlantDefault	Logical		Only one CostCode should have this set. Clears all previous CostCodes marked as PlantDefault.
IsChargeable	Logical		If Work Class = Original Then Chargeable must be Yes
IsActive	Logical		If Work Class = Original Then Record Active must be Yes
DeleteRecord	Logical		Not supported by Monarch but allowed for other MIS

```
<CostCodeCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
<CostCode CostCodeId="CostCodeId1"
CostCodeDescription="CostCodeDescription1" JobRelated="true"
PlantDefault="true" Chargeable="true" PlantId="PlantId1"
IsActive="true" DeleteRecord="true" />
<CostCode CostCodeId="CostCodeId2"
CostCodeDescription="CostCodeDescription2" JobRelated="false"
PlantDefault="false" Chargeable="false" PlantId="PlantId2"
IsActive="false" DeleteRecord="false" />
<CostCode CostCodeId="CostCodeId3"
CostCodeDescription="CostCodeDescription3" JobRelated="true"
PlantDefault="true" Chargeable="true" PlantId="PlantId3"
IsActive="true" DeleteRecord="true" />
```

&lt;/CostCodeCommand&gt;

**CustomerCommand (to PLM)**

Name	Data Type	Description
Customer	Element	One or more

See Note about [Customers](#)**Customer**

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
CustomerId	Character (50)	Yes	Monarch uses Character (8)
CustomerName	Character (50)	Yes	Monarch uses Character (40)
IsActive	Logical		
DeleteRecord	Logical		

```

<CustomerCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Customer CustomerId="CustomerId1" CustomerName="CustomerName1"
PlantId="PlantId1" IsActive="true" DeleteRecord="true" />
  <Customer CustomerId="CustomerId2" CustomerName="CustomerName2"
PlantId="PlantId2" IsActive="false" DeleteRecord="false" />
  <Customer CustomerId="CustomerId3" CustomerName="CustomerName3"
PlantId="PlantId3" IsActive="true" DeleteRecord="true" />
</CustomerCommand>

```

**EmployeeCommand (to PLM)**

Name	Data Type	Description
Employee	Element	One or more

**Employee**

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
EmployeeId	Character (50)	Yes	
EmployeeName	Character (50)	Yes	
Password	Character (255)		(Optional) The employee password one-way encoded (hashed) in a form that AutoCount can use to verify logons. Added in 14.x only.
DefaultShiftId	Character (50)		Default = 1 If the DefaultShift isn't specified and shift 1 doesn't exist then

			PLM will use internal ShiftId zero. In the latter case employees will not have a shift defaulted when logging in.
IsActive	Logical		
DeleteRecord	Logical		

```
<EmployeeCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Employee EmployeeId="EmployeeId1" EmployeeName="EmployeeName1"
DefaultShift="1" PlantId="PlantId1" IsActive="true"
DeleteRecord="true" />
  <Employee EmployeeId="EmployeeId2" EmployeeName="EmployeeName2"
DefaultShift="DefaultShift1" PlantId="PlantId2" IsActive="false"
DeleteRecord="false" />
  <Employee EmployeeId="EmployeeId3" EmployeeName="EmployeeName3"
DefaultShift="DefaultShift2" PlantId="PlantId3" IsActive="true"
DeleteRecord="true" />
</EmployeeCommand>
```

## WorkCenterCommand (to PLM)

The Command contains one or more Work Center Elements.

Name	Data Type	Description
WorkCenter	Element	One or more

### WorkCenter

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
WorkCenterId	Character (10)	Yes	
WorkCenterDescription	Character (50)	Yes	
IsActive	Logical		
DeleteRecord	Logical		

```
<WorkCenterCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <WorkCenter WorkCenterId="WorkCenterId1"
WorkCenterDescription="WorkCenterDescription1" PlantId="PlantId1"
IsActive="true" DeleteRecord="true" />
  <WorkCenter WorkCenterId="WorkCenterId2"
WorkCenterDescription="WorkCenterDescription2" PlantId="PlantId2"
IsActive="false" DeleteRecord="false" />
</WorkCenterCommand>
```

```
<WorkCenter WorkCenterId="WorkCenterId3"
WorkCenterDescription="WorkCenterDescription3" PlantId="PlantId3"
IsActive="true" DeleteRecord="true" />
</WorkCenterCommand>
```

## OpcodeCommand (to PLM)

MIS would send Operations available in a Plant.

Name	Data Type	Description
Opcode	Element	One or more

### Opcode

In the Op Code Response or Op Code Command there would be one Op Code Element per Operation Record

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
Opcodeld	Character (63)	Yes	
OpcodeDescription	Character (50)	Yes	
Class	Enum		<p>One of the following: [All, Operation, Waste]</p> <p><b>All:</b> opcode can be used for time and waste</p> <p><b>Operation:</b> opcode can only be used for time</p> <p><b>Waste:</b> opcode can only be used as a waste reason</p>
DmiCategoryId	Integer	Yes	<p>DmiCategoryId is an integer value that divides operation codes into various categories. The categories are used to validate what opcodes can be used to describe which events.</p> <p>The current values are:</p> <ul style="list-style-type: none"> <li>1 = Makeready 1,</li> <li>2 = Makeready 2,</li> <li>3 = Run,</li> <li>4 = Stop,</li> <li>5 = Unpaid Break,</li> <li>20 = Idle</li> </ul>
ReportCategoryId	Integer	Yes	<p>ReportCategoryId is an integer value that divides operation codes into various categories. The report category determines how to summarize operation data on reports. All operations assigned The same opcode category are summarized together on reports.</p> <p>The current values are:</p> <ul style="list-style-type: none"> <li>1 = Makeready 1,</li> <li>2 = Makeready 2,</li> <li>3 = Run,</li> <li>4 = Complete,</li> <li>5 = Not Crewed,</li> <li>6 = Event,</li> <li>7 = Idle,</li> <li>9 = Miscellaneous,</li> </ul>

			10 = Stop
IsChargeable	Logical		
IsActive	Logical		
DeleteRecord	Logical		

```
<OpcodeCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Opcode OpcodeId="OpcodeId1" OpcodeDescription="OpcodeDescription1"
  DmiCategoryId="1" ReportCategoryId="1" IsChargeable="true"
  PlantId="PlantId1" IsActive="true" DeleteRecord="true" />
  <Opcode OpcodeId="OpcodeId2" OpcodeDescription="OpcodeDescription2"
  DmiCategoryId="-2147483647" ReportCategoryId="-2147483647"
  IsChargeable="false" PlantId="PlantId2" IsActive="false"
  DeleteRecord="false" />
  <Opcode OpcodeId="OpcodeId3" OpcodeDescription="OpcodeDescription3"
  DmiCategoryId="2147483647" ReportCategoryId="2147483647"
  IsChargeable="true" PlantId="PlantId3" IsActive="true"
  DeleteRecord="true" />
</OpcodeCommand>
```

## LocationCommand (to PLM)

MIS would send warehouse locations available in a Plant.

Name	Data Type	Description
Location	Element	One or more

### Location

In the Location Response or Location Command there would be one or more Location Element per Record

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
LocationId	Character (20)	Yes	
LocationDescription	Character (50)	Yes	
LocationType	Character(20)		One of the following: Standard – Standard location Transfer – Special transfer location Shipping – Shipping location Virtual – Virtual location, must contain other locations Quarantine – Special quarantine location
LocationCategory	Character(20)		One of the following: Any – Any type of pallet is allowed here FinishedGoods – Only finished goods are allowed here WorkInProgress – Only WIP items are allowed here



			Other – Reserved for future expansion
XPos	Character(10)		The physical position of the location (X)
YPos	Character(10)		The physical position of the location (Y)
Capacity	Integer		The number of items allowed at this position
Parent	Character(20)		The containing location of this location
IsActive	Logical		
DeleteRecord	Logical		

```

<LocationCommand MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
<Location LocationId="LocationId1"
LocationDescription="LocationDescription1" PlantId="PlantId1"
LocationType="Standard" LocationCategory="Any" XPos="Row 10"
YPos ="Bin A" Capacity="50" Parent="" IsActive="true"
DeleteRecord="false" />
</LocationCommand>

```

## QualityQuestionCommand (to PLM)

MIS would send Quality Questions available for an Auto-Count.

Name	Data Type	Description
Question	Element	One or more

### Question

In the Quality Question Response or Quality Question Command there would be one Question Element per Record

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
AutoCountId	Character (20)	Yes	
QuestionNumber	Integer	Yes	Used to order and identify questions.
QuestionText	Character (60)	Yes	The question to display to the operator.
QuestionType	Character (x)	Yes	Defines how the question is displayed and how the operator can answer. Currently supported list of values; "YesNo" "Numeric" "Text" "Option"
Trigger	Integer	Yes	When the question is displayed. Currently supported list of values; "OpcodeStart", "JobStart", "JobEnd", "MakereadyStart", "MakereadyEnd", "NetCount", "GrossCount", "PalletCount", "RunTime", "RunPercent", "JobTime", "FirstPallet"

OpcodeId	Character (63)		Required when the trigger is "OpcodeStart". The opcode that triggers the question.
Repeat	Logical		If the trigger is "OpcodeStart"; true to ask the question each time the operation starts, false to only display it the first time the opcode is used during a run.
RequiredResponse	Character (30)		The response the user needs to enter for the question to pass successfully. If they enter some other value, they will not be allowed to move into the new opcode.
IsActive	Logical		
DeleteRecord	Logical		
<b>Option</b>	Element		One or more (if the QuestionType is "Option")

## Option

In the Quality Question Response or Quality Question Command there may be multiple Option Elements per Question Record

Name	Data Type	Required	Description
OptionNumber	Integer	Yes	Used to order and identify options.
Value	Character (20)	Yes	The value to store as the answer.
Text	Character (50)		The descriptive text to display to the user if different to the value.

```
<QualityQuestionCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Question PlantId="PlantId1" IsActive="true" DeleteRecord="false">
    <Option OptionNumber="1" Value="FF0000" Text="Red" />
    <Option OptionNumber="2" Value="00FF00" Text="Green" />
    <Option OptionNumber="3" Value="0000FF" Text="Blue" />
  </Question>
</QualityQuestionCommand>
```

## JobCommand (to PLM)

Name	Data Type	Description
Job	Element	One or more

### Job

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
JobId	Character (63)	Yes	Combine the Job-ID and the Sub-Job-ID with a dash separator.
JobDescription	Character (2000)	Yes	Job Title and Description are concatenated into the Job.JobDescription field in PLM.

JobTitle	Character (2000)		Job Title and Description are concatenated into the Job.JobDescription field in PLM.
JobQuantity	Double		* previously long (int64), double from v16.1
CustomerId	Character (50)		
FinishingWaste	Double		Used in PLM only installation.
IsActive	Logical		
DeleteRecord	Logical		

```

<JobCommand MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Job JobId="JobId1" JobTitle="JobTitle1"
    JobDescription="JobDescription1" JobQuantity="1"
    CustomerId="CustomerId1" FinishingWaste="1" PlantId="PlantId1"
    IsActive="true" DeleteRecord="true" />
  <Job JobId="JobId2" JobTitle="JobTitle2"
    JobDescription="JobDescription2" JobQuantity="-9223372036854775807"
    CustomerId="CustomerId2" FinishingWaste="-1.7976931348623157E+308"
    PlantId="PlantId2" IsActive="false" DeleteRecord="false" />
  <Job JobId="JobId3" JobTitle="JobTitle3"
    JobDescription="JobDescription3" JobQuantity="9223372036854775807"
    CustomerId="CustomerId3" FinishingWaste="1.7976931348623157E+308"
    PlantId="PlantId3" IsActive="true" DeleteRecord="true" />
</JobCommand>

```

## TaskCommand (to PLM)

Describes a product of a production step, for example a signature or a magazine.

Name	Data Type	Description
Task	Element	One or more

### Task

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
JobId	Character (63)	Yes	Combine the Job-ID and the Sub-Job-ID with a dash separator.
TaskId	Character (63)	Yes	MisTask field.
FormId	Character (63)		FormNumber (not unique in the job)
JobPartId	Character (63)		If provided by the MIS this is the unique JDF JobPartId that identifies this Form/Task. This can be used as a lookup when systems that operate in JDF such as a Fiery send us job information. The JDF JobPartId can be used to look up our Form/Task and used to signal which task to start at the Auto-Count 4D when connected to a device like a Fiery

TaskType	Integer		0 = Press, 1 = Finishing (default = 0)
TaskDescription	Character (2000)		
TaskQuantity	Double		* previously integer, double from v16.1
TaskNumberUp	Integer		Pieces on the sheet
TaskNumberAcross	Integer		Pieces across (number across the direction of production)
TaskNumberDown	Integer		Pieces down (number with the direction of production)
TaskWidth	Double		
TaskLength	Double		
BasisWeight	Double		Monarch MIS does not provide this value; It is possible to have multiple values.
Collation	Integer		When using Books and Sheets as units, allows the UI to convert between the two. If the "ScaleNetByCollation" setting is enabled, this value will also be used as the multiplier for each net pulse. Can be overridden as the Product level.
StockTypeId	Character (10)		Monarch MIS does not provide this value; It is possible to have multiple values.
OfficeCopiesQuantity	Double		Monarch MIS does not provide this value. * previously integer, double from v16.1
SeparateOfficeCopies	Logical		Monarch MIS does not provide this value.
DueDateTime	Date/Time		
ObjectiveMrSeconds	Integer		
ObjectiveRunSeconds	Integer		
ObjectiveWastePercent	Double		
CostCodeId	Character (5)		Monarch MIS does not provide this value. Default values where WorkClass = Original.
WorkCenterId	Character (10)		
PromiseDate	Date		Date-only field displayed at the Auto-Count
Priority	Integer		Displayed at the Auto-Count
IsActive	Logical		
DeleteRecord	Logical		

```

<TaskCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Task JobId="JobId1" TaskId="1" FormId="FormId1" TaskType="0"
TaskDescription="TaskDescription1" TaskQuantity="1" TaskNumberUp="1"
TaskWidth="1" TaskLength="1" BasisWeight="1"
StockTypeId="StockTypeId1" OfficeCopiesQuantity="1"
SeparateOfficeCopies="true" DueDateTime="1900-01-01T01:01:01+00:00"
ObjectiveMrSeconds="1" ObjectiveRunSeconds="1"
ObjectiveWastePercent="1" CostCodeId="CostCodeId1"
PlantId="PlantId1" IsActive="true" DeleteRecord="true" />

```

```
<Task JobId="JobId2" TaskId="-2147483647" FormId="FormId2"
TaskType="1" TaskDescription="TaskDescription2" TaskQuantity="-
2147483647" TaskNumberUp="-2147483647" TaskNumberDown="-2147483647"
TaskNumberAcross="-2147483647" TaskWidth="-1.7976931348623157E+308"
TaskLength="-1.7976931348623157E+308" BasisWeight="-
1.7976931348623157E+308" StockTypeId="StockTypeId2"
OfficeCopiesQuantity="-2147483647" SeparateOfficeCopies="false"
DueDateTime="0001-01-01T00:00:00+00:00" ObjectiveMrSeconds="-
2147483647" ObjectiveRunSeconds="-2147483647"
ObjectiveWastePercent="-1.7976931348623157E+308"
CostCodeId="CostCodeId2" PlantId="PlantId2" IsActive="false"
DeleteRecord="false" />
<Task JobId="JobId3" TaskId="2147483647" FormId="FormId3"
TaskType="0" TaskDescription="TaskDescription3"
TaskQuantity="2147483647" TaskNumberUp="2147483647"
TaskNumberDown="2147483647" TaskNumberAcross="2147483647"
TaskWidth="1.7976931348623157E+308"
TaskLength="1.7976931348623157E+308"
BasisWeight="1.7976931348623157E+308" StockTypeId="StockTypeId3"
OfficeCopiesQuantity="2147483647" SeparateOfficeCopies="true"
DueDateTime="9999-12-31T23:59:59.9999999+00:00"
ObjectiveMrSeconds="2147483647" ObjectiveRunSeconds="2147483647"
ObjectiveWastePercent="1.7976931348623157E+308"
CostCodeId="CostCodeId3" PlantId="PlantId3" IsActive="true"
DeleteRecord="true" />
</TaskCommand>
```

## ProductCommand (to PLM)

Name	Data Type	Description
Product	Element	One or more

### Product

A Task is an Element Task Header. A Task cannot exist if the Job does not exist so the MIS be required to send the Job Command before sending Tasks.

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
JobId	Character (63)	Yes	Combine the Job-ID and the Sub-Job-ID with a dash separator.
TaskId	Character (63)	Yes	MisTask field. Used to lookup Form where Form.MisTask = Message.TaskId, the Form.FormId is used to populate the Product.TaskId field.
ProductId	Character (63)	Yes	
ProductDescription	Character (255)	Yes	
ProductLength	Double		Length of a product (Used to calculate pieces to output length)
ProductWidth	Double		Width of a product
ProductIndex	Integer	Yes	Product index starting at 1. Each product must have a unique index within the run queue item. Product index is used to order and identify products. In runs that have multiple products this field controls the order in which products are displayed. Also in some tables the ProductIndex is used to identify the product within a run.
JobLineNumber	Integer		A unique identifier for the product within a job.
OfficeCopiesQuantity	Double		* previously integer, double from v16.1
TrimWeight	Double		
UnTrimWeight	Double		
Caliper	Double		
Collation	Integer		When using Books and Sheets as units, allows the UI to convert between the two. If the "ScaleNetByCollation" setting is enabled, this value will also be used as the multiplier for each net pulse. Overrides the value at the Task level.
DeleteRecord	Logical		
<b>ProductDetail</b>	Element		Zero or more
<b>MisData</b>	Element		Zero or one. Any XML content of this element will be stored in the MisData column of the Product table. This XML can be used for Crystal reports that require data not usually stored by PLM.
<b>ProductDelivery</b>	Element		Zero or more

### ProductDetail

ProductDetail - Product details are information about parts of a product. For example a product might be a single sheet but that sheet has two parts that will be products in future process when the sheet is cut apart. These details give a way for Auto-Count to show this information to the user while still only producing a single product.

Name	Data Type	Required	Description
DetailId	Character (63)	Yes	Product Detail Identifier, unique per product.
DetailDescription	Character (255)	Yes	Product detail description or name.
NumberUp	Double		Number of detail products per parent product. For example if three copies of a detail appeared on sheet the NumberUp would be three.
DeleteRecord	Logical		

## ProductDelivery

DeliveryNumber and NumberUp both default to 1 if not supplied. In fact the whole ProductDelivery element is really optional. We should just assume delivery 1 and number up of 1 if it isn't supplied.

Name	Data Type	Required	Description
DeliveryNumber	Integer		Def = 1
NumberUp	Double		Def = 1
DeleteRecord	Logical		

```
<ProductCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Product JobId="JobId1" TaskId="1" ProductId="ProductId1"
ProductDescription="ProductDescription1" OfficeCopiesQuantity="1"
TrimWeight="1" UnTrimWeight="1" Caliper="1" PlantId="PlantId1"
IsActive="true" DeleteRecord="true">
    <MisData>
      <AdditionalFields xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <AdditionalFieldsRow>
          <SOrderNum>123456</SOrderNum>
          <SOrderLine>1</SOrderLine>
          <CustRef>CustomerReference</CustRef>
          <CustPOLineRef>CustPOLineRef</CustPOLineRef>
          <CustItemRef>CustomerItemReference</CustItemRef>
          <CustItemRef2>2ndCustomerItemReference</CustItemRef2>
        </AdditionalFieldsRow>
      </AdditionalFields>
    </MisData>
    <ProductDelivery DeliveryNumber="1" NumberUp="1"
DeleteRecord="true" />
    <ProductDelivery DeliveryNumber="1" NumberUp="1"
DeleteRecord="false" />
    <ProductDelivery DeliveryNumber="-2147483647" NumberUp="-
1.7976931348623157E+308" DeleteRecord="true" />
  </Product>
</ProductCommand>
```

```

</Product>
<Product JobId="JobId2" TaskId="-2147483647" ProductId="ProductId2"
ProductDescription="ProductDescription2" OfficeCopiesQuantity="-
2147483647" TrimWeight="-1.7976931348623157E+308" UnTrimWeight="-
1.7976931348623157E+308" Caliper="-1.7976931348623157E+308"
PlantId="PlantId2" IsActive="false" DeleteRecord="false">
  <ProductDelivery DeliveryNumber="2147483647"
NumberUp="1.7976931348623157E+308" DeleteRecord="false" />
  <ProductDelivery DeliveryNumber="0" NumberUp="-
0.10000002384185791" DeleteRecord="true" />
  <ProductDelivery DeliveryNumber="2" NumberUp="2.1000000238418579"
DeleteRecord="false" />
</Product>
<Product JobId="JobId3" TaskId="2147483647" ProductId="ProductId3"
ProductDescription="ProductDescription3"
OfficeCopiesQuantity="2147483647"
TrimWeight="1.7976931348623157E+308"
UnTrimWeight="1.7976931348623157E+308"
Caliper="1.7976931348623157E+308" PlantId="PlantId3" IsActive="true"
DeleteRecord="true">
  <ProductDelivery DeliveryNumber="-2147483646" NumberUp="-
1.7976931348623157E+308" DeleteRecord="true" />
  <ProductDelivery DeliveryNumber="2147483646"
NumberUp="1.7976931348623157E+308" DeleteRecord="false" />
  <ProductDelivery DeliveryNumber="-1" NumberUp="-
1.2000000476837158" DeleteRecord="true" />
</Product>
</ProductCommand>

```

## StockTypeCommand (to PLM)

Name	Data Type	Description
StockType	Element	One or more

### StockType

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
StockTypeeld	Character (10)	Yes	
StockTypeDescription	Character (50)	Yes	
IsMetric	Logical		StockType.IsMetric
BasisLength	Double		mm
BasisWidth	Double		mm
BasisSheets	Integer		
IsActive	Logical		



DeleteRecord	Logical		
--------------	---------	--	--

```
<StockTypeCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
<StockType StockTypeId="StockTypeId1"
StockTypeDescription="StockTypeDescription1" IsMetric="true"
BasisLength="1" BasisWidth="1" BasisSheets="1" PlantId="PlantId1"
IsActive="true" DeleteRecord="true" />
<StockType StockTypeId="StockTypeId2"
StockTypeDescription="StockTypeDescription2" IsMetric="false"
BasisLength="-1.7976931348623157E+308" BasisWidth="-1.7976931348623157E+308" BasisSheets="-2147483647"
PlantId="PlantId2" IsActive="false" DeleteRecord="false" />
<StockType StockTypeId="StockTypeId3"
StockTypeDescription="StockTypeDescription3" IsMetric="true"
BasisLength="1.7976931348623157E+308"
BasisWidth="1.7976931348623157E+308" BasisSheets="2147483647"
PlantId="PlantId3" IsActive="true" DeleteRecord="true" />
</StockTypeCommand>
```

## MaterialCommand (to PLM)

Name	Data Type	Description
Material	Element	One or more

### Material

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
MaterialId	Character (63)	Yes	
MaterialDescription	Character (50)	Yes	First 50 characters of 2000
MaterialType	Character (63)		There are many Material Types and Users may suggest more over time. Currently the system supports: Other, Binder, Bindery Glue, Bindery Wire, Book Making, Clear Poly Film, Corrugated, Die, Envelope, Film, Finishing, Foil, Form, Ink, Kraft Wrap, Label, Laminate, Package/Carton, Packing Material, Paper, Plate, Printed Poly Film, Proof, Shrink Wrap Film, Skid,

			String, Stock, Tape, Toner, and Tube.
MaterialUnit	Character (63)		descriptive
MaterialWidth	Double		Optional (mm)
MaterialLength	Double		Optional (mm)
MaterialThickness	Double		Optional (mm)
MaterialGrammage	Double		Optional (gsm) See note on the formula at the end of this doc.
StockTypeeld	Character (10)		Optional
CustomerId	Character (50)		Optional – typically blank
AverageRollWrapper	Double		Optional (KG)
CoreWeight	Double		Optional (KG)
IsWrapperInRollWeight	Logical		
IsCoreInRollWeight	Logical		
IsPaper	Logical		
IsActive	Logical		
DeleteRecord	Logical		

See Note about [Material](#)

```

<MaterialCommand MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
<Material MaterialId="MaterialId1"
MaterialDescription="MaterialDescription1"
MaterialType="MaterialType1" MaterialUnit="MaterialUnit1"
MaterialWidth="1" MaterialLength="1" MaterialGrammage="1"
StockTypeId="StockTypeId1" CustomerId="CustomerId1"
AverageRollWrapper="1" CoreWeight="1" IsPaper="true"
PlantId="PlantId1" IsActive="true" DeleteRecord="true" />
<Material MaterialId="MaterialId2"
MaterialDescription="MaterialDescription2"
MaterialType="MaterialType2" MaterialUnit="MaterialUnit2"
MaterialWidth="-1.7976931348623157E+308" MaterialLength="-
1.7976931348623157E+308" MaterialGrammage="-1.7976931348623157E+308"
StockTypeId="StockTypeId2" CustomerId="CustomerId2"
AverageRollWrapper="-1.7976931348623157E+308" CoreWeight="-
1.7976931348623157E+308" IsPaper="false" PlantId="PlantId2"
IsActive="false" DeleteRecord="false" />
<Material MaterialId="MaterialId3"
MaterialDescription="MaterialDescription3"
MaterialType="MaterialType3" MaterialUnit="MaterialUnit3"
MaterialWidth="1.7976931348623157E+308"
MaterialLength="1.7976931348623157E+308"
MaterialGrammage="1.7976931348623157E+308"

```

```
StockTypeId="StockTypeId3" CustomerId="CustomerId3"  
AverageRollWrapper="1.7976931348623157E+308"  
CoreWeight="1.7976931348623157E+308" IsPaper="true"  
PlantId="PlantId3" IsActive="true" DeleteRecord="true" />  
</MaterialCommand>
```

---

## DamageCodeCommand (to PLM)

Name	Data Type	Description
DamageCode	Element	One or more

### DamageCode

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
DamageCodeId	Character (63)	Yes	
DamageCodeDescription	Character (50)	Yes	
IsActive	Logical		
DeleteRecord	Logical		

```
<DamageCodeCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <DamageCode DamageCodeId="DamageCodeId1"
DamageCodeDescription="DamageCodeDescription1" PlantId="PlantId1"
IsActive="true" DeleteRecord="true" />
  <DamageCode DamageCodeId="DamageCodeId2"
DamageCodeDescription="DamageCodeDescription2" PlantId="PlantId2"
IsActive="false" DeleteRecord="false" />
  <DamageCode DamageCodeId="DamageCodeId3"
DamageCodeDescription="DamageCodeDescription3" PlantId="PlantId3"
IsActive="true" DeleteRecord="true" />
</DamageCodeCommand>
```

## ShiftCommand (to PLM)

Name	Data Type	Description
Shift	Element	One or more

### Shift

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
ShiftId	Character (15)	Yes	
PayrollShift	Integer		1, 2 or 3 for Monarch. Defaults to 1
ShiftDateOffsetStartTime	Time		Only required if ShiftDate should be offset. Seconds are ignored.
ShiftDateOffsetEndTime	Time		Only required if ShiftDate should be offset. Seconds are ignored.
ShiftDateOffset	Int (valid values: -1, 0, 1)		Only required if ShiftDate should be offset.

			If the shift starts within this time range, offset the ShiftDate by the given value
--	--	--	---

```
<ShiftCommand MessageType="Command" MessageId="MessageId1"
  MessageDateTime="1753-01-01T00:00:00+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <Shift ShiftId="ShiftId1" PayrollShift="1"
    ShiftDateOffsetStartTime="00:00:00"
    ShiftDateOffsetEndTime="23:59:00" ShiftDateOffset="0"
    PlantId="PlantId1" IsActive="true" DeleteRecord="true" />
  <Shift ShiftId="ShiftId2" PayrollShift="2"
    ShiftDateOffsetStartTime="23:00:00"
    ShiftDateOffsetEndTime="23:59:00" ShiftDateOffset="1"
    PlantId="PlantId2" IsActive="false" DeleteRecord="false" />
  <Shift ShiftId="ShiftId3" PayrollShift="3"
    ShiftDateOffsetStartTime="00:00:00"
    ShiftDateOffsetEndTime="07:00:00" ShiftDateOffset="-1"
    PlantId="PlantId3" IsActive="true" DeleteRecord="true" />
</ShiftCommand>
```

## ShutCommand (to PLM)

Name	Data Type	Description
Shut	Element	One or more

### Shut

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
AutoCountId	Character (20)	Yes	
ShutId	Character (80)	Yes	Unique identifier for this Shut on this machine.
ShutDescription	Character (80)	Yes	
StartDateTime	Date/Time	Yes	
EndDateTime	Date/Time	Yes	
DeleteRecord	Logical	Yes	

```
<ShutCommand MessageType="Command" MessageId="MessageId1"
  MessageDateTime="1753-01-01T00:00:00+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <Shut AutoCountId="AutoCountId1" ShutId="Maint-0001"
    ShutDescription="Maintenance" StartDateTime="1900-01-
```

```

01T01:01:01+00:00" EndDateTime="1900-01-01T01:01:01+00:00"
PlantId="PlantId1" DeleteRecord="false" />
<Shut AutoCountId="AutoCountId2" ShutId="Maint-0002"
ShutDescription="Maintenance" StartDateTime="1900-01-
01T01:01:01+00:00" EndDateTime="1900-01-01T01:01:01+00:00"
PlantId="PlantId1" DeleteRecord="true" />
</ShiftCommand>

```

## MachineShiftCycleCommand (to PLM)

Name	Data Type	Description
MachineShiftCycle	Element	One or more

### MachineShiftCycle

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
CycleId	Character (63)	Yes	
MachineCycleDetail	Element		0 or more detail records
Description	Character (50)	Yes	
StartDateTime	Date/Time	Yes	
DeleteRecord	Logical		

### MachineShiftCycleDetail

Name	Data Type	Required	Description
ShiftId	Character (20)	Yes	Existing Shift Id
StartTime	Time	Yes	
EndTime	Time	Yes	

```

<MachineShiftCycleCommand MessageType="Command" MessageId="MessageId1"
RefId="MessageId1" ReturnCode="1" MessageDateTime="1753-01-
01T23:59:59.999+00:00" MessageVersion="1" Sender="Sender1"
SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi">
  <MachineShiftCycle PlantId="{plantId}" CycleId="{cycleId}"
Description="{cycleDescription}"
  StartDateTime="{strStartDateTime}"
DeleteRecord="{deleteRecord}">
    <MachineShiftCycleDetail ShiftId="UTESTA"
StartTime="06:50:00" EndTime="18:50:00" />
    <MachineShiftCycleDetail ShiftId="UTESTB"
StartTime="18:50:00" EndTime="06:50:00" />
  </MachineShiftCycle>
</MachineShiftCycleCommand>

```

## QuarantineCodeCommand (to PLM)

Name	Data Type	Description
QuarantineCode	Element	One or more

### QuarantineCode

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
QuarantineCodeId	Character (63)	Yes	
QuarantineCodeDescription	Character (50)	Yes	
IsActive	Logical		
DeleteRecord	Logical		

```
<QuarantineCodeCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <QuarantineCode QuarantineCodeId="QuarantineCodeId1"
    QuarantineCodeDescription="QuarantineCodeDescription1"
    PlantId="PlantId1" IsActive="true" DeleteRecord="true" />
  <QuarantineCode QuarantineCodeId="QuarantineCodeId2"
    QuarantineCodeDescription="QuarantineCodeDescription2"
    PlantId="PlantId2" IsActive="false" DeleteRecord="false" />
  <QuarantineCode QuarantineCodeId="QuarantineCodeId3"
    QuarantineCodeDescription="QuarantineCodeDescription3"
    PlantId="PlantId3" IsActive="true" DeleteRecord="true" />
</QuarantineCodeCommand>
```

## DocumentCommand (to PLM)

Provides a way to link external documents, images or files to a specific Job, Task or Product. Documents can be cached locally by PLM to create resiliency during network outages.

Name	Data Type	Description
Document	Element	One or more

### Document

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
JobId	Character (63)	Yes	The Job this document is linked to.
TaskId	Character (63)		The Task this document is linked to.
ProductId	Character (63)		The Product this document is linked to.
DocumentId	Character (63)	Yes	Name of the document

Description	Character (100)	Yes	Descriptive text to be included in the PLM UI.
DocumentUrl	Character (255)	Yes	The URL to the document or image to be displayed.
ShouldCache	Logical		If true, PLM can create a local copy and send a modified URL to the UI. This reduces issues caused by network outages. If false, the UI will link directly to the provided URL.
FileType	Character (10)		PDF, HTML, JPG, PNG etc.
IsActive	Logical		
DeleteRecord	Logical		

```
<DocumentCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <Document DocumentId="Laydown" Description="Product Laydown Spec."
  JobId="Job1" TaskId="Task1" ProductId="Product1"
  DocumentUrl="http://mis-server:80/document?id=laydown"
  ShouldCache="true" FileType="PDF" PlantId="PlantId1" IsActive="true"
  DeleteRecord="true" />
</DocumentCommand>
```

## RecipeCommand (to PLM)

Provides a way to link recipes of materials to a specific Job and Task. See also Recipe element in Job Definition Command.

Name	Data Type	Description
Recipe	Element	One or more

### Recipe

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
AutoCountId	Character (20)	Yes	
JobId	Character (63)	Yes	The Job this document is linked to.
TaskId	Character (63)	Yes	The Task this document is linked to.
Revision	Integer		Revision of this recipe, zero (0) when sent to PLM



RevisionNote	Character (255)		Notes for this revision
RevisionDateTime	DateTime		Date Time the revision was made.
RecipeItem	Element		At least one item is required
Priority	Integer	Yes	Priority starting at 1. 1 is the primary or preferred recipe. 2 is secondary etc. Recipes will be displayed in this order.
DeleteRecord	Logical		

## RecipeItem

An individual material within a recipe.

Name	Data Type	Required	Description
MaterialId	Character (20)	Yes	Material Id
MaterialDescription	Time	Yes *	* Required if new material
MaterialType	Character(20)	Yes *	* Required if new material
Percentage	Double		Percentage of this material in recipe
AllowDifferent	Yes/No/Ask/Supervisor		Can a different material be used
AllowDifferentWidth	Yes/No/Ask/Supervisor		Can a different width be used
MinWidth	Double		Minimum width to be considered
MaxWidth	Double		MaxWidth to be considered
AllowDifferentLength	Yes/No/Ask/Supervisor		Can a different length be used
MinLength	Double		Minimum length to be considered
MaxLength	Double		Maximum length to be considered
AllowDifferentGrammage	Yes/No/Ask/Supervisor		Can a different grammage be used
MinGrammage	Double		Minimum grammage to be considered
MaxGrammage	Double		Maximum grammage to be considered
AllowDifferentCustomer	Yes/No/Ask/Supervisor		Can a different customer's material be used
LayerNumber	Integer		Layer number of a multiple layer recipe producing a laminated output
HopperNumber	Integer		Hopper number when creating a layer from multiple hoppers. Hopper 0 has special meaning relates to the percentage for the layer compared to the other layers.
TraceabilityOn	Logical		Controls whether this item is traceable. Defaults to Task@TraceabilityOn if not set.
ConsumeInMakeready	Logical		Whether this material should be consumed in makeready
Quantity	Double		Quantity of item used per GrossQuantity. Consumption ratio is

			(Quantity/GrossQuantity * Gross Count)
GrossQuantity	Double		Gross counts required to consume "Quantity" of this item.
ItemMeasure	Character (10)		Item measurement type. One of the following: Weight - The item amount fields are a weight in kilograms. Length - The item amount fields are a length in meters. Count - The item amount fields are an item/piece count. Volume - The item amount fields are a volume in liters. Area - The item amount fields are an area in square meters.
DeleteRecord	Logical		

```

<RecipeCommand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="com.efi.monarch.dmi" MessageId="PLM-20190328174827685400"
  MessageDateTime="2019-03-28T17:48:27.6854108+00:00"
  MessagePriority="0" MessageVersion="1" MessageType="Command"
  Sender="Plant Manager Connector" SenderVersion="18.5.1.42"
  xsi:schemaLocation="com.efi.monarch.dmi
  http://localhost/PlantManagerConnector/xsd">
  <Recipe PlantId="10" AutoCountId="107AG516" JobId="870739"
  TaskId="2150_1" Priority="1" Revision="14" RevisionDateTime="2019-
  03-28T17:48:27.5300000+00:00" RevisionNote="" DeleteRecord="false">
    <RecipeItem MaterialId="ExtrusionLayer1" MaterialType="Resin"
    AllowDifferent="Supervisor" AllowDifferentWidth="No" MinWidth="0"
    MaxWidth="0" AllowDifferentLength="No" MinLength="0" MaxLength="0"
    AllowDifferentGrammage="" MinGrammage="0" MaxGrammage="0"
    AllowDifferentCustomer="" HopperNumber="0" LayerNumber="1"
    Percentage="100" DeleteRecord="false" />
    <RecipeItem MaterialId="RES-LL0410AA" MaterialType="Resin"
    AllowDifferent="Supervisor" AllowDifferentWidth="No" MinWidth="0"
    MaxWidth="0" AllowDifferentLength="No" MinLength="0" MaxLength="0"
    AllowDifferentGrammage="" MinGrammage="0" MaxGrammage="0"
    AllowDifferentCustomer="" HopperNumber="1" LayerNumber="1"
    Percentage="30" DeleteRecord="false" />
    <RecipeItem MaterialId="RES-LL77909AA" MaterialType="Resin"
    AllowDifferent="Supervisor" AllowDifferentWidth="No" MinWidth="0"
    MaxWidth="0" AllowDifferentLength="No" MinLength="0" MaxLength="0"
    AllowDifferentGrammage="" MinGrammage="0" MaxGrammage="0"
    AllowDifferentCustomer="" HopperNumber="2" LayerNumber="1"
    Percentage="20" DeleteRecord="false" />
    <RecipeItem MaterialId="RES-LL77909AB" MaterialType="Resin"
    AllowDifferent="Supervisor" AllowDifferentWidth="No" MinWidth="0"

```

```
MaxWidth="0" AllowDifferentLength="No" MinLength="0" MaxLength="0"  
AllowDifferentGrammage="" MinGrammage="0" MaxGrammage="0"  
AllowDifferentCustomer="" HopperNumber="3" LayerNumber="1"  
Percentage="50" DeleteRecord="false" />  
</Recipe>  
</RecipeCommand>
```

---

## Command /Query Combinations

\* All query messages in this section are optionally implemented by MIS.

### GroupingCommand (to PLM)

Provides a way to group lists of opcodes together. See also Grouping element in Job Definition Command.

Name	Data Type	Description
Grouping	Element	One or more

#### Grouping

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
GroupingId	Character(20)	Yes	Group Name
GroupingDescription	Character(63)	Yes	Description
GroupingType	Character(20)	Yes	Only "Opcode" supported
GroupingItem	Element	At least one	
DeleteRecord	Logical	Yes	
IsActive	Logical	Yes	

#### GroupingItem

An individual items within a grouping, only Opcodes supported.

Name	Data Type	Required	Description
ItemId	Character (20)	Yes	Only Opcode Ids supported
DeleteRecord	Logical		

```
<GroupingCommand xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="com.efi.monarch.dmi" MessageId="PLM-20190328174827685400"
  MessageDateTime="2019-03-28T17:48:27.6854108+00:00"
  MessagePriority="0" MessageVersion="1" MessageType="Command"
  Sender="Plant Manager Connector" SenderVersion="18.5.1.42"
  xsi:schemaLocation="com.efi.monarch.dmi
  http://localhost/PlantManagerConnector/xsd">
  <Grouping PlantId="1" GroupingId="AllOpcodes"
  GroupingDescription="All Opcodes" GroupingType="Opcode"
  DeleteRecord="false" IsActive="true">
    <GroupingItem ItemId="1" DeleteRecord="false" />
    <GroupingItem ItemId="10" DeleteRecord="false" />
    <GroupingItem ItemId="103" DeleteRecord="false" />
    <GroupingItem ItemId="11" DeleteRecord="false" />
    <GroupingItem ItemId="111" DeleteRecord="false" />
    <GroupingItem ItemId="112" DeleteRecord="false" />
    <GroupingItem ItemId="113" DeleteRecord="false" />
  </Grouping>
</GroupingCommand>
```

```

<GroupingItem ItemId="12" DeleteRecord="false" />
<GroupingItem ItemId="13" DeleteRecord="false" />
<GroupingItem ItemId="14" DeleteRecord="false" />
<GroupingItem ItemId="15" DeleteRecord="false" />
</Grouping>
</GroupingCommand>

```

## GroupingQuery\* (to PLM)

MIS would Query for a Grouping (Only Opcodes are supported at this time)

Name	Data Type	Description
PlantId	Character (20)	
GroupingId	Character (20)	Required

```

<GroupingQuery xmlns="com.efi.monarch.dmi" MessageId="AC-
20200806064305830612" MessageDateTime="2020-08-
06T16:44:05.8306804+05:30" MessagePriority="0" MessageVersion="1" Me
ssageType="Query" Sender="Plant:Plant-
01" SenderVersion="18.5.1.464" PlantId="Plant-
01" GroupingId="operations"/>

```

## GroupingResponse (from PLM)

Response to a GroupingQuery. Zero or more Grouping elements containing GroupingItem elements.

Name	Data Type	Description
Grouping	Element	<b>Zero</b> or more

```

<GroupingResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns="com.efi.monarch.dmi" MessageId="PLM-
20200811105226412000" MessageDateTime="2020-08-
11T16:22:26.4120800+05:30" MessagePriority="0" MessageVersion="1" Me
ssageType="Response" Sender="Plant Manager
Connector" SenderVersion="18.5.1.464" RefId="AC-
20200806064305830612" ReturnCode="0" ErrorText="" xsi:schemaLocation
="com.efi.monarch.dmi http://localhost/PlantManagerConnector/xsd">
<Grouping PlantId="Plant-
01" GroupingId="operations" GroupingDescription="operations
group" GroupingType="Opcode" DeleteRecord="false" IsActive="true">
<GroupingItem ItemId="288" DeleteRecord="false"/>
<GroupingItem ItemId="BAD-1" DeleteRecord="false"/>
<GroupingItem ItemId="Break" DeleteRecord="false"/>
<GroupingItem ItemId="DOW" DeleteRecord="false"/>
<GroupingItem ItemId="Idle" DeleteRecord="false"/>
<GroupingItem ItemId="MR1" DeleteRecord="false"/>

```

```

<GroupingItem ItemId="MR-2" DeleteRecord="false"/>
<GroupingItem ItemId="Overrun" DeleteRecord="false"/>
<GroupingItem ItemId="RUN2" DeleteRecord="false"/>
<GroupingItem ItemId="STOP" DeleteRecord="false"/>
</Grouping>
</GroupingResponse>

```

## RollStockCommand (to PLM)

The Command contains one or more Roll Stock Element.

Name	Data Type	Description
RollStock	Element	One or more

```

<RollStockCommand MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
<RollStock RollId="RollId1" MaterialId="MaterialId1"
QuantityReceived="1" QuantityOnHand="1" DamageCodeId="DamageCodeId1"
PlantId="PlantId1" IsActive="true" DeleteRecord="true" />
<RollStock RollId="RollId2" MaterialId="MaterialId2"
QuantityReceived="-1.7976931348623157E+308" QuantityOnHand="-
1.7976931348623157E+308" DamageCodeId="DamageCodeId2"
PlantId="PlantId2" IsActive="false" DeleteRecord="false" />
<RollStock RollId="RollId3" MaterialId="MaterialId3"
QuantityReceived="1.7976931348623157E+308"
QuantityOnHand="1.7976931348623157E+308"
DamageCodeId="DamageCodeId3" PlantId="PlantId3" IsActive="true"
DeleteRecord="true" />
</RollStockCommand>

```

## RollStockQuery\* (from PLM)

(Inventory Item, Receipt Detail)

PLM would Query for Roll Stock Tags available in a Plant. The Query could be limited to Rolls available for a specific Material (Inventory Item ID)

Name	Data Type	Description
PlantId	Character (20)	
MaterialId	Character (63)	Optional – this or RollId not both
RollId	Character (25)	Optional – this or MaterialId not both
IsActive	Logical	Optional

```
<RollStockQuery PlantId="PlantId1" IsActive="true"
  MaterialId="MaterialId1" RollId="RollId1" MessageId="MessageId1"
  MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1"
  MessageType="Query" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi" />
```

## RollStockResponse (to PLM)

Name	Data Type	Description
RollStock	Element	<b>Zero</b> or more

### RollStock

In the Roll Stock Response or Roll Stock Command there would be one Roll Stock Element per Roll Stock Record.

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
RollId	Character (25)	Yes	Roll ID
MaterialId	Character (63)	Yes	Material ID
QuantityReceived	Double		Weight Received (costing) (KG)
QuantityOnHand	Double		(costing) (KG)
DamageCodeId	Character (63)		
Status	Character (63)		Empty or "Quarantine"
IsActive	Logical		
DeleteRecord	Logical		

See Note about [Roll Stock](#)

```
<RollStockResponse RefId="RefId1" ReturnCode="1"
  ErrorText="ErrorText1" MessageId="MessageId1" MessageDateTime="1900-
  01-01T01:01:01+00:00" MessageVersion="1" MessageType="Response"
  Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <RollStock RollId="RollId1" MaterialId="MaterialId1"
    QuantityReceived="1" QuantityOnHand="1" DamageCodeId="DamageCodeId1"
    PlantId="PlantId1" IsActive="true" DeleteRecord="true" />
  <RollStock RollId="RollId2" MaterialId="MaterialId2"
    QuantityReceived="-1.7976931348623157E+308" QuantityOnHand="-
    1.7976931348623157E+308" DamageCodeId="DamageCodeId2"
    PlantId="PlantId2" IsActive="false" DeleteRecord="false" />
  <RollStock RollId="RollId3" MaterialId="MaterialId3"
    QuantityReceived="1.7976931348623157E+308"
    QuantityOnHand="1.7976931348623157E+308"
    DamageCodeId="DamageCodeId3" PlantId="PlantId3" IsActive="true"
    DeleteRecord="true" />
</RollStockResponse>
```

## RollStockDamageCommand (from PLM)

Message from PLM to MIS to mark a roll as damaged.

Name	Data Type	Description
RollStockDamage	Element	One or more

### RollStockDamage

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
RollId	Character (25)	Yes	Roll ID
DamageCodeId	Character (63)		

## RunQueueCommand (to PLM)

The Command contains one or more Run Queue Elements. The Command is used to add or update a limited number of Run Queue Entries when they are edited or when a Schedule Release updates the Start Date / Time.

Name	Data Type	Description
RunQueue	Element	One or more

```
<RunQueueCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <RunQueue PlantId="PlantId1" RunQueueId="1"
AutoCountId="AutoCountId1"
AutoCountConfiguration="AutoCountConfiguration1" JobId="JobId1"
TaskId="1" FormId="FormId1" FormDescription="FormDescription1"
Quantity="1" NumberUp="1" SetupStart="1900-01-01T01:01:01+00:00"
SetupSeconds="1" RunSeconds="1" WastePercent="1"
OfficeCopiesQuantity="1" DeleteRecord="true">
    <RunQueuePiece PieceIndex="1" PieceWidth="1" PieceLength="1"
MaterialId="MaterialId1" StockTypeId="StockTypeId1"
MaterialGrammage="1" NumberOfPieces="1" DeleteRecord="true" />
    <RunQueuePiece PieceIndex="-2147483647" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId2" StockTypeId="StockTypeId2"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483647" DeleteRecord="false" />
    <RunQueuePiece PieceIndex="2147483647"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId3"
StockTypeId="StockTypeId3"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483647" DeleteRecord="true" />
  </RunQueue>
</RunQueueCommand>
```



```

<RunQueue PlantId="PlantId2" RunQueueId="-2147483647"
AutoCountId="AutoCountId2"
AutoCountConfiguration="AutoCountConfiguration2" JobId="JobId2"
TaskId="-2147483647" FormId="FormId2"
FormDescription="FormDescription2" Quantity="-2147483647"
NumberUp="-2147483647" SetupStart="0001-01-01T00:00:00+00:00"
SetupSeconds="-2147483647" RunSeconds="-2147483647" WastePercent="-
1.7976931348623157E+308" OfficeCopiesQuantity="-2147483647"
DeleteRecord="false">
  <RunQueuePiece PieceIndex="0" PieceWidth="-0.10000002384185791"
PieceLength="-0.10000002384185791" MaterialId="MaterialId4"
StockTypeId="StockTypeId4" MaterialGrammage="-0.10000002384185791"
NumberOfPieces="0" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="2" PieceWidth="2.1000000238418579"
PieceLength="2.1000000238418579" MaterialId="MaterialId5"
StockTypeId="StockTypeId5" MaterialGrammage="2.1000000238418579"
NumberOfPieces="2" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-2147483646" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId6" StockTypeId="StockTypeId6"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483646" DeleteRecord="false" />
</RunQueue>
<RunQueue PlantId="PlantId3" RunQueueId="2147483647"
AutoCountId="AutoCountId3"
AutoCountConfiguration="AutoCountConfiguration3" JobId="JobId3"
TaskId="2147483647" FormId="FormId3"
FormDescription="FormDescription3" Quantity="2147483647"
NumberUp="2147483647" SetupStart="9999-12-31T23:59:59.9999999+00:00"
SetupSeconds="2147483647" RunSeconds="2147483647"
WastePercent="1.7976931348623157E+308"
OfficeCopiesQuantity="2147483647" DeleteRecord="true">
  <RunQueuePiece PieceIndex="2147483646"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId7"
StockTypeId="StockTypeId7"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483646" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-1" PieceWidth="-1.2000000476837158"
PieceLength="-1.2000000476837158" MaterialId="MaterialId8"
StockTypeId="StockTypeId8" MaterialGrammage="-1.2000000476837158"
NumberOfPieces="-1" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="3" PieceWidth="3.2000000476837158"
PieceLength="3.2000000476837158" MaterialId="MaterialId9"

```

```

StockTypeId="StockTypeId9" MaterialGrammage="3.2000000476837158"
NumberOfPieces="3" DeleteRecord="true" />
</RunQueue>
</RunQueueCommand>

```

## RunQueueQuery\* (from PLM)

PLM would Query for Run Queue Entries available in a Plant.

Name	Data Type	Description
PlantId	Character (20)	

```

<RunQueueQuery PlantId="PlantId1" MessageId="MessageId1"
MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1"
MessageType="Query" Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi" />

```

## RunQueueResponse (to PLM)

The MIS would reply with the list of Run Queue Entries.

Name	Data Type	Description
RunQueue	Element	<b>Zero</b> or more

## RunQueue

In the Run Queue Response or Run Queue Command there would be one Run Queue Element per Run Queue Record.

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
RunQueueId	Character (20)	Yes	This value goes into <b>RunQueueNumber</b> . <b>RunId</b> in the database is generated internally. <b>RunNumber</b> is generated from the lower part of the RunId.
AutoCountId	Character (20)	Yes	
AutoCountConfigurationId	Character (20)		
JobId	Character (63)	Yes	Combine the Job-ID and the Sub-Job-ID with a dash separator.
TaskId	Character (63)		MisTask field. Used to lookup Form where Form.MisTask = Message.TaskId, the Form.FormId is used to populate the RunQueue.TaskId field.
FormId	Character (63)		Run Form Number – not guaranteed to match a Form. Just goes into RunFormNumber
FormDescription	Character (2000)		
Quantity	Double		* previously integer, double from v16.1

CostCodeId	Character (5)		
NumberUp	Integer		
SetupStart	Date / Time		
SetupSeconds	Integer		
RunSeconds	Integer		
WastePercent	Double		
OfficeCopiesQuantity	Double		* previously integer, double from v16.1
DeleteRecord	Logical		
If RunQueueProduct is provided, RunQueuePiece and RunQueueDrop cannot be specified at this level they can only be provided beneath RunQueueProduct.			
RunQueueProduct	<b>Element</b>		Zero or more (PLMC 16.x) See RunQueueProduct under JobDefinitionResponse for full details of this element.
RunQueuePiece	Element		Zero or more
RunQueuePallet	Element		Zero or one

## RunQueueProduct

See [RunQueueProduct](#) under JobDefinitionResponse for details.

## RunQueuePiece

The Run Queue Piece is an element of the Run Queue Entry. A Run Queue Piece cannot exist if the Run Queue Entry does not exist so the system will always send Run Queue Piece data inside of a Run Queue Entry element.

Name	Data Type	Description
PieceIndex	Integer	
PieceWidth	Double	(mm)
PieceLength	Double	(mm)
MaterialId	Character (63)	Optional
StockTypeId	Character (10)	
MaterialGrammage	Double	(gsm) (BasisWeight in DB) See note on the formula at the end of this doc.
NumberOfPieces	Integer	
DeleteRecord	Logical	

## RunQueuePallet

The Run Queue Piece is an element of the Run Queue Entry. A Run Queue Piece cannot exist if the Run Queue Entry does not exist so the system will always send Run Queue Piece data inside of a Run Queue Entry element.

Name	Data Type	Description
QtyPerPallet	Double	Quantity per pallet

PalletNumber	Integer	Starting pallet number. A single product may be split into multiple runs. This field allows the MIS to coordinate starting numbers to prevent duplicates.
Routing	Character (50)	Internal routing instruction.
SpecialInstructions	Character (255)	Special instructions that appear on the pallet ticket.
Address1	Character (80)	Address information line 1.
Address2	Character (80)	Address information line 2.
Address3	Character (80)	Address information line 3.
Address4	Character (80)	Address information line 4.
DeleteRecord	Logical	

```

<RunQueueResponse RefId="RefId1" ReturnCode="1" ErrorText="ErrorText1"
  MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00"
  MessageVersion="1" MessageType="Response" Sender="Sender1"
  SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi">
  <RunQueue PlantId="PlantId1" RunQueueId="1"
    AutoCountId="AutoCountId1"
    AutoCountConfiguration="AutoCountConfiguration1" JobId="JobId1"
    TaskId="1" FormId="FormId1" FormDescription="FormDescription1"
    Quantity="1" NumberUp="1" SetupStart="1900-01-01T01:01:01+00:00"
    SetupSeconds="1" RunSeconds="1" WastePercent="1"
    OfficeCopiesQuantity="1" DeleteRecord="true">
    <RunQueuePiece PieceIndex="1" PieceWidth="1" PieceLength="1"
      MaterialId="MaterialId1" StockTypeId="StockTypeId1"
      MaterialGrammage="1" NumberOfPieces="1" DeleteRecord="true" />
    <RunQueuePiece PieceIndex="-2147483647" PieceWidth="-
      1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
      MaterialId="MaterialId2" StockTypeId="StockTypeId2"
      MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
      2147483647" DeleteRecord="false" />
    <RunQueuePiece PieceIndex="2147483647"
      PieceWidth="1.7976931348623157E+308"
      PieceLength="1.7976931348623157E+308" MaterialId="MaterialId3"
      StockTypeId="StockTypeId3"
      MaterialGrammage="1.7976931348623157E+308"
      NumberOfPieces="2147483647" DeleteRecord="true" />
    </RunQueue>
  <RunQueue PlantId="PlantId2" RunQueueId="-2147483647"
    AutoCountId="AutoCountId2"
    AutoCountConfiguration="AutoCountConfiguration2" JobId="JobId2"
    TaskId="-2147483647" FormId="FormId2"
    FormDescription="FormDescription2" Quantity="-2147483647"
    NumberUp="-2147483647" SetupStart="0001-01-01T00:00:00+00:00"
  </RunQueue>
</RunQueueResponse>

```

```

SetupSeconds="-2147483647" RunSeconds="-2147483647" WastePercent="-
1.7976931348623157E+308" OfficeCopiesQuantity="-2147483647"
DeleteRecord="false">
  <RunQueuePiece PieceIndex="0" PieceWidth="-0.10000002384185791"
PieceLength="-0.10000002384185791" MaterialId="MaterialId4"
StockTypeId="StockTypeId4" MaterialGrammage="-0.10000002384185791"
NumberOfPieces="0" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="2" PieceWidth="2.1000000238418579"
PieceLength="2.1000000238418579" MaterialId="MaterialId5"
StockTypeId="StockTypeId5" MaterialGrammage="2.1000000238418579"
NumberOfPieces="2" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-2147483646" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId6" StockTypeId="StockTypeId6"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483646" DeleteRecord="false" />
</RunQueue>
<RunQueue PlantId="PlantId3" RunQueueId="2147483647"
AutoCountId="AutoCountId3"
AutoCountConfiguration="AutoCountConfiguration3" JobId="JobId3"
TaskId="2147483647" FormId="FormId3"
FormDescription="FormDescription3" Quantity="2147483647"
NumberUp="2147483647" SetupStart="9999-12-31T23:59:59.9999999+00:00"
SetupSeconds="2147483647" RunSeconds="2147483647"
WastePercent="1.7976931348623157E+308"
OfficeCopiesQuantity="2147483647" DeleteRecord="true">
  <RunQueuePiece PieceIndex="2147483646"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId7"
StockTypeId="StockTypeId7"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483646" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-1" PieceWidth="-1.2000000476837158"
PieceLength="-1.2000000476837158" MaterialId="MaterialId8"
StockTypeId="StockTypeId8" MaterialGrammage="-1.2000000476837158"
NumberOfPieces="-1" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="3" PieceWidth="3.2000000476837158"
PieceLength="3.2000000476837158" MaterialId="MaterialId9"
StockTypeId="StockTypeId9" MaterialGrammage="3.2000000476837158"
NumberOfPieces="3" DeleteRecord="true" />
</RunQueue>
</RunQueueResponse>

```

## RunQueueStatusCommand (to/from PLM)

Message from PLM to push status of a run to the MIS or to update the status of a run at PLM.

Name	Data Type	Description
RunQueueStatus	Element	<b>One</b> or more

## RunQueueStatusQuery (to PLM)

Message to query status of a run at PLM.

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
RunQueueId	Character (20)	Yes	

## RunQueueStatusResponse (from PLM)

Message to return status of a run at PLM in response to RunQueueStatusQuery.

Name	Data Type	Description
RunQueueStatus	Element	<b>Zero</b> or more

### RunQueueStatus

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
RunQueueId	Character (20)	Yes	
Status	Character	Yes	Limited values: <i>NewRun</i> <i>EditedRun</i> <i>Built</i> <i>OnPress</i> <i>Suspended</i> <i>RunComplete</i> <i>Deleted</i> <i>Archived</i>
AutoCountId	Character (20)		Not required (or used) when received by PLM. Always sent in messages from PLM.
StatusChanged	DateTime		Not required (or used) when received by PLM. Always sent in messages from PLM.

## ScheduleCommand (to PLM)

Very similar to the RunQueueCommand. The only difference is that any RunQueues in the database with a status of NewRun that are not included in this message are marked as Hidden.

Name	Data Type	Description
RunQueue	Element	One or more

```
<ScheduleCommand MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
```

```

<RunQueue PlantId="PlantId1" RunQueueId="1"
AutoCountId="AutoCountId1"
AutoCountConfiguration="AutoCountConfiguration1" JobId="JobId1"
TaskId="1" FormId="FormId1" FormDescription="FormDescription1"
Quantity="1" NumberUp="1" SetupStart="1900-01-01T01:01:01+00:00"
SetupSeconds="1" RunSeconds="1" WastePercent="1"
OfficeCopiesQuantity="1" DeleteRecord="true">
  <RunQueuePiece PieceIndex="1" PieceWidth="1" PieceLength="1"
MaterialId="MaterialId1" StockTypeId="StockTypeId1"
MaterialGrammage="1" NumberOfPieces="1" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-2147483647" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId2" StockTypeId="StockTypeId2"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483647" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="2147483647"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId3"
StockTypeId="StockTypeId3"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483647" DeleteRecord="true" />
</RunQueue>
<RunQueue PlantId="PlantId2" RunQueueId="-2147483647"
AutoCountId="AutoCountId2"
AutoCountConfiguration="AutoCountConfiguration2" JobId="JobId2"
TaskId="-2147483647" FormId="FormId2"
FormDescription="FormDescription2" Quantity="-2147483647"
NumberUp="-2147483647" SetupStart="0001-01-01T00:00:00+00:00"
SetupSeconds="-2147483647" RunSeconds="-2147483647" WastePercent="-
1.7976931348623157E+308" OfficeCopiesQuantity="-2147483647"
DeleteRecord="false">
  <RunQueuePiece PieceIndex="0" PieceWidth="-0.10000002384185791"
PieceLength="-0.10000002384185791" MaterialId="MaterialId4"
StockTypeId="StockTypeId4" MaterialGrammage="-0.10000002384185791"
NumberOfPieces="0" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="2" PieceWidth="2.1000000238418579"
PieceLength="2.1000000238418579" MaterialId="MaterialId5"
StockTypeId="StockTypeId5" MaterialGrammage="2.1000000238418579"
NumberOfPieces="2" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-2147483646" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId6" StockTypeId="StockTypeId6"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483646" DeleteRecord="false" />
</RunQueue>

```



```
<RunQueue PlantId="PlantId3" RunQueueId="2147483647"
AutoCountId="AutoCountId3"
AutoCountConfiguration="AutoCountConfiguration3" JobId="JobId3"
TaskId="2147483647" FormId="FormId3"
FormDescription="FormDescription3" Quantity="2147483647"
NumberUp="2147483647" SetupStart="9999-12-31T23:59:59.9999999+00:00"
SetupSeconds="2147483647" RunSeconds="2147483647"
WastePercent="1.7976931348623157E+308"
OfficeCopiesQuantity="2147483647" DeleteRecord="true">
  <RunQueuePiece PieceIndex="2147483646"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId7"
StockTypeId="StockTypeId7"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483646" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-1" PieceWidth="-1.2000000476837158"
PieceLength="-1.2000000476837158" MaterialId="MaterialId8"
StockTypeId="StockTypeId8" MaterialGrammage="-1.2000000476837158"
NumberOfPieces="-1" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="3" PieceWidth="3.2000000476837158"
PieceLength="3.2000000476837158" MaterialId="MaterialId9"
StockTypeId="StockTypeId9" MaterialGrammage="3.2000000476837158"
NumberOfPieces="3" DeleteRecord="true" />
</RunQueue>
</ScheduleCommand>
```

### AutoCountCommand (to/from PLM)

Can be sent by the MIS to create new Auto-Count records with their dependent Configurations.

Also used by PLM to inform MIS of new or changed Machine data, the Command contains one or more Machine element.

Name	Data Type	Description
AutoCount	Element	One or more

```
<AutoCountCommand MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Command"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
<AutoCount AutoCountId="AutoCountId1"
AutoCountDescription="AutoCountDescription1" MaxDeliveries="1"
AutoCountType="1" EquipmentTypeId="1" MaxSpeed="1" MaxWebs="1"
IsMetric="true" UsesMr2="true" IdleOpcodeId="IdleOpcodeId1"
StopOpcodeId="StopOpcodeId1" TandemOpcodeId="TandemOpcodeId1"
UnpaidBreakOpcodeId="UnpaidBreakOpcodeId1" IpAddress="IpAddress1"
```



```

MachineShiftCycleId="MachineShiftCycleId1" PlantId="PlantId1"
IsActive="true" DeleteRecord="true">
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId1"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
1" MaxDeliveries="1" MaxWebs="1" MachineStartSpeed="1"
MR2OverThreshold="1" SavingThreshold="1" CylinderCircumference="1"
DefaultProductWidth="1" DefaultBasisWeight="1" ScaleFactor="1"
ObjectiveMRSeconds="1" ObjectiveRate="1" ObjectiveWastePercent="1"
StopSeconds="1" NearDoneThreshold="1" NearDoneUnit="1"
MR1OpcodeId="MR1OpcodeId1" MR2OpcodeId="MR2OpcodeId1"
RunOpcodeId="RunOpcodeId1" RestartOpcodeId="RestartOpcodeId1"
CleanUpOpcodeId="CleanUpOpcodeId1"
OverrunOpcodeId="OverrunOpcodeId1"
PaperMonitorId1="PaperMonitorId11"
PaperMonitorId2="PaperMonitorId21"
PaperMonitorId3="PaperMonitorId31"
PaperMonitorId4="PaperMonitorId41"
TandemSlaveAutoCountId="TandemSlaveAutoCountId1"
CountConfigurationId="CountConfigurationId1"
WorkCenterId="WorkCenterId1" IsActive="true" DeleteRecord="true" />
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId2"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
2" MaxDeliveries="-2147483647" MaxWebs="-2147483647"
MachineStartSpeed="-2147483647" MR2OverThreshold="-2147483647"
SavingThreshold="-2147483647" CylinderCircumference="-
1.7976931348623157E+308" DefaultProductWidth="-
1.7976931348623157E+308" DefaultBasisWeight="-
1.7976931348623157E+308" ScaleFactor="-1.7976931348623157E+308"
ObjectiveMRSeconds="-2147483647" ObjectiveRate="-2147483647"
ObjectiveWastePercent="-1.7976931348623157E+308" StopSeconds="-
2147483647" NearDoneThreshold="-2147483647" NearDoneUnit="-
2147483647" MR1OpcodeId="MR1OpcodeId2" MR2OpcodeId="MR2OpcodeId2"
RunOpcodeId="RunOpcodeId2" RestartOpcodeId="RestartOpcodeId2"
CleanUpOpcodeId="CleanUpOpcodeId2"
OverrunOpcodeId="OverrunOpcodeId2"
PaperMonitorId1="PaperMonitorId12"
PaperMonitorId2="PaperMonitorId22"
PaperMonitorId3="PaperMonitorId32"
PaperMonitorId4="PaperMonitorId42"
TandemSlaveAutoCountId="TandemSlaveAutoCountId2"
CountConfigurationId="CountConfigurationId2"
WorkCenterId="WorkCenterId2" IsActive="false" DeleteRecord="false"
/>

```

```

<AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId3"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
3" MaxDeliveries="2147483647" MaxWebs="2147483647"
MachineStartSpeed="2147483647" MR2OverThreshold="2147483647"
SavingThreshold="2147483647"
CylinderCircumference="1.7976931348623157E+308"
DefaultProductWidth="1.7976931348623157E+308"
DefaultBasisWeight="1.7976931348623157E+308"
ScaleFactor="1.7976931348623157E+308"
ObjectiveMRSeconds="2147483647" ObjectiveRate="2147483647"
ObjectiveWastePercent="1.7976931348623157E+308"
StopSeconds="2147483647" NearDoneThreshold="2147483647"
NearDoneUnit="2147483647" MR1OpcodeId="MR1OpcodeId3"
MR2OpcodeId="MR2OpcodeId3" RunOpcodeId="RunOpcodeId3"
RestartOpcodeId="RestartOpcodeId3"
CleanUpOpcodeId="CleanUpOpcodeId3"
OverrunOpcodeId="OverrunOpcodeId3"
PaperMonitorId1="PaperMonitorId13"
PaperMonitorId2="PaperMonitorId23"
PaperMonitorId3="PaperMonitorId33"
PaperMonitorId4="PaperMonitorId43"
TandemSlaveAutoCountId="TandemSlaveAutoCountId3"
CountConfigurationId="CountConfigurationId3"
WorkCenterId="WorkCenterId3" IsActive="true" DeleteRecord="true" />
</AutoCount>
<AutoCount AutoCountId="AutoCountId2"
AutoCountDescription="AutoCountDescription2" MaxDeliveries="-
2147483647" AutoCountType="-2147483647" EquipmentTypeId="-
2147483647" MaxSpeed="-2147483647" MaxWebs="-2147483647"
IsMetric="false" UsesMr2="false" IdleOpcodeId="IdleOpcodeId2"
StopOpcodeId="StopOpcodeId2" TandemOpcodeId="TandemOpcodeId2"
UnpaidBreakOpcodeId="UnpaidBreakOpcodeId2" IpAddress="IpAddress2"
MachineShiftCycleId="MachineShiftCycleId2" PlantId="PlantId2"
IsActive="false" DeleteRecord="false">
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId4"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
4" MaxDeliveries="0" MaxWebs="0" MachineStartSpeed="0"
MR2OverThreshold="0" SavingThreshold="0" CylinderCircumference="-
0.10000002384185791" DefaultProductWidth="-0.10000002384185791"
DefaultBasisWeight="-0.10000002384185791" ScaleFactor="-
0.10000002384185791" ObjectiveMRSeconds="0" ObjectiveRate="0"
ObjectiveWastePercent="-0.10000002384185791" StopSeconds="0"
NearDoneThreshold="0" NearDoneUnit="0" MR1OpcodeId="MR1OpcodeId4"

```

```

MR20opcodeId="MR20opcodeId4" RunOpcodeId="RunOpcodeId4"
RestartOpcodeId="RestartOpcodeId4"
CleanUpOpcodeId="CleanUpOpcodeId4"
OverrunOpcodeId="OverrunOpcodeId4"
PaperMonitorId1="PaperMonitorId14"
PaperMonitorId2="PaperMonitorId24"
PaperMonitorId3="PaperMonitorId34"
PaperMonitorId4="PaperMonitorId44"
TandemSlaveAutoCountId="TandemSlaveAutoCountId4"
CountConfigurationId="CountConfigurationId4"
WorkCenterId="WorkCenterId4" IsActive="false" DeleteRecord="false"
/>
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId5"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
5" MaxDeliveries="2" MaxWebs="2" MachineStartSpeed="2"
MR20OverThreshold="2" SavingThreshold="2"
CylinderCircumference="2.1000000238418579"
DefaultProductWidth="2.1000000238418579"
DefaultBasisWeight="2.1000000238418579"
ScaleFactor="2.1000000238418579" ObjectiveMRSeconds="2"
ObjectiveRate="2" ObjectiveWastePercent="2.1000000238418579"
StopSeconds="2" NearDoneThreshold="2" NearDoneUnit="2"
MR10opcodeId="MR10opcodeId5" MR20opcodeId="MR20opcodeId5"
RunOpcodeId="RunOpcodeId5" RestartOpcodeId="RestartOpcodeId5"
CleanUpOpcodeId="CleanUpOpcodeId5"
OverrunOpcodeId="OverrunOpcodeId5"
PaperMonitorId1="PaperMonitorId15"
PaperMonitorId2="PaperMonitorId25"
PaperMonitorId3="PaperMonitorId35"
PaperMonitorId4="PaperMonitorId45"
TandemSlaveAutoCountId="TandemSlaveAutoCountId5"
CountConfigurationId="CountConfigurationId5"
WorkCenterId="WorkCenterId5" IsActive="true" DeleteRecord="true" />
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId6"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
6" MaxDeliveries="-2147483646" MaxWebs="-2147483646"
MachineStartSpeed="-2147483646" MR20OverThreshold="-2147483646"
SavingThreshold="-2147483646" CylinderCircumference="-
1.7976931348623157E+308" DefaultProductWidth="-
1.7976931348623157E+308" DefaultBasisWeight="-
1.7976931348623157E+308" ScaleFactor="-1.7976931348623157E+308"
ObjectiveMRSeconds="-2147483646" ObjectiveRate="-2147483646"
ObjectiveWastePercent="-1.7976931348623157E+308" StopSeconds="-

```

```

2147483646" NearDoneThreshold="-2147483646" NearDoneUnit="-
2147483646" MR10OpcodeId="MR10OpcodeId6" MR20OpcodeId="MR20OpcodeId6"
RunOpcodeId="RunOpcodeId6" RestartOpcodeId="RestartOpcodeId6"
CleanUpOpcodeId="CleanUpOpcodeId6"
OverrunOpcodeId="OverrunOpcodeId6"
PaperMonitorId1="PaperMonitorId16"
PaperMonitorId2="PaperMonitorId26"
PaperMonitorId3="PaperMonitorId36"
PaperMonitorId4="PaperMonitorId46"
TandemSlaveAutoCountId="TandemSlaveAutoCountId6"
CountConfigurationId="CountConfigurationId6"
WorkCenterId="WorkCenterId6" IsActive="false" DeleteRecord="false"
/>
</AutoCount>
<AutoCount AutoCountId="AutoCountId3"
AutoCountDescription="AutoCountDescription3"
MaxDeliveries="2147483647" AutoCountType="2147483647"
EquipmentTypeId="2147483647" MaxSpeed="2147483647"
MaxWebs="2147483647" IsMetric="true" UsesMr2="true"
IdleOpcodeId="IdleOpcodeId3" StopOpcodeId="StopOpcodeId3"
TandemOpcodeId="TandemOpcodeId3"
UnpaidBreakOpcodeId="UnpaidBreakOpcodeId3" IpAddress="IpAddress3"
MachineShiftCycleId="MachineShiftCycleId3" PlantId="PlantId3"
IsActive="true" DeleteRecord="true">
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId7"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
7" MaxDeliveries="2147483646" MaxWebs="2147483646"
MachineStartSpeed="2147483646" MR2OverThreshold="2147483646"
SavingThreshold="2147483646"
CylinderCircumference="1.7976931348623157E+308"
DefaultProductWidth="1.7976931348623157E+308"
DefaultBasisWeight="1.7976931348623157E+308"
ScaleFactor="1.7976931348623157E+308"
ObjectiveMRSeconds="2147483646" ObjectiveRate="2147483646"
ObjectiveWastePercent="1.7976931348623157E+308"
StopSeconds="2147483646" NearDoneThreshold="2147483646"
NearDoneUnit="2147483646" MR10OpcodeId="MR10OpcodeId7"
MR20OpcodeId="MR20OpcodeId7" RunOpcodeId="RunOpcodeId7"
RestartOpcodeId="RestartOpcodeId7"
CleanUpOpcodeId="CleanUpOpcodeId7"
OverrunOpcodeId="OverrunOpcodeId7"
PaperMonitorId1="PaperMonitorId17"
PaperMonitorId2="PaperMonitorId27"
PaperMonitorId3="PaperMonitorId37"

```

```

PaperMonitorId4="PaperMonitorId47"
TandemSlaveAutoCountId="TandemSlaveAutoCountId7"
CountConfigurationId="CountConfigurationId7"
WorkCenterId="WorkCenterId7" IsActive="true" DeleteRecord="true" />
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId8"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
8" MaxDeliveries="-1" MaxWebs="-1" MachineStartSpeed="-1"
MR2OverThreshold="-1" SavingThreshold="-1" CylinderCircumference="-
1.2000000476837158" DefaultProductWidth="-1.2000000476837158"
DefaultBasisWeight="-1.2000000476837158" ScaleFactor="-
1.2000000476837158" ObjectiveMRSeconds="-1" ObjectiveRate="-1"
ObjectiveWastePercent="-1.2000000476837158" StopSeconds="-1"
NearDoneThreshold="-1" NearDoneUnit="-1" MR1OpcodeId="MR1OpcodeId8"
MR2OpcodeId="MR2OpcodeId8" RunOpcodeId="RunOpcodeId8"
RestartOpcodeId="RestartOpcodeId8"
CleanUpOpcodeId="CleanUpOpcodeId8"
OverrunOpcodeId="OverrunOpcodeId8"
PaperMonitorId1="PaperMonitorId18"
PaperMonitorId2="PaperMonitorId28"
PaperMonitorId3="PaperMonitorId38"
PaperMonitorId4="PaperMonitorId48"
TandemSlaveAutoCountId="TandemSlaveAutoCountId8"
CountConfigurationId="CountConfigurationId8"
WorkCenterId="WorkCenterId8" IsActive="false" DeleteRecord="false"
/>
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId9"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
9" MaxDeliveries="3" MaxWebs="3" MachineStartSpeed="3"
MR2OverThreshold="3" SavingThreshold="3"
CylinderCircumference="3.2000000476837158"
DefaultProductWidth="3.2000000476837158"
DefaultBasisWeight="3.2000000476837158"
ScaleFactor="3.2000000476837158" ObjectiveMRSeconds="3"
ObjectiveRate="3" ObjectiveWastePercent="3.2000000476837158"
StopSeconds="3" NearDoneThreshold="3" NearDoneUnit="3"
MR1OpcodeId="MR1OpcodeId9" MR2OpcodeId="MR2OpcodeId9"
RunOpcodeId="RunOpcodeId9" RestartOpcodeId="RestartOpcodeId9"
CleanUpOpcodeId="CleanUpOpcodeId9"
OverrunOpcodeId="OverrunOpcodeId9"
PaperMonitorId1="PaperMonitorId19"
PaperMonitorId2="PaperMonitorId29"
PaperMonitorId3="PaperMonitorId39"
PaperMonitorId4="PaperMonitorId49"

```

```
TandemSlaveAutoCountId="TandemSlaveAutoCountId9"
CountConfigurationId="CountConfigurationId9"
WorkCenterId="WorkCenterId9" IsActive="true" DeleteRecord="true" />
</AutoCount>
</AutoCountCommand>
```

AutoCountQuery\* (to PLM)

MIS would Query for Machines (Auto-Count devices) available in a Plant.

Name	Data Type	Description
PlantId	Character (20)	Optional
AutoCountId	Character (20)	Optional

```
<AutoCountQuery PlantId="PlantId1" MessageId="MessageId1"
MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1"
MessageType="Query" Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi" />
```

## AutoCountResponse (from PLM)

The PLM would reply with the list of AutoCounts.

Name	Data Type	Description
AutoCount	Element	<b>Zero</b> or more

### AutoCount

In the AutoCount Response or AutoCount Command there would be one AutoCount Element per AutoCount Record.

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
AutoCountId	Character (20)	Yes	
AutoCountDescription	Character (50)	Yes	
MaxDeliveries	Integer		
AutoCountType	Integer		
EquipmentTypeId	Integer		
MaxSpeed	Double		
MaxWebs	Integer		
IsMetric	Logical		
UsesMr2	Logical		
IdleOpcodeId	Character (20)	Record is set inactive if not supplied	
StopOpcodeId	Character (20)	Record is set inactive if not supplied	
TandemOpcodeId	Character (20)	Record is set inactive if not supplied	
UnpaidBreakOpcodeId	Character (20)		
IpAddress	Character (80)		
MachineShiftCycleId	Character (15)		
TimeZoneInfo	Character (63)		ID of the time zone where the AutoCount is located. Only required when AutoCount is in a separate time zone to PLM.
DefaultWorkCenterId	Character (10)	(yes – if using WorkCenters)	
IsActive	Logical		
DeleteRecord	Logical		
AutoCountConfiguration	Element		One or more

### AutoCountConfiguration

The Configuration is an element of the Machine. A Configuration cannot exist if the Machine does not exist so the system will always send a Configuration Element inside of a Machine Element.

Name	Data Type	Required	Description
AutoCountConfigurationId	Character (20)	Yes	

AutoCountConfigurationDescription	Character (50)	Yes	
MaxDeliveries	Integer		
MaxWebs	Integer		
MachineStartSpeed	Double		
MR2OverThreshold	Double		
SavingThreshold	Double		
CylinderCircumference	Double	(Yes – if AC3000)	
DefaultProductWidth	Double		
DefaultBasisWeight	Double		
ScaleFactor	Double		
ObjectiveMRSeconds	Integer		
ObjectiveRate	Double		
ObjectiveWastePercent	Double		
StopSeconds	Integer		
NearDoneThreshold	Double		
NearDoneUnit	Integer		
MR1OpcodeId	Character (20)	Record is set inactive if not supplied	
MR2OpcodeId	Character (20)	Record is set inactive if not supplied	
RunOpcodeId	Character (20)	Record is set inactive if not supplied	
RestartOpcodeId	Character (20)	Record is set inactive if not supplied	
CleanUpOpcodeId	Character (20)	Record is set inactive if not supplied	
OverrunOpcodeId	Character (20)	Record is set inactive if not supplied	
PaperMonitorId1	Character (20)		
PaperMonitorId2	Character (20)		
PaperMonitorId3	Character (20)		
PaperMonitorId4	Character (20)		
TandemSlaveAutoCountId	Character (20)		
CountConfigurationDescription	Character (50)		
WorkCenterId	Character (10)	(Yes – if using WorkCenters)	
IsActive	Logical		
DeleteRecord	Logical		

```

<AutoCountResponse RefId="RefId1" ReturnCode="1"
  ErrorText="ErrorText1" MessageId="MessageId1" MessageDateTime="1900-

```



```

01-01T01:01:01+00:00" MessageVersion="1" MessageType="Response"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
<AutoCount AutoCountId="AutoCountId1"
AutoCountDescription="AutoCountDescription1" MaxDeliveries="1"
AutoCountType="1" EquipmentTypeId="1" MaxSpeed="1" MaxWebs="1"
IsMetric="true" UsesMr2="true" IdleOpcodeId="IdleOpcodeId1"
StopOpcodeId="StopOpcodeId1" TandemOpcodeId="TandemOpcodeId1"
UnpaidBreakOpcodeId="UnpaidBreakOpcodeId1" IpAddress="IpAddress1"
MachineShiftCycleId="MachineShiftCycleId1" PlantId="PlantId1"
IsActive="true" DeleteRecord="true">
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId1"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
1" MaxDeliveries="1" MaxWebs="1" MachineStartSpeed="1"
MR2OverThreshold="1" SavingThreshold="1" CylinderCircumference="1"
DefaultProductWidth="1" DefaultBasisWeight="1" ScaleFactor="1"
ObjectiveMRSeconds="1" ObjectiveRate="1" ObjectiveWastePercent="1"
StopSeconds="1" NearDoneThreshold="1" NearDoneUnit="1"
MR1OpcodeId="MR1OpcodeId1" MR2OpcodeId="MR2OpcodeId1"
RunOpcodeId="RunOpcodeId1" RestartOpcodeId="RestartOpcodeId1"
CleanUpOpcodeId="CleanUpOpcodeId1"
OverrunOpcodeId="OverrunOpcodeId1"
PaperMonitorId1="PaperMonitorId11"
PaperMonitorId2="PaperMonitorId21"
PaperMonitorId3="PaperMonitorId31"
PaperMonitorId4="PaperMonitorId41"
TandemSlaveAutoCountId="TandemSlaveAutoCountId1"
CountConfigurationId="CountConfigurationId1"
WorkCenterId="WorkCenterId1" IsActive="true" DeleteRecord="true" />
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId2"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
2" MaxDeliveries="-2147483647" MaxWebs="-2147483647"
MachineStartSpeed="-2147483647" MR2OverThreshold="-2147483647"
SavingThreshold="-2147483647" CylinderCircumference="-
1.7976931348623157E+308" DefaultProductWidth="-
1.7976931348623157E+308" DefaultBasisWeight="-
1.7976931348623157E+308" ScaleFactor="-1.7976931348623157E+308"
ObjectiveMRSeconds="-2147483647" ObjectiveRate="-2147483647"
ObjectiveWastePercent="-1.7976931348623157E+308" StopSeconds="-
2147483647" NearDoneThreshold="-2147483647" NearDoneUnit="-
2147483647" MR1OpcodeId="MR1OpcodeId2" MR2OpcodeId="MR2OpcodeId2"
RunOpcodeId="RunOpcodeId2" RestartOpcodeId="RestartOpcodeId2"
CleanUpOpcodeId="CleanUpOpcodeId2"

```

```

OverrunOpcodeId="OverrunOpcodeId2"
PaperMonitorId1="PaperMonitorId12"
PaperMonitorId2="PaperMonitorId22"
PaperMonitorId3="PaperMonitorId32"
PaperMonitorId4="PaperMonitorId42"
TandemSlaveAutoCountId="TandemSlaveAutoCountId2"
CountConfigurationId="CountConfigurationId2"
WorkCenterId="WorkCenterId2" IsActive="false" DeleteRecord="false"
/>
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId3"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
3" MaxDeliveries="2147483647" MaxWebs="2147483647"
MachineStartSpeed="2147483647" MR2OverThreshold="2147483647"
SavingThreshold="2147483647"
CylinderCircumference="1.7976931348623157E+308"
DefaultProductWidth="1.7976931348623157E+308"
DefaultBasisWeight="1.7976931348623157E+308"
ScaleFactor="1.7976931348623157E+308"
ObjectiveMRSeconds="2147483647" ObjectiveRate="2147483647"
ObjectiveWastePercent="1.7976931348623157E+308"
StopSeconds="2147483647" NearDoneThreshold="2147483647"
NearDoneUnit="2147483647" MR1OpcodeId="MR1OpcodeId3"
MR2OpcodeId="MR2OpcodeId3" RunOpcodeId="RunOpcodeId3"
RestartOpcodeId="RestartOpcodeId3"
CleanUpOpcodeId="CleanUpOpcodeId3"
OverrunOpcodeId="OverrunOpcodeId3"
PaperMonitorId1="PaperMonitorId13"
PaperMonitorId2="PaperMonitorId23"
PaperMonitorId3="PaperMonitorId33"
PaperMonitorId4="PaperMonitorId43"
TandemSlaveAutoCountId="TandemSlaveAutoCountId3"
CountConfigurationId="CountConfigurationId3"
WorkCenterId="WorkCenterId3" IsActive="true" DeleteRecord="true" />
</AutoCount>
<AutoCount AutoCountId="AutoCountId2"
AutoCountDescription="AutoCountDescription2" MaxDeliveries="-
2147483647" AutoCountType="-2147483647" EquipmentTypeId="-
2147483647" MaxSpeed="-2147483647" MaxWebs="-2147483647"
IsMetric="false" UsesMr2="false" IdleOpcodeId="IdleOpcodeId2"
StopOpcodeId="StopOpcodeId2" TandemOpcodeId="TandemOpcodeId2"
UnpaidBreakOpcodeId="UnpaidBreakOpcodeId2" IpAddress="IpAddress2"
MachineShiftCycleId="MachineShiftCycleId2" PlantId="PlantId2"
IsActive="false" DeleteRecord="false">

```

```

<AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId4"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
4" MaxDeliveries="0" MaxWebs="0" MachineStartSpeed="0"
MR2OverThreshold="0" SavingThreshold="0" CylinderCircumference="-
0.10000002384185791" DefaultProductWidth="-0.10000002384185791"
DefaultBasisWeight="-0.10000002384185791" ScaleFactor="-
0.10000002384185791" ObjectiveMRSeconds="0" ObjectiveRate="0"
ObjectiveWastePercent="-0.10000002384185791" StopSeconds="0"
NearDoneThreshold="0" NearDoneUnit="0" MR10opcodeId="MR10opcodeId4"
MR20opcodeId="MR20opcodeId4" RunOpcodeId="RunOpcodeId4"
RestartOpcodeId="RestartOpcodeId4"
CleanUpOpcodeId="CleanUpOpcodeId4"
OverrunOpcodeId="OverrunOpcodeId4"
PaperMonitorId1="PaperMonitorId14"
PaperMonitorId2="PaperMonitorId24"
PaperMonitorId3="PaperMonitorId34"
PaperMonitorId4="PaperMonitorId44"
TandemSlaveAutoCountId="TandemSlaveAutoCountId4"
CountConfigurationId="CountConfigurationId4"
WorkCenterId="WorkCenterId4" IsActive="false" DeleteRecord="false"
/>

<AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId5"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
5" MaxDeliveries="2" MaxWebs="2" MachineStartSpeed="2"
MR2OverThreshold="2" SavingThreshold="2"
CylinderCircumference="2.1000000238418579"
DefaultProductWidth="2.1000000238418579"
DefaultBasisWeight="2.1000000238418579"
ScaleFactor="2.1000000238418579" ObjectiveMRSeconds="2"
ObjectiveRate="2" ObjectiveWastePercent="2.1000000238418579"
StopSeconds="2" NearDoneThreshold="2" NearDoneUnit="2"
MR10opcodeId="MR10opcodeId5" MR20opcodeId="MR20opcodeId5"
RunOpcodeId="RunOpcodeId5" RestartOpcodeId="RestartOpcodeId5"
CleanUpOpcodeId="CleanUpOpcodeId5"
OverrunOpcodeId="OverrunOpcodeId5"
PaperMonitorId1="PaperMonitorId15"
PaperMonitorId2="PaperMonitorId25"
PaperMonitorId3="PaperMonitorId35"
PaperMonitorId4="PaperMonitorId45"
TandemSlaveAutoCountId="TandemSlaveAutoCountId5"
CountConfigurationId="CountConfigurationId5"
WorkCenterId="WorkCenterId5" IsActive="true" DeleteRecord="true" />

```

```

    <AutoCountConfiguration
      AutoCountConfigurationId="AutoCountConfigurationId6"
      AutoCountConfigurationDescription="AutoCountConfigurationDescription
      6" MaxDeliveries="-2147483646" MaxWebs="-2147483646"
      MachineStartSpeed="-2147483646" MR2OverThreshold="-2147483646"
      SavingThreshold="-2147483646" CylinderCircumference="-
      1.7976931348623157E+308" DefaultProductWidth="-
      1.7976931348623157E+308" DefaultBasisWeight="-
      1.7976931348623157E+308" ScaleFactor="-1.7976931348623157E+308"
      ObjectiveMRSeconds="-2147483646" ObjectiveRate="-2147483646"
      ObjectiveWastePercent="-1.7976931348623157E+308" StopSeconds="-
      2147483646" NearDoneThreshold="-2147483646" NearDoneUnit="-
      2147483646" MR10OpcodeId="MR10OpcodeId6" MR20OpcodeId="MR20OpcodeId6"
      RunOpcodeId="RunOpcodeId6" RestartOpcodeId="RestartOpcodeId6"
      CleanUpOpcodeId="CleanUpOpcodeId6"
      OverrunOpcodeId="OverrunOpcodeId6"
      PaperMonitorId1="PaperMonitorId16"
      PaperMonitorId2="PaperMonitorId26"
      PaperMonitorId3="PaperMonitorId36"
      PaperMonitorId4="PaperMonitorId46"
      TandemSlaveAutoCountId="TandemSlaveAutoCountId6"
      CountConfigurationId="CountConfigurationId6"
      WorkCenterId="WorkCenterId6" IsActive="false" DeleteRecord="false"
    />
  </AutoCount>
  <AutoCount AutoCountId="AutoCountId3"
    AutoCountDescription="AutoCountDescription3"
    MaxDeliveries="2147483647" AutoCountType="2147483647"
    EquipmentTypeId="2147483647" MaxSpeed="2147483647"
    MaxWebs="2147483647" IsMetric="true" UsesMr2="true"
    IdleOpcodeId="IdleOpcodeId3" StopOpcodeId="StopOpcodeId3"
    TandemOpcodeId="TandemOpcodeId3"
    UnpaidBreakOpcodeId="UnpaidBreakOpcodeId3" IpAddress="IpAddress3"
    MachineShiftCycleId="MachineShiftCycleId3" PlantId="PlantId3"
    IsActive="true" DeleteRecord="true">
    <AutoCountConfiguration
      AutoCountConfigurationId="AutoCountConfigurationId7"
      AutoCountConfigurationDescription="AutoCountConfigurationDescription
      7" MaxDeliveries="2147483646" MaxWebs="2147483646"
      MachineStartSpeed="2147483646" MR2OverThreshold="2147483646"
      SavingThreshold="2147483646"
      CylinderCircumference="1.7976931348623157E+308"
      DefaultProductWidth="1.7976931348623157E+308"
      DefaultBasisWeight="1.7976931348623157E+308"
      ScaleFactor="1.7976931348623157E+308"

```

```

ObjectiveMRSeconds="2147483646" ObjectiveRate="2147483646"
ObjectiveWastePercent="1.7976931348623157E+308"
StopSeconds="2147483646" NearDoneThreshold="2147483646"
NearDoneUnit="2147483646" MR10opcodeId="MR10opcodeId7"
MR20opcodeId="MR20opcodeId7" RunOpcodeId="RunOpcodeId7"
RestartOpcodeId="RestartOpcodeId7"
CleanUpOpcodeId="CleanUpOpcodeId7"
OverrunOpcodeId="OverrunOpcodeId7"
PaperMonitorId1="PaperMonitorId17"
PaperMonitorId2="PaperMonitorId27"
PaperMonitorId3="PaperMonitorId37"
PaperMonitorId4="PaperMonitorId47"
TandemSlaveAutoCountId="TandemSlaveAutoCountId7"
CountConfigurationId="CountConfigurationId7"
WorkCenterId="WorkCenterId7" IsActive="true" DeleteRecord="true" />
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId8"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
8" MaxDeliveries="-1" MaxWebs="-1" MachineStartSpeed="-1"
MR20OverThreshold="-1" SavingThreshold="-1" CylinderCircumference="-
1.2000000476837158" DefaultProductWidth="-1.2000000476837158"
DefaultBasisWeight="-1.2000000476837158" ScaleFactor="-
1.2000000476837158" ObjectiveMRSeconds="-1" ObjectiveRate="-1"
ObjectiveWastePercent="-1.2000000476837158" StopSeconds="-1"
NearDoneThreshold="-1" NearDoneUnit="-1" MR10opcodeId="MR10opcodeId8"
MR20opcodeId="MR20opcodeId8" RunOpcodeId="RunOpcodeId8"
RestartOpcodeId="RestartOpcodeId8"
CleanUpOpcodeId="CleanUpOpcodeId8"
OverrunOpcodeId="OverrunOpcodeId8"
PaperMonitorId1="PaperMonitorId18"
PaperMonitorId2="PaperMonitorId28"
PaperMonitorId3="PaperMonitorId38"
PaperMonitorId4="PaperMonitorId48"
TandemSlaveAutoCountId="TandemSlaveAutoCountId8"
CountConfigurationId="CountConfigurationId8"
WorkCenterId="WorkCenterId8" IsActive="false" DeleteRecord="false"
/>
  <AutoCountConfiguration
AutoCountConfigurationId="AutoCountConfigurationId9"
AutoCountConfigurationDescription="AutoCountConfigurationDescription
9" MaxDeliveries="3" MaxWebs="3" MachineStartSpeed="3"
MR20OverThreshold="3" SavingThreshold="3"
CylinderCircumference="3.2000000476837158"
DefaultProductWidth="3.2000000476837158"
DefaultBasisWeight="3.2000000476837158"

```

```
ScaleFactor="3.2000000476837158" ObjectiveMRSeconds="3"
ObjectiveRate="3" ObjectiveWastePercent="3.2000000476837158"
StopSeconds="3" NearDoneThreshold="3" NearDoneUnit="3"
MR1OpcodeId="MR1OpcodeId9" MR2OpcodeId="MR2OpcodeId9"
RunOpcodeId="RunOpcodeId9" RestartOpcodeId="RestartOpcodeId9"
CleanUpOpcodeId="CleanUpOpcodeId9"
OverrunOpcodeId="OverrunOpcodeId9"
PaperMonitorId1="PaperMonitorId19"
PaperMonitorId2="PaperMonitorId29"
PaperMonitorId3="PaperMonitorId39"
PaperMonitorId4="PaperMonitorId49"
TandemSlaveAutoCountId="TandemSlaveAutoCountId9"
CountConfigurationId="CountConfigurationId9"
WorkCenterId="WorkCenterId9" IsActive="true" DeleteRecord="true" />
</AutoCount>
</AutoCountResponse>
```

### MachineTransactionCommand (from PLM)

For the most part the system will rely on DMI to send the Commands in a timely and reliable manner. A Machine Query will be available when needed but the expectation is that it will be used sparingly

A tool would be useful to resend all labor transactions within a date range or TransactionId range.

Name	Data Type	Description
MachineSummary	Element	One or more

```
<MachineTransactionCommand MessageId="MessageId1"
MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1"
MessageType="Command" Sender="Sender1"
SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi">
<MachineSummary PlantId="PlantId1" MachineSummaryId="1"
AutoCountId="AutoCountId1" AutoCountConfigurationId="1"
StartDateTime="1900-01-01T01:01:01+00:00" EndDateTime="1900-01-
01T01:01:01+00:00" ElapsedSeconds="1" InProcess="true"
ShiftDate="1900-01-01" MachineShiftId="MachineShiftId1"
EmployeeId="EmployeeId1" EmployeeShiftId="EmployeeShiftId1"
PayrollShiftId="1" AcState="1" CoreState="1" OpcodeId="OpcodeId1"
RunId="RunId1" GrossCounter="1" GrossCount="1" Speed="1"
NumberOfProducts="1" NoteText="NoteText1">
<MachineDetail MachineDetailId="1" ProductId="1" ProductIndex="1"
JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
CostCodeId="CostCodeId1" NumberUp="1" NetCounter="1" NetCount="1"
ProductWeight="1" />
<MachineDetail MachineDetailId="-9223372036854775807" ProductId="-
9223372036854775807" ProductIndex="-2147483647" JobId="JobId2"
TaskId="TaskId2" FormId="FormId2" CostCodeId="CostCodeId2"
```



```

NumberUp="-2147483647" NetCounter="-2147483647" NetCount="-
2147483647" ProductWeight="-1.7976931348623157E+308" />
  <MachineDetail MachineDetailId="9223372036854775807"
ProductId="9223372036854775807" ProductIndex="2147483647"
JobId="JobId3" TaskId="TaskId3" FormId="FormId3"
CostCodeId="CostCodeId3" NumberUp="2147483647"
NetCounter="2147483647" NetCount="2147483647"
ProductWeight="1.7976931348623157E+308" />
  <MachineEvent MachineEventId="1" MachineEventDateTime="1900-01-
01T01:01:01+00:00" EventCode="1" Description="Description1"
GrossCounter="1" NetCounter="1" Speed="1" Quantity="1"
ProductIndex="1" NotePriority="1" />
  <MachineEvent MachineEventId="-9223372036854775807"
MachineEventDateTime="0001-01-01T00:00:00+00:00" EventCode="-
2147483647" Description="Description2" GrossCounter="-2147483647"
NetCounter="-2147483647" Speed="-2147483647" Quantity="-2147483647"
ProductIndex="-2147483647" NotePriority="-2147483647" />
  <MachineEvent MachineEventId="9223372036854775807"
MachineEventDateTime="9999-12-31T23:59:59.9999999+00:00"
EventCode="2147483647" Description="Description3"
GrossCounter="2147483647" NetCounter="2147483647" Speed="2147483647"
Quantity="2147483647" ProductIndex="2147483647"
NotePriority="2147483647" />
</MachineSummary>
<MachineSummary PlantId="PlantId2" MachineSummaryId="-
9223372036854775807" AutoCountId="AutoCountId2"
AutoCountConfigurationId="-2147483647" StartDateTime="0001-01-
01T00:00:00+00:00" EndDateTime="0001-01-01T00:00:00+00:00"
ElapsedSeconds="-2147483647" InProcess="false" ShiftDate="0001-01-
01" MachineShiftId="MachineShiftId2" EmployeeId="EmployeeId2"
EmployeeShiftId="EmployeeShiftId2" PayrollShiftId="-2147483647"
AcState="-2147483647" CoreState="-2147483647" OpcodeId="OpcodeId2"
RunId="RunId2" GrossCounter="-2147483647" GrossCount="-2147483647"
Speed="-2147483647" NumberOfProducts="-2147483647"
NoteText="NoteText2">
  <MachineDetail MachineDetailId="0" ProductId="0" ProductIndex="0"
JobId="JobId4" TaskId="TaskId4" FormId="FormId4"
CostCodeId="CostCodeId4" NumberUp="0" NetCounter="0" NetCount="0"
ProductWeight="-0.10000002384185791" />
  <MachineDetail MachineDetailId="2" ProductId="2" ProductIndex="2"
JobId="JobId5" TaskId="TaskId5" FormId="FormId5"
CostCodeId="CostCodeId5" NumberUp="2" NetCounter="2" NetCount="2"
ProductWeight="2.1000000238418579" />
  <MachineDetail MachineDetailId="-9223372036854775806" ProductId="-
9223372036854775806" ProductIndex="-2147483646" JobId="JobId6"

```

```

TaskId="TaskId6" FormId="FormId6" CostCodeId="CostCodeId6"
NumberUp="-2147483646" NetCounter="-2147483646" NetCount="-
2147483646" ProductWeight="-1.7976931348623157E+308" />
  <MachineEvent MachineEventId="0" MachineEventDateTime="1899-11-
30T01:01:01+00:00" EventCode="0" Description="Description4"
GrossCounter="0" NetCounter="0" Speed="0" Quantity="0"
ProductIndex="0" NotePriority="0" />
  <MachineEvent MachineEventId="2" MachineEventDateTime="1900-02-
02T01:01:01+00:00" EventCode="2" Description="Description5"
GrossCounter="2" NetCounter="2" Speed="2" Quantity="2"
ProductIndex="2" NotePriority="2" />
  <MachineEvent MachineEventId="-9223372036854775806"
MachineEventDateTime="0001-02-02T00:00:00+00:00" EventCode="-
2147483646" Description="Description6" GrossCounter="-2147483646"
NetCounter="-2147483646" Speed="-2147483646" Quantity="-2147483646"
ProductIndex="-2147483646" NotePriority="-2147483646" />
</MachineSummary>
<MachineSummary PlantId="PlantId3"
MachineSummaryId="9223372036854775807" AutoCountId="AutoCountId3"
AutoCountConfigurationId="2147483647" StartDateTime="9999-12-
31T23:59:59.9999999+00:00" EndDateTime="9999-12-
31T23:59:59.9999999+00:00" ElapsedSeconds="2147483647"
InProgress="true" ShiftDate="9999-12-31"
MachineShiftId="MachineShiftId3" EmployeeId="EmployeeId3"
EmployeeShiftId="EmployeeShiftId3" PayrollShiftId="2147483647"
AcState="2147483647" CoreState="2147483647" OpcodeId="OpcodeId3"
RunId="RunId3" GrossCounter="2147483647" GrossCount="2147483647"
Speed="2147483647" NumberOfProducts="2147483647"
NoteText="NoteText3">
  <MachineDetail MachineDetailId="9223372036854775806"
ProductId="9223372036854775806" ProductIndex="2147483646"
JobId="JobId7" TaskId="TaskId7" FormId="FormId7"
CostCodeId="CostCodeId7" NumberUp="2147483646"
NetCounter="2147483646" NetCount="2147483646"
ProductWeight="1.7976931348623157E+308" />
  <MachineDetail MachineDetailId="-1" ProductId="-1" ProductIndex="-
1" JobId="JobId8" TaskId="TaskId8" FormId="FormId8"
CostCodeId="CostCodeId8" NumberUp="-1" NetCounter="-1" NetCount="-1"
ProductWeight="-1.2000000476837158" />
  <MachineDetail MachineDetailId="3" ProductId="3" ProductIndex="3"
JobId="JobId9" TaskId="TaskId9" FormId="FormId9"
CostCodeId="CostCodeId9" NumberUp="3" NetCounter="3" NetCount="3"
ProductWeight="3.2000000476837158" />
  <MachineEvent MachineEventId="9223372036854775806"
MachineEventDateTime="9999-11-29T23:59:59.9999999+00:00"

```



```

EventCode="2147483646" Description="Description7"
GrossCounter="2147483646" NetCounter="2147483646" Speed="2147483646"
Quantity="2147483646" ProductIndex="2147483646"
NotePriority="2147483646" />
  <MachineEvent MachineEventId="-1" MachineEventDateTime="1899-10-
29T01:01:01+00:00" EventCode="-1" Description="Description8"
GrossCounter="-1" NetCounter="-1" Speed="-1" Quantity="-1"
ProductIndex="-1" NotePriority="-1" />
  <MachineEvent MachineEventId="3" MachineEventDateTime="1900-03-
06T01:01:01+00:00" EventCode="3" Description="Description9"
GrossCounter="3" NetCounter="3" Speed="3" Quantity="3"
ProductIndex="3" NotePriority="3" />
</MachineSummary>
</MachineTransactionCommand>

```

## MachineTransactionQuery\* (to PLM)

MIS would Query for the Machine for a series of Machine Transactions for a Machine when necessary. The query would contain limiting parameters.

Name	Data Type	Description
PlantId	Character (20)	Optional
AutoCountId	Character (20)	Optional
StartDateTime	Date / Time	Start Date / Time
EndDateTime	Date / Time	

```

<MachineTransactionQuery PlantId="PlantId1" AutoCountId="AutoCountId1"
StartDateTime="1900-01-01T01:01:01+00:00" EndDateTime="1900-01-
01T01:01:01+00:00" MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Query"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi" />

```

## MachineTransactionResponse (from PLM)

The Machine Transaction Response is used to resend the Machine Transactions and Machine Events that match the parameters of the query.

Name	Data Type	Description
MachineSummary	Element	Zero or more

```

<MachineTransactionResponse RefId="RefId1" ReturnCode="1"
ErrorText="ErrorText1" MessageId="MessageId1" MessageDateTime="1900-
01-01T01:01:01+00:00" MessageVersion="1" MessageType="Response"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi">
  <MachineSummary PlantId="PlantId1" MachineSummaryId="1"
AutoCountId="AutoCountId1" AutoCountConfigurationId="1"

```

```

StartDateTime="1900-01-01T01:01:01+00:00" EndDateime="1900-01-01T01:01:01+00:00" ElapsedSeconds="1" InProcess="true"
ShiftDate="1900-01-01" MachineShiftId="MachineShiftId1"
EmployeeId="EmployeeId1" EmployeeShiftId="EmployeeShiftId1"
PayrollShiftId="1" AcState="1" CoreState="1" OpcodeId="OpcodeId1"
RunId="RunId1" GrossCounter="1" GrossCount="1" Speed="1"
NumberOfProducts="1" NoteText="NoteText1">
  <MachineDetail MachineDetailId="1" ProductId="1" ProductIndex="1"
  JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
  CostCodeId="CostCodeId1" NumberUp="1" NetCounter="1" NetCount="1"
  ProductWeight="1" />
  <MachineDetail MachineDetailId="-9223372036854775807" ProductId="-9223372036854775807" ProductIndex="-2147483647" JobId="JobId2"
  TaskId="TaskId2" FormId="FormId2" CostCodeId="CostCodeId2"
  NumberUp="-2147483647" NetCounter="-2147483647" NetCount="-2147483647" ProductWeight="-1.7976931348623157E+308" />
  <MachineDetail MachineDetailId="9223372036854775807"
  ProductId="9223372036854775807" ProductIndex="2147483647"
  JobId="JobId3" TaskId="TaskId3" FormId="FormId3"
  CostCodeId="CostCodeId3" NumberUp="2147483647"
  NetCounter="2147483647" NetCount="2147483647"
  ProductWeight="1.7976931348623157E+308" />
  <MachineEvent MachineEventId="1" MachineEventDateTime="1900-01-01T01:01:01+00:00" EventCode="1" Description="Description1"
  GrossCounter="1" NetCounter="1" Speed="1" Quantity="1"
  ProductIndex="1" NotePriority="1" />
  <MachineEvent MachineEventId="-9223372036854775807"
  MachineEventDateTime="0001-01-01T00:00:00+00:00" EventCode="-2147483647" Description="Description2" GrossCounter="-2147483647"
  NetCounter="-2147483647" Speed="-2147483647" Quantity="-2147483647"
  ProductIndex="-2147483647" NotePriority="-2147483647" />
  <MachineEvent MachineEventId="9223372036854775807"
  MachineEventDateTime="9999-12-31T23:59:59.9999999+00:00"
  EventCode="2147483647" Description="Description3"
  GrossCounter="2147483647" NetCounter="2147483647" Speed="2147483647"
  Quantity="2147483647" ProductIndex="2147483647"
  NotePriority="2147483647" />
</MachineSummary>
<MachineSummary PlantId="PlantId2" MachineSummaryId="-9223372036854775807" AutoCountId="AutoCountId2"
AutoCountConfigurationId="-2147483647" StartDateime="0001-01-01T00:00:00+00:00" EndDateime="0001-01-01T00:00:00+00:00"
ElapsedSeconds="-2147483647" InProcess="false" ShiftDate="0001-01-01" MachineShiftId="MachineShiftId2" EmployeeId="EmployeeId2"
EmployeeShiftId="EmployeeShiftId2" PayrollShiftId="-2147483647"

```

```

AcState="-2147483647" CoreState="-2147483647" OpcodeId="OpcodeId2"
RunId="RunId2" GrossCounter="-2147483647" GrossCount="-2147483647"
Speed="-2147483647" NumberOfProducts="-2147483647"
NoteText="NoteText2">
  <MachineDetail MachineDetailId="0" ProductId="0" ProductIndex="0"
JobId="JobId4" TaskId="TaskId4" FormId="FormId4"
CostCodeId="CostCodeId4" NumberUp="0" NetCounter="0" NetCount="0"
ProductWeight="-0.10000002384185791" />
  <MachineDetail MachineDetailId="2" ProductId="2" ProductIndex="2"
JobId="JobId5" TaskId="TaskId5" FormId="FormId5"
CostCodeId="CostCodeId5" NumberUp="2" NetCounter="2" NetCount="2"
ProductWeight="2.1000000238418579" />
  <MachineDetail MachineDetailId="-9223372036854775806" ProductId="-
9223372036854775806" ProductIndex="-2147483646" JobId="JobId6"
TaskId="TaskId6" FormId="FormId6" CostCodeId="CostCodeId6"
NumberUp="-2147483646" NetCounter="-2147483646" NetCount="-
2147483646" ProductWeight="-1.7976931348623157E+308" />
  <MachineEvent MachineEventId="0" MachineEventDateTime="1899-11-
30T01:01:01+00:00" EventCode="0" Description="Description4"
GrossCounter="0" NetCounter="0" Speed="0" Quantity="0"
ProductIndex="0" NotePriority="0" />
  <MachineEvent MachineEventId="2" MachineEventDateTime="1900-02-
02T01:01:01+00:00" EventCode="2" Description="Description5"
GrossCounter="2" NetCounter="2" Speed="2" Quantity="2"
ProductIndex="2" NotePriority="2" />
  <MachineEvent MachineEventId="-9223372036854775806"
MachineEventDateTime="0001-02-02T00:00:00+00:00" EventCode="-
2147483646" Description="Description6" GrossCounter="-2147483646"
NetCounter="-2147483646" Speed="-2147483646" Quantity="-2147483646"
ProductIndex="-2147483646" NotePriority="-2147483646" />
</MachineSummary>
<MachineSummary PlantId="PlantId3"
MachineSummaryId="9223372036854775807" AutoCountId="AutoCountId3"
AutoCountConfigurationId="2147483647" StartDateTime="9999-12-
31T23:59:59.9999999+00:00" EndDateTime="9999-12-
31T23:59:59.9999999+00:00" ElapsedSeconds="2147483647"
InProgress="true" ShiftDate="9999-12-31"
MachineShiftId="MachineShiftId3" EmployeeId="EmployeeId3"
EmployeeShiftId="EmployeeShiftId3" PayrollShiftId="2147483647"
AcState="2147483647" CoreState="2147483647" OpcodeId="OpcodeId3"
RunId="RunId3" GrossCounter="2147483647" GrossCount="2147483647"
Speed="2147483647" NumberOfProducts="2147483647"
NoteText="NoteText3">
  <MachineDetail MachineDetailId="9223372036854775806"
ProductId="9223372036854775806" ProductIndex="2147483646"

```

```

JobId="JobId7" TaskId="TaskId7" FormId="FormId7"
CostCodeId="CostCodeId7" NumberUp="2147483646"
NetCounter="2147483646" NetCount="2147483646"
ProductWeight="1.7976931348623157E+308" />
  <MachineDetail MachineDetailId="-1" ProductId="-1" ProductIndex="-1"
  JobId="JobId8" TaskId="TaskId8" FormId="FormId8"
  CostCodeId="CostCodeId8" NumberUp="-1" NetCounter="-1" NetCount="-1"
  ProductWeight="-1.2000000476837158" />
    <MachineDetail MachineDetailId="3" ProductId="3" ProductIndex="3"
  JobId="JobId9" TaskId="TaskId9" FormId="FormId9"
  CostCodeId="CostCodeId9" NumberUp="3" NetCounter="3" NetCount="3"
  ProductWeight="3.2000000476837158" />
      <MachineEvent MachineEventId="9223372036854775806"
  MachineEventDateTime="9999-11-29T23:59:59.9999999+00:00"
  EventCode="2147483646" Description="Description7"
  GrossCounter="2147483646" NetCounter="2147483646" Speed="2147483646"
  Quantity="2147483646" ProductIndex="2147483646"
  NotePriority="2147483646" />
        <MachineEvent MachineEventId="-1" MachineEventDateTime="1899-10-
  29T01:01:01+00:00" EventCode="-1" Description="Description8"
  GrossCounter="-1" NetCounter="-1" Speed="-1" Quantity="-1"
  ProductIndex="-1" NotePriority="-1" />
          <MachineEvent MachineEventId="3" MachineEventDateTime="1900-03-
  06T01:01:01+00:00" EventCode="3" Description="Description9"
  GrossCounter="3" NetCounter="3" Speed="3" Quantity="3"
  ProductIndex="3" NotePriority="3" />
    </MachineSummary>
  </MachineTransactionResponse>

```

### MachineSummary

Name	Data Type	Required	Description
PlantId	Character (20)		
MachineSummaryId	Long	Yes	
AutoCountId	Character (20)		
AutoCountConfigurationId	Character (20)		
StartDateTime	DateTime	Yes	
EndDateTime	DateTime	Yes	
ElapsedSeconds	Integer	Yes	
InProcess	Logical		True, if this transaction is currently open. False, if it has ended.
ShiftDate	Date		
MachineShiftId	Character (15)		
EmployeeId	Character (50)		
EmployeeShiftId	Character (15)		

PayrollShift	Integer		1, 2 or 3
AcState	Integer		
CoreState	Integer		
OpcodeId	Character (20)		
DmiCategoryId	Integer		
WorkCenterId	Character (10)		
RunId	Character (20)		
GrossCounter	Double		* previously integer, double from v16.1
GrossCount	Double		* previously integer, double from v16.1
Speed	Double		* previously integer, double from v16.1
NumberOfProducts	Integer		The number of products (MachineDetail nodes) for this summary transaction.
NoteText	Character (1000)		
Rework	Logical		True if rework
<b>MachineDetail</b>	Element		Zero or more
<b>MachineEvent</b>	Element		Zero or more

## MachineDetail

Name	Data Type	Required	Description
MachineDetailId	Long	Yes	
ProductId	Long		
ProductIndex	Integer		
JobId	Character (63)		
TaskId	Character (63)		
FormId	Character (63)		
CostCodeId	Character (5)		
NumberUp	Integer		
NetCounter	Double		* previously integer, double from v16.1
NetCount	Double		* previously integer, double from v16.1
ProductWeight	Double		
<b>MachineWaste</b>	Element		Zero or more

## MachineWaste

Details of Waste occurrences during this transaction, on this product. (Enabled via PLM option – disabled by default)

Name	Data Type	Required	Description
MachineWasteId	Long	Yes	Unique identifier
StartDateTime	DateTime		Start time of the waste block

EndTime	DateTime		End time of the waste block
WasteCount	Double		Waste quantity
OpcodeId	Character (20)		Opcode (Waste Reason) supplied by the operator
IsManual	Double		true if the waste was manually entered, otherwise false
Note	Character (255)		operator entered note about the waste

## MachineEvent

Zero duration, instantaneous events.

Name	Data Type	Required	Description
MachineEventId	Long	Yes	
MachineEventDateTime	DateTime		
EventCode	Integer		EmployeeShiftChange = 1, MachineShiftChange = 2, EndOfWeek = 3, EndOfMonth = 4, StartOfCalendarMonth = 5, StartOfCalendarYear = 6, StartOfRun = 7, EndOfRun = 8, EndOfRunLift = 9, QuantityChange = 10, WasteBinOn = 11, WasteBinOff = 12, PieceWeightChange = 13, OfficeCopiesStarted = 14, OfficeCopiesCompleted = 15, NewSpeed = 16, TaskComplete = 17, ShortStop = 18, SampleWeight = 19, ManualWaste = 20, EmployeeStartShift = 21, NonJobStockCount = 22, StartOfCalendarDay = 23, ShiftOver = 24, QualityQuestion = 25, MakereadyOver = 26, HelperLogOff = 27, HelperLogOn = 28, SwapOfRun = 29, MaterialOverride = 30, DowntimeSplit = 31, HelperActive = 32, RelieveTask = 33, Drool = 34,

			Purge = 35, EndOfRunFreeze = 36, QualityOverride = 37
Description	Character (1000)		
GrossCounter	Double		* previously integer, double from v16.1
NetCounter	Double		* previously integer, double from v16.1
Count	Double		Gross count for a split transaction
Speed	Double		* previously integer, double from v16.1
Quantity	Double		Currently used for Quantity change event ONLY. * previously integer, double from v16.1
ProductIndex	Integer		
NotePriority	Integer		
OpcodeId	Character (20)		Opcode for a split transaction
QuestionNumber	Integer		Question Number from Quality Question
Response	Character(63)		Quality Question Answer
Note Text	Character(255)		Note Text
Pass	Fail/Pass/Override		
TaskId	Character(63)		Quality Question Task Id

## MachineProgressCommand (from PLM)

This message can be used, for example, to update scheduling. It is fired once per minute (by default) and anytime a transaction starts or ends. It includes event data to indicate when certain machine states are reached.

Name	Data Type	Description
<b>MachineProgress</b>	Element	One or more

```
<MachineProgressCommand xmlns="com.efi.monarch.dmi" MessageId="PLM-
20180205120717124602" MessageDateTime="2018-02-
05T12:07:17.1246619+00:00" MessagePriority="0" MessageVersion="1"
MessageType="Command" Sender="Plant Manager Connector"
SenderVersion="18.1.1.30">
  <MachineProgress ProgressDateTime="2018-02-
05T12:07:16.0000000+00:00" PlantId="Plant1" AutoCountId="AutoCount1"
CoreState="2" AcState="2" RunId="186" AutoCountConfigurationId="1"
RunStartDateTime="2018-02-05T12:06:46.0000000+00:00"
GrossCounter="6" ElapsedSeconds="30" NumberOfProducts="1">
    <Product JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
FormDescription="Form 1" ProductIndex="1" ProductId="ProductId1"
NetCounter="0" NumberUp="12" />
    <Event EventDateTime="2018-02-05T12:07:16.0000000+00:00"
EventCode="26" Description="End Of Makeready" ProductIndex="0" />
  </MachineProgress>
</MachineProgressCommand>
```





## MachineProgressQuery\* (to PLM)

MIS would Query for the Machine for a series of Machine Transactions for a Machine when necessary. The query would contain limiting parameters.

Name	Data Type	Description
PlantId	Character (20)	Optional
AutoCountId	Character (20)	Optional

```
<MachineProgressQuery PlantId="PlantId1" AutoCountId="AutoCountId1"
  MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00"
  MessageVersion="1" MessageType="Query" Sender="Sender1"
  SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi" />
```

## MachineProgressResponse (from PLM)

The Machine Transaction Response is used to query the Machine Progress for a specific machine or a plant.

Name	Data Type	Description
MachineProgress	Element	Zero or more

```
<MachineProgressResponse xmlns="com.efi.monarch.dmi" MessageId="PLM-
20180205131335748901" MessageDateTime="2018-02-
05T13:13:35.7489465+00:00" MessagePriority="0" MessageVersion="1"
MessageType="Response" Sender="Plant Manager Connector"
SenderVersion="18.1.1.30" RefId="TEST-20180205131335562400"
ReturnCode="0" ErrorText="">
  <MachineProgress ProgressDateTime="2018-01-
09T15:58:41.7900000+00:00" PlantId="Plant-01" AutoCountId="L200A-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
  <MachineProgress ProgressDateTime="2018-01-
09T15:59:24.1470000+00:00" PlantId="Plant-01" AutoCountId="P300Z-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
  <MachineProgress ProgressDateTime="2018-01-
09T15:58:32.2830000+00:00" PlantId="Plant-01" AutoCountId="M800C-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
  <MachineProgress ProgressDateTime="2016-11-
28T11:16:07.0000000+00:00" PlantId="Plant-01" AutoCountId="W100A-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
```

```

<MachineProgress ProgressDateTime="2018-01-
09T15:59:13.1800000+00:00" PlantId="Plant-01" AutoCountId="W100B-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
<MachineProgress ProgressDateTime="2018-01-
17T14:03:27.5070000+00:00" PlantId="Plant-01" AutoCountId="P100A-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
<MachineProgress ProgressDateTime="2018-01-
17T14:03:31.3970000+00:00" PlantId="Plant-01" AutoCountId="C100A-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
<MachineProgress ProgressDateTime="2018-01-
09T15:59:30.5030000+00:00" PlantId="Plant-01" AutoCountId="H100A-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
<MachineProgress ProgressDateTime="2018-01-
17T14:03:31.6330000+00:00" PlantId="Plant-01" AutoCountId="F100A-P1"
CoreState="0" AcState="0" RunId="0" AutoCountConfigurationId=""
RunStartDateTime="1899-12-30T00:00:00.0000000+00:00"
GrossCounter="0" ElapsedSeconds="-1" NumberOfProducts="1" />
<MachineProgress ProgressDateTime="2018-02-
05T13:13:23.6030000+00:00" PlantId="Plant-01" AutoCountId="P300G-P1"
CoreState="2" AcState="2" RunId="123" AutoCountConfigurationId="1"
RunStartDateTime="2018-02-05T12:11:14.0000000+00:00"
GrossCounter="10332" ElapsedSeconds="3729" NumberOfProducts="1">
  <Product JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
FormDescription="Slitter" ProductIndex="1" ProductId="ProductId1"
NetCounter="0" NumberUp="2" />
  <Product JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
FormDescription="Slitter" ProductIndex="2" ProductId="ProductId2"
NetCounter="0" NumberUp="1" />
  <Product JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
FormDescription="Slitter" ProductIndex="3" ProductId="ProductId3"
NetCounter="0" NumberUp="1" />
</MachineProgress>
</MachineProgressResponse>

```

## MachineProgress

Name	Data Type	Required	Description
ProgressDateTime	Date/Time		The timestamp this progress data was last updated.
PlantId	Character (20)		
AutoCountId	Character (20)		
AutoCountConfigurationId	Character (20)		
AcState	Integer		
CoreState	Integer		
RunStartDateTime	Date/Time		The time this run was most recently started on this machine.
ElapsedSeconds	Integer		The time this run has been on this machine.
RemainingSeconds	Integer		The estimated time this run has left on this machine.
RunId	Character (20)		
GrossCounter	Double		In meters or eaches
GrossCounterMeasure	Enum		Length or Count
NumberOfProducts	Integer		The number of products (Product nodes) for this MachineProgress record.
<b>Product</b>	Element		Zero or more
<b>Event</b>	Element		Zero or more

## Product

Name	Data Type	Required	Description
ProductId	Long		
ProductIndex	Integer		
JobId	Character (63)		
TaskId	Character (63)		
FormId	Character (63)		
FormDescription	Character (2000)		
NumberUp	Integer		
RemainingSeconds	Integer		The estimated number of seconds left to complete this product
NetCounter	Double		In meters or eaches
NetCounterMeasure	Enum		Length or Count

## Event

Zero duration, instantaneous events.

Name	Data Type	Required	Description
EventDateTime	Date/Time		
EventCode	Integer		

Description	Character (1000)		
ProductIndex	Integer		

## MaterialTransactionCommand (from PLM)

Used by PLM to inform MIS of the end of a Material Transaction. The MIS must send an Acknowledgement Response back to PLM to confirm that the MIS received the Command.

Name	Data Type	Description
MaterialTransaction	Element	One or more

```
<MaterialTransactionCommand MessageId="MessageId1"
  MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1"
  MessageType="Command" Sender="Sender1"
  SenderVersion="SenderVersion1" xmlns="com.efi.monarch.dmi">
  <MaterialTransaction PlantId="PlantId1"
    MaterialTransactionId="MaterialTransactionId1"
    AutoCountId="AutoCountId1"
    AutoCountConfigurationId="AutoCountConfigurationId1"
    PaperMonitorId="PaperMonitorId1" StartDateTime="1900-01-
    01T01:01:01+00:00" EndDateTime="1900-01-01T01:01:01+00:00"
    MachineShiftId="MachineShiftId1" EmployeeId="EmployeeId1"
    EmployeeShiftId="EmployeeShiftId1" ShiftDate="1900-01-01"
    WorkCenterId="WorkCenterId1" CostCodeId="CostCodeId1"
    ProductIndex="1" JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
    RunId="RunId1" GrossQuantity="1" RemainingQuantity="0"
    AdjustmentQuantity="0" MaterialId="MaterialId1" RollId="RollId1"
    GrossImpressions="1" ImpressionLength="1" LengthUsed="1"
    BrownWaste="1" WhiteWaste="1" CoreWeight="1"
    DamageCodeId="DamageCodeId1" DamageWeight="1" RollStand="1"
    Note="Note1" PlantManagerException="true" />
  <MaterialTransaction PlantId="PlantId2"
    MaterialTransactionId="MaterialTransactionId2"
    AutoCountId="AutoCountId2"
    AutoCountConfigurationId="AutoCountConfigurationId2"
    PaperMonitorId="PaperMonitorId2" StartDateTime="0001-01-
    01T00:00:00+00:00" EndDateTime="0001-01-01T00:00:00+00:00"
    MachineShiftId="MachineShiftId2" EmployeeId="EmployeeId2"
    EmployeeShiftId="EmployeeShiftId2" ShiftDate="0001-01-01"
    WorkCenterId="WorkCenterId2" CostCodeId="CostCodeId2"
    ProductIndex="-2147483647" JobId="JobId2" TaskId="TaskId2"
    FormId="FormId2" RunId="RunId2" GrossQuantity="-
    1.7976931348623157E+308" RemainingQuantity="0"
    AdjustmentQuantity="0" MaterialId="MaterialId2" RollId="RollId2"
    GrossImpressions="-2147483647" ImpressionLength="-
    1.7976931348623157E+308" LengthUsed="-1.7976931348623157E+308"
```

```

BrownWaste="-1.7976931348623157E+308" WhiteWaste="-
1.7976931348623157E+308" CoreWeight="-1.7976931348623157E+308"
DamageCodeId="DamageCodeId2" DamageWeight="-1.7976931348623157E+308"
RollStand="-2147483647" Note="Note2" PlantManagerException="false"
/>
<MaterialTransaction PlantId="PlantId3"
MaterialTransactionId="MaterialTransactionId3"
AutoCountId="AutoCountId3"
AutoCountConfigurationId="AutoCountConfigurationId3"
PaperMonitorId="PaperMonitorId3" StartDateTime="9999-12-
31T23:59:59.9999999+00:00" EndDateTime="9999-12-
31T23:59:59.9999999+00:00" MachineShiftId="MachineShiftId3"
EmployeeId="EmployeeId3" EmployeeShiftId="EmployeeShiftId3"
ShiftDate="9999-12-31" WorkCenterId="WorkCenterId3"
CostCodeId="CostCodeId3" ProductIndex="2147483647" JobId="JobId3"
TaskId="TaskId3" FormId="FormId3" RunId="RunId3"
GrossQuantity="1.7976931348623157E+308" RemainingQuantity="0"
AdjustmentQuantity="0" MaterialId="MaterialId3" RollId="RollId3"
GrossImpressions="2147483647"
ImpressionLength="1.7976931348623157E+308"
LengthUsed="1.7976931348623157E+308"
BrownWaste="1.7976931348623157E+308"
WhiteWaste="1.7976931348623157E+308"
CoreWeight="1.7976931348623157E+308" DamageCodeId="DamageCodeId3"
DamageWeight="1.7976931348623157E+308" RollStand="2147483647"
Note="Note3" PlantManagerException="true" />
</MaterialTransactionCommand>

```

## MaterialTransactionQuery\* (to PLM)

MIS would Query for the Machine for a series of Series of Material Transactions for a Machine when necessary. (This would either be for a Job. Or for a Paper Monitor device, or for specific Inventory Item using a limiting date range)

Name	Data Type	Required	Description
PlantId	Character (20)	Optional	
JobId	Character (63)	Optional	Combine the Job-ID and the Sub-Job-ID with a dash separator.
AutoCountId	Character (20)	Optional	
PaperMonitorId	Character (20)	Optional	
MaterialId	Character (63)	Optional	
StartDateTime	Date / Time	Optional	
EndDateTime	Date / Time	Optional	

```

<MaterialTransactionQuery PlantId="PlantId1" JobId="JobId1"
PaperMonitorId="PaperMonitorId1" MaterialId="MaterialId1"

```

```
StartDateTime="1900-01-01T01:01:01+00:00" EndDateTime="1900-01-01T01:01:01+00:00" MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Query"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi" />
```

MaterialTransactionResponse (from PLM)

The Material Transaction Response is used to resend the Material Transactions that match the parameters of the query.

Name	Data Type	Description
MaterialTransaction	Element	Zero or more

```
<MaterialTransactionResponse RefId="RefId1" ReturnCode="1"
  ErrorText="ErrorText1" MessageId="MessageId1" MessageDateTime="1900-01-01T01:01:01+00:00" MessageVersion="1" MessageType="Response"
  Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <MaterialTransaction PlantId="PlantId1"
    MaterialTransactionId="MaterialTransactionId1"
    AutoCountId="AutoCountId1"
    AutoCountConfigurationId="AutoCountConfigurationId1"
    PaperMonitorId="PaperMonitorId1" StartDateTime="1900-01-01T01:01:01+00:00" EndDateTime="1900-01-01T01:01:01+00:00"
    MachineShiftId="MachineShiftId1" EmployeeId="EmployeeId1"
    EmployeeShiftId="EmployeeShiftId1" ShiftDate="1900-01-01"
    WorkCenterId="WorkCenterId1" CostCodeId="CostCodeId1"
    ProductIndex="1" JobId="JobId1" TaskId="TaskId1" FormId="FormId1"
    RunId="RunId1" GrossQuantity="1" MaterialId="MaterialId1"
    RollId="RollId1" GrossImpressions="1" ImpressionLength="1"
    LengthUsed="1" BrownWaste="1" WhiteWaste="1" CoreWeight="1"
    DamageCodeId="DamageCodeId1" DamageWeight="1" RollStand="1"
    Note="Note1" PlantManagerException="true" />
  <MaterialTransaction PlantId="PlantId2"
    MaterialTransactionId="MaterialTransactionId2"
    AutoCountId="AutoCountId2"
    AutoCountConfigurationId="AutoCountConfigurationId2"
    PaperMonitorId="PaperMonitorId2" StartDateTime="0001-01-01T00:00:00+00:00" EndDateTime="0001-01-01T00:00:00+00:00"
    MachineShiftId="MachineShiftId2" EmployeeId="EmployeeId2"
    EmployeeShiftId="EmployeeShiftId2" ShiftDate="0001-01-01"
    WorkCenterId="WorkCenterId2" CostCodeId="CostCodeId2"
    ProductIndex="-2147483647" JobId="JobId2" TaskId="TaskId2"
    FormId="FormId2" RunId="RunId2" GrossQuantity="-1.7976931348623157E+308" MaterialId="MaterialId2" RollId="RollId2"
    GrossImpressions="-2147483647" ImpressionLength="-
```

```

1.7976931348623157E+308" LengthUsed="-1.7976931348623157E+308"
BrownWaste="-1.7976931348623157E+308" WhiteWaste="-
1.7976931348623157E+308" CoreWeight="-1.7976931348623157E+308"
DamageCodeId="DamageCodeId2" DamageWeight="-1.7976931348623157E+308"
RollStand="-2147483647" Note="Note2" PlantManagerException="false"
/>
<MaterialTransaction PlantId="PlantId3"
MaterialTransactionId="MaterialTransactionId3"
AutoCountId="AutoCountId3"
AutoCountConfigurationId="AutoCountConfigurationId3"
PaperMonitorId="PaperMonitorId3" StartDateTime="9999-12-
31T23:59:59.9999999+00:00" EndDateTime="9999-12-
31T23:59:59.9999999+00:00" MachineShiftId="MachineShiftId3"
EmployeeId="EmployeeId3" EmployeeShiftId="EmployeeShiftId3"
ShiftDate="9999-12-31" WorkCenterId="WorkCenterId3"
CostCodeId="CostCodeId3" ProductIndex="2147483647" JobId="JobId3"
TaskId="TaskId3" FormId="FormId3" RunId="RunId3"
GrossQuantity="1.7976931348623157E+308" MaterialId="MaterialId3"
RollId="RollId3" GrossImpressions="2147483647"
ImpressionLength="1.7976931348623157E+308"
LengthUsed="1.7976931348623157E+308"
BrownWaste="1.7976931348623157E+308"
WhiteWaste="1.7976931348623157E+308"
CoreWeight="1.7976931348623157E+308" DamageCodeId="DamageCodeId3"
DamageWeight="1.7976931348623157E+308" RollStand="2147483647"
Note="Note3" PlantManagerException="true" />
</MaterialTransactionResponse>

```

## MaterialTransaction

This message is used to send TxnMaterial, TxnRoll and TxnRollException records. Depending on the source record, some attributes may not exist.

The last column in the table below shows which attributes are included depending on the source record; TxnMaterial = M, TxnRoll = R and TxnRollException = X, All = \*.

Some fields in TxnRollException may contain invalid data thus breaking the links to other tables. Where this is a possibility the attribute is marked (X) as the attribute may be included but empty.

Name	Data Type	Required	Description	
PlantId	Character (20)	Yes		MR(X)
MaterialTransactionId	Character (50)	Yes		*
AutoCountId	Character (20)	Yes		*
AutoCountConfigurationId	Character (20)			*
PaperMonitorId	Character (20)			RX
StartDateTime	Date / Time		Start Date / Time	*



EndDateTime	Date / Time			*
MachineShiftId	Character (15)		Left out or blank for rolls	M
EmployeeId	Character (50)			*
EmployeeShiftId	Character (15)			*
ShiftDate	Date			*
WorkCenterId	Character (10)			*
CostCodeId	Character (5)			*
JobId	Character (63)			*
TaskId	Character (63)			*
FormId	Character (63)		User entered Run Form Number	*
RunId	Character (20)			*
GrossQuantity	Double			*
RemainingQuantity	Double		Quantity remaining	*
AdjustmentQuantity	Double		Adjustment made by operator to remaining quantity	*
MaterialId	Character (63)			*
RollId	Character (25)			MR(X)
GrossImpressions	Double		* previously integer, double from v16.1	MRX
ImpressionLength	Double		(mm)	MRX
LengthUsed	Double		(M)	MRX
BrownWaste	Double			MRX
WhiteWaste	Double			MRX
CoreWeight	Double			RX
RejectCodeId	Character (12)			MRX
DamageCodeId	Character (12)			MRX
DamageWeight	Double			MRX
RollStand	Integer			MRX
NoteText	Character (2000)			MRX
Rework	Logical		True if rework	MRX
ItemMeasure	Character (10)		Item measurement type. One of the following: Weight - The item amount fields are a weight in kilograms. Length - The item amount fields are a length in meters. Count - The item amount fields are an item/piece count. Volume - The item amount fields are a volume in liters. Area - The item amount fields are an area in square meters.	MRX
PlantManagerException	Logical		"true" for messages generated from TxnRollException, otherwise "false"	*



## JobDefinitionCommand (to PLM)

The Command contains one or more Job elements that define the full job hierarchy of task and run.

In 18.4 and above, the JobDefinitionCommand replaces all data for the job already in the database. Prior to version 18.2.1.163 and 18.3.1.32, the JobDefinitionCommand had a cumulative effect and would add to data already in the database.

Name	Data Type	Description
Job	Element	One or more

```
<JobDefinitionCommand MessageType="Command" MessageId="MessageId1"
  MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <Job JobId="JobId1" JobTitle="JobTitle1"
    JobDescription="JobDescription1" JobQuantity="1"
    CustomerId="CustomerId1" FinishingWaste="1" PlantId="PlantId1"
    IsActive="true" DeleteRecord="false">
    <Customer CustomerId="CustomerId1" CustomerName="CustomerName1" />
    <Task TaskId="TaskId1" FormId="FormId1" TaskType="0"
      TaskDescription="TaskDescription1" TaskQuantity="1" TaskNumberUp="1"
      TaskWidth="1" TaskLength="1" BasisWeight="1"
      StockTypeId="StockTypeId1" OfficeCopiesQuantity="1"
      SeparateOfficeCopies="true" DueDateTime="1753-01-
      01T23:59:59.999+00:00" ObjectiveMrSeconds="1"
      ObjectiveRunSeconds="1" ObjectiveWastePercent="1"
      CostCodeId="CostCodeId1" WorkCenterId="WorkCenterId1"
      PromiseDate="1753-01-01" Priority="1" IsActive="true"
      DeleteRecord="true">
      <RunQueue Status="NewRun" RunQueueId="RunQueueId1"
        AutoCountId="AutoCountId1"
        AutoCountConfigurationId="AutoCountConfigurationId1"
        FormId="FormId1" FormDescription="FormDescription1" Quantity="1"
        CostCodeId="CostCodeId1" NumberUp="1" SetupStart="1753-01-
        01T23:59:59.999+00:00" SetupSeconds="1" RunSeconds="1"
        WastePercent="1" OfficeCopiesQuantity="1" DeleteRecord="true">
        <RunQueuePiece PieceIndex="1" PieceWidth="1" PieceLength="1"
          MaterialId="MaterialId1" StockTypeId="StockTypeId1"
          MaterialGrammage="1" NumberOfPieces="1" DeleteRecord="true" />
        <RunQueuePiece PieceIndex="-2147483647" PieceWidth="-
          1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
          MaterialId="MaterialId2" StockTypeId="StockTypeId2"
          MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
          2147483647" DeleteRecord="false" />
        <RunQueuePiece PieceIndex="2147483647"
          PieceWidth="1.7976931348623157E+308"
```

```

PieceLength="1.7976931348623157E+308" MaterialId="MaterialId3"
StockTypeId="StockTypeId3"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483647" DeleteRecord="true" />
  <RunQueuePallet QtyPerPallet="1" PalletNumber="1"
Routing="Routing1" SpecialInstructions="SpecialInstructions1"
Address1="Address11" Address2="Address21" Address3="Address31"
Address4="Address41" DeleteRecord="true" />
  </RunQueue>
  <RunQueue Status="NewRun" RunQueueId="RunQueueId2"
AutoCountId="AutoCountId2"
AutoCountConfigurationId="AutoCountConfigurationId2"
FormId="FormId2" FormDescription="FormDescription2" Quantity="-
2147483647" CostCodeId="CostCodeId2" NumberUp="-2147483647"
SetupStart="9999-12-31T00:00:00+00:00" SetupSeconds="-2147483647"
RunSeconds="-2147483647" WastePercent="-1.7976931348623157E+308"
OfficeCopiesQuantity="-2147483647" DeleteRecord="false">
  <RunQueuePiece PieceIndex="0" PieceWidth="-
0.10000002384185791" PieceLength="-0.10000002384185791"
MaterialId="MaterialId4" StockTypeId="StockTypeId4"
MaterialGrammage="-0.10000002384185791" NumberOfPieces="0"
DeleteRecord="false" />
  <RunQueuePiece PieceIndex="2" PieceWidth="2.1000000238418579"
PieceLength="2.1000000238418579" MaterialId="MaterialId5"
StockTypeId="StockTypeId5" MaterialGrammage="2.1000000238418579"
NumberOfPieces="2" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-2147483646" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId6" StockTypeId="StockTypeId6"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483646" DeleteRecord="false" />
  <RunQueuePallet QtyPerPallet="-2147483647" PalletNumber="-
2147483647" Routing="Routing2"
SpecialInstructions="SpecialInstructions2" Address1="Address12"
Address2="Address22" Address3="Address32" Address4="Address42"
DeleteRecord="false" />
  </RunQueue>
  <RunQueue Status="EditedRun" RunQueueId="RunQueueId3"
AutoCountId="AutoCountId3"
AutoCountConfigurationId="AutoCountConfigurationId3"
FormId="FormId3" FormDescription="FormDescription3"
Quantity="2147483647" CostCodeId="CostCodeId3" NumberUp="2147483647"
SetupStart="1753-02-02T23:59:59.999+00:00" SetupSeconds="2147483647"
RunSeconds="2147483647" WastePercent="1.7976931348623157E+308"
OfficeCopiesQuantity="2147483647" DeleteRecord="true">

```

```

    <RunQueuePiece PieceIndex="2147483646"
    PieceWidth="1.7976931348623157E+308"
    PieceLength="1.7976931348623157E+308" MaterialId="MaterialId7"
    StockTypeId="StockTypeId7"
    MaterialGrammage="1.7976931348623157E+308"
    NumberOfPieces="2147483646" DeleteRecord="true" />
    <RunQueuePiece PieceIndex="-1" PieceWidth="-
    1.2000000476837158" PieceLength="-1.2000000476837158"
    MaterialId="MaterialId8" StockTypeId="StockTypeId8"
    MaterialGrammage="-1.2000000476837158" NumberOfPieces="-1"
    DeleteRecord="false" />
    <RunQueuePiece PieceIndex="3" PieceWidth="3.2000000476837158"
    PieceLength="3.2000000476837158" MaterialId="MaterialId9"
    StockTypeId="StockTypeId9" MaterialGrammage="3.2000000476837158"
    NumberOfPieces="3" DeleteRecord="true" />
    <RunQueuePallet QtyPerPallet="2147483647"
    PalletNumber="2147483647" Routing="Routing3"
    SpecialInstructions="SpecialInstructions3" Address1="Address13"
    Address2="Address23" Address3="Address33" Address4="Address43"
    DeleteRecord="true" />
  </RunQueue>
</Task>
<Task TaskId="TaskId2" FormId="FormId2" TaskType="0"
TaskDescription="TaskDescription2" TaskQuantity="-2147483647"
TaskNumberUp="-2147483647" TaskNumberDown="-2147483647"
TaskNumberAcross="-2147483647" TaskWidth="-1.7976931348623157E+308"
TaskLength="-1.7976931348623157E+308" BasisWeight="-
1.7976931348623157E+308" StockTypeId="StockTypeId2"
OfficeCopiesQuantity="-2147483647" SeparateOfficeCopies="false"
DueDateTime="9999-12-31T00:00:00+00:00" ObjectiveMrSeconds="-
2147483647" ObjectiveRunSeconds="-2147483647"
ObjectiveWastePercent="-1.7976931348623157E+308"
CostCodeId="CostCodeId2" WorkCenterId="WorkCenterId2"
PromiseDate="9999-12-31" Priority="-2147483647" IsActive="false"
DeleteRecord="false">
  <RunQueue Status="Built" RunQueueId="RunQueueId4"
  AutoCountId="AutoCountId4"
  AutoCountConfigurationId="AutoCountConfigurationId4"
  FormId="FormId4" FormDescription="FormDescription4" Quantity="0"
  CostCodeId="CostCodeId4" NumberUp="0" SetupStart="9999-11-
  29T00:00:00+00:00" SetupSeconds="0" RunSeconds="0" WastePercent="-
  0.10000002384185791" OfficeCopiesQuantity="0" DeleteRecord="false">
    <RunQueuePiece PieceIndex="-2147483645" PieceWidth="-
    1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
    MaterialId="MaterialId10" StockTypeId="StockTypeId10"

```

```

MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483645" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="2147483645"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId11"
StockTypeId="StockTypeId11"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483645" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-2" PieceWidth="-
2.3000000715255737" PieceLength="-2.3000000715255737"
MaterialId="MaterialId12" StockTypeId="StockTypeId12"
MaterialGrammage="-2.3000000715255737" NumberOfPieces="-2"
DeleteRecord="false" />
  <RunQueuePallet QtyPerPallet="0" PalletNumber="0"
Routing="Routing4" SpecialInstructions="SpecialInstructions4"
Address1="Address14" Address2="Address24" Address3="Address34"
Address4="Address44" DeleteRecord="false" />
</RunQueue>
  <RunQueue Status="OnPress" RunQueueId="RunQueueId5"
AutoCountId="AutoCountId5"
AutoCountConfigurationId="AutoCountConfigurationId5"
FormId="FormId5" FormDescription="FormDescription5" Quantity="2"
CostCodeId="CostCodeId5" NumberUp="2" SetupStart="1753-03-
06T23:59:59.999+00:00" SetupSeconds="2" RunSeconds="2"
WastePercent="2.1000000238418579" OfficeCopiesQuantity="2"
DeleteRecord="true">
  <RunQueuePiece PieceIndex="4" PieceWidth="4.3000000715255737"
PieceLength="4.3000000715255737" MaterialId="MaterialId13"
StockTypeId="StockTypeId13" MaterialGrammage="4.3000000715255737"
NumberOfPieces="4" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="-2147483644" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId14" StockTypeId="StockTypeId14"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483644" DeleteRecord="false" />
  <RunQueuePiece PieceIndex="2147483644"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId15"
StockTypeId="StockTypeId15"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483644" DeleteRecord="true" />
  <RunQueuePallet QtyPerPallet="2" PalletNumber="2"
Routing="Routing5" SpecialInstructions="SpecialInstructions5"
Address1="Address15" Address2="Address25" Address3="Address35"
Address4="Address45" DeleteRecord="true" />

```

```

    </RunQueue>
    <RunQueue Status="Suspended" RunQueueId="RunQueueId6"
AutoCountId="AutoCountId6"
AutoCountConfigurationId="AutoCountConfigurationId6"
FormId="FormId6" FormDescription="FormDescription6" Quantity="-
2147483646" CostCodeId="CostCodeId6" NumberUp="-2147483646"
SetupStart="9999-10-28T00:00:00+01:00" SetupSeconds="-2147483646"
RunSeconds="-2147483646" WastePercent="-1.7976931348623157E+308"
OfficeCopiesQuantity="-2147483646" DeleteRecord="false">
        <RunQueuePiece PieceIndex="-3" PieceWidth="-
3.4000000953674316" PieceLength="-3.4000000953674316"
MaterialId="MaterialId16" StockTypeId="StockTypeId16"
MaterialGrammage="-3.4000000953674316" NumberOfPieces="-3"
DeleteRecord="false" />
        <RunQueuePiece PieceIndex="5" PieceWidth="5.4000000953674316"
PieceLength="5.4000000953674316" MaterialId="MaterialId17"
StockTypeId="StockTypeId17" MaterialGrammage="5.4000000953674316"
NumberOfPieces="5" DeleteRecord="true" />
        <RunQueuePiece PieceIndex="-2147483643" PieceWidth="-
1.7976931348623157E+308" PieceLength="-1.7976931348623157E+308"
MaterialId="MaterialId18" StockTypeId="StockTypeId18"
MaterialGrammage="-1.7976931348623157E+308" NumberOfPieces="-
2147483643" DeleteRecord="false" />
        <RunQueuePallet QtyPerPallet="-2147483646" PalletNumber="-
2147483646" Routing="Routing6"
SpecialInstructions="SpecialInstructions6" Address1="Address16"
Address2="Address26" Address3="Address36" Address4="Address46"
DeleteRecord="false" />
    </RunQueue>
</Task>
<Task TaskId="TaskId3" FormId="FormId3" TaskType="1"
TaskDescription="TaskDescription3" TaskQuantity="2147483647"
TaskNumberUp="2147483647" TaskWidth="1.7976931348623157E+308"
TaskLength="1.7976931348623157E+308"
BasisWeight="1.7976931348623157E+308" StockTypeId="StockTypeId3"
OfficeCopiesQuantity="2147483647" SeparateOfficeCopies="true"
DueDateTime="1753-02-02T23:59:59.999+00:00"
ObjectiveMrSeconds="2147483647" ObjectiveRunSeconds="2147483647"
ObjectiveWastePercent="1.7976931348623157E+308"
CostCodeId="CostCodeId3" WorkCenterId="WorkCenterId3"
PromiseDate="1753-02-02" Priority="2147483647" IsActive="true"
DeleteRecord="true" />
</Job>
</JobDefinitionCommand>

```

## JobDefinitionQuery\* (to PLM)

Name	Data Type	Description
PlantId	Character (20)	
JobId	Character (63)	

```
<JobDefinitionQuery PlantId="PlantId1" JobId="JobId1"
  MessageType="Query" MessageId="MessageId1" MessageDateTime="1753-01-
  01T23:59:59.999+00:00" MessagePriority="0" MessageVersion="1"
  Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi" />
```

## JobDefinitionResponse (from PLM)

Name	Data Type	Description
Job	Element	<b>Zero</b> or more

### Job

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
JobId	Character (63)	Yes	Combine the Job-ID and the Sub-Job-ID with a dash separator.
JobDescription	Character (2000)	Yes	Job Title and Description are concatenated into the Job.JobDescription field in PLM.
JobTitle	Character (2000)		Job Title and Description are concatenated into the Job.JobDescription field in PLM.
JobQuantity	Double		* previously long (int64), double from v16.1
CustomerId	Character (50)		Only read if there is no customer element
FinishingWaste	Double		Used in PLM only installation.
IsActive	Logical		
DeleteRecord	Logical		
Document	<b>Element</b>		Zero or more
Customer	<b>Element</b>		Zero or more
Task	<b>Element</b>		Zero or more
RunQueue	<b>Element</b>		Zero or more (Runs that don't belong to a task)

### Document

Name	Data Type	Required	Description
DocumentId	Character (63)	Yes	Name of the document
Description	Character (100)	Yes	Descriptive text to be included in the PLM UI.
DocumentUrl	Character (255)	Yes	The URL to the document or image to be displayed.
ShouldCache	Logical		If true, PLM can create a local copy and send a

			modified URL to the UI. This reduces issues caused by network outages. If false, the UI will link directly to the provided URL.
FileType	Character (10)		PDF, HTML, JPG, PNG etc.
IsActive	Logical		
DeleteRecord	Logical		

## Customer

Name	Data Type	Required	Description
CustomerId	Character (50)	Yes	Monarch uses Character (8)
CustomerName	Character (50)	Yes	Monarch uses Character (40)

## Task

Describes a product of a production step, for example a signature or a magazine.

Name	Data Type	Required	Description
TaskId	Character (63)	Yes	MisTask field.
FormId	Character (63)		FormNumber (not unique in the job)
JobPartId	Character (63)		If provided by the MIS this is the unique JDF JobPartId that identifies this Form/Task. This can be used as a lookup when systems that operate in JDF such as a Fiery send us job information. The JDF JobPartId can be used to look up our Form/Task and used to signal which task to start at the Auto-Count 4D when connected to a device like a Fiery
TaskType	Integer		0 = Press, 1 = Finishing (default = 0)
TaskDescription	Character (2000)		
TaskQuantity	Double		* previously integer, double from v16.1
TaskNumberUp	Integer		
TaskNumberAcross	Integer		Pieces across (number across the direction of production)
TaskNumberDown	Integer		Pieces down (number with the direction of production)
TaskWidth	Double		
TaskLength	Double		
BasisWeight	Double		Monarch MIS does not provide this value; It is possible to have multiple values.
StockTypeId	Character (10)		Monarch MIS does not provide this value; It is possible to have multiple values.
OfficeCopiesQuantity	Double		* previously integer, double from v16.1
SeparateOfficeCopies	Logical		Monarch MIS does not provide this value.
DueDateTime	Date/Time		



ObjectiveMrSeconds	Integer		
ObjectiveRunSeconds	Integer		
ObjectiveWastePercent	Double		
CostCodeId	Character (5)		Monarch MIS does not provide this value. Default values where WorkClass = Original.
WorkCenterId	Character (10)		
PromiseDate	Date		Date-only field displayed at the Auto-Count
Priority	Integer		Displayed at the Auto-Count
TraceabilityOn	Boolean		True to require input entry before starting a run.
FinalTask	Boolean		True if this is the last task in the sequence of processes.
UOM	Character (20)		Either "Length", "Impressions" or "Pieces"
IsActive	Logical		
DeleteRecord	Logical		
<b>Document</b>	<b>Element</b>		Zero or more
<b>Product</b>	<b>Element</b>		Zero or more
<b>Recipe</b>	<b>Element</b>		Zero or more
<b>RunQueue</b>	<b>Element</b>		Zero or more

## Recipe

Recipe of materials for a task.

This may just a list of materials or a formula with a percentage mix.

Individual materials are located in the child Recipeltem table.

Name	Data Type	Required	Description
Priority	Integer	Yes	Priority starting at 1. 1 is the primary or preferred recipe. 2 is secondary etc. Recipes will be displayed in this order.
AllowDifferent	Yes/No/Ask/Supervisor		If yes, then any material can be used as an alternative. If no, only materials in this recipe can be used. If ask, then confirmation from the operator is required.
AllowDifferentWidth	Yes/No/Ask/Supervisor		If yes, then any material between min and max width can be used as an alternative. Min and max can be omitted or set to 0 to allow any width.
MinWidth	Double		The minimum width an alternative material must be.
MaxWidth	Double		The minimum width an alternative material must be.
AllowDifferentLength	Yes/No/Ask/Supervisor		If yes, then any material between min and max length can be used as an alternative. Min and max can be omitted or set to 0 to allow any length.
MinLength	Double		The minimum length an alternative material must be.
MaxLength	Double		The minimum length an alternative material must be.
AllowDifferentGrammage	Yes/No/Ask/Supervisor		If yes, then any material between min and max grammage can be used as an alternative. Min



			and max can be omitted or set to 0 to allow any grammage.
MinGrammage	Double		The minimum grammage an alternative material must be.
MaxGrammage	Double		The minimum grammage an alternative material must be.
AllowDifferentCustomer	Yes/No/Ask/Supervisor		If yes, then materials that are not specific to the customer can be used as an alternative. If no, the customer on the job and the customer on the material must match. If ask, then confirmation from the operator is required.
IsActive	Logical		
DeleteRecord	Logical		
<b>RecipeItem</b>	<b>Element</b>		One or more material items required

## RecipeItem

An individual material within a recipe.

Name	Data Type	Required	Description
MaterialId	Character (63)	Yes	The ID of the raw material or WIP allowed for this task
MaterialDescription	Character (50)	Yes, if the material does not exist	In cases where the JobDefinitionCommand is sent before the MaterialCommand, this description is used to create a placeholder material record.
Percentage	Double		Percentage for recipes where materials are mixed, like blown extrusion.
AllowDifferent	Yes/No/Ask/Supervisor		If blank (empty string) or omitted the item uses the parent Recipe value for this field. If true, then any material can be used as an alternative. If false, only this material can be used. If ask, then confirmation from the operator is required.
AllowDifferentWidth	Yes/No/Ask/Supervisor		If blank (empty string) or omitted the item uses the parent Recipe value for this field. If true, then any material between min and max width can be used as an alternative. Min and max can be omitted or set to 0 to allow any width.
MinWidth	Double		The minimum width an alternative material must be.
MaxWidth	Double		The minimum width an alternative material must be.
AllowDifferentLength	Yes/No/Ask/Supervisor		If blank (empty string) or omitted the item uses the parent Recipe value for this field. If true, then any material between min and max length can be used as an alternative. Min and max can be omitted or set to 0 to allow any length.
MinLength	Double		The minimum length an alternative material must be.
MaxLength	Double		The minimum length an alternative material must be.

AllowDifferentGrammage	Yes/No/Ask/Supervisor		If blank (empty string) or omitted the item uses the parent Recipe value for this field. If true, then any material between min and max grammage can be used as an alternative. Min and max can be omitted or set to 0 to allow any grammage.
MinWidth	Double		The minimum grammage an alternative material must be.
MaxWidth	Double		The minimum grammage an alternative material must be.
AllowDifferentCustomer	Yes/No/Ask/Supervisor		If blank (empty string) or omitted the item uses the parent Recipe value for this field. If false, the customer on the job and the customer on the material must match. Defaults to true.
LayerNumber	Integer		Layer number of a multiple layer recipe producing a laminated output
HopperNumber	Integer		Hopper number when creating a layer from multiple hoppers. Hopper 0 has special meaning relates to the percentage for the layer compared to the other layers.
TraceabilityOn	Logical		Controls whether this item is traceable. Defaults to Task@TraceabilityOn if not set.
ConsumeInMakeready	Logical		Whether this material should be consumed in makeready
Quantity	Double		Quantity of item used per GrossQuantity. Consumption ratio is $(\text{Quantity}/\text{GrossQuantity} * \text{Gross Count})$  The unit of this quantity is the unit the consumption will be returned in. It should also match the quantity unit used in the MaterialItemCommand so that we decrement inventory values correctly.
GrossQuantity	Double		Gross counts required to consume "Quantity" of this item. This should be in either length (M) or impressions (each) depending on the Task UOM.
ItemMeasure	Character (10)		Item measurement type. One of the following: Weight - The item amount fields are a weight in kilograms. Length - The item amount fields are a length in meters. Count - The item amount fields are an item/piece count. Volume - The item amount fields are a volume in liters. Area - The item amount fields are an area in square meters.

## Product

Product information. A product is required if RunQueueProduct is used later.

Name	Data Type	Required	Description

ProductId	Character (63)	Yes	
ProductDescription	Character (255)	Yes	
ProductIndex	Integer	Yes	Product index starting at 1. Each product must have a unique index within the run queue item. Product index is used to order and identify products. In runs that have multiple products this field controls the order in which products are displayed. Also in some tables the ProductIndex is used to identify the product within a run.
ProductLength	Double		Length of a product (Used to calculate pieces to output length)
ProductWidth	Double		Width of a product
JobLineNumber	Integer		A unique identifier for the product within a job.
OfficeCopiesQuantity	Double		* previously integer, double from v16.1
TrimWeight	Double		
UnTrimWeight	Double		
Caliper	Double		
DeleteRecord	Logical		
<b>Document</b>	<b>Element</b>		Zero or more
<b>ProductDetail</b>	<b>Element</b>		Zero or more
<b>MisData</b>	<b>Element</b>		Zero or one. Any XML content of this element will be stored in the MisData column of the Product table. This XML can be used for Crystal reports that require data not usually stored by PLM.

## ProductDetail

ProductDetail - Product details are information about parts of a product. For example a product might be a single sheet but that sheet has two parts that will be products in future process when the sheet is cut apart. These details give a way for Auto-Count to show this information to the user while still only producing a single product.

Name	Data Type	Required	Description
DetailId	Character (63)	Yes	Product Detail Identifier, unique per product.
DetailDescription	Character (255)	Yes	Product detail description or name.
NumberUp	Double		Number of detail products per parent product. For example if three copies of a detail appeared on sheet the NumberUp would be three.
DeleteRecord	Logical		

## RunQueue

In the Run Queue Response or Run Queue Command there would be one Run Queue Element per Run Queue Record.

Name	Data Type	Required	Description
RunQueueId	Character (20)	Yes	This value goes into <b>RunQueueNumber</b> . <b>RunId</b> in the database is generated internally. <b>RunNumber</b> is generated from the lower part of the RunId.

AutoCountId	Character (20)	Yes	
AutoCountConfigurationId	Character (20)		
FormId	Character (63)		Run Form Number – not guaranteed to match a Form. Just goes into RunFormNumber
FormDescription	Character (2000)		
Quantity	Double		* previously integer, double from v16.1
CostCodeId	Character (5)		
NumberUp	Integer		
SetupStart	Date / Time		
SetupSeconds	Integer		
RunSeconds	Integer		
WastePercent	Double		
OfficeCopiesQuantity	Double		* previously integer, double from v16.1
Status	Character		Limited values: <i>NewRun</i> <i>EditedRun</i> <i>Built</i> <i>OnPress</i> <i>Suspended</i> <i>RunComplete</i> <i>Deleted</i> <i>Archived</i>
DeleteRecord	Logical		
If RunQueueProduct is provided, RunQueuePiece and RunQueueDrop cannot be specified at this level they can only be provided beneath RunQueueProduct.			
RunQueueProduct	<b>Element</b>		Zero or more (PLMC 16.x)
RunQueuePiece	<b>Element</b>		Zero or more
RunQueuePallet	<b>Element</b>		Zero or one

## RunQueueProduct

Products in a run queue item. This table allows multiple products to be specified for a run queue item. The product must have been provided using the Product node defined above.

A product can optionally be inserted as a child of RunQueue and parent of RunQueuePiece and RunQueuePallet. This allows for different packing instructions for different products on a run.

Name	Data Type	Required	Description
ProductId	Character (63)	Yes	MIS Product Identifier. Used as a link to an external MIS product.
ProductDescription	Character (255)	Yes	Product description or name.
ProductIndex	Integer	Yes	Product index starting at 1. Each product must have a unique index within the run queue item.  Product index is used to order and identify products. In runs that have multiple products this field controls the order in which products are displayed. Also in some tables the ProductIndex is used to identify the product within a run.

ProductQty	Double		Quantity to do for this Product. If a RunQueueProduct row exists for a run queue item then this quantity overrides the QuantityToDo field in the RunQueue record.
OfficeCopiesQuantity	Double		
TrimWeight	Double		
UnTrimWeight	Double		
Caliper	Double		
DeleteRecord	Logical		
RunQueueDelivery	<b>Element</b>		Zero or more
RunQueuePiece	<b>Element</b>		Zero or more
RunQueueDrop	<b>Element</b>		Zero or one

## RunQueueDelivery

Maps a RunQueue Product to an Auto-Count delivery. Sometimes referred to as a stacker or outfeed. Basically a place where the finished product is delivered. DeliveryNumber and NumberUp both default to 1 if not supplied. If the RunQueueDelivery element omitted, delivery 1 and number up of 1 is assumed.

Name	Data Type	Required	Description
DeliveryNumber	Integer		Def = 1
NumberUp	Double		Def = 1
WinderNumber	Integer		Def = 0
DeleteRecord	Logical		

## RunQueuePiece

Pieces of paper that make up a product in a run queue item. This only applies to press items and it is optional even for those items.

Name	Data Type	Description
PieceIndex	Integer	
PieceWidth	Double	(mm)
PieceLength	Double	(mm)
MaterialId	Character (63)	Optional
StockTypeId	Character (10)	
MaterialGrammage	Double	(gsm) (BasisWeight in DB) See note on the formula at the end of this doc.
NumberOfPieces	Integer	
DeleteRecord	Logical	

## RunQueueDrop

The Run Queue Drop is an element of the Run Queue Product. A drop can be a shipment, order or just a group of containers/pallets. It is a quantity of a product to be produced that can be addressed and optionally have specific build instructions via the RunQueueDropContainer table.

Name	Data Type	Description
------	-----------	-------------

DropIndex	Integer	Used to order the drops and to identify each one. Sequence number 1-n.
DropQty	Double	Quantity for this delivery address.
QtyPerPallet	Integer	Quantity per pallet.
PalletNumber	Integer	Starting pallet number. A single product may be split into multiple runs. This field allows the MIS to coordinate starting numbers to prevent duplicates.
Routing	Character (50)	Internal routing instruction.
SpecialInstructions	Character (255)	Special instructions that appear on the pallet ticket.
Address1	Character (80)	Address information line 1.
Address2	Character (80)	Address information line 2.
Address3	Character (80)	Address information line 3.
Address4	Character (80)	Address information line 4.
QtyPerLog	Integer	PLMC 16.x
LogsPerLayer	Integer	PLMC 16.x
LayersPerPallet	Integer	PLMC 16.x
DeleteRecord	Logical	
RunQueueDropContainer	<b>Element</b>	Zero or one (PLMC 16.x)

## RunQueueDropContainer

The RunQueueDropContainer is an element of the RunQueueDrop. A drop can be made up of multiple nested containers. For example items placed in cartons, placed in boxes, stacked on a pallet. This table supports setting up a description of each container, e.g. cartons of 100 which go into boxes, 10 boxes on a pallet, or 100 reels on a pallet. The final quantity defined by the RunQueueDropContainer items will override the RunQueueDrop@QtyPerPallet if it is different.

Name	Data Type	Description
ContainerIndex	Integer	The lowest index indicates the innermost container. For example, with cartons in boxes on a pallet. The carton would be index 1.
Quantity	Double	The quantity of individual products this container contains.
Description	Character (63)	A descriptive term for this container, e.g. Box, Carton, Reel, Pallet, Bundle
TicketType	Character (255)	Ticket or Label report for this container.
TicketCopies	Integer	Number of copies to print of the ticket
PrinterName	Character (255)	Printer name for the ticket/label.
DeleteRecord	Logical	

```
<RunQueueDrop QtyPerPallet="10000" ...>
  <!-- there are 100 things in a carton -->
```

---

```
<RunQueueDropContainer ContainerIndex="1" Quantity="100" Description="Carton"
TicketType="CartonLabel" PrinterName="CartonLabelPrinter" />
<!-- there are 10 cartons in a box (10 * 100 = 1000 things) -->
<RunQueueDropContainer ContainerIndex="2" Quantity="1000" Description="Box"
TicketType="BoxLabel" PrinterName="BoxLabelPrinter" />
<!-- there are 10 boxes on a pallet (10 * 10 * 100 = 10000 things) -->
<RunQueueDropContainer ContainerIndex="3" Quantity="10000" Description="Pallet"
TicketType="PalletLabel" PrinterName="PalletLabelPrinter" />
</RunQueueDrop>
```

---

## RunQueuePallet

The Run Queue Piece is an element of the Run Queue Entry. A Run Queue Pallet cannot exist if the Run Queue Entry does not exist so the system will always send Run Queue Pallet data inside of a Run Queue Entry element.

Name	Data Type	Description
QtyPerPallet	Integer	Quantity per pallet.
PalletNumber	Integer	Starting pallet number. A single product may be split into multiple runs. This field allows the MIS to coordinate starting numbers to prevent duplicates.
Routing	Character (50)	Internal routing instruction.
SpecialInstructions	Character (255)	Special instructions that appear on the pallet ticket.
Address1	Character (80)	Address information line 1.
Address2	Character (80)	Address information line 2.
Address3	Character (80)	Address information line 3.
Address4	Character (80)	Address information line 4.
DeleteRecord	Logical	

```
<JobDefinitionCommand MessageType="Command" MessageId="MessageId1"
  MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <Job JobId="JobId1" JobTitle="JobTitle1"
    JobDescription="JobDescription1" JobQuantity="1"
    CustomerId="CustomerId1" FinishingWaste="1" PlantId="PlantId1"
    IsActive="true" DeleteRecord="true">
    <Customer CustomerId="CustomerId1" CustomerName="CustomerName1" />
    <Task TaskId="TaskId1" FormId="FormId1" TaskType="0"
      TaskDescription="TaskDescription1" TaskQuantity="1" TaskNumberUp="1"
      TaskWidth="1" TaskLength="1" BasisWeight="1"
      StockTypeId="StockTypeId1" OfficeCopiesQuantity="1"
      SeparateOfficeCopies="true" DueDateTime="1753-01-
      01T23:59:59.999+00:00" ObjectiveMrSeconds="1"
      ObjectiveRunSeconds="1" ObjectiveWastePercent="1"
      CostCodeId="CostCodeId1" WorkCenterId="WorkCenterId1"
      PromiseDate="1753-01-01" Priority="1" TraceabilityOn="true"
      FinalTask="true" IsActive="true" DeleteRecord="true">
      <RunQueue Status="NewRun" RunQueueId="RunQueueId1"
        AutoCountId="AutoCountId1"
        AutoCountConfigurationId="AutoCountConfigurationId1"
        FormId="FormId1" FormDescription="FormDescription1" Quantity="1"
        CostCodeId="CostCodeId1" NumberUp="1" SetupStart="1753-01-
```



```

01T23:59:59.999+00:00" SetupSeconds="1" RunSeconds="1"
WastePercent="1" OfficeCopiesQuantity="1" DeleteRecord="true">
  <RunQueuePiece PieceIndex="1" PieceWidth="1" PieceLength="1"
MaterialId="MaterialId1" StockTypeId="StockTypeId1"
MaterialGrammage="1" NumberOfPieces="1" DeleteRecord="true" />
  <RunQueuePiece PieceIndex="2147483647"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId3"
StockTypeId="StockTypeId3"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483647" DeleteRecord="true" />
  <RunQueuePallet QtyPerPallet="1" PalletNumber="1"
Routing="Routing1" SpecialInstructions="SpecialInstructions1"
Address1="Address11" Address2="Address21" Address3="Address31"
Address4="Address41" DeleteRecord="true">
    <RunQueueContainer ContainerIndex="1" Quantity="1"
Description="Description1" DeleteRecord="true" />
    <RunQueueContainer ContainerIndex="2147483647"
Quantity="1.7976931348623157E+308" Description="Description3"
DeleteRecord="true" />
  </RunQueuePallet>
  <Product ProductId="ProductId1"
ProductDescription="ProductDescription1" OfficeCopiesQuantity="1"
TrimWeight="1" UnTrimWeight="1" Caliper="1" DeleteRecord="true">
    <ProductDelivery DeliveryNumber="1" NumberUp="1"
DeleteRecord="false" />
    <RunQueuePiece PieceIndex="1" PieceWidth="1" PieceLength="1"
MaterialId="MaterialId1" StockTypeId="StockTypeId1"
MaterialGrammage="1" NumberOfPieces="1" DeleteRecord="true" />
    <RunQueuePiece PieceIndex="2147483647"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId3"
StockTypeId="StockTypeId3"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483647" DeleteRecord="true" />
    <RunQueuePallet QtyPerPallet="1" PalletNumber="1"
Routing="Routing1" SpecialInstructions="SpecialInstructions1"
Address1="Address11" Address2="Address21" Address3="Address31"
Address4="Address41" DeleteRecord="true">
      <RunQueueContainer ContainerIndex="2"
Quantity="2.1000000238418579" Description="Description5"
DeleteRecord="true" />
    </RunQueuePallet>
    <RunQueuePallet QtyPerPallet="2147483647"
PalletNumber="2147483647" Routing="Routing3"

```

```

SpecialInstructions="SpecialInstructions3" Address1="Address13"
Address2="Address23" Address3="Address33" Address4="Address43"
DeleteRecord="true">
    <RunQueueContainer ContainerIndex="2147483645"
Quantity="1.7976931348623157E+308" Description="Description11"
DeleteRecord="true" />
    </RunQueuePallet>
</Product>
<Product ProductId="ProductId2"
ProductDescription="ProductDescription3"
OfficeCopiesQuantity="2147483647"
TrimWeight="1.7976931348623157E+308"
UnTrimWeight="1.7976931348623157E+308"
Caliper="1.7976931348623157E+308" DeleteRecord="true">
    <ProductDelivery DeliveryNumber="2147483646"
NumberUp="1.7976931348623157E+308" DeleteRecord="false" />
    <RunQueuePiece PieceIndex="2147483646"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId7"
StockTypeId="StockTypeId7"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483646" DeleteRecord="true" />
    <RunQueuePiece PieceIndex="3"
PieceWidth="3.2000000476837158" PieceLength="3.2000000476837158"
MaterialId="MaterialId9" StockTypeId="StockTypeId9"
MaterialGrammage="3.2000000476837158" NumberOfPieces="3"
DeleteRecord="true" />
    <RunQueuePallet QtyPerPallet="2147483646"
PalletNumber="2147483646" Routing="Routing7"
SpecialInstructions="SpecialInstructions7" Address1="Address17"
Address2="Address27" Address3="Address37" Address4="Address47"
DeleteRecord="true">
    <RunQueueContainer ContainerIndex="2147483642"
Quantity="1.7976931348623157E+308" Description="Description23"
DeleteRecord="true" />
    </RunQueuePallet>
    <RunQueuePallet QtyPerPallet="3" PalletNumber="3"
Routing="Routing9" SpecialInstructions="SpecialInstructions9"
Address1="Address19" Address2="Address29" Address3="Address39"
Address4="Address49" DeleteRecord="true">
    <RunQueueContainer ContainerIndex="8"
Quantity="8.7000001668930054" Description="Description29"
DeleteRecord="true" />
    </RunQueuePallet>
</Product>

```

```

    </RunQueue>
    <RunQueue Status="EditedRun" RunQueueId="RunQueueId3"
AutoCountId="AutoCountId3"
AutoCountConfigurationId="AutoCountConfigurationId3"
FormId="FormId3" FormDescription="FormDescription3"
Quantity="2147483647" CostCodeId="CostCodeId3" NumberUp="2147483647"
SetupStart="1753-02-02T23:59:59.999+00:00" SetupSeconds="2147483647"
RunSeconds="2147483647" WastePercent="1.7976931348623157E+308"
OfficeCopiesQuantity="2147483647" DeleteRecord="true">
    <RunQueuePiece PieceIndex="2147483646"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId7"
StockTypeId="StockTypeId7"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483646" DeleteRecord="true" />
    <RunQueuePiece PieceIndex="3" PieceWidth="3.2000000476837158"
PieceLength="3.2000000476837158" MaterialId="MaterialId9"
StockTypeId="StockTypeId9" MaterialGrammage="3.2000000476837158"
NumberOfPieces="3" DeleteRecord="true" />
    <RunQueuePallet QtyPerPallet="2147483647"
PalletNumber="2147483647" Routing="Routing3"
SpecialInstructions="SpecialInstructions3" Address1="Address13"
Address2="Address23" Address3="Address33" Address4="Address43"
DeleteRecord="true">
    <RunQueueContainer ContainerIndex="16"
Quantity="17.500000357627869" Description="Description61"
DeleteRecord="true" />
    <RunQueueContainer ContainerIndex="2147483632"
Quantity="1.7976931348623157E+308" Description="Description63"
DeleteRecord="true" />
    </RunQueuePallet>
    <Product ProductId="ProductId7"
ProductDescription="ProductDescription7"
OfficeCopiesQuantity="2147483646"
TrimWeight="1.7976931348623157E+308"
UnTrimWeight="1.7976931348623157E+308"
Caliper="1.7976931348623157E+308" DeleteRecord="true">
    <ProductDelivery DeliveryNumber="2147483643"
NumberUp="1.7976931348623157E+308" DeleteRecord="false" />
    <RunQueuePiece PieceIndex="2147483643"
PieceWidth="1.7976931348623157E+308"
PieceLength="1.7976931348623157E+308" MaterialId="MaterialId19"
StockTypeId="StockTypeId19"
MaterialGrammage="1.7976931348623157E+308"
NumberOfPieces="2147483643" DeleteRecord="true" />

```

```

    <RunQueuePiece PieceIndex="6"
    PieceWidth="6.5000001192092896" PieceLength="6.5000001192092896"
    MaterialId="MaterialId21" StockTypeId="StockTypeId21"
    MaterialGrammage="6.5000001192092896" NumberOfPieces="6"
    DeleteRecord="true" />
    <RunQueuePallet QtyPerPallet="2147483643"
    PalletNumber="2147483643" Routing="Routing19"
    SpecialInstructions="SpecialInstructions19" Address1="Address119"
    Address2="Address219" Address3="Address319" Address4="Address419"
    DeleteRecord="true">
        <RunQueueContainer ContainerIndex="17"
        Quantity="18.600000381469727" Description="Description65"
        DeleteRecord="true" />
    </RunQueuePallet>
    <RunQueuePallet QtyPerPallet="6" PalletNumber="6"
    Routing="Routing21" SpecialInstructions="SpecialInstructions21"
    Address1="Address121" Address2="Address221" Address3="Address321"
    Address4="Address421" DeleteRecord="true">
        <RunQueueContainer ContainerIndex="2147483630"
        Quantity="1.7976931348623157E+308" Description="Description71"
        DeleteRecord="true" />
    </RunQueuePallet>
</Product>
</RunQueue>
</Task>
</Job>
</JobDefinitionCommand>

```

MachinePalletCommand (from PLM)

When pallets are created DMI will send the command to the MIS. A MachinePalletQuery will be available when needed but the expectation is that it will be used sparingly.

Name	Data Type	Description
MachinePallet	Element	One or more

```

<MachinePalletCommand MessageType="Command" MessageId="MessageId1"
    MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
    MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
    xmlns:p1="com.efi.monarch.dmi" xmlns="com.efi.monarch.dmi">
    <MachinePallet PlantId="PlantId1" AutoCountId="AutoCountId1"
    Barcode="Barcode1" StartDateTime="1753-01-01T23:59:59.999+00:00"
    EndDateTime="1753-01-01T23:59:59.999+00:00" InProcess="true"
    EmployeeId="EmployeeId1" JobId="JobId1" TaskId="TaskId1"
    FormId="FormId1" RunId="RunId1" ProductId="1" GrossCounter="1"
    NetCounter="1" Quantity="1" PalletNumber="1" LastPallet="true"

```

```

DeliveryNo="1" LocationId="LocationId1" Container="Container1"
ContainerIndex="1" Routing="Routing1"
SpecialInstructions="SpecialInstructions1" Address1="Address11"
Address2="Address21" Address3="Address31" Address4="Address41"
UOM="UOM1" ReworkNeeded="false" Quarantined="true"
QuarantineCodeId="QuarantineCodeId1" GrossWeight="1" CoreWeight="1"
WasteWeight="1" FinalTask="true" PrintLabel="true" BatchNumber="1"
TicketType="TicketType1" PalletType="1" NumPallets="1"
AveragePieceWeight="1" NumberUp="1" CostCodeId="CostCodeId1"
PieceLength="1" PieceWidth="1" NoteText="NoteText1"
BundleQuantity="1.0" BundlesPerPallet="1" DeleteRecord="true">
  <MachinePalletDetail InputId="InputId1" InfeedNumber="1"
InputStartPosition="1" InputEndPosition="1" OutputStartPosition="1"
OutputEndPosition="1" />
  <MachinePalletDetail InputId="InputId2" InfeedNumber="-2147483647"
InputStartPosition="-1.7976931348623157E+308" InputEndPosition="-
1.7976931348623157E+308" OutputStartPosition="-
1.7976931348623157E+308" OutputEndPosition="-
1.7976931348623157E+308" />
  <MachinePalletDetail InputId="InputId3" InfeedNumber="2147483647"
InputStartPosition="1.7976931348623157E+308"
InputEndPosition="1.7976931348623157E+308"
OutputStartPosition="1.7976931348623157E+308"
OutputEndPosition="1.7976931348623157E+308" />
</MachinePallet>
<MachinePallet PlantId="PlantId2" AutoCountId="AutoCountId2"
Barcode="Barcode2" StartDateTime="9999-12-31T00:00:00+00:00"
EndDateTime="9999-12-31T00:00:00+00:00" InProcess="false"
EmployeeId="EmployeeId2" JobId="JobId2" TaskId="TaskId2"
FormId="FormId2" RunId="RunId2" ProductId="-9223372036854775807"
GrossCounter="-2147483647" NetCounter="-2147483647" Quantity="-
2147483647" PalletNumber="-2147483647" LastPallet="false"
DeliveryNo="-2147483647" LocationId="LocationId2"
Container="Container2" ContainerIndex="-2147483647"
Routing="Routing2" SpecialInstructions="SpecialInstructions2"
Address1="Address12" Address2="Address22" Address3="Address32"
Address4="Address42" UOM="UOM2" ReworkNeeded="false"
Quarantined="false" QuarantineCodeId="QuarantineCodeId2"
GrossWeight="-1.7976931348623157E+308" CoreWeight="-
1.7976931348623157E+308" WasteWeight="-
1.7976931348623157E+308" FinalTask="false" PrintLabel="false"
BatchNumber="-2147483647" TicketType="TicketType2" PalletType="-
2147483647" NumPallets="-2147483647" AveragePieceWeight="-
1.7976931348623157E+308" NumberUp="-2147483647"
CostCodeId="CostCodeId2" PieceLength="-1.7976931348623157E+308"

```

```

PieceWidth="-1.7976931348623157E+308" NoteText="NoteText2"
BundleQuantity="1.0" BundlesPerPallet="1" DeleteRecord="false">
  <MachinePalletDetail InputId="InputId4" InfeedNumber="0"
InputStartPosition="-0.10000002384185791" InputEndPosition="-
0.10000002384185791" OutputStartPosition="-0.10000002384185791"
OutputEndPosition="-0.10000002384185791" />
  <MachinePalletDetail InputId="InputId5" InfeedNumber="2"
InputStartPosition="2.1000000238418579"
InputEndPosition="2.1000000238418579"
OutputStartPosition="2.1000000238418579"
OutputEndPosition="2.1000000238418579" />
  <MachinePalletDetail InputId="InputId6" InfeedNumber="-2147483646"
InputStartPosition="-1.7976931348623157E+308" InputEndPosition="-
1.7976931348623157E+308" OutputStartPosition="-
1.7976931348623157E+308" OutputEndPosition="-
1.7976931348623157E+308" />
</MachinePallet>
<MachinePallet PlantId="PlantId3" AutoCountId="AutoCountId3"
Barcode="Barcode3" StartDateTime="1753-02-02T23:59:59.999+00:00"
EndDateTime="1753-02-02T23:59:59.999+00:00" InProcess="true"
EmployeeId="EmployeeId3" JobId="JobId3" TaskId="TaskId3"
FormId="FormId3" RunId="RunId3" ProductId="9223372036854775807"
GrossCounter="2147483647" NetCounter="2147483647"
Quantity="2147483647" PalletNumber="2147483647" LastPallet="true"
DeliveryNo="2147483647" LocationId="LocationId3"
Container="Container3" ContainerIndex="2147483647"
Routing="Routing3" SpecialInstructions="SpecialInstructions3"
Address1="Address13" Address2="Address23" Address3="Address33"
Address4="Address43" UOM="UOM3" ReworkNeeded="false"
Quarantined="true" QuarantineCodeId="QuarantineCodeId3"
GrossWeight="1.79" CoreWeight="1.79" WasteWeight="1.79"
FinalTask="true" PrintLabel="true" BatchNumber="2147483647"
TicketType="TicketType3" PalletType="2147483647"
NumPallets="2147483647" AveragePieceWeight="1.7976931348623157E+308"
NumberUp="2147483647" CostCodeId="CostCodeId3"
PieceLength="1.7976931348623157E+308"
PieceWidth="1.7976931348623157E+308" NoteText="NoteText3"
BundleQuantity="1.0" BundlesPerPallet="1" DeleteRecord="true">
  <MachinePalletDetail InputId="InputId7" InfeedNumber="2147483646"
InputStartPosition="1.7976931348623157E+308"
InputEndPosition="1.7976931348623157E+308"
OutputStartPosition="1.7976931348623157E+308"
OutputEndPosition="1.7976931348623157E+308" />
  <MachinePalletDetail InputId="InputId8" InfeedNumber="-1"
InputStartPosition="-1.2000000476837158" InputEndPosition="-

```



```

1.2000000476837158" OutputStartPosition="-1.2000000476837158"
OutputEndPosition="-1.2000000476837158" />
  <MachinePalletDetail InputId="InputId9" InfeedNumber="3"
InputStartPosition="3.2000000476837158"
InputEndPosition="3.2000000476837158"
OutputStartPosition="3.2000000476837158"
OutputEndPosition="3.2000000476837158" />
</MachinePallet>
</MachinePalletCommand>

```

## MachinePalletQuery\* (to PLM)

MIS could Query for pallets when necessary. The query would contain limiting parameters.

Name	Data Type	Description
PlantId	Character (20)	Optional
AutoCountId	Character (20)	Optional
JobId	Character (63)	Optional
StartDateTime	Date / Time	Start Date / Time
EndDateTime	Date / Time	End Date / Time

```

<MachinePalletQuery PlantId="PlantId1" AutoCountId="AutoCountId1"
JobId="JobId1" StartDateTime="1753-01-01T23:59:59.999+00:00"
EndDateTime="1753-01-01T23:59:59.999+00:00" MessageType="Query"
MessageId="MessageId1" MessageDateTime="1753-01-
01T23:59:59.999+00:00" MessagePriority="0" MessageVersion="1"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns:p1="com.efi.monarch.dmi" xmlns="com.efi.monarch.dmi" />

```

## MachinePalletResponse (from PLM)

The Machine Pallet Response is sent in response to a MachinePalletQuery sending Machine Pallets that match the parameters of the query.

Name	Data Type	Description
<b>MachinePallet</b>	Element	Zero or more

```

<MachinePalletResponse MessageType="Response" RefId="RefId1"
ReturnCode="1" ErrorText="ErrorText1" MessageId="MessageId1"
MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
xmlns:p1="com.efi.monarch.dmi" xmlns="com.efi.monarch.dmi">
  <MachinePallet PlantId="PlantId1" AutoCountId="AutoCountId1"
Barcode="Barcode1" StartDateTime="1753-01-01T23:59:59.999+00:00"
EndDateTime="1753-01-01T23:59:59.999+00:00" InProcess="true"
EmployeeId="EmployeeId1" JobId="JobId1" TaskId="TaskId1"
FormId="FormId1" RunId="RunId1" ProductId="1" GrossCounter="1"
NetCounter="1" Quantity="1" PalletNumber="1" LastPallet="true"

```

```

DeliveryNo="1" LocationId="LocationId1" Container="Container1"
ContainerIndex="1" Routing="Routing1"
SpecialInstructions="SpecialInstructions1" Address1="Address11"
Address2="Address21" Address3="Address31" Address4="Address41"
UOM="UOM1" ReworkNeeded="false" Quarantined="true"
QuarantineCodeId="QuarantineCodeId1" GrossWeight="1" CoreWeight="1"
WasteWeight="1" FinalTask="true" PrintLabel="true" BatchNumber="1"
TicketType="TicketType1" PalletType="1" NumPallets="1"
AveragePieceWeight="1" NumberUp="1" CostCodeId="CostCodeId1"
PieceLength="1" PieceWidth="1" NoteText="NoteText1"
BundleQuantity="1.0" BundlesPerPallet="1" DeleteRecord="true">
  <MachinePalletDetail InputId="InputId1" InfeedNumber="1"
InputStartPosition="1" InputEndPosition="1" OutputStartPosition="1"
OutputEndPosition="1" />
  <MachinePalletDetail InputId="InputId2" InfeedNumber="-2147483647"
InputStartPosition="-1.7976931348623157E+308" InputEndPosition="-
1.7976931348623157E+308" OutputStartPosition="-
1.7976931348623157E+308" OutputEndPosition="-
1.7976931348623157E+308" />
  <MachinePalletDetail InputId="InputId3" InfeedNumber="2147483647"
InputStartPosition="1.7976931348623157E+308"
InputEndPosition="1.7976931348623157E+308"
OutputStartPosition="1.7976931348623157E+308"
OutputEndPosition="1.7976931348623157E+308" />
</MachinePallet>
<MachinePallet PlantId="PlantId2" AutoCountId="AutoCountId2"
Barcode="Barcode2" StartDateTime="9999-12-31T00:00:00+00:00"
EndDateTime="9999-12-31T00:00:00+00:00" InProcess="false"
EmployeeId="EmployeeId2" JobId="JobId2" TaskId="TaskId2"
FormId="FormId2" RunId="RunId2" ProductId="-9223372036854775807"
GrossCounter="-2147483647" NetCounter="-2147483647" Quantity="-
2147483647" PalletNumber="-2147483647" LastPallet="false"
DeliveryNo="-2147483647" LocationId="LocationId2"
Container="Container2" ContainerIndex="-2147483647"
Routing="Routing2" SpecialInstructions="SpecialInstructions2"
Address1="Address12" Address2="Address22" Address3="Address32"
Address4="Address42" UOM="UOM2" ReworkNeeded="false"
Quarantined="false" QuarantineCodeId="QuarantineCodeId2"
GrossWeight="1" CoreWeight="1" WasteWeight="1" FinalTask="false"
PrintLabel="false" BatchNumber="-2147483647"
TicketType="TicketType2" PalletType="-2147483647" NumPallets="-
2147483647" AveragePieceWeight="-1.7976931348623157E+308"
NumberUp="-2147483647" CostCodeId="CostCodeId2" PieceLength="-
1.7976931348623157E+308" PieceWidth="-1.7976931348623157E+308"

```



```

NoteText="NoteText2" BundleQuantity="1.0" BundlesPerPallet="1"
DeleteRecord="false">
  <MachinePalletDetail InputId="InputId4" InfeedNumber="0"
InputStartPosition="-0.10000002384185791" InputEndPosition="-
0.10000002384185791" OutputStartPosition="-0.10000002384185791"
OutputEndPosition="-0.10000002384185791" />
  <MachinePalletDetail InputId="InputId5" InfeedNumber="2"
InputStartPosition="2.1000000238418579"
InputEndPosition="2.1000000238418579"
OutputStartPosition="2.1000000238418579"
OutputEndPosition="2.1000000238418579" />
  <MachinePalletDetail InputId="InputId6" InfeedNumber="-2147483646"
InputStartPosition="-1.7976931348623157E+308" InputEndPosition="-
1.7976931348623157E+308" OutputStartPosition="-
1.7976931348623157E+308" OutputEndPosition="-
1.7976931348623157E+308" />
</MachinePallet>
<MachinePallet PlantId="PlantId3" AutoCountId="AutoCountId3"
Barcode="Barcode3" StartDateTime="1753-02-02T23:59:59.999+00:00"
EndDateTime="1753-02-02T23:59:59.999+00:00" InProcess="true"
EmployeeId="EmployeeId3" JobId="JobId3" TaskId="TaskId3"
FormId="FormId3" RunId="RunId3" ProductId="9223372036854775807"
GrossCounter="2147483647" NetCounter="2147483647"
Quantity="2147483647" PalletNumber="2147483647" LastPallet="true"
DeliveryNo="2147483647" LocationId="LocationId3"
Container="Container3" ContainerIndex="2147483647"
Routing="Routing3" SpecialInstructions="SpecialInstructions3"
Address1="Address13" Address2="Address23" Address3="Address33"
Address4="Address43" UOM="UOM3" ReworkNeeded="false"
Quarantined="true" QuarantineCodeId="QuarantineCodeId3"
GrossWeight="1.7976931348623157E+308"
CoreWeight="1.7976931348623157E+308"
WasteWeight="1.7976931348623157E+308" FinalTask="true"
PrintLabel="true" BatchNumber="2147483647" TicketType="TicketType3"
PalletType="2147483647" NumPallets="2147483647"
AveragePieceWeight="1.7976931348623157E+308" NumberUp="2147483647"
CostCodeId="CostCodeId3" PieceLength="1.7976931348623157E+308"
PieceWidth="1.7976931348623157E+308" NoteText="NoteText3"
BundleQuantity="1.0" BundlesPerPallet="1" DeleteRecord="true">
  <MachinePalletDetail InputId="InputId7" InfeedNumber="2147483646"
InputStartPosition="1.7976931348623157E+308"
InputEndPosition="1.7976931348623157E+308"
OutputStartPosition="1.7976931348623157E+308"
OutputEndPosition="1.7976931348623157E+308" />

```

```

    <MachinePalletDetail InputId="InputId8" InfeedNumber="-1"
    InputStartPosition="-1.2000000476837158" InputEndPosition="-
    1.2000000476837158" OutputStartPosition="-1.2000000476837158"
    OutputEndPosition="-1.2000000476837158" />
    <MachinePalletDetail InputId="InputId9" InfeedNumber="3"
    InputStartPosition="3.2000000476837158"
    InputEndPosition="3.2000000476837158"
    OutputStartPosition="3.2000000476837158"
    OutputEndPosition="3.2000000476837158" />
  </MachinePallet>
</MachinePalletResponse>

```

## MachinePallet

Name	Data Type	Required	Description
PlantId	Character (20)		
AutoCountId	Character (20)		
Barcode	Character (25)		A unique code.
SerialNumber	Character(25)		Serial Number allowed to be added by machine operator
SerialNumberFlag	Yes/No/NA		Yes = Serial number is present, No = Serial number is not present but enabled, NA = Serial numbering is not enabled
StartDateTime	DateTime		
EndDateTime	DateTime		Date and time the pallet was finished on the machine.
InProcess	Logical		True, if this pallet is currently in progress. False, if it has ended.
EmployeeId	Character (50)		Employee logged on when this pallet ended.
JobId	Character (63)		Job for this pallet.
TaskId	Character (63)		
FormId	Character (63)		
RunId	Character (20)		Run for this pallet of zero if there isn't an associated run.
ProductId	Character (63)		
GrossCounter	Double		Gross count when this pallet ended.
NetCounter	Double		Product net count when this pallet ended.
Quantity	Double		Quantity on this pallet.
OriginalQuantity	Double		The quantity counted onto this pallet before any user modification or edits.
PalletNumber	Integer		Starting pallet number. A single product may be split into multiple runs. This field allows the MIS to coordinate starting numbers to prevent duplicates.
LastPallet	Logical		This is true if this is the last pallet for the run.
DeliveryNo	Integer		
LocationId	Character (20)		Pallet location if tracking is being used.
Container	Character (25)		Barcode of the parent/ <b>enclosing</b> container.
ContainerIndex	Integer		This is the level of <b>this item</b> in the hierarchy. 0 to n where; 0 = innermost, n = outermost. This maps to the

			ContainerIndex sent in the RunQueueDropContainer that defines this container
Description	Character (63)		The description of this container. This maps to the Description sent in the RunQueueDropContainer that defines this container
Routing	Character (50)		Internal routing instruction.
SpecialInstructions	Character (255)		Special instructions that appear on the pallet ticket.
Address1	Character (80)		Address information line 1.
Address2	Character (80)		Address information line 2.
Address3	Character (80)		Address information line 3.
Address4	Character (80)		Address information line 4.
UOM	Character (20)		Either "Length", "Impressions" or "Pieces"
ReworkNeeded	Logical		True if the pallet/roll needs rework. The reason rework is needed is stored in the QuarantineCodeId field. The ReworkNeeded and Quarantined flags are considered to be mutually exclusive.
Quarantined	Logical		True if the output is put in quarantine.
QuarantineCodeId	Character (63)		Reason for quarantine/rework supplied by the operator. The list of codes is defined by the MIS
WasteCodeId	Character (63)		Reason for any wasted or scrapped quantity supplied by the operator. The list of codes is defined by the MIS
GrossWeight	Double		Weight of output including core or pallet.
CoreWeight	Double		Weight of core or pallet
WasteWeight	Double		Weight of waste not included in gross weight
FinalTask	Logical		
PrintLabel	Logical		True if the label should be printed by the MIS.
BatchNumber	Integer		Shared by outputs produced in parallel.
TicketType	Character (255)		Ticket or Label report name.
TicketCopies	Integer		Number of copies of the ticket required
PrinterName	Character (255)		Ticket or Label printer name.
PalletType	Integer		Type of this pallet. 0 = Regular, 1 = Office Copy.
NumPallets	Integer		Total number of pallets required for this product.
AveragePieceWeight			Average piece weight for the product on this pallet, in kilograms.
NumberUp	Integer		Number of net pieces per gross piece for this product.
CostCodeId	Character (5)		Cost code for this pallet.
PieceLength	Double		Piece length in millimeters.
PieceWidth	Double		Piece width in millimeters.
NoteText	Character (1000)		Notes attached to the output.
WinderNumber	Integer		Winder number that produced this output
Rework	Logical		True if rework
BundleQuantity	Double		Quantity in a bundle
BundlesPerPallet	Integer		Number of bundles in the container
DeleteRecord	Logical		
MachinePalletDetail	Element		Zero or more

## MachinePalletDetail

This optional child record details the links between the input materials and the output that has been produced. There will be a record per input used to make this output.

For example, if a single large input is used to create many smaller outputs, each output would have one detail record with the input id. The input start and end positions record the positions in the input reel where this output was started and ended. As the outputs are smaller they would record output start positions of 0 and the end position would equal the length of the output as these were made entirely from one input.

Where many smaller inputs are used to create a large output, the above situation would be reversed. There would be many detail records. All input start and end positions would be 0 and the length of the input respectively and the output positions would show where each input ended up in the output.

If multiple inputs are run in parallel to create a single output there would be multiple detail records. Each would have input start positions of 0 and end positions equal to the length of the inputs.

From these records it should be possible to trace both forwards and backwards through the production processes for traceability.

Name	Data Type	Required	Description
InputId	Character (25)	Yes	The Id of the input roll, material or pallet.
InfeedNumber	Integer	Yes	The infeed this input was used on.
InputStartPosition	Double		The position in the input reel when the output was started.
InputEndPosition	Double		The position in the input reel when the output was ended.
OutputStartPosition	Double		The position in the output reel when the input was started.
OutputEndPosition	Double		The position in the output reel when the input was ended.

## MaterialItemCommand (AKA TraceltemCommand) (to PLM)

The Command contains one or more material items. This command was added to allow a more generic approach to sending material inventory to Plant Manager. The MaterialItem record allows specifying the unit of measure so that sheets or other material types not counted in weight could be sent more easily. Items are added to the MaterialItem table in Plant Manager.

For backwards compatibility reasons, the MaterialItemCommand and TraceltemCommand are identical except for the node names. MaterialItemCommand/MaterialItem has the same attributes as TraceltemCommand/Traceltem. They are handled internally in exactly the same way. MaterialItemCommand is preferred due to its more natural association with the MaterialItem table in the Plant Manager Database.

Name	Data Type	Description
<b>MaterialItem OR Traceltem</b>	Element	One or more

```
<MaterialItemCommand MessageType="Command" MessageId="MessageId1"
  MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
```

```

<MaterialItem ItemId="ItemId1" Description="Description1"
MaterialId="MaterialId1" OriginalAmount="1" CurrentAmount="1"
ItemMeasure="Weight" Note="Note1" PlantId="PlantId1" IsActive="true"
DeleteRecord="true" />
<MaterialItem ItemId="ItemId2" Description="Description2"
MaterialId="MaterialId2" OriginalAmount="0" CurrentAmount="0"
ItemMeasure="Length" Note="Note2" PlantId="PlantId2"
IsActive="false" DeleteRecord="false" />
<MaterialItem ItemId="ItemId3" Description="Description3"
MaterialId="MaterialId3" OriginalAmount="1.7976931348623157E+308"
CurrentAmount="1.7976931348623157E+308" ItemMeasure="Count"
Note="Note3" PlantId="PlantId3" IsActive="true" DeleteRecord="true"
/>
</TraceItemCommand>

```

## MaterialItemQuery\* (AKA TraceltemQuery\*) (from PLM)

Plm would Query for tagged inventory available in a Plant. The Query could be limited to Rolls available for a specific Material (Inventory Item ID)

Name	Data Type	Description
PlantId	Character (20)	
MaterialId	Character (63)	Optional – this or ItemId not both
ItemId	Character (25)	Optional – this or MaterialId not both

```

<TraceItemQuery PlantId="PlantId1" MaterialId="MaterialId1"
ItemId="ItemId1" MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Query"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi" />

```

## MaterialItemResponse (AKA TraceltemResponse) (to PLM)

Name	Data Type	Description
<b>MaterialItem</b> OR <b>Traceltem</b>	Element	<b>Zero</b> or more

### MaterialItem (AKA Traceltem)

In the Response there would be one MaterialItem Record per tagged inventory item.

Name	Data Type	Required	Description
PlantId	Character (20)	Yes	
ItemId	Character (25)	Yes	An alpha-numeric identifier for the item. The ID must be unique in a plant.
Description	Character (63)	Yes	Item name/description
MaterialId	Character (63)		Material ID, if applicable
OriginalAmount	Double		The amount when the item was created. This could be weight, length, piece count, etc.

CurrentAmount	Double		The current amount. Zero indicates the item was consumed. This can never be above original amount or below zero. Updates can only decrement this value.
ItemMeasure	Character (10)		Item measurement type. One of the following: Weight - The item amount fields are a weight in kilograms. Length - The item amount fields are a length in meters. Count - The item amount fields are an item/piece count. Volume - The item amount fields are a volume in liters. Area - The item amount fields are an area in square meters.
Note	Character (255)		Any notes for this item.
Status	Character (63)		Empty or "Quarantine"
IsActive	Logical		If false this row is not normally visible or available for use, but is available for reporting. This field is also referred to as the archive status. If false an item is considered archived.
DeleteRecord	Logical		

```

<MaterialItemResponse MessageType="Response" RefId="RefId1"
  ReturnCode="1" ErrorText="ErrorText1" MessageId="MessageId1"
  MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <MaterialItem ItemId="ItemId1" Description="Description1"
    MaterialId="MaterialId1" OriginalAmount="1" CurrentAmount="1"
    ItemMeasure="Weight" Note="Note1" PlantId="PlantId1" IsActive="true"
    DeleteRecord="true" />
  <MaterialItem ItemId="ItemId2" Description="Description2"
    MaterialId="MaterialId2" OriginalAmount="0" CurrentAmount="0"
    ItemMeasure="Length" Note="Note2" PlantId="PlantId2"
    IsActive="false" DeleteRecord="false" />
  <MaterialItem ItemId="ItemId3" Description="Description3"
    MaterialId="MaterialId3" OriginalAmount="1.7976931348623157E+308"
    CurrentAmount="1.7976931348623157E+308" ItemMeasure="Count"
    Note="Note3" PlantId="PlantId3" IsActive="true" DeleteRecord="true"
    />
</MaterialItemResponse>

```

## VersionTextCommand (to PLM)

The Command updates the splash screen display text from the MIS when PLM is a VAP to a larger suite.

Name	Data Type	Description
VersionText	Element	One

```
<VersionTextCommand MessageType="Command" MessageId="MessageId1"
  MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <VersionText Description="Productivity Suite v6.1" />
</TraceItemCommand>
```

## VersionTextQuery\* (from/to PLM)

If required PLM would Query for the version text at startup. PLM will also respond to this query with a VersionTextResponse.

Name	Data Type	Description
No attributes required		

```
<VersionTextQuery MessageId="MessageId1" MessageDateTime="1900-01-
01T01:01:01+00:00" MessageVersion="1" MessageType="Query"
Sender="Sender1" SenderVersion="SenderVersion1"
xmlns="com.efi.monarch.dmi" />
```

## VersionTextResponse (from/to PLM)

Name	Data Type	Description
VersionText	Element	Zero or more

### VersionText

Name	Data Type	Required	Description
Description	Character (50)	Yes	The splash screen text to display.

```
<VersionTextResponse MessageType="Response" RefId="RefId1"
  ReturnCode="1" ErrorText="ErrorText1" MessageId="MessageId1"
  MessageDateTime="1753-01-01T23:59:59.999+00:00" MessagePriority="0"
  MessageVersion="1" Sender="Sender1" SenderVersion="SenderVersion1"
  xmlns="com.efi.monarch.dmi">
  <VersionText Description="Productivity Suite v6.1" />
</MaterialItemResponse>
```

## Appendix A

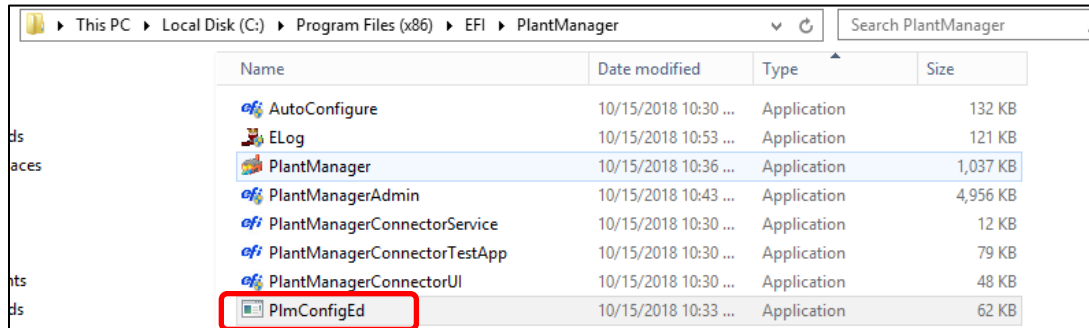
### Change the Machine Status Interval

Machine status signals can be used to do different things on different management systems. Most often they are used to drive status screens and scheduling. Status screens just show a live view of what the machines/employees are working on. For scheduling the status signals are used to show live progress on a task.

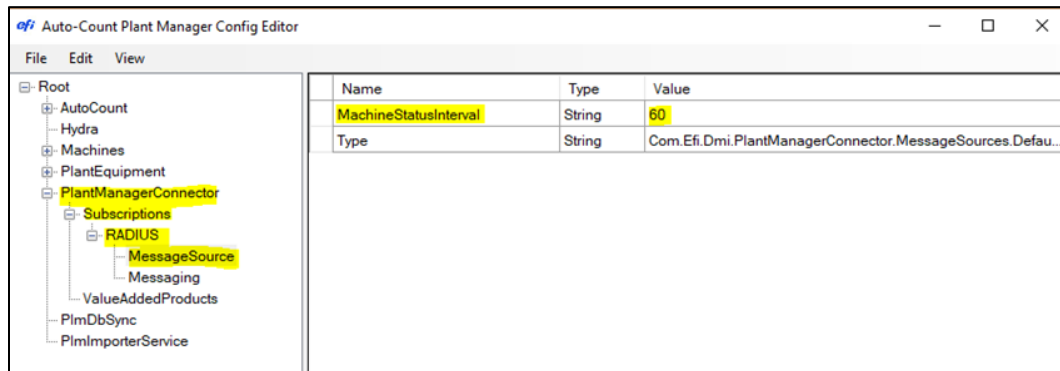
You can edit the interval (in seconds) at which the Plant Manager Connector sends Machine Status signals. The minimum value is 15 seconds. If you do not want to send any updates use '-1'.

1. Open the Auto-Count Plant Manager Config Editor.

Navigate to **C:\Program Files (x86)\EFI\PlantManager** and run **PImConfigEd.exe**.



2. Navigate to the Message Source for your subscription and change the value for MachineStatusInterval.



### Machine Progress Commands

If you are using the communication method of eFlow, then Auto-Count (via the Plant Manager Connector) will send the MachineProgressCommand messages.

If you use another type of communication method, then your system will not receive MachineProgressCommand messages.



