OPC UA for Machinery Job Management

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VDMA - Machine Information Interoperability (MII)

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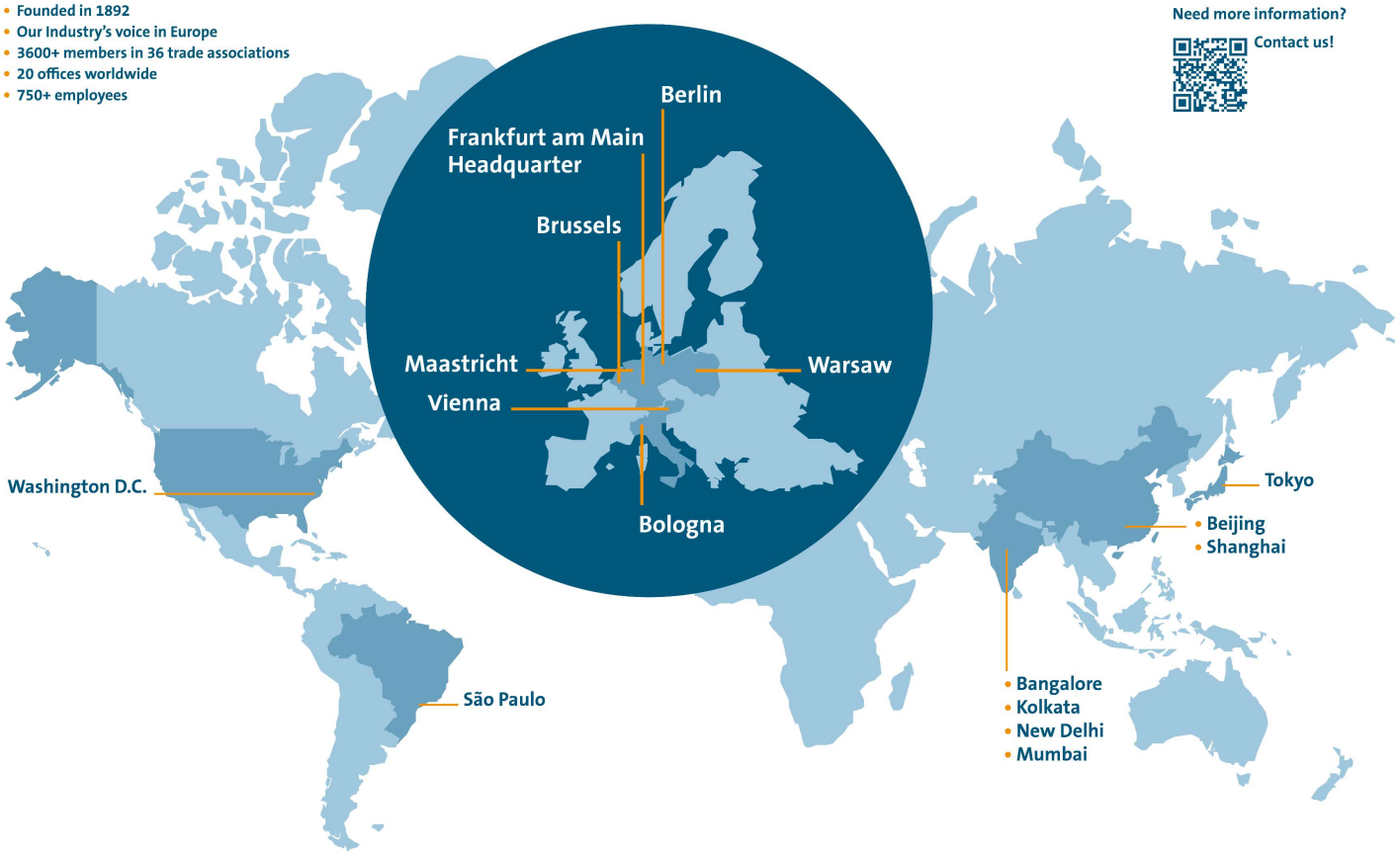
The VDMA

- Machinery and Equipment Manufacturers Association
- The VDMA represents over 3,600 member companies in the engineering industry
- The VDMA is structured in
  - 36 trade associations,
  - 6 regional subsidiaries,
  - Berlin, Brussels and foreign subsidiaries (USA, Brazil, China, India, Japan, Poland, Austria, Italy)
  - Working groups and forums,
  - Departments and competence centers and
  - Companies and foundations.
- The VDMA is host of several European and global sector committees

The VDMA represents the OEMs providing the devices for sites, factories and plants.

The VDMA – Our offices and representations

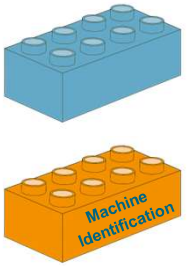
- Founded in 1892
- Our Industry's voice in Europe
- 3600+ members in 36 trade associations
- 20 offices worldwide
- 750+ employees

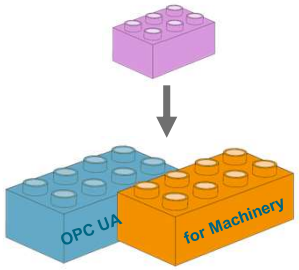


Need more information?
Contact us!

OPC UA for Machinery

- **OPC UA Companion Specification for the whole Machinery and Equipment Manufacturing Industry**
  - Defines harmonized basic building blocks for broad use
  - Each building block stands for a specific use case





- **Can be referenced from other Companion Specifications or implemented as standalone model**

→ OPC UA for Machinery for cross-domain interoperability

OPC UA for Machinery
Building Blocks

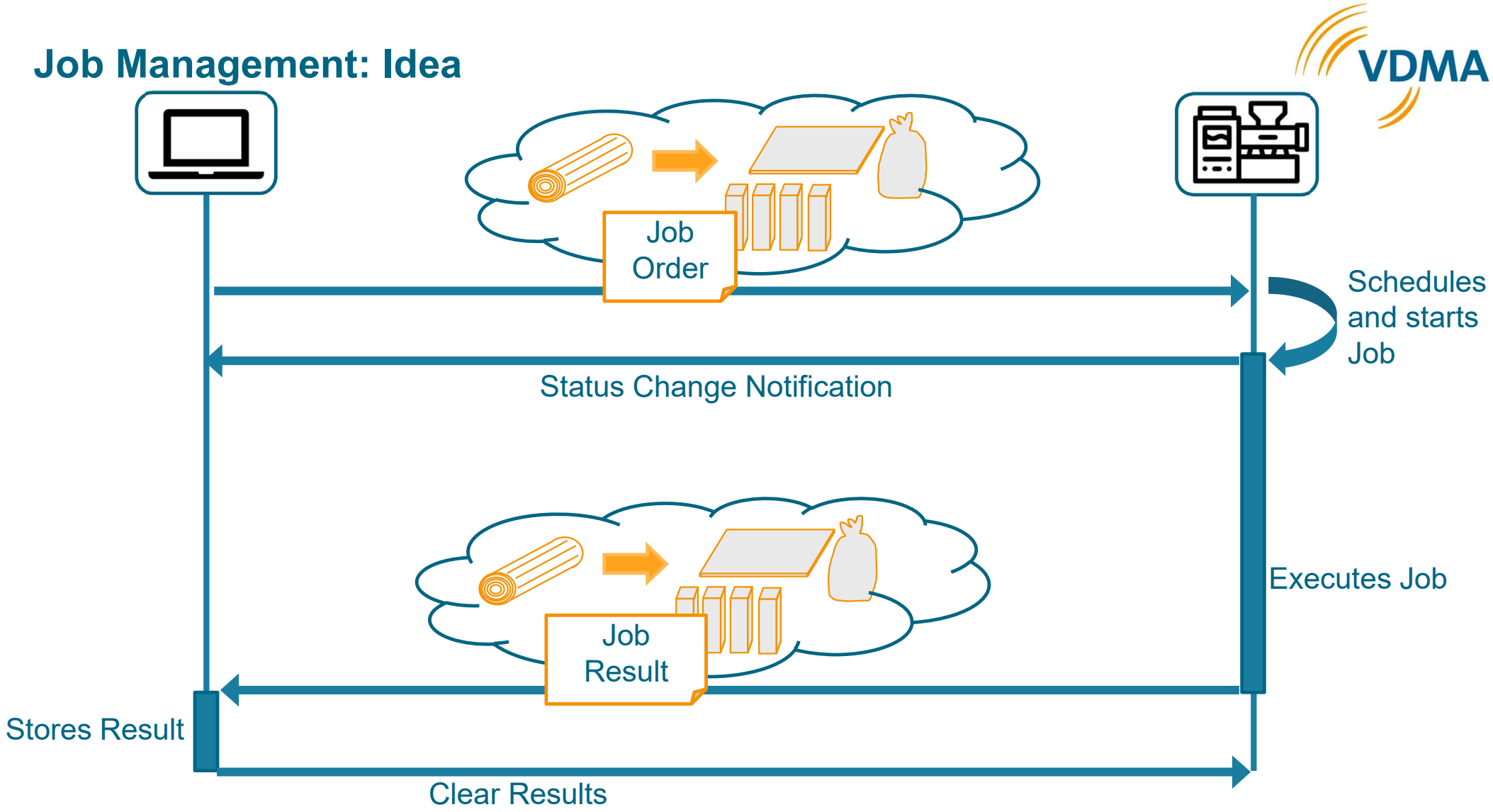
- Machine Identification
- Component Identification
- Machinery State
- Counters
- Result Transfer
- Process Values
- Job Management
- Energy Management

Part 3 – Release Candidate since June.

Developed in JWG Energy Consumption Management.

Release
Release Candidate
In Work
Scheduled

Job Management: Idea



Job Management: Goals

Use Cases

- Bring Job (from MES) to the Machinery Item
- Control the Job (abort, pause, etc.)
- Get status information and end result
- Clean the end results from the Machinery Item

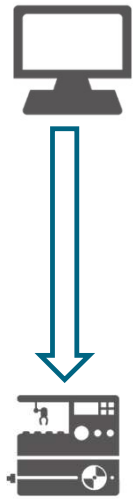
CSs already started defining their Job Management

- In VDMA: Flat Glass Processing, Injection Moulding Machines, Machine Tools, etc.
- Global: ISA-95 for Job Control (based on IEC 62264)

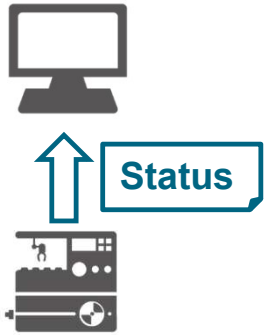
Define common Model for Job Management

Job Management: Approach

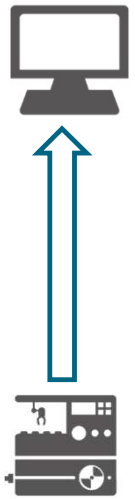
Define Information to be exchanged (WHAT)



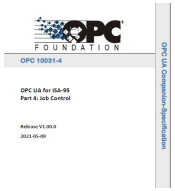
Job Order (plan)
- Required Material
- Produced Material
- StartTime
- StopTime
- JobName
- etc.



Job Result (actual)
- Produced Material
- StartTime
- StopTime
- Bill of Material
- Performance Info
- etc.



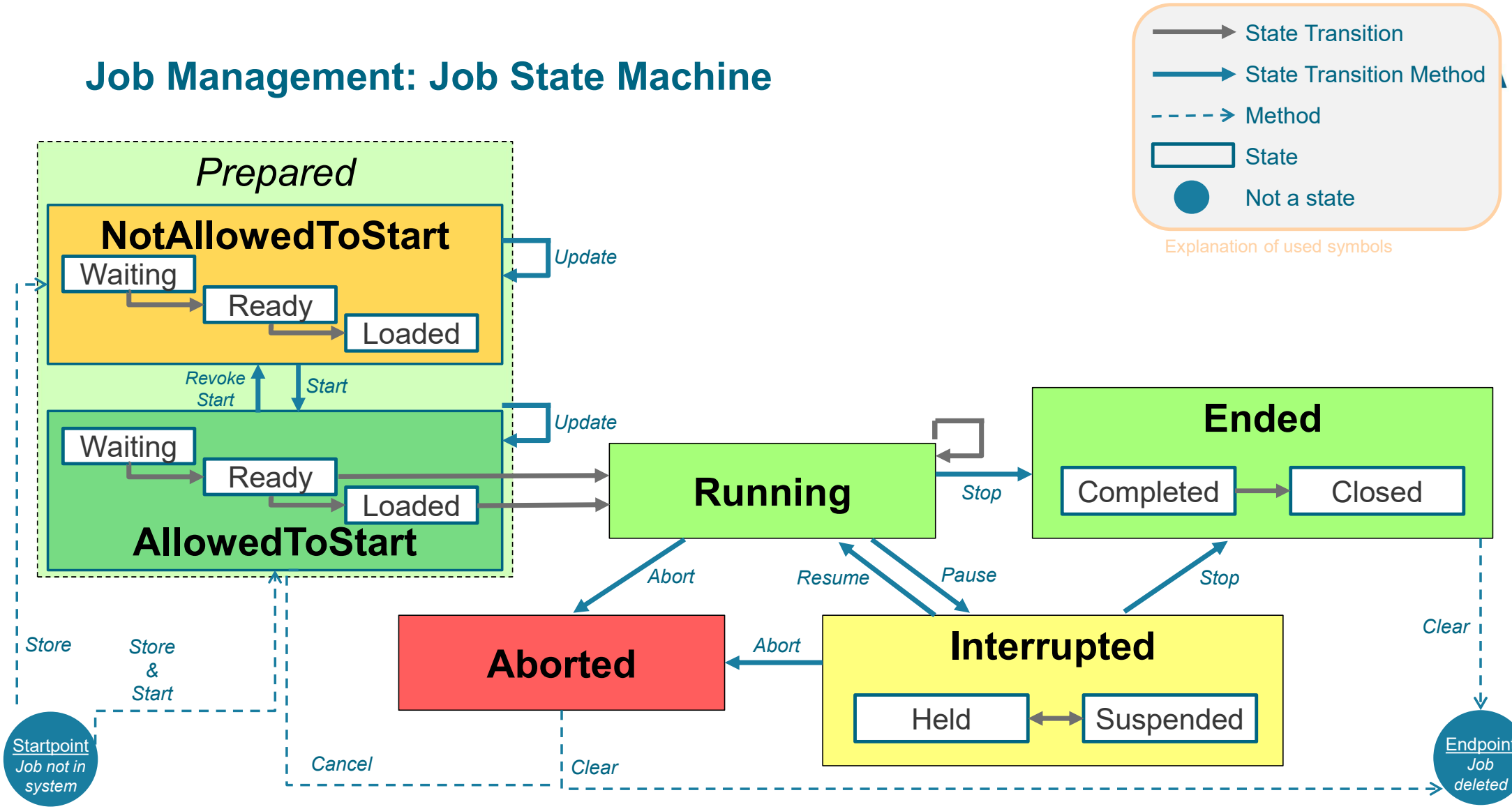
Define mechanism (Information Model) how to exchange (HOW)



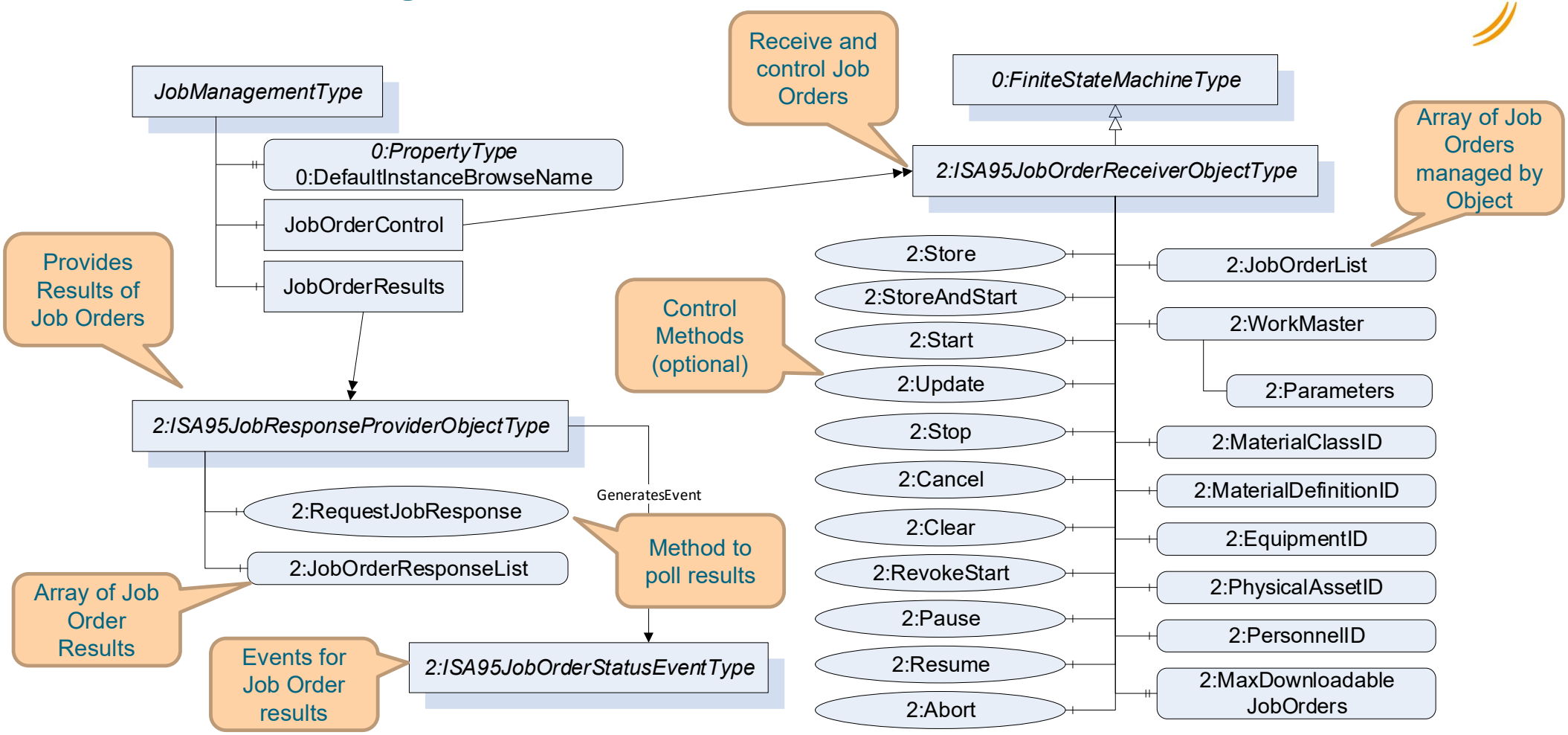
OPC UA for ISA-95
Part 4: Job Control
Defines common model for Job Control

Evaluated ✔
Used as base for
Machinery Job Management

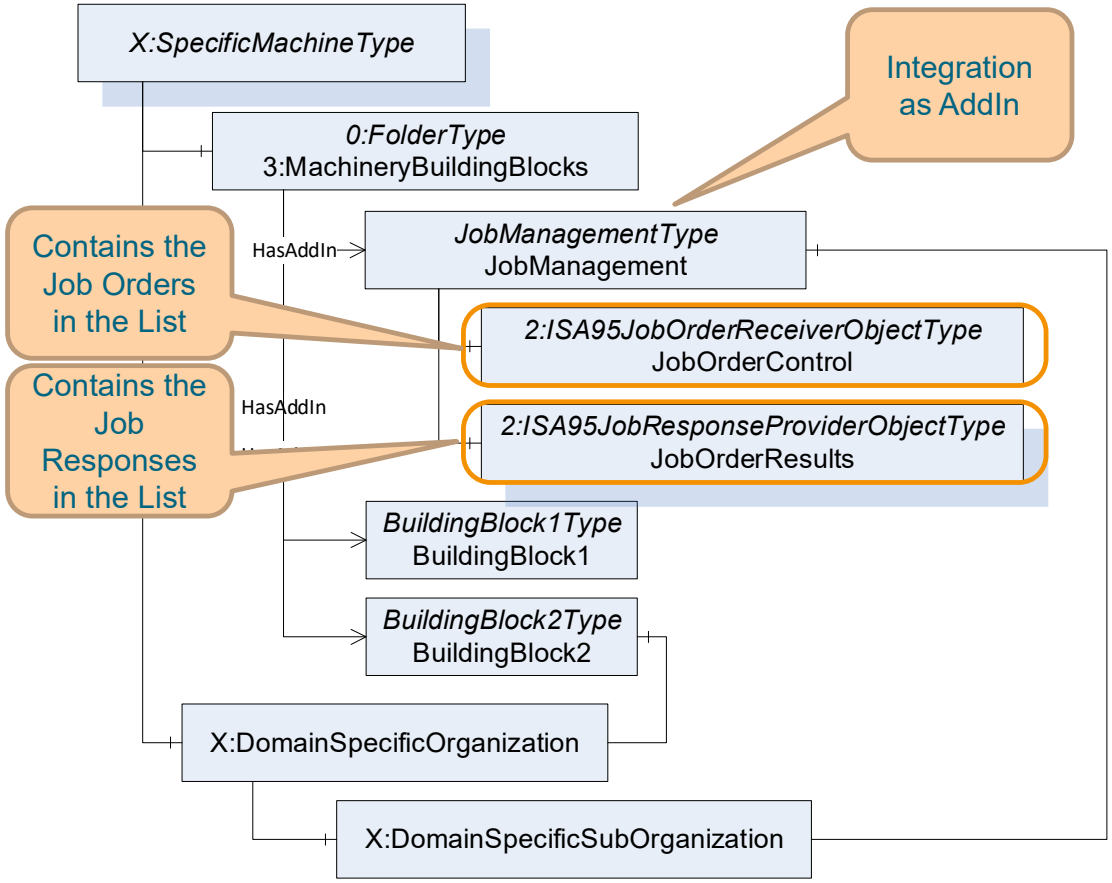
Job Management: Job State Machine



Part 3: Job Management – Information Model



Part 3: Job Management - Integration



2: Job Order Parameters

Predefined Parameters (In)

JobName
OrderNumbers
Customer
CustomerOrderIds
JobExecutionMode
RunsPlanned
PlannedProductionTime
PlannedSetupT
PlannedTimePe
PlannedPartsPe
PlannedOrderQu
Overproduction
PlannedDuration
JobAnnotation

All optional
- But can be made mandatory by CS

2:Job Response Data

Predefined Parameters (Out)

JobName
OrderNumbers
Customer
CustomerOrderIds
JobExecutionMode
RunsCo leted
d
CurrentRun
ctionTime
Time
ActualDelayTime
ActualProducedQuantity
EstimatedRemainingTime
JobResult
AsBuiltBOM
OutputPerformanceInfo

Additional DataTypes

JobExecutionMode
JobResult
OutputInformationDataType
BOMInformationDataType
BOMComponentInformationDataType
OutputPerformanceDataType

Plenary Meeting
of the OPC UA CS working groups

VDMA

The main event for the OPC UA community of the mechanical and plant engineering sector.

- **March 1st, 2024**
- **at VDMA Room 10, Lyoner Str. 18, Frankfurt am Main**

The event provides information about the latest developments and innovations in the field of OPC UA. Topics are the harmonization, certification, application and development of OPC UA Companion Specifications.

Register now!

SAVE THE DATE

Interoperability Summit

26-27 November, 2024 in Stuttgart

Inform me:

Thank you

Thank you

for your attention!

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