Runtime vs Configuration

Some key differences should be highlighted to dispel any doubts concerning the concepts associated with the execution of a Connect IoT environment in Critical Manufacturing MES:
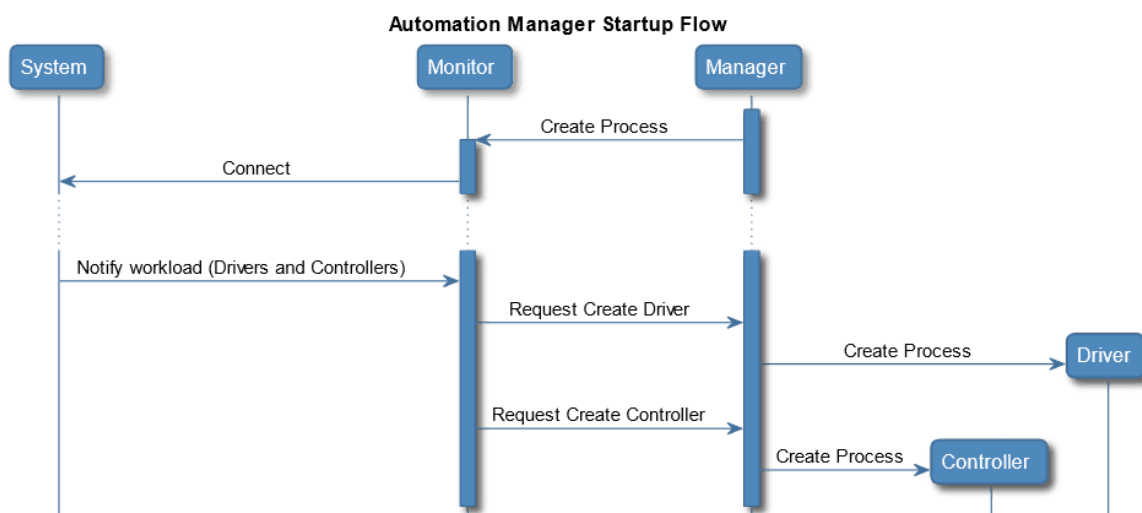
Configuration

Lives on the MES, making it the centralized interface for all configuration of the system, including IoT. This can be created through the GUI or through master data upload.

Runtime

This refers to the execution of the application. This be a nodejs process that will run either as a container, Windows Service or executed directly in the console (e.g. for testing purposes). This application will retrieve the configuration from the MES and will comprise the dependencies and their location as well as the IoT entities configured in the MES.

Runtime Processes

Automation Manager Startup Flow

The Manager process is the parent process, responsible for orchestrating the application. The Manager will spin up a Monitor subprocess, which interacts with the MES system and retrieves all the needed configurations and dependencies. The Monitor will forward to the Manager what are the processes for the Driver and Controller that need to be spun up. The Driver and Controller then start and have their own runtime cycles.

This architecture is robust with a strong separation of concerns between processes. This allows also to separate the health of the Connect IoT application from the health of the physical machine connection. If a machine connection is unresponsive, there is no direct implication on the uptime of Connect IoT, which will be able to provide feedback of the machine connection and also have reconnection logic in place so that it can recover as soon as possible.