



D3.9

Micro-ROS Agent Software Release Y3

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Abstract	This document provides links to the released software and documentation for deliverable D3.8 <i>Micro-ROS Agent Release Y3</i> of the Task 3.3 <i>ROS Bridging & Interoperability</i> .



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1 Summary

The micro-ROS Agent is a ROS2 node wrapping the [Micro XRCE-DDS Agent](#). This node acts as a server between the DDS Network and micro-ROS nodes inside an MCU. It receives and sends messages from micro-ROS nodes. It also keeps track of the micro-ROS nodes, exposing them to the ROS 2 network. Finally, it interacts with the DDS Global Data Space on behalf of the micro-ROS nodes.

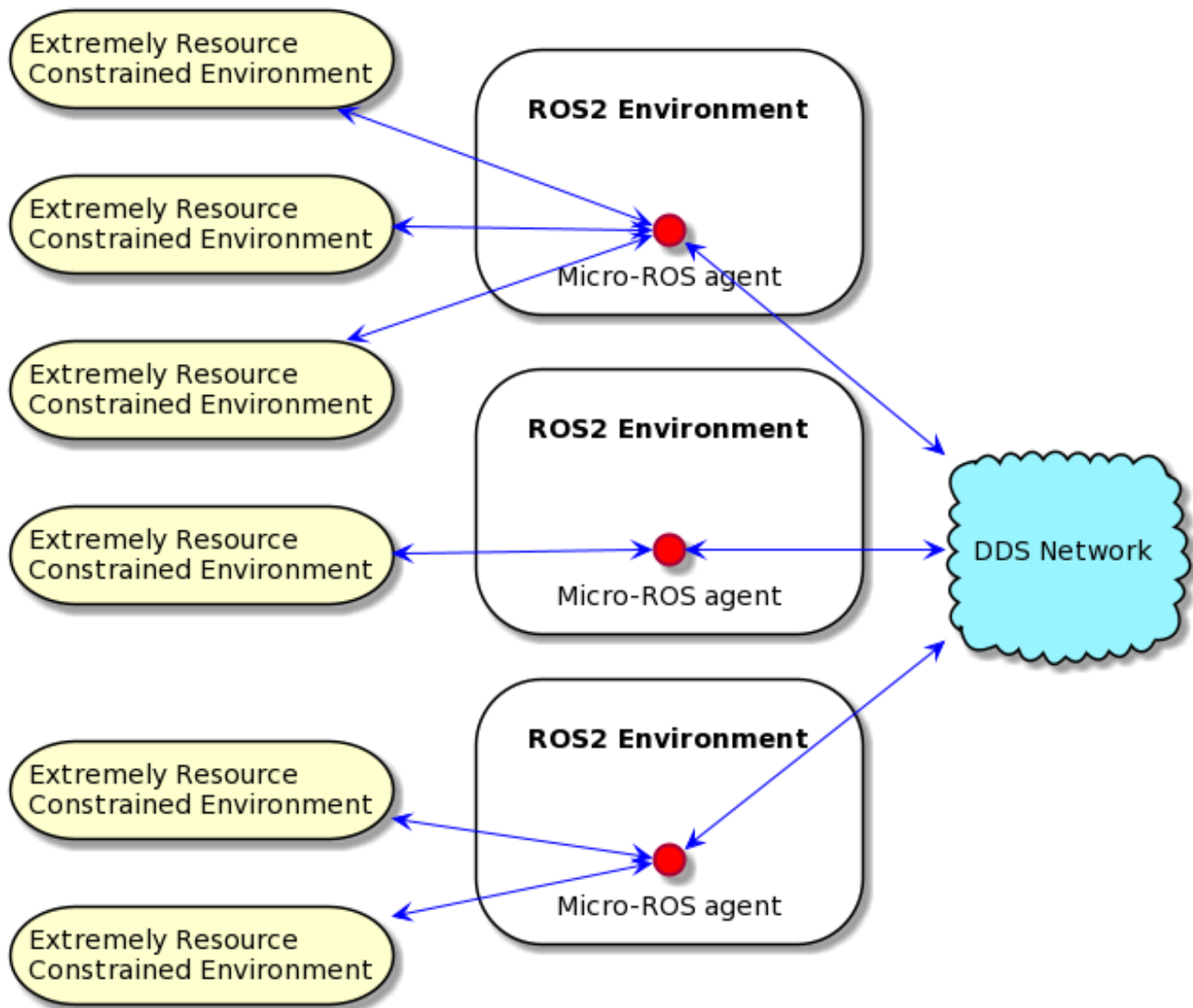


Figure 1: image

2 Acronyms and keywords

Term	Definition
XRCE	Extremely Resource Constrained Environments
DDS	Data Distribution service
ROS2	Robot Operating System

3 Overview to Results

This document provides links to the released software and documentation for deliverable D3.8 *Micro-ROS Agent Release Y2* of the Task 3.3 *ROS Bridging & Interoperability*.

4 Links to Software Repositories

The micro-ROS Agent is provided as a ROS2 package available at:

- Git repository: <https://github.com/microROS/micro-ROS-Agent.git>

Branch	Latest commit	ROS 2 version
crystal	dac8802	crystal
dashing	1d271eb	dashing
foxy	85ef532	foxy

This package depends on Micro XRCE-DDS Agent:

- Git repository: <https://github.com/eProsima/Micro-XRCE-DDS-Agent>

Branch	Latest commit	ROS 2 version
v1.1.6	cb1d053	dashing
develop	eee265d	dashing + services
feature/eloquent	ad87a66	eloquent
foxy	713366d	foxy

More information in *D3.2 Micro XRCE-DDS for ROS Software Release Y3*

How to build a micro-ROS-Agent is detailed in the build system micro-ROS-build:

- Git repository: <https://github.com/micro-ROS/micro-ros-build>

Branch	Latest commit	ROS 2 version
crystal	2138d50	crystal
dashing	712e081	dashing
feature/foxy_migration	429d2a9	foxy

https://github.com/micro-ROS/micro-ros-build/tree/dashing/micro_ros_setup#building-micro-ros-agent has micro-ROS-Agent compilation instructions.

The micro-ROS Agent is available in DockerHub. <https://hub.docker.com/u/microros>
These images are automatically generated from the micro-ROS/docker repository: <https://github.com/micro-ROS/docker>

5 Annex 1: micro-ROS-Agent readme

Content of https://github.com/micro-ROS/micro-ROS-Agent/blob/feature/foxy_migration/README.md from 17th June 2020.

5.1 Overview

This repository contains the Micro-ROS Agent package. The micro-ROS Agent is a ROS 2 node that wraps the Micro XRCE-DDS Agent. For further information about Micro XRCE-DDS Agent click [here](#) This package is a part of the Micro-ROS project stack. For more information about Micro-ROS project click [here](#).

This node acts as a server between the DDS Network and micro-ROS nodes inside an MCU. It receives and send messages from micro-ROS nodes, and keep track of the micro-ROS nodes exposing them to the ROS 2 network. Finally, it interacts with the DDS Global Data Space on behalf of the micro-ROS nodes.

5.2 Package features

5.2.1 XML generation

During the build process, the package looks for all ROS 2 messages to generate an initial list of XML profiles. These profiles can be referenced in the Agent-Client communication to avoid sending the full XML content. This reference mechanism can be switched on and off from the Micro XRCE-DDS middleware layer.

5.2.2 Agent-Client communication mechanism

Communication between the micro-ROS Agent and the micro-ROS nodes supports two types of transport:

- UDP and TCP over IPv4 and IPv6.



- Serial Port transports.

All available configurations are supported directly by the Micro XRCE-DDS Agent.