

IntelloT component available for OC #2 integration - Details

Name	Global AI Component (federated learning coordinator server)
Responsible partner(s)	PHILIPS
Brief description	<p>In a federated learning system, the coordinator is located on a central server and it manages the entire process. The coordinator deploys base AI models to all the sites or clients, aggregates and validates AI model updates from multiple sites, evaluates updated AI models, and as appropriate redeploys updated AI models back to the sites. The Global AI is configurable in terms of number of sites, model parameters and aggregation methodologies. The figures below illustrate these tasks for the cases of cross-silo (left) and cross-device (right) federated learning [A. S. Rachakonda et al., "Privacy enhancing and scalable federated learning to accelerate AI implementation in cross-silo and IoMT environments," in IEEE Journal of Biomedical and Health Informatics, 2022, doi: 10.1109/JBHI.2022.3185418].</p>
	<p>The diagram illustrates two federated learning scenarios. On the left, 'Cross-silo federated learning' shows a central cloud labeled 'Training & Validation' connected to three server nodes. Each node has a 'Training' section and a 'Data' section. The process is described in three steps: (1) Initial model deployed at sites, (2) Worker nodes share model parameters, and (3) Coordinator sends updates. On the right, 'Cross-device federated learning' shows a similar central cloud connected to three mobile device nodes (represented by smartphone icons), each also having 'Training' and 'Data' sections.</p>
Interfacing (I/O)	Secure REST API.
Main interactions	The Global AI interacts with site or client implementations of federated learning system workers. It also interacts with AI models that it contains initially as base AI models.
Deployment	The Global AI is deployed to a server with exposed ports for access through HTTPS.
Licensing	Proprietary
Deliverable references	Deliverable 2.6, Sections 2.1.1, 2.2.1, 2.3.1 Deliverable 5.2, Section 4.3.1

