Stacktic Platform Installation Guide

For IONOS Cloud Customers

IONOS

✓ Certified IONOS Cloud Managed Kubernetes Partner

Deployment Time: 30 minutes
Kubernetes Version: 1.24+
Private SaaS Ready
Full Data Sovereignty

Table of Contents

1. Overview

What is Stacktic?

Stacktic is a metadata-driven automation platform that transforms your application topology designs into complete, production-ready repositories. Simply drag and drop components to design your stack, and Stacktic automatically generates all configurations, deployments, security policies, and operational files.

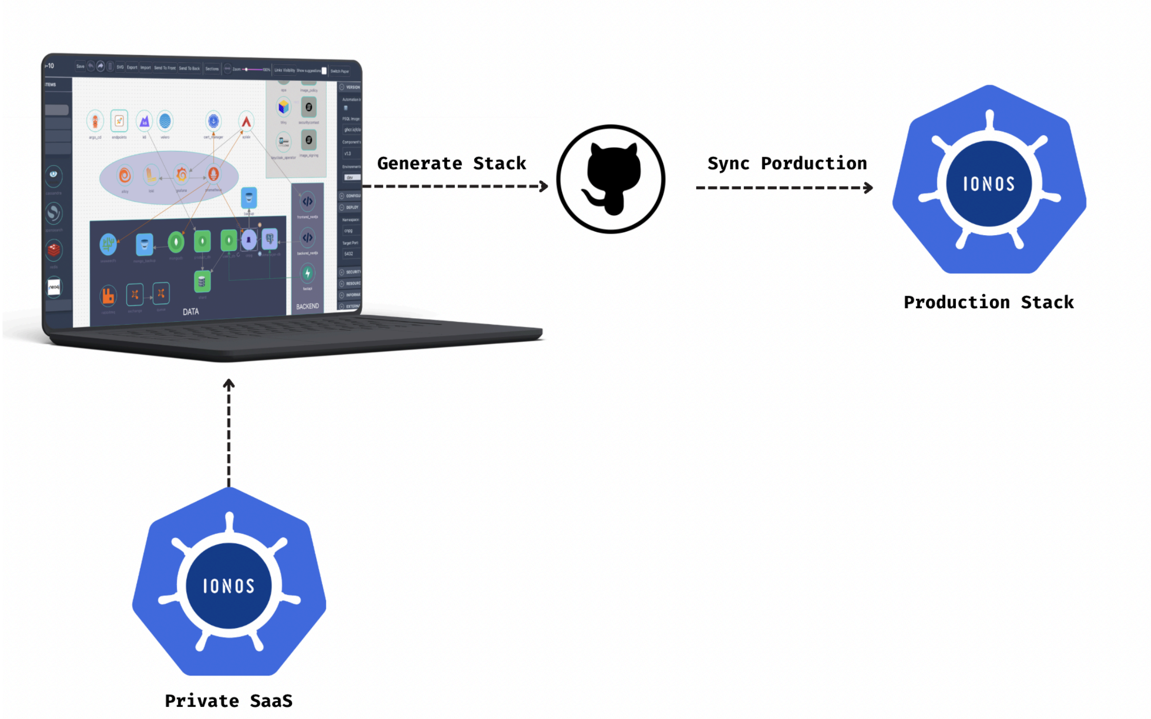
https://www.stacktic.io/use-cases

For Enterprise, Stacktic can also create multi stack logic, centralization, standardization and security and compliant management.
https://www.stacktic.io/enterprise

Why Stacktic on IONOS Cloud?

- Certified and tested on IONOS Cloud Managed Kubernetes
- integration with IONOS infrastructure
- Full data sovereignty - your data stays in your IONOS environment
- partnership support available (contact us)
- Optimized for IONOS Cloud performance and security

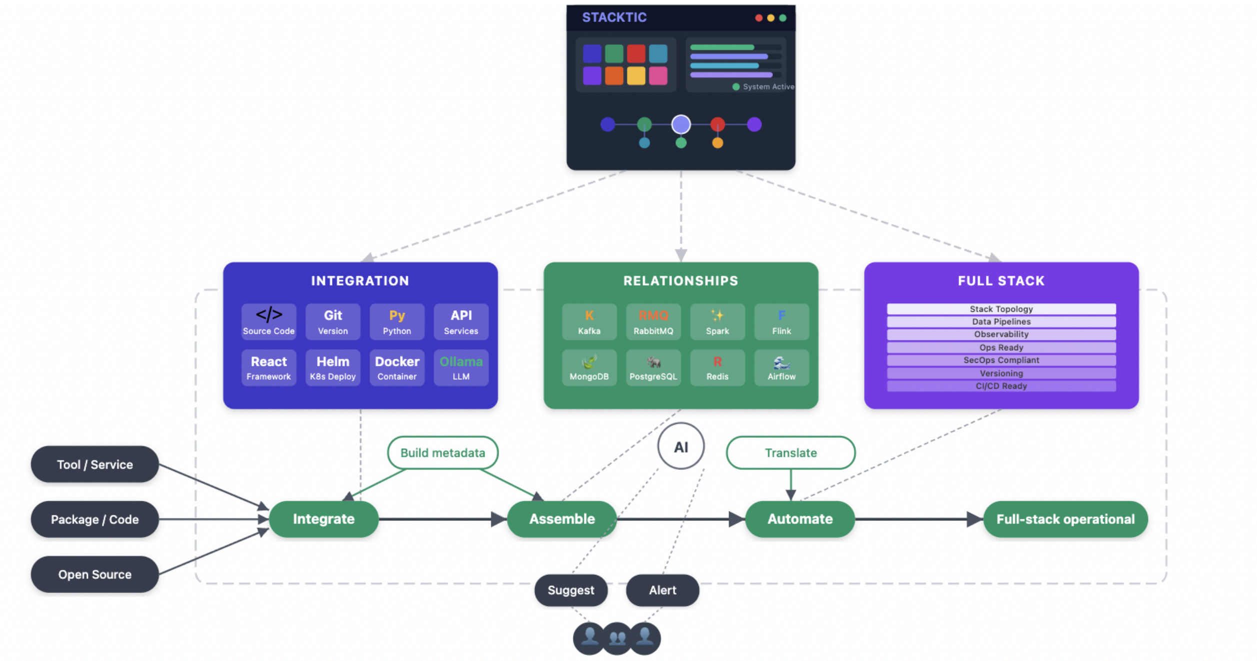
Deploy a private SaaS platform-engineering solution to manage and automate stacks on IONOS, and generate the resulting deployments into the IONOS production cluster



The Three-Layer Automation Architecture

Stacktic operates on a powerful three-layer architecture that automates the entire application lifecycle:

Layer	What It Does	Result
1. Integration	Connects components (source code, Helm charts, frameworks)	All components integrated
2. Relationships	Automates connections (databases, messaging, APIs)	Secure configurations
3. Full-Stack Ops	Builds production-ready apps with versioning & security	Complete deployable stack



Key Features

Automated Relationships: Service links and dependencies mapped automatically - no manual configuration, only customization.

Metadata-Driven Automation: Declarative automated metadata eliminates cost and time, human error and operational drift.

Full-Stack Version Control: Roll back or Version entire environments stacks, not just code but full stack version control.

Autonomous Security: RBAC, NetworkPolicy, and OPA rules, alerts and CISO reports generated at build time automatically.

Cloud-Agnostic Migration: Import workloads from VMs or managed services to Kubernetes in hours.. Create cloud agnostic solutions , bypassing data regulation, vendor lock-in and cut infra cost.

Stack Awareness: Audit reports, SecOps test automation, logic between stacks, and relationship awareness platform engineering.

See: https://www.stacktic.io/use-cases

2. Prerequisites

Before you begin using Stacktic on IONOS Cloud, ensure you have the following requirements in place.

IONOS Cloud Managed Kubernetes Cluster

✓ IONOS Cloud Managed Kubernetes is fully supported and tested with Stacktic.
✓ Partnership benefits available - contact info@stacktic.io

Kubernetes Version Requirements

- Minimum version: Kubernetes 1.20+
- Recommended version: Kubernetes 1.24+
- Latest tested: Kubernetes 1.29

Cluster Resource Requirements for private SaaS

Resource	Minimum Requirement
Nodes	2+ worker nodes (for production)
CPU	4+ cores per node
Memory	8GB+ RAM per node
Storage	Dynamic volume provisioning enabled

Required Tools

Install the following tools on your local machine:

Tool	Version	Purpose
kubectl	1.25+	Kubernetes command-line tool
git	2.0+	Version control
helm	3.0+	Package manager (optional but recommended)
kustomize	4.0+	Configuration management (optional)
age	1.0+	Encryption for SOPS (optional)

Access Requirements

Git Repository Access

- GitHub account with repository creation permissions
- Personal Access Token (PAT) with repo scope

Container Registry Access

- Docker Hub, GitHub Container Registry, or private registry
- Registry token credentials for pushing/pulling images

Kubernetes Cluster Access

- kubectl configured with IONOS cluster credentials
- RBAC permissions to create/manage namespaces
- Ability to deploy workloads and manage secrets
- Permission to apply CustomResourceDefinitions (CRDs)

Verification Checklist

Before proceeding, verify you have:

- ☐ IONOS Cloud Managed Kubernetes cluster running (version 1.20+)
- ☐ kubectl installed and configured
- ☐ Git installed
- ☐ GitHub account with PAT token
- ☐ Container registry credentials
- ☐ kubectl cluster access verified (run: kubectl get nodes)
- ☐ Dynamic storage provisioner available (run: kubectl get storageclass)

3. IONOS Kubernetes Setup

This section guides you through creating and configuring an IONOS Cloud Managed Kubernetes cluster for running Stacktic. IONOS provides both a web-based interface (Data Center Designer) and a comprehensive REST API for cluster management.

Getting Started with IONOS Cloud

7. Sign up for an IONOS Cloud account at https://cloud.ionos.com
8. Log in to the Data Center Designer (DCD) - your primary management interface
9. Create a data center in your preferred location (e.g., de/fra for Frankfurt)
10. Configure API authentication for programmatic access

Option 1: Create Cluster via Data Center Designer (GUI)

The easiest way to create a Kubernetes cluster is through the IONOS Data Center Designer:

- Navigate to Containers > Managed Kubernetes in the DCD
- Click "Create Cluster"
- Configure cluster settings:
- - Name: Choose a descriptive name (e.g., "stacktic-production")
- - Kubernetes Version: Select 1.24 or higher
- - Location: Choose your preferred data center (e.g., de/fra)
- Create and configure a node pool:
- - Node count: Minimum 2 nodes for production
- - CPU cores: 4+ per node
- - RAM: 8GB+ per node
- - Storage: Enable dynamic provisioning
- Review and create the cluster
- Wait for cluster to become "AVAILABLE" (typically 5-10 minutes)

Option 2: Create Cluster via IONOS API

For automation and infrastructure-as-code approaches, use the IONOS Cloud API:

API Endpoint

```
POST https://api.ionos.com/cloudapi/v6/k8s
```

Authentication

Use Basic Authentication or Token Authentication with your IONOS credentials.

Example: Create Kubernetes Cluster

Request body for creating a new cluster:

```
{
  "properties": {
    "name": "stacktic-production",
    "k8sVersion": "1.24.0",
    "location": "de/fra",
    "public": true,
    "apiSubnetAllowList": [],
    "s3Buckets": []
  }
}
```

Example: API Response

Successful cluster creation returns:

```
{
  "id": "1e072e52-2ed3-492f-b6b6-c6b116907527",
  "type": "k8s",
  "metadata": {
    "state": "AVAILABLE",
    "createdDate": "2025-01-15T10:30:00.000Z"
  },
  "properties": {
    "name": "stacktic-production",
    "k8sVersion": "1.24.0",
    "location": "de/fra",
    "natGatewayIp": "198.51.100.100",
    "nodeSubnet": "192.168.0.0/16"
  }
}
```

Key API Operations

Operation	HTTP Method	Endpoint
List all clusters	GET	/k8s
Create cluster	POST	/k8s
Get cluster details	GET	/k8s/{k8sClusterId}
Modify cluster	PUT	/k8s/{k8sClusterId}

Configure kubectl Access

After your cluster is created, download the kubeconfig file:

- Via DCD: Navigate to your cluster → Download kubeconfig
- Via API: GET /k8s/{k8sClusterId}/kubeconfig
- Save the kubeconfig file to ~/.kube/config
- Verify access: kubectl get nodes

Example kubectl configuration:

```
# Set kubeconfig
export KUBECONFIG=~/.kube/ionos-stacktic-config

# Verify connection
kubectl get nodes

# Expected output:
# NAME                           STATUS   ROLES    AGE   VERSION
# stacktic-node-1                Ready    <none>   5m    v1.24.0
# stacktic-node-2                Ready    <none>   5m    v1.24.0
```

Note: Choose a location close to your users for optimal performance.

IONOS Resources and Documentation

- **IONOS Cloud Getting Started:** https://docs.ionos.com/cloud/set-up-ionos-cloud/get-started
- **Managed Kubernetes Documentation:** https://docs.ionos.com/cloud/containers/managed-kubernetes
- **IONOS Cloud API Reference:** https://api.ionos.com/docs/cloud/v6/#tag/Kubernetes
- **Data Center Designer (DCD):** https://dcd.ionos.com

💡 Pro Tip: For Stacktic-specific support on IONOS Cloud, contact info@stacktic.io and mention the IONOS partnership for dedicated assistance.

4. Quick Start Guide to Stacktic automation

Get started with Stacktic in minutes. This guide walks you through creating your first automated full-stack application from design to deployment.

Step 1: Access Stacktic Platform

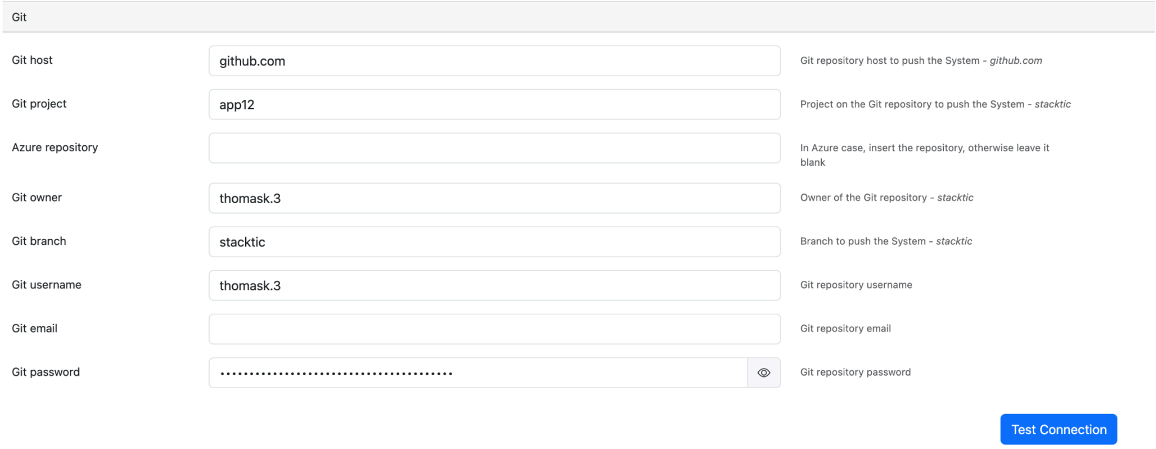
Access the Stacktic platform and create your first stack:

Action	URL / Details
Sign In	https://staging.app.stacktic.io/
Create Stack	https://staging.app.stacktic.io/systems

Step 2: System Configuration

Configure Docker registry and GitHub integration.

Important: Use tokens instead of passwords and always test connections before proceeding.

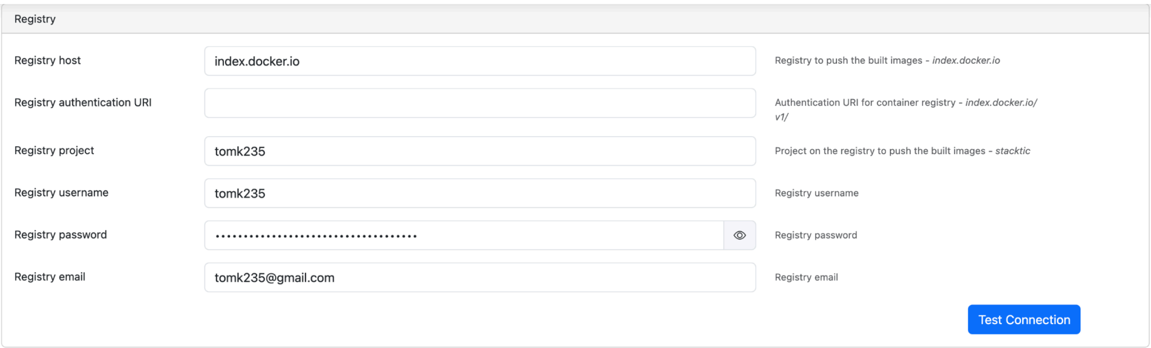


Git

Git host	github.com	Git repository host to push the System - *github.com*
Git project	app12	Project on the Git repository to push the System - *stacktic*
Azure repository		In Azure case, insert the repository, otherwise leave it blank
Git owner	thomask.3	Owner of the Git repository - *stacktic*
Git branch	stacktic	Branch to push the System - *stacktic*
Git username	thomask.3	Git repository username
Git email		Git repository email
Git password	••	Git repository password

Configuration items:

- Docker Registry: Configure your container registry credentials
- GitHub Integration: Add your GitHub Personal Access Token
- SOPS Support (Optional): Add your Age public key for secret management



Registry

Registry host	index.docker.io	Registry to push the built images - *index.docker.io*
Registry authentication URI		Authentication URI for container registry - *index.docker.io/v1/*
Registry project	tomk235	Project on the registry to push the built images - *stacktic*
Registry username	tomk235	Registry username
Registry password	•••••••••••••••••••••••••••••••••••	Registry password
Registry email	tomk235@gmail.com	Registry email

Step 3: Design Your First Application

11. Drag-and-drop a backend and a database component
12. Connect them visually to establish relationships
13. Click Build (use full Build, not FastBuild, for first-time creation)
14. Stacktic generates the complete repository structure

Note: The stacktic branch contains generated code; main branch is yours. Automatic merges respect your custom edits.

Step 4: Deploy to IONOS Cloud

Deploy your generated stack to your IONOS Kubernetes cluster:

15. 1. Clone Repository

```
git clone https://github.com/yourusername/your-stacktic-repo.git
cd your-stacktic-repo
```

16. 2. Build Images

```
kubectl apply -k k8s/build/overlays/dev/ --server-side=true
--force-conflicts=true
```

17. 3. Deploy Stack

```
kubectl apply -k k8s/deploy/overlays/dev/ --server-side=true
--force-conflicts=true
```

18. 4. Check Deployment

```
kubectl get pods -n build
kubectl get apisixroute -A
```

Source Code Integration Options

Stacktic supports multiple integration approaches:

- Direct Git repository integration
- Dockerfile-based builds
- Helm chart integration
- Framework templates (Django, Node.js, etc.)
- Package and open-source tool integration

5. Private SaaS Deployment

Deploy Stacktic entirely in your IONOS Cloud infrastructure. Your domain, your registry, your cluster, your data - you control everything.

https://stackticio.github.io/documentation/docs/private_saas_deployment

Why Private SaaS?

Benefit	Why It Matters
Data Sovereignty	Your data never leaves your IONOS infrastructure
Compliance	Meet any regulatory requirement (GDPR, HIPAA, etc.)
Air-Gap Ready	Can run completely offline if needed
Your Domain	Use your own branding and domain names
Full Control	You decide when to update and how to configure

Private SaaS Prerequisites

- IONOS Cloud Managed Kubernetes cluster (version 1.24+)
- Your private container registry
- A domain you control
- Persistent storage (50GB+)
- Minimum resources: 2+ nodes, 4+ CPU cores, 8GB+ RAM

Installation Steps

Step 1: Get the Private SaaS Repository

Contact the Stacktic team to obtain access to the private SaaS repository.

```
git clone <private-saas-repo-url>
cd stacktic-private-saas
```

Step 2: Edit Configuration

Configure a simple YAML file with your IONOS-specific details:

```
registry: registry.yourcompany.com
domain: stacktic.yourcompany.com
environment: production

# Database restore
database:
  restore: true
  dumpFile: stacktic_saas.dump

# Updates (optional)
updates:
  enabled: true
```

That's it - simple configuration, no complex setup!

Step 3: Deploy with Single Command

Deploy everything with one command:

```
kubectl apply -k k8s/deploy/overlays/production \
  --server-side=true \
  --force-conflicts=true
```

What happens automatically:

- Builds and pushes images to your IONOS-connected registry
- Deploys PostgreSQL cluster with High Availability
- Restores database from provided dump
- Deploys API, UI, and worker components
- Configures domain and TLS certificates
- Applies security policies
- Platform ready to use

Check deployment status:

```
kubectl get pods -n stacktic-saas -w
```

Step 4: Access Your Private SaaS Instance

Open your browser and navigate to:

`https://stacktic.yourcompany.com`

Login with credentials provided by the Stacktic team.

Important: Change your password immediately after first login.

Updates and Maintenance

With Internet Connection

Stacktic can push updates remotely to your database. You will receive pre-notification before any updates are applied.

Air-Gapped Environment

For air-gapped deployments, updates can be manually transferred. See the versioning and migration documentation for detailed procedures.

Deployment Time

⏱ Total Deployment Time: Approximately 30 minutes

6. Support & Resources

Troubleshooting

Pods Not Starting

Check pod status and logs:

```
kubectl get pods -n stacktic-saas
kubectl logs <pod-name> -n stacktic-saas
```

Common issues to check:

- Registry credentials in values.yaml are correct
- IONOS cluster has enough resources allocated
- Database is ready and accessible
- Storage provisioner is working correctly

Cannot Access UI

Check ingress routes:

```
kubectl get apisixroutes.apisix.apache.org -A
```

Verify:

- DNS points to your IONOS cluster load balancer
- TLS certificate is valid
- APISIX ingress controller is running
- Routes are properly configured

Contact Support

Contact Type	Email / Details
Technical Support	support@stacktic.io
General Inquiries	info@stacktic.io
IONOS Partnership	info@stacktic.io (mention IONOS partnership)

Additional Resources

- **Q&A and Differentiators:** https://www.stacktic.io/differentiators
- **Vision:** https://stackticio.github.io/documentation/docs/vision
- **Product:** https://www.stacktic.io/product
- **Product Demos:** https://www.stacktic.io/demos
- **Example Repositories:** https://stackticio.github.io/documentation/docs/quick_start

This guide is provided for IONOS Cloud customers.

Stacktic is a certified partner of IONOS Cloud Managed Kubernetes.
For partnership inquiries: info@stacktic.io