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The Confluence Data Center guide for success
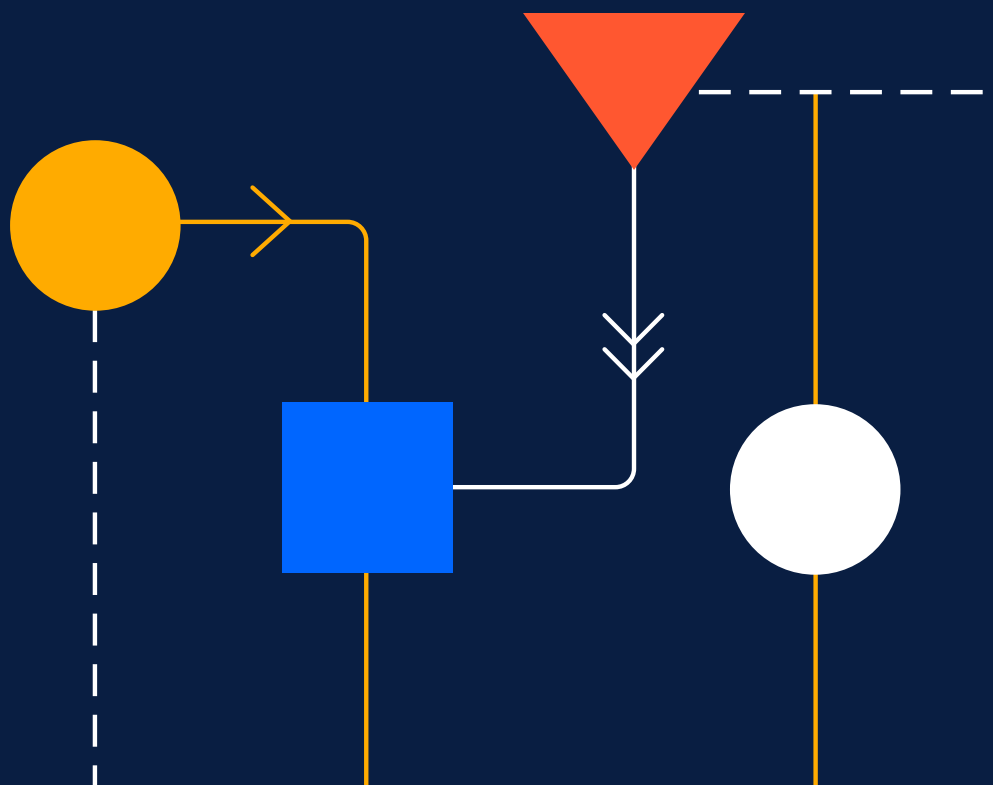
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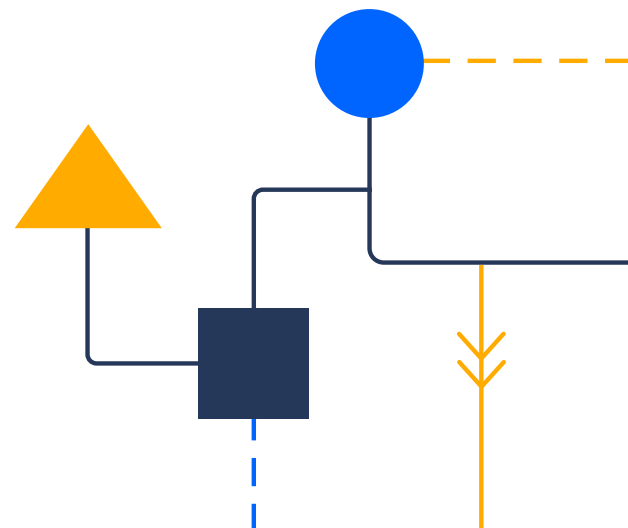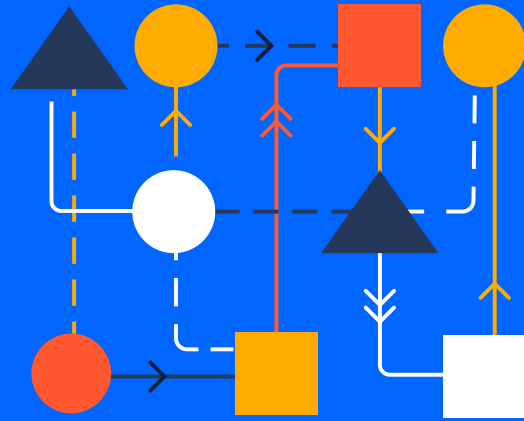
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Confluence Data Center: optimized for scale

Confluence Data Center: optimized for scale

Confluence connects teams within your organization, empowering teams to innovate at scale. If you're experiencing rapid and unanticipated user growth, work stopping when Confluence is down, or are in need of a disaster recovery plan, it may be time to upgrade Confluence Data Center.

In this guide, we'll run through everything you need to know about making the switch.

Built for administrators who prepare for the future

Confluence Data Center is a self-managed enterprise edition that gives you the reliability and compliance your organization demands, with the infrastructure to manage team growth without compromise.

In addition to the capabilities available in our Server product, our Data Center products offer a number of features and added benefits, such as:

- Scale and performance
- Security, compliance and governance
- Infrastructure and automation
- Reliability and stability
- Verified ecosystem
- Additional support

Data Center products allow you to:

Innovate at scale

Empower teams and drive success with the horizontal scalability required for seamless collaboration.

Grow fast and grow smart

Scale with confidence and build a long-term strategy for scaling teams, applications, and infrastructure.

Trust your tools

In the face of tough compliance, usage, and geographic constraints, your business can depend on our tooling and practices to get stuff done, at scale.

Balance autonomy and control

As growth accelerates, Data Center balances team autonomy with the right controls and governance.

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Your Confluence Data Center deployment

Your Confluence Data Center deployment

Understanding the difference between Confluence Server & Data Center

There are two products that allow you to run Confluence in your own environment: Confluence Server and Confluence Data Center. If you're already familiar with Confluence, you may already be using Confluence Server.

We want all teams to get the most out of Confluence, so the core features are available for everyone on Confluence Server and Confluence Data Center.

Some features are available specifically for customers with a Data Center license. These may be specific to the needs of larger enterprises, or may provide additional infrastructure or administrative options to help you strike a balance between growth and control of your Confluence instance. These features include:

- Read-only mode to help minimize planned downtime
- CDN support to improve geo-performance
- Rate limiting to improve instance stability and self-protection, and
- Advanced permissions management features for easier administration

You can now access Data Center features on your current infrastructure by simply applying a Data Center license. Or, if your organization needs the benefits of a clustered architecture, you can set up clusters before migrating to Data Center.
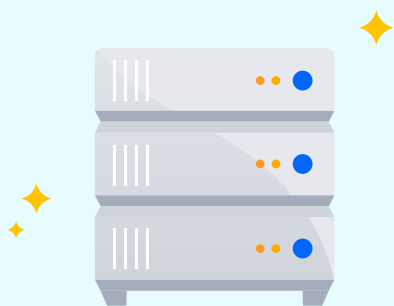
If you choose to run Confluence Data Center in a cluster, each cluster includes:

- Multiple identical application nodes running Confluence Data Center
- A load balancer to distribute traffic to all of your application nodes
- A shared file system that stores attachments, and other shared files
- A database that all nodes read and write to

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Getting started

Getting started

Whether you're upgrading from Confluence Server or spinning up a new instance of Confluence Data Center, setting up a new install of Confluence is no easy task. As an administrator, you'll need to set aside time to understand the requirements, make a plan of attack, and execute on it. You might also encounter roadblocks, such as bureaucratic or budgetary constraints within your organization.

We're confident that the benefits of upgrading to Confluence Data Center—including high availability, read-only mode, advanced permissions management, infrastructure choice and scalability—will make this investment of time and effort worth it for you, your team and your organization's users. You can think of this guide as a recipe for getting started, and all of the links to technical documentation as the ingredients you'll need to be successful.

> In the next few sections, you'll find helpful tips and links to technical documentation you'll need to be successful.

If you've already set up your Confluence Data Center instance, feel free to skip ahead.

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Read me

Read me

Before downloading and installing Confluence Data Center, we've outlined a few considerations you should take into account. The decisions you make now will impact how you set up your Confluence Data Center instance, so be sure to take your time to understand the technical requirements and necessary investments.

Performance recommendations and requirements

You can run the Confluence Data Center application on a single server, just like a Server installation. This allows you to take advantage of Data Center-only features without adding to your infrastructure.

Or, you can run Confluence Data Center in a cluster with multiple application nodes, and a load balancer to direct traffic. If you don't already have a load balancer, shared file system, and supported database, it's time to make the necessary procurement requests.

> You can find a full list of system requirements on our documentation site.

Regardless of how you deploy, there may be hardware investments required. Once you check these requirements, you'll also need to tune Confluence for improved performance and ensure you and your team have the right skills and tools to investigate your instance's performance.

On-premise vs. infrastructure as a service

One of the benefits of Atlassian's Data Center products is infrastructure choice. You can deploy on-premise or with infrastructure as a service (IaaS) vendors like AWS and Azure to best suit your company's existing investments. In fact, more and more customers are choosing to deploy Atlassian tools using IaaS providers: 62% of Atlassian's self-managed customers are choosing to deploy their applications on a virtual architecture.

We know that for many teams, the transition to cloud is a gradual undertaking, and there are many advantages and risks to consider. The priority of your organization's needs can help determine what type of infrastructure you choose.

Review your disaster recovery strategy

Partial or complete system outage? Avoid chaos and keep business running smoothly with a disaster recovery strategy, which is a key part of any business continuity plan.
It outlines the processes to follow in the event of a disaster, to ensure that your business can recover and continue operating.

With disaster recovery for Atlassian's Data Center products, you can configure index replication, attachment updates, and database synchronization to comply with your DR plan's specific requirements. For Confluence Data Center, this typically includes setting up a cold standby strategy.

This means your standby Confluence instance won't be continuously running and that in the event of an outage, you will need to take some administrative steps to start the standby instance.

No two disaster recovery plans are exactly alike, and we recommend you keep a full runbook of steps on file, away from your production system. Make your runbook detailed enough so that anyone on your team can complete the steps and recover your service, regardless of prior knowledge or experience.

A well prepared runbook should include:

- Detection of the problem

- Isolation of the current production environment and bringing it down gracefully

- Synchronization of data between failed production and intended recovery point

- Warm up instructions for the recovery instance

- Documentation, communication, and escalation guidelines
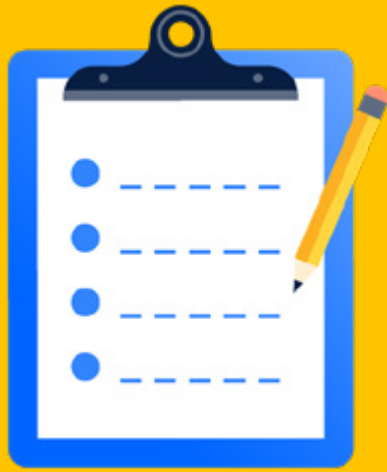
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Step-by-step

Step-by-step

Downloading a license key is just the first step. Now, we'll walk you through the process of setting up Confluence Data Center step-by-step.

Get to know the Confluence Data Center architecture

The application runs on a single server

Depending on your organization's requirements, you may want to run your Data Center application on a single server – just like a Server installation. This is what the architecture looks like:

Your network

Load balancer

Shared database

Shared file system
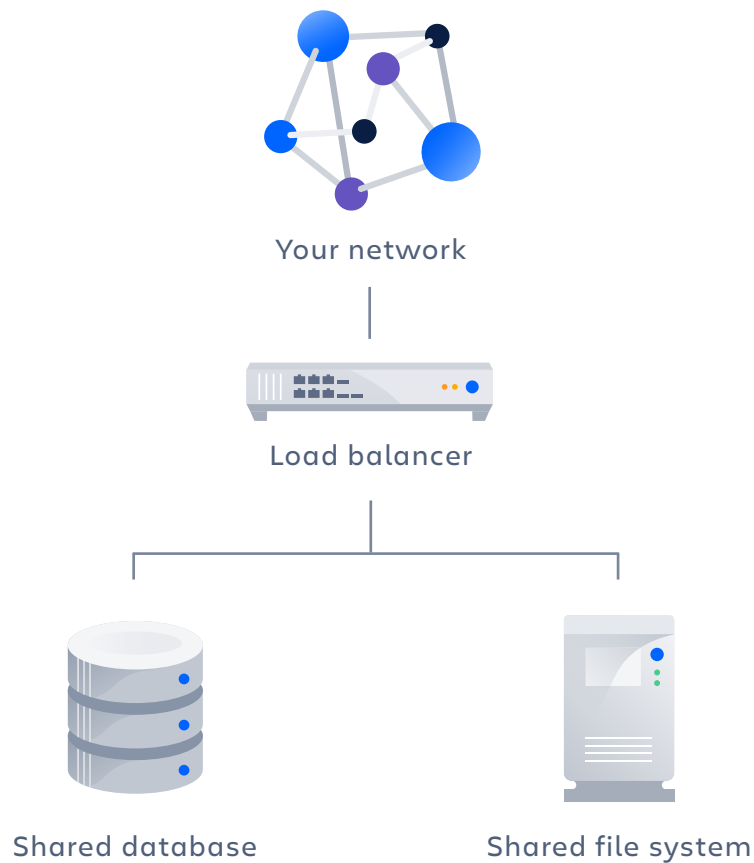
Deploying Data Center on a single server means that you can easily upgrade from Server to Data Center without adding to your infrastructure. Simply download a Confluence Data Center license to instantly access the growing suite of enterprise features.

Single server Data Center deployments are also cluster compatible, which means you can switch to a clustered setup whenever you're ready to scale.

The application is run in a cluster with multiple nodes

You can also run Confluence Data Center in a cluster with multiple nodes, and a load balancer to direct traffic. This is critical for organizations where uptime, stability, and performance at scale are essential for every team to be productive.

Your network

Load balancer

| Node 1 | Node 2 | Node 3 | Node + n |

Confluence cluster nodes

Shared database
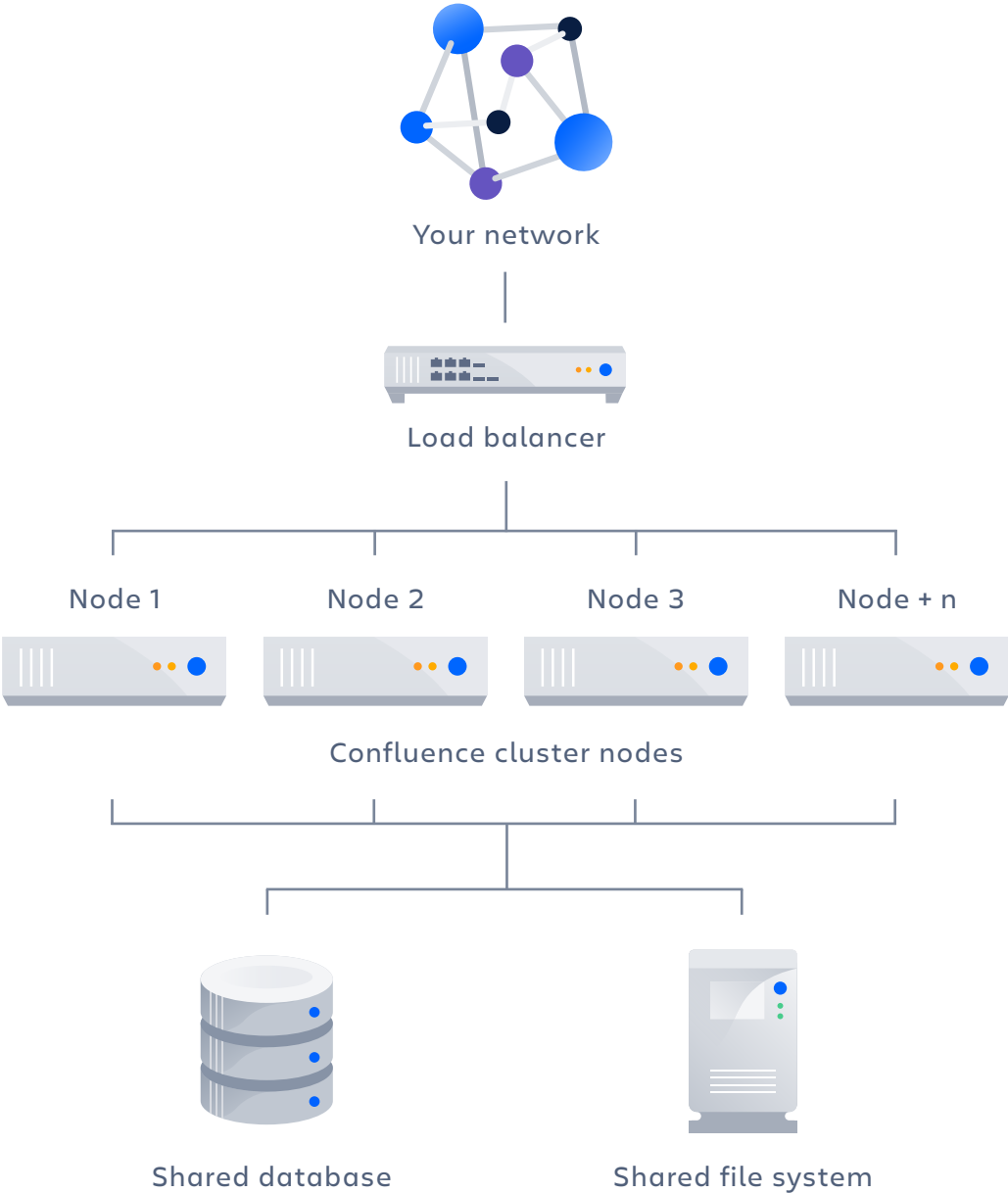
Shared file system

Data Center clusters include:

- **Multiple application nodes**
  The cluster of nodes you see here will share the workload of incoming requests.

- **A shared file system**
  Confluence Data Center supports any shared file system. The shared file system stores things like attached files, avatars, icons, exported files and shared caches.

- **A database that all nodes read and write to**
  Confluence Data Center supports the same databases that are supported for Confluence Server: Oracle, MS SQL, MySQL, and PostgreSQL.

- **A load balancer**
  The load balancer distributes requests from your users to the cluster nodes. If a node goes down, the load balancer immediately detects the failure and automatically directs requests to the other nodes within seconds. You can use any load balancer that supports session affinity, or sticky sessions.

Clustering has a number of benefits:

- **High availability and failover**
  If one node in your application cluster goes down, the others take on the load, ensuring your users have uninterrupted access to the application.

- **Performance at scale**
  Each node added to your cluster increases concurrent user capacity, and improves response time as user activity grows. You can also deploy nodes dedicated to specific functions. For example, you could direct all of your API traffic to a specific node (or number of nodes) so your normal user traffic is never slowed down by ongoing API jobs.

- **Scalability**
  Add new nodes to your cluster without downtime or additional licensing fees. Indexes and apps are automatically synced.

Assess your requirements

To get the most out of Data Center, you'll want to tailor the way you set up your cluster to your organization's needs. We recommend assessing:

- The number of users you have
- The amount of data you have
- Your expected usage patterns
- Any specific requirements, such as high availability and disaster recovery, and
- The resources your organization has allocated to maintain Confluence

On our documentation site, we've provided sizing and performance benchmarks to help you assess your expected load, and predict performance. These benchmarks are based on averages, collected from a wide range of customers.

Provision your infrastructure

Once you've identified your organization's needs, you can start provisioning your infrastructure. To help you get started, we've provided a Confluence Data Center sample deployment and monitoring strategy.

If you choose to run in a clustered environment, we've also provided some guidance on node sizing and load balancer configuration:

Node sizing

For Confluence Data Center, your servers will need at least 6GB of RAM for the Confluence application and external process pool, which handles memory and CPU intensive tasks.

When estimating node sizes for Confluence Data Center, you will also need to ensure reliable network connections between nodes, and ideally use two physical network interface cards (NICs) for each node. One network card distributes user requests, and the other manages internode communication.

Disk space

You'll also want to ensure that you have enough disk space to accommodate usage, and that you have a plan for how to increase available disk space when required. To help with this, you can add alerts for different levels of free disk space - like a warning at 30% and error alert at 10%. When these alerts go off, you can expand available storage if the rate of consumption has been normal, or check for misbehaving processes if the rate of disk consumption has spiked abnormally.

Load balancer configuration

Confluence Data Center supports both hardware- and software-based load balancers.

A load balancer distributes traffic to a specific node in the cluster based on which algorithm you select or configure. Confluence Data Center doesn't require a specific type of balancing algorithm. However, Confluence Data Center uses sticky sessions – this means that you'll need to bind a session to the same node by enabling cookie-based sticky sessions (or session affinity) on the load balancer.

You'll also want to ensure that you have administrative access to each node behind the load balancer. This access is mainly for maintenance purposes. When you are performing maintenance, the load balancer should allow for a "graceful" shutdown of your nodes when removing them. This setting stops the load balancer from sending the node new connections, but keeps current ones active until they end on their own. Your load balancer guide will have more details on how to configure this functionality.

Your load balancer should also be configured to frequently monitor the status of each node, and ensure that it is sending traffic to normally operating nodes. You can check the status of the node, and the node will respond with an HTTP response and a JSON payload describing the state of the node. The load balancer can use either response for determining where to send live traffic.

In addition, you can prevent your load balancer from becoming a single point of failure in your environment by adding redundancy to your load balancing solution. You can do this by setting up two load balancers in an active-passive configuration, using a virtual IP address across both load balancers. If the active load balancer fails, it will failover to the passive load balancer.

Remember to always test that your load balancer configuration works as expected in your environment.

Plan your implementation

If you're new to Confluence, you can try out Confluence Data Center by downloading a free trial. This can help you identify dependencies and plan your path to production.

If you are moving from Confluence Server to Confluence Data Center, you'll want to build a plan for your implementation. It's important to set aside time to create this plan, since migrating to Confluence Data Center will have an impact on your IT team and other infrastructure components.

A successful implementation plan will include the following steps:

Building a project team

We've found that most organizations need to coordinate multiple IT functions in order to get all of the components of a deployment correctly configured. We recommend creating a project plan as early as possible, and communicating with individuals and stakeholders who are interested and impacted by a move to Confluence Data Center.

Your project team will be made up of two types of roles:

Strategic roles	Tactical roles
Strategic roles contribute to planning or major decisions throughout the project. These roles include: an executive sponsor, a project steering committee, and a technical product or project manager to own the schedule and communications.	Tactical roles will contribute to the process and can include: power users, database administrators, network engineers, site reliability engineers, security engineers & system administrators who will answer frontline support issues during migration.

Reviewing your current Confluence Server installation

Confluence Data Center's horizontally scalable cluster allows it to handle significantly more concurrent users. Adding more cluster nodes is like opening up more registers at the supermarket. It helps process more transactions, but it doesn't make specific transactions faster. People with full carts still take a long time.

In order to fully leverage Confluence Data Center's value, it's important to completely review and take a baseline measurement of your existing Confluence Server installation's system functionality and performance.

Then, you'll want to make performance optimizations on your Confluence Server instance. There are a number of things you can check for including swapping activity, database bottlenecks, cache tuning, and more.

Finally, you'll want to assess how users interact with Confluence, since this also affects performance. Any usage characteristics that can place strain on the system will need to be addressed or restricted before upgrading to Confluence Data Center. You'll need to determine the correct balance between user functionality and performance that aligns with your organization's needs.

Don't forget – if you're using any third-party apps or add-ons, you'll also want to review their usage. Ensure all apps have a strong use case or business need within your organization and remove any apps that aren't crucial to system functionality.

If you're already using Marketplace apps with an existing Confluence Server instance – once you upgrade to Confluence Data Center, you will be prompted to purchase a Data Center approved app license when you upgrade. While most Marketplace vendors now offer Data Center approved versions of their apps, in the event that the vendor does not offer one, you can continue to run your Server app version in your Data Center environment until a Data Center version is introduced.

Documenting current processes

Documenting aspects of your current Confluence Server installation, also known as creating a runbook, will help guide configuration options for your Confluence Data Center implementation. Some items to note include general system behavior benchmarks and API access patterns for Confluence, as well as backup, reporting and monitoring processes and any maintenance or disaster recovery plans.

Install and configure Confluence Data Center

Once you've provisioned your infrastructure and created your plan, it's time to install and configure Confluence Data Center on a test environment.

How you install depends on your environment:

- If you're installing Confluence Data Center on your own hardware, you'll start by applying your Data Center license. If you are setting up a clustered environment, you'll install Confluence on your first node. Then you'll add more Confluence nodes and configure your load balancer. Once setup is complete, you can start Confluence one node at a time before testing your cluster.

- If you're using an IaaS platform, Confluence Data Center currently supports deployments on AWS and Azure. Use our Quick Start guide to launch, configure, and run the AWS compute, network, storage, and other services required to deploy a specific workload on AWS, using AWS best practices for security and availability. Or deploy in Azure with the Atlassian template for Azure Resource Manager. This template can be used as a starting block for your production deployment, before you configure it to match your organization's best practices, or to spin up a test environment with basic data.

> Regardless of what kind of environment you've chosen to use, remember to thoroughly test and optimize your Confluence Data Center installation before launching on production.

Maintain and scale Confluence Data Center

Once you've got Confluence Data Center deployed in production, it's important to regularly test and monitor your Confluence Data Center instance to keep it healthy, to ensure that your users have access to their content around the clock. Read on for next steps!

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Next steps

Next steps

Whether you're new to Confluence Data Center, or looking to keep your existing instance healthy, here are the next steps to take.

New users: onboarding and tips for success

If your company is new to Confluence, once you've installed Confluence Data Center, it's time to introduce Confluence to your team. Use these tips to set them up for success:

Invite users, your way

There are a number of ways to add users to Confluence. If user signup is enabled on your instance, people can add themselves as users. Or, you can invite them by sending them an invitation link - simply copy and paste the link, or prompt Confluence to send the link via email.

As an admin, you can also manually add new users or configure user directories and connect Confluence to your existing identity provider or Crowd. Using SAML for authentication means that invited users don't even have to worry about choosing a password before they start collaborating in Confluence.

Download the Confluence mobile apps

We know that work doesn't just happen while you or your team are at your desk. Sometimes, you need to be able to stay on top of the latest developments, capture a great idea on the go, and move work forward – wherever you happen to be. The Confluence Server mobile apps for Android and iOS allow you and your team to collaborate anywhere, anytime.

Use templates to create new pages

When adding a new page, you don't have to start from scratch. New pages can be created from a template – a Confluence page with predefined content. There are two types of templates: space templates, which are available in specific spaces, and global templates, which are available in every space on a Confluence site. Templates are defined by space or Confluence administrators respectively. If you're a system administrator, you can also download predefined templates.

Add extra functionality with macros

Macros help expand the capabilities of Confluence pages, allowing you to add extra functionality or include dynamic content. Use the Attachments macro to list files attached to a page, use the Page Excerpt and Page Include macros to link content across pages, or use the Widget Connector macro to include things like a YouTube video or Twitter feed.

Save time with keyboard shortcuts

Did you know there are keyboard shortcuts available for Confluence? Just like on your Mac or PC, Confluence has some pretty nifty shortcuts to help you find pages faster, organize and edit information, and stay connected to the rest of your team and what they're working on. Download and share the full Confluence keyboard shortcut guide here. You can also print the guide and keep it at your desk, or share it with your colleagues.

Testing, maintenance, customization, and more

Keep your instance healthy with regular testing and maintenance

Regular testing and monitoring helps keep your Confluence Data Center instance healthy, and ensures users have access to their content around the clock. Testing helps determine whether your infrastructure is capable of supporting adequate performance levels under typical loads, and monitoring ensures that Confluence will continue performing at an optimal level. Creating a strong Confluence maintenance strategy requires plenty of strategy and foresight, so use the resources below to plan ahead.

Performance Testing Framework

To help you conduct tests, we've created the Performance Testing Framework for Confluence. Use the framework with realistic usage patterns and load to set up, execute, and analyze performance. A good time to use the framework is when you're testing significant configuration changes, like adding Marketplace apps, before making changes in production.

Read-only mode

When you are upgrading or performing other maintenance, read-only mode is a Confluence Data Center feature that allows you to minimize the impact of planned downtime on your organization. It helps keep users working while you perform a range of maintenance related activities. Use cases for read-only mode include release upgrades, infrastructure upgrades, site migrations, site consolidation, or during unexpected situations when you may want to put the brakes on content creation.

Ensure the best experience for distributed teams

If you have teams that work from a location that's geographically distant from your server location, it typically means they have to wait longer for a page to be fetched, an issue to open, or a board to load. Utilizing a content delivery network (CDN) can speed up that response time as much as possible by distributing the static assets of these actions spatially, relative to end-users.

This guide will walk you through how to configure your CDN.

Upgrading between Confluence versions

Regularly upgrading your Confluence Data Center instance ensures that you and your users have access to the latest and greatest feature improvements. There are no hard and fast rules for how often you should upgrade, but we do recommend upgrading to supported versions.

Enterprise releases

We've introduced enterprise release versions of Confluence for customers who are operating complex deployments, and for whom upgrading is a process that can take several months. At least one feature release every year will be designated as an Enterprise release and will receive bug fixes for a longer period of time than a standard feature release.

Unlock more from Confluence with Marketplace apps

Using Confluence alone may not meet all of your organization's needs, and the Atlassian Marketplace is your go-to place for finding hundreds of apps that can extend and improve your experience using Confluence. By adding functionality, such as calendar syncing, Q&A, publishing workflows, diagramming and more, Marketplace apps help your organization carry out some of its most important functions on Confluence.

Additional resources

Additional resources

If you've got a lot on your plate, there are plenty of additional resources to help you during the setup process.

Troubleshooting Guide

We've created a troubleshooting guide to answer your most common questions. If you need more help, you can raise a support request from within Confluence's General Configuration menu or visit support.atlassian.com and follow the prompts.

Atlassian Community

To find answers, support, and inspiration from other Atlassian users using products at scale, join the Enterprise community group.

Customer Success Manager

As a new Data Center customer, you'll have access to a dedicated Customer Success Manager to use as an ongoing resource throughout your first year.

Priority Support (free for six months)

Priority Support offers an elevated level of support and is designed to provide you with faster response times, more flexibility for planned downtime, inbound phone support for production-impacting issues, access to teams of advanced support engineers for critical issues and extended coverage hours.

For the first 180 days of your Data Center license, you'll have free access to Priority Support. This means that when you submit a request to Atlassian Support, your high priority issues will route directly to senior engineers committed to delivering higher SLAs, faster triage, and faster resolutions.

Premier Support

Premier Support is Atlassian's account-level support offering. As our highest level of support, it includes 24/7 access to a team of dedicated senior support engineers, coverage for all of your Atlassian applications, our fastest coverage SLAs, inbound phone support, assistance with scheduled outages, and maintenance work. Our critical incident management process also includes 24-hour global warm handoffs and escalations.

Our Premier Support teams are made up of the most tenured support engineers at Atlassian. To help establish familiarity with your account, Premier Support engineers perform a thorough onboarding of your products, environments, and contacts. This includes an onboarding call, questionnaire, and analysis of current diagnostic information. Premier Support engineers also perform application health checks to ensure your Atlassian products are running smoothly – and help you proactively address issues and gain insight into potential pitfalls.

Technical Account Management

Looking for a subject matter expert? TAMs are experienced solutions advisors from Atlassian—they can unlock the potential of your tools, improve team collaboration throughout your organization, and help you operate and use our products effectively at scale. By delivering customized recommendations from technical and industry experience, TAMs remove adoption friction and get your teams on the right path sooner. Make faster team decisions on changes in processes and tooling.

Enterprise Partners

Our Enterprise Partners work with some of Atlassian's largest customers to conduct hands-on system integrations, deployments, and upgrades. They help deliver an incredible experience with all of the Atlassian products by providing dedicated services and solutions for complex enterprise needs. Partners are located all over the world and will work with your team to customize Confluence to your specific needs.