

Quorum Blockchain Service

Quorum Blockchain Service is a fully managed ledger service that gives users the ability to grow and operate blockchain networks at scale in Azure.

By providing unified control for both infrastructure management as well as blockchain network governance, Azure Blockchain Service provides:

- Simple network deployment and operations
- Built-in consortium management
- Develop smart contracts with familiar development tools

Quorum Blockchain Service is designed to support multiple ledger protocols. It is built on Consensys [Quorum](#)'s Ethereum ledger using the [Istanbul Byzantine Fault Tolerance \(IBFT\)](#) consensus mechanism.

These capabilities require almost no administration and all are provided at no additional cost. You can focus on app development and business logic rather than allocating time and resources to managing virtual machines and infrastructure. In addition, you can continue to develop your application with the open-source tools and platform of your choice to deliver your solutions without having to learn new skills.

Network deployment and operations

Deploying Azure Blockchain Service is done through the Azure portal, Azure CLI, or through Visual Studio code using the Azure Blockchain extension. Deployment is simplified, including provisioning both transaction and validator nodes, Azure Virtual Networks for security isolation as well as service-managed storage. In addition, when deploying a new blockchain member, users also create, or join, a consortium. Consortia enable multiple parties in different Azure subscriptions to be able to securely communicate with one another on a shared blockchain. This simplified deployment reduces blockchain network deployment from days to minutes.

Performance and service tiers

Quorum Blockchain Service offers three service tiers: *Developer*, *Business* and *Enterprise*. Each tier offers different performance and capabilities to support lightweight development and test workloads up to massively scaled production blockchain deployments. Use the *Basic* tier for development, testing, and proof of concepts. Use

the *Business and Enterprise* tiers for production grade deployments. All tiers include at least one transaction node, and one validator node (Developer) or two validator nodes (Business, Enterprise).

Every Tier Includes Support

To ensure your success, support is included in every tier of Quorum Blockchain Service. Support

				Support Level		
	Ticket Category	Type of requests	First Response Time	Bronze	Silver	Gold
Production Environment Only	S4 - Low	General knowledge requests	2 Business Days	✓	✓	✓
	S3 - Normal	Day-to-day operational errors	1 Business Day	✓	✓	✓
	S2 - High	Core/ significant processing capability is limited	4 Business Hours		✓	✓
	S1 - Urgent	Core functionality is compromised/ inaccessible	1 Hour (24/7)			✓

- Business Days are Monday-Friday, excluding nationally recognized holidays, aligned with the customer's main time-zone
- Business Hours are 8 am - 5 pm on business days, aligned with the customer's time-zone

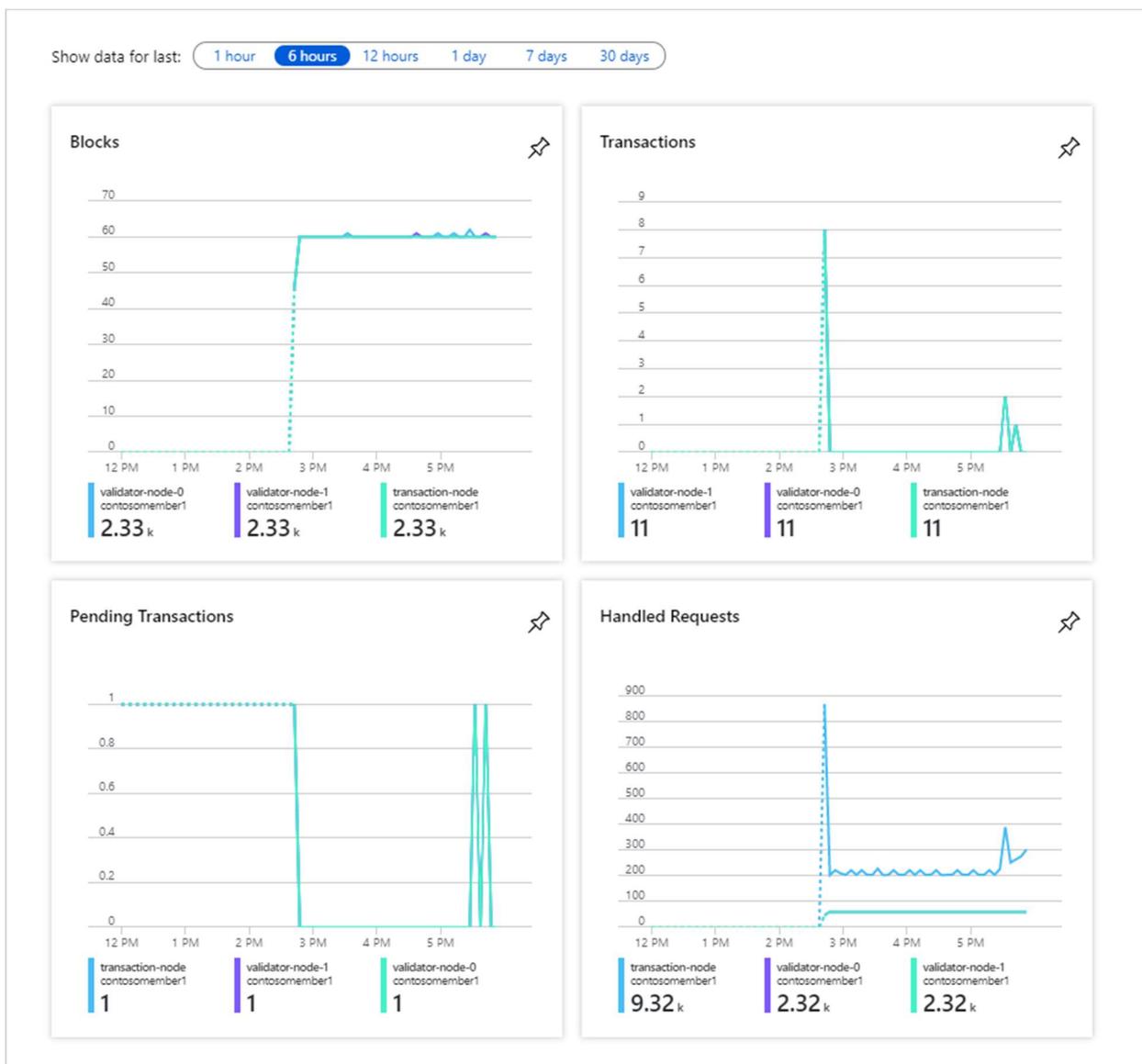
Security and maintenance

After provisioning your first blockchain member, you have the ability to add additional transaction nodes to your member. By default, transaction nodes are secured through firewall rules and require configuration for access. Additionally, all transaction nodes encrypt data in motion via TLS. Multiple options exist for securing transaction node access, including firewall rules, access keys, and Azure Active Directory integration. For more information, see [configure transaction nodes](#) and [configure Azure Active Directory access](#).

As a managed application, Quorum Blockchain Service ensures that your blockchain member's nodes are patched with the latest host operating system and ledger software stack updates, configured for high-availability (Business and Enterprise tiers only), eliminating much of the DevOps required for traditional IaaS blockchain nodes.

Monitoring and logging

In addition, Quorum Blockchain Service provides rich metrics through Azure Monitor Service providing insights into nodes' CPU, memory, and storage usage. Azure Monitor also provides helpful insights into blockchain network activity such as transactions and blocks mined, transaction queue depth, and active connections. Metrics can be customized to provide views into the insights that are important to your blockchain application. In addition, thresholds can be defined through alerts enabling users to trigger actions such as sending an email or text message, running a Logic App, Azure Function or sending to a custom-defined webhook.



Built-in consortium management

When deploying your first blockchain member, you either join or create a new consortium. A consortium is a logical group used to manage the governance and connectivity between blockchain members who transact in a multi-party process. Quorum Blockchain Service provides built-in governance controls through pre-defined smart contracts, which determine what actions members in the consortium can take. These governance controls can be customized as necessary by the administrator of the consortium. When you create a new consortium, your blockchain member is the default administrator of the consortium, enabling the ability to invite other parties to join your consortium. You can join a consortium only if you have been previously invited. When joining a consortium, your blockchain member is subject to the governance controls put in place by the consortium's administrator.

Consortium management actions such as adding and removing members from a consortium can be accessed through PowerShell and a REST API. You can programmatically manage a consortium using common interfaces rather than modifying and submitting solidity-based smart contracts.

Develop using familiar development tools

Based on the open-sourced Quorum Ethereum ledger, you can develop applications for Quorum Blockchain Service the same way as you do for existing Ethereum applications. Working with leading industry partners, the Azure Blockchain Development Kit Visual Studio Code extension allows developers to leverage familiar tools like Truffle Suite to build smart contracts. Using our Visual Studio Code extension, you can create or connect to an existing consortium so that you can build and deploy your smart contracts all from one IDE.