

Supported Networks - Direct Funding Method

You are viewing the VRF v2 guide - Direct funding method.

To learn how to request random numbers with a subscription, see the [Subscription Method](#) guide.

Security Considerations

Be sure to review your contracts with the [security considerations](#) in mind.

Chainlink VRF allows you to integrate provably fair and verifiably random data in your smart contract.

For implementation details, read [Introduction to Chainlink VRF v2 Direct funding method](#).

Wrapper parameters

These parameters are configured in the VRF v2 Wrapper contract. You can view these values by running `getConfigon` the VRF v2 Wrapper or by viewing the VRF v2 Wrapper contract in a blockchain explorer.

- `uint32 stalenessSeconds`: How long the VRF v2 Wrapper waits until we consider the ETH/LINK price used for converting gas costs to LINK is stale and use `fallbackWeiPerUnitLink`.
- `uint32 wrapperGasOverhead`: The gas overhead of the VRF v2 Wrapper's `fulfillRandomWords` function.
- `uint32 coordinatorGasOverhead`: The gas overhead of the coordinator's `fulfillRandomWords` function.
- `uint8 maxNumWords`: Maximum number of words that can be requested in a single wrapped VRF request.

Coordinator parameters

Some parameters are important to know and are configured in the coordinator contract. You can view these values by running `getConfigon` the coordinator or by viewing the coordinator contract in a blockchain explorer.

- `uint16 minimumRequestConfirmations`: The minimum number of confirmation blocks on VRF requests before oracles respond
- `uint32 maxGasLimit`: The maximum gas limit supported for `fulfillRandomWords` callback. Note that you still need to subtract the `wrapperGasOverhead` for the accurate limit, as explained in [Direct funding limits](#).

Fee parameters

Fee parameters are configured in the VRF v2 Wrapper and the VRF v2 Coordinator contracts and specify the premium you pay per request in addition to the gas cost for the transaction. You can view them by running `getConfigon` the VRF v2 Wrapper:

- The `uint32 fulfillmentFlatFeeLinkPPM` parameter is a flat fee and defines the fees per request specified in millionths of LINK.
- The `uint8 wrapperPremiumPercentage` parameter defines the premium ratio in percentage. For example, a value of 0 indicates no premium. A value of 15 indicates a 15% premium.

The details for calculating the total transaction cost can be found [here](#).

Configurations

VRF v2 coordinators for direct funding are available on several networks. To see a list of coordinators for subscription funding, see the [Subscription Configurations](#) page.

Understand Risks associated with Bridges

If you are using a cross-chain bridge to transfer your LINK tokens, read the [Bridges and Associated Risks](#) guide to understand what cross-chain bridges are and the risks associated with using them.

Ethereum mainnet

Item Value LINK Token [0x514910771AF9Ca656af840dff83E8264EcF986CA](#) VRF Wrapper [0x5A861794B927983406fCE1D062e00b9368d97Df6](#) VRF Coordinator [0x271682DEB8C4E0901D1a1550aD2e64D568E69909](#) Wrapper Premium Percentage 0 Coordinator Flat Fee 0.25 LINK Minimum Confirmations 3 Maximum Confirmations 200 Maximum Random Values 10 Wrapper Gas overhead 40000 Coordinator Gas Overhead 90000

Sepolia testnet

Sepolia Faucets

Testnet LINK and ETH are available from faucets.chain.link. Testnet ETH is also available from several public [ETH faucets](#).

ItemValueLINK Token0x779877A7B0D9E8603169DdbD7836e478b4624789VRF
Wrapper0xab18414CD93297B0d12ac29E63Ca20f515b3DB46VRF
Coordinator0x8103B0A8A00be2DDC778e6e7eaa21791Cd364625Wrapper Premium Percentage0Coordinator Flat Fee0.25
LINKMinimum Confirmations3Maximum Confirmations200Maximum Random Values10Wrapper Gas
overhead40000Coordinator Gas Overhead90000

BNB Chain mainnet

Important

The LINK provided by the [BNB Chain Bridge](#) is not ERC-677 compatible, so cannot be used with Chainlink oracles. However, it can be [converted to the official LINK token on BNB Chain using Chainlink's PegSwap service](#).

ItemValueLINK Token0x404460C6A5EdE2D891e8297795264fDe62ADBB75VRF
Wrapper0x721DFbc5Cfe53d32ab00A9bdFa605d3b8E1f3f42VRF
Coordinator0xc587d9053cd1118f25F645F9E08BB98c9712A4EEWrapper Premium Percentage0Coordinator Flat Fee0.005
LINKMinimum Confirmations3Maximum Confirmations200Maximum Random Values10Wrapper Gas
overhead40000Coordinator Gas Overhead90000

BNB Chain testnet

BNB Chain Faucet

Testnet LINK is available from <https://faucets.chain.link/bnb-chain-testnet>

ItemValueLINK Token0x84b9B910527Ad5C03A9Ca831909E21e236EA7b06VRF
Wrapper0x699d428ee890d55D56d5FC6e26290f3247A762bdVRF
Coordinator0x6A2AA07396B36Fe02a22b33cf443582f682c82fWrapper Premium Percentage0Coordinator Flat Fee0.005
LINKMinimum Confirmations3Maximum Confirmations200Maximum Random Values10Wrapper Gas
overhead40000Coordinator Gas Overhead90000

Polygon (Matic) mainnet

Important

The LINK provided by the [Polygon \(Matic\) Bridge](#) is not ERC-677 compatible, so cannot be used with Chainlink oracles. However, it can be [converted to the official LINK token on Polygon \(Matic\) using Chainlink's PegSwap service](#)

ItemValueLINK Token0xb0897686c545045aFc77CF20eC7A532E3120E0F1VRF
Wrapper0x4e42f0adEB69203ef7AaA4B7c414e5b1331c14dcVRF
Coordinator0xAE975071Be8F8eE67addBC1A82488F1C24858067Wrapper Premium Percentage0Coordinator Flat
Fee0.0005 LINKMinimum Confirmations3Maximum Confirmations200Maximum Random Values10Wrapper Gas
overhead40000Coordinator Gas Overhead90000

Polygon (Matic) Mumbai testnet

Mumbai Faucet

Testnet LINK and MATIC are available from [the Polygon faucet](#) and <https://faucets.chain.link/mumbai>.

ItemValueLINK Token0x326C977E6efc84E512bB9C30f76E30c160eD06FBVRF
Wrapper0x99aFAf084eBA697E584501b8Ed2c0B37Dd136693VRF
Coordinator0x7a1BaC17Ccc5b313516C5E16fb24f7659aA5ebdWrapper Premium Percentage0Coordinator Flat Fee0.0005
LINKMinimum Confirmations3Maximum Confirmations200Maximum Random Values10Wrapper Gas
overhead40000Coordinator Gas Overhead90000

Avalanche mainnet

ItemValueLINK Token0x5947BB275c521040051D82396192181b413227A3VRF
Wrapper0x721DFbc5Cfe53d32ab00A9bdFa605d3b8E1f3f42VRF
Coordinator0xd5D517aBE5cF79B7e95eC98dB0f0277788aFF634Wrapper Premium Percentage0Coordinator Flat Fee0.005
LINKMinimum Confirmations1Maximum Confirmations200Maximum Random Values10Wrapper Gas
overhead40000Coordinator Gas Overhead90000

Avalanche Fuji testnet

Avax Fuji Faucet

Testnet LINK is available from <https://faucets.chain.link/fuji>

ItemValueLINK Token0x0b9d5D9136855f6FEc3c0993feE6E9CE8a297846VRF
Wrapper0x9345AC54dA4D0B5Cda8CB749d8ef37e5F02BBb21VRF
Coordinator0x2eD832Ba664535e5886b75D64C46EB9a228C2610Wrapper Premium Percentage0Coordinator Flat Fee0.005 LINKMinimum Confirmations1Maximum Confirmations200Maximum Random Values10Wrapper Gas overhead40000Coordinator Gas Overhead90000

Fantom mainnet

Important

You must use ERC-677 LINK on Fantom. ERC-20 LINK will not work with Chainlink services.

ItemValueLINK Token0x6F43FF82CCA38001B6699a8AC47A2d0E66939407VRF
Wrapper0xeDA5B00fB33B13c730D004Cf5D1aDa1ac191Ddc2VRF
Coordinator0xd5D517aBE5cF79B7e95eC98dB0f0277788aFF634Wrapper Premium Percentage0Coordinator Flat Fee0.0005 LINKMinimum Confirmations1Maximum Confirmations200Maximum Random Values10Wrapper Gas overhead40000Coordinator Gas Overhead90000

Fantom testnet

Fantom Testnet Faucet

Testnet LINK is available from <https://faucets.chain.link/fantom-testnet>

ItemValueLINK Token0xfaFedb041c0DD4fA2Dc0d87a6B0979Ee6FA7af5FVRF
Wrapper0x38336BDaE79747a1d2c4e6C67BBF382244287ca6VRF
Coordinator0xbd13f08b8352A3635218ab9418E340c60d6Eb418Wrapper Premium Percentage0Coordinator Flat Fee0.0005 LINKMinimum Confirmations1Maximum Confirmations200Maximum Random Values10Wrapper Gas overhead40000Coordinator Gas Overhead90000

Arbitrum mainnet

ItemValueLINK Token0xf97f4df75117a78c1A5a0DBb814Af92458539FB4VRF
Coordinator0x41034678D6C633D8a95c75e1138A360a28bA15d1VRF
Wrapper0x2D159AE3bFf04a10A355B608D22BDEC092e934faWrapper Premium Percentage0Coordinator Flat Fee0.0005 LINKMinimum Confirmations1Maximum Confirmations200Maximum Random Values10Wrapper Gas overhead40000Coordinator Gas Overhead90000

Arbitrum Sepolia testnet

Arbitrum Sepolia Testnet Faucet

Testnet LINK is available from <https://faucets.chain.link/arbitrum-sepolia>

ItemValueLINK Token0xb1D4538B4571d411F07960EF2838Ce337FE1E80EVRF
Coordinator0x50d47e4142598E3411aA864e08a44284e471AC6fVRF
Wrapper0x1D3bb92db7659F2062438791F131CFA396dfb592Wrapper Premium Percentage0Coordinator Flat Fee0.0005 LINKMinimum Confirmations1Maximum Confirmations200Maximum Random Values10Wrapper Gas overhead40000Coordinator Gas Overhead90000