

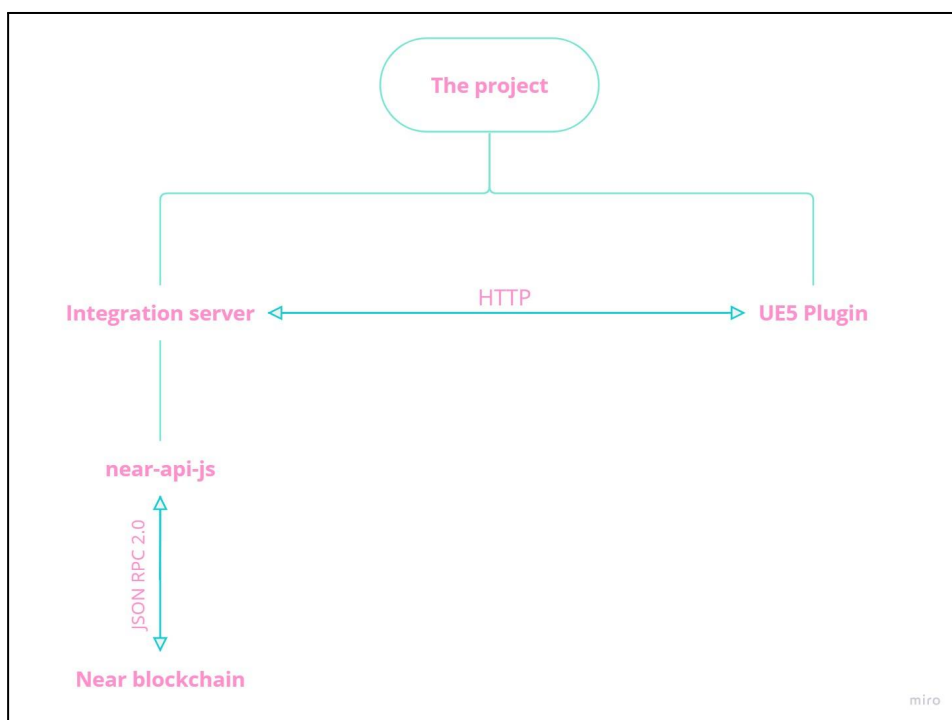
Unreal Engine 5 Plugin for NEAR Protocol

[Unreal Engine Near Plugin](https://github.com/Red-Pirates/near-plugin-ue) is a plugin that contains the basic functionality for interaction of Unreal Engine games with the Near Protocol blockchain (mainnet and testnet). To use the plugin, place it in the Plugins folder of your project and start the integration server. You can read more about the launch in the **README.MD** of the project.

Project link: <https://github.com/Red-Pirates/near-plugin-ue>

The project consists of two parts:

- An integration backend code (server) written in Node.js that interacts with the Near blockchain using near-api-js library.
- A UE5 plugin that sends HTTP requests to the server and receives responses from it. Below is a diagram illustrating the interaction between project layers.



NEAR NODE.JS API

NEAR NODE.JS API contains the following functions:

URL	Description
POST /accounts	Create a new child account
GET /accounts/:accountId/balance	Get wallet balance by accountId
GET /accounts/:accountId/state	Get account state
GET /accounts/:accountId/details	Get account details
GET /accounts/:accountId/transactions/:txHash	Get transaction details
GET /ft-contracts/:contractId/accounts/:accountId/balance	Get the balance of all the fungible tokens owned by the account and the contract
GET /ft-contracts/:contractId/meta	Get fungible token metadata
GET /ft-contracts/:contractId/total-supply	Get the total supply of fungible tokens
GET /nft-contracts/:contractId/list	Get list of NFTs in a given contract
GET /nft-contracts/:contractId/total-supply	Get the total supply of non-fungible tokens
GET /nft-contracts/:contractId/metadata	Get non-fungible token metadata
GET /nft-contracts/:contractId/tokens/:tokenId	Get info about a nft token
GET	Get list of NFTs in a given contract for owner

/nft-contracts/:contractId/accounts/:accountId/list	
GET /nft-contracts/:contractId/accounts/:accountId/supply	Get the number of NFTs owned by an account and a given contract
GET /contracts/:contractId/login-url	Generate a link to get restricted access to an account
POST /contracts/transaction-url	Generate a link to confirm a transaction
POST /contracts/deploy	Deploy the specified contract
POST /contracts/view	Call the “view” method of a specific contract
POST /contracts/call	Call the “call” method of a specific contract
GET /docs	OpenApi

To use the server, you must have the Node.js framework installed and a NEAR account. In the environment variables (.env file) you need to set the Account ID and the private key for the account and the type of network (mainnet/testnet). This account will be used to create new accounts as child accounts, as well as to call the view methods of contracts used on the server.

To get a balance of fungible tokens, the contract passed in the parameters must support the [NEP-141](#) and [NEP-148](#).

To get a list of NFTs and their number, the contract must support the [NEP-181](#).

UE NEAR PLUGIN API

UE NEAR Plugin contains the following blueprint callable functions:

Function	Description
SendCreateAccountRequest	Create a new child account
SendAccountBalanceRequest	Get the account balance
SendAccountStateRequest	Get the account state
SendAccountDetailsRequest	Get the account details (authorized apps)
SendAccountFTBalanceRequest	Get the balance of fungible tokens of a certain contract located on the user's wallet
SendFtMetadataRequest	Get the FT contract metadata
SendFtTotalSupplyRequest	Get the total supply of fungible tokens
SendAccountNFTRequest	Get the list of non-fungible tokens for the account
SendAccountNftSupplyRequest	Get the supply of non-fungible tokens for owner
SendNftListRequest	Get the list of all non-fungible tokens in the contract
SendNftTotalSupplyRequest	Get the total supply of non-fungible tokens
SendNftMetadataRequest	Get the NFT contract metadata
SendNftTokenInfoRequest	Get info about a specific NFT
SendDeployContractRequest	Deploy contract to the master account
SendDeployContractRequest	Invoke View contract function
SendCallFunctionRequest	Invoke Call contract function

Login	Creates a key pair, generates and opens a link to the Near wallet, after a successful login, the accountId is returned.
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Also contains the following structures to save the received information:

Structure	Property	Type
FAccountBalanceStruct	Total	FString
	StateStaked	FString
	Staked	FString
	Available	FString

FAccountAuthorizedAppStruct	ContractId	FString
	Amount	FString
	PublicKey	FString

FAccountDetailsStruct	AuthorizedApps	TArray<FAccountAuthorizedAppStruct>
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FAccountStateStruct	Amount	FString
	BlockHash	FString
	BlockHeight	int32
	CodeHash	FString

	Locked	FString
	StoragePaidAt	int32
	StorageUsage	int32

FCreateAccountRequestStruct	Name	FString
	Amount	FString

FCallFunctionArgsStruct	AccountId	FString
	SecretKey	FString
	ContractId	FString
	Method	FString
	Params	FJsonObjectWrapper
	AttachedGas	FString
	AttachedTokens	FString

FViewFunctionArgsStruct	ContractId	FString
	Method	FString
	Params	FJsonObjectWrapper

FDeployContractRequestStruct	FileName	FString
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FFtBalanceStruct	Balance	FString
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FFtMetadataStruct	TokenName	FString
	Spec	FString
	Name	FString
	Symbol	FString
	Icon	FString
	Reference	FString
	ReferenceHash	FString
	Decimals	int

FFtTotalSupplyStruct	Balance	FString
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FGetAccountNftRequestStruct	ContractId	FString
	AccountId	FString
	FromIndex	FString
	Limit	FString

FGetNftListRequestStruct	ContractId	FString
	FromIndex	FString
	Limit	FString

FLoginUrlStruct	LoginUrl	FString
	SecretKey	FString

FNftContractMetaStruct	Spec	FString
	Name	FString
	Symbol	FString
	Icon	FString
	Reference	FString
	ReferenceHash	FString
	BaseUri	FString

FNftListStruct	NftTokens	TArray<FNFTMetadataStruct>
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FNFTMetadataStruct	Title	FString
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	Description	FString
	Media	FString
	Copies	int32
	MediaHash	FString
	IssuedAt	int32
	ExpiresAt	int32
	StartsAt	int32
	UpdatedAt	int32
	Extra	FString
	Reference	FString
	ReferenceHash	FString

FNftSupplyStruct	NftSupply	FString
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FNftTokenStruct	TokenId	FString
	OwnerId	FString
	Metadata	FNftMetadataStruct

	ApprovedAccountIds	TMap<FString,int>
	Royalty	TMap<FString,int>

FAccountNFTSrucl	AccountNftTokens	TArray<FNFTMetadataStruct>
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These functions and structures can be used in blueprints to provide the required functionality.