CTX-IP-Tools
User Guide

Contents

Versions

Document Revisions

The following revisions have been made to this document

Date	Revision	Notes
29/10/2018	0.1	First Draft

Module Versions

The following revisions have been made to this document

Date	Revision	Notes
29/10/2018	1.0	Creation of: • Check IP in Subnet • Classful Netmask to CIDR Notation • Check Subnet Overlap • Get nth IP • Get Subnet Details • Get x IPs

Preface

About this Manual

This document is a user guide for the CTX-IP-Tools module.

Audience

The audience for this document is those wanting to understand how to use CTX-IP-Tools module.

Related Material

Document
CTX-IP-Tools – Deployment Plan
CTX-IP-Tools.studiopkg

Abbreviations used in this Document

OCI   Orchestration Communication Interface

CIDR   Classless Inter-Domain Routing

Requirements

The CTX-IP-Tools module requires the following:

- Cortex PowerShell OCI

- PowerShell v5

Instructions for how to install these are included in the deployment plan.

Integration

Integration with Third-Party Systems

We have used a selection of libraries available in PowerShell to perform the functionality in the CTX-IP-Tools module.

Integrating with Existing Infrastructure

None Required.

1 IP-Tools-CIIS-Check-IP-In-Subnet

1.1 Overview

This subtask will return true or false based on whether an IP belongs to a subnet or not.

Exceptions will be raised if:

- There is an error executing the PowerShell script

1.2 Inputs

Input Variables	Type	Description
CIIS_i_CIDRIP	Text	IP of subnet. e.g. 192.168.0.1
CIIS_i_CIDR	Text	Netmask in CIDR notation. e.g. 24
CIIS_i_IP-Address	Text	IP address to check. e.g. 192.168.0.2
CIIS_i_Connection-Properties (Optional)	Structure	Contains connection properties. e.g. { "Host": "<Host Name>", "Port": "<Port>", "Domain": "<Domain>", "Username": "<Username>", "Password": "<Password>" }

1.3 Outputs

Output Variables	Type	Description
CIIS_o_Result	Text	True if IP in subnet otherwise false.
CIIS_o_Error-Structure	Structure	Structure containing details of errors (if any).

2   IP-Tools-CNTCN-Classful-Netmask-to-CIDR-Notation

2.1   Overview

This subtask will convert from a classful netmask to CIDR notation.

Exceptions will be raised if:

- There is an error executing the PowerShell script

2.2   Inputs

Input Variables	Type	Description
CNTCN_i_Classful-Netmask	Text	e.g. 255.255.32.0

CNTCN_i_Connection-Properties (Optional)	Structure	Contains connection properties.
		
		e.g.
		
		{
		
		"Host": "\<Host Name>",
		
		"Port": "\<Port>",
		
		"Domain": "\<Domain>",
		
		"Username": "\<Username>",
		
		"Password": "\<Password>"
		
		}

2.3   Outputs

Output Variables	Type	Description
CNTCN _o_Result	Text	Text containing the CIDR notation netmask.
CNTCN_o_Error-Structure	Structure	Structure containing details of errors (if any).

3   IP-Tools-CSO-Check-Subnet-Overlap

3.1   Overview

This subtask will determine if two subnets overlap given two subnets in CIDR notation.

Exceptions will be raised if:

- There is an error executing the PowerShell script

3.2   Inputs

Input Variables	Type	Description
CSO_i_CIDRIP1	Text	IP of the first subnet. e.g. 192.168.0.1
CSO_i_CIDR1	Text	Netmask of the first subnet e.g. 24
CSO_i_CIDRIP2	Text	IP of the second subnet. e.g. 192.168.02
CSO_i_CIDR2	Text	Netmask of the first subnet e.g. 28

CSO_i_Connection-Properties (Optional)	Structure	Contains connection properties.
		
		e.g.
		
		{
		
		"Host": "<Host Name>",
		
		"Port": "<Port>",
		
		"Domain": "<Domain>",
		
		"Username": "<Username>",
		
		"Password": "<Password>"
		
		}

3.3 Outputs

Output Variables	Type	Description
CSO_o_Result	Text	Can be "subnets-overlap" if subnets overlap, "Subnets-Do-Not-Overlap" if there is no overlap, "IP-and/or-CIDR-are-not-of-the-correct-format" if the CIDR IP or CIDR are of the incorrect format or a raw error message if there are any error records.
CSO_o_Error-Structure	Structure	Structure containing details of errors (if any).

4   IP-Tools-GNI-Get-nth-IP

4.1   Overview

This subtask returns the nth IP in a given subnet. The first usable IP within the subnet is at position 0 and the last usable IP is at subnet number of hosts – 1.

⚐   Example: on a 192.168.0.0/30 subnet, position 0 will return IP 192.168.0.1, and position 1 will return IP 192.168.0.2

Exceptions will be raised if:

- There is an error executing the PowerShell script

4.2   Inputs

Input Variables	Type	Description
GNI_i_CIDRIP1	Text	IP of the first subnet. e.g. 192.168.0.1
GNI_i_CIDR1	Text	Netmask of the first subnet e.g. 24
GNI_i_IP-Position	Text	Position of IP to be returned in Subnet.

GNI_i_Connection-Properties (Optional)	Structure	Contains connection properties.
		
		e.g.
		
		{
		
		"Host": "<Host Name>",
		
		"Port": "<Port>",
		
		"Domain": "<Domain>",
		
		"Username": "<Username>",
		
		"Password": "<Password>"
		
		}

4.3   Outputs

Output Variables	Type	Description
GNI_o_Result	Text	IP in nth position in Subnet. If there are not enough hosts in the subnet then "Not-enough-hosts-in-given-subnet" will be returned. If CIDRIP or CIDR notation are of the incorrect format then "IP-and/or-CIDR-are-not-of-the-correct-format" will be returned.
GNI_o_Error-Structure	Structure	Structure containing details of errors (if any).

5   IP-Tools-GSD-Get-Subnet-Details

5.1   Overview

This subtask will return details for a given subnet. These details include the subnet mask, network address, broadcast address, first IP, last IP, total hosts and wildcard bits.

Exceptions will be raised if:

- There is an error executing the PowerShell script

5.2   Inputs

Input Variables	Type	Description
GSD_i_CIDRIP	Text	IP of the first subnet. e.g. 192.168.0.1
GSD_i_CIDR	Text	Netmask of the first subnet e.g. 24
GSD_i_Connection-Properties (Optional)	Structure	Contains connection properties. e.g. { "Host": "<Host Name>", "Port": "<Port>", "Domain": "<Domain>", "Username": "<Username>", "Password": "<Password>" }

5.3   Outputs

Output Variables	Type	Description
GSD_o_Result	Text	Contains the subnet mask, network address, broadcast address, first IP, last IP, total hosts and wildcard bits for a given subnet.
GSD_o_Error-Structure	Structure	Structure containing details of errors (if any).

6   IP-Tools-GXI-Get-X-IPs

6.1   Overview

This subtask will return x IPs given a starting IP address and number of IPs to return. If the maximum IP is reached, then the function will loop over and start from 0.0.0.0. The first IP returned is the first IP in the subnet.

Exceptions will be raised if:

- There is an error executing the PowerShell script

6.2   Inputs

Input Variables	Type	Description
GXI_i_Start-IP	Text	Starting IP address
GXI_i_IPs-To-Return	Text	Number of IPs to return from starting IP
GSD_i_Connection-Properties (Optional)	Structure	Contains connection properties. e.g. { "Host": "<Host Name>", "Port": "<Port>", "Domain": "<Domain>", "Username": "<Username>", "Password": "<Password>" }

6.3   Outputs

Output Variables	Type	Description
GXI_o_Result	List	Contains a list of the IPs.
GXI_o_Error-Structure	Structure	Structure containing details of errors (if any).