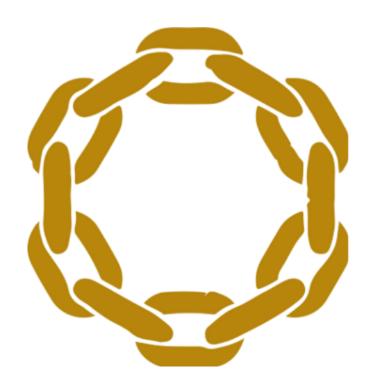# The Citadel System

Testing Phase 2

Phase 2: Kingsroad

This document includes a set of test cases to guide you in testing your project. These tests are not exhaustive, but they are designed to cover most of the scenarios described in the project statement.

For the second phase of the project, you should implement the connections between the different Maester processes you create. These processes should be able to communicate with each other using the communication protocol to forge alliances and send trade offers. Important note: All of the following commands must be non-blocking.

Actions should display relevant logs in the console to indicate the execution status to the user at all times. You have plenty of examples in the project statement.

MAESTER PROCESS:

ACTION	RESULT
Sends a PLEDGE to a Realm (You are the ORIGIN Realm)	Sends a message (TYPE 0x01) to that Realm either directly or through a hop. After sending the PLEDGE message, you will start a 2 minute timeout. If you don't receive a response in those 2 minutes, the PLEDGE will be discarded.
Receives a PLEDGE from another Realm (You are the DESTINATION Realm)	If the checksum is correct, send an ACCEPT or REJECT message (TYPE 0x03) to the origin of the petition. If you accept the pledge, you will be able to communicate with this Realm directly from now on (unless it becomes inactive).
Receives a PLEDGE from another Realm (you are <u>not</u> the DESTINATION nor ORIGIN Realm)	Reroutes the message to the DESTINATION Realm using your routing table.
Receives a REJECT from a	It doesn't turn that Realm

PLEDGE petition (you are the ORIGIN Realm)	into an ally, therefore keeping its IP and Port unknown. (If you send another PLEDGE to this Realm, it has to go through the necessary hops once again).
Receives an ACCEPT from a PLEDGE petition (You are the ORIGIN Realm)	You turn that Realm into an ally, therefore saving its IP and Port. (When you send trade offers you can now send them directly instead of with hops).
Receives a message with an incorrect checksum	You send a NACK message (TYPE 0x69) to the sender of that frame.
Receives a NACK message (TYPE 0x69)	Simply discard the message.
Sends a product list request (You are the ORIGIN)	If the destination Realm is an ally, you send a message (TYPE 0x11) requesting for their products.
Receives a product list request (You are the DESTINATION)	If the ORIGIN is an ally, you send a message (TYPE 0x12).
Finalizes execution (CTRL + C)	Send a message to all allied Realms (TYPE 0x27) and close all sockets/free all memory.
Receives a message (TYPE 0x27) from an allied Realm	You will only mark this Realm as inactive, not remove it from your allied list.