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| Drexel University Graduate Thesis |
| Intent Recognition Engine (IRE) |
| User’s Guide |

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# Common Terms

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| Term | Definition |
| Blueforce | Player or Allied army |
| Redforce | Hostile player |
| Capability | Unit, building, or upgrade |
| Research | Upgrades of unit or building capabilities purchased through an already built building |
| Strategy | A discrete collection of Capabilities in particular ratios designed to gain dominance over an opposing player with a bias towards land, hybrid, or air combat |

# Overview

The Intent Recognition Engine (IRE) is a new component in the NOVA StarCraft AI. IRE enhances NOVA’s current capabilities by reasoning on partial observability of enemy capabilities in order to infer likely strategies. These inferences are then passed to the NOVA strategy manager for preparing effective counter-strategies prior to a full-scale attack.

# Purpose of this Document

The purpose of this document is to outline how to deploy and interact with the IRE-enabled version of NOVA. Details include configuration options, starting the system, finding generated log files, expected behavior during execution, and frequently asked questions.

# Software Requirements

* StarCraft Brood War v1.16.1
* BWAPI v4.2.0

# Building the System

1. Open the nova.sln solution file in Visual Studios 2017
2. Right-click the SCTechTreeManager project and select “Set as StartUp Project”
3. Select “Build” from the File menu and click on Build ScTechTreeManager

# Configuring the System

To force IRE to be more prescriptive in selecting counter-strategies:

1. Navigate to StrategySpace.h in Visual Studio or a file browser
2. Change NUM\_STRATEGY\_NODES to a smaller number (default 5)
3. This will cause IRE to be more strict in considering potential enemy strategies which will result is more specific counter-strategy recommendations

To change the path to the strategy DOT files:

1. Navigate to StrategyReader.cpp
2. At the top of the file, edit the <RACE>\_STRATEGY\_PATH string
3. All DOT files in the directory (and sub-directories) will now read from the new path

# Starting the System

Starting the System in NOVA:

1. Simply Launch NOVA through Chaos Launcher as normal

Starting the System in Isolated Mode:

1. Build and the system as described above.
2. Once the project is built, select “Debug” from the File Menu
3. Select “Start Without Debugging”

# Debugging the System

A DOT file is generated at system close representing the current belief state of the enemy resources located in “Strategies/Observed/<RACE>-Strengthened.dot” and can be used to check whether the system was properly observing and inferring enemy capabilities.

In addition, console output is provided during execution when running in Isolated Mode.

# Expected Behavior

## Running as part of NOVA:

## Running in Isolated Mode:

# FAQs