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| **Practical Kanban Guidance** |
| **Hands-on Lab (HOL)** |
|  |
| 2012-07-05 |
| **Visual Studio ALM Rangers** |
| **Microsoft Corporation** |

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# Acronyms

This guide uses the following common acronyms:

| **ACRONYM**  WIP | **DESCRIPTION**  Work in Progress |
| --- | --- |
| HOL | Hands-on Lab |
| TFS | Microsoft Visual Studio Team Foundation Server.  Microsoft change management software for software development. Components include work item tracking, source code control, policy support and notifications, and report generating capabilities. |

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# Introduction

## Overview

This HOL is focused on creation and configuration of your kanban process using the Microsoft Kanban 1.0 process template.

## Visual Studio ALM Rangers

Visual Studio ALM Rangers is a special group with members from the Visual Studio Product group, Microsoft Services, Microsoft Most Valued Professionals (MVP) and Visual Studio Community Leads. Their mission is to provide out of band solutions to missing features and guidance.

This guide targets the Microsoft “200-300 level” users of Visual Studio 2010 and Visual Studio 2012. The target group is considered as intermediate to advanced users of Visual Studio 2010 and Visual Studio 2012 and has in-depth understanding of the product features in a real-world environment. Parts of this guide may be useful to the Visual Studio novices and experts but users at these skill levels are not the focus of this content

## HOL Overview

The Focus on this HOL is show you how to configure your kanban process, including all process steps that you have defined. You will also set the Work In Progress (WIP) limits for each process step.

The software and hardware prerequisites are explained in the next topic.

## Prerequisites

To complete this hands-on-lab walk-through you need the following environment:

* A Team Foundation Server environment with the Microsoft Kanban 1.0 process template installed.
* A team project created from this process template.

## Paths

The HOL refers to the working directory as **<HOL\_PATH>** in this document, which by default refers to the following path on Rangers VMs: **\HOL\Practical Kanban Guidance.**

## Suggested Focus and Time Map

If you are intending to follow the Hands-on-Lab (HOL) step-step use these times as a guideline. If, however, you are intending to investigate each step in detail, you should double the times, at a bare minimum.

|  |  |  |
| --- | --- | --- |
| Topic | Duration in minutes | Page |
| Tba | 10 min | 10 |
| TOTAL | **? min** |  |

*We wish you a pleasant and interesting journey!*

# Context

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In this step, we examine the new work items and view our sample Kanban process.

### Work Items

The Kanban Process Template provides the following Work Item Types:

1. **Card**. This is the unit of work that is tracked through your software development process. A Card represents value demand or failure demand on your team. You can specify a type of Card. By default the following Card types are provided, although you can customize the card types by changing the Kanban Card Types global list.
   1. **Work Task**. This represents demand on your team for work that has value for your customer (value demand).
   2. **Team Task**. This represents demand on your team for work that has intangible value. Typically these includes work such as setting test environments, refactoring some code etc.
   3. **Problem**. This represents demand on your team to rectify a problem (failure demand).
2. **Task.** This is the unit of work that the Card is decomposed into. These Tasks are not displayed on the Kanban Board.
3. **Process Step**. This Work Item Type is used to define information about the steps in your process. In particular this is where the WIP limits and order are defined for each step of your process.
4. **Bug**. Used to track bugs.
5. **Shared Step**. Used to define a reusable set of test steps.
6. **Test Case**. Defines a test case.

**Kanban Process**

For this lab we are going to define a sample Kanban process with a number of process steps. We want our board to look like this.



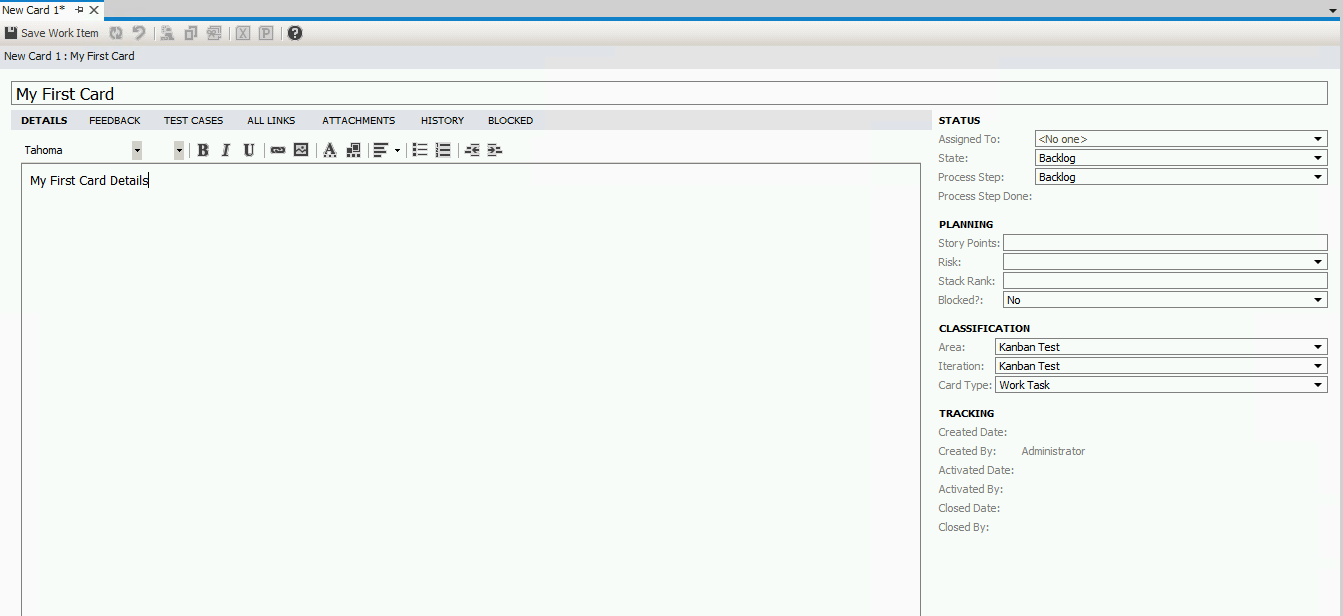
There are a number of linear steps in our process which starts with Backlog and completes with the Closed process step. The start and end states have no queue associated with them. All other In Progress states have a configurable queue. The Kanban states map onto the work item states.

# Create a Card

We will now add a card to the Kanban board and place it in the initial starting process step.

1. Open Team Explorer by selecting the View menu and then the Team Explorer menu item within Visual Studio
2. Click Work Items, click New Work Item, and then select Card
3. Enter the card title – My First Card
4. Enter the card details – My First Card Details
5. Notice the Card Type field is set to the default “Work Task”
6. Notice the Kanban State field is set to the default “Backlog”. This is the initial starting state
7. Notice the other available fields on the work item including Risk and Story Points
8. Save the work item by pressing Ctrl + S
9. Close the card

The card should look like the screenshot below



# Create more cards

There are three different types of card, Work Task, Team Task and Problem.

1. Following the instructions in Step 2 : Create a Card and create at least 2 instances of each type. Change the Card Type field to choose between a Work or Team task or problem. Notice that there is a Stack Rank field on the card. This is the relative priority of each card. Give each card a different stack rank value. These values will drive the order that the cards display on the Kanban board.

# Viewing the Kanban board

We will now view the board to see our first card in the Design process step. The board report collects data from the Data Warehouse so there will be a short delay of up to 2 minutes between adding your cards and seeing them on the report. Note that this is due to the Data Warehouse being configured to refresh periodically.

1. From the home screen in Team Explorer, select Reports.
2. Expand Project Management and double click the Kanban board report.
3. Change the Team project dropdown to your Team Project name.
4. Select the default area and iteration.
5. Run the report.
6. Your report should look something like the screenshot below. Note the different colors for each card type. You can see the default states along the top of the report (Backlog, Analyze, Implement, Test, Review and Complete) We will customize these states later in the lab.

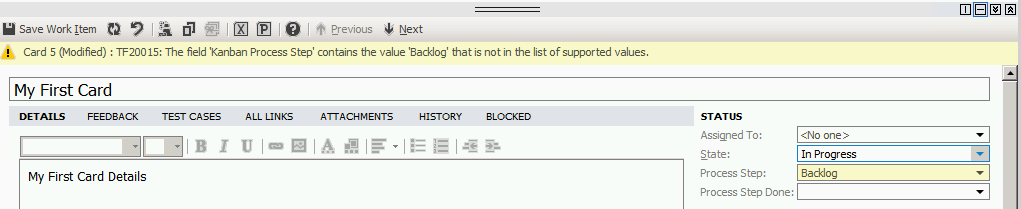


1. Clicking on the id at the top left corner of any card will open the work item.

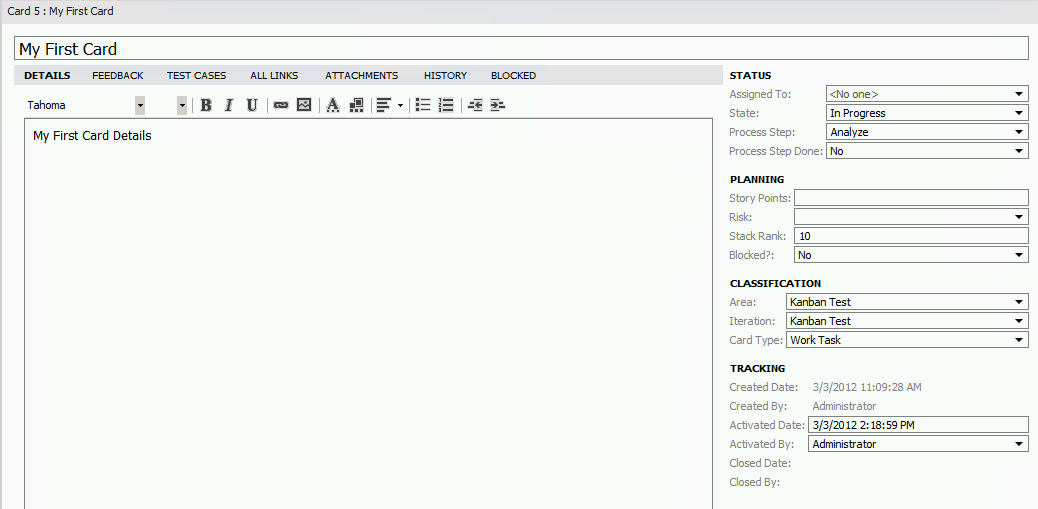
# Moving a Card

We will now move a card from Backlog into the next process step – Analyze

1. Open Team Explorer.
2. Go to the Work Items pane and open the Shared Queries folder and then Planning folder.
3. Double click the Backlog query to open a list of cards currently on the backlog.
4. Double click one of the cards.
5. Change the state field to In Progress. This will display a warning message about the Kanban State as shown on the screenshot below.

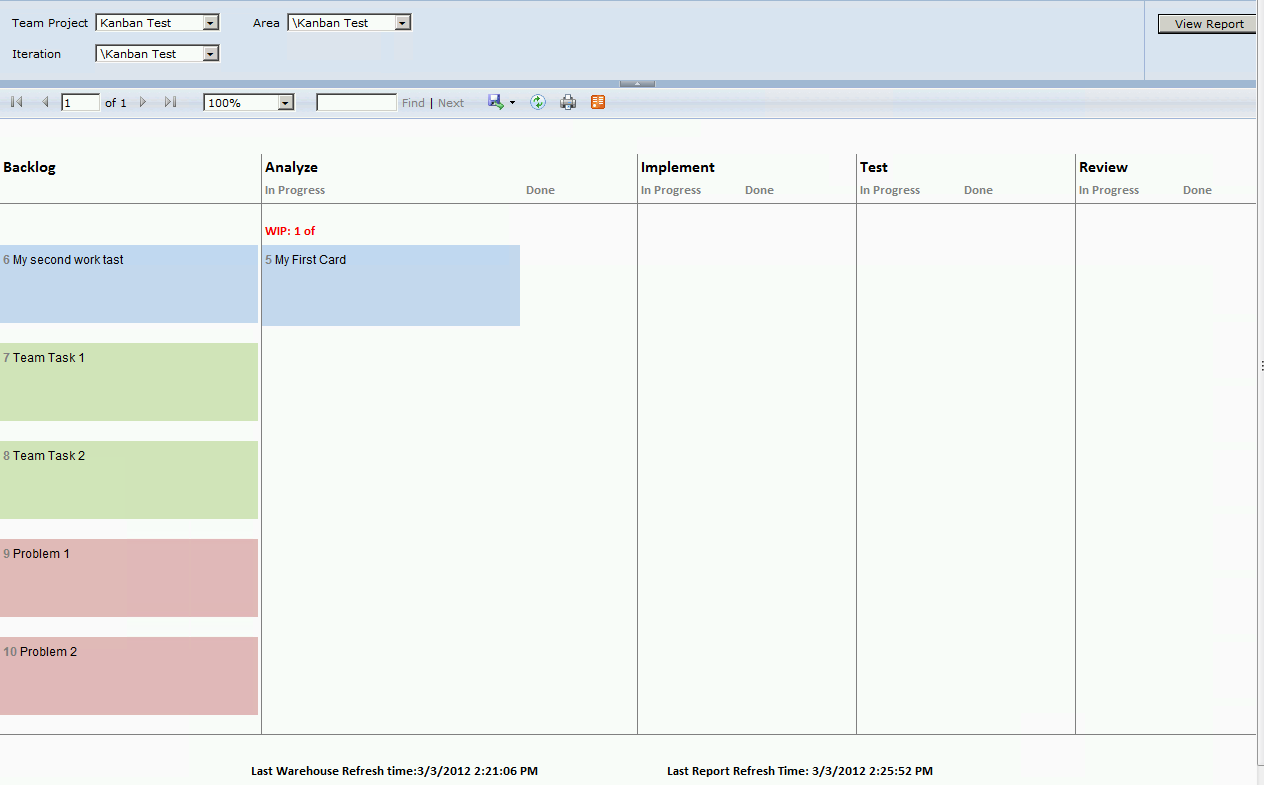


1. Change the Process Step field to Analyze – The warning will clear.
2. Save the card.
3. We have now moved this card from Backlog to Analyze.
4. The card should now look like the screenshot below.



# View the Kanban Board

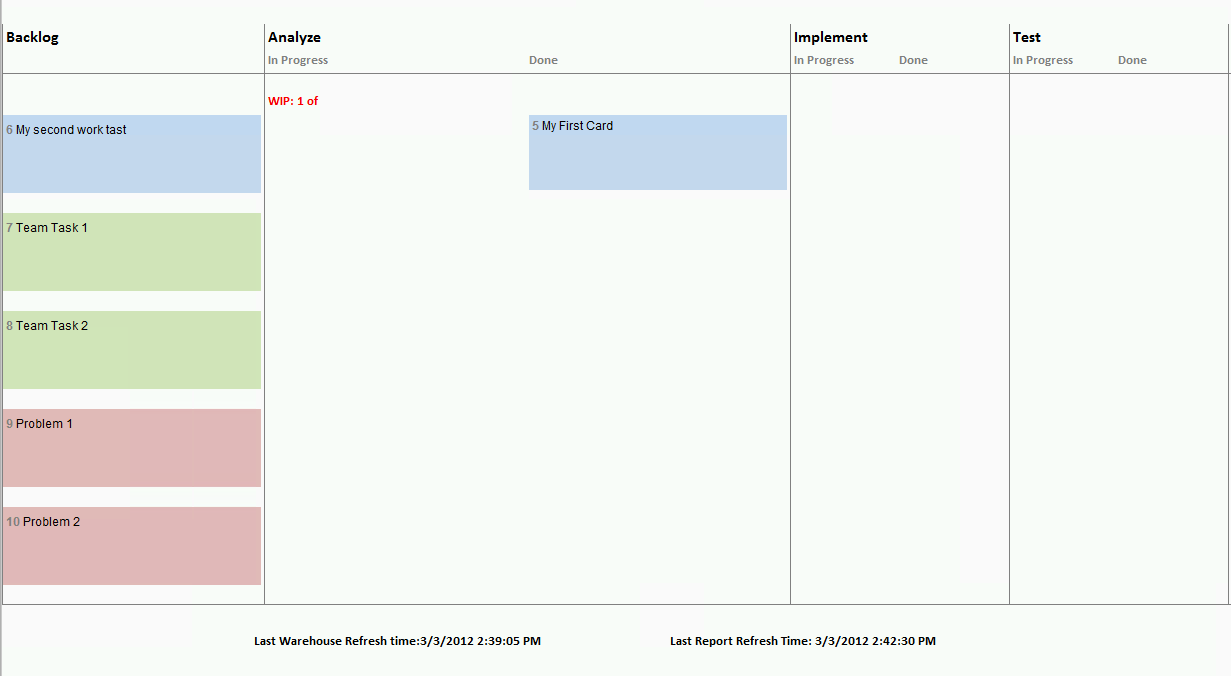
Follow the instructions in Step 4 : Viewing the Kanban board to see the changes to the Kanban board. The board should look something like the screenshot below. You will see that the Card that we moved to the analyze column is in the In Progress state. In the next lab we will complete this card, signaling that it is ready to be pulled into the Implement column.



# Completing a Process Step

When the card being worked on is finished and is ready to be pulled into the next process step, the Kanban Queued field needs to be updated. We will now complete the Analyze process step for our card.

1. Open Team Explorer, click Work Items and open the Shared Queries and Work folders.
2. Double click the ‘In Progress Cards’ query to open a list of cards currently being worked on.
3. Select the card that was updated in Step 5 : Moving a Card.
4. Double click the card to open the work item.
5. Change the Process Step Done field to Yes. This indicates that the card is ready to be pulled into the next process step.
6. Save the work item.
7. Following the instructions in Step 4 : Viewing the Kanban board, run the Kanban board report to see the results. the Kanban Board and see the results. The board should look similar to the screenshot below.



The card has moved from within the Analyze column. It was in the ‘In Progress’ state, but we have updated it to the ‘Done’ state signaling that it is ready to be pulled into the Implement column.

# Move more Cards

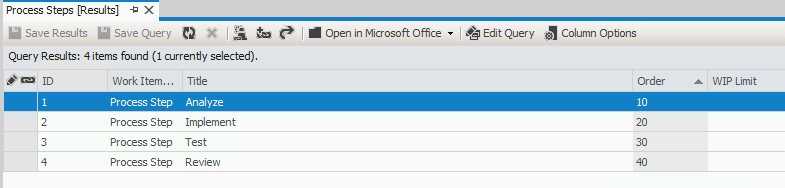
We will now move all of the cards to different columns on the board.

1. Following the instructions in Step 2 : Create a Card and Step 5 : Moving a Card move all of the cards on the board to different columns. This will give you the feeling of interacting with the cards, and provide some data for the Cumlulative Flow report that we will run later.
2. Following the instructions in Step 4 : Viewing the Kanban board to see the results of your changes.

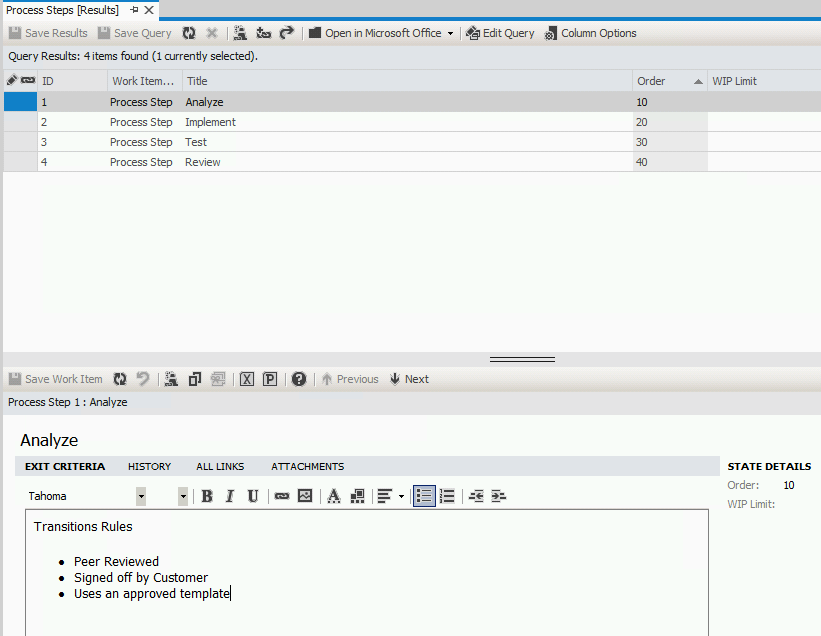
# View the default Process Steps

The Kanban process template ships with a some pre-defined states. To view these states:

1. Open the Team Explorer.
2. Click Work Items.
3. Expand the Process Folder.
4. Double Click the Process Steps query. This will show the results below.



The process steps contain exit criteria. This is used to specify the transition rule that allows a card to move into the next state.

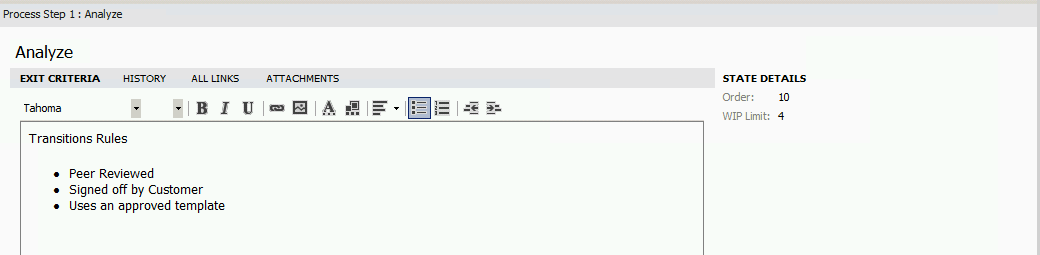


The order value is used to determine how that process step fits into the overall process. The lowest order is at the start of the process.

# Set the WIP Limits

The default process steps do not have any WIP limits set. To set the WIP limits.

1. Run the Process Steps query from Team Explorer
2. Select the Analyze Process Step
3. Change the WIP limit to 4 as shown in the screenshot below



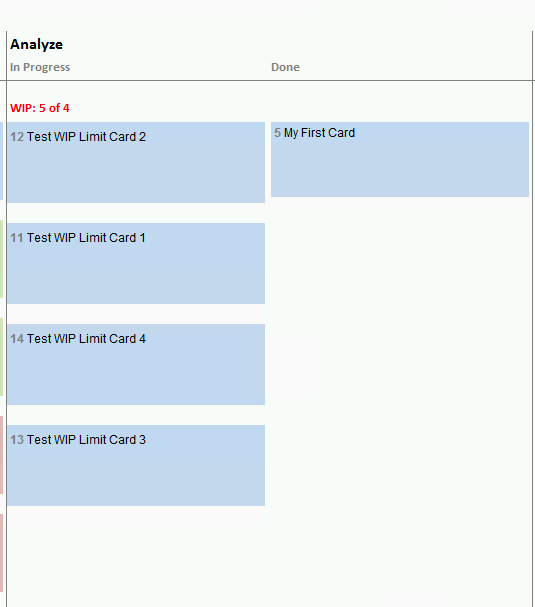
1. Save the Process step
2. Add WIP limits of your choice to the remaining process steps and save your changes
3. Following the instructions in Step 4 : Viewing the Kanban board, you will see that the WIP limits are shown underneath each column, except the Backlog and Complete columns. An example screenshot is shown below.



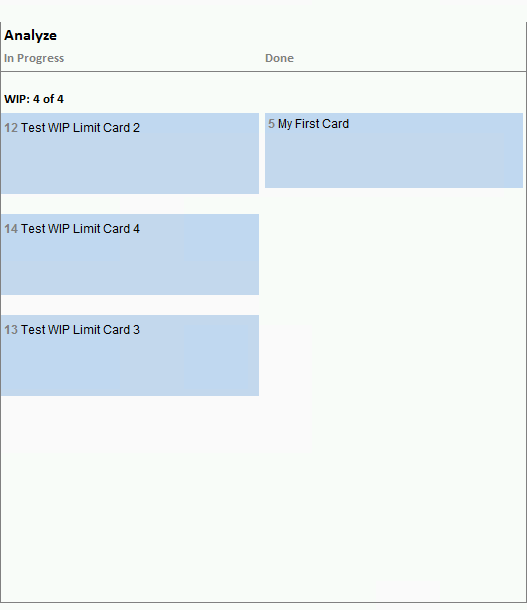
# Violating a WIP Limit

In this step we will add to much work to a specific state and violate the WIP limit.

1. Following the instructions in Step 2 : Create a Card, create 5 cards of any type.
2. Following the instructions in Step 5 : Moving a Card, move those cards into the Analyze state.
3. Following the instructions in Step 4 : Viewing the Kanban board. The Analyze column should show the WIP count in red. This highlights the fact that the column is overloaded. The screenshot below illustrates this. You can see from this screenshot that the limit applies to the count of cards in both the ‘In Progess’ and ‘Done’ states within a Process Step.



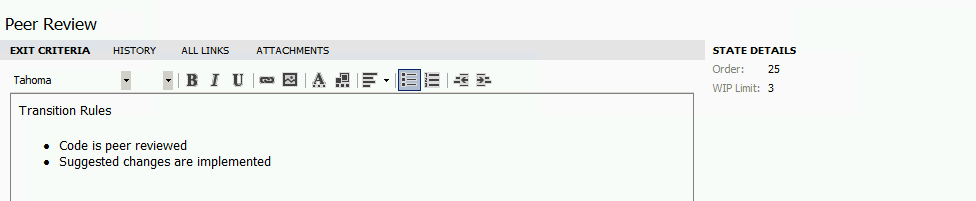
1. Following the instructions in Step 7 : Completing a Process Step, complete enough cards to be under the limit.
2. Following the instructions in Step 5 : Moving a Card, move enough cards from the Analyze state to the Implemenent state for the Analyze state to be under its WIP limit.
3. Following the instructions in Step 4 : Viewing the Kanban board, run the report. The WIP limit notification should not be red, showing that the Analyze column is now conforming to it’s WIP limit. The screenshot below illustrates this.



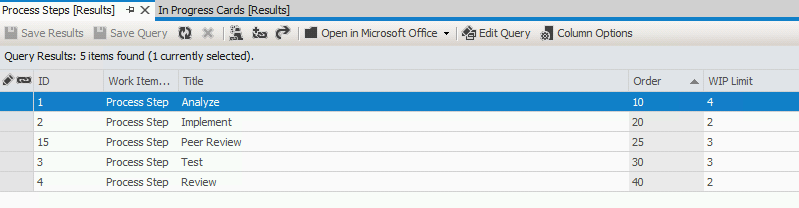
# Add a Process Step

In order to customize the Process Steps to fit your own process you will need to edit the default steps and perhaps add new ones. We will now add a new process step between Implement and Test.

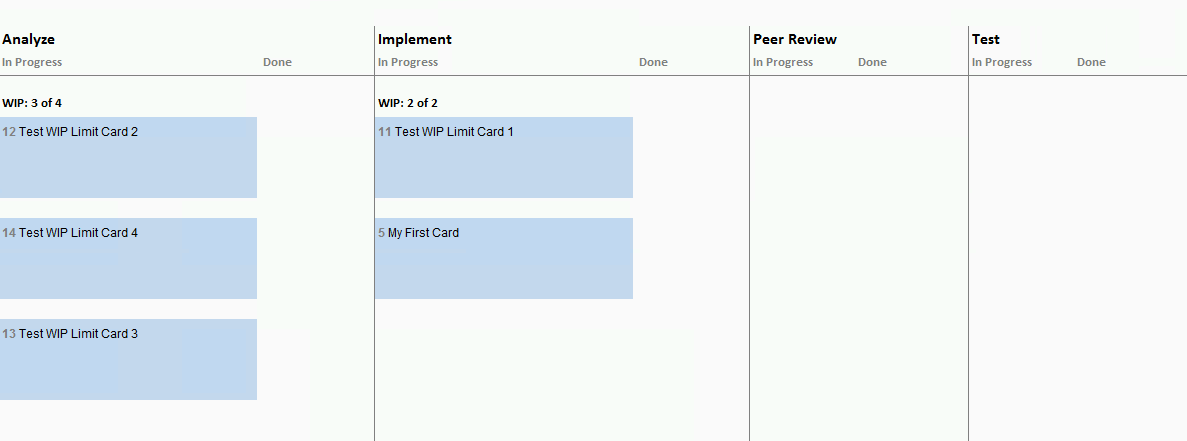
1. In Team Explorer, click Work Items , New Work Item and select Process Step.
2. Fill out the values shown in the screenshot below:



1. By giving this Process Step an Order of 25 we are placing it between the Implement (20) and Test (30) Process Steps.
2. Save the Process Step. Re run the Process Steps query.
3. The Proces Steps query should now output the data shown in the screenshot below. Our new process step has been added.



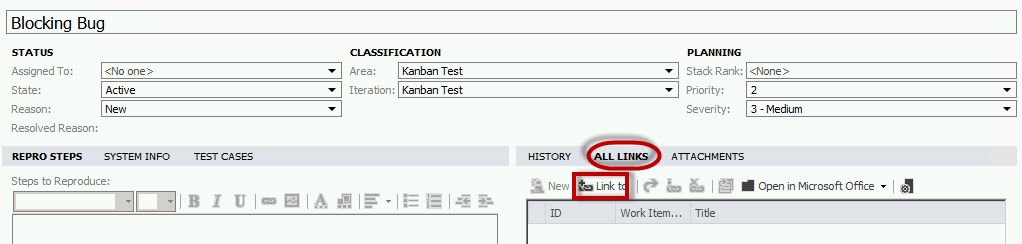
1. Following the instructions in Step 4 : Viewing the Kanban board, re-run the Kanban Board report. This will now show the new column. This can be seen in the screenshot below.



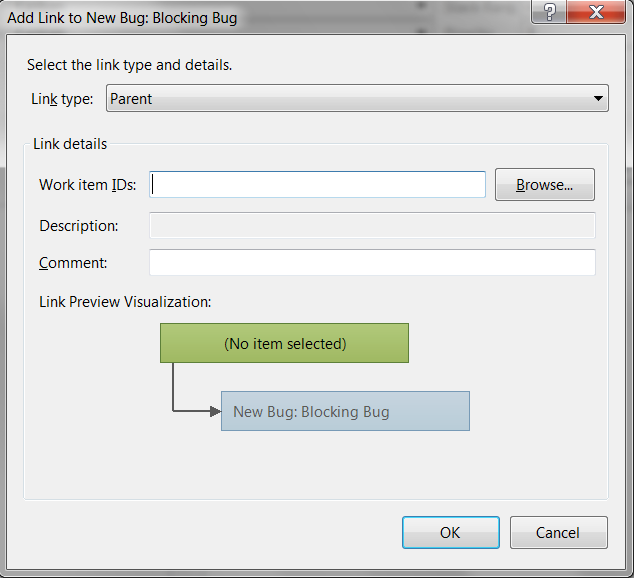
# Create a Bug

Bugs can be associated with Cards. In this step we will create a new bug and associate it with a card. We will also mark the card as blocked.

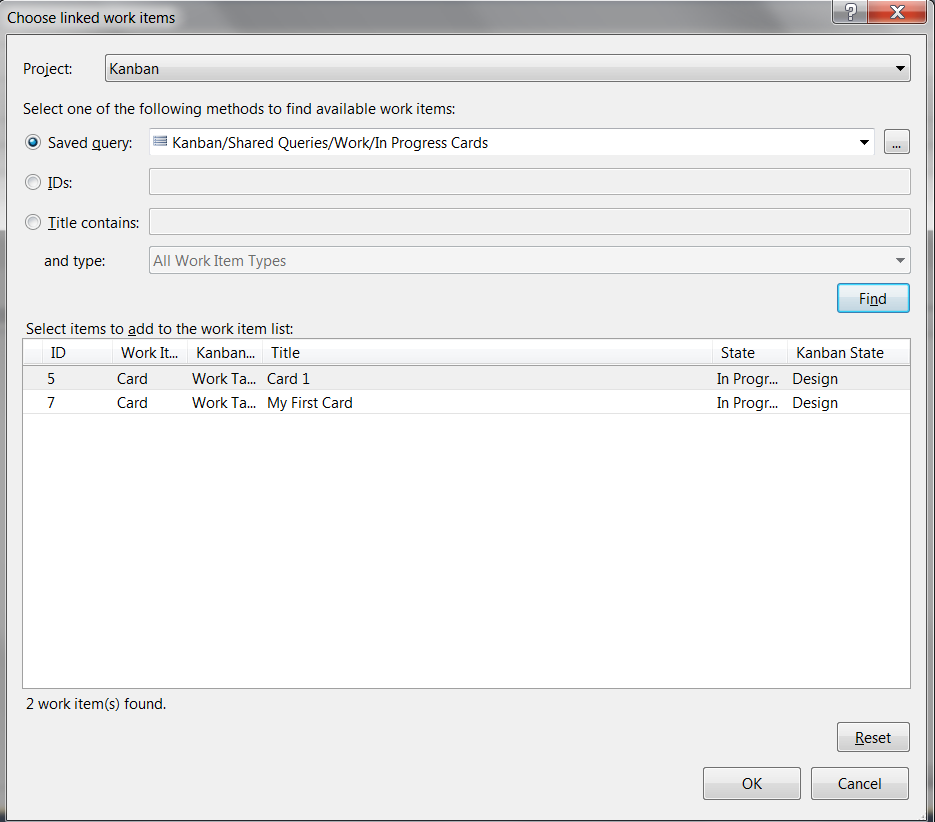
1. Open Team Explorer.
2. Click Work Items, New Work Item, Bug.
3. Change the Bug title to “Blocking Bug”.
4. Click on the “All Links” button to show the links pane.
5. Click on the “Link to” button. This is shown on the screenshot below.



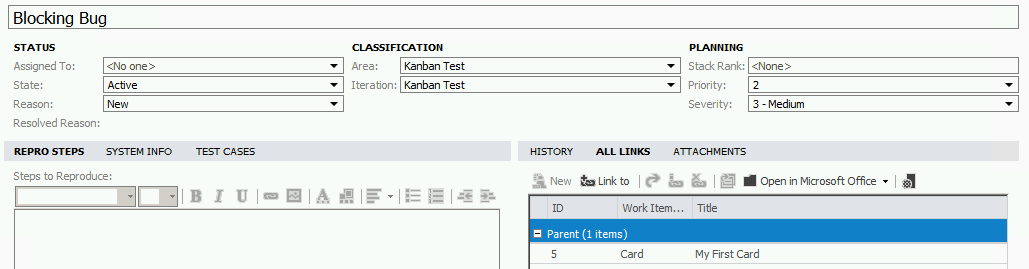
1. In the Add Link to New Bug dialog, change the Link Type to “Parent”



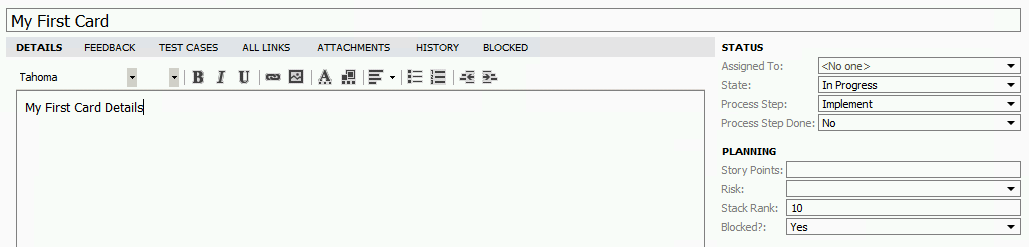
1. Click the “Browse” button
2. From the Saved Query option select Shared Queries -> Work -> In Progress Cards to select from all cards in progress.
3. Click the “Find” button



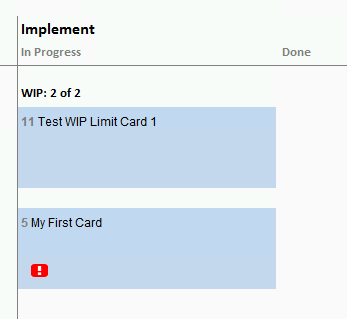
1. Select a card.
2. Click the “OK” button.
3. Click the “OK” button on the Add Link to New Bug dialog.
4. The Bug now has a link to the Kanban card as show on the screenshot below.



1. Save the Bug.
2. Open Team Explorer, click Work Items and open the Shared Queries and Work folders.
3. Double click the In Progress Cards query to open a list of cards currently being worked on.
4. Select the Card called “My First Card” and double click to open it.
5. Change the Blocked status to Yes as shown in the screenshot below:



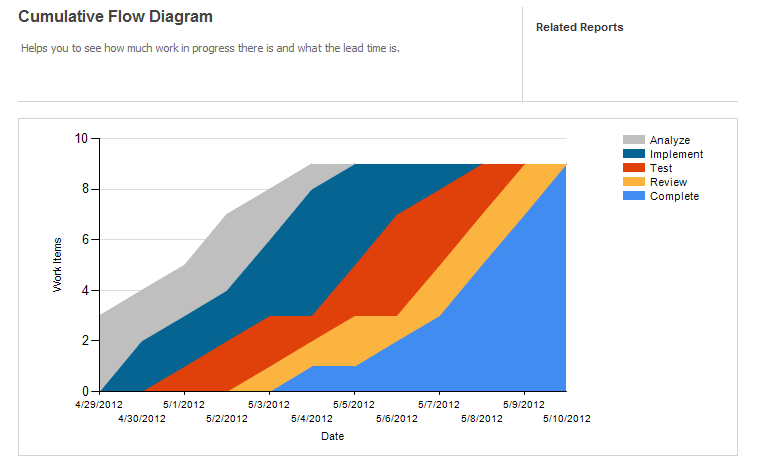
1. Following the instructions from Step 4 : Viewing the Kanban board, run the Kanban report. The card that was marked as blocked will have a red exclamation mark to indicate that it is blocked. The screenshot below highlights this.



# The Cumulative Flow Diagram

The cumulative flow diagram shows the history of cards on the board. This report is useful for finding blockages in your process. A big part of the cumulative flow diagram is its ability to visualize how close you are to completion of a project, and where bottlenecks or waste appears in the process.

1. From Team Explorer, go to Reports.
2. Expand the Project Management folder and double click the Cumulative Flow Diagram report.
3. An example report is shown below.



# References

## General Links

#### Visual Studio ALM Rangers Site

<http://msdn.microsoft.com/teamsystem/ee358786.aspx>

<http://www.tinyurl.com/almrangers>

#### Team System Widgets

<http://www.teamsystemwidgets.com>

#### Videos for Team System

<http://msdn.microsoft.com/vsts2008/bb507749.aspx?wt.slv=topsectionsee>

#### MSDN Site

<http://msdn.microsoft.com/default.aspx>