

The Practice subdivision

Before doing these exercises:

Check the following menus:

<u>Menu</u>	<u>Settings</u>
<u>Random > Random Defect detector Parameters:</u>	Every parameters must be set to “0”.
<u>Random > Random Switch and Signal Failures:</u>	Every parameters must be set to “0”.
<u>Random > Random Train Parameters:</u>	Every parameters must be set to “0”. Startup delay must be set to “No” (Leave the “Yes” checkbox unchecked).
<u>Options > Alert parameters:</u>	Every alarms must be checked. All bells set to “0”. Late station departure set to “5” minutes
<u>Options > Function activation:</u>	Every checkbox must be checked.

How to get access to an exercise:

First, be sure to complete very exercise in sequence. Technics learned in an exercise may be mandatory to complete another exercise.

Under the name of an exercise, there is the name of a week day and an hour. In Train Dispatcher, press the Start button. A window will appear. Choose the day of the week and the time corresponding to the exercise you want to do.

Read the description part of the exercise before starting the simulation in Train Dispatcher. Sometime, you may be asked to perform some tasks before starting the simulation. In this case, select the exercise first (Press Start, choose the day of the week and the hour corresponding to the exercise). Do the tasks described in the exercise and then, start the simulation.

Take the time to familiarize yourself with the territory before doing the exercise. Look where are the entrances, the exits, the number of switchs and signals, the platform of the station and the length of blocks.

Techniques:

Data about the track:

To know the name (or number) of a signal, a switch or a piece of track, place the mouse cursor over it (you don’t have to click). Then look in the top status bar.

General note about dispatching: When placing the mouse cursor over a piece of track, notice that all mainline section have roughly the same length on the screen. But they do not have the same length in real life. How this is possible? Just remember one thing: a CTC board (or computer screen) is a representation of the track layout in a diagram style. It is not to scale and does not follow any rules, except one: everything is drawn horizontal. The only verticals lines you may see are called "connectors lines" and no signals or switchs can be drawn over them.

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Check also for the length of sidings. Of course, the part of mainline associated with a siding (the part contained between the two switches of the siding) will always be the same length as the siding (sometime this may not be true, but the difference in length will never be very significative).

Symbols:

A white losange mouted on a pole mean a work area. This is true for many territories, but each author may give a different meaning to this symbol. In the Pratrice subdivision, the meaning of this symbol is a work area. The work area is track immediately under the symbol.

Train status:

To know the status of a train (his speed, his length, the next station and time the train is du, the next work area the train is du and the the time the crew expired), place the mouse cursor over the train.

Manual:

Be sure to carefully read the Manual of Train Dispatcher before doing the exercice. A lot of tips are describes in the exercice, but not all.

Exercices

Clearing the route

Exercise 1: Clearing the signal.

Sunday 00:00

Goal: Learning to clear signals

Description: A train will enter at A1. You must clear the route to make the train exit at C1. After the simulator is started, click on the signal governing the block ahead of the train to make it green. Repeat the process until the track is all cleared to C1.

Exercise 2: Clear the signal with the Entrance signal Technique

Sunday 01:00

Goal: Clearing rapidly signals ahead of a train

Description: A train will enter at A1. You must clear the way to C1. Instead of doing the same technique as exercise 1, you will RIGHT click signal 01. From the menu appearing, you will now select (left mouse button) "Entrance signal". The signal will start to blink. You will now left click signal 13. The route has now cleared from signal 01 (the "entrance" signal of the section you wanted to clear) up to signal 13, but not including this one. You now have to clear it manually by clicking on it.

Note: After you have selected "Entrance signal" in the contextual menu, if you click anywhere else but on signal 13, you will have to start the process over.

Exercise 2A: Clear the signal with the Entrance signal Technique

Sunday 01:00

Goal: clearing rapidly signals ahead of a train, even when the train must be routed away from main line.

Description: repeat exercise 2, but this time, click on signal 07 (to clear from signal 01 up to signal 07). Note how Train Dispatcher has automatically turned switch B1 to route the train. You can now try to clear from signal 07 to signal 13, and watch TD turn switch B3 for you.

Exercise 2B: Clear the signal with the Entrance signal Technique

Sunday 01:00

Goal: clearing signals quickly ahead of a train

Description: This exercise will show you how to clear a block when you don't see or don't know where is the next signal. In the last two exercises, you have seen the "Entrance signal" function has cleared UP TO a signal, excluding the block this signal is governing. Now, re-do exercise 2. Instead of clicking on signal 13, click on signal 14. See what happens. Train Dispatcher has now cleared the block all the way to the exit. This technique is very useful if you want to clear an exit quickly or if you don't know where the next signal (on very complicated and large territory). Right-click the signal you want to clear. Choose "Entrance signal". Then right-click the signal governing the block the train will be on when it will be facing the signal you want to clear.

(example: right-click on signal 01, choose "Entrance signal", and left click on signal 02. This situation is obvious, because the territory is simple, but sometime it is not).

Exercise 3: Clear a signal with the Fleet Technique

Sunday 02:00

Goal: Keeping a block always clear in a direction

Description: Sometime, you want a signal to clear itself automatically. You may have two or more trains following themselves very close or you want to have a block to stay clear in one direction. You must use the Fleet command. During this exercise, two trains will enter the territory very close to each other. First, you clear the route for the first train. Then, you right-click on signal 01. Choose the "Fleet" command. A grey ball will appear above the signal. This means the signal is fleted. Watch the signal clearing itself as soon as the block becomes clear. You must repeat this process on every signal already cleared for the first train (signals 03, 05, 09, 11, 13).

Note 1: To unfleet a signal, simply click on it.

Note 2: It is not necessary to clear the signal prior to fleet it, but it is a safer way to work.

Exercise 4: Clear the signal with the Stack command Technique

Sunday 03:00

Goal: Putting route in the memory of the computer

Description: The stack command is the most widely used technique to get a route clearing itself.

In Train Dispatcher, a stack command can only be established between two consecutive signals. In the exercise, **DO NOT START THE SIMULATION** before all routes are cleared and stacked.

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(Click on the Start button, choose Sunday 03:00 and read the following indications before proceeding further).

First, clear a route from signal 01 to signal 13 (you can clear the exit right now by choosing signal 14 instead of signal 13). This is the route for the first train.

The second train must exit at B1. RIGHT click on signal 01. Choose "Add a stack command". Left click on signal 03. The computer will now confirm the added stack command between both signals.

A small "1" will appear left to signal 01. We will explain this later. Now, repeat the process with signal 03 (stack it with signal 05). Now, stack signal 05 with signal 07. Note the yellow line diverging from the main line to the siding. This shows the stacked route.

Now, stack signal 07 with signal 08. You will notice that the yellow route appear first, then it disappear and the route become cleared (switch B2 has turned).

Let's observe some behaviors of Train Dispatcher...

The stack command between signal 01 and signal 03 is not visible, except for a small 1 near signal 01. This is because you stacked a route "under" occupied or cleared block (the block was not a black line, which indicate a free block).

Only the part between signal 05 and signal 07 which was free appears in yellow. Switch B1 did not turn because a route is already cleared over it.

When you cleared the route between signal 07 and its opposit (signal 08, to clear up to the exit. Refer to exercice 2B), the yellow line briefly appears. The stack was in memory. Then, the computer checked to see if the route was occupied or cleared in a conflicting direction. The answer was no, then the computer cleared the route (and switch B2 was turned) and the stack command was considered done.

Now, start the simulator and watch the first train going to exit C1 and the second train going to exit B1, automatically!

Note on the stack command: You can stack up to five routes for a signal. Example: If you stack from signal 05 to signal 07 three time in a row, then you stack from signal 05 to signal 09 and finally, from signal 05 to signal 07, the first three trains will take the siding, the fourth will go main line and the fifth will take the siding. The number of stack command a signal has in memory is the small number displayed left to it.

To delete a stack command, right click on the signal and choose the stack command you want to delete.

If you fleet a signal with a stack on it, the stack command will not be executed until the signal is unfleeted.

Meeting trains

Of course, trains cannot pass over each other as planes do. On a single track territory, they must meet at specific point. Those points are called "sidings". The following exercises will show you how two trains meet in specific situation.

Exercise 5: Regular meet **Sunday 04:00**

Goal: Having two trains pass around each one.

Description: BEFORE STARTING THE SIMULATION:

Clear the route from signal 01 to signal 07. Do not clear signal 07 itself. This will make the eastbound train to take the siding at "B".

Clear the route from signal 14 to signal 06. Do not clear signal 06 itself (actually you can't because a route has been cleared on the opposite direction).

As you see now, the eastbound will take the siding and the westbound will stay main line.

Now, stack a command from signal 07 to signal 11.

Stack a command from signal 06 to signal 04.

Start the simulation and see what happen...

Both trains has met at B. In this case the situation was ideal: both were short enough to fit in the siding or main line, the trains arrived in time and if you have stacked the routes as indicated in this exercise, the trains didn't even stop!!

Exercise 6: Planning the meet **Sunday 05:00**

Goal: Choosing the good meeting point.

Description:. This is basically the same exercise as exercise 5. This time, the trains will not enter the territory at the same time. It's up to you to choose the appropriate siding to meet. To know when the train will enter the territory, right-click on A1 to schedule of trains arriving at A1. Do the same for C1.

A good meeting point is a point where both trains will not lose too much time. The answer of this exercise is at the end of this document.

Exercise 7: Over siding train **Sunday 06:00**

Goal: Having a train longer than the siding meet another train.

Description: The life is not as perfect as we want! A train may be too long to fit in a siding. During this exercise the westbound train will be too long to fit in siding B. Also, the train will arrive sooner than the eastbound train. You have two options of route:

- 1) Leaving the westbound train aligned mainline. But this way, the tail of the train will block switch B3. When the eastbound train will be completely in the siding, the westbound train will be able to continue his route.
- 2) Putting the westbound train in the siding. But this way, the tail of the train will block switch B3 also. But as soon the eastbound will pass switch B1, the westbound train will be able to continue his route.

This is two different philosophies. Just remember: on most sidings, when a train passes a switch, he must reduce his speed to 15 mph. The train will always respect the speed limit of the switch and you must take that in account. In case 1), only the eastbound train must reduce his speed, the westbound train staying main line. In case 2), it's the westbound train... But if the westbound train is too long to fit in the siding, it may take even longer to run through the siding because it's a long (and heavy) train, taking longer to start to move.

Exercise 8: Over siding trains and planning the meet **Sunday 07:00**

Goal: Managing a meet where a long train is involved

Description: If you have stacked your signals correctly in Exercise 7, train EX7-1 will not stop at all. But sometime you cannot do it. In this exercise, you must choose the right siding for your meet. If you check only time of arrival as in exercise 6 (and don't care about data concerning the trains), you will get a very unpleasing surprise if you repeat this action in this exercise!!

Passenger trains

Exercise 9: Passenger trains **Sunday 08:00**

Goal: Having a passenger running on time and understanding the speed of train versus the number of block cleared ahead.

Description: Passenger train must run on tight schedule. They stop at "Platform" (Rail traffic controller word for station). If a train is not aligned to pass in front of a platform, it will not. And because Train Dispatcher is expecting the train to stop at platform X, the train will not stop at any other platform, because platform X is now behind the train. During this exercise, you just have to clear the eastbound route all the way. Observe how the train act (place your mouse over it and look at the infos bar). The train is programmed with a dwell time for each platform. Dwell time is

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the time a train must stay in front of a station for passenger to board or detrain. Also, note that a passenger train will never depart ahead of his schedule.

If you clear the route BEFORE the train enter the territory, the train will be able to run on his schedule, arriving at the station on time.

If you clear the route RIGHT AFTER has entered the territory, the train will arrive too late at station. This is because a train will not run full speed unless he has at least two block cleared ahead. In the field, if a block is not cleared ahead, the engineer receives a signal “be prepare to stop”, so he reduce his speed. You can see the speed of the train by placing the mouse cursor over it.

Exercise 10: Train running late with a meet

Sunday 09:00

Goal: Manage a late passenger train and a meet with an over siding train in the same time

Description: A passenger train will enter the territory too late to arrive at the station in time. A very long train will also arrive in territory. The difficulty here, is not to add more delay to the passenger train. You must stack a route for the long freight train to go in the siding at B. The freight train has the time to go up to A before the passenger arrive, but if you choose to put the passenger train in the siding at A, you will add more delay to its already late schedule. Remember the stack exercises to “program” the meet and make smooth trains operation.

Crew change

Exercise 11: Crew change

Sunday 10:00

Goal: You must change a train crew.

Description: In the US and in Canada, Federal regulation force train crew to get a rest after an amount of worked hours. In Train Dispatcher, this amount is 12 hours. That is, after 12 hours of work, the crew “expire”. They will park the train no matter where they are and they will go to the nearest motel by taxi!.Train Dispatcher will advise you 2 hours prior to a crew expiration. When you hear the warning, simply click on “Go to Alert” on the top bar to see which train has causes the alarm.

During this exercise, a train will enter the territory with a crew near the end of their working shift. You will hear the alarm.

- 1) Right-click the train and select “Change crew”. A window will appear. You must choose the block number where you want the new crew to go for the change. Choose block number 30. This is the siding at “C”. You may see a block number by placing the mouse over it (block number will be shown in the top status bar).
- 2) Select 10:35 as the changing time. You must always select a time which is at least 30 minute later than the simulation clock when you have right-clicked the train. If the simulation clock is running too fast, by the time you will enter the changing time in the window, the 30 minutes minimum delay will be already expired.

Don’t forget to route the train in the siding at C, because if the train do not meet block number 30 on his way, he will not stop. After the crew has changed, the train will start to move again.

Exercise 11a: Forgotten crew change

Just repeat exercise 11. But this time, let the train aligned mainline. The crew will expire just before leaving the territory. If you let the train aligned main line, you have no choice but to change the crew there (and the train is blocking your mainline). Note that this time, the 30 minutes delay is now 2 hours. This simulation will end before the change occurs.

Merge and split

Exercise 12: Merging trains and “Pass next red signal” command **Sunday 11:00**

Goal: Two trains must merge together.

Description: Sometime, two or more trains must merge together. Merging two trains is simple: the first train must stop. The second train must go until he “hit” the rear of the first train. Then, if you right-click the trains, you will notice a new item in the contextual menu: “Merge train XXX with train YYY”. Select this item and your done! The new train will act as one long train.

The difficulty here is to make the second train run up to the first train. In CTC method, all the signals you see on your screen are “absolute”. A red mean “stop and stay”. But, under some circumstances (such as a stuck signal, which will blue on the screen), the dispatcher may allow a train to pass a red signal. Simply wait for the train to be COMPLETELY stopped at the signal. Right-click it and choose in the contextual menu the item “Pass next red signal”.

Let’s do the exercise: You will have to merge train EX12-1 with EX12-2. EX12-1 will enter at C1. EX12-2 will enter at B1. Clear the route from signal 10 up to signal 04. **Do not clear signal 04 yet.** When train EX12-2 will enter the territory, clear his route from signal 08 to signal 06 D. You will not be able to clear signal 06 D because train EX12-1 is occupying the next block. When train EX12-2 will be stopped at signal 06 D (you will hear the warning), turn switch B1 FIRST and then clear signal 06 D. The train will start to move but it will stop BEHIND train EX12-1. Why the train did stop event if there is no signal? Because as we say at the beginning of

the exercise, you can see only ABSOLUTE signals. On the field, there is also APPROACH signals which you cannot controls, and therefore, you can't see. The train EX12-2 has simply stopped at an APPROACH signal.. Right-click the train EX12-2 and make it pass the next red signal. The train will start to move, but at a very slow speed. This is normal. Leave your mouse pointer over it to see when the train will be stopped (or click the menu "Trains" to see its status). When the train is stopped, right-click the train and choose "Merge train EX12-2 with train EX12-1" command. Clear signal 04 and signal 02 to let the train exit the territory.

*Note: A train made of two trains merged together can always be splitted again using the "Split train" command.

Exercise 13: Split train **Sunday 12:00**

Goal: One train is splitted into two trains.

Description: A train may splitted to make two new trains. The split is always programmed into Train Dispatcher. After a split is done, the two new trains get their own schedule, work places and crew time. The only data remaining from the old train is the length of the two new train being equal to the length of the old.

During this exercise,a train will enter at A1. The train will split on the main line at A. The first part of the train must exit at C1, while the second part must exit at B1. You can use the stack command to program route and thus, saving time. Also, observe which signal you will have to stack.

Note 1: A delay is always programmed when a train is splitted, to simulate the time the crew actually split the cars and couple the new locos to the train. In this case, the delay is 5 minutes.

Note 2: In some territory, the grade may be so steep that a train cannot make without extra power. You will need another set of locomotives to help the first train climb the hill. Trains which need a helper are already programmed in the simulation.

Work trains

Exercise 14: A working train **Sunday 13:00**

Goal: Learn how a train work in a territory

Description: The expression "work train" mean "a train that must leave or take cars the spur track (or siding). A work train, as oppose to a regular train, may also run reverse on a territory.

Sometime, a passenger train may become a train only for the purpose of running in reverse over a short distance of track (if the station is at the end of a dead-end spur, for example). During the exercise, a work train will enter at C1. He will leave some cars at siding B and take some at main line A. Clear all the route first (don't forget to route the train on the siding at B) and place your mouse over the train to see the length of the train change (the new length will appear only when the train will have finished its work and will be ready to go). Note also the time the train takes to do his work. You can access the work schedule of train by right-clicking on it and choosing "Properties" in the contextual menu. A window will appear. Click on the Work schedule tab.

Note: If you do not route the train on the siding at B, the train will pass through, because the main line at B is not considered as a work area. The train will NOT stop at A, even if he is routed on the main line, because the train is expecting to meet the siding at B first. For this reason, it is very important to "study" a new territory before dispatching trains on it, to know exactly where work places are located.

Exercise 15: A working train **Sunday 14:00**

Goal: Learn how a train works in a territory

Description: Basically the same exercise as exercise 14. Except this time, the train is programmed to work at main line A first. Then he will reverse his direction and will work at siding B. You must route the train to Main line A first. Then you can stack a route the train to siding B.

Exercise 16: A working train **Sunday 15:00**

Goal: Learn how a train works in a territory

Description: The same exercise as 14 and 15. But this time, the train will work at siding B, then main line A and he will work again at siding B. The length of the train varies each time.

General note about working trains: The local work schedule is very important. A train may have one hour of work to do on the main line. If you have a passenger time behind him, you can have serious problems. Be sure a working train will not put delay on other schedule sensitive train such as passenger trains.

A train may be too long to enter completely in the siding. He will be blocking the main line and the siding at the same time. Be sure such a train will not add delay on other trains while blocking the main line and the siding at the same time.

Multiple entries

Exercise 17: Multiple entrance / exit
Sunday 16:00

Goal: Learn how a train can enter and/or exit a territory at multiple point

Description: Normally, a train enter a territory at point A and exit at point B. In some cases, such as yards, a train may exit at B and re-enter the territory at C. To make this possible, remember one thing: the trackage you see in Train Dispatcher, is the CTC trackage. Tracks not governed by the dispatchers are not shown. The train can move on these tracks.

When a train re-enter a territory, he may or may not have change his number or its length. In this exercise, a train will enter at A1 and exit at B1. Then, he will re-enter at C1 and exit at A1. The name of the train will be change from EX17 to EX17-2, the crew time and the length of the train will be changed. The type of the train will remain. In this case, the delay is 5 minutes between the time the train as exited at B1 and will enter at C1. This is short delay for the purpose of the exercise, but this delay maybe many hours.

Slow order / work order

Exercise 18: Slow order
Monday 17:00

Goal: Learn how to manage slow order

Description: A slow order can be issued by the track foreman. The reason may be anything, from bad track condition to light repair without the necessity to stop traffic. A slow apply from a location A to a location B. The speed of each type of train is described in the slow order.

You do not have choice to “accept” the slow order. When the slow order become active, an alarm will sound. In the top bar status, you will see on which block or section the slow order is active. You can also see the slow order in the menu Slow Orders.

A slow order may be permanent. This mean the slow order is always active and will never expire.

Exercise 19: Work order
Tuesday 18:00

Goal: Learn how to manage work order

Description: A work order (also called “Block permit”, or “Permit”) in Train Dispatcher is a section of track closed to traffic by a foreman or any other authority. The reasons may be anything, from track maintenance to major rebuilding of switches and track.. The work order is issued by you, the dispatcher. The foreman “request” you the work order 1 minute before the time it need it. You are free to accept, denied or postpone (“Request later”) the time the work order will take place. When a work order is active on a section of track, no more train may be running on this section. If the track is a double track or at the location of a siding, you have a way to run the trains around. But if the work order is on section of main line track in single track territory, be very carefull before accepting the work order. Modify the time and duration of the work order at your convenience.

In this exercice, the work order will be requested 5 minutes after the beginning of the simulation. **DO NOT CLEAR SIGNAL 09 BEFORE YOU GET THE “WORK ORDER” WINDOW POPS UP.** When the work order will become active, you can stack a route over it.

You can redo the same exercice, but this time, clear all the route from A1 to C1 before the work order window pops up.

Normally, you must check with the traffic and take your decision in consequence.

General note about work order: You can always see the pending work order by clicking the menu “Permits”.

You can grant a work order even if there is a route cleared over the section where the work order will take place. The work order will take place only when no route will be cleared over the section. But the time the work will be active still remain (if the work was programmed with a duration of 30 minutes, it will stay active for 30 minute starting at the moment the block or section has become free.). You can see the time still needed to complete the work order by selecting the “Permits” menu.

A light blue work order is a work order that will become active in the next 30 minutes (In this exercice, when the work order window popup, give 18:40 as the starting time and see what happen at 18:10 or when the train will clear the section). You can clear route over this block.

If you choose “Request later”, the message will appear approx. 30 minutes later.

Specials commands

Exercice 20: Emergency commands

Tuesday 19:00

Goal: Learn how to stop a train and correct a mistake.

Description: Did you ever heard this: “Everybody make mistake”?? We sure do. Dispatchers also! You may be in hurry to clear some route and let a train exit to the wrong exit. In real life, crew knows where they are suppose to go and they will advise the dispatcher if the felt they are

routed to the wrong route.. But Train Dispatcher's crews are kind of dumb. They just follow the route you told them to go.

In this exercise, you must first make a voluntary mistake. A train will enter the territory at A1. The train is supposed to exit at C1. **FOR THE MOMENT, ROUTE THE TRAIN TO EXIT B1** (clear signal 01 to signal 07, including signal 07).

Let's suppose that you "realize" your mistake when the train will enter the spur at B (the loco is in the spur, the remains of the train is in the siding). To "correct" your mistake, do the following:

Right-click the train and choose "Stop train Now" command. In some circumstances, you can also choose to stop the train at a particular block.

Right-click the train again. Choose "Reverse direction" command

Clear signal 06 D to allow the tail of the train to go on the main line if necessary. Note: If the end of the train has passed signal 08, you will need to clear it also.

Right-click the train and select "Start movement" command. The train will now start to move at 10 mph.

When the loco has cleared switch B2, right-click the train select "Stop now" command.

Right-click again to select "Reverse direction".

Finally, right-click the train to select "Start movement" command. Throw switch B2 to align the train and make the go up to exit C1, where it should have been in first place.

Conclusion

Detectors...

Train Dispatcher may seem to be a not very challenging game in our world of 3D graphics, 5:1 Dolby Surround sound and two gigabytes games... But this tiny simulator offer more than you might think! The job of dispatcher is a job of planning and quick reaction to not-always expected situations.

The key is to plan your move. And be prepare to change them at the last minute. It is a good idea to play this game with a print out of the track plan with the length of sidings on it, the train schedule and the pending permits.

Do not try to "race the clock" by setting the time multiplier too fast. A very easy simulation may soon become an implayable nightmare. In French we say : "you can smell hot soup". If you expect the situation to become a little too hard to handle, don't hesitate to use a feature real dispatcher don't have, the "stop" button!. Then think and start the game.

Have fun!

Yvan-Martin Lévesque.

Annexe A: The answers

Exercice 6: Make both trains meet at A, with the westbound going mainline.

Exercice 8: trains must meet at siding B. Of course, you will have to make the eastbound train wait for the westbound to enter the territory. You will then accumulate “stop time”. But you don’t have choice. A way to “cheat”, is to clear the route for the eastbound up to the exit, thus preventing the westbound train from entering the territory. This is not recommended for two reasons: 1) The westbound train may be a passenger (and he will be running late), and you just report the problem. 2) This territory is fairly simple. If you have a very long subdivision, you may end with serious trouble, as a lot of trains will now enter the territory in a short lapse of time.