Infor LN Service User Guide for Workload Leveling

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About this document

This guide provides information about the various concepts and processes such as workload distribution, time-based workload leveling and scheduling, available for the Workload Leveling functionality.

Objectives

This document is designed to meet the objectives described below. It is assumed that you already have a understanding of Infor LN Service

- **Understand the following concept**
  Group Planning
- **To perform the following tasks**
  Workload distribution
- Time base and Route based

Document summary

This guide explains the various concepts and processes available in the workload leveling process.

How to read this document

This document is assembled from online Help topics. As a result, references to other sections in the manual are presented as shown in the following example:

For details, refer to Infor LN Service Online Help.

Please refer to the Table of Contents to locate the referred section.

Underlined terms indicate a link to a glossary definition. If you view this document online and you click on underlined text, you jump to the glossary definition at the end of this document.

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Chapter 1
Workload leveling (scheduling)

1

This chapter provides you a brief description of the workload leveling (scheduling).

Workload leveling (scheduling)

For group planning, workload leveling is used to define the number of groups that must be generated for a combination of planning attributes scheduled in parallel. Workload leveling creates multiple groups for one combination of these attributes. For schedule-based workload leveling, the planned start and finish times of the activities are used to distribute the activities across the groups in a group set.

Schedule-based workload leveling comprises of:

- **Selecting the activities**
  Select all the activities for which workload leveling process is to be executed. The selected activities are moved to another group for the workload leveling except:
  - Frozen and firm planned groups
  - Frozen and firm planned activity sets
  - Firm planned activities
- **Sorting the activities**
  Sort the selected activities. The first sort criterion is group set. Within each group set the activities are sorted based on start/finish dates. Activities are sorted, based on:
  - Earliest start time
  - Planned start time
  - Latest start time (calculation of the latest start time of an activity is based on the latest finish, the activity duration, applicable calendar, availability type and the time zone).
  - Planned finish time
  - Latest finish time

Note

If the start date is not specified, the value in this field is defaulted as zero. If the finish date is not specified, the maximum possible value is considered. The activities without a start date are always scheduled first in a plan and activities without a finish date are scheduled last.

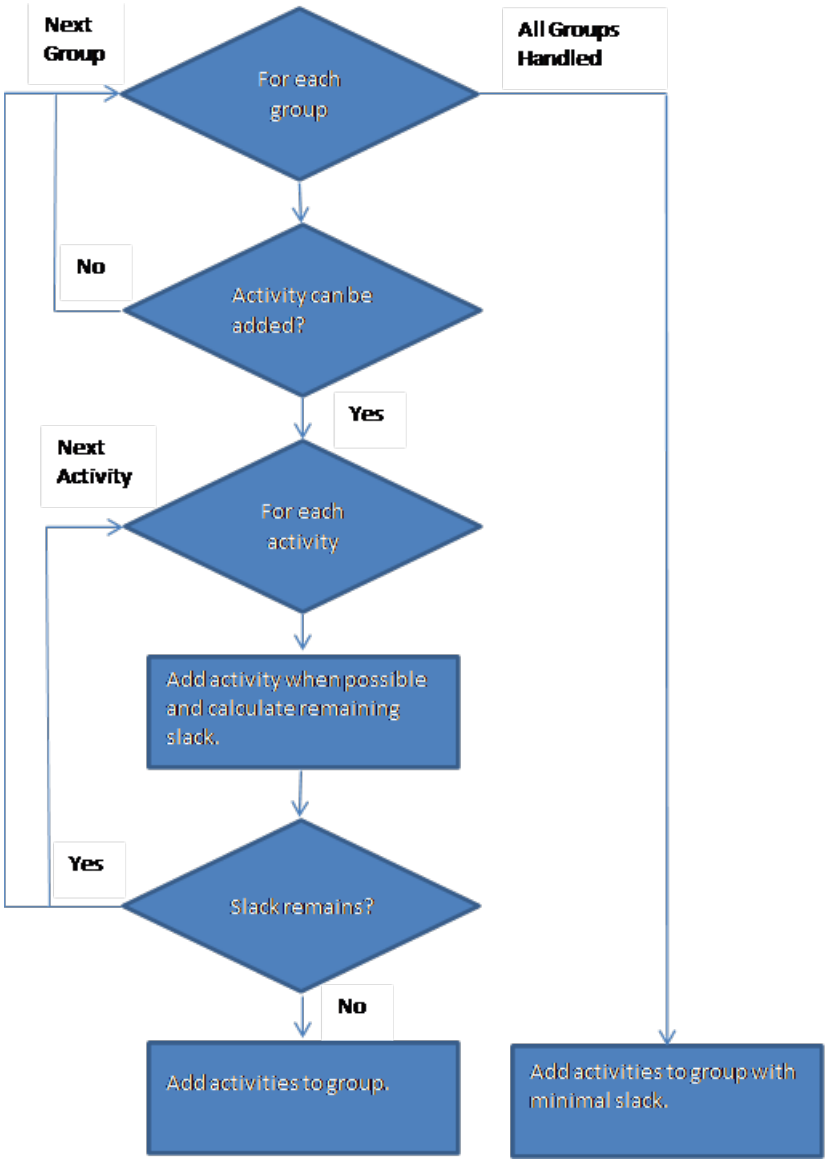
- **Distributing activities over groups**
  The selected activities are distributed across the groups in a group set. Each activity is added to the group with the earliest finish time. The finish time of the group is updated, accordingly. The process continuous until all the activities are added to a group.

  When an activity is shifted or scheduled to an earlier date/time or later date/time, the planned start time and the planned finish time is updated.

Note

If the **Respect Earliest Start Time** check boxes are selected for service order, work order and planned activities in the Resource Planning Parameters (tsspc0101m000) session, an activity can never start before the earliest start time, specified for the activity.

The process of schedule based workload leveling is:



When the **Respect Earliest Start Time** check boxes are selected for the service order, the work order and the planned activities in the Resource Planning Parameters (tsspc0101m000) session, an activity always starts at the latest finish time of the group to which the activity is added. At the time of adding activity to a group, if the earliest start time of an activity is not considered, no slack occurs. After the activity is added, the process continues for the subsequent activities.

When the **Respect Earliest Start Time** check boxes are cleared for service order, work order and planned activities in the Resource Planning Parameters (tsspc0101m000) session, an activity can be started before the earliest start time. Effectively, a slack may occur after adding the activity to a group.

Chapter 2
Time based workload leveling and scheduling

2

This chapter provides you a brief description of the time based workload leveling and scheduling.

Handling Slack

Handling slack is part of the workload leveling process. Slack may occur after adding an activity to a group. When the **Respect Earliest Start Time** check boxes are cleared for service order, work order and planned activities in the Resource Planning Parameters (tsspc0101m000) session, an activity can be started before the earliest start time. Effectively, slack may occur after adding the activity to a group.

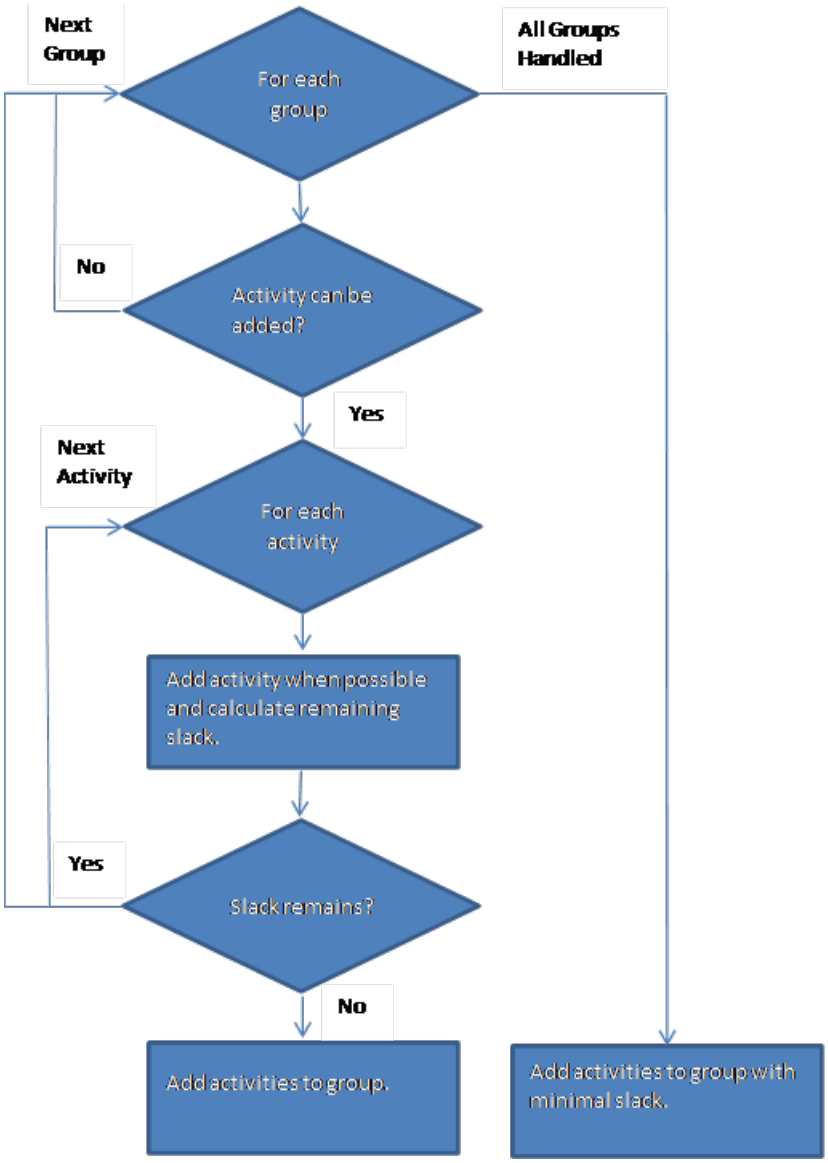
If the respect earliest start time check box is selected, the slack may occur and the slack algorithm is used to assign the activity. The algorithm manages the slack by scheduling activities that are not workload leveled. The slack algorithm is a two step process:

1. Selecting the groups to which the activities are added. The activities must start as early as possible. Therefore activities can be added to only those groups that has finish time earlier than or equal to the earliest start time of the activity.
2. Infor LN implements slack algorithm to minimize the slack for each of the selected groups. All the activities that are not yet workload leveled, are considered and for each activity Infor LN checks if the activities can minimize (partly) the slack. The slack algorithm can be considered complete when:
   - all the activities are checked and no more activities are available to minimize the slack.
   - the slack is completely filled.

Note

The slack calculation is not applicable when the **Sort Method** for service order, work order and planned activities is set to **Earliest Start** in the Resource Planning Parameters (tsspc0101m000) session. The activities are sorted by the earliest start time and hence, no activities are available to fill the slack.

The process of handling slack is:


Next Group
For each group
All Groups Handled
No
Activity can be added?
Yes
Next Activity
For each activity
Add activity when possible and calculate remaining slack.
Yes
Slack remains?
No
Add activities to group.
Add activities to group with minimal slack.

Chapter 3
Re workload level-time based

3

This chapter provides you a brief description of the workload leveling and scheduling-regenerative..

Workload leveling and modification in the plan.

When loading a new plan

Workload leveling can be performed at the time of creating a new plan. The leveling is performed directly after the activities are loaded. With or without workload leveling, the parallel planning attributes define the groups that are created when a new plan is created. However, without workload leveling, only one group is created for each unique combination of parallel attribute values. With workload leveling, a group set and a group are created for each unique combination of parallel attribute values.

When a new plan is created in combination with workload leveling, the created groups may or may not be part of group sets. Possibly, stand-alone groups are also created. So a new plan can include one or more group sets and one or more stand-alone groups.

The modifications that must be implemented are:

- When the group for an activity is available, Infor LN tries to find a matching attribute set for the group that must be used for workload leveling.
  - When matching attribute set for the group is not available, the group set is also not available. Hence, Workload leveling is ignored.
  - When matching attribute set for the group is available, the group set is also available, Hence, Workload leveling must be performed.

Note

All the activities are currently linked to a single group. When all the activities are loaded, workload leveling is performed. The parallel planning attributes are considered for both; the group set and the group.

When adding activities to an existing plan (re-generate plan)

For a plan, the group sets with multiple groups may exist. The new activities are always added to the first group of a group set. So after loading the new activities, the plan includes existing and new activities.

When new activities are added to the existing plan, the workload leveling is different from the workload leveling performed for a new plan. Following are the possible scenarios:

- Group sets with only one group - These group sets are created when the new activities are loaded. The workload leveling process in this scenario:
  - Create new groups.
  - Distribute the activities of each group set across all groups of the group set.
- Group sets with multiple groups to which no new activities are added. No changes are made to these groups.
- Group sets with multiple groups to which new activities are added. The workload leveling process in this scenario:
  - Check whether new groups must be created for the group set.
  - Distribute the new activities in the group set across all groups of the group set.

When adding activities to an existing plan (keep existing plan)

When new activities are added to an existing plan and the existing plan is not modified (except from adding new activities), Infor LN searches for the correct group for this activities. If the group is available, Infor LN must check:

- If the group is part of a group set . The group in the group set with the earliest finish time is selected. The activity is added to this group.
- If, the group is not part of a group set. The activity is added to this group.

When planning the activities

- The activities in an activity set are sorted before the activities are planned. When workload leveling is performed, the activities can be sorted based on the earliest start time, planned start time, planned finish time and latest finish time. When activities are planned, a new sorting option, the latest start time is included. The latest start time of an activity is calculated from the latest finish time and the activity duration. When the activity is planned backwards from the latest finish time, the latest start time is available. **Note**: The calendar, availability type and time zone of an activity is used to calculate the latest start time.
- When the **Respect Earliest Start Time** check boxes for service order, work order and planned activities are not selected in the Resource Planning Parameters (tsspc0101m000) session, slack may occur between two activities. In this case, the slack algorithm must be performed to minimize the slack as much as possible. **Note**: The difference in running the slack algorithm for workload leveling and during the planning process is:
  - For the planning process, the slack is minimized using the activities in the same activity set. As a result, an activity can never be moved to another activity set or another group.

- For workload leveling, the slack is minimized using the activities that are not yet assigned to a group. As a result an activity can be moved to another activity set or another group.