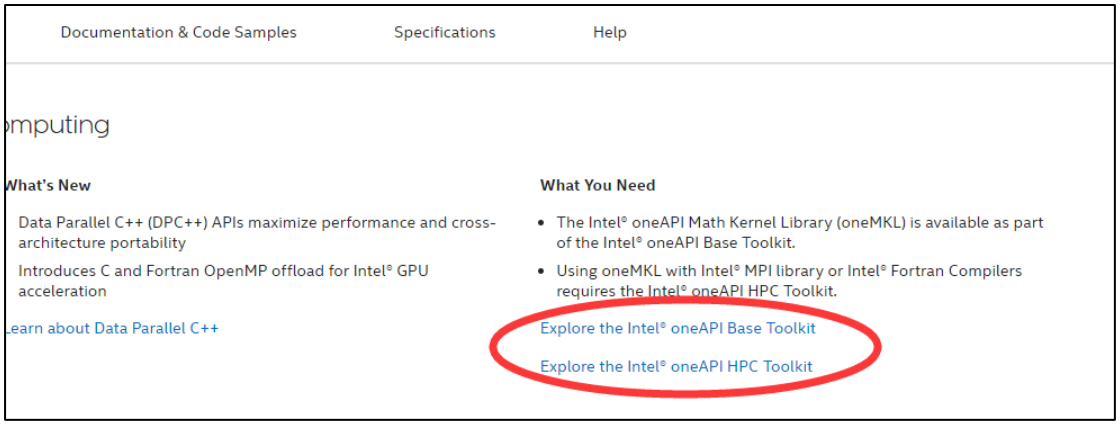
一、在官网

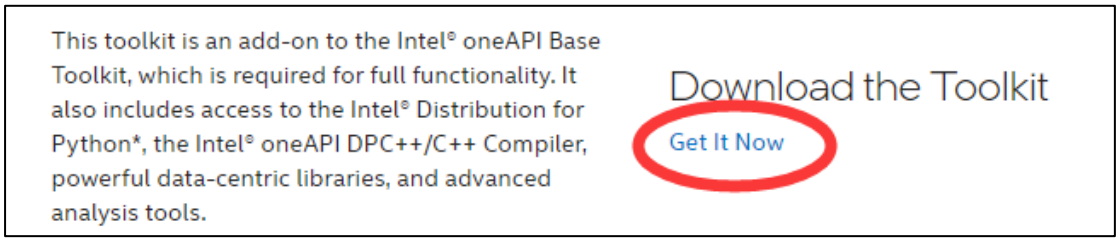
https://software.intel.com/content/www/us/en/develop/tools/oneapi/components/onemkl.html

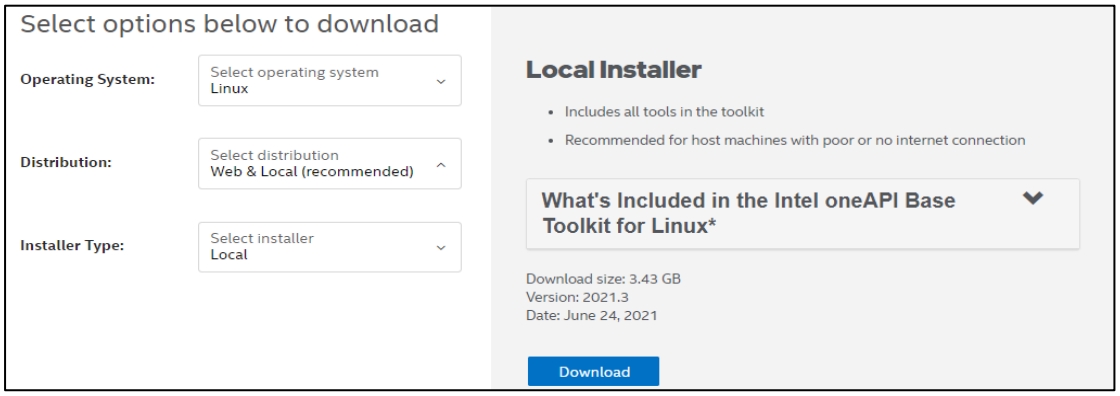
下载 linux 系统版本的两个安装包：

1. Intel® oneAPI Base Toolkit
2. Intel® oneAPI HPC Toolkit

下载过程示意图如下：







二、安装　l_BaseKit_p_2021.3.0.3219_offline

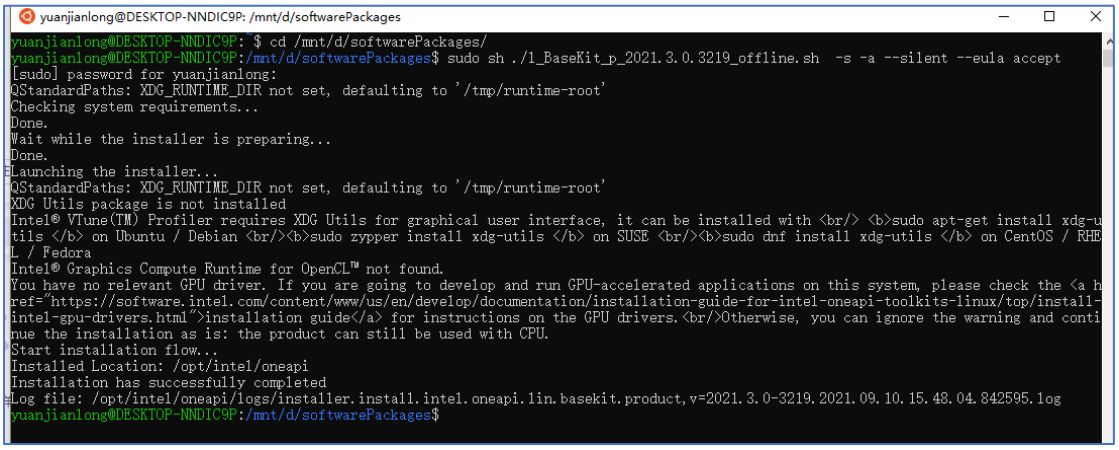
1. 安装必要软件包（每台机子可能有差别）：

```
sudo apt-get install libnss3
sudo apt-get install libnotify4
sudo apt-get install libgtk-3-0
sudo apt-get install xdg-utils
sudo apt-get install libgbm1
sudo apt-get install libglib2.0-bin
```

sudo apt-get install libatspi2.0-0

2. 界面提示安装方法: sudo sh l_BaseKit_p_2021.3.0.3219_offline
3. 命令行(非界面)提示安装方法教程:
   https://software.intel.com/content/www/us/en/develop/documentation/installation-guide-for-intel-oneapi-toolkits-linux/top/installation/install-with-command-line.html#install-with-command-line
4. 命令为: sudo sh l_BaseKit_p_2021.3.0.3219_offline.sh -s -a --silent --eula accept

4．安装成功会显示如下图的信息，如果显示 failed 则重启计算机再尝试安装。



三、安装 l_HPCKit_p_2021.3.0.3230_offline.sh

1. 界面提示安装方法: sudo sh l_HPCKit_p_2021.3.0.3230_offline.sh
2. 命令行(非界面)提示安装方法教程:
   https://software.intel.com/content/www/us/en/develop/documentation/installation-guide-for-intel-oneapi-toolkits-linux/top/installation/install-with-command-line.html#install-with-command-line
3. 命令为: sudo sh ./l_HPCKit_p_2021.3.0.3230_offline.sh -s -a --silent --eula accept
4. 安装成功会显示如下信息，如果显示 failed 则重启计算机再尝试安装。

四、设置环境变量

1）source ./opt/intel/oneapi/setvars.sh

显示如下信息：

```
yuanjianlong@DESKTOP-NNDIC9P:/$ source ./opt/intel/oneapi/setvars.sh

:: initializing oneAPI environment ...
   -bash: BASH_VERSION = 4.4.20(1)-release
:: advisor -- latest
:: ccl -- latest
:: clck -- latest
:: compiler -- latest
:: dal -- latest
:: debugger -- latest
:: dev-utilities -- latest
:: dnnl -- latest
:: dpcpp-ct -- latest
:: dpl -- latest
:: inspector -- latest
:: intelpython -- latest
:: ipp -- latest
:: ippcp -- latest
:: itac -- latest
:: mkl -- latest
:: mpi -- latest
:: tbb -- latest
:: vpl -- latest
:: vtune -- latest
:: oneAPI environment initialized ::
```

2）在终端输入：vi ~/.bashrc

3）在底部加上环境变量语句：

export INTEL_PATH=/opt/intel/oneapi/mpi/2021.3.0

export PATH=$PATH:$INTEL_PATH/bin

4）保存并退出~/.bashrc

5）环境变量生效，执行：

source ~/.bashrc

mpicc

6）检查是否安装成功，在终端输入 mpirun，显示：

```
yuanjianlong@DESKTOP-NNDIC9P:/$ mpirun
Usage: ./mpiexec [global opts] [local opts for exec1] [exec1] [exec1 args] : [local opts for exec2] [exec2] [exec2 args] : ...

Global options (passed to all executables):

  Global environment options:
    -genv {name} {value}             environment variable name and value
    -genvlist {env1,env2,...}        environment variable list to pass
    -genvnone                        do not pass any environment variables
    -genvall                         pass all environment variables not managed
                                         by the launcher (default)

  Other global options:
    -f {name}                        file containing the host names
    -hosts {host list}               comma separated host list


Local options (passed to individual executables):

  Other local options:
    -n/-np {value}                   number of processes
    {exec_name} {args}               executable name and arguments


Hydra specific options (treated as global):

  Launch options:
    -launcher                        launcher to use (ssh slurm rsh ll sge pbsdsh pdsh srun lsf blaunch qrsh fork)
    -launcher-exec                   executable to use to launch processes
    -enable-x/-disable-x             enable or disable X forwarding

  Resource management kernel options:
    -rmk                             resource management kernel to use (slurm ll lsf sge pbs cobalt)

  Processor topology options:
    -bind-to                         process binding
    -map-by                          process mapping
    -membind                         memory binding policy

  Other Hydra options:
    -verbose                         verbose mode
    -info                            build information
    -print-all-exitcodes             print exit codes of all processes
    -ppn                             processes per node
    -prepend-rank                    prepend rank to output
    -prepend-pattern                 prepend pattern to output
    -outfile-pattern                 direct stdout to file
    -errfile-pattern                 direct stderr to file
    -nameserver                      name server information (host:port format)
    -disable-auto-cleanup            don't cleanup processes on error
    -disable-hostname-propagation    let MPICH auto-detect the hostname
    -localhost                       local hostname for the launching node
    -usize                           universe size (SYSTEM, INFINITE, <value>)

Intel(R) MPI Library specific options:

  <option> -help                     show help message for the specific option

  Global options:
    -aps                             Intel(R) Application Performance Snapshot profile
    -mps                             Intel(R) Application Performance Snapshot profile (MPI, OpenMP only)
    -gtool                           tool and rank set
    -gtoolfile                       file containing tool and rank set
    -hosts-group {groups of hosts}   allows to set node ranges (like in Slurm* Workload Manager)

  Other Hydra options:
    -iface                           network interface to use
    -s <spec>                        redirect stdin to all or 1,2 or 2-4,6 MPI processes (0 by default)
    -silent-abort                    do not print abort warning message
    -nolocal                         avoid running the application processes on the node where mpiexec.hydra started
    -tune {binary file}              defines the name of binary tuning file
    -print-rank-map                  print rank mapping

Intel(R) MPI Library, Version 2021.3  Build 20210601 (id: 6f90181f1)
Copyright 2003-2021 Intel Corporation.
```

或者在终端输入：ifort -v

```
yuanjianlong@DESKTOP-NNDIC9P:/$ ifort -v
ifort version 2021.3.0
yuanjianlong@DESKTOP-NNDIC9P:/$
```

Created by Jianlong Yuan

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