

Step1: Cell partitioning with the METIS tool

Result 1: Mapping relationship between each cell ID and its corresponding process ID

Step2: Search receiving cell IDs and receiving process IDs with the sequential search method

Result 2: The arrays of receiving cell IDs and sending process IDs for each process

Step3: Sort receiving cell IDs with the quicksort method

Result 3: The array of sorted receiving cell IDs

Step4: Ascertain sending cell IDs and sending process IDs with collective communications

Result 4: The arrays of sorted sending cell IDs and sending process IDs

Step5: Create a distributed graph communication topology through the corresponding MPI interface

Result 5: A distributed graph communication topology

Step6: Implement data exchange through the distributed graph communication topology